TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SUMMARY OF MONITORING AND TESTING PROGRAMS IN ACCORDANCE WITH CONSENT DECREE 83CV5357

2019 Annual Master Report

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September 2019

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TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

LIST OF FIGURES AND TABLES

APPENDICES

TOWN OF OYSTER BAY
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2019 Annual Master Report

PREFACE

RTP Environmental Associates, Inc. (RTP) has prepared this annual summary report (Annual Report) of various air, soil gas, and landfill gas monitoring programs associated with the Old Bethpage Solid Waste Disposal Complex (OBSWDC) for the Town of Oyster Bay (Town) conducted in 2019. At present, there are seven (7) individual programs, conducted in accordance with Consent Decree 83CV5357, that are performed by RTP or the Town. The various OBSWDC monitoring programs have been modified over the years to accommodate both regulatory requirements as well as changing site conditions. These include the requirements of the 6NYCRR Part 360 Operating Permit Special Conditions (including permit renewals), the historical presence of landfill gas (LFG) in adjacent properties and structures, the subsequent phased construction of a LFG collection and control system (GCCS) to control off-site gas migration, the completion of the landfill capping and closure system, the requirements of the site Consent Decree 83CV5357 (1988), and additional correspondence between the Town and New York State Department of Environmental Conservation (NYSDEC). Specifically, the Consent Decree stipulates that:

> "*…the Town will conduct the monitoring program described in the Lockwood, Kessler and Bartlett April 1987 report entitled "1986 Annual Report: Summarizing the Status of Landfill Gas Monitoring Programs and the Establishment of the Zero Percent Gas Migration Limitation at the Old Bethpage Landfill", to be amended as necessary. In addition, the Town will conduct the Supplemental Gas Monitoring Program set forth in Attachment 2.*" (LKB, 1987)

In this report, Section 1.0 summarizes the varying requirements for monitoring at the site over the years, the facilities constructed to mitigate areas of concern and control offsite gas migration, and the modifications to the gas monitoring program to support both site conditions and facilities. Section 2.0 discusses the activities associated with each program or survey. Section 3.0 provides a summary of programs as conducted in 2019. Section 4.0 provides recommendations for future monitoring and operations.

Most of the historic information in this report has been provided by Lockwood, Kessler & Bartlett, Inc. (LKB), the engineer of record for the Town, on the OBSWDC and associated activities. RTP has been contracted to perform certain tasks required by the Consent Decree and the Part 360 permit, and to prepare this report.

1.0 BACKGROUND

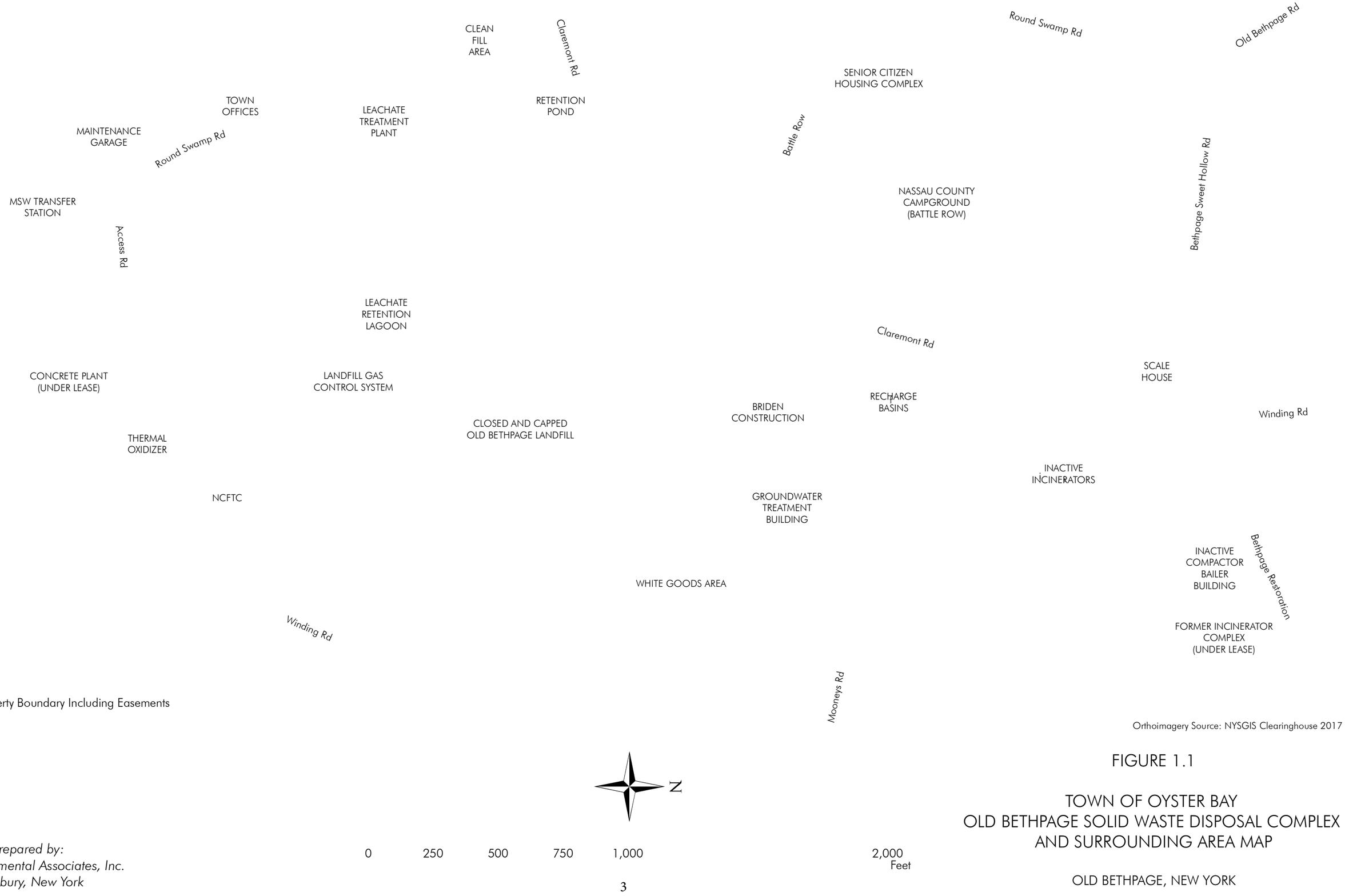
1.1 General

The OBSWDC is located between Winding and Claremont Roads, south of Bethpage-Sweet Hollow Road, in the Town of Oyster Bay, Nassau County, New York. The OBSWDC consists of a total of 134 acres which contains a closed and capped landfill and a gas collection and control system (GCCS), inactive incinerators, an inactive compactor-baler facility, a Municipal Solid Waste (MSW) Transfer Facility, a Groundwater Treatment Facility, a Leachate Treatment Facility, a Landfill Gas Control System, an area periodically utilized for clean fill, scale house, recharge basins, stockpile areas, vehicle maintenance facilities, and offices. A map illustrating these facilities and adjoining areas is provided as Figure 1.1. Three (3) areas of the site are currently leased by others. Two (2) of these areas are on the northern and northeast portions of the site, which includes the inactive incinerators, a compactor-baler building, and a former white goods area. The third area is located at the southernmost portion of the site.

1.2 Legal Authority and Requirements

On March 7, 1979, pursuant to inspections performed by the Nassau County Fire Commissioner, a violation was issued to the Nassau County Fire Training Center (NCFTC) and an order was issued to remove all sources of ignition at the NCFTC because an explosive atmosphere was reported to exist in certain enclosed areas. The NCFTC borders the OBSWDC to the southeast. In order to prevent LFG from contributing to the creation of an explosive atmosphere at the NCFTC, the Town installed a landfill gas collection and control system (GCCS). Subsequently, the Town was required to conduct regular combustible gas monitoring at the NCFTC along the perimeter of the OBSWDC, in onsite buildings, and at various offsite locations.

A permit was issued by NYSDEC to the Town as per the requirements of 6 NYCRR Part 360. The "SPECIAL CONDITIONS" category, attached to the Permit to Operate No. 0013, Application 30-S-l5, dated August 14, 1979, was created to address the presence of migrating landfill gases in the vicinity of the OBSWDC. The renewal permit conditions, in part, required the Town to develop a monthly monitoring program acceptable to the NYSDEC and the Nassau County Department of Health (NCDOH). The monitoring program was to be conducted along various boundaries of the OBSWDC and in various onsite facility structures. Monitoring results were required to be submitted in report form to the NYSDEC and the NCDOH.



Orthoimagery Source: NYSGIS Clearinghouse 2017

Prepared by:
RTP Environmental Associates, Inc.
Westbury, New York

FIGURE 1.1

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX
AND SURROUNDING AREA MAP

OLD BETHPAGE, NEW YORK

A variety of orders, agreements, and operational permit renewals have been issued since the site's initial permit, and are discussed in previous annual reports. In April 1986, the Town ceased all landfilling operations at OBSWDC, and all MSW received at the complex has been subsequently hauled offsite for disposal or recycling. The site's operating permit was modified to reflect the operation of a solid waste transfer station instead of a landfill.

In 1988, the Town and the New York State Department of Law (NYSDOL) entered into a Final Consent Decree for the remediation of the Old Bethpage Landfill (83 *CV.* 5357). Incorporated into the Consent Decree was a Remedial Action Plan (RAP) which detailed the actions to be taken by the Town in compliance with the Final Consent Decree. Appendix A, Section I. (H) of the RAP required the Town to continue to operate and maintain the existing gas control systems in compliance with the requirements of 6 NYCRR Part 360. Attachment 2 of the RAP required the Town to supplement the monitoring programs with data obtained from the following:

- Quarterly ambient volatile organic compound (VOC) air sampling to be taken at three (3) selected locations during the first year of remediation and, if approved by the NYSDOL, annually thereafter;
- Quarterly subsurface VOC gas sampling to be collected at 14 selected sampling locations at a depth of 30 inches during the first year of remediation and, if approved by the NYSDOL, on an annual basis thereafter; and quarterly subsurface VOC gas sampling at location M9 at depths of 10 feet, 20 feet, 30 feet, and 40 feet during the initial year of remediation, and if approved by the NYSDOL, on an annual basis thereafter;
- Quarterly thermal oxidizer (TO) emissions sampling for VOC levels during the initial year of remediation (results obtained during the initial year of testing were to be related to the TO temperatures during the initial year of sampling. Thereafter, the oxidizer temperatures were to be monitored on a monthly basis to ensure that temperatures needed to combust the organics were maintained in the oxidizer. The oxidizer emissions were to be sampled on an annual basis for VOC content thereafter); and,
- Quarterly pressure readings at three (3) locations during the initial year of remediation and, if approved by the NYSDOL, on an annual basis thereafter.

In May 2008, the TO ceased operations due to declining gas quality and equipment malfunctions. Based on correspondence in October 2012 with the NYSDEC (NYSDEC, 2012), the decommissioning of the TO was approved. As part of this agreement, the program was modified to include weekly methane testing of the vent stack for the GCCS. This monitoring began in late 2012.

In early 2015, The Town petitioned NYSDEC to reduce the sampling frequency from quarterly to annually for the ambient air, soil gas, and pressure tests. Approval for this request was granted on

March 24, 2016. Two (2) ambient air, soil gas and pressure monitoring efforts were conducted during 2016; one (1) during the 1st quarter prior to approval, and one after to represent a 2016 annual test during the 2nd quarter. In accordance with the approved modification to the Consent Decree, one (1) test was to be conducted in subsequent years. In accordance with the NYSDEC request, the 2019 annual test was conducted during the 1st quarter. All subsequent testing will reflect the reduced frequency of the monitoring program, with each subsequent test to be performed annually at progressive 1-quarter intervals. The details of the 2019 monitoring for the ambient air, soil gas, and pressure tests are contained in Appendix A of this report.

The RAP further stated that, in order to demonstrate compliance with 6 NYCRR Part 360 and maintain a zero percent methane gas migration limitation at the landfill boundary, the Town shall conduct a monitoring program, as described in the LKB Report (LKB, 1987), to be amended, as necessary. The monitoring program results for 2019 are summarized in an annual engineering report addressing the status of all LFG monitoring programs, including the Perimeter Landfill Gas Well Test, the Building Survey, any Supplemental Tests, the Zero Percent Gas Migration Limitation Survey, and the Weekly Perimeter Landfill Gas Vent Tests. Also, 6 NYCRR Part 360 Solid Waste Management Facility Permit (#1-2824-00528/00005) contains a special condition stipulating quarterly monitoring of methane in the transfer station building, the maintenance building, and the office building. Monitoring for methane in the transfer station building, the maintenance building, and the office building will continue in accordance with 6 NYCRR Part 360; however, monitoring is to be conducted on an annual basis rather than quarterly as of 2016. The details of all the 2019 LFG monitoring activities are contained in Appendix B of this report.

The final test program is the speciation of the VOC concentrations in the perimeter LFG vent stack, in addition to determining annual emission rates for each constituent. This was an added requirement by the NYSDEC to assure compliance with annual emission rates for specific VOC compounds for Title V Air Permit compliance. The results of the 2019 perimeter vent stack test are provided in Appendix C of this report.

The Town's current 6 NYCRR Part 360 Solid Waste Management Facility Permit (#1-2824-00528/00005) was renewed as of June 19, 2018, and expires on June 18, 2023. This Permit allows for the operation of a municipal solid waste transfer station serving the Town.

1.3 Background on the Ambient Air, Soil Gas, and Pressure Monitoring

The sampling and analysis of ambient air and soil gases, as well as the pressure sampling in the areas at and surrounding the OBSWDC as part of the RAP Attachment 2, began in 1990. The program initially required quarterly testing of ambient air at three (3) locations surrounding the Landfill. The program was modified slightly to include meteorological monitoring to assure upwind samples were representative of

upwind sources, and downwind samples captured the impact of landfill activities. Soil gas samples have been collected quarterly from a group of pre-selected wells, when available. Unavailable access to soil gas wells, at times, has precluded sample collection. Soil gas pressures had been collected quarterly from a separate group of pre-selected wells. The results of these quarterly sampling efforts were analyzed and summarized in quarterly reports and then summarized in an annual report for submission to the NYSDEC.

As previously stated, the Town received NYSDEC approval in 2016 after the completion of the 1st quarter ambient air, soil gas and pressure test, as well as the quarterly LFG survey, to reduce the sampling frequency to annual. As such, the first annual testing activities were scheduled and completed during the 2nd quarter of 2016. Therefore, the annual testing for 2017 was completed during the 3rd quarter of 2017, 2018 annual testing was conducted in the 4th quarter of 2018, and the 2019 annual testing was completed during the 1st quarter of 2019. The ambient air, soil gas, and pressure tests were all performed and analyzed and are included Appendix A this report. The 2020 test is scheduled to be be performed during the 2nd quarter.

1.4 Background on Landfill Gas Monitoring Programs

The Town initiated several LFG detection and control programs to monitor and prevent offsite migration of LFG in the vicinity of the OBSWDC in the late 1970s. Initially, the Town installed permanent sampling probes around the perimeter of the OBSWDC to detect potential offsite LFG migration. Based on the LKB Engineering Report dated June 1980 (LKB, 1980), actions were immediately undertaken by the Town to alleviate offsite LFG migration onto the NCFTC. The Phase 1 Gas Control and Recovery System became operational in June 1982. Eventually, three (3) additional Phases were added to fully encircle the Landfill. The overall intent of the system was to surround the Landfill with a negative pressure zone in the landfill perimeter soils. The negative pressure was supplied by the landfill blower station. The system was connected to a TO until gas quality sufficient to maintain continuous operations was no longer available. At that time, the Town then discontinued TO operations and exhausted the collected perimeter gas through a vent stack adjacent to the GCCS blower station. The Town monitors the methane leaving the vent stack on a weekly basis.

The 2019 LFG monitoring test surveys were all performed and analyzed and have been included in the summary of the LFG monitoring programs for 2019, as provided in Appendix B of this report.

1.5 Background on Stack Vent Monitoring and Testing

As previously stated, the landfill GCCS collects landfill gases along the perimeter of the Landfill and discharges the gases via an exhaust vent at the blower station located onsite. An annual test of the speciated

constituents in the Perimeter Landfill Gas Stack Vent Exhaust was required by the NYSDEC as one additional condition within a Modified Order of Consent for the facility. The Town provided the protocol, as approved by the NYSDEC, for conducting the tests. The vent stack test results and the protocol are included with the summary report in Appendix C. Emissions measurements of the exhaust vent stack for the perimeter collection system are used to determine if the Town is meeting NYSDEC stipulated emission requirements.

2.0 SAMPLING PROGRAMS

Historically, the sampling was performed in accordance with the procedures, protocols, and schedules recommended in the Annual Reports, as amended (per the Consent Decree), to reflect the modifications to the LFG system, revisions to operating permit special conditions, and changing LFG conditions at the site. The documented lack of sufficient combustible gas in previous efforts, the lack of offsite property owner reports of odors or combustible gas, the abandonment/removal of structures from service, and revisions to operating permit special conditions indicated that the majority of historical programs completed prior to 2008 were no longer warranted (LKB, 2009). Based on these findings, an amended monitoring program was developed and proposed for future surveys after 2008. Sampling schedules were further amended in the 2016 Modified Consent Order after discussions between the Town and NYSDEC reduced sampling frequency of several monitoring programs from quarterly to annually.

Table 2.1 provides the currently active monitoring survey programs that document LFG and other related conditions at the OBSWDC and in surrounding areas. The following sections describe the monitoring activities and equipment associated with required monitoring efforts for the 2019 calendar year.

TABLE 2.1

TOWN OF OYSTER BAY
OBSWDC MONITORING PROGRAM
SUMMARY OF 2019 LANDFILL GAS MONITORING PROGRAMS

Survey No.	Survey Description	Frequency of Monitoring	Monitoring Performed By
1.	OBSWDC Perimeter Gas Well Monitoring Survey	Annual*	RTP
2.	Building/Structure Gas Survey	Annual*	RTP
3.	Supplemental Gas Monitoring Program	As Necessary	TOB
4.	Ambient VOC Air Sampling, Subsurface VOC Gas Sampling, and Soil Gas Pressure Readings	Annual*	RTP
5.	Zero Gas Migration Limitation Survey	Annual	RTP
6.	Perimeter Gas Collection System Vent Monitoring	Weekly	TOB
7.	Perimeter Landfill Gas Exhaust Vent Stack Testing	Annual*	RTP

Notes: RTP – RTP Environmental Associates, Inc.
TOB – Town of Oyster Bay staff

* In 2016, the monitoring frequency for these programs was reduced from quarterly to annually as part of an agreement between the Town and the NYSDEC. In addition, a Landfill Gas Exhaust Vent Stack Test was added as Survey No. 7.

Five (5) of the seven (7) monitoring surveys identified in Table 2.1 (Nos. 1, 2, 3, 5 and 6) are performed using a handheld portable combustible gas monitor. Surveys No. 4 and No. 7 are performed using more specialized equipment. Supplemental gas surveying, specified as Survey No. 3, was not required in 2019. A detailed description of that equipment is provided in Appendices A and C, respectively.

2.1 Ambient Air, Soil Gas, and Pressure Well Monitoring Activities

The primary objective of the Ambient Air, Soil Gas, and Soil Gas Pressure Sampling Program (Survey No. 4) is to examine the ambient air concentrations of trace VOCs in the vicinity of the Old Bethpage Landfill. During the 2019 annual sampling event, five (5) ambient air Volatile Organic Sampling Train (VOST) samples were collected over a 24-hour period at three (3) locations; two (2) collocated samplers located at one (1) upwind location, two (2) collocated samplers located at one (1) downwind location, and another sampler located at an additional location downwind of the Old Bethpage Landfill. Short-term (approximately 10-minute) subsurface (30-inch depth or at various depths) soil gas samples were collected at 14 locations specified in the Consent Decree. Similar short-term samples are collected at Well M-9 that contain four (4) separate wells extending 10 feet, 20 feet, 30 feet and 40 feet below grade, respectively. Finally, soil gas pressure readings were taken at three (3) locations.

One (1) double Tenax cartridge and one (1) Tenax/Charcoal cartridge combination were used for all sampled locations (USEPA Reference Method 0030) for the test conducted in 2019. The VOST Tenax and Tenax/Charcoal sorbent cartridges used in the modified sampling train are identical to those used in the VOST EPA Reference Method 0030 and two (2) traps per location that were previously used for quarterly tests.

The Target Compound List (TCL), based on the most recently modified DAR-1 Annual and Short-term Guideline Concentrations (AGCs and SGCs), was updated by the NYSDEC on August 10, 2016 (current as of June 2019). These values were used as a reference for all 2019 tests. Four (4) TCL compounds continue to have no assigned AGC values and, as such, an Interim AGC value was assigned to these compounds using NYSDEC DAR-1 policy guidance. The compounds benzaldehyde, 2-chloroethyl vinyl ether, dibromochloromethane, and 2/4-ethyltoluene (total) have been assigned an Interim AGC value of 0.1 $\mu g/m^3$, which represents a Moderate Toxicity "de minimus" limit. According to this policy, when no exposure limits are available from USEPA, NYSDOH, or the American Conference of Governmental Industrial Hygienists (ACGIH), and no analogies can be made, NYSDEC will assign a conservative de minimus limit as the AGC.

The NYSDEC strongly emphasizes that the AGCs are guideline values only, developed for screening and toxicity ranking, and are not standards or absolute limits of acceptable risk. With these limitations in mind, the AGCs are State-prescribed guidelines for comparison to the data recorded at the OBSWDC.

The ambient air monitoring program incorporates repositioning of sampling equipment to best define the overall contributions associated with the OBSWDC during each annual 24-hour test effort. Normally, two (2) collocated samples are taken at an upwind location, and three (3) samples are taken at two (2) locations downwind of the OBSWDC. A meteorological station is position onsite to measure local weather conditions during a 24-hour test event. In general terms, upwind concentrations can be compared directly to downwind concentrations to conservatively determine the impact of the OBSWDC on ambient air surrounding the site. The specific details of the 2019 sampling event are provided in Appendix A.

2.2 Landfill Gas Monitoring Activities

Landfill gas monitoring activities in 2019 consisted of four (4) individual surveys including;

1. Perimeter Gas Well Monitoring Survey (Survey No. 1)
2. Building/Structure Gas Survey (Survey No. 2)
3. Zero Gas Migration Limitation Survey (Survey No. 5)
4. Weekly Perimeter Gas Collection System Vent Monitoring (Survey No. 6)

Note: The survey number corresponds to the listing provided in Table 2.1.

The perimeter gas well monitoring survey includes a series of soil gas wells that extend around the perimeter of the OBSWDC, onsite wells, and wells offsite. These wells are specifically monitored for methane concentrations and the results are tabulated and analyzed in Appendix B of this report. The building/structure survey is performed to determine the methane concentrations in various onsite and offsite buildings and structures. Appendix B contains a listing of the areas sampled and the results of the 2019 monitoring activities. The zero gas limitation survey is a detailed examination of the subsurface methane concentrations around the perimeter of the OBSWDC site and around the toe of slope for the Landfill. Samples are collected every 50 feet around the areas described, and the results of this testing are provided in Appendix B. Finally, the Town is required to collect weekly samples of methane throughout the year from the GCCS perimeter vent stack (Survey No. 6). The survey is conducted by Town personnel and the results are reported in Appendix B.

In October 2010, the NYSDEC requested that the Town take quarterly samples of LFG from the perimeter collection system vent for VOC speciation of LFG collected while the TO was out of service. This task was discontinued, as per an agreement with the Town and NYSDEC in October 2012. The Town, as discussed above, was then tasked with performing Survey No. 6, weekly perimeter gas collection system vent monitoring. Again, further details regarding this testing is provided in Appendix B.

2.3 Stack Vent Monitoring and Testing Activities

The GCCS contains a LFG vent stack for all gases collected by the perimeter system. Emission tests were performed on the perimeter gas vent stack to measure flow rates, moisture content, and concentrations of speciated VOCs only. Triplicate 60-minute emissions tests were conducted on the exhaust from the perimeter GCCS. Two (2) blowers were in operation during the entire test period. Samples of the exhaust gases were collected in SUMMA canisters using a 5-foot length of Teflon 1/4 inch tubing that was inserted into the middle of the exhaust stack via the west stack port. Each 6-Liter SUMMA canister was equipped with a dedicated flow controller configured to collect slightly less than 6-Liters of exhaust gas over the 1-hour sampling period. The test was conducted on March 28, 2019. Details regarding sampling equipment and procedures are included in Appendix C.

3.0 SUMMARY OF 2019 LANDFILL MONITORING PROGRAM RESULTS

3.1 Ambient Air, Soil Gas, and Pressure Well Testing Program

The 2019 annual ambient air, soil gas, and pressure well monitoring event was performed by RTP on March 11-12, 2019. Ambient air VOC concentrations and meteorology were monitored during the 24-hour sampling periods. In accordance with the monitoring protocol, ambient air VOC samples were collected at

locations both upwind and downwind of the Landfill. The ambient air quality tests results indicate that five (5) constituents on the program target compound list (TCL) exceeded their AGC values during the test. The exceeding compounds included: benzaldehyde, benzene, carbon tetrachloride, 1,2-dichloroethane, and 2/4-ethyltoluene (total). No tentatively identified compounds (TIC) exceeded their AGC or de minimus level. The measured compound concentrations in the ambient air were relatively similar in magnitude for samples collected both upwind and downwind of the Landfill. These results are based on 24-hour samples and, therefore, an exceedance of an AGC does not necessarily indicate an exceedance of a respective annual guideline value. No measured values exceeded their respective SGC values. Collectable quantities of condensate were not present in any of the ambient air sample impingers and, as such, no separate condensate samples were collected or analyzed.

The net Landfill impact values (averaged downwind concentrations minus averaged upwind concentrations) for the 2019 test have been calculated to approximate the actual impacts associated with the Landfill and other OBSWDC sources. In general, VOC concentrations in the ambient air for the 2019 test were consistent with a majority of the TCL constituents and TIC concentrations when the results were compared to previous tests. Because of analytical variation and the limited number of air samples collected in 2019, the VOC levels can only be estimates of true annual, short-term maximum, or average levels existing in the environment surrounding the OBSWDC.

The upwind and downwind values used to estimate air quality impacts associated with releases from the Landfill are intentionally conservative. Moreover, it should be noted that annual monitoring, in most cases, is intended to occur during generally falling barometric pressure conditions which tend to maximize observed impacts from any landfill source. The downwind sampling locations were also positioned in order to maximize the impact from landfill and associated sources. A comparison of data collected by the NYSDEC at other sites across the State indicated that the air quality in the area surrounding the OBSWDC may be improving slightly when compared to other areas of the State; however, some other areas of the State also seem to show signs of improvement.

As part of this continuing program, a database is being developed for both an uncapped and capped landfill. Since capping was completed, the data collected continues to show, for a limited set of compounds, exceedances of the NYSDEC ambient guideline values both upwind and downwind of the OBSWDC. Additionally, the TCL has been occasionally updated based on continuing reviews of TICs detected by enhanced analytical procedures.

Soil gas well concentrations were monitored at several locations surrounding the Landfill. All soil gas well samples were collected and analyzed successfully except for Well M21, which was covered by a cement barrier. Soil gas well concentrations continue to show, in general, decreasing concentrations for various compounds, and the number of compounds detected over their AGC guideline has also been decreasing,

based on comparisons with previous quarterly and annual efforts. Although no applicable guidelines are currently available for soil gas concentration readings, New York State and EPA are considering introducing vadose zone limits. The number of soil gas well target compound constituents that exceeded the level of respective ambient air AGCs during 2019 testing has remained consistent with 2018 results.

TIC concentrations in soil gas samples for the 2019 annual test have decreased when compared to the 2018 annual test with somewhat less variety than is typically seen in the soil gas wells. No target or TIC concentrations in the soil gas samples exceeded the level of respective ambient air SGC guideline values. Comparisons of soil gas concentrations with ambient AGCs are provided only as relative indicators since soil gas levels are not considered ambient air. Also, because of analytical variation and the limited number of soil samples collected in 2019, the levels provided can only be estimates of the true annual, short-term maximum, or average levels existing in the environment surrounding the OBSWDC.

Monitored soil gas pressures for 2019 have been fairly consistent and the perimeter gas collection system appears to be operating normally. Soil gas pressures were measured at three (3) pressure well locations surrounding the Landfill during 2019 test. RTP conducted the pressure well tests from 07:35 hours through 08:03 hours on March 12, 2019. Zero pressure was recorded at all 10-foot depth pressure wells, while positive pressure was recorded at the 20-foot depth at pressure Wells PW1 and PW2. Negative pressure was observed at the 20-foot depth at pressure well PW3. The blower station had two blowers operating during the time the pressure wells were tested. RTP will continue to monitor these locations and provide support to the Town to ensure the system is operating as designed.

In conclusion, for most compounds, the ambient VOC concentrations measured during testing efforts conducted in 2019 in locations upwind and downwind of the facility appear to be similar to VOC constituents and VOC concentrations detected during previous monitoring efforts. However, some compounds have decreased while others have become slightly more abundant. In 2019, the conservative net concentration differences between the averaged upwind and downwind samples did not exceed the NYSDEC ambient air AGC for any of the analyzed compounds. Based on the 2019 test data, the OBSWDC appears to have had a minimal impact on ambient air quality surrounding the OBSWDC for VOC compounds. Finally, no VOC compound concentrations, measured upwind or downwind of the landfill, exceeded NYSDEC short-term air guidelines. Again, because of analytical variation and the limited number of samples collected during 2019 as compared to prior years, the above data only provide a limited estimate of the actual ambient air and soil gas concentrations impacting the areas surrounding the OBSWDC. The 2019 ambient air, soil gas, and pressure well monitoring report is provided in Appendix A.

3.2 Landfill Gas Monitoring Survey Programs for 2019

3.2.1 Perimeter Gas Well Monitoring Survey

In an effort to confirm LFG conditions in perimeter monitoring wells and make recommendations for future monitoring programs, RTP usually performs four (4) perimeter gas well monitoring events following previously established monitoring survey protocols. However, this test is now conducted annually in accordance with the 2016 modifications to the monitoring requirements. The perimeter wells along the OBSWDC property boundary and at the NCFTC were monitored for the presence of methane gas. The actual surveys took place on February 26 & 27, 2019. The observed data indicates that none of the perimeter gas wells contained detectable amounts of methane gas (2% LEL) during the sampling events contained within this report, although the condensate well exhibited a measurable level of 2% LEL. The observed levels are lower than the new 6 NYCRR Part 363 limit of 25% LEL (i.e., 1.25% gas in air) for combustible gas at the property boundary. Therefore, the perimeter gas well monitoring data for 2019 indicates that the regulatory requirements are being met and the gas generated by the Landfill is being adequately contained by the LFG collection system. These findings are in general agreement with the 2019 Zero Gas Migration Limitation Survey.

3.2.2 Building/Structure Gas Survey

RTP performed combustible gas monitoring at several onsite facility locations that are still in existence and accessible. One (1) annual survey was conducted in conjunction with the perimeter gas well monitoring survey discussed in Section 3.2.1. The combustible gas data for the building/structure survey are presented in Appendix B. The observed data indicates that no structures exhibited measurable amounts of combustible gas above the minimum detection limit (MDL) of the analyzer. The 6NYCRR Part 363 limit for combustible gas in structures is less than 25% of the LEL. Thus, the building/structure surveys indicate that the regulatory requirements were being met.

3.2.3 Supplemental Gas Monitoring Survey

No supplemental monitoring was required for the 2019 period.

3.2.4 Zero Gas Migration Limitation Survey

The 2019 Zero Gas Migration Limitation Survey, designed to monitor the lateral migration of LFG around the outer boundary of the Landfill, was conducted by RTP personnel on February 26 & 27, 2019. The results of the 2019 survey demonstrate that LFG migration has been contained within the landfill perimeter and/or the OBSWDC boundary. The combustible gas concentrations for the line of well points

were all zero or non-detect, except for two (2) points where low (2% LEL) reportable amounts of combustible gas were detected. The protocol stipulates that when combustible gas is identified, additional readings should be taken further away from the landfill boundary until a less than 1% of the LEL is observed. However, one (1) point where combustible gas was identified at the landfill perimeter during this 2019 test occurred along Winding Road and outward points and, therefore, could not be taken. This point was away from the landfill perimeter and below the 25% LEL limit for landfill property boundaries from 6 NYCRR Part 363 (which does not apply until the consent order expires), and located outside of points along the margin of the Landfill showing undetectable levels of combustible gases. Additionally, the remaining one (1) point, where concentrations were above 0% methane, occurred along the southern foot of the Landfill and the next outward point exhibited a reading of 0% LEL. All well point locations are identified by NY State Plane coordinates and are provided within this report in Appendix B. Hourly meteorological data measured at Republic Airport in Farmingdale, NY during the survey dates are provided in Appendix B.

3.2.5 Weekly Perimeter Gas Collection System Vent Monitoring Survey

The Town first began collecting methane readings in September 2012 at the vent for the perimeter collection system near the blower station. The Town and NYSDEC revised the testing schedule from quarterly to annually beginning with the 2nd quarter of 2016. As such, the period reported herein covers the 1st quarter 2018 through the 1st quarter 2019 (5 total quarterly periods). Town personnel conducted the perimeter gas collection system vent survey on a weekly basis. The data was collected by Town using a Multi-Rae Lite Wireless Portable Multi-Gas monitor to check for methane.

In all, 65 weekly readings were observed. The data indicates the methane concentrations in the collected gas ranged from a minimum of 1.0% methane to a high of 4.5% methane with the annual average (based on 5 quarters of data) concentration of 1.64% methane. Based on previous years' observations, levels tend to be higher around the winter or spring and lower around the autumn months. All of the concentrations of methane noted are below 5%, which is the LEL for methane. The Town will continue to conduct these weekly tests throughout 2019 and 2020, in accordance with the NYSDEC request, until instructed otherwise. A summary of the 2018-2019 gas monitoring results are provided in Appendix B, along with all other 2019 LFG monitoring surveys.

3.3 Perimeter Landfill Gas Exhaust Stack Vent Testing

Samples were collected from the landfill GCCS exhaust stack on March 28, 2019 to determine the constituent concentrations and the emission rates of speciated Volatile Organic Compounds (VOCs) and then to compare those emission rates to State DAR – 1 short-term and annual guideline concentrations, and to Title V permit emission thresholds (Survey No. 7). Triplicate 60-minute samples were collected from the

exhaust stack. Stack flow rates were measured and converted to standard conditions for direct comparison to the ambient guidelines and Title V thresholds. The results are provided in the report presented in Appendix C. The results show that the average emission rate during the test period was equivalent to just 0.77 pounds per year for speciated VOCs via EPA Method TO-15. This emission rate is well below the Title V permit threshold for non-category sources (25 tons per year), and well below the hazardous air pollutant (HAP) emission thresholds for individual air pollutants (10 tons per year) and combined HAPs (25 tons per year).

The test did not include the measurement of total non-methane VOCs via EPA Method 25 that is typically used for determining non-methane organic compound (NMOC) release rates from industrial stacks. Other NMOC release rates for other emission sources on the property were not included and, thus, the actual pound per year NMOC release rate for the entire facility was not calculated. However, it should be noted that there does not appear to be a significant stationary source of VOC emissions at the OBSWDC based on tested values.

The test results also indicate four (4) of the speciated VOCs detected via Method TO-15 in the vent stack exhaust gases were in excess of the level of the respective NYSDEC annual guideline concentrations (AGC) for individual compounds. The compounds exceeding the level of the AGC were benzene, trichloroethene, and vinyl chloride, and 1,4 dichlorobenzene. No compounds exceeded the level of the respective NYSDEC short-term guideline concentration (SGC) threshold for individual compounds. These values are in-stack concentration levels and not ambient air concentrations. Using the calculated average release rate of each of the constituents with values above the reporting limit and other parameters measured during sampling, the modeled maximum fence line annual concentration was computed to demonstrate compliance with the AGC as intended. The model results indicate all of the compounds over the laboratory reporting limit are well below their respective AGC values at the nearest property fence line. The LFG exhaust stack vent test is documented in Appendix C.

4.0 RECOMMENDATIONS

4.1 General

The OBSWDC LFG monitoring surveys have been modified over the years to accommodate both regulatory and permit requirements as well as changing site conditions. The most recent modifications were based on the findings contained in the annual reports and the diminishing levels of LFG being generated by the Old Bethpage Landfill as it ages. As previously stated, one major change has been the monitoring frequency for these programs. In general, the sampling frequency for most surveys was reduced from quarterly to annually during the early part of 2016 as part of an agreement between the Town and the NYSDEC. In addition, an annual landfill gas exhaust vent stack test, Survey No. 7, was

added in 2016. All programs are scheduled to be performed on a one test per year, sequential quarterly basis until further notice. The next test program is scheduled for the 2nd quarter 2020. The following discussion provides the recommended OBSWDC monitoring programs for the 2020 calendar year.

4.2 Recommended 2020 Monitoring Programs

As the Old Bethpage Landfill continues to age, LFG production continues to decrease. Landfill gas production rate decreases have been confirmed by several findings including: the shutdown of the ET power generating facility in 2003, the closure of the Thermal Oxidizer, the decrease in high quality gas mined (high percent methane) from the Landfill; the reductions in combustible gas concentrations in perimeter collection system wells; and, the decrease in areas where LFG is migrating beyond the footprint of the Landfill (LKB, 2013).

Although additional locations were identified with elevated concentrations of methane during the 1st quarter 2019, the monitoring conducted during the 2019 calendar year indicated that there have been no significant expansions of areas containing combustible gas. Based on the above, it is recommended that the monitoring program identified in Table 4.1, that includes modifications initiated in 2013 and 2016, be continued for 2020, as detailed below.

TABLE 4.1
2020 MONITORING PROGRAM
ACTIVITY SCHEDULE

Survey No.	Survey Description	Frequency of Monitoring	Monitoring Performed By	To Be Performed
1.	OBSWDC Perimeter Gas Well Monitoring Survey	Annually	RTP	2nd Quarter 2020
2.	Building/Structure Gas Survey	Annually	RTP	2nd Quarter 2020
3.	Supplemental Gas Monitoring Program	As Needed	TOB	TBD
4.	Ambient VOC Air Sampling, Subsurface VOC Gas Sampling, and Soil Gas Pressure Readings	Annually	RTP	2nd Quarter 2020
5.	Zero Gas Migration Limitation Survey	Annually	RTP	2nd Quarter 2020
6.	Perimeter Gas Collection System Vent Monitoring	Weekly	TOB	Weekly
7.	Perimeter Landfill Gas Exhaust Vent Stack Testing	Annually	RTP	2nd Quarter 2020

Notes: RTP – RTP Environmental Associates, Inc.
TOB – Town of Oyster Bay staff
TBD – To be determined

1. OBSWDC Perimeter Gas Monitoring Well Survey: A combustible gas survey will be performed annually at the available OBSWDC perimeter gas monitoring wells identified in Appendix B, and will occur concurrently with the Building/Structure Survey, scheduled to be conducted during the 2nd quarter of 2020 in accordance with the annual interval requested by the NYSDEC.

2. Building Structure Survey: An annual combustible gas survey will be conducted in 2020 at the following onsite structures: scale house, guard house, Town offices, leachate treatment building, transfer station, maintenance garage, LFG blower station, and groundwater treatment building. Although the groundwater treatment building is no longer owned by the Town, NYSDEC has not instructed OBSWDC to discontinue monitoring. As such, this monitoring shall remain part of the Recommended Monitoring Program for 2020 until instructed otherwise. This monitoring will be coordinated concurrently with the Perimeter Gas Monitoring Well Survey (Survey No. 1), scheduled to be conducted during the 2nd quarter of 2020 in accordance with the annual interval requested by the NYSDEC.

3. Supplemental Gas Monitoring Program: The Town and/or NYSDEC are responsible for deciding on supplemental monitoring tasks. Depending on the task, the Town will specify the monitoring protocol. Should any other specific data needs arise in the future, those monitoring efforts will be included under this survey.

4. Ambient VOC Air Sampling, Soil Gas VOC Sampling and Soil Gas Pressure Readings: This survey is performed annually and as noted above; the next test shall be completed during the 2nd quarter of 2020. The data and analysis specific to this survey will be included as an Appendix to the 2020 summary report.

5. Zero Gas Migration Limitation Survey: The annual monitoring of the zero gas migration limit survey will continue. The primary focus of the effort is along the edge of the landfill liner to ensure subsurface gas migration is contained within the limits of the landfill footprint. This annual survey has been extended to cover areas along the property boundary and the borders of some leased areas. The annual survey of the common border of the Nassau County Campground, other areas, and the Landfill will be performed as part of this survey and shall be completed during the 2nd quarter of 2020.

6. Weekly Perimeter Gas Collection System Vent Monitoring: The NYSDEC requested that a weekly monitoring program be performed to test the methane content of the perimeter gas at the collection system vent. This survey is expected to continue throughout 2019 and 2020 as a condition of NYSDEC approval to permanently shut down the Thermal Oxidizer. This work will continue to be performed by Town personnel.

7. Perimeter Landfill Gas Exhaust Vent Stack Testing: The perimeter LFG collection system exhaust vent stack test will be conducted in accordance with the approved protocol on the revised schedule during the 2nd quarter of 2020.

4.3 Gas Extraction System Condensate Discharge

The Town has been permitted by the Nassau County Department of Public Works to discharge leachate and condensate from the gas extraction system and equalization basin to the Nassau County Sewer System (LKB, 2018).

4.4 Future Operation of the Landfill Gas Collection and Control System

After 34 years of operation, the quantity and quality (methane content) of gas generated by the Landfill have diminished significantly over the years of operation. The LFG system facilities and equipment continue to be maintained as necessary to assure reliable operation. Stack testing to measure speciated VOC concentrations from the collection system stack vent (Item 7 under Section 4.2) is anticipated to be completed during the 2nd quarter of 2020.

REFERENCES

LKB, 1980 — Preliminary Engineering Design Report: Phase 1 Gas Control and Recovery Program. Lockwood, Kessler & Bartlett, Inc., One Aerial Way, Syosset, New York, June, 1980.
Submitted to: Town of Oyster Bay, Syosset, New York.

LKB, 1987 — 1986 Annual Report Summarizing the Status of Landfill Gas Monitoring Programs and the Establishment of the Zero Percent Gas Migration Limitation at the Old Bethpage Landfill. Lockwood, Kessler & Bartlett, Inc., One Aerial Way, Syosset, New York, April 1987.
Submitted to: Town of Oyster Bay, Syosset, New York.

LKB, 2009 — Communications with LKB Staff.

NYSDEC, 2012 — Letter dated October 17, 2012 approving the Town of Oyster Bay's request to cease operation of the Thermal Oxidizer at the Old Bethpage Landfill.

LKB, 2013 — Communications with LKB Staff.

LKB, 2018 — Communications with LKB Staff.

APPENDIX A

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

AMBIENT AIR QUALITY SURVEY
AND
SOIL GAS QUALITY SURVEY

2019 Annual Report

APPENDIX A

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

AMBIENT AIR QUALITY SURVEY AND SOIL GAS QUALITY SURVEY

2019 Annual Report

Prepared for:

Town of Oyster Bay
Department of Public Works
Syosset, New York

Prepared by:

RTP Environmental Associates, Inc.
400 Post Avenue
Westbury, New York

September 2019

APPENDIX A

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

AMBIENT AIR QUALITY SURVEY AND SOIL GAS QUALITY SURVEY

2019 Annual Report

TABLE OF CONTENTS

APPENDIX A

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

AMBIENT AIR QUALITY SURVEY AND SOIL GAS QUALITY SURVEY

2019 Annual Report

LIST OF TABLES

LIST OF FIGURES

APPENDIX A

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

AMBIENT AIR QUALITY SURVEY AND SOIL GAS QUALITY SURVEY

2019 Annual Report

1.0 INTRODUCTION

RTP Environmental Associates, Inc. (RTP) was contracted by the Town of Oyster Bay (Town) to perform the sampling and analysis of ambient air, soil gas and soil gas pressure in areas at and surrounding the Old Bethpage Landfill (Landfill) at the Old Bethpage Solid Waste Disposal Complex (OBSWDC). The general scope of the program was defined in the Remedial Action Plan (RAP) Attachment 2 of the Final Consent Decree. Since the Consent Decree was not explicit as to the specific methodology and testing protocols to be followed, RTP, in conjunction with the Town, Lockwood, Kessler & Bartlett (LKB), the New York State Department of Environmental Conservation (NYSDEC) and analytical laboratories, developed a complete protocol and analysis strategy for meeting the general requirements stipulated by the Consent Decree.

As stipulated in the Consent Decree, the ambient air quality, soil gas quality, and soil gas pressure were to be monitored at several positions around the Landfill. The ambient air and soil gas samples were to be analyzed for volatile organic compounds (VOCs) according to the protocol, and the results were to be tabulated. Four (4) sampling events were conducted during each of the previous years of the program until 2015. During the 2015 monitoring year, the Town requested the NYSDEC consider modifying the Consent Decree 83CV 5357, executed in 1998, by reducing the quarterly ambient air, soil gas, and pressure testing to an annual basis. On March 24, 2016, the Town received approval from NYSDEC to reduce the frequency of the monitoring program from quarterly to annually officially modifying the previously modified Consent Decree. All subsequent testing will reflect the reduced frequency from four (4) times per year to once per year. Each subsequent test is to be held at one year and one quarter interval anniversary. This report provides the results for the 24-hour field test completed during the 1st quarter of 2019. The report is contained within an annual test report that includes other NYSDEC mandated tests in addition to this air, soil gas, and pressure test. The next set of tests is scheduled to occur during the 2nd quarter of 2020.

This report contains the results obtained from sampling that occurred from March 11-12, 2019, when the forecasted meteorology was expected to be within protocol requirements. Section 2.0 of this report contains the sampling protocol and investigation methodology for air and soil gas. Section 3.0 includes sample

collection, sample handling, and analytical procedures applied for this program. Section 4.0 provides a discussion of results. Section 5.0 contains the soil gas pressure sampling procedures and test results. Section 6.0 contains a summary and conclusions for this sampling effort. Attachments containing supporting data and analyses are attached.

2.0 METHODOLOGY AND PROTOCOLS

2.1 Program Definition

In conformance with the RAP Attachment 2 of the Consent Decree (83 CIV 5357), the Town of Oyster Bay initiated an investigation of the ambient air quality and soil gas quality in the vicinity of the Old Bethpage Landfill. This report provides data and analyses for four (4) of the components listed in the RAP: (1) ambient air sampling; (2) 30-inch deep subsurface gas sampling; (3) subsurface gas sampling at various depths; and (4) soil gas pressure readings. The ambient air, soil gas, and well pressure sampling procedures used during the field event, in general, follow those developed during the second year of sampling.

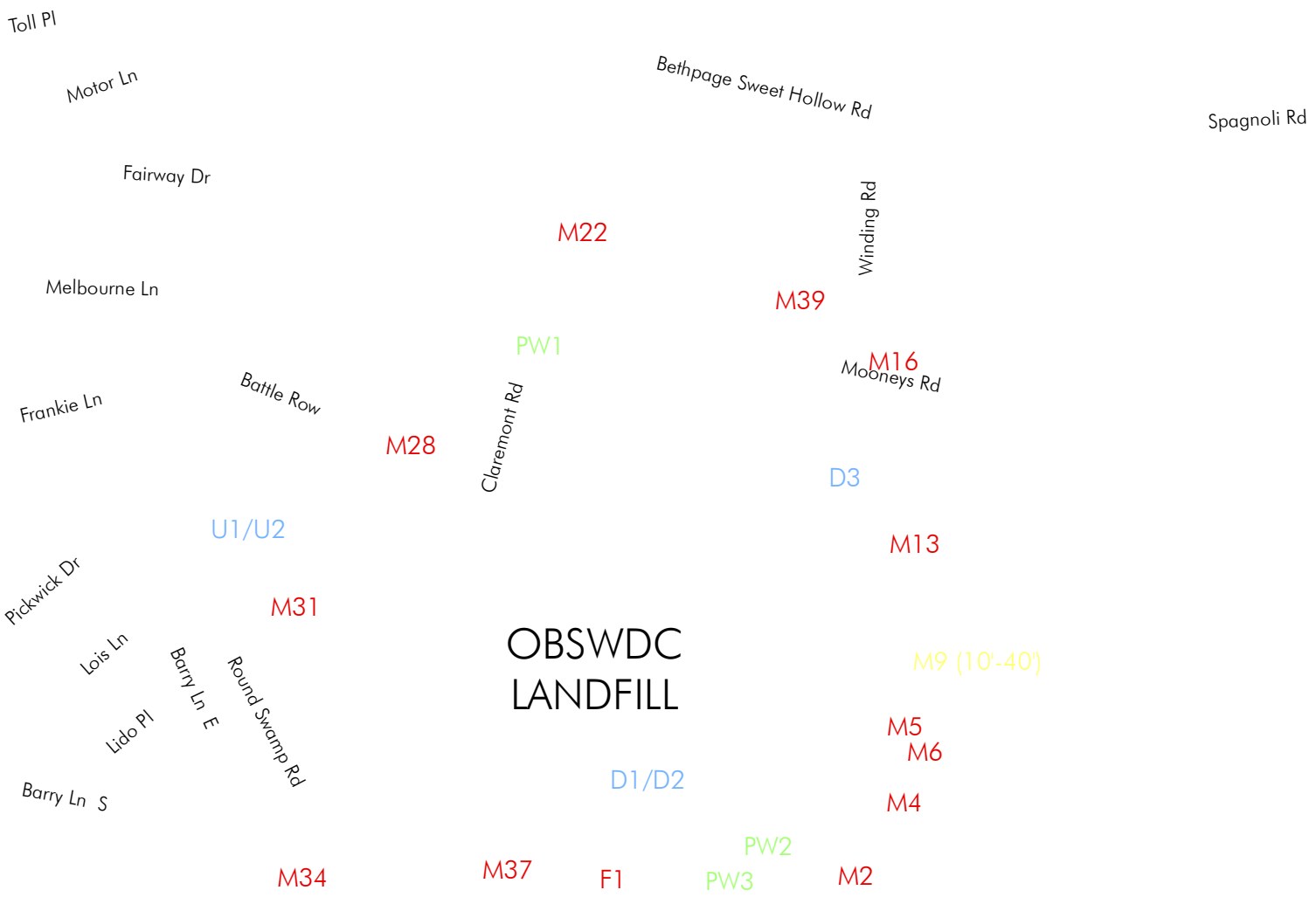
The primary objective of the Ambient Air and Soil Gas portions of the sampling program is to examine the ambient air concentrations of trace VOCs in the vicinity of the Old Bethpage Landfill. During the 2019 annual sampling event, five (5) ambient air Volatile Organic Sampling Train (VOST) samples were collected over a 24-hour period at three (3) locations; two (2) collocated samplers located at one (1) upwind location, two (2) collocated samplers located at one (1) downwind location and another sampler located at an additional location downwind of the Old Bethpage Landfill. Short-term (approximately 10-minute) subsurface (30-inch depth or at various depths) soil gas samples were to be collected at 15 locations specified in the Consent Decree. In addition, soil gas pressure readings were taken at three (3) locations. Sampling locations are provided in Figure 2.1.

The Ambient Air and Soil Gas Program also involves the collection of meteorological data at two (2) locations; one (1) station is set up onsite atop the Landfill; and the second location, used for 2019 sampling, was the local area airport at Farmingdale, New York. This data is used to define the meteorological conditions existing during ambient air and subsurface soil gas sampling events, and during the soil gas pressure measurement period. Information regarding meteorological data is provided as Section 2.3 of this report.

2.2 Ambient Air and Soil Gas Sampling

2.2.1 General Scope

The first three (3) components of the RAP relate to air quality and soil gas quality. The fourth (4)



Legend

- Ambient Sample
- Soil Gas Well
- Cluster Well M9
- Pressure Well
- Meteorological Station
- Streets

General Wind Conditions

10:00 - 16:00

16:01 - 22:00

22:01 - 04:00

04:01 - 10:00

Orthoimagery Source: NYSGIS Clearinghouse 2017

0 500 1,000 2,000 Feet

FIGURE 2.1

2019 ANNUAL
AMBIENT AIR AND SOIL GAS
MONITORING LOCATIONS
March 11-12, 2019

TOWN OF OYSTER BAY LANDFILL
BETHPAGE, NEW YORK

Prepared by:
RTP Environmental Associates, Inc.
Westbury, New York

component is soil gas pressure and it is covered in Section 5.0 of this report. The first RAP component states that ambient air samples are to be collected over a 24-hour period at three (3) locations around the Landfill. Additionally, the RAP states that samples should be collected quarterly during the initial year of the program and be analyzed for VOCs.

Over time, the sample collection program has been modified as discussed in the previous quarterly reports. Changes were made to the ambient air sampling scope stated in the RAP to account for site geometry. Also, sampling normally was to continue a quarterly basis, however, NYSDEC approved modifications to the Consent Decree on March 24, 2016. These modifications allowed testing to transition to an annual basis on a rotating quarterly schedule. In general, all ambient air samplers were set to run continuously and concurrently for a 24-hour period. Samplers U1 and U2 (U1/2) were collocated upwind of the Landfill. Samplers D1 and D2 (D1/2) were collocated downwind of the Landfill, and sampler D3 was located at an alternate location downwind of the Landfill. The selected ambient air sampling locations for this test (U1/2, D1/2 and D3) are shown in Figure 2.1. The samplers were all set at a volumetric sampling rate of 0.25 liters per minute (Lpm) to minimize problems related to potential breakthrough and mass loading limits on the sorbent cartridges. This sampling rate also provides an acceptable analytical sensitivity for target compounds relative to the ambient air guideline values.

The second RAP component of the modified Consent Decree requires the collection and analysis of subsurface gas samples from 14 30-inch deep wells at individual locations surrounding the landfill on an annual basis. All 30-inch wells listed in the Consent Decree were sampled during this 2019 annual sampling event except M21, which was covered by a concrete barrier. The sampled well locations included F1, M2, M4, M5, M6, M13, M16, M22, M28, M31, M34, M37, and M39, as identified in Figure 2.1. The same sampling methodology used in previous sampling events was utilized for this effort.

The third RAP component of the modified Consent Decree requires subsurface gas samples to be collected from 10, 20, 30 and 40-foot depths at the M9 cluster well shown in Figure 2.1. Sampling has been required on an annual basis from the four (4) depths at the cluster well. All four (4) depths at cluster Well M9 were sampled during this 2019 annual sampling event.

As in the initial year of sampling, a modified VOST sampler has been applied as the sampling method and is described below.

The modified VOST sampler approach was elected for several reasons:

- Due to the volatility of many organic compounds, standard absorbent cartridges for ambient air sampling may miss several compounds at ambient temperatures. By cooling the absorbent cartridges to less than 68˚F, the modified method would likely allow the cartridges to capture compounds that might

normally go undetected.

- Using a VOST cartridge series would provide data directly compatible within the Supplemental Gas Monitoring Program being performed as part of the Consent Decree.

- A methodology for the collection of large volumes was developed to identify low VOC concentrations in ambient air.

- Large volumes of ambient air are necessary because of the analytical limitations posed by standard gas chromatograph-mass spectrographic (GC/MS) methods.

- Evacuated canister methods were reviewed in the initial year and deemed unacceptable because of low total volume capacity, potential leaks, and possible contamination.

- The potential problems associated with whole-air sample bags and glass bulb methods were deemed unacceptable and therefore, were avoided.

- The VOST series cartridges are applicable for both ambient air and soil gas monitoring.

The target compound list (TCL) of VOCs that can be evaluated using the modified VOST methodology are presented in Table 2.1, along with the corresponding NYSDEC ambient short-term and annual air guideline concentrations (SGC and AGC, respectively) that are updated regularly.

Currently, all TCL compounds have assigned AGC values. The AGC/SGC guidelines were updated by the NYSDEC on August 10, 2016 and represent the most up-to-date values (as of June 2019). The current values are provided in Table 2.1 and have been applied in this report.

2.2.2 Modified VOST Sampler

The VOST method is one of three (3) EPA methods identified to collect VOCs from point sources. The principal reason for using this method for the ambient and soil gas tests is the minimum level of detection is below the lowest AGC/SGC values represented in the TCL. A schematic diagram of the principal components of the standard VOST is shown in Figure 2.2. The VOST consists of a quartz or glass lined probe with a glass wool particulate plug, an isolation valve, an ice water cooled gas coiled condenser with a thermocouple placed at the outlet to monitor gas stream temperature, a pre-conditioned primary sorbent cartridge containing Tenax, an empty impinger for potential condensate collection, an ice water cooled glass straight condenser, a pre-conditioned secondary sorbent cartridge containing Tenax and Charcoal, (3:1 by volume; approximately

TABLE 2.1

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

PROGRAM TARGET COMPOUND LIST
AND NYSDEC AMBIENT AIR GUIDELINE CONCENTRATIONS

2019 ANNUAL REPORT

CHEMICAL NAME	CAS NUMBER	AIRS CODE	SGC µg/m³	W (SGC)	AGC µg/m³	W (AGC)	T	CODES 1	2	3	4	5	6	7
Acetone	00067-64-1	4	180,000	Z	30,000	H	L							
Benzaldehyde	00100-52-7	4	----		0.10	d								
Benzene	00071-43-2	4	1,300	D	0.13	E	H	U	H	A				
Bromodichloromethane	00075-27-4	4	---		70.0	D	M							
Bromoform	00075-25-2	4	---		0.91	E	M	U	H					
Bromomethane	00074-83-9	4	3,900	D	5.0	E	M		H					
2-Butanone	00078-93-3	4	13,000	D	5,000	E	M							
Carbon Disulfide	00075-15-0	6	6,200	D	700	E	M		H					
Carbon Tetrachloride	00056-23-5	4	1,900	D	0.17	E	H	U	H	B				
Chlorobenzene	00108-90-7	4	---		60	H	M		H					
Chloroethane	00075-00-3	4	---		10,000	E	L		H					
2-Chloroethyl Vinyl Ether	00110-75-8		----		0.10	d								
Chloroform	00067-66-3	4	150	D	14.7	H	M	U	H					
Chloromethane	00074-87-3	4	22,000	D	90	E	M		H					
Decane	00124-18-5	4	---		700	A	M				R			
Dibromochloromethane	00124-48-1	4	---		0.10	d	M							
1,2-Dichlorobenzene (o)	00095-50-1	4	30,000	Z	200	H	M							
1,3-Dichlorobenzene (m)	00541-73-1	4	---		10	H	M							
1,4-Dichlorobenzene (p)	00106-46-7	4	---		0.09	D	M	U	H					
1,1-Dichloroethane	00075-34-3	4	---		0.63	D	L	U	H					
1,2-Dichloroethane	00107-06-2	4	---		0.038	E	M	U	H					
1,1-Dichloroethene	00075-35-4	4	---		200	H	M		H					
cis-1,2-Dichloroethene	00156-59-2	4	---		63	D	M							
trans-1,2-Dichloroethene	00156-60-5	4	----		63	D	M							
1,2-Dichloropropane	00078-87-5	4	----		4.0	E	M		H					
1,3-Dichloropropene,cis & trans isomers	00542-75-6	4	---		0.25	E		U	H					
Ethylbenzene	00100-41-4	4	---		1,000	E	M		H					
2/4 Ethyltoluene (total)	611-14-3/622-96-8		----		0.10	d								
Freon 13	00075-72-9	4	9,000	A	5,000	A	L				R	R		
2-Hexanone	00591-78-6	4	4,000	Z	30	E								
Methylene Chloride	00075-09-2	6	14,000	D	60.0	E	M	U	H					
4-Methyl-2-Pentanone	00108-10-1	4	31,000	Z	3,000	E	M		H					
Styrene	00100-42-5	4	17,000	Z	1,000	E	M		H					
1,1,2,2-Tetrachloroethane	00079-34-5	4	---		16	T	M		H					
Tetrachloroethene	00127-18-4	4	300	H	4.0	E	H	U	H					
Toluene	00108-88-3	4	37,000	D	5,000	E	L		H					
1,1,1-Trichloroethane	00071-55-6	6	9,000	E	5,000	E	L		H					
1,1,2-Trichloroethane	00079-00-5	4	---		1.40	D	M		H					
Trichloroethene	00079-01-6	4	20	H	0.20	E	H	U	H	B				
Trichlorofluoromethane	00075-69-4	6	9,000	A	5,000	A	L				R	R		
Vinyl Chloride	00075-01-4	4	180,000	D	0.11	E	H	U	H	A				
Xylenes (Total)	01330-20-7	4	22,000	D	100	E	M		H					

TABLE 2.1
(Continued)

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

PROGRAM TARGET COMPOUND LIST
AND NYSDEC AMBIENT AIR GUIDELINE CONCENTRATIONS

2019 ANNUAL REPORT

NOTES:
* AGC/SGC Values updated August 2016 and still current as of June 2019.

TOXICITY (T):
(H) HIGH Toxicity Contaminant.
(M) MODERATE Toxicity Contaminant.
(L) LOW Toxicity Contaminant.

WHO (W), Source of AGC/SGC Assignment:
(A) AGC/SGC based upon NYSDEC "Analogy"
(D) NYSDEC derived AGC/SGC
(E) AGC based upon EPA IRIS data (RfC or Unit Risk)
(H) NYSDOH derived AGC/SGC
(S) AGC/SGC listed is FEDERAL or NYS Standard.
(T) AGC based upon AGCIH TLV.
(Y) SGC is based on AGCIH TLV Ceiling Value
(Z) SGC is based on AGCIH STEL.
(d) No AGC is available, and therefore, the DAR-1
(*) AGC assigned High Toxicity "de minimis" limit.
Moderate Toxicity "de minimis" limit was assigned.
(----) There is no SGC for this compound.
(s) AGC/SGC based upon Equivalent FEDERAL or NYS Standard
(X) There is no AGC/SGC value for this contaminant

CODES:
Position 1: (U) AGC equivalent to one in a million excess cancer risk

Position 2: (H) Federal HAP

Position 3: (A) ACGIH Human Carcinogen
(B) ACGIH Suspected Human Carcinogen

Position 4: (R) AGC Assigned to REFERENCE Compound

Position 5: (R) SGC Assigned to REFERENCE Compound

Position 6: (Q) AGC Assigned as different Element(s) & Adjusted

Position 7: (Q) SGC Assigned as different Element(s) & Adjusted

FIGURE 2.2

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SCHEMATIC OF EPA REFERENCED
VOLATILE ORGANIC SAMPLING TRAIN (VOST)

2019 ANNUAL

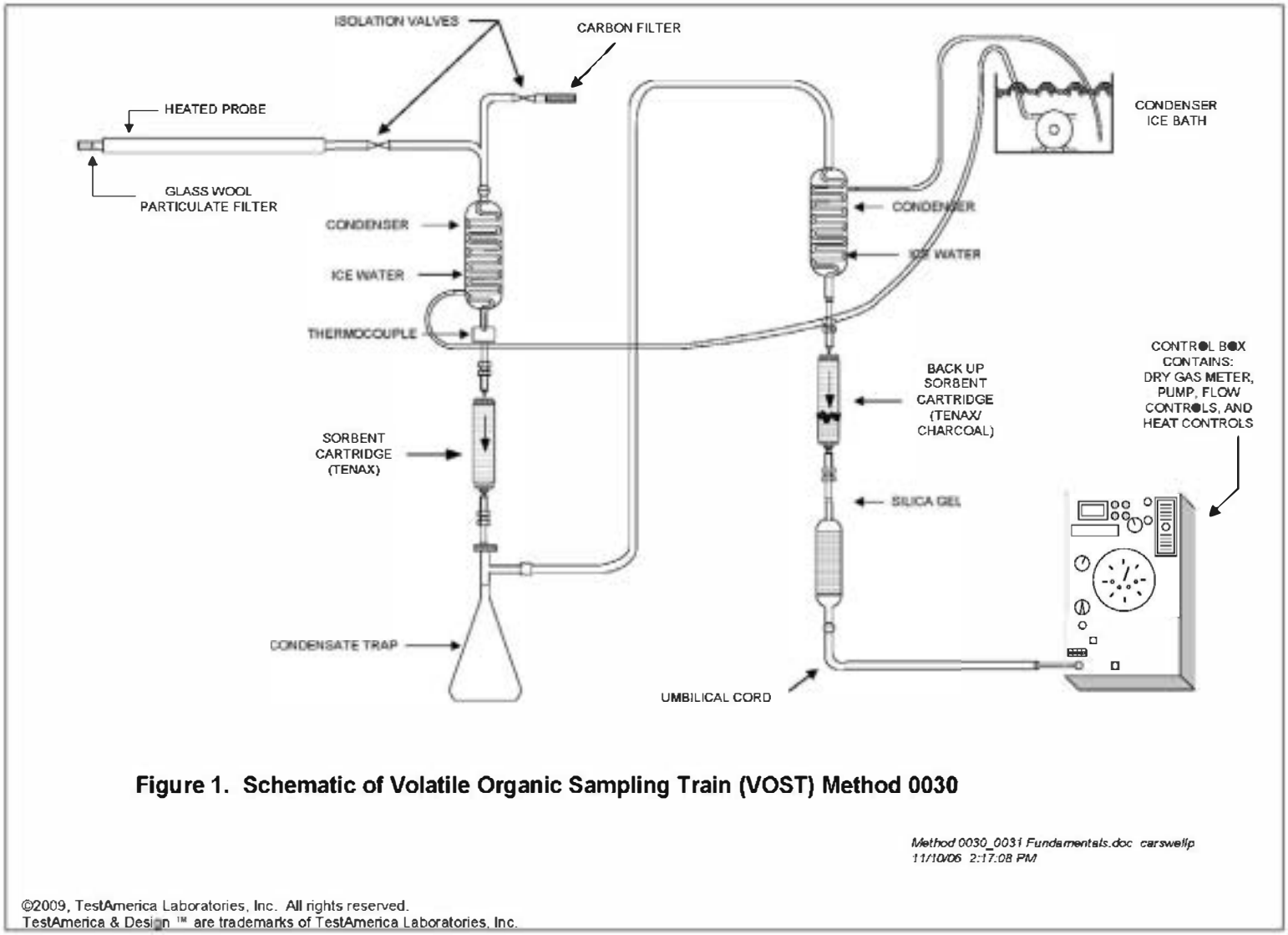


Figure 1. Schematic of Volatile Organic Sampling Train (VOST) Method 0030

Method 0030_0031 Fundamentals.doc carswellp
11/10/06 2:17:08 PM

RTP Environmental Associates, Inc.

1 gram of each), a silica gel drying tube, a calibrated rotameter, a sampling pump, a dry gas meter, and a water circulation pump.

The standard VOST is not designed for field portable ambient air monitoring. It is designed to extract and concentrate VOCs with boiling points less than or equal to 100 degrees Centigrade (°C) from stack gas effluents. The major difficulties with using a standard VOST in the field for ambient air quality work are the power requirements, setup and assembly problems, and the potential breakage of glassware. As such, RTP modified the EPA standard VOST unit to make it portable and with air flow volumes necessary to achieve the analytical sensitivity required in ambient air sampling programs required by the Consent Decree. These VOST modifications include the use of a Teflon lined sampling cane, a pre-conditioned primary sorbent Tenax cartridge, an empty glass impinger for potential condensate collection, a pre-conditioned secondary sorbent Tenax and petroleum-based carbon (Tenax/Charcoal) cartridge, a sealed T-connection port for monitoring back-pressure across the sorbent cartridges, an in-line calibrated rotameter, a flow splitter, a personal sampling pump, a gel cell power supply, an insulated container, an ice pack, and a high-low thermometer to measure the temperature extremes. Figure 2.3 illustrates the RTP modified VOST. An SKC sampling pump, portable battery backup, and rotameter were used instead of the standard VOST flow controlled sampling pump and dry gas meter. Packed ice and a condensate impinger were used instead of the circulating ice water through two (2) condensers in the EPA reference method.

During the 2019 annual field test, pre-conditioned Tenax cartridge and Tenax/Charcoal cartridges in series were used in the ambient air samplers and as previously stated, were set to run at a nominal flow rate of 0.25 Lpm. The VOST Tenax and Tenax/Charcoal sorbent cartridges used in the modified sampling train are similar to those used in the VOST EPA Reference Method 0030.

2.2.3 VOST Sample Volume Selection

The selection of sample volumes for the ambient air and soil gas samples for this study was investigated. In general, the sample volume or sample size is limited by the analytical instrumentation being applied at the host laboratory and by the period of sampling required in the Consent Decree. Since sample quantitation is based on nanogram concentrations of constituents, appropriate sample volumes are necessary to provide the desired analytical sensitivity. The analytical laboratory for this event was Pace Analytical Services Inc. (Pace).

In general, analytical instruments can detect between a few nanograms to thousands of nanograms of individual constituents in a sample. The analytical instrument's lower quantitation limit (LQL) was set at 5 nanograms (ng) for the majority of TCL constituents in the ambient VOST samples and soil gas VOST samples. Five (5) TCL constituents (acetone, bromoform, 2-butanone, 2-hexanone, and 4-methyl-2-pentanone) in both ambient and soil gas VOST samples were analyzed at an 8 ng LQL due to the poor

FIGURE 2.3

TOWN OF OYSTER BAY

OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

MODIFIED PORTABLE VOST SAMPLER

2019 ANNUAL

responses generally given by these constituents during laboratory analysis. Methylene chloride has a MDL of 10 ng. Additional tentatively identified compounds (TICs) like; chlorotrifluoromethane (Freon 13), 2-chloroethyl vinyl ether, benzaldehyde, and decane were analyzed at levels equivalent to or greater than 25 ng based on low responses for these compounds. The upper quantitation limit (calibration limit) for a splitless analysis was nominally set at 1,000 ng for both ambient and soil gas VOST samples for TCL and TIC constituents. Therefore, in order to provide the correct mass loading of constituents on the sample substrate, sample volumes were approximated based on the history of compound constituent identifications and corresponding concentrations detected at these locations.

In addition, Photoionization Detectors (PIDs) were used to determine the ambient VOC concentration prior to sampling. The PID readings indicate if an adjustment in sample volume was needed for sample mass loading purposes. If PID readings indicated that a sample volume adjustment was necessary, the sample volume was modified as per the PID reading to sample volume relationship as presented in Table 2.2. However, please note that the PID has a lower limit of detection of 0.1 parts per million (ppm) and it was not always possible to specify the exact sample volume required to consistently achieve the proper mass loading on each sampling cartridge. Therefore, to minimize constituent non-detection because of insufficient sample volume for ambient air samples, a moderate sample volume (approximately 360 liters) was commonly selected. It has been estimated that a maximum 10-liter sample volume (based on the approximate volume contained in the soils surrounding a 30-inch soil gas well) was appropriate for sampling shallow soil gas wells. Removing more than a 10-liter sample would potentially introduce ambient air from the surface into the well-being sampled. Further, 10-liter sample volumes have also been selected for the 10, 20, 30, and 40-foot deep subsurface wells at the M9 sampling location to allow for a direct comparison to other soil gas well concentrations.

2.2.4 Other Sampling Equipment

The SKC sampling pumps used in this study were Model 224-PCXR7/8 universal exhaust pumps. These pumps will automatically shut down for low battery voltage or excessive back pressure. The accuracy of the sampling pumps is about ±5% of the set nominal flow rate.

SKC sampling pumps can be programmed to operate continuously or intermittently. They can be used to collect different total sample volumes at different flow rates. The pumps can be programmed to continuously draw samples at a desired flow rate over a pre-assigned time period. This capability is particularly important in the ambient air sampling event. It is possible to collect ambient air samples over a 24-hour total elapsed time period to give an integrated 24-hour average VOC concentration as specified in the Consent Decree. The only factor that limits the overall sampling time is the pump battery capacity. This capacity has been expanded by attaching a 6-volt gel cell battery to the pump battery, thus providing a longer lasting power source.

TABLE 2.2

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

GENERAL RELATIONSHIP BETWEEN PHOTOIONIZATION DETECTOR (PID) READINGS AND SAMPLE VOLUME

2019 ANNUAL REPORT

PID READINGS (ppm)	SAMPLE VOLUME (liters)
<0.1 to 0.5	1,000 to 10
0.5 to 2	10 to 1
2 to 5	1
5 to 10	0.5
10 to 15	0.1
15 to 20	0.05
>20	0.01

Notes:

- ppm: parts per million
- Actual sample volumes collected may not correspond to their respective PID readings listed above when a history of constituent concentrations at the sampling site has been established.

A Bios DryCal® DC Lite digital flow calibrator (Model DCL-MH) was used before and after this sampling event to calibrate nine (9) Supelco rotameters in conjunction with the SKC sampling pumps to a desired nominal flow rate. This was performed to establish a relationship between actual pump volume flow rates and the corresponding rotameter readings. Inconsistencies between pre-test and post-test rotameter calibrations could reveal a leak in a rotameter. The calibration data, together with the Supelco rotameter readings recorded during sampling, were then used to establish the precise sample volumes collected during each test. The Bios flow calibrator is a digital air flow meter consisting of a piston and a precision encoder system (two finely collimated infrared light beams). The piston rises at the rate of evacuation (or pressurization) and once the piston travels past the two infrared light beams, a flow reading is calculated. The Bios flow calibrator has been checked against a NIST traceable standard and was last calibrated on August 14, 2018. The flow calibration sheets and the calibration certificate for the Bios unit are located in Attachment E. The combined accuracy of this calibrator and the Supelco rotameters used for the 2019 annual event is ±1%.

Ashcroft analog pressure gauges were used to check pre and post-test back pressures on the VOST cartridges prior to initiating sampling and at the end of the sampling period. Back pressure readings were recorded on the field data sheets and reviewed after the test. The calibrations for the pressure gauges, provided in Attachment E, were within tolerance limits and were valid for the 1st quarter test.

A calibrated PID was generally used during the monitoring program before and after each sampling event to measure the total ambient and soil gas VOC concentration. It is a hand-held, instantaneous-reading analyzer that measures the total concentration of all ionizable compounds in ppm. The PID can be used to verify or adjust sample volumes according to the general relationship between PID readings and sample volumes, as shown in Table 2.2. Since sample volumes have been established based on compound constituent identifications and corresponding concentrations, PIDs were used to assess the need for sample volume adjustments were not necessary based on higher than normal VOC levels in the ambient air. PID readings were taken at each ambient sampling location and all 17 soil gas wells sampled (13 30” wells and the four (4) wells at M9). PID measurements were taken at the initiation and at the culmination of the effort at all ambient samplers. Based on the PID readings, no sample volume adjustments were deemed necessary.

2.3 Meteorological Data

Meteorological data was continuously collected onsite in conjunction with the monitoring program. A portable meteorology station was temporarily installed and operated during the ambient air quality, soil gas, and pressure well tests. Meteorological instruments provide localized information on ambient weather conditions during a test. The meteorological parameters of interest in this program include: wind speed, wind direction, temperature, relative humidity, turbulence, barometric pressure, and precipitation. The main meteorological station, located atop the Landfill, consists of a Climatronics wind vane and cup anemometer, a temperature sensor, a capacitive relative humidity sensor, and a barometric pressure sensor. In addition, a

tipping bucket rain gauge and vertical wind sensor (propeller type) were also part of this weather station. All data was recorded using a Campbell Scientific CR850 datalogger. The CR850 data logger was enclosed inside a portable instrument case while the remainder of the equipment was mounted on an 8-foot tripod. Usually, the same meteorological parameters are collected at an upwind meteorological station that is collocated with the upwind ambient air samplers; however, due to budget issues, this upwind meteorological station was not utilized during this 2019 annual effort. Corroborating meteorological data presented in this report was instead from Republic Airport in Farmingdale, NY, which is approximately two (2) miles southeast of the Landfill.

Weather conditions for the March 11-12, 2019 annual sampling event were forecasted by the National Weather Service to include westerly to northwesterly winds at moderate speeds, with stable to slightly rising barometric pressure. The actual wind conditions recorded onsite during the 24-hour test were similar to those forecasted and included winds that were predominantly out of the west-northwest. Wind speeds were moderate and fairly consistent for most of the testing period, ranging from as low as 9.5 mph to as high as 16.1 mph atop the Landfill. Average wind speed atop the Landfill was approximately 12.7 mph over the course of the testing period. Meteorological conditions recorded atop the Landfill during this annual test compared reasonably well with station observations recorded at Republic Airport.

Data from Republic Airport indicated wind speeds and directions that were comparable to those observed atop the Landfill. The temperature differences recorded at Republic Airport and the meteorological station atop the Landfill suggest that the vertical temperature profile was likely isothermal during the test. The peak vertical temperature difference between the stations during the test was noted at 00:00 on March 12, at approximately 4.0 degrees (increasing temperature with height - inversion) Fahrenheit (°F).

The barometric pressure decreased or was steady for approximately the first 14 hours of the testing period. The pressure then increased gradually for the remainder of the testing period. In all, there was a net increase in pressure of 0.14 inches of mercury from the beginning to the end of the 24-hour test period of the ambient air test based on the meteorological data recorded atop the Landfill.

Onsite wind direction records during the sampling period confirm the downwind samplers as under the influence of landfill sources for the entire 24-hour test period. Downwind samplers D1/2 and D3 were downwind of landfill areas for the entire period. Wind direction records at the Landfill were consistent with Republic Airport. The meteorological monitoring data for the sampling period from Republic Airport and atop meteorological stations are provided in Attachment A.

3.0 SAMPLING AND ANALYSIS

3.1 Background

The program scope of work for sampling and analysis of ambient VOC levels in the vicinity of the Old Bethpage Landfill is principally guided by the Consent Decree. The scope of work for sampling and analysis of perimeter gas methane levels has been determined through discussions with the Town, NYSDEC, and LKB. As mentioned in Section 2.0, the EPA reference sampling method for ambient air and soil gas sampling was modified to account for site conditions and monitoring requirements. The sampling locations specified in the Consent Decree were adjusted slightly to account for expected meteorological conditions during the 24-hour sampling period.

Analytical laboratory services provided mass loading levels on specific substrates within the sampling cartridges and flow data measured continuously were used to provide sample volumes. Thus, the pollutant mass contained in each sample from both soil gas wells and ambient air locations were used to calculate sample concentrations for direct comparisons to ambient guidelines. Historical data were also used to estimate specific ambient VOC levels that were to be expected at the soil gas and ambient air sampling locations.

3.2 Ambient Air Sampling

The 2019 annual ambient air sampling event was conducted on March 11-12, 2019. Three (3) locations at the Old Bethpage Landfill were selected for monitoring ambient level concentrations, as illustrated on Figure 2.1, based on weather forecast data that indicated winds from westerly and northwesterly directions and site accessibility. All ambient air samples were collected using the modified VOST sampler at a calibrated flow rate of approximately 0.25 Lpm. The critical sampling parameters for the ambient VOST samplers and subsurface soil gas samplers are summarized in Table 3.1.

The ambient air sampling trains were partially assembled at the RTP Westbury office according to protocol prior to taking the five (5) ambient air VOST samplers to preselected field locations. The Supelco rotameters were calibrated on February 21, 2019, and the SKC sampling pumps and gel cell battery packs were recharged. The VOST cartridges were removed from their protective cases and the end caps and fittings were removed. The sample cartridges were installed, the inlet/exhaust points were sealed, and the samplers were then taken to the positions shown in Figure 2.1. The pumps and battery packs were positioned and connected, aluminum cartridge holders were positioned, sampling canes were mounted onto the coolers, and the sampling train inlets and exhausts were unsealed. Leak checks were performed prior to sample initiation and these data were recorded on individual field data sheets located in Attachment D. The samplers for location U1/2 were collocated near the OBSWDC western boundary, approximately 200 feet west of Discharge Basin No. 1.

TABLE 3.1

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SUMMARY OF AMBIENT AIR AND SUBSURFACE SOIL GAS SAMPLING

2019 ANNUAL REPORT

SITE ID[1]	SAMPLE ID	TESTING DATE	DURATION (minutes)	WELL DEPTH (inches)	NOMINAL FLOWRATE (Lpm)	DESIRED QUANTITY (liter)	SAMPLE VOLUME[2] ($liter_{STD}$)
U1	OBL19_Annual:U1	3/11/19 - 3/12/19	1,440	40	0.25	360	382
U2	OBL19_Annual:U2	3/11/19 - 3/12/19	1,291	40	0.25	360	291
D1	OBL19_Annual:D1	3/11/19 - 3/12/19	1,440	40	0.25	360	397
D2	OBL19_Annual:D2	3/11/19 - 3/12/19	1,369	40	0.25	360	345
D3	OBL19_Annual:D3	3/11/19 - 3/12/19	1,273	40	0.25	360	341

SUMMARY OF SUBSURFACE SOIL GAS SAMPLING

SITE ID[1]	SAMPLE ID	TESTING DATE	DURATION (minutes)	WELL DEPTH (inches)	NOMINAL FLOWRATE (Lpm)	DESIRED QUANTITY (liter)	SAMPLE VOLUME[2] ($liter_{STD}$)
F1	OBL19_Annual:F1	3/11/19	10	30	1.0	10	10.23
M2	OBL19_Annual:M2	3/11/19	10	30	1.0	10	10.05
M4	OBL19_Annual:M4	3/11/19	10	30	1.0	10	9.94
M5	OBL19_Annual:M5	3/11/19	10	30	1.0	10	10.50
M6	OBL19_Annual:M6	3/11/19	10	30	1.0	10	10.20
M9 (10')	OBL19_Annual:M9(10)	3/11/19	10	120	1.0	10	10.11
M9 (20')	OBL19_Annual:M9(20)	3/11/19	10	240	1.0	10	10.24
M9 (30')	OBL19_Annual:M9(30)	3/11/19	10	360	1.0	10	10.24
M9 (40')	OBL19_Annual:M9(40)	3/11/19	10	480	1.0	10	10.21
M13	OBL19_Annual:M13	3/11/19	10	30	1.0	10	10.39
M16	OBL19_Annual:M16	3/11/19	10	30	1.0	10	10.42
M21	OBL19_Annual:M21	NA	NA	NA	NA	NA	NA
M22	OBL19_Annual:M22	3/11/19	10	30	1.0	10	10.56
M28	OBL19_Annual:M28	3/11/19	10	30	1.0	10	10.64
M31	OBL19_Annual:M31	3/11/19	10	30	1.0	10	10.65
M34	OBL19_Annual:M34	3/11/19	10	30	1.0	10	10.53
M37	OBL19_Annual:M37	3/11/19	10	30	1.0	10	10.54
M39	OBL19_Annual:M39	3/11/19	10	30	1.0	10	10.55

NOTES:

[1] See Figure 2.1 for ambient air and soil gas sampling locations.

U1/U2: Near the OBSWDC western property boundary, approximately 200 feet southwest of Discharge Basin No. 1.

D1/D2: In the corner of the landfill boundary near the landfill access road, just northwest of the Nassau County Fire Service Academy.

D3: At the fifth footbridge along Landfill Haul Road, approximately 75 feet west of Winding Road.

[2] Corrected to standard conditions; 25° C and 29.92 in. Hg.

NA sample location was inaccessible

Samplers for location D1/2 were collocated in the corner of the Landfill boundary near the Landfill access road, just northwest of the Nassau County Fire Service Academy. Sampler D3 was located at the fifth footbridge along Landfill Haul Road, approximately 75 feet west of Winding Road. The ambient air samplers were set to continuously collect air samples at a 0.25 Lpm nominal flow rate over the 24-hour test period. The rotameters were set at 0.25 Lpm in order to allow for the collection of a total air volume of approximately 360 liters over the 24-hour period. To achieve this low flow, an in-line sampling manifold was constructed and installed with two (2) SKC single port flow splitters, used to stabilize flow for each ambient sampler because of the low flow sampling rates (as shown in Figure 2.3). A Supelco low flow rotameter was installed in-line, downstream of the sorbent cartridges, prior to the flow splitter and SKC pump inlet. The flow splitter was positioned in-line, upstream of the SKC pump and downstream of the Supelco rotameter, with the port open to the atmosphere. The adjustment pod to the flow splitter port was adjusted to register the desired 0.25 Lpm flow rate on the in-line rotameter. The remaining flow splitter port was adjusted to maintain the total flow within the pump operating range. This allowed for the continuous collection of an integrated nominal 360 liter sample over the 24-hour sampling period. Sample run times and volumes are presented in Table 3.1. Two (2) ambient samples (U1 and D1) ran for the entire 24-hour test period with sampling volumes within an acceptable range of the target 360 liters. Due to equipment issues, samples U2, D2, and D3 only ran for 1291, 1369, and 1273 minutes, respectively. This resulted in actual runtimes for U2 at 89.7%, D2 at 95.1%, and D3 at 88.4% of the desired 24-hours. All sample volumes and run times were within an acceptable range of the targeted quantities, 360 liters and 24-hours, respectively.

The chronology provided in Attachment B contains details on sampler operations during the course of the test. Periodic checks were made at all ambient air sampling locations. Pump operations were monitored and VOST train integrity and flow rates at the samplers were also checked. For quality assurance, each sampler was checked at regular intervals during the sampling period. Rotameter readings during these site checks were either within established ranges or adjusted to be within the operating window for all ambient samplers. All ambient samplers were operating at the conclusion of the sampling period. Pump elapsed run time readings were recorded throughout the sampling period for all sites.

Upon completion of the ambient air sampling, leak checks were performed. All ambient air samples passed final leak checks. The VOST cartridges were then removed from the VOST units, sealed, and placed in the respective labeled shipping tubes. All ambient air samples were recovered normally. All sorbent cartridges were inventoried, packed, and delivered to the Pace Analytical laboratory (Pace), as per established protocol. No separate condensate samples were collected from the condensers of any ambient samplers.

The laboratory received all ambient sorbent cartridges in good condition. The analytical results, along with the data observed during the sampling event, will be discussed in Section 4.0. The Pace analytical report is provided in Attachment C. Field data forms and equipment calibrations are provided in Attachments D and E, respectively.

3.3 Soil Gas Sampling

The soil gas sampling elements of the Consent Decree require soil gas samples to be extracted from multiple 30-inch deep subsurface gas wells and from 10, 20, 30, and 40-foot depths at one (1) cluster well location (M9). The Consent Decree does not specify the sample volume, constituents to be analyzed, time period for collection, conditions for collection, analytical instrumentation, minimum level of detection, or other parameters necessary to define the nature of the tests and the applicability of test results. Based on the elements of the work scope in the Consent Decree and RAP Attachment 2, RTP developed the protocols and procedures outlined in Section 2.2 of this report, which were based on protocols approved by the NYSDEC.

The first step in the soil gas test was to assemble the sampling trains onsite. The sampler design used for the soil gas samples is similar to that used for the ambient air samples. However, the design differs slightly because flow splitters are not used in parallel with the rotameter, and back pressure readings are not taken. This design is used to achieve a nominal flow rate of 1 Lpm. Furthermore, the sample probe was modified to include a 36-inch long, ¼-inch diameter, stainless steel probe attached to a Teflon sampler inlet line in place of the sampling cane. Prior to use, the stainless steel sample probes were heated to +500˚F to decontaminate the probes. They were then individually wrapped in aluminum foil and sealed to prevent inadvertent exposure to traces of VOCs. The rotameters, in conjunction with the sampling pumps, were calibrated for specific flow rates at each soil gas sampling point based on data obtained from previous quarterly tests.

Soil gas well VOC concentrations were measured using a PID before and after the collection of a soil gas sample; RTP uses two (2) PID units to accomplish this. Recording VOC concentrations within the wells assists with interpreting sample results if soil gas concentrations are abnormally high. In addition, VOC concentrations were measured in the ambient air at various soil gas well locations. These measurements assist with determining if the samples were contaminated by high levels of VOCs in the ambient air while they were being handled prior to and/or following the sampling period. VOC concentrations in the ambient air that are greater than inside the well may indicate the potential for contamination of soil gas samples by contaminants in the ambient air. PID readings did indicate the presence of low levels of VOCs at one of the soil gas wells. The soil gas well that had detectable levels of VOC's using the PID included M5 (0.1 ppm-initial & final).

In previous sampling events, RTP noted that the PIDs may have been reacting to the level of humidity in the atmosphere or within the soil gas well when registering abnormally high readings. RTP, as in past sampling events, elected to use an anhydrous calcium sulfate (DRIERITE®) filter as a desiccant to remove humidity prior to the sample entering the PID during this sampling event to minimize the effect of moisture on PID readings. This has helped to reduce drift values and false-positive VOC readings when humidity levels are above 90%.

Soil gas samples were collected at locations F1, M2, M4, M5, M6, M13, M16, M22, M28, M31, M34, M37,

M39, and M9 (10, 20, 30, and 40-foot depths), as shown on Figure 2.1 and summarized in Table 3.1. All 30-inch soil gas wells were temporarily sealed with a Tygon tubing/metal plug at least 24 hours prior to the collection of the soil gas samples. The M9 wells have individual shut-off valves which are closed at least 24 hours prior to the sampling event.

RTP developed a site-specific procedure for collecting a soil gas sample. First, the soil gas well seal is removed from the well and the well is purged of stagnant gases. This is accomplished by using a pump operated at 1 Lpm for 30 seconds to extract the stagnant well gases in the 30-inch well. An SKC pump is used to extract stagnant gases from the M9 wells and runs at longer intervals than the other wells. The duration of pump operation at the M9 cluster well depends on the depth of each soil gas well. The stainless steel sampling probe is attached to the inlet of the VOST train. A leak check is performed. The probe is then inserted into the well to a depth of approximately 24-inches and sealed from the atmosphere using a Teflon screw-on nut and ferrule. Sampling commences when the sampling pump attached to the outlet of the VOST sampling train is activated. Two (2) VOST sampling trains were used during this effort to sample a total of 17 soil gas wells.

The sampling pumps during soil gas sample collection were nominally set at a rate of 1 Lpm and ran for 10 minutes at each well site. This procedure resulted in approximately 10 liters of soil gas being drawn through the VOST cartridges at each well. At the beginning and end of the sampling period at each well, initial and final leak checks were performed.

Following the sampling of a well, the VOST cartridges were removed from the train, labeled, and packed for delivery to the analytical laboratory. The laboratory received all soil gas sorbent cartridges in good condition. The results are reported in Section 4.0. A chronology of the soil gas sampling is presented in Attachment B. The Pace analytical summary for the soil gas samples is provided in Attachment C. Field data forms and equipment calibrations are provided in Attachments D and E, respectively.

3.4 Analytical Laboratory Procedures

Pace provided the GC/MS analytical services that identify and quantify all constituents listed on the TCL, plus additional TICs. Pace applied EPA SW846 Method 5041 in conjunction with EPA SW846 Method 8260 for analyzing the collected samples. Method 5041 provides the methodology for determining VOCs collected on Tenax and Tenax/Charcoal sorbent cartridges. Method 8260 is used to quantify VOCs with boiling points below 200°C, and is based on purge-and-trap GC/MS procedures. Further details of the analyses are provided in the analytical results in Attachment C.

Newly desorbed VOST cartridges were supplied by Sigma-Aldrich® (Sigma-Aldrich) for use in this study. Upon receipt at RTP, the sampling cartridges were examined for breakage and stored at the RTP Westbury Office. Pace was forwarded a target compound list of VOCs for this monitoring program. RTP established an

analytical protocol to be followed by Pace. After the samples are delivered, RTP forwards a laboratory letter to Pace suggesting sample splitting and breakthrough protocols for a limited set of VOST cartridge pairs to be reported prior to analyzing the remaining samples. Splitless analyses are performed on field blank samples FB1, FB2, and FB3, prior to any other sample analyses, to determine the presence of any unforeseen contamination. RTP also monitors blank cartridge concentrations for contamination and Quality Assurance/Quality Control (QA/QC) purposes. In addition, RTP recommended a separate front and back cartridge analysis of ambient samples U2, D2, and D3; soil gas Well M9(30); and M39, to assist in assessing breakthrough and mass loading.

Based on the initial results, RTP recommended that Pace perform a non-dilution (splitless) combined front and back sample analysis for all remaining ambient air and soil gas samples. Typically, trip blanks TB1 and TB2 are held for contingency, but RTP recommended that both blank samples be analyzed for this sampling event. Pace then provides RTP with a complete data package for review and comment prior to issuing a report of the test. RTP submitted the annual samples on March 12, 2019, and they were analyzed by Pace on five (5) separate days beginning on March 14-15, 2019, March 18, 2019, March 22, 2019, and concluding on March 25, 2019. Pace noted that all surrogate recoveries met the control limits for this annual test. The Pace laboratory summary report is contained in Attachment C.

4.0 DISCUSSION OF RESULTS

The ambient air and soil gas concentration results are discussed in this Section. The results of the soil gas pressure tests are discussed in Section 5.0.

4.1 Ambient Air Concentrations

For the 2019 annual sampling event at the Old Bethpage Landfill, ambient air concentrations were monitored for 24 consecutive hours at selected sites beginning on March 11, and concluding on March 12, 2019. The sites have been identified and the monitoring and analytical methods were discussed in preceding sections of this report. Laboratory analytical results provided by Pace are combined with other field data and translated into ambient air concentrations in this Section. The analytical results for all ambient air, soil gas, and blank samples are presented in Attachment C.

Table 4.1 contains a summary of the analytical results for the air samples. The values are in micrograms per standard cubic meter (µg/std-m^3) and have been adjusted for flow volume (as calibrated against a digital flow meter), temperature, and barometric pressure. Table 4.1 also includes the lower quantitation limit (LQL) for each sample, and the current AGCs and SGCs (revised in August 2016 and current as of June 2019). Shaded values in Table 4.1 indicate an exceedance of the level of the assigned AGC based on 24-hour sample results.

TABLE 4.1

TOWN OF OYSTER BAY

OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

AMBIENT AIR VOST SAMPLE RESULTS

2019 ANNUAL REPORT

	24-HOUR AMBIENT AIR SAMPLE										BLANK			
SAMPLE IDENTIFICATION[1]	U1		U2		D1		D2		D3		FB3	TB1	CURRENT AGC	24-HOUR SGC[4]
LOWER QUANTITATION LIMIT (LQL)	0.0131		0.0344		0.0126		0.0290		0.0293		5	5		
PRACTICAL QUANTITATION LIMIT (PQL)	0.0209		0.0550		0.0202		0.0464		0.0469		8	8		
TARGETED TIC LQL	0.0654		0.1718		0.0630		0.1449		0.147		25	25		
VOC COMPOUND NAME	($\mu g/m^3$)		($\mu g/m^3$)		($\mu g/m^3$)		($\mu g/m^3$)		($\mu g/m^3$)		(ng)	(ng)	($\mu g/m^3$)	($\mu g/m^3$)
Acetone[2]	0.54		1.14		0.83		1.07		1.10		36	28	30,000	180,000
Benzaldehyde[3]	**0.47**	**<**	**1.19**		**0.90**		**0.45**	**<**	**1.21**				0.10	----
Benzene	**0.33**		**0.39**		**0.35**		**0.34**		**0.30**				0.13	1,300
Bromodichloromethane													70.0	---
Bromoform[2]													0.91	---
Bromomethane													5.00	3,900
2-Butanone[2]	0.20		0.42		0.12		0.39		0.39				5,000	13,000
Carbon Disulfide													700.0	6,200
Carbon Tetrachloride	**0.37**		**0.35**		**0.43**		**0.33**		**0.33**				0.17	1,900
Chlorobenzene													60.0	---
Chloroethane													10,000	---
2-Chloroethyl Vinyl Ether[3]													0.10	----
Chloroform	0.05	<	0.06		0.06		0.06	<	0.06				14.7	150
Chloromethane	0.04	<	0.08		0.06	<	0.09	<	0.12				90.0	22,000
Dibromochloromethane													0.10	---
1,2-Dichlorobenzene (o)													200.0	30,000
1,3-Dichlorobenzene (m)													10.0	---
1,4-Dichlorobenzene (p)	0.02				0.02	<	0.03	<	0.03				0.09	---
1,1-Dichloroethane													0.63	---
1,2-Dichloroethane	**0.045**	**<**	**0.070**		**0.058**	**<**	**0.064**	**<**	**0.065**				0.038	---
1,1-Dichloroethene													200.0	---
cis-1,2-Dichloroethene													63.0	---
trans-1,2-Dichloroethene													63.0	----
1,2-Dichloropropane													4.00	----
1,3-Dichloropropene, cis & trans isomers													0.25	---
Ethylbenzene	0.04	<	0.07		0.05	<	0.06	<	0.10				1,000	---
2/4-Ethyltoluene (total)	0.04	<	0.07		0.04	<	0.06	**<**	**0.10**				0.10	----
Freon 13[3]													5,000	9,000
2-Hexanone[2]													30.0	4,000
Methylene Chloride	0.15		0.23		0.18		0.23		0.22				60.0	14,000
4-Methyl-2-Pentanone[2]													3,000	31,000
Styrene													1,000	17,000
1,1,2,2-Tetrachloroethane													16.0	---
Tetrachloroethene	0.09	<	0.10		0.10	<	0.10	<	0.08				4.00	300
Toluene	0.24	<	0.32		0.30	<	0.40	<	0.42				5,000	37,000
1,1,1-Trichloroethane								<	0.04				5,000	9,000
1,1,2-Trichloroethane													1.40	---
Trichloroethene								<	0.03				0.20	20
Trichlorofluoromethane	0.95		1.25		1.13		1.10		1.20				5,000	9,000
Vinyl Chloride													0.11	180,000
Xylenes (Total)	0.17	<	0.24		0.19	<	0.19	<	0.45				100.0	22,000
Decane[3]	0.16	<	0.32		0.15	<	0.19	<	0.43				700.0	---

TABLE 4.1
(Continued)

TOWN OF OYSTER BAY

OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

AMBIENT AIR VOST SAMPLE RESULTS

2019 ANNUAL REPORT

SAMPLE TYPE	24-HOUR AMBIENT AIR SAMPLE					BLANK		CURRENT AGC	24-HOUR SGC[4]
SAMPLE IDENTIFICATION[1]	U1	U2	D1	D2	D3	FB3	TB1		
ADDITIONAL TIC LQL	0.065	0.172	0.063	0.145	0.147	25	25		
VOC COMPOUND NAME	(µg/m^3)	(µg/m^3)	(µg/m^3)	(µg/m^3)	(µg/m^3)	(ng)	(ng)	(µg/m^3)	(µg/m^3)
Nonanal	0.58	< 0.72			< 0.66			---	---
Octanal		< 0.48			< 1.30			---	---
Unknown Aromatic Hydroc	0.51	< 0.79		< 0.33				---	---
Unknown Petroleum Alkane	2.62	5.10	3.35	7.43	4.52			---	---
Dichlorodifluoromethane	0.88	< 1.01	1.17	< 2.06	< 1.31			12,000	---
Hexanal					< 0.56			---	---
Heptanal					< 0.58			---	---
Unknown (RT: 12.215)					< 0.46			---	---

NOTES:

[1] See Figure 2.1 for ambient air sampling locations.

[2] An 8 (splitless) nanogram practical quantitation limit has been assigned to these compounds due to their poor responses during laboratory analysis.

[3] Targeted Tentatively Identified Compound (TIC). As reported by the laboratory, Targeted TICs have a Lower Quantitation Limit that is five (5) times the targeted compound Lower Quantitation Limit.

[4] This 24-hour guideline concentration was calculated by multiplying the current SGC value (last revised August 2016 and still current as of June 2019) by 0.4 (EPA averaging time adjustment factor).

U1/U2: Near the OBSWDC western property boundary, approximately 200 feet southwest of Discharge Basin No. 1.
D1/D2: In the corner of the landfill boundary near the landfill access road, just northwest of the Nassau County Fire Service Academy.
D3: At the fifth footbridge along Landfill Haul Road, approximately 75 feet west of Winding Road.

- All values are reported in micrograms per standard cubic meter (mg/std-m^3) except for the field blank and trip blank mass loading results which are reported in nanograms (ng).
- Blank values:
  Targeted Compounds and Targeted TICs- All blank values are below the Lower Quantitation Limit, Practical Quantitation Limit (applies to Acetone, Bromoform, 2-Butanone, 4-Methyl-2-Pentanone and 2-Hexanone), or the Targeted TIC Lower Quantitation Limit (applies to Chloroethyl vinyl ether, Freon 13 and Decane). Benzaldehyde has a LQL two (2) times the targeted TIC LQL.
  Additional Tentatively Identified Compounds- All blank values are either below the Targeted TIC Lower Quantitation Limit where fewer than six (6) additional TICs are reported for a particular sample or below the lowest reported additional TIC value, where six (6) or more additional TICs are reported for a particular sample.
- Values in shaded areas are at or exceed the level of the current (last revised August 2016 and still current as of June 2019) and/or previous ambient air Annual Guideline Concentration (AGC) values.
- Less than values (<) are used where the Lower Quantitation Limit, the Target TIC Lower Quantitation Limit, or the Practical Quantitation Limit is averaged with the reported values.
- Freon 13 is listed as Chlorotrifluoromethane in the analytical results, Appendix C.
- (mg/std-m^3): micrograms per standard cubic meter
- (ng): nanograms

A total of five (5) TCL constituents exceeded the level of assigned AGC value in one or more samples, as shown in Table 4.1. Exceeding compounds included benzaldehyde, benzene, carbon tetrachloride, 1,2-dichloroethane, and 2/4-ethyltoluene (total). For benzene, benzaldehyde, carbon tetrachloride, and 1,2-dichloroethane, the respective AGC values were exceeded in all ambient samples. Additionally, ambient sample D3 exceeded the AGC values for 2/4-ethyltoluene (total). No TICs were found to exceed their respective AGC values.

It is important to note that a single 24-hour average value greater than an AGC should not be interpreted as an exceedance of the respective state annual ambient air guideline. Concentrations of all exceeding compounds were similar in both the upwind and downwind samplers.

The SGCs are also provided in Table 4.1 for all TCL constituents and additional TICs (as appropriate). In order to compare the observed 24-hour concentrations to the SGC values, the 24-hour values must be divided by a 0.4 adjustment factor. No calculated short-term values exceed the SGC guidelines when the observed values are adjusted to represent worst-case one-hour concentrations. RTP reviewed field blank sample results for contamination. One (1) target compound, acetone, was detected in the ambient field blank (FB3). Because of the field blank concentrations, RTP required Pace to analyze the trip blanks for this annual effort. Like FB3, acetone was also present in TB1. Pace reported that the back trap of trip blank two (TB2) was clogged and, therefore, only the front trap was analyzed. No detectable compounds were found in the front trap of TB2. The field and verification blank concentrations are also reported in Attachment C.

In general, the levels detected in FB3 were not high enough to significantly affect the ambient air results presented. The source of the acetone in FB3 could not be identified, but possible sources could be from media contamination, contamination at the analytical laboratory, or from contamination present at the RTP office. Media contamination and/or Pace Laboratory contamination is the likely source, especially since it was also detected in TB1. Acetone and methylene chloride are known laboratory contaminants often found in ambient and soil gas samples, including field blanks, during quarterly monitoring events. As in previous testing, acetone was again present in FB3 for this annual test, though methylene chloride was not. Although acetone and methylene chloride were each detected in all five (5) ambient samples, each sample showed concentrations well below the respective AGC values.

Collectable condensate was not present in any of the ambient air sample impingers for this annual test. When present in trace amounts, condensate is recovered and placed on the front traps to avoid influencing the sample MDLs. Otherwise, it is collected in separate condensate vials and analyzed by the analytical laboratory.

If any other LQLs exceeded the value of respective AGCs; therefore, in addition to those noted above, other concentrations could have exceeded the level of the ambient air AGC for compounds with an AGC value lower than the highest practical quantitation limit (PQL) (0.0550 µg/std-m^3). The collection of an ambient

sample volume significantly greater than 360 liters would be required to reduce this PQL. However, a significantly larger sample volume greater than 360 liters is not recommended due to sampling media issues.

The upwind concentrations are taken to represent the general background in the area upwind of the Landfill on the day of sampling; however, there is diffusion (dilution) of those concentrations as the wind moves from an upwind sample point to a downwind sample point. Simply stated, diffusion is a process that reduces higher atmospheric concentrations to lower concentrations. Diffusion rates can vary depending on, for example, the source release characteristics, as well as ambient turbulence. Therefore, because of diffusion, the downwind sample concentrations should be lower when compared to coincident upwind values if the Landfill was not there. Thus, the concentrations as reported in the downwind sample data should be conservative estimates of the actual impact of landfill sources on surrounding areas because they also include impacts from background sources.

From the ambient data collected during the 2019 annual sampling event, background TCL and TIC constituent concentrations (upwind samples averaged TCL constituent concentrations) were subtracted from the average TCL and TIC constituent concentrations recorded at locations downwind of the Landfill. This was completed to provide an estimate of the net impact the Landfill and all other OBSWDC activities taken together, have on ambient VOC levels. This analysis is done only for the constituents that exceeded the respective guideline values. The net impact analysis showed that none of the exceeding compounds continued to exceed its assigned AGC value after subtracting the average upwind concentration from the average downwind concentrations.

A more detailed comparison of the two (2) different downwind locations (again only for TCLs that exceeded the respective AGC value) was also prepared to determine the net impacts. This comparison demonstrated that only one (1) of the exceeding compounds exceeded the assigned AGC value when comparing downwind locations D1/2 and D3 individually to the average concentration in U1/2. For this annual sampling event, the D3 reading exceeded the U1 & U2 averaged value by 0.388 $\mu g/m^3$ for benzaldehyde, which has an AGC limit of 0.1 $\mu g/m^3$. It is worth noting U2 alone exhibited a benzaldehyde reading of 1.19 $\mu g/m^3$, 0.02 $\mu g/m^3$ lower than the value recorded at D3.

In general, VOC concentrations in the ambient air for this 2019 annual test were on par with those values recorded during 2018 testing for a majority of the target compounds. Compared to 2018, more locations upwind and downwind exhibited levels that exceeded the AGC (the AGC was already exceeded at one or more locations for a particular compound in 2018). The variety of TICs detected when compared to the annual test of 2018 has remained the same. The variation in TIC identification is lower when compared to historical quarterly tests, with five (5) different TICs being identified, and three (3) detected but remaining unidentified. Compared to 2018, two (2) new TICs were detected in 2019, hexanal and heptanal, but previously detected alpha -Pinene and beta-Pinene were no longer measured. In general, the total number of target compounds

exceeding the respective AGC standard has remained consistent when compared to previous annual and quarterly tests.

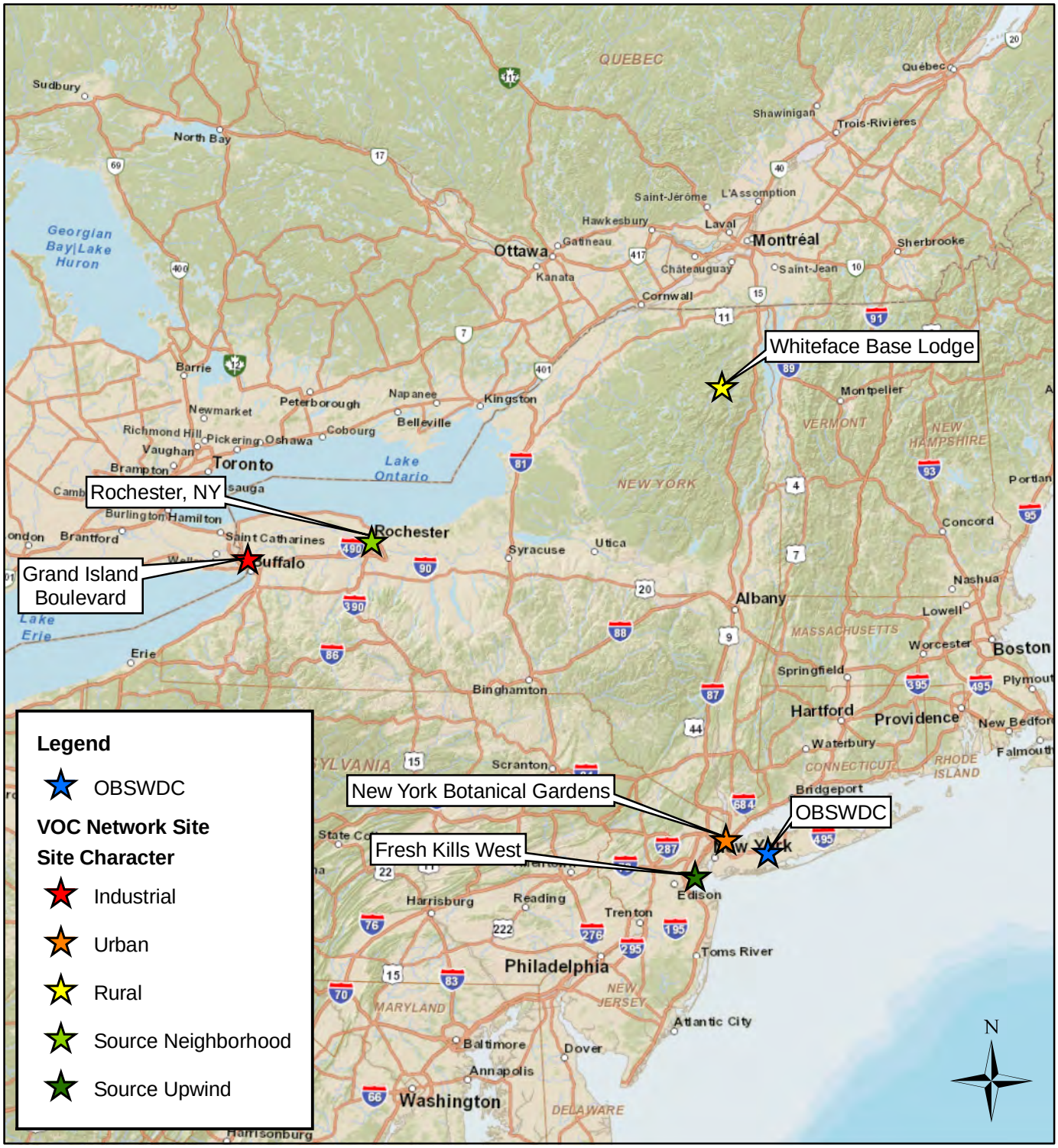
It is important to note that the impact of the Landfill, as determined by the recorded concentrations, is only an approximation. Many of the samples are in line with standard estimates for background concentrations in large urban areas according to the 2015 Environmental Protection Agency (EPA) National-Scale Air Toxics Assessments.

4.2 New York State VOC Monitoring Summary

Beginning with the 2007 annual report, RTP developed a comparison of the OBSWDC VOC results to state-wide VOC ambient air quality levels. This section summarizes VOC monitoring data collected by the NYSDEC. A comparison between State collected data and the OSBSWDC 2019 annual average are also provided for all compounds that were detected in the VOST samples.

The NYSDEC first established the ambient air toxics monitoring program in 1985 as part of the Governor's Air Monitoring Modernization Capital Budget Program. This monitoring network measures VOCs throughout NY. The initial development of the network and analytical capabilities was part of a joint Staten Island/New Jersey Urban Air Toxics Assessment Project (SI/NJ Study) coordinated with USEPA Region II from 1987 through 1989. The network expanded in 1990 to a statewide network. In 2003, there were 15 monitoring locations throughout the State measuring over 40 VOCs. The goal of the NYSDEC monitoring program is to monitor air quality related to toxics in urban, industrial, residential, and rural areas. The latest available data from the State for these locations is for years 2017 and 2016.

There are several land use characteristics immediately surrounding the OBSWDC Landfill including industrial, urban, and suburban; and therefore, it is difficult to classify the results collected in the vicinity of the Landfill as appropriate for any one land use type. As such, it is important to compare the results with State monitoring data representing several different site characteristics. As shown in Figure 4.1, five (5) locations, based on several site characteristics represented at the Landfill and a control (rural site), have been chosen for comparison to average concentration levels. A location at the New York Botanical Gardens in Bronx, NY was chosen to represent an urban area. Previously, data obtained from Troy Atrium in Troy, NY was used for comparison to industrial sites, but current data was no longer available for that location. Similarly, Grand Island Boulevard (from the Tonawanda Study) was changed from Lackawanna in Erie County, NY and now represents an industrial site. Whiteface Base Lodge located in Adirondack Park, Essex, NY continues to be used as a rural site for control comparison. Rochester represents a suburban neighborhood (LaTourette Golf Course in Richmond, NY was previously used), and finally, Fresh Kills Landfill (West) in Staten Island, NY was selected and continues to represent releases from another landfill. The nearest monitoring site to the OBSWDC Landfill is located at the New York Botanical Gardens in



N

0 75 150 Miles

RTP Environmental Associates, Inc.
Westbury, New York

FIGURE 4.1

NYSDEC STATEWIDE VOLATILE ORGANICS NETWORK

TOWN OF OYSTER BAY LANDFILL
BETHPAGE, NEW YORK

BASE MAP SOURCE:
ESRI World Street Map

Bronx, NY; that site is approximately 33 miles west-northwest of OBSWDC.

Table 4.2 provides NYSDEC annual average air toxic VOC concentrations data for the most recently reported years (2017 and 2016) at the urban, industrial, suburban/residential, landfill, and rural state monitoring sites, along with the VOC concentrations from the OBSWDC 2019 ambient air tests.

The data from the NYSDEC sites are for the most current years available. Upwind and downwind sample results for the OBSWDC tests represent the average concentrations for the 2019 sampling event using both upwind and downwind samples (five (5) total samples for each compound). LQLs were used for all compounds that did not detect concentrations over the MDL in order to provide the most conservative estimation. OBSWDC data for both upwind and downwind samplers were used to more closely compare with the NYSDEC data since the NYSDEC does not differentiate samplers as upwind or downwind of specific sources. OBSWDC samples have been presented as the total annual average of combined upwind and downwind results in order to provide a better value for comparison. It is important to note, however, that 2019 OBSWDC values presented here are representative of the annual average concentrations taken under conservative meteorological conditions on only one (1) 24 hour test period for a total of five (5) sample results per compound. Because of the limited number of air samples collected in 2019, the levels provided can only be estimates of the true annual, or short-term maximum, or average levels existing in the environment surrounding the OBSWDC. More precise estimates of annual and short-term maximum concentrations can be obtained with the collection of more samples. By comparison, the NYSDEC VOC values have been taken once every six (6) days regardless of meteorological conditions for the entire year amounting to roughly 60 samples per site.

Four (4) compounds: benzene, carbon tetrachloride, 1,4-dichlorobenzene (p), and 1,2-dichloroethane exceeded the respective AGC guideline value at various sites throughout NYS in 2017 and 2016, and at OBSWDC sites (with the exception of 1,4-dichlorobenzene (p)) from the average of the 2019 tests. In previous years, the compounds bromodichloromethane, chloroform, and trichloroethene also exceeded the respective AGC guideline level; however, in 2019 (as in 2017 & 2018), these compounds were measured below the respective guideline values at the OBSWDC complex. For 2019, OBSWDC had the highest average annual concentration for 6 of the 25 listed compounds (bromodichloromethane, chlorobenzene, 1,3-dichlorobenzene (m), 1,1-dichloroethane, 1,1,2,2-tetrachloroethane, and vinyl chloride), when comparing the average 2019 values to the 2017 and 2016 concentrations for the other five (5) sites. However, all six (6) of these compounds are each represented as an average of the respective LQLs and not actual recorded values. Although these compounds (as presented in Table 4.2) are technically the highest value for all locations, these concentrations are represented as the averages of the respective LQLs for 2019; they are therefore not necessarily present at the OBSWDC. The majority of the OBSWDC samples were actually much lower than their respective AGCs (due to the level of detection being insufficient to determine the actual concentration), and are therefore not a concern with respect to protection of public health.

TABLE 4.2

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

NYSDEC AIR TOXIC CONCENTRATIONS AT VARIOUS STATE MONITORING SITES (µg/m^3)

Compounds Presented for Comparison to OBSWDC Quarterly Concentrations	New York Botanical Gardens *Urban*		Grand Island Blvd (Tonawanda Study) *Industrial*		Whiteface Mt. Base *Rural*		Fresh Kills Landfill West *Landfill*		Rochester *Neighborhood*		TOB-OBSWDC *Landfill*	NYSDEC AGCs	NYSDEC 24-HOUR SGCs
	2017	2016	2017	2016	2017	2016	2017	2016	2017	2016	2019 Avg.	*Revised Aug. 2016*	
Benzene	0.582	0.630	**0.903**	0.767	0.224	0.234	0.624	0.712	0.426	0.419	0.3421	0.13	1,300
Bromodichloromethane	0.000	0.020	0.000	0.013	0.000	0.013	0.000	0.013	0.000	0.007	< *0.0237*	70.0	---
Bromomethane	0.031	**0.039**	0.027	0.031	0.027	0.035	0.031	**0.039**	0.027	0.031	< *0.0237*	5.0	3,900
Carbon Tetrachloride	0.503	**0.509**	0.497	0.503	0.490	**0.509**	0.497	0.465	0.497	0.503	0.3612	0.17	1,900
Chlorobenzene	0.005	0.018	0.000	0.014	0.000	0.014	0.005	0.023	0.000	0.009	< *0.0237*	60.0	---
Chloroethane	0.003	0.008	0.003	0.008	0.016	**0.042**	0.011	0.026	0.000	0.005	< *0.0237*	10,000	---
Chloroform	0.146	**0.171**	0.098	0.122	0.083	0.098	0.117	0.146	0.122	0.132	0.0567	14.7	150
Chloromethane	**1.030**	1.026	0.968	0.974	0.968	0.970	1.013	0.937	0.999	0.982	0.0765	90.0	22,000
1,2-Dichlorobenzene (o)	0.006	0.018	0.000	0.018	0.000	**0.024**	0.000	**0.024**	0.000	0.012	< *0.0237*	200	30,000
1,3-Dichlorobenzene (m)	0.006	0.018	0.000	0.012	0.000	0.018	0.000	0.018	0.000	0.012	< *0.0237*	10.0	---
1,4-Dichlorobenzene (p)	0.102	**0.162**	0.006	0.030	0.006	0.030	0.030	0.060	0.018	0.036	*0.0264*	0.09	---
1,2-Dichloroethane	0.084	0.090	0.078	0.084	0.078	**0.228**	0.090	0.096	0.078	0.078	0.0605	0.038	---
1,1-Dichloroethene	0.008	0.012	0.000	0.004	0.000	0.008	0.000	0.008	0.000	---	< *0.0237*	200	---
1,2-Dichloropropane	0.014	0.023	0.009	0.023	0.014	**0.032**	0.014	0.023	0.014	0.018	< *0.0237*	4.00	----
Ethylbenzene	0.152	0.208	0.126	0.148	0.026	0.039	0.204	**0.299**	0.108	0.126	0.0631	1,000	---
Styrene	0.034	0.051	0.047	0.055	0.013	0.021	0.051	**0.068**	0.021	0.034	< *0.0237*	1,000	17,000
1,1,2,2-Tetrachloroethane	0.000	0.014	0.000	0.007	0.000	0.014	0.000	0.014	0.000	0.007	< *0.0237*	16.0	---
Tetrachloroethene	0.169	**0.237**	0.061	0.088	0.020	0.041	0.102	0.136	0.088	0.081	0.0944	4.00	300
Toluene	0.855	1.149	0.968	1.103	0.595	0.806	1.213	1.676	**1.781**	0.783	0.3385	5,000	37,000
1,1,1-Trichloroethane	0.011	0.023	0.004	0.015	0.004	0.019	0.019	0.038	0.015	**0.041**	0.0248	5,000	9,000
1,1,2-Trichloroethane	0.000	0.005	0.000	0.004	0.000	**0.075**	0.000	0.004	0.000	---	< *0.0237*	1.40	---
Trichloroethene	0.016	0.032	0.016	0.027	0.005	**0.086**	0.016	0.027	0.021	0.027	0.0244	0.20	20
Trichlorofluoromethane	1.213	**1.331**	1.168	1.308	1.157	1.314	1.179	1.246	1.224	1.325	1.1275	5,000	9,000
Vinyl Chloride	0.003	0.013	0.003	0.015	0.003	0.010	0.003	0.013	0.003	0.003	< *0.0237*	0.11	180,000
Xylenes (Total)	0.586	0.902	0.577	0.716	0.108	0.156	0.855	*1.267*	0.412	0.590	0.2482	100	22,000

Notes:

- TOB-OBSWDC site is presented for comparison with the NYSDEC monitoring data. The TOB sites are not an official part of the NYSDEC Air Toxic Program.
- The NYSDEC data is only available up to 2017 for all NYSDEC monitoring sites. As such, the two most current annual data averages were presented for comparison with the 2019 average data from OBSWDC.
- Values in red represent the highest individual average annual compound concentration for the monitoring sites presented in this comparison.
- Values in shaded areas are equal to or exceed the level of the current (revised in August 2016 and current as of June 2019) and/or previous ambient air Annual Guideline Concentration (AGC) values.
- Concentrations in italics represent the inferred values based on the LQLs for 2019 . Although the concentrations of some of the compounds noted in **red** are technically the highest for all locations, these concentrations represent the values include the average of the respective LQLs for each sample location, and are therefore not necessarily present at OBSWDC.
- Values have been converted from ppm using the conversion formula from the *Air Pollution Control Association Directory and Resource Book (1981).* Formula assumes standard pressure and temperature (25°C and 1 atmosphere).
- The samples for the locations above were taken by 24 passivated SUMMA canisters collected every 6th day. Annual average values presented in table above.

The urban site in Troy, New York has historically detected the highest concentrations for the majority of the listed compounds. The New York Botanical Gardens and Whiteface Mountain Base sites, used for comparison to the OBSWDC 2019 values, detected the highest concentrations of the majority of the listed compounds with seven (7) and six (6) compounds, respectively, from 2017 and 2016 monitoring. Further, it is worth noting that many of the concentration values detected at OBSWDC did not exceed the respective NYSDEC AGC values, and the other sites that exceeded the AGC detected concentrations of the reported compounds are similar to those found at the OBSWDC.

According to the NYSDEC, benzene is the one compound that shows significant annual average concentrations above the AGC at several of the sites monitored across the State, indicating numerous sources of this compound are active throughout the State. The principal emitters of benzene are mobile sources, both from direct emissions and emissions related to gasoline storage and handling. Benzene is also emitted during fire training exercises at the adjacent Nassau Country Fire Service Academy, but was not upwind of the downwind samplers during part of the 2019 test period. The concentrations of benzene observed may actually reflect the relative amounts of automobile traffic at the various sites, and therefore, may only partially relate to the emissions from the Landfill. The concentration for benzene is notably lower at OBSWDC in 2019 when compared to the other selected locations. Also, carbon tetrachloride has similar annual concentrations exceeding the AGC at all compared sites in New York. Carbon tetrachloride is a common cleaning solvent. The concentration for carbon tetrachloride is notably lower at OBSWDC in 2019 when compared to the other selected locations.

4.3 Soil Gas Concentrations

Soil gas concentrations were monitored on March 11, 2019 at the soil gas well sites identified in the Consent Decree. Table 4.3 provides a summary of soil gas well VOC concentrations. These concentration values are reported in µg/std-m^3 of soil gas. Table 4.3 also includes the LQL for each sample. All soil gas well sample cartridges were delivered to Pace Analytical Services for analytical analysis. There is currently no State or Federal guidelines for permissible soil gas concentrations of VOCs; however, New York State and EPA are considering introducing vadose zone limits. Nassau County does not have guidelines or standards at this time. For a relative comparison, Table 4.3 provides the AGCs and SGCs for ambient air. Soil gas concentrations that exceed the respective level of the current NYSDEC AGC for ambient air are shaded. A value in excess of the level of the AGC or SGC should not be interpreted as an exceedance of the ambient air guideline since the measured values are soil gas concentrations, not ambient air concentrations.

Meteorological conditions during the six (6) days prior to the test were cold. Meteorological records at the NOAA site at Brookhaven National Labs indicated average nighttime lows at 18.6°F and daytime highs at 35.2°F which would have likely caused subsurface temperatures to be below freezing. A similar pattern is observed at Farmingdale Republic Airport, which exhibits an average nighttime low of 22.5 F and daytime

TABLE 4.3

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SOIL GAS VOST SAMPLE RESULTS
2019 ANNUAL REPORT

SOIL GAS WELL ID	F1	M2	M4	M5	M6	M9(10)	M9(20)	M9(30)	M9(40)	FB1	Current	Current
LOWER QUANTITATION LIMIT (LQL)	0.489	0.498	0.503	0.476	0.490	0.495	0.488	0.977	0.490	5	AGC	SGC
PRACTICAL QUANTITATION LIMIT (PQL)	0.782	0.796	0.805	0.762	0.784	0.791	0.781	1.563	0.784	8	---	---
TARGETED TIC LQL	2.44	2.49	2.52	2.38	2.45	2.47	2.44	4.88	2.45	25	---	---
VOC COMPOUND NAME	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	(ng)	($\mu g/m^3$)	($\mu g/m^3$)
Acetone*	3.13	3.29	1.74	1.68	1.52	2.17	2.90	1.71	2.78	29	30,000	180,000
Benzaldehyde**											0.10	----
Benzene											0.13	1,300
Bromodichloromethane											70.0	---
Bromoform*											0.91	---
Bromomethane											5.00	3,900
2-Butanone*											5,000	13,000
Carbon Disulfide											700	6,200
Carbon Tetrachloride											0.17	1,900
Chlorobenzene											60.0	---
Chloroethane											10,000	---
2-Chloroethyl Vinyl Ether**											0.10	----
Chloroform											14.7	150
Chloromethane											90.0	22,000
Dibromochloromethane											0.10	---
1,2-Dichlorobenzene (o)											200	30,000
1,3-Dichlorobenzene (m)											10.0	---
1,4-Dichlorobenzene (p)											0.09	---
1,1-Dichloroethane											0.63	---
1,2-Dichloroethane											0.038	---
1,1-Dichloroethene											200	---
cis-1,2-Dichloroethene											63.0	---
trans-1,2-Dichloroethene											63.0	----
1,2-Dichloropropane											4.00	----
1,3-Dichloropropene, cis & trans isomers											0.25	---
Ethylbenzene											1,000	---
2/4-Ethyltoluene (total)											0.10	----
Freon 13**											5,000	9,000
2-Hexanone*											30.0	4,000
Methylene Chloride											60.0	14,000
4-Methyl-2-Pentanone*											3,000	31,000
Styrene											1,000	17,000
1,1,2,2-Tetrachloroethane											16.0	---
Tetrachloroethene	2.18					**4.42**	**27.54**	**29.29**	**82.66**		4.00	300
Toluene	0.74										5,000	37,000
1,1,1-Trichloroethane							0.56		1.07		5,000	9,000
1,1,2-Trichloroethane											1.40	---
Trichloroethene								**< 1.02**	**1.76**		0.20	20
Trichlorofluoromethane	2.02	1.27	0.89	0.90	0.87	1.80	3.09	3.44	4.22	5	5,000	9,000
Vinyl Chloride											0.11	180,000
Xylenes (Total)											100	22,000
Decane**											700	---

TABLE 4.3
(Continued)

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SOIL GAS VOST SAMPLE RESULTS
ADDITIONAL TENTATIVELY IDENTIFIED COMPOUNDS
2019 ANNUAL REPORT

SOIL GAS WELL ID	F1	M2	M4	M5	M6	M9(10)	M9(20)	M9(30)	M9(40)	FB1	Current	Current
ADDITIONAL TIC LQL	2.44	2.49	2.52	2.38	2.45	2.47	2.44	4.88	2.45	25	AGC	SGC
VOC COMPOUND NAME	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	(ng)	($\mu g/m^3$)	($\mu g/m^3$)
Nonanal											---	---
Octanal											---	---
Dichlorodifluoromethane			6.40			32.84	107.42	< 12.79	147.89		12,000	---
Cyclotrisiloxane, hexamethyl-											---	---
Ethane, 1,2-dichloro-1,1,2,2-tetrafluoro						15.92	60.84	< 6.40	76.59		17,000	---
Unknown (RT: 12.215)											---	---

TABLE 4.3
(Continued)

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SOIL GAS VOST SAMPLE RESULTS
2019 ANNUAL REPORT

SOIL GAS WELL ID	M13	M16	M21	M22	M28	M31	M34	M37	M39	FB2	Current AGC	Current SGC
LOWER QUANTITATION LIMIT (LQL)	0.481	0.480	ND	0.473	0.470	0.469	0.475	0.474	0.948	5		
PRACTICAL QUANTITATION LIMIT (PQL)	0.770	0.768	ND	0.758	0.752	0.75	0.760	0.759	1.517	8		
TARGETED TIC LQL	2.41	2.40	ND	2.37	2.35	2.35	2.37	2.37	4.74	25		
VOC COMPOUND NAME	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	(ng)	($\mu g/m^3$)	($\mu g/m^3$)
Acetone*	2.39	0.91	---	4.56	2.09	1.85	2.19	17.93	2.61	29	30,000	180,000
Benzaldehyde**			---								0.10	----
Benzene			---								0.13	1300
Bromodichloromethane			---								70.0	---
Bromoform*			---								0.91	---
Bromomethane			---								5.00	3900
2-Butanone*			---	1.13							5000	13,000
Carbon Disulfide			---								700	6200
Carbon Tetrachloride			---								0.17	1,900
Chlorobenzene			---								60	---
Chloroethane			---								10,000	---
2-Chloroethyl Vinyl Ether**			---								0.10	----
Chloroform			---								14.7	150
Chloromethane			---								90.0	22,000
Dibromochloromethane			---								0.10	---
1,2-Dichlorobenzene (o)			---								200	30,000
1,3-Dichlorobenzene (m)			---								10.0	---
1,4-Dichlorobenzene (p)			---								0.09	---
1,1-Dichloroethane			---								0.63	---
1,2-Dichloroethane			---								0.038	---
1,1-Dichloroethene			---								200.0	---
cis-1,2-Dichloroethene			---								63.0	---
trans-1,2-Dichloroethene			---								63.0	----
1,2-Dichloropropane			---								4.00	----
1,3-Dichloropropene, cis & trans isomers			---								0.25	---
Ethylbenzene			---								1,000	---
2/4-Ethyltoluene (total)			---								0.10	----
Freon 13**			---								5,000	9,000
2-Hexanone*			---								30.0	4000
Methylene Chloride			---					1.46			60.00	14,000
4-Methyl-2-Pentanone*			---								3,000	31,000
Styrene			---								1,000	17,000
1,1,2,2-Tetrachloroethane			---								16.0	---
Tetrachloroethene	2.57		---						**< 4.20**		4.00	300
Toluene			---	0.61				0.53	< 1.57		5,000	37,000
1,1,1-Trichloroethane			---								5,000	9,000
1,1,2-Trichloroethane			---								1.40	---
Trichloroethene			---								0.20	20
Trichlorofluoromethane	1.17		---	0.83	0.79	0.92	1.12	1.12	< 1.33		5,000	9,000
Vinyl Chloride			---								0.11	180,000
Xylenes (Total)			---								100	22,000
Decane**			---								700	---

TABLE 4.3
(Concluded)

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SOIL GAS VOST SAMPLE RESULTS
ADDITIONAL TENTATIVELY IDENTIFIED COMPOUNDS
2019 ANNUAL REPORT

SOIL GAS WELL ID	M13	M16	M21	M22	M28	M31	M34	M37	M39	FB2	Current	Current
ADDITIONAL TIC LQL	2.41	2.40		2.37	2.35	2.35	2.37	2.37	4.74	25	AGC	SGC
VOC COMPOUND NAME	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	(ng)	($\mu g/m^3$)	($\mu g/m^3$)
Nonanal			---	17.61							---	---
Octanal			---	8.69							---	---
Dichlorodifluoromethane			---								12,000	---
Cyclotrisiloxane, hexamethyl-			---		3.96	4.80		7.53			---	---
Ethane, 1,2-dichloro-1,1,2,2-tetrafluoro			---								17,000	---
Unknown (RT: 12.215)			---	18.23							---	---

Notes:

* An 8 nanogram practical quantitation limit has been assigned to these compounds due to their poor responses during laboratory analysis.

** Targeted Tentatively Identified Compound (TIC). As reported by the laboratory, Targeted TICs have a Lower Quantitation Limit that is five (5) times the targeted compound Lower Quantitation Limit.

- All values are reported in micrograms per standard cubic meter ($mg/std\text{-}m^3$).
- Blank values:
  Targeted Compounds and Targeted TICs- All blank values are below the Lower Quantitation Limit, Practical Quantitation Limit (applies to Acetone, Bromoform, 2-Butanone, 4-Methyl-2-Pentanone and 2-Hexanone), or the Targeted TIC Lower Quantitation Limit (applies to Chloroethyl vinyl ether, Freon 13 and Decane). Benzaldehyde has a LQL 2 times the targeted TIC LQL.
  Additional Tentatively Identified Compounds- All blank values are either below the Targeted TIC Lower Quantitation Limit where fewer than six (6) additional TICs are reported for a particular sample or below the lowest reported additional TIC value, where six (6) or more additional TICs are reported for a particular sample.
- Values in shaded areas are at or exceed the level of the current (last revised August 2016 and still current as of June 2019) and/or previous ambient air Annual Guideline Concentration (AGC) values.
- Less than values (<) are used where the Lower Quantitation Limit, the Target TIC Lower Quantitation Limit, or the Practical Quantitation Limit is averaged with the reported values.
- Freon 13 is listed as Chlorotrifluoromethane in the Analytical Results, Appendix C.
- ($\mu g/std\text{-}m^3$): micrograms per standard cubic meter
- (ng): nanograms

high of 36 F. This may have impacted soil gas concentrations observed during the tests. It is difficult to determine how large the effect of this condition had on the reported test results

As shown on Table 4.3, two (2) TCL constituents, tetrachloroethene and trichloroethene, were measured in excess of the level of their respective ambient air AGC values at one or more soil gas well locations. Tetrachloroethene was measured in excess of the ambient air AGC value at soil gas Wells M9(10), M9(20), M9(30), M9(40), and M39. Trichloroethene was measured in excess of the ambient air AGC value at soil gas Wells M9(30) and M9(40). No TICs were detected in excess of their respective AGC guideline values, and no compounds (neither TCL, nor TICs) were found in excess of their respective SGC guideline values.

Two blank samples (FB1 and FB2) were taken at soil gas well locations. FB1 was collected at soil gas cluster Wells M9 and FB2 was collected at soil gas Well M39. FB1 was found to contain a small concentration of acetone and trichlorofluoromethane, and FB2 detected a small concentration of acetone. As discussed in Section 4.1, RTP deemed it necessary to analyze the trip blanks (TB1 & TB2). Acetone was present in trip blank 1, indicating that laboratory contamination may have occurred.

A review of all the data indicated that all three (3) of the field blanks and the trip blank demonstrated similar concentrations of acetone. Neither FB1 nor FB2 contained compounds in excess of their AGC values. All field, trip, and verification blank concentrations are reported in Attachment C.

Historically, the soil gas sample results for concentrations recorded at cluster Well M9, including Wells M9(10), M9(20), M9(30), and M9(40) have shown an increase in certain constituent concentrations as well depth increases, particularly with tetrachloroethene. During this 2019 annual sampling event, tetrachloroethene was found in increasing concentrations from M9(10) to M9(40). The highest concentration of this compound was found at M9(40), showing a tetrachloroethene concentration of 82.66 μg/std-m^3. RTP will continue to closely monitor concentrations of this compound at M9 and other wells in future sampling events.

In recent quarterly tests, it appeared that tetrachloroethene concentrations had been increasing relative to the values detected since 2006. During the 4th quarter 2015 test, tetrachloroethene was detected in 15 soil gas wells and exceeded the AGC value in eight (8) of them. In the 1st quarter 2016 test, this compound was present in 10 wells and exceeded the AGC value in two (2) of them. In the 2016 annual sampling event, tetrachloroethene concentrations were in line with the 4th quarter 2015 test, with this compound being detected in 14 wells and exceeding the AGC value in six (6) of them. During the 2017 annual sampling event, tetrachloroethene was detected in 15 soil gas wells and exceeded the AGC value in nine (9) of them. In the 2018 annual sampling event, tetrachloroethene was detected in 13 soil gas wells and exceeded the AGC value in six (6) of them. During this 2019 annual sampling event, tetrachloroethene was detected in seven (7) soil

gas wells and exceeded the AGC in five (5) of them. Four (4) of the previous six (6) tests have registered tetrachloroethene in at least 13 wells, which suggests that concentrations of this compound remain elevated. Specifically, RTP continues to have concerns about the elevated concentrations of tetrachloroethene in soil gas Wells M13 and M39. While these wells exceeded the AGC value for this compound in 2017 and 2018, M13 had detectable levels in 2019, but did not exceed the AGC value. Well M39 continued to exceed the AGC standard in 2019 albeit the concentration was much lower than the value measured in 2018. The historical increased concentrations at these locations could indicate a potential second plume of this compound in the area. Although values have improved during the 2019 test, five months earlier during the 2018 test, tetrachloroethene was found in 13 of the soil gas wells, of which six (6) exceeded the AGC value. The concentrations of tetrachloroethene in soil gas wells onsite will continue to be closely reviewed in future sampling events.

Some soil gas well sample LQLs exceeded the value of respective AGCs, therefore, in addition to those noted above, other well concentrations may have exceeded the level of the ambient air AGC for compounds with an AGC value lower than the highest LQL (0.977 µg/std-m^3) or PQL (1.563 µg/std-m^3). The collection of a soil gas sample volume significantly greater than 10 liters would be required to reduce the LQL; however, a significantly larger sample volume greater than 10 liters is not recommended due to well volume restrictions for the 30-inch wells.

The number of target compounds in soil gas wells that exceeded the level of their respective ambient air AGCs during the 2019 annual test is lower when compared with results from recent tests, including the 2018 annual test. The noted compounds have been detected over the respective AGCs when looking historically through OBSWDC results for the past several years. In the two (2) tests conducted in 2016, benzaldehyde was recorded in soil gas wells above the AGC. However, benzaldehyde was not present in any of the soil gas wells above the MDL during the 2017-2019 annual tests. This result is in line with the third and fourth quarters of 2015. Benzaldehyde levels are suspect because they are difficult to accurately quantify using the current analytical method. RTP will continue to monitor the soil gas wells for the presence of this compound in future tests and continue to investigate any significant differences in soil gas constituent concentrations from quarter to quarter. Additionally, carbon tetrachloride and 1,1-dichloroethane, which were detected in levels over the AGC values in 2017, were both below the AGC values in 2018 and 2019.

The variety of TICs identified in the soil gas wells during this 2019 test has continued to decrease when compared to the 2018 annual test. Dichlorodifluoromethane was again detected in more soil gas wells than in 2018, with five (5) locations in which this compound was present (this compound was found in three (3) wells in 2018). Similar to the annual 2018 test, the most abundant TICs in 2019 were dichlorodifluoromethane and 1,2-dichloro-1,1,2,2-tetrafluoroethane. Wells M9(10) - M9(40) all showed a slightly greater concentration of most TICs, especially when compared to the other soil gas wells. This was also the case with Well M22, which showed detectable levels of Nonanal, Octanal, and an Unknown TIC. Additionally, some concentrations of

certain TICs were significantly higher than those seen in other wells. RTP will continue to monitor the results of TIC concentrations of these compounds and any notable patterns in future tests.

When the values shown in Table 4.3 were multiplied by a factor of 4 to allow comparison to the ambient air SGC, only one (1) targeted compound concentration was calculated to be in excess of the respective current ambient air SGC value. The tetrachloroethene level in Well M9(40) would be 330.7 µg/m^3, which exceeds the SGC of 300 µg/m^3. It should be noted that such comparisons are extremely conservative since soil gas concentrations are being compared to ambient air guideline values and, as such, no true exceedance of the ambient guidelines were measured. Again, an exceedance of an AGC or SGC in soil gas does not constitute an actual exceedance of a NYSDEC guideline.

5.0 SOIL GAS PRESSURE READINGS

As per the modified Consent Decree requirements, pressure readings were taken at the following three (3) locations around the perimeter of the gas collection system: (1) northwest of the Landfill between LGV16 and LGV17, (2) southeast of the Landfill between LGV-1 and LGV-9, and (3) south of the Landfill on the Nassau County Fire Training Center (NCFTC) at either F-6 or F-9. Figure 2.1 illustrates the locations of the three (3) soil gas pressure Wells PW1, PW2, and PW3.

A 10-inch inclined manometer, manufactured by Dwyer Instruments, Inc., was used to monitor soil gas pressures at each well. The 0 to 1-inch inclined portion is divided into 0.01-inch increments with the remaining portion (1 to 10 inches) marked in 0.1-inch increments. The inclined manometer is zeroed prior to taking measurements at each of the three (3) wells. There are two (2) soil gas pressure probes at different depths (10-foot and 20-foot) at each location.

For this annual 2019 sampling event, duplicate pressure readings were taken from each of the six (6) probes. Table 5.1 provides a summary of the soil gas pressure tests relative to the atmospheric pressure at each respective well. RTP conducted the pressure well tests from 07:35 hours through 08:03 hours on March 12, 2019. Essentially, the recorded pressure readings are the pressure differentials between the well pressure and the atmospheric pressure at each well. Zero values were measured for the 10-foot depths at all wells. Negative values were measured at the 20-foot depth at PW3 while positive values were measured at the 20-foot depth at PW1 and PW2. This is fairly consistent with our findings in the tests since 2016, but the positive readings at more than one (1) well location have not been observed since 2015. It is important to note that the differential pressure of these wells is relative to the atmospheric pressure at the time of testing. RTP will continue to monitor these wells and report any abnormal readings.

TABLE 5.1

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SUMMARY OF SOIL GAS PRESSURE TESTS

2019 ANNUAL REPORT

SAMPLE ID	DATE (mm/dd/yy)	TIME (EST)	WELL ID	WELL LOCATION	WELL DEPTH (feet)	PRESSURE* (inches water)
P1	3/12/19	7:46 AM	PW1	NW corner of the landfill on Haul Road	10	0.00
P2	3/12/19	7:46 AM	PW1	NW corner of the landfill on Haul Road	20	0.01
P3	3/12/19	7:47 AM	PW1	NW corner of the landfill on Haul Road	10	0.00
P4	3/12/19	7:47 AM	PW1	NW corner of the landfill on Haul Road	20	0.01
P5	3/12/19	7:35 AM	PW2	SE corner of the landfill NW of Well M2	10	0.00
P6	3/12/19	7:35 AM	PW2	SE corner of the landfill NW of Well M2	20	0.02
P7	3/12/19	7:36 AM	PW2	SE corner of the landfill NW of Well M2	10	0.00
P8	3/12/19	7:36 AM	PW2	SE corner of the landfill NW of Well M2	20	0.02
P9	3/12/19	8:02 AM	PW3	Nassau County Fire Service Academy	10	0.00
P10	3/12/19	8:02 AM	PW3	Nassau County Fire Service Academy	20	-0.05
P11	3/12/19	8:03 AM	PW3	Nassau County Fire Service Academy	10	0.00
P12	3/12/19	8:03 AM	PW3	Nassau County Fire Service Academy	20	-0.05

NOTES:

- Measurements taken using a ten inch Dwyer inclined manometer.
- Leak checks were performed on the manometer before testing each well.

* The differential pressure of a well is relative to ambient pressure.

6.0 SUMMARY AND CONCLUSIONS

The 2019 annual ambient air, soil gas, and pressure well monitoring event was performed by RTP on March 11-12, 2019. Ambient air VOC concentrations and meteorology were monitored during the 24-hour sampling period. In accordance with the Consent Decree, ambient air VOC samples will be collected at locations both upwind and downwind of the Landfill. The ambient air quality test results indicate five (5) constituents on the program TCL, but no TICs, exceeded their AGC values. The exceeding compounds included benzaldehyde, benzene, carbon tetrachloride, 1,2-dichloroethane, and 2/4-ethyltoluene (total). The measured compound concentrations in the ambient air were relatively similar in magnitude for samples collected both upwind and downwind of the Landfill. These results are based on 24-hour samples and, therefore, an exceedance of an AGC does not necessarily indicate an exceedance of a respective annual guideline value. No calculated values exceeded their respective SGC values. Collectable quantities of condensate were not present in any of the ambient air sample impingers and, as such, no separate condensate samples were collected or analyzed.

The net landfill impact values (averaged downwind concentrations minus averaged upwind concentrations) for the 2019 annual test have been calculated to approximate the actual impacts associated with landfill and other OBSWDC sources. The results indicate that the Landfill and other OBSWDC sources may have had little impact on the measured constituents. In general, VOC concentrations in the ambient air for the annual 2019 test were consistent with a majority of the TCL constituents and TIC concentrations when the results were compared to the 2018 test results. Because of the limited number of air samples collected in 2019, the levels provided can only be a very rough estimate of true annual or short-term maximum or average levels existing in the environment surrounding the OBSWDC.

Onsite meteorological data atop the Landfill were recorded during the 24-hour test period. Data from Republic Airport in Farmingdale, NY was also utilized to corroborate local meteorological conditions during the test. Wind directions forecasted by the National Weather Service included westerly to northwesterly winds at mainly moderate speeds with stable barometric pressure, rising late during the testing period. The actual wind conditions recorded by the onsite station during the 24-hour test included winds that were predominantly westerly in direction for the duration of the test. Wind speeds were moderate and fairly consistent for most of the testing period. Meteorological conditions recorded at the meteorological station positioned atop the Landfill during this annual test compared favorably with station observations recorded at Republic Airport.

Soil gas well concentrations were monitored at specific well locations surrounding the Landfill. All soil gas well samples were collected and analyzed successfully except for the front trap of Well M16, which Pace reported as clogged. The back trap for Well M16 was successfully analyzed. Soil gas sample results indicate the presence of a number of target compounds in the soil gas wells surrounding the Landfill. Although no applicable guidelines are currently available for soil gas concentration readings, New York State and EPA have considered introducing vadose zone limits. The number of soil gas well target compound constituents

that exceeded the level of respective ambient air AGCs during the annual 2019 test is slightly lower than the annual 2018 results. One should note that the below normal temperatures, prior to and during the test, caused frozen subsurface ground conditions that may have reduced soil gas concentrations.

TIC detections in some of the soil gas samples for this annual test have decreased when compared to the annual 2018 data and the variety of TICs typically detected in the soil gas wells is also lower in the 2019 data. No target or TIC concentrations in the soil gas samples exceeded the level of respective ambient air SGC guideline values. RTP will continue to review concentration results for the wells for any atypical values or notable trends. Comparisons of soil gas concentrations with ambient AGCs are provided only as relative indicators since soil gas levels are not considered ambient air. Also, because of the limited number of soil samples collected in 2019, the levels can only be rough estimates of true annual, short-term maximum, or average levels existing in the environment surrounding the OSWDC.

Finally, soil gas pressures were measured at three (3) pressure well locations surrounding the Landfill. RTP conducted the pressure well tests from 07:35 hours through 08:03 hours on March 12, 2019. Zero pressure was recorded at all 10-foot depth pressure wells, while positive pressure was recorded at the 20-foot depth at Pressure Wells PW1 and PW2. Negative pressure was observed at the 20-foot depth at Pressure Well PW3.

ATTACHMENT A

METEOROLOGICAL MONITORING DATA

Table A-1

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SUMMARY OF TOP OF LANDFILL METEOROLOGICAL DATA

2019 ANNUAL REPORT
(March 11-12, 2019)

DST (HH:MM)	MWS (MPH)	MWD (Degrees)	SDWD (Degrees)	TEMP (Deg F)	RH (%)	PRESS (in. Hg)	PRECIP (in.)
10:00	15.19	288.7	14.26	43.9	53.8	29.83	0.00
11:00	14.07	282.6	13.73	45.1	51.3	29.82	0.00
12:00	13.67	282.9	16.74	46.7	45.9	29.81	0.00
13:00	13.35	295.9	15.99	48.2	41.6	29.80	0.00
14:00	15.51	284.3	15.21	49.0	37.8	29.77	0.00
15:00	16.08	285.0	14.54	49.4	36.7	29.77	0.00
16:00	14.36	280.3	14.88	49.4	36.2	29.76	0.00
17:00	14.67	285.1	15.07	49.1	34.4	29.76	0.00
18:00	12.24	284.1	12.98	48.8	33.9	29.76	0.00
19:00	10.30	278.9	9.84	48.0	33.6	29.77	0.00
20:00	11.43	272.5	9.25	47.6	31.7	29.78	0.00
21:00	9.65	260.1	8.93	46.9	32.7	29.78	0.00
22:00	9.51	264.6	15.74	46.0	37.2	29.77	0.00
23:00	9.95	319.6	16.56	44.9	34.8	29.79	0.00
0:00	14.31	335.5	16.21	40.0	45.9	29.82	0.00
1:00	15.32	314.2	13.04	36.8	46.8	29.84	0.00
2:00	13.59	316.2	11.80	34.9	51.9	29.86	0.00
3:00	11.08	310.1	12.56	33.6	55.8	29.86	0.00
4:00	13.04	310.5	12.92	33.1	56.5	29.86	0.00
5:00	13.22	309.9	12.53	32.5	52.2	29.87	0.00
6:00	10.92	311.5	12.25	31.7	51.1	29.89	0.00
7:00	9.81	308.7	11.77	31.5	52.4	29.91	0.00
8:00	10.52	314.5	14.39	33.0	50.9	29.93	0.00
9:00	13.12	318.7	14.71	34.3	49.9	29.95	0.00
10:00	13.06	315.9	19.23	34.5	50.9	29.97	0.00

Notes:

DST: Daylight Savings Time.
EDT: Eastern Daylight Savings Time.
MWS: Mean Wind Speed, miles per hour.
MWD: Mean Wind Direction, corrected for wind direction reference.
- 360 degrees is due North (Grid North).
SDWD: Standard Deviation of Wind Direction.
TEMP: Ambient Temperature, degrees Fahrenheit.
RH: Relative Humidity, percent.
PRESS: Atmospheric Pressure, inches of mercury (Hg).
PRECIP: Precipitation, inches of water column.

Table A-2

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SUMMARY OF UPWIND METEOROLOGICAL DATA
From Republic Airport, Farmingdale, NY

2019 ANNUAL REPORT
(March 11-12, 2019)

DST (HH:MM)	MWS (MPH)	MWD (Degrees)	TEMP (Deg F)	RH (%)	PRESS (in. Hg)	PRECIP (in.)
8:53	10.0	266.5	43.0	62.0	30.05	---
9:53	16.0	286.5	46.0	51.0	30.05	---
10:53	18.0	266.5	46.0	51.0	30.05	---
11:53	10.0	276.5	49.0	45.0	30.03	---
12:53	18.0	266.5	50.0	40.0	30.03	---
13:53	16.0	266.5	51.0	37.0	30.01	---
14:53	17.0	266.5	52.0	33.0	29.99	---
15:53	15.0	276.5	52.0	34.0	29.98	---
16:53	17.0	276.5	51.0	34.0	29.99	---
17:53	15.0	276.5	50.0	34.0	29.98	---
18:53	12.0	276.5	50.0	34.0	29.98	---
19:53	13.0	256.5	49.0	32.0	30.00	---
20:53	10.0	256.5	49.0	30.0	30.00	---
21:53	9.0	236.5	48.0	35.0	30.00	---
22:53	10.0	266.5	47.0	36.0	30.00	---
23:53	10.0	336.5	45.0	36.0	30.02	---
0:53	16.0	316.5	40.0	46.0	30.06	---
1:53	13.0	296.5	38.0	46.0	30.07	---
2:53	8.0	316.5	36.0	49.0	30.09	---
3:53	9.0	296.5	35.0	53.0	30.09	---
4:53	10.0	296.5	34.0	53.0	30.09	---
5:53	13.0	296.5	33.0	51.0	30.11	---
6:53	9.0	296.5	33.0	48.0	30.13	---
7:53	7.0	296.5	33.0	51.0	30.15	---
8:53	12.0	306.5	36.0	47.0	30.17	---
9:53	13.0	306.5	36.0	47.0	30.19	---

Notes:

DST: Daylight Savings Time.
EDT: Eastern Daylight Savings Time.
MWS: Mean Wind Speed, miles per hour.
MWD: Mean Wind Direction, corrected for wind direction reference.
- 360 degrees is due North (Grid North).
TEMP: Ambient Temperature, degrees Fahrenheit.
RH: Relative Humidity, percent.
PRESS: Atmospheric Pressure, inches of mercury (Hg).
PRECIP: Precipitation, inches of water column.

ATTACHMENT B

CHRONOLOGY

AMBIENT AIR, SOIL GAS, AND WELL PRESSURE SAMPLING EVENTS

CHRONOLOGY FOR AMBIENT AIR, SOIL GAS, AND WELL PRESSURE SAMPLING EVENTS

Ambient Air Monitoring

A total of five (5) ambient air monitoring samplers were used to collect ambient air quality samples of VOCs during the 2019 annual test effort. The following discussion provides a chronology of events during this annual test event.

The deployment of samplers at all locations consisted of positioning the units, starting the pumps, measuring the back pressure drops, resetting the thermometers, and setting the flow rates for each unit. Leak checks were performed prior to sample initiation. The initial setup conditions were noted on field data sheets for each station. The samples for Location U1/2 were collocated near the OBSWDC western property boundary, approximately 200 feet west of Discharge Basin No. 1. Both units were assembled at the RTP Westbury, New York office, and transported to the monitoring site. U1 and U2 were each started at 09:47 AM (09:47 hours) and 09:50 AM (09:50 hours), respectively, on March 11, 2019. Sample U1 ran continuously for 1,440 minutes before being turned off on-time at 09:47 on March 12, having operated for 100% of the target runtime. Sample U2 ran continuously for a total of 1,291 minutes (89.7% of the 24-hour sampling period), experiencing operating issues during the early morning hours, 1,099 minutes into the test. Eight (8) site inspections were performed for Samplers U1 and U2 over the sampling period. Periodic adjustments were necessary on each sampler to maintain the optimum flow rate for the collection of samples. Both U1 and U2 were recovered normally and forwarded to the laboratory for analysis, as per protocol. U1 and U2 each passed startup and shutdown leak checks. Condensate samples were not present except in trace amounts and, therefore, were recovered on the front trap.

Samplers for Location D1/2 were collocated in the corner of the landfill boundary near the landfill access road, just northwest of the Nassau County Fire Service Academy. Samples D1 and D2 were assembled and positioned as discussed above and were both started at 09:48 on March 11, 2019. Sample D1 ran continuously for 1440 minutes (100% of the 24-hour sampling period). In total, D2 operated for 1,369 minutes (approximately 95.1% of the 24-hour sampling period) after experiencing issues 1,357 minutes into the test. Eight (8) site inspections were performed for Samplers D1 and D2 over the sampling period. Some minor adjustments were necessary on the samplers to maintain the optimum flow rate. Both samples passed startup and shutdown leak checks. Samples D1 and D2 were recovered normally and forwarded to the laboratory as per protocol. Condensate samples were not present except in trace amounts and, therefore, were recovered on the front trap.

Sampler D3 was located at the fifth footbridge along Landfill Haul Road, approximately 75 feet west of Winding Road. This sample was assembled and positioned, as noted above, and started at 10:10 hours on March 11, 2019. The sample ran 1,273 minutes (approximately 88.4% of the 24-hour sampling period), experiencing operating issues during the morning hours, 1,269 minutes into sampling. Seven (7) site

inspections took place for Sampler D3 over the sampling period, and a few adjustments were necessary to maintain the optimum flow rate of the sampler. The sampler passed both startup and shutdown leak checks. The sample was recovered normally and forwarded to the laboratory as per protocol. Condensate samples were not present except in trace amounts and, therefore, were recovered on the front trap.

Field and trip blanks for the program were collected according to protocol. Ambient field blank sample TOBOBL19_Annual:FB3.f&b was collected at the RTP Westbury office during sample train assembly. All other samples were forwarded to the laboratory as per protocol.

Soil Gas Monitoring

Two (2) field soil gas VOST assemblies were deployed for the soil gas monitoring portion of the program. Soil gas samples were collected according to the soil gas sampling protocol. All available samples for the annual 2019 test were collected and forwarded to the laboratory according to the protocol. Soil gas well sampling activities occurred between 10:50 and 15:24 hours on March 11, 2019. The sampling protocol required a 10-liter sample. Soil gas field blank TOBOBL19_Annual: FB1.f&b was collected in the vicinity of soil gas cluster Well M9, and TOBOBL19_Annual: FB2.f&b was collected in the vicinity of soil gas Well M39. All samples were recovered normally and forwarded to the laboratory with two trip blanks, as per protocol.

Soil Gas Pressure Readings

Soil gas pressure readings were taken at the three (3) primary pressure wells surrounding the Landfill. Sampling was performed on March 12, 2019 from 07:35 hours through 08:03 hours. Four (4) readings were taken at PW1, PW2, & PW3 (two per 10-foot depth and two per 20-foot depth) using a Dwyer 10-inch inclined manometer. The inclined manometer was zeroed and leak-checked prior to collecting samples at each well. Sampling followed the established protocol.

ATTACHMENT C

ANALYTICAL RESULTS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

March 29, 2019

Ken Skipka
RTP Environmental
400 Post Avenue (Ste.405)
Westbury, NY 11590

RE: Project: VOST MARCH 2019
Pace Project No.: 7082066

Dear Ken Skipka:
Enclosed are the analytical results for sample(s) received by the laboratory on March 12, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

REVISION 1: Report re-issued on 3/29/19 for case narrative comments and updated qualifiers.

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

Sincerely,

Jennifer Aracri
jennifer.aracri@pacelabs.com
(631)694-3040
Project Manager

Enclosures

cc: Gary Grunseich, RTP Environmental

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

CERTIFICATIONS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Long Island Certification IDs

575 Broad Hollow Rd, Melville, NY 11747
New York Certification #: 10478 Primary Accrediting Body
New Jersey Certification #: NY158
Pennsylvania Certification #: 68-00350
Connecticut Certification #: PH-0435
Maryland Certification #: 208
Rhode Island Certification #: LAO00340
Massachusetts Certification #: M-NY026
New Hampshire Certification #: 2987

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

PROJECT NARRATIVE

Project: VOST MARCH 2019
Pace Project No.: 7082066

Date: March 29, 2019

TOB-OBL19_ANNUAL:M16.B (Lab ID: 7082066020)

- M16.B only reported, M16.F was clogged.

TOB-OBL19_ANNUAL:TB2.F (Lab ID: 7082066032)

- TB2.F only reported, TB2.B was clogged.

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

PROJECT NARRATIVE

Project: VOST MARCH 2019
Pace Project No.: 7082066

Method: **EPA 5041/0031**
Description: TIC MSV Air
Client: Town of Oyster Bay
Date: March 29, 2019

General Information:
3 samples were analyzed for EPA 5041/0031. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

PROJECT NARRATIVE

Project: VOST MARCH 2019
Pace Project No.: 7082066

Method: **EPA 5041/0031**
Description: Air Volatile Organics
Client: Town of Oyster Bay
Date: March 29, 2019

General Information:
32 samples were analyzed for EPA 5041/0031. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

QC Batch: 105453

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

- BLANK (Lab ID: 487409)
  - Chlorotrifluoromethane
- TOB-OBL19_ANNUAL:FB1.F+B (Lab ID: 7082066026)
  - Chlorotrifluoromethane
- TOB-OBL19_ANNUAL:FB2.F+B (Lab ID: 7082066027)
  - Chlorotrifluoromethane
- TOB-OBL19_ANNUAL:FB3.F+B (Lab ID: 7082066030)
  - Chlorotrifluoromethane
- TOB-OBL19_ANNUAL:M39.B (Lab ID: 7082066029)
  - Chlorotrifluoromethane
- TOB-OBL19_ANNUAL:M39.F (Lab ID: 7082066028)
  - Chlorotrifluoromethane
- TOB-OBL19_ANNUAL:M9(30).B (Lab ID: 7082066017)
  - Chlorotrifluoromethane
- TOB-OBL19_ANNUAL:M9(30).F (Lab ID: 7082066016)
  - Chlorotrifluoromethane
- TOB-OBL19_ANNUAL:TB1.F+B (Lab ID: 7082066031)
  - Chlorotrifluoromethane

QC Batch: 105645

CH: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

- TOB-OBL19_ANNUAL:U2.F (Lab ID: 7082066002)
  - Carbon tetrachloride
  - n-Decane

QC Batch: 105821

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

- TOB-OBL19_ANNUAL:TB2.F (Lab ID: 7082066032)
  - Chloromethane
  - Chlorotrifluoromethane

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
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PROJECT NARRATIVE

Project: VOST MARCH 2019
Pace Project No.: 7082066

Method: **EPA 5041/0031**
Description: Air Volatile Organics
Client: Town of Oyster Bay
Date: March 29, 2019

QC Batch: 106579

CH: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

- TOB-OBL19_ANNUAL:F1.F+B (Lab ID: 7082066009)
  - Tetrachloroethene
- TOB-OBL19_ANNUAL:M13.F+B (Lab ID: 7082066019)
  - Tetrachloroethene
- TOB-OBL19_ANNUAL:M9(10).F+B (Lab ID: 7082066014)
  - Tetrachloroethene
- TOB-OBL19_ANNUAL:M9(20).F+B (Lab ID: 7082066015)
  - Tetrachloroethene
- TOB-OBL19_ANNUAL:M9(40).F+B (Lab ID: 7082066018)
  - Tetrachloroethene

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

- TOB-OBL19_ANNUAL:F1.F+B (Lab ID: 7082066009)
  - Chloromethane
- TOB-OBL19_ANNUAL:M13.F+B (Lab ID: 7082066019)
  - Chloromethane
- TOB-OBL19_ANNUAL:M2.F+B (Lab ID: 7082066010)
  - Chloromethane
- TOB-OBL19_ANNUAL:M4.F+B (Lab ID: 7082066011)
  - Chloromethane
- TOB-OBL19_ANNUAL:M5.F+B (Lab ID: 7082066012)
  - Chloromethane
- TOB-OBL19_ANNUAL:M6.F+B (Lab ID: 7082066013)
  - Chloromethane
- TOB-OBL19_ANNUAL:M9(10).F+B (Lab ID: 7082066014)
  - Chloromethane
- TOB-OBL19_ANNUAL:M9(20).F+B (Lab ID: 7082066015)
  - Chloromethane
- TOB-OBL19_ANNUAL:M9(40).F+B (Lab ID: 7082066018)
  - Chloromethane

QC Batch: 106744

CH: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

- TOB-OBL19_ANNUAL:D1.F+B (Lab ID: 7082066004)
  - 1,4-Dichlorobenzene
  - Carbon tetrachloride
  - n-Decane
- TOB-OBL19_ANNUAL:U1.F+B (Lab ID: 7082066001)
  - 1,4-Dichlorobenzene
  - Carbon tetrachloride
  - n-Decane

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

PROJECT NARRATIVE

Project: VOST MARCH 2019
Pace Project No.: 7082066

Method: **EPA 5041/0031**
Description: Air Volatile Organics
Client: Town of Oyster Bay
Date: March 29, 2019

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:U1.F+B **Lab ID: 7082066001** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**206**	ng	8.0	1		03/25/19 19:09	67-64-1	
Benzaldehyde	**178**	ng	25.0	1		03/25/19 19:09	100-52-7	
Benzene	**126**	ng	5.0	1		03/25/19 19:09	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/25/19 19:09	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/25/19 19:09	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/25/19 19:09	74-83-9	
2-Butanone (MEK)	**77.2**	ng	8.0	1		03/25/19 19:09	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/25/19 19:09	75-15-0	
Carbon tetrachloride	**141**	ng	5.0	1		03/25/19 19:09	56-23-5	CH
Chlorobenzene	**<5.0**	ng	5.0	1		03/25/19 19:09	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/25/19 19:09	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/25/19 19:09	110-75-8	
Chloroform	**18.1**	ng	5.0	1		03/25/19 19:09	67-66-3	
Chloromethane	**13.6**	ng	5.0	1		03/25/19 19:09	74-87-3	
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/25/19 19:09	75-72-9	
n-Decane	**61.1**	ng	25.0	1		03/25/19 19:09	124-18-5	CH
Dibromochloromethane	**<5.0**	ng	5.0	1		03/25/19 19:09	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/25/19 19:09	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/25/19 19:09	541-73-1	
1,4-Dichlorobenzene	**6.2**	ng	5.0	1		03/25/19 19:09	106-46-7	CH
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/25/19 19:09	75-34-3	
1,2-Dichloroethane	**17.1**	ng	5.0	1		03/25/19 19:09	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/25/19 19:09	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/25/19 19:09	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/25/19 19:09	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/25/19 19:09	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/25/19 19:09	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/25/19 19:09	10061-02-6	
Ethylbenzene	**15.4**	ng	5.0	1		03/25/19 19:09	100-41-4	
Ethyltoluene (Total)	**14.3**	ng	5.0	1		03/25/19 19:09		
2-Ethyltoluene	**7.1**	ng	5.0	1		03/25/19 19:09	611-14-3	
4-Ethyltoluene	**7.2**	ng	5.0	1		03/25/19 19:09	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/25/19 19:09	591-78-6	
Methylene Chloride	**59.2**	ng	10.0	1		03/25/19 19:09	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/25/19 19:09	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/25/19 19:09	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/25/19 19:09	79-34-5	
Tetrachloroethene	**33.2**	ng	5.0	1		03/25/19 19:09	127-18-4	
Toluene	**93.1**	ng	5.0	1		03/25/19 19:09	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/25/19 19:09	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/25/19 19:09	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/25/19 19:09	79-01-6	
Trichlorofluoromethane	**362**	ng	5.0	1		03/25/19 19:09	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/25/19 19:09	75-01-4	
Xylene (Total)	**66.7**	ng	5.0	1		03/25/19 19:09	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:U1.F+B **Lab ID: 7082066001** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	79	%	70-190	1		03/25/19 19:09	17060-07-0	
4-Bromofluorobenzene (S)	82	%	69-145	1		03/25/19 19:09	460-00-4	
Toluene-d8 (S)	88	%	81-125	1		03/25/19 19:09	2037-26-5	
Tentatively Identified Compounds								
Dichlorodifluoromethane	**338J**	ng		1		03/25/19 19:09	75-71-8	N
Unknown Petroleum Alkane	**534J**	ng		1		03/25/19 19:09		
Unknown Petroleum Alkane	**251J**	ng		1		03/25/19 19:09		
Unknown Petroleum Alkan	**216J**	ng		1		03/25/19 19:09		
Unknown Aromatic Hydroc	**196J**	ng		1		03/25/19 19:09		
Nonanal	**223J**	ng		1		03/25/19 19:09	124-19-6	N

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:U2.F **Lab ID: 7082066002** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**195**	ng	8.0	1		03/15/19 21:22	67-64-1	
Benzaldehyde	**295**	ng	25.0	1		03/15/19 21:22	100-52-7	
Benzene	**105**	ng	5.0	1		03/15/19 21:22	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/15/19 21:22	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/15/19 21:22	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/15/19 21:22	74-83-9	
2-Butanone (MEK)	**109**	ng	8.0	1		03/15/19 21:22	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/15/19 21:22	75-15-0	
Carbon tetrachloride	**75.4**	ng	5.0	1		03/15/19 21:22	56-23-5	CH
Chlorobenzene	**<5.0**	ng	5.0	1		03/15/19 21:22	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/15/19 21:22	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/15/19 21:22	110-75-8	
Chloroform	**13.4**	ng	5.0	1		03/15/19 21:22	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/15/19 21:22	74-87-3	
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/15/19 21:22	75-72-9	
n-Decane	**67.7**	ng	25.0	1		03/15/19 21:22	124-18-5	CH
Dibromochloromethane	**<5.0**	ng	5.0	1		03/15/19 21:22	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/15/19 21:22	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/15/19 21:22	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/15/19 21:22	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/15/19 21:22	75-34-3	
1,2-Dichloroethane	**15.5**	ng	5.0	1		03/15/19 21:22	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/15/19 21:22	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/15/19 21:22	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/15/19 21:22	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/15/19 21:22	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/15/19 21:22	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/15/19 21:22	10061-02-6	
Ethylbenzene	**15.6**	ng	5.0	1		03/15/19 21:22	100-41-4	
Ethyltoluene (Total)	**15.5**	ng	5.0	1		03/15/19 21:22		
2-Ethyltoluene	**7.8**	ng	5.0	1		03/15/19 21:22	611-14-3	
4-Ethyltoluene	**7.7**	ng	5.0	1		03/15/19 21:22	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/15/19 21:22	591-78-6	
Methylene Chloride	**19.9**	ng	10.0	1		03/15/19 21:22	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/15/19 21:22	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/15/19 21:22	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/15/19 21:22	79-34-5	
Tetrachloroethene	**24.7**	ng	5.0	1		03/15/19 21:22	127-18-4	
Toluene	**89.3**	ng	5.0	1		03/15/19 21:22	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/15/19 21:22	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/15/19 21:22	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/15/19 21:22	79-01-6	
Trichlorofluoromethane	**82.0**	ng	5.0	1		03/15/19 21:22	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/15/19 21:22	75-01-4	
Xylene (Total)	**65.1**	ng	5.0	1		03/15/19 21:22	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	96	%	70-190	1		03/15/19 21:22	17060-07-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:U2.F **Lab ID: 7082066002** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
4-Bromofluorobenzene (S)	90	%	69-145	1		03/15/19 21:22	460-00-4	
Toluene-d8 (S)	90	%	81-125	1		03/15/19 21:22	2037-26-5	
Tentatively Identified Compounds								
Unknown Petroleum Alkane	**122J**	ng		1		03/15/19 21:22		
Unknown Petroleum Alkan	**116J**	ng		1		03/15/19 21:22		
Octanal	**114J**	ng		1		03/15/19 21:22	124-13-0	N
Unknown Petroleum Alkan	**167J**	ng		1		03/15/19 21:22		
Unknown Petroleum Alkan	**217J**	ng		1		03/15/19 21:22		
Unknown Aromatic Hydroc	**206J**	ng		1		03/15/19 21:22		
Nonanal	**184J**	ng		1		03/15/19 21:22	124-19-6	N

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:U2.B **Lab ID: 7082066003** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**136**	ng	8.0	1		03/15/19 19:55	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/15/19 19:55	100-52-7	
Benzene	**7.6**	ng	5.0	1		03/15/19 19:55	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/15/19 19:55	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/15/19 19:55	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/15/19 19:55	74-83-9	
2-Butanone (MEK)	**12.4**	ng	8.0	1		03/15/19 19:55	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/15/19 19:55	75-15-0	
Carbon tetrachloride	**25.0**	ng	5.0	1		03/15/19 19:55	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/15/19 19:55	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/15/19 19:55	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/15/19 19:55	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/15/19 19:55	67-66-3	
Chloromethane	**18.1**	ng	5.0	1		03/15/19 19:55	74-87-3	
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/15/19 19:55	75-72-9	
n-Decane	**<25.0**	ng	25.0	1		03/15/19 19:55	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/15/19 19:55	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/15/19 19:55	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/15/19 19:55	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/15/19 19:55	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/15/19 19:55	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/15/19 19:55	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/15/19 19:55	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/15/19 19:55	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/15/19 19:55	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/15/19 19:55	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/15/19 19:55	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/15/19 19:55	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/15/19 19:55	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/15/19 19:55		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/15/19 19:55	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/15/19 19:55	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/15/19 19:55	591-78-6	
Methylene Chloride	**47.9**	ng	10.0	1		03/15/19 19:55	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/15/19 19:55	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/15/19 19:55	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/15/19 19:55	79-34-5	
Tetrachloroethene	**<5.0**	ng	5.0	1		03/15/19 19:55	127-18-4	
Toluene	**<5.0**	ng	5.0	1		03/15/19 19:55	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/15/19 19:55	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/15/19 19:55	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/15/19 19:55	79-01-6	
Trichlorofluoromethane	**282**	ng	5.0	1		03/15/19 19:55	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/15/19 19:55	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/15/19 19:55	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:U2.B **Lab ID: 7082066003** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	103	%	70-190	1		03/15/19 19:55	17060-07-0	
4-Bromofluorobenzene (S)	94	%	69-145	1		03/15/19 19:55	460-00-4	
Toluene-d8 (S)	96	%	81-125	1		03/15/19 19:55	2037-26-5	
Tentatively Identified Compounds								
Unknown Petroleum Alkane	**183J**	ng		1		03/15/19 19:55		
Dichlorodifluoromethane	**269J**	ng		1		03/15/19 19:55	75-71-8	N
Unknown Petroleum Alkane	**528J**	ng		1		03/15/19 19:55		
Unknown Petroleum Alkane	**152J**	ng		1		03/15/19 19:55		
Unknown Aromatic Hydroc	**0.0J**	ng		1		03/15/19 19:55		

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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:D1.F+B **Lab ID: 7082066004** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**329**	ng	8.0	1		03/25/19 19:41	67-64-1	
Benzaldehyde	**359**	ng	25.0	1		03/25/19 19:41	100-52-7	
Benzene	**140**	ng	5.0	1		03/25/19 19:41	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/25/19 19:41	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/25/19 19:41	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/25/19 19:41	74-83-9	
2-Butanone (MEK)	**128**	ng	8.0	1		03/25/19 19:41	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/25/19 19:41	75-15-0	
Carbon tetrachloride	**171**	ng	5.0	1		03/25/19 19:41	56-23-5	CH
Chlorobenzene	**<5.0**	ng	5.0	1		03/25/19 19:41	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/25/19 19:41	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/25/19 19:41	110-75-8	
Chloroform	**22.6**	ng	5.0	1		03/25/19 19:41	67-66-3	
Chloromethane	**22.9**	ng	5.0	1		03/25/19 19:41	74-87-3	
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/25/19 19:41	75-72-9	
n-Decane	**60.6**	ng	25.0	1		03/25/19 19:41	124-18-5	CH
Dibromochloromethane	**<5.0**	ng	5.0	1		03/25/19 19:41	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/25/19 19:41	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/25/19 19:41	541-73-1	
1,4-Dichlorobenzene	**7.6**	ng	5.0	1		03/25/19 19:41	106-46-7	CH
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/25/19 19:41	75-34-3	
1,2-Dichloroethane	**23.0**	ng	5.0	1		03/25/19 19:41	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/25/19 19:41	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/25/19 19:41	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/25/19 19:41	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/25/19 19:41	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/25/19 19:41	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/25/19 19:41	10061-02-6	
Ethylbenzene	**18.2**	ng	5.0	1		03/25/19 19:41	100-41-4	
Ethyltoluene (Total)	**14.0**	ng	5.0	1		03/25/19 19:41		
2-Ethyltoluene	**7.9**	ng	5.0	1		03/25/19 19:41	611-14-3	
4-Ethyltoluene	**6.2**	ng	5.0	1		03/25/19 19:41	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/25/19 19:41	591-78-6	
Methylene Chloride	**73.2**	ng	10.0	1		03/25/19 19:41	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/25/19 19:41	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/25/19 19:41	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/25/19 19:41	79-34-5	
Tetrachloroethene	**40.6**	ng	5.0	1		03/25/19 19:41	127-18-4	
Toluene	**120**	ng	5.0	1		03/25/19 19:41	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/25/19 19:41	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/25/19 19:41	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/25/19 19:41	79-01-6	
Trichlorofluoromethane	**450**	ng	5.0	1		03/25/19 19:41	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/25/19 19:41	75-01-4	
Xylene (Total)	**76.4**	ng	5.0	1		03/25/19 19:41	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:D1.F+B **Lab ID: 7082066004** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	82	%	70-190	1		03/25/19 19:41	17060-07-0	
4-Bromofluorobenzene (S)	82	%	69-145	1		03/25/19 19:41	460-00-4	
Toluene-d8 (S)	88	%	81-125	1		03/25/19 19:41	2037-26-5	
Tentatively Identified Compounds								
Unknown Petroleum Alkane	**259J**	ng		1		03/25/19 19:41		
Dichlorodifluoromethane	**465J**	ng		1		03/25/19 19:41	75-71-8	N
Unknown Petroleum Alkane	**620J**	ng		1		03/25/19 19:41		
Unknown Petroleum Alkane	**274J**	ng		1		03/25/19 19:41		
Unknown Petroleum Alkane	**277J**	ng		1		03/25/19 19:41		

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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:D2.F **Lab ID: 7082066005** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**181**	ng	8.0	1		03/15/19 20:25	67-64-1	
Benzaldehyde	**149**	ng	25.0	1		03/15/19 20:25	100-52-7	
Benzene	**101**	ng	5.0	1		03/15/19 20:25	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/15/19 20:25	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/15/19 20:25	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/15/19 20:25	74-83-9	
2-Butanone (MEK)	**107**	ng	8.0	1		03/15/19 20:25	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/15/19 20:25	75-15-0	
Carbon tetrachloride	**78.6**	ng	5.0	1		03/15/19 20:25	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/15/19 20:25	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/15/19 20:25	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/15/19 20:25	110-75-8	
Chloroform	**14.5**	ng	5.0	1		03/15/19 20:25	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/15/19 20:25	74-87-3	
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/15/19 20:25	75-72-9	
n-Decane	**40.9**	ng	25.0	1		03/15/19 20:25	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/15/19 20:25	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/15/19 20:25	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/15/19 20:25	541-73-1	
1,4-Dichlorobenzene	**5.8**	ng	5.0	1		03/15/19 20:25	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/15/19 20:25	75-34-3	
1,2-Dichloroethane	**17.1**	ng	5.0	1		03/15/19 20:25	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/15/19 20:25	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/15/19 20:25	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/15/19 20:25	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/15/19 20:25	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/15/19 20:25	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/15/19 20:25	10061-02-6	
Ethylbenzene	**14.9**	ng	5.0	1		03/15/19 20:25	100-41-4	
Ethyltoluene (Total)	**15.5**	ng	5.0	1		03/15/19 20:25		
2-Ethyltoluene	**8.2**	ng	5.0	1		03/15/19 20:25	611-14-3	
4-Ethyltoluene	**7.4**	ng	5.0	1		03/15/19 20:25	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/15/19 20:25	591-78-6	
Methylene Chloride	**26.3**	ng	10.0	1		03/15/19 20:25	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/15/19 20:25	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/15/19 20:25	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/15/19 20:25	79-34-5	
Tetrachloroethene	**28.3**	ng	5.0	1		03/15/19 20:25	127-18-4	
Toluene	**134**	ng	5.0	1		03/15/19 20:25	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/15/19 20:25	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/15/19 20:25	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/15/19 20:25	79-01-6	
Trichlorofluoromethane	**91.0**	ng	5.0	1		03/15/19 20:25	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/15/19 20:25	75-01-4	
Xylene (Total)	**59.7**	ng	5.0	1		03/15/19 20:25	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	107	%	70-190	1		03/15/19 20:25	17060-07-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
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(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:D2.F **Lab ID: 7082066005** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
4-Bromofluorobenzene (S)	89	%	69-145	1		03/15/19 20:25	460-00-4	
Toluene-d8 (S)	94	%	81-125	1		03/15/19 20:25	2037-26-5	
Tentatively Identified Compounds								
Unknown Petroleum Alkane	**171J**	ng		1		03/15/19 20:25		
Unknown Petroleum Alkane	**262J**	ng		1		03/15/19 20:25		
Unknown Petroleum Alkane	**165J**	ng		1		03/15/19 20:25		
Unknown Petroleum Alkane	**98.5J**	ng		1		03/15/19 20:25		
Unknown Petroleum Alkan	**117J**	ng		1		03/15/19 20:25		
Unknown Aromatic Hydroc	**87.9J**	ng		1		03/15/19 20:25		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:D2.B **Lab ID: 7082066006** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**187**	ng	8.0	1		03/15/19 18:54	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/15/19 18:54	100-52-7	
Benzene	**15.0**	ng	5.0	1		03/15/19 18:54	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/15/19 18:54	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/15/19 18:54	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/15/19 18:54	74-83-9	
2-Butanone (MEK)	**27.6**	ng	8.0	1		03/15/19 18:54	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/15/19 18:54	75-15-0	
Carbon tetrachloride	**34.0**	ng	5.0	1		03/15/19 18:54	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/15/19 18:54	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/15/19 18:54	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/15/19 18:54	110-75-8	
Chloroform	**5.6**	ng	5.0	1		03/15/19 18:54	67-66-3	
Chloromethane	**26.6**	ng	5.0	1		03/15/19 18:54	74-87-3	
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/15/19 18:54	75-72-9	
n-Decane	**<25.0**	ng	25.0	1		03/15/19 18:54	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/15/19 18:54	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/15/19 18:54	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/15/19 18:54	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/15/19 18:54	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/15/19 18:54	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/15/19 18:54	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/15/19 18:54	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/15/19 18:54	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/15/19 18:54	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/15/19 18:54	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/15/19 18:54	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/15/19 18:54	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/15/19 18:54	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/15/19 18:54		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/15/19 18:54	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/15/19 18:54	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/15/19 18:54	591-78-6	
Methylene Chloride	**53.0**	ng	10.0	1		03/15/19 18:54	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/15/19 18:54	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/15/19 18:54	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/15/19 18:54	79-34-5	
Tetrachloroethene	**<5.0**	ng	5.0	1		03/15/19 18:54	127-18-4	
Toluene	**<5.0**	ng	5.0	1		03/15/19 18:54	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/15/19 18:54	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/15/19 18:54	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/15/19 18:54	79-01-6	
Trichlorofluoromethane	**289**	ng	5.0	1		03/15/19 18:54	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/15/19 18:54	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/15/19 18:54	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:D2.B **Lab ID: 7082066006** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	104	%	70-190	1		03/15/19 18:54	17060-07-0	
4-Bromofluorobenzene (S)	92	%	69-145	1		03/15/19 18:54	460-00-4	
Toluene-d8 (S)	97	%	81-125	1		03/15/19 18:54	2037-26-5	
Tentatively Identified Compounds								
Unknown Petroleum Alkane	**424J**	ng		1		03/15/19 18:54		
Dichlorodifluoromethane	**686J**	ng		1		03/15/19 18:54	75-71-8	N
Unknown Petroleum Alkane	**936J**	ng		1		03/15/19 18:54		
Unknown Petroleum Alkane	**287J**	ng		1		03/15/19 18:54		
Unknown Petroleum Alkan	**103J**	ng		1		03/15/19 18:54		

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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:D3.F **Lab ID: 7082066007** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**206**	ng	8.0	1		03/15/19 20:52	67-64-1	
Benzaldehyde	**409**	ng	25.0	1		03/15/19 20:52	100-52-7	
Benzene	**97.6**	ng	5.0	1		03/15/19 20:52	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/15/19 20:52	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/15/19 20:52	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/15/19 20:52	74-83-9	
2-Butanone (MEK)	**121**	ng	8.0	1		03/15/19 20:52	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/15/19 20:52	75-15-0	
Carbon tetrachloride	**86.6**	ng	5.0	1		03/15/19 20:52	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/15/19 20:52	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/15/19 20:52	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/15/19 20:52	110-75-8	
Chloroform	**14.6**	ng	5.0	1		03/15/19 20:52	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/15/19 20:52	74-87-3	
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/15/19 20:52	75-72-9	
n-Decane	**120**	ng	25.0	1		03/15/19 20:52	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/15/19 20:52	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/15/19 20:52	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/15/19 20:52	541-73-1	
1,4-Dichlorobenzene	**5.5**	ng	5.0	1		03/15/19 20:52	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/15/19 20:52	75-34-3	
1,2-Dichloroethane	**17.3**	ng	5.0	1		03/15/19 20:52	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/15/19 20:52	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/15/19 20:52	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/15/19 20:52	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/15/19 20:52	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/15/19 20:52	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/15/19 20:52	10061-02-6	
Ethylbenzene	**29.4**	ng	5.0	1		03/15/19 20:52	100-41-4	
Ethyltoluene (Total)	**29.9**	ng	5.0	1		03/15/19 20:52		
2-Ethyltoluene	**16.4**	ng	5.0	1		03/15/19 20:52	611-14-3	
4-Ethyltoluene	**13.5**	ng	5.0	1		03/15/19 20:52	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/15/19 20:52	591-78-6	
Methylene Chloride	**22.5**	ng	10.0	1		03/15/19 20:52	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/15/19 20:52	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/15/19 20:52	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/15/19 20:52	79-34-5	
Tetrachloroethene	**23.7**	ng	5.0	1		03/15/19 20:52	127-18-4	
Toluene	**138**	ng	5.0	1		03/15/19 20:52	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/15/19 20:52	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/15/19 20:52	79-00-5	
Trichloroethene	**6.2**	ng	5.0	1		03/15/19 20:52	79-01-6	
Trichlorofluoromethane	**87.5**	ng	5.0	1		03/15/19 20:52	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/15/19 20:52	75-01-4	
Xylene (Total)	**147**	ng	5.0	1		03/15/19 20:52	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	100	%	70-190	1		03/15/19 20:52	17060-07-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:D3.F **Lab ID: 7082066007** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
4-Bromofluorobenzene (S)	118	%	69-145	1		03/15/19 20:52	460-00-4	
Toluene-d8 (S)	92	%	81-125	1		03/15/19 20:52	2037-26-5	
Tentatively Identified Compounds								
Hexanal	**167J**	ng		1		03/15/19 20:52	66-25-1	N
Heptanal	**172J**	ng		1		03/15/19 20:52	111-71-7	N
Octanal	**420J**	ng		1		03/15/19 20:52	124-13-0	N
Unknown Petroleum Alkan	**152J**	ng		1		03/15/19 20:52		
Unknown Petroleum Alkan	**169J**	ng		1		03/15/19 20:52		
Nonanal	**199J**	ng		1		03/15/19 20:52	124-19-6	N
Unknown Petroleum Alkan	**176J**	ng		1		03/15/19 20:52		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:D3.B **Lab ID: 7082066008** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**169**	ng	8.0	1		03/15/19 19:24	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/15/19 19:24	100-52-7	
Benzene	**6.3**	ng	5.0	1		03/15/19 19:24	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/15/19 19:24	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/15/19 19:24	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/15/19 19:24	74-83-9	
2-Butanone (MEK)	**13.3**	ng	8.0	1		03/15/19 19:24	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/15/19 19:24	75-15-0	
Carbon tetrachloride	**27.5**	ng	5.0	1		03/15/19 19:24	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/15/19 19:24	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/15/19 19:24	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/15/19 19:24	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/15/19 19:24	67-66-3	
Chloromethane	**35.3**	ng	5.0	1		03/15/19 19:24	74-87-3	
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/15/19 19:24	75-72-9	
n-Decane	**<25.0**	ng	25.0	1		03/15/19 19:24	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/15/19 19:24	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/15/19 19:24	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/15/19 19:24	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/15/19 19:24	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/15/19 19:24	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/15/19 19:24	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/15/19 19:24	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/15/19 19:24	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/15/19 19:24	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/15/19 19:24	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/15/19 19:24	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/15/19 19:24	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/15/19 19:24	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/15/19 19:24		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/15/19 19:24	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/15/19 19:24	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/15/19 19:24	591-78-6	
Methylene Chloride	**51.6**	ng	10.0	1		03/15/19 19:24	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/15/19 19:24	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/15/19 19:24	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/15/19 19:24	79-34-5	
Tetrachloroethene	**<5.0**	ng	5.0	1		03/15/19 19:24	127-18-4	
Toluene	**<5.0**	ng	5.0	1		03/15/19 19:24	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/15/19 19:24	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/15/19 19:24	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/15/19 19:24	79-01-6	
Trichlorofluoromethane	**323**	ng	5.0	1		03/15/19 19:24	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/15/19 19:24	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/15/19 19:24	1330-20-7	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:D3.B **Lab ID: 7082066008** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	106	%	70-190	1		03/15/19 19:24	17060-07-0	
4-Bromofluorobenzene (S)	92	%	69-145	1		03/15/19 19:24	460-00-4	
Toluene-d8 (S)	97	%	81-125	1		03/15/19 19:24	2037-26-5	
Tentatively Identified Compounds								
Unknown Petroleum Alkane	**274J**	ng		1		03/15/19 19:24		
Dichlorodifluoromethane	**422J**	ng		1		03/15/19 19:24	75-71-8	N
Unknown Petroleum Alkane	**611J**	ng		1		03/15/19 19:24		
Unknown Petroleum Alkane	**158J**	ng		1		03/15/19 19:24		
Unknown	**132J**	ng		1		03/15/19 19:24		

Pace Analytical Services, LLC
575 Broad Hollow Road
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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:F1.F+B **Lab ID: 7082066009** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**32.0**	ng	8.0	1		03/22/19 18:28	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/22/19 18:28	100-52-7	
Benzene	**<5.0**	ng	5.0	1		03/22/19 18:28	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/22/19 18:28	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/22/19 18:28	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/22/19 18:28	74-83-9	
2-Butanone (MEK)	**<8.0**	ng	8.0	1		03/22/19 18:28	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/22/19 18:28	75-15-0	
Carbon tetrachloride	**<5.0**	ng	5.0	1		03/22/19 18:28	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/22/19 18:28	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/22/19 18:28	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/22/19 18:28	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/22/19 18:28	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/22/19 18:28	74-87-3	CL
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/22/19 18:28	75-72-9	
n-Decane	**<25.0**	ng	25.0	1		03/22/19 18:28	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/22/19 18:28	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 18:28	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 18:28	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 18:28	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/22/19 18:28	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/22/19 18:28	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 18:28	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 18:28	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 18:28	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/22/19 18:28	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/22/19 18:28	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/22/19 18:28	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/22/19 18:28	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/22/19 18:28		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/22/19 18:28	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/22/19 18:28	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/22/19 18:28	591-78-6	
Methylene Chloride	**<10.0**	ng	10.0	1		03/22/19 18:28	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/22/19 18:28	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/22/19 18:28	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/22/19 18:28	79-34-5	
Tetrachloroethene	**22.3**	ng	5.0	1		03/22/19 18:28	127-18-4	CH
Toluene	**7.6**	ng	5.0	1		03/22/19 18:28	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/22/19 18:28	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/22/19 18:28	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/22/19 18:28	79-01-6	
Trichlorofluoromethane	**20.7**	ng	5.0	1		03/22/19 18:28	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/22/19 18:28	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/22/19 18:28	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:F1.F+B **Lab ID: 7082066009** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	86	%	70-190	1		03/22/19 18:28	17060-07-0	
4-Bromofluorobenzene (S)	78	%	69-145	1		03/22/19 18:28	460-00-4	
Toluene-d8 (S)	90	%	81-125	1		03/22/19 18:28	2037-26-5	
	Analytical Method: EPA 5041/0031							
TIC Search	**No TICs Found**			1		03/29/19 14:44		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M2.F+B **Lab ID: 7082066010** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**33.1**	ng	8.0	1		03/22/19 18:55	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/22/19 18:55	100-52-7	
Benzene	**<5.0**	ng	5.0	1		03/22/19 18:55	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/22/19 18:55	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/22/19 18:55	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/22/19 18:55	74-83-9	
2-Butanone (MEK)	**<8.0**	ng	8.0	1		03/22/19 18:55	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/22/19 18:55	75-15-0	
Carbon tetrachloride	**<5.0**	ng	5.0	1		03/22/19 18:55	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/22/19 18:55	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/22/19 18:55	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/22/19 18:55	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/22/19 18:55	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/22/19 18:55	74-87-3	CL
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/22/19 18:55	75-72-9	
n-Decane	**<25.0**	ng	25.0	1		03/22/19 18:55	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/22/19 18:55	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 18:55	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 18:55	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 18:55	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/22/19 18:55	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/22/19 18:55	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 18:55	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 18:55	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 18:55	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/22/19 18:55	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/22/19 18:55	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/22/19 18:55	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/22/19 18:55	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/22/19 18:55		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/22/19 18:55	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/22/19 18:55	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/22/19 18:55	591-78-6	
Methylene Chloride	**<10.0**	ng	10.0	1		03/22/19 18:55	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/22/19 18:55	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/22/19 18:55	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/22/19 18:55	79-34-5	
Tetrachloroethene	**<5.0**	ng	5.0	1		03/22/19 18:55	127-18-4	
Toluene	**<5.0**	ng	5.0	1		03/22/19 18:55	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/22/19 18:55	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/22/19 18:55	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/22/19 18:55	79-01-6	
Trichlorofluoromethane	**12.8**	ng	5.0	1		03/22/19 18:55	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/22/19 18:55	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/22/19 18:55	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M2.F+B **Lab ID: 7082066010** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	88	%	70-190	1		03/22/19 18:55	17060-07-0	
4-Bromofluorobenzene (S)	78	%	69-145	1		03/22/19 18:55	460-00-4	
Toluene-d8 (S)	90	%	81-125	1		03/22/19 18:55	2037-26-5	
	Analytical Method: EPA 5041/0031							
TIC Search	**No TICs Found**			1		03/29/19 14:49		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M4.F+B **Lab ID: 7082066011** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**17.3**	ng	8.0	1		03/22/19 19:23	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/22/19 19:23	100-52-7	
Benzene	**<5.0**	ng	5.0	1		03/22/19 19:23	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/22/19 19:23	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/22/19 19:23	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/22/19 19:23	74-83-9	
2-Butanone (MEK)	**<8.0**	ng	8.0	1		03/22/19 19:23	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/22/19 19:23	75-15-0	
Carbon tetrachloride	**<5.0**	ng	5.0	1		03/22/19 19:23	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/22/19 19:23	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/22/19 19:23	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/22/19 19:23	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/22/19 19:23	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/22/19 19:23	74-87-3	CL
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/22/19 19:23	75-72-9	
n-Decane	**<25.0**	ng	25.0	1		03/22/19 19:23	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/22/19 19:23	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 19:23	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 19:23	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 19:23	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/22/19 19:23	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/22/19 19:23	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 19:23	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 19:23	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 19:23	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/22/19 19:23	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/22/19 19:23	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/22/19 19:23	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/22/19 19:23	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/22/19 19:23		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/22/19 19:23	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/22/19 19:23	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/22/19 19:23	591-78-6	
Methylene Chloride	**<10.0**	ng	10.0	1		03/22/19 19:23	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/22/19 19:23	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/22/19 19:23	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/22/19 19:23	79-34-5	
Tetrachloroethene	**<5.0**	ng	5.0	1		03/22/19 19:23	127-18-4	
Toluene	**<5.0**	ng	5.0	1		03/22/19 19:23	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/22/19 19:23	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/22/19 19:23	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/22/19 19:23	79-01-6	
Trichlorofluoromethane	**8.8**	ng	5.0	1		03/22/19 19:23	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/22/19 19:23	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/22/19 19:23	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M4.F+B **Lab ID: 7082066011** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	86	%	70-190	1		03/22/19 19:23	17060-07-0	
4-Bromofluorobenzene (S)	78	%	69-145	1		03/22/19 19:23	460-00-4	
Toluene-d8 (S)	89	%	81-125	1		03/22/19 19:23	2037-26-5	
Tentatively Identified Compounds								
Dichlorodifluoromethane	**63.6J**	ng		1		03/22/19 19:23	75-71-8	N

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
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(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M5.F+B **Lab ID: 7082066012** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**17.6**	ng	8.0	1		03/22/19 19:51	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/22/19 19:51	100-52-7	
Benzene	**<5.0**	ng	5.0	1		03/22/19 19:51	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/22/19 19:51	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/22/19 19:51	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/22/19 19:51	74-83-9	
2-Butanone (MEK)	**<8.0**	ng	8.0	1		03/22/19 19:51	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/22/19 19:51	75-15-0	
Carbon tetrachloride	**<5.0**	ng	5.0	1		03/22/19 19:51	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/22/19 19:51	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/22/19 19:51	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/22/19 19:51	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/22/19 19:51	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/22/19 19:51	74-87-3	CL
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/22/19 19:51	75-72-9	
n-Decane	**<25.0**	ng	25.0	1		03/22/19 19:51	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/22/19 19:51	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 19:51	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 19:51	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 19:51	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/22/19 19:51	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/22/19 19:51	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 19:51	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 19:51	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 19:51	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/22/19 19:51	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/22/19 19:51	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/22/19 19:51	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/22/19 19:51	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/22/19 19:51		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/22/19 19:51	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/22/19 19:51	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/22/19 19:51	591-78-6	
Methylene Chloride	**<10.0**	ng	10.0	1		03/22/19 19:51	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/22/19 19:51	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/22/19 19:51	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/22/19 19:51	79-34-5	
Tetrachloroethene	**<5.0**	ng	5.0	1		03/22/19 19:51	127-18-4	
Toluene	**<5.0**	ng	5.0	1		03/22/19 19:51	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/22/19 19:51	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/22/19 19:51	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/22/19 19:51	79-01-6	
Trichlorofluoromethane	**9.5**	ng	5.0	1		03/22/19 19:51	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/22/19 19:51	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/22/19 19:51	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
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(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M5.F+B **Lab ID: 7082066012** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	86	%	70-190	1		03/22/19 19:51	17060-07-0	
4-Bromofluorobenzene (S)	77	%	69-145	1		03/22/19 19:51	460-00-4	
Toluene-d8 (S)	89	%	81-125	1		03/22/19 19:51	2037-26-5	
	Analytical Method: EPA 5041/0031							
TIC Search	**No TICs Found**			1		03/27/19 15:20		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M6.F+B **Lab ID: 7082066013** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TIC MSV Air	Analytical Method: EPA 5041/0031							
TIC Search	**No TICs Found**			1		03/27/19 15:25		
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**15.5**	ng	8.0	1		03/22/19 20:25	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/22/19 20:25	100-52-7	
Benzene	**<5.0**	ng	5.0	1		03/22/19 20:25	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/22/19 20:25	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/22/19 20:25	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/22/19 20:25	74-83-9	
2-Butanone (MEK)	**<8.0**	ng	8.0	1		03/22/19 20:25	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/22/19 20:25	75-15-0	
Carbon tetrachloride	**<5.0**	ng	5.0	1		03/22/19 20:25	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/22/19 20:25	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/22/19 20:25	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/22/19 20:25	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/22/19 20:25	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/22/19 20:25	74-87-3	CL
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/22/19 20:25	75-72-9	
n-Decane	**<25.0**	ng	25.0	1		03/22/19 20:25	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/22/19 20:25	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 20:25	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 20:25	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 20:25	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/22/19 20:25	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/22/19 20:25	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 20:25	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 20:25	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 20:25	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/22/19 20:25	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/22/19 20:25	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/22/19 20:25	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/22/19 20:25	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/22/19 20:25		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/22/19 20:25	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/22/19 20:25	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/22/19 20:25	591-78-6	
Methylene Chloride	**<10.0**	ng	10.0	1		03/22/19 20:25	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/22/19 20:25	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/22/19 20:25	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/22/19 20:25	79-34-5	
Tetrachloroethene	**<5.0**	ng	5.0	1		03/22/19 20:25	127-18-4	
Toluene	**<5.0**	ng	5.0	1		03/22/19 20:25	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/22/19 20:25	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/22/19 20:25	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/22/19 20:25	79-01-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M6.F+B **Lab ID: 7082066013** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Trichlorofluoromethane	**8.9**	ng	5.0	1		03/22/19 20:25	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/22/19 20:25	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/22/19 20:25	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	88	%	70-190	1		03/22/19 20:25	17060-07-0	
4-Bromofluorobenzene (S)	76	%	69-145	1		03/22/19 20:25	460-00-4	
Toluene-d8 (S)	88	%	81-125	1		03/22/19 20:25	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M9(10).F+B **Lab ID: 7082066014** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**21.9**	ng	8.0	1		03/22/19 20:52	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/22/19 20:52	100-52-7	
Benzene	**<5.0**	ng	5.0	1		03/22/19 20:52	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/22/19 20:52	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/22/19 20:52	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/22/19 20:52	74-83-9	
2-Butanone (MEK)	**<8.0**	ng	8.0	1		03/22/19 20:52	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/22/19 20:52	75-15-0	
Carbon tetrachloride	**<5.0**	ng	5.0	1		03/22/19 20:52	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/22/19 20:52	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/22/19 20:52	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/22/19 20:52	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/22/19 20:52	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/22/19 20:52	74-87-3	CL
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/22/19 20:52	75-72-9	
n-Decane	**<25.0**	ng	25.0	1		03/22/19 20:52	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/22/19 20:52	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 20:52	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 20:52	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 20:52	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/22/19 20:52	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/22/19 20:52	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 20:52	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 20:52	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 20:52	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/22/19 20:52	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/22/19 20:52	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/22/19 20:52	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/22/19 20:52	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/22/19 20:52		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/22/19 20:52	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/22/19 20:52	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/22/19 20:52	591-78-6	
Methylene Chloride	**<10.0**	ng	10.0	1		03/22/19 20:52	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/22/19 20:52	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/22/19 20:52	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/22/19 20:52	79-34-5	
Tetrachloroethene	**44.7**	ng	5.0	1		03/22/19 20:52	127-18-4	CH
Toluene	**<5.0**	ng	5.0	1		03/22/19 20:52	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/22/19 20:52	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/22/19 20:52	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/22/19 20:52	79-01-6	
Trichlorofluoromethane	**18.2**	ng	5.0	1		03/22/19 20:52	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/22/19 20:52	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/22/19 20:52	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M9(10).F+B **Lab ID: 7082066014** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	85	%	70-190	1		03/22/19 20:52	17060-07-0	
4-Bromofluorobenzene (S)	78	%	69-145	1		03/22/19 20:52	460-00-4	
Toluene-d8 (S)	90	%	81-125	1		03/22/19 20:52	2037-26-5	
Tentatively Identified Compounds								
Dichlorodifluoromethane	**332J**	ng		1		03/22/19 20:52	75-71-8	N
Ethane, 1,2-dichloro-1,1	**161J**	ng		1		03/22/19 20:52	76-14-2	N

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M9(20).F+B **Lab ID: 7082066015** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**29.7**	ng	8.0	1		03/22/19 21:19	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/22/19 21:19	100-52-7	
Benzene	**<5.0**	ng	5.0	1		03/22/19 21:19	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/22/19 21:19	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/22/19 21:19	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/22/19 21:19	74-83-9	
2-Butanone (MEK)	**<8.0**	ng	8.0	1		03/22/19 21:19	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/22/19 21:19	75-15-0	
Carbon tetrachloride	**<5.0**	ng	5.0	1		03/22/19 21:19	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/22/19 21:19	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/22/19 21:19	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/22/19 21:19	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/22/19 21:19	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/22/19 21:19	74-87-3	CL
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/22/19 21:19	75-72-9	
n-Decane	**<25.0**	ng	25.0	1		03/22/19 21:19	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/22/19 21:19	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 21:19	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 21:19	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 21:19	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/22/19 21:19	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/22/19 21:19	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 21:19	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 21:19	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 21:19	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/22/19 21:19	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/22/19 21:19	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/22/19 21:19	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/22/19 21:19	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/22/19 21:19		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/22/19 21:19	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/22/19 21:19	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/22/19 21:19	591-78-6	
Methylene Chloride	**<10.0**	ng	10.0	1		03/22/19 21:19	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/22/19 21:19	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/22/19 21:19	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/22/19 21:19	79-34-5	
Tetrachloroethene	**282**	ng	5.0	1		03/22/19 21:19	127-18-4	CH
Toluene	**<5.0**	ng	5.0	1		03/22/19 21:19	108-88-3	
1,1,1-Trichloroethane	**5.7**	ng	5.0	1		03/22/19 21:19	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/22/19 21:19	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/22/19 21:19	79-01-6	
Trichlorofluoromethane	**31.6**	ng	5.0	1		03/22/19 21:19	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/22/19 21:19	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/22/19 21:19	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M9(20).F+B **Lab ID: 7082066015** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	87	%	70-190	1		03/22/19 21:19	17060-07-0	
4-Bromofluorobenzene (S)	76	%	69-145	1		03/22/19 21:19	460-00-4	
Toluene-d8 (S)	91	%	81-125	1		03/22/19 21:19	2037-26-5	
Tentatively Identified Compounds								
Dichlorodifluoromethane	**1100J**	ng		1		03/22/19 21:19	75-71-8	N
Ethane, 1,2-dichloro-1,1	**623J**	ng		1		03/22/19 21:19	76-14-2	N

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M9(30).F **Lab ID: 7082066016** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**9.4**	ng	8.0	1		03/14/19 18:46	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/14/19 18:46	100-52-7	
Benzene	**<5.0**	ng	5.0	1		03/14/19 18:46	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/14/19 18:46	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/14/19 18:46	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/14/19 18:46	74-83-9	
2-Butanone (MEK)	**<8.0**	ng	8.0	1		03/14/19 18:46	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/14/19 18:46	75-15-0	
Carbon tetrachloride	**<5.0**	ng	5.0	1		03/14/19 18:46	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/14/19 18:46	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/14/19 18:46	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/14/19 18:46	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/14/19 18:46	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/14/19 18:46	74-87-3	
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/14/19 18:46	75-72-9	CL
n-Decane	**<25.0**	ng	25.0	1		03/14/19 18:46	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/14/19 18:46	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/14/19 18:46	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/14/19 18:46	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/14/19 18:46	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/14/19 18:46	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/14/19 18:46	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/14/19 18:46	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/14/19 18:46	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/14/19 18:46	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/14/19 18:46	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/14/19 18:46	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/14/19 18:46	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/14/19 18:46	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/14/19 18:46		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/14/19 18:46	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/14/19 18:46	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/14/19 18:46	591-78-6	
Methylene Chloride	**<10.0**	ng	10.0	1		03/14/19 18:46	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/14/19 18:46	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/14/19 18:46	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/14/19 18:46	79-34-5	
Tetrachloroethene	**284**	ng	5.0	1		03/14/19 18:46	127-18-4	
Toluene	**<5.0**	ng	5.0	1		03/14/19 18:46	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/14/19 18:46	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/14/19 18:46	79-00-5	
Trichloroethene	**5.4**	ng	5.0	1		03/14/19 18:46	79-01-6	
Trichlorofluoromethane	**16.5**	ng	5.0	1		03/14/19 18:46	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/14/19 18:46	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/14/19 18:46	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M9(30).F **Lab ID: 7082066016** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	101	%	70-190	1		03/14/19 18:46	17060-07-0	
4-Bromofluorobenzene (S)	87	%	69-145	1		03/14/19 18:46	460-00-4	
Toluene-d8 (S)	93	%	81-125	1		03/14/19 18:46	2037-26-5	
Tentatively Identified Compounds								
Dichlorodifluoromethane	**106J**	ng		1		03/14/19 18:46	75-71-8	N
Ethane, 1,2-dichloro-1,1	**40.5J**	ng		1		03/14/19 18:46	76-14-2	N

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M9(30).B **Lab ID: 7082066017** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**8.1**	ng	8.0	1		03/14/19 19:18	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/14/19 19:18	100-52-7	
Benzene	**<5.0**	ng	5.0	1		03/14/19 19:18	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/14/19 19:18	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/14/19 19:18	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/14/19 19:18	74-83-9	
2-Butanone (MEK)	**<8.0**	ng	8.0	1		03/14/19 19:18	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/14/19 19:18	75-15-0	
Carbon tetrachloride	**<5.0**	ng	5.0	1		03/14/19 19:18	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/14/19 19:18	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/14/19 19:18	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/14/19 19:18	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/14/19 19:18	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/14/19 19:18	74-87-3	
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/14/19 19:18	75-72-9	CL
n-Decane	**<25.0**	ng	25.0	1		03/14/19 19:18	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/14/19 19:18	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/14/19 19:18	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/14/19 19:18	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/14/19 19:18	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/14/19 19:18	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/14/19 19:18	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/14/19 19:18	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/14/19 19:18	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/14/19 19:18	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/14/19 19:18	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/14/19 19:18	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/14/19 19:18	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/14/19 19:18	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/14/19 19:18		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/14/19 19:18	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/14/19 19:18	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/14/19 19:18	591-78-6	
Methylene Chloride	**<10.0**	ng	10.0	1		03/14/19 19:18	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/14/19 19:18	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/14/19 19:18	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/14/19 19:18	79-34-5	
Tetrachloroethene	**15.9**	ng	5.0	1		03/14/19 19:18	127-18-4	
Toluene	**<5.0**	ng	5.0	1		03/14/19 19:18	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/14/19 19:18	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/14/19 19:18	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/14/19 19:18	79-01-6	
Trichlorofluoromethane	**18.7**	ng	5.0	1		03/14/19 19:18	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/14/19 19:18	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/14/19 19:18	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M9(30).B **Lab ID: 7082066017** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	106	%	70-190	1		03/14/19 19:18	17060-07-0	
4-Bromofluorobenzene (S)	92	%	69-145	1		03/14/19 19:18	460-00-4	
Toluene-d8 (S)	97	%	81-125	1		03/14/19 19:18	2037-26-5	
Tentatively Identified Compounds								
Dichlorodifluoromethane	**1120J**	ng		1		03/14/19 19:18	75-71-8	N
Ethane, 1,2-dichloro-1,1	**601J**	ng		1		03/14/19 19:18	76-14-2	N

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M9(40).F+B **Lab ID: 7082066018** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**28.4**	ng	8.0	1		03/22/19 21:47	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/22/19 21:47	100-52-7	
Benzene	**<5.0**	ng	5.0	1		03/22/19 21:47	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/22/19 21:47	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/22/19 21:47	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/22/19 21:47	74-83-9	
2-Butanone (MEK)	**<8.0**	ng	8.0	1		03/22/19 21:47	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/22/19 21:47	75-15-0	
Carbon tetrachloride	**<5.0**	ng	5.0	1		03/22/19 21:47	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/22/19 21:47	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/22/19 21:47	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/22/19 21:47	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/22/19 21:47	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/22/19 21:47	74-87-3	CL
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/22/19 21:47	75-72-9	
n-Decane	**<25.0**	ng	25.0	1		03/22/19 21:47	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/22/19 21:47	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 21:47	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 21:47	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 21:47	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/22/19 21:47	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/22/19 21:47	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 21:47	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 21:47	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 21:47	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/22/19 21:47	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/22/19 21:47	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/22/19 21:47	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/22/19 21:47	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/22/19 21:47		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/22/19 21:47	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/22/19 21:47	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/22/19 21:47	591-78-6	
Methylene Chloride	**<10.0**	ng	10.0	1		03/22/19 21:47	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/22/19 21:47	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/22/19 21:47	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/22/19 21:47	79-34-5	
Tetrachloroethene	**844**	ng	5.0	1		03/22/19 21:47	127-18-4	CH
Toluene	**<5.0**	ng	5.0	1		03/22/19 21:47	108-88-3	
1,1,1-Trichloroethane	**10.9**	ng	5.0	1		03/22/19 21:47	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/22/19 21:47	79-00-5	
Trichloroethene	**18.0**	ng	5.0	1		03/22/19 21:47	79-01-6	
Trichlorofluoromethane	**43.1**	ng	5.0	1		03/22/19 21:47	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/22/19 21:47	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/22/19 21:47	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M9(40).F+B **Lab ID: 7082066018** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	87	%	70-190	1		03/22/19 21:47	17060-07-0	
4-Bromofluorobenzene (S)	77	%	69-145	1		03/22/19 21:47	460-00-4	
Toluene-d8 (S)	93	%	81-125	1		03/22/19 21:47	2037-26-5	
Tentatively Identified Compounds								
Dichlorodifluoromethane	**1510J**	ng		1		03/22/19 21:47	75-71-8	N
Ethane, 1,2-dichloro-1,1	**782J**	ng		1		03/22/19 21:47	76-14-2	N

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M13.F+B **Lab ID: 7082066019** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TIC MSV Air	Analytical Method: EPA 5041/0031							
TIC Search	**No TICs Found**			1		03/27/19 15:28		
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**24.8**	ng	8.0	1		03/22/19 22:14	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/22/19 22:14	100-52-7	
Benzene	**<5.0**	ng	5.0	1		03/22/19 22:14	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/22/19 22:14	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/22/19 22:14	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/22/19 22:14	74-83-9	
2-Butanone (MEK)	**<8.0**	ng	8.0	1		03/22/19 22:14	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/22/19 22:14	75-15-0	
Carbon tetrachloride	**<5.0**	ng	5.0	1		03/22/19 22:14	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/22/19 22:14	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/22/19 22:14	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/22/19 22:14	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/22/19 22:14	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/22/19 22:14	74-87-3	CL
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/22/19 22:14	75-72-9	
n-Decane	**<25.0**	ng	25.0	1		03/22/19 22:14	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/22/19 22:14	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 22:14	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 22:14	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/22/19 22:14	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/22/19 22:14	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/22/19 22:14	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 22:14	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 22:14	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/22/19 22:14	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/22/19 22:14	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/22/19 22:14	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/22/19 22:14	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/22/19 22:14	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/22/19 22:14		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/22/19 22:14	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/22/19 22:14	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/22/19 22:14	591-78-6	
Methylene Chloride	**<10.0**	ng	10.0	1		03/22/19 22:14	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/22/19 22:14	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/22/19 22:14	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/22/19 22:14	79-34-5	
Tetrachloroethene	**26.7**	ng	5.0	1		03/22/19 22:14	127-18-4	CH
Toluene	**<5.0**	ng	5.0	1		03/22/19 22:14	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/22/19 22:14	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/22/19 22:14	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/22/19 22:14	79-01-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
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(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M13.F+B **Lab ID: 7082066019** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Trichlorofluoromethane	**12.2**	ng	5.0	1		03/22/19 22:14	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/22/19 22:14	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/22/19 22:14	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	88	%	70-190	1		03/22/19 22:14	17060-07-0	
4-Bromofluorobenzene (S)	77	%	69-145	1		03/22/19 22:14	460-00-4	
Toluene-d8 (S)	90	%	81-125	1		03/22/19 22:14	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M16.B **Lab ID: 7082066020** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TIC MSV Air	Analytical Method: EPA 5041/0031							
TIC Search	**No TICs Found**			1		03/27/19 14:33		
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**9.5**	ng	8.0	1		03/25/19 18:32	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/25/19 18:32	100-52-7	
Benzene	**<5.0**	ng	5.0	1		03/25/19 18:32	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/25/19 18:32	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/25/19 18:32	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/25/19 18:32	74-83-9	
2-Butanone (MEK)	**<8.0**	ng	8.0	1		03/25/19 18:32	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/25/19 18:32	75-15-0	
Carbon tetrachloride	**<5.0**	ng	5.0	1		03/25/19 18:32	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/25/19 18:32	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/25/19 18:32	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/25/19 18:32	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/25/19 18:32	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/25/19 18:32	74-87-3	
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/25/19 18:32	75-72-9	
n-Decane	**<25.0**	ng	25.0	1		03/25/19 18:32	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/25/19 18:32	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/25/19 18:32	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/25/19 18:32	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/25/19 18:32	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/25/19 18:32	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/25/19 18:32	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/25/19 18:32	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/25/19 18:32	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/25/19 18:32	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/25/19 18:32	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/25/19 18:32	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/25/19 18:32	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/25/19 18:32	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/25/19 18:32		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/25/19 18:32	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/25/19 18:32	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/25/19 18:32	591-78-6	
Methylene Chloride	**<10.0**	ng	10.0	1		03/25/19 18:32	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/25/19 18:32	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/25/19 18:32	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/25/19 18:32	79-34-5	
Tetrachloroethene	**<5.0**	ng	5.0	1		03/25/19 18:32	127-18-4	
Toluene	**<5.0**	ng	5.0	1		03/25/19 18:32	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/25/19 18:32	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/25/19 18:32	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/25/19 18:32	79-01-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M16.B **Lab ID: 7082066020** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Trichlorofluoromethane	**<5.0**	ng	5.0	1		03/25/19 18:32	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/25/19 18:32	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/25/19 18:32	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	82	%	70-190	1		03/25/19 18:32	17060-07-0	
4-Bromofluorobenzene (S)	73	%	69-145	1		03/25/19 18:32	460-00-4	
Toluene-d8 (S)	89	%	81-125	1		03/25/19 18:32	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Melville, NY 11747
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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M22.F+B **Lab ID: 7082066021** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**48.2**	ng	8.0	1		03/25/19 16:04	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/25/19 16:04	100-52-7	
Benzene	**<5.0**	ng	5.0	1		03/25/19 16:04	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/25/19 16:04	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/25/19 16:04	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/25/19 16:04	74-83-9	
2-Butanone (MEK)	**11.9**	ng	8.0	1		03/25/19 16:04	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/25/19 16:04	75-15-0	
Carbon tetrachloride	**<5.0**	ng	5.0	1		03/25/19 16:04	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/25/19 16:04	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/25/19 16:04	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/25/19 16:04	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/25/19 16:04	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/25/19 16:04	74-87-3	
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/25/19 16:04	75-72-9	
n-Decane	**<25.0**	ng	25.0	1		03/25/19 16:04	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/25/19 16:04	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/25/19 16:04	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/25/19 16:04	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/25/19 16:04	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/25/19 16:04	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/25/19 16:04	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/25/19 16:04	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/25/19 16:04	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/25/19 16:04	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/25/19 16:04	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/25/19 16:04	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/25/19 16:04	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/25/19 16:04	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/25/19 16:04		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/25/19 16:04	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/25/19 16:04	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/25/19 16:04	591-78-6	
Methylene Chloride	**<10.0**	ng	10.0	1		03/25/19 16:04	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/25/19 16:04	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/25/19 16:04	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/25/19 16:04	79-34-5	
Tetrachloroethene	**<5.0**	ng	5.0	1		03/25/19 16:04	127-18-4	
Toluene	**6.4**	ng	5.0	1		03/25/19 16:04	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/25/19 16:04	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/25/19 16:04	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/25/19 16:04	79-01-6	
Trichlorofluoromethane	**8.8**	ng	5.0	1		03/25/19 16:04	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/25/19 16:04	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/25/19 16:04	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M22.F+B **Lab ID: 7082066021** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	84	%	70-190	1		03/25/19 16:04	17060-07-0	
4-Bromofluorobenzene (S)	80	%	69-145	1		03/25/19 16:04	460-00-4	
Toluene-d8 (S)	88	%	81-125	1		03/25/19 16:04	2037-26-5	
Tentatively Identified Compounds								
Unknown	**110J**	ng		1		03/25/19 16:04		
Unknown	**82.5J**	ng		1		03/25/19 16:04		
Octanal	**91.8J**	ng		1		03/25/19 16:04	124-13-0	N
Nonanal	**186J**	ng		1		03/25/19 16:04	124-19-6	N

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M28.F+B **Lab ID: 7082066022** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**22.2**	ng	8.0	1		03/25/19 16:31	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/25/19 16:31	100-52-7	
Benzene	**<5.0**	ng	5.0	1		03/25/19 16:31	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/25/19 16:31	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/25/19 16:31	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/25/19 16:31	74-83-9	
2-Butanone (MEK)	**<8.0**	ng	8.0	1		03/25/19 16:31	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/25/19 16:31	75-15-0	
Carbon tetrachloride	**<5.0**	ng	5.0	1		03/25/19 16:31	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/25/19 16:31	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/25/19 16:31	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/25/19 16:31	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/25/19 16:31	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/25/19 16:31	74-87-3	
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/25/19 16:31	75-72-9	
n-Decane	**<25.0**	ng	25.0	1		03/25/19 16:31	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/25/19 16:31	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/25/19 16:31	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/25/19 16:31	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/25/19 16:31	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/25/19 16:31	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/25/19 16:31	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/25/19 16:31	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/25/19 16:31	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/25/19 16:31	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/25/19 16:31	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/25/19 16:31	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/25/19 16:31	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/25/19 16:31	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/25/19 16:31		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/25/19 16:31	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/25/19 16:31	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/25/19 16:31	591-78-6	
Methylene Chloride	**<10.0**	ng	10.0	1		03/25/19 16:31	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/25/19 16:31	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/25/19 16:31	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/25/19 16:31	79-34-5	
Tetrachloroethene	**<5.0**	ng	5.0	1		03/25/19 16:31	127-18-4	
Toluene	**<5.0**	ng	5.0	1		03/25/19 16:31	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/25/19 16:31	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/25/19 16:31	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/25/19 16:31	79-01-6	
Trichlorofluoromethane	**8.4**	ng	5.0	1		03/25/19 16:31	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/25/19 16:31	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/25/19 16:31	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M28.F+B **Lab ID: 7082066022** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	84	%	70-190	1		03/25/19 16:31	17060-07-0	
4-Bromofluorobenzene (S)	78	%	69-145	1		03/25/19 16:31	460-00-4	
Toluene-d8 (S)	89	%	81-125	1		03/25/19 16:31	2037-26-5	
Tentatively Identified Compounds								
Cyclotrisiloxane, hexame	**42.1J**	ng		1		03/25/19 16:31	541-05-9	N

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M31.F+B **Lab ID: 7082066023** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**19.7**	ng	8.0	1		03/25/19 17:00	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/25/19 17:00	100-52-7	
Benzene	**<5.0**	ng	5.0	1		03/25/19 17:00	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/25/19 17:00	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/25/19 17:00	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/25/19 17:00	74-83-9	
2-Butanone (MEK)	**<8.0**	ng	8.0	1		03/25/19 17:00	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/25/19 17:00	75-15-0	
Carbon tetrachloride	**<5.0**	ng	5.0	1		03/25/19 17:00	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/25/19 17:00	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/25/19 17:00	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/25/19 17:00	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/25/19 17:00	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/25/19 17:00	74-87-3	
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/25/19 17:00	75-72-9	
n-Decane	**<25.0**	ng	25.0	1		03/25/19 17:00	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/25/19 17:00	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/25/19 17:00	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/25/19 17:00	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/25/19 17:00	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/25/19 17:00	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/25/19 17:00	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/25/19 17:00	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/25/19 17:00	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/25/19 17:00	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/25/19 17:00	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/25/19 17:00	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/25/19 17:00	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/25/19 17:00	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/25/19 17:00		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/25/19 17:00	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/25/19 17:00	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/25/19 17:00	591-78-6	
Methylene Chloride	**<10.0**	ng	10.0	1		03/25/19 17:00	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/25/19 17:00	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/25/19 17:00	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/25/19 17:00	79-34-5	
Tetrachloroethene	**<5.0**	ng	5.0	1		03/25/19 17:00	127-18-4	
Toluene	**<5.0**	ng	5.0	1		03/25/19 17:00	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/25/19 17:00	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/25/19 17:00	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/25/19 17:00	79-01-6	
Trichlorofluoromethane	**9.8**	ng	5.0	1		03/25/19 17:00	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/25/19 17:00	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/25/19 17:00	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M31.F+B **Lab ID: 7082066023** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	84	%	70-190	1		03/25/19 17:00	17060-07-0	
4-Bromofluorobenzene (S)	77	%	69-145	1		03/25/19 17:00	460-00-4	
Toluene-d8 (S)	90	%	81-125	1		03/25/19 17:00	2037-26-5	
Tentatively Identified Compounds								
Cyclotrisiloxane, hexame	**51.1J**	ng		1		03/25/19 17:00	541-05-9	N

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M34.F+B **Lab ID: 7082066024** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**23.1**	ng	8.0	1		03/25/19 17:29	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/25/19 17:29	100-52-7	
Benzene	**<5.0**	ng	5.0	1		03/25/19 17:29	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/25/19 17:29	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/25/19 17:29	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/25/19 17:29	74-83-9	
2-Butanone (MEK)	**<8.0**	ng	8.0	1		03/25/19 17:29	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/25/19 17:29	75-15-0	
Carbon tetrachloride	**<5.0**	ng	5.0	1		03/25/19 17:29	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/25/19 17:29	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/25/19 17:29	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/25/19 17:29	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/25/19 17:29	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/25/19 17:29	74-87-3	
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/25/19 17:29	75-72-9	
n-Decane	**<25.0**	ng	25.0	1		03/25/19 17:29	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/25/19 17:29	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/25/19 17:29	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/25/19 17:29	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/25/19 17:29	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/25/19 17:29	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/25/19 17:29	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/25/19 17:29	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/25/19 17:29	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/25/19 17:29	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/25/19 17:29	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/25/19 17:29	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/25/19 17:29	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/25/19 17:29	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/25/19 17:29		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/25/19 17:29	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/25/19 17:29	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/25/19 17:29	591-78-6	
Methylene Chloride	**<10.0**	ng	10.0	1		03/25/19 17:29	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/25/19 17:29	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/25/19 17:29	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/25/19 17:29	79-34-5	
Tetrachloroethene	**<5.0**	ng	5.0	1		03/25/19 17:29	127-18-4	
Toluene	**<5.0**	ng	5.0	1		03/25/19 17:29	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/25/19 17:29	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/25/19 17:29	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/25/19 17:29	79-01-6	
Trichlorofluoromethane	**11.8**	ng	5.0	1		03/25/19 17:29	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/25/19 17:29	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/25/19 17:29	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M34.F+B **Lab ID: 7082066024** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	82	%	70-190	1		03/25/19 17:29	17060-07-0	
4-Bromofluorobenzene (S)	76	%	69-145	1		03/25/19 17:29	460-00-4	
Toluene-d8 (S)	90	%	81-125	1		03/25/19 17:29	2037-26-5	
	Analytical Method: EPA 5041/0031							
TIC Search	**No TICs Found**			1		03/27/19 14:34		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M37.F+B **Lab ID: 7082066025** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**189**	ng	8.0	1		03/25/19 18:00	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/25/19 18:00	100-52-7	
Benzene	**<5.0**	ng	5.0	1		03/25/19 18:00	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/25/19 18:00	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/25/19 18:00	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/25/19 18:00	74-83-9	
2-Butanone (MEK)	**<8.0**	ng	8.0	1		03/25/19 18:00	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/25/19 18:00	75-15-0	
Carbon tetrachloride	**<5.0**	ng	5.0	1		03/25/19 18:00	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/25/19 18:00	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/25/19 18:00	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/25/19 18:00	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/25/19 18:00	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/25/19 18:00	74-87-3	
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/25/19 18:00	75-72-9	
n-Decane	**<25.0**	ng	25.0	1		03/25/19 18:00	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/25/19 18:00	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/25/19 18:00	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/25/19 18:00	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/25/19 18:00	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/25/19 18:00	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/25/19 18:00	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/25/19 18:00	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/25/19 18:00	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/25/19 18:00	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/25/19 18:00	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/25/19 18:00	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/25/19 18:00	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/25/19 18:00	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/25/19 18:00		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/25/19 18:00	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/25/19 18:00	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/25/19 18:00	591-78-6	
Methylene Chloride	**15.4**	ng	10.0	1		03/25/19 18:00	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/25/19 18:00	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/25/19 18:00	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/25/19 18:00	79-34-5	
Tetrachloroethene	**<5.0**	ng	5.0	1		03/25/19 18:00	127-18-4	
Toluene	**5.6**	ng	5.0	1		03/25/19 18:00	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/25/19 18:00	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/25/19 18:00	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/25/19 18:00	79-01-6	
Trichlorofluoromethane	**11.8**	ng	5.0	1		03/25/19 18:00	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/25/19 18:00	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/25/19 18:00	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M37.F+B **Lab ID: 7082066025** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	84	%	70-190	1		03/25/19 18:00	17060-07-0	
4-Bromofluorobenzene (S)	75	%	69-145	1		03/25/19 18:00	460-00-4	
Toluene-d8 (S)	88	%	81-125	1		03/25/19 18:00	2037-26-5	
Tentatively Identified Compounds								
Cyclotrisiloxane, hexame	**79.4J**	ng		1		03/25/19 18:00	541-05-9	N

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:FB1.F+B **Lab ID: 7082066026** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**29.1**	ng	8.0	1		03/14/19 16:12	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/14/19 16:12	100-52-7	
Benzene	**<5.0**	ng	5.0	1		03/14/19 16:12	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/14/19 16:12	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/14/19 16:12	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/14/19 16:12	74-83-9	
2-Butanone (MEK)	**<8.0**	ng	8.0	1		03/14/19 16:12	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/14/19 16:12	75-15-0	
Carbon tetrachloride	**<5.0**	ng	5.0	1		03/14/19 16:12	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/14/19 16:12	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/14/19 16:12	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/14/19 16:12	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/14/19 16:12	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/14/19 16:12	74-87-3	
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/14/19 16:12	75-72-9	CL
n-Decane	**<25.0**	ng	25.0	1		03/14/19 16:12	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/14/19 16:12	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/14/19 16:12	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/14/19 16:12	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/14/19 16:12	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/14/19 16:12	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/14/19 16:12	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/14/19 16:12	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/14/19 16:12	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/14/19 16:12	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/14/19 16:12	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/14/19 16:12	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/14/19 16:12	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/14/19 16:12	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/14/19 16:12		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/14/19 16:12	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/14/19 16:12	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/14/19 16:12	591-78-6	
Methylene Chloride	**<10.0**	ng	10.0	1		03/14/19 16:12	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/14/19 16:12	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/14/19 16:12	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/14/19 16:12	79-34-5	
Tetrachloroethene	**<5.0**	ng	5.0	1		03/14/19 16:12	127-18-4	
Toluene	**<5.0**	ng	5.0	1		03/14/19 16:12	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/14/19 16:12	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/14/19 16:12	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/14/19 16:12	79-01-6	
Trichlorofluoromethane	**5.1**	ng	5.0	1		03/14/19 16:12	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/14/19 16:12	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/14/19 16:12	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:FB1.F+B **Lab ID: 7082066026** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	103	%	70-190	1		03/14/19 16:12	17060-07-0	
4-Bromofluorobenzene (S)	91	%	69-145	1		03/14/19 16:12	460-00-4	
Toluene-d8 (S)	96	%	81-125	1		03/14/19 16:12	2037-26-5	
	Analytical Method: EPA 5041/0031							
TIC Search	**No TICs Found**			1		03/18/19 17:32		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:FB2.F+B **Lab ID: 7082066027** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**29.3**	ng	8.0	1		03/14/19 16:41	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/14/19 16:41	100-52-7	
Benzene	**<5.0**	ng	5.0	1		03/14/19 16:41	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/14/19 16:41	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/14/19 16:41	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/14/19 16:41	74-83-9	
2-Butanone (MEK)	**<8.0**	ng	8.0	1		03/14/19 16:41	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/14/19 16:41	75-15-0	
Carbon tetrachloride	**<5.0**	ng	5.0	1		03/14/19 16:41	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/14/19 16:41	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/14/19 16:41	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/14/19 16:41	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/14/19 16:41	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/14/19 16:41	74-87-3	
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/14/19 16:41	75-72-9	CL
n-Decane	**<25.0**	ng	25.0	1		03/14/19 16:41	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/14/19 16:41	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/14/19 16:41	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/14/19 16:41	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/14/19 16:41	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/14/19 16:41	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/14/19 16:41	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/14/19 16:41	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/14/19 16:41	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/14/19 16:41	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/14/19 16:41	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/14/19 16:41	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/14/19 16:41	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/14/19 16:41	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/14/19 16:41		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/14/19 16:41	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/14/19 16:41	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/14/19 16:41	591-78-6	
Methylene Chloride	**<10.0**	ng	10.0	1		03/14/19 16:41	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/14/19 16:41	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/14/19 16:41	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/14/19 16:41	79-34-5	
Tetrachloroethene	**<5.0**	ng	5.0	1		03/14/19 16:41	127-18-4	
Toluene	**<5.0**	ng	5.0	1		03/14/19 16:41	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/14/19 16:41	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/14/19 16:41	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/14/19 16:41	79-01-6	
Trichlorofluoromethane	**<5.0**	ng	5.0	1		03/14/19 16:41	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/14/19 16:41	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/14/19 16:41	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:FB2.F+B **Lab ID: 7082066027** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	104	%	70-190	1		03/14/19 16:41	17060-07-0	
4-Bromofluorobenzene (S)	92	%	69-145	1		03/14/19 16:41	460-00-4	
Toluene-d8 (S)	96	%	81-125	1		03/14/19 16:41	2037-26-5	
	Analytical Method: EPA 5041/0031							
TIC Search	**No TICs Found**			1		03/18/19 17:32		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M39.F **Lab ID: 7082066028** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**18.1**	ng	8.0	1		03/14/19 19:47	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/14/19 19:47	100-52-7	
Benzene	**<5.0**	ng	5.0	1		03/14/19 19:47	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/14/19 19:47	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/14/19 19:47	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/14/19 19:47	74-83-9	
2-Butanone (MEK)	**<8.0**	ng	8.0	1		03/14/19 19:47	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/14/19 19:47	75-15-0	
Carbon tetrachloride	**<5.0**	ng	5.0	1		03/14/19 19:47	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/14/19 19:47	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/14/19 19:47	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/14/19 19:47	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/14/19 19:47	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/14/19 19:47	74-87-3	
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/14/19 19:47	75-72-9	CL
n-Decane	**<25.0**	ng	25.0	1		03/14/19 19:47	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/14/19 19:47	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/14/19 19:47	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/14/19 19:47	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/14/19 19:47	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/14/19 19:47	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/14/19 19:47	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/14/19 19:47	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/14/19 19:47	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/14/19 19:47	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/14/19 19:47	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/14/19 19:47	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/14/19 19:47	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/14/19 19:47	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/14/19 19:47		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/14/19 19:47	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/14/19 19:47	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/14/19 19:47	591-78-6	
Methylene Chloride	**<10.0**	ng	10.0	1		03/14/19 19:47	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/14/19 19:47	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/14/19 19:47	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/14/19 19:47	79-34-5	
Tetrachloroethene	**39.3**	ng	5.0	1		03/14/19 19:47	127-18-4	
Toluene	**11.6**	ng	5.0	1		03/14/19 19:47	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/14/19 19:47	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/14/19 19:47	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/14/19 19:47	79-01-6	
Trichlorofluoromethane	**9.0**	ng	5.0	1		03/14/19 19:47	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/14/19 19:47	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/14/19 19:47	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M39.F **Lab ID: 7082066028** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	106	%	70-190	1		03/14/19 19:47	17060-07-0	
4-Bromofluorobenzene (S)	91	%	69-145	1		03/14/19 19:47	460-00-4	
Toluene-d8 (S)	96	%	81-125	1		03/14/19 19:47	2037-26-5	
	Analytical Method: EPA 5041/0031							
TIC Search	**No TICs Found**			1		03/18/19 17:33		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M39.B **Lab ID: 7082066029** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**9.4**	ng	8.0	1		03/14/19 20:14	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/14/19 20:14	100-52-7	
Benzene	**<5.0**	ng	5.0	1		03/14/19 20:14	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/14/19 20:14	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/14/19 20:14	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/14/19 20:14	74-83-9	
2-Butanone (MEK)	**<8.0**	ng	8.0	1		03/14/19 20:14	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/14/19 20:14	75-15-0	
Carbon tetrachloride	**<5.0**	ng	5.0	1		03/14/19 20:14	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/14/19 20:14	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/14/19 20:14	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/14/19 20:14	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/14/19 20:14	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/14/19 20:14	74-87-3	
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/14/19 20:14	75-72-9	CL
n-Decane	**<25.0**	ng	25.0	1		03/14/19 20:14	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/14/19 20:14	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/14/19 20:14	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/14/19 20:14	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/14/19 20:14	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/14/19 20:14	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/14/19 20:14	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/14/19 20:14	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/14/19 20:14	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/14/19 20:14	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/14/19 20:14	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/14/19 20:14	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/14/19 20:14	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/14/19 20:14	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/14/19 20:14		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/14/19 20:14	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/14/19 20:14	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/14/19 20:14	591-78-6	
Methylene Chloride	**<10.0**	ng	10.0	1		03/14/19 20:14	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/14/19 20:14	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/14/19 20:14	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/14/19 20:14	79-34-5	
Tetrachloroethene	**<5.0**	ng	5.0	1		03/14/19 20:14	127-18-4	
Toluene	**<5.0**	ng	5.0	1		03/14/19 20:14	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/14/19 20:14	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/14/19 20:14	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/14/19 20:14	79-01-6	
Trichlorofluoromethane	**<5.0**	ng	5.0	1		03/14/19 20:14	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/14/19 20:14	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/14/19 20:14	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:M39.B **Lab ID: 7082066029** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	106	%	70-190	1		03/14/19 20:14	17060-07-0	
4-Bromofluorobenzene (S)	89	%	69-145	1		03/14/19 20:14	460-00-4	
Toluene-d8 (S)	97	%	81-125	1		03/14/19 20:14	2037-26-5	
	Analytical Method: EPA 5041/0031							
TIC Search	**No TICs Found**			1		03/18/19 17:34		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
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ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:FB3.F+B **Lab ID: 7082066030** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**36.4**	ng	8.0	1		03/14/19 17:10	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/14/19 17:10	100-52-7	
Benzene	**<5.0**	ng	5.0	1		03/14/19 17:10	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/14/19 17:10	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/14/19 17:10	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/14/19 17:10	74-83-9	
2-Butanone (MEK)	**<8.0**	ng	8.0	1		03/14/19 17:10	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/14/19 17:10	75-15-0	
Carbon tetrachloride	**<5.0**	ng	5.0	1		03/14/19 17:10	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/14/19 17:10	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/14/19 17:10	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/14/19 17:10	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/14/19 17:10	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/14/19 17:10	74-87-3	
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/14/19 17:10	75-72-9	CL
n-Decane	**<25.0**	ng	25.0	1		03/14/19 17:10	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/14/19 17:10	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/14/19 17:10	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/14/19 17:10	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/14/19 17:10	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/14/19 17:10	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/14/19 17:10	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/14/19 17:10	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/14/19 17:10	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/14/19 17:10	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/14/19 17:10	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/14/19 17:10	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/14/19 17:10	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/14/19 17:10	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/14/19 17:10		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/14/19 17:10	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/14/19 17:10	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/14/19 17:10	591-78-6	
Methylene Chloride	**<10.0**	ng	10.0	1		03/14/19 17:10	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/14/19 17:10	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/14/19 17:10	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/14/19 17:10	79-34-5	
Tetrachloroethene	**<5.0**	ng	5.0	1		03/14/19 17:10	127-18-4	
Toluene	**<5.0**	ng	5.0	1		03/14/19 17:10	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/14/19 17:10	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/14/19 17:10	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/14/19 17:10	79-01-6	
Trichlorofluoromethane	**<5.0**	ng	5.0	1		03/14/19 17:10	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/14/19 17:10	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/14/19 17:10	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:FB3.F+B **Lab ID: 7082066030** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	106	%	70-190	1		03/14/19 17:10	17060-07-0	
4-Bromofluorobenzene (S)	90	%	69-145	1		03/14/19 17:10	460-00-4	
Toluene-d8 (S)	95	%	81-125	1		03/14/19 17:10	2037-26-5	
	Analytical Method: EPA 5041/0031							
TIC Search	**No TICs Found**			1		03/18/19 17:34		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:TB1.F+B **Lab ID: 7082066031** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**28.4**	ng	8.0	1		03/14/19 17:39	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/14/19 17:39	100-52-7	
Benzene	**<5.0**	ng	5.0	1		03/14/19 17:39	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/14/19 17:39	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/14/19 17:39	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/14/19 17:39	74-83-9	
2-Butanone (MEK)	**<8.0**	ng	8.0	1		03/14/19 17:39	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/14/19 17:39	75-15-0	
Carbon tetrachloride	**<5.0**	ng	5.0	1		03/14/19 17:39	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/14/19 17:39	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/14/19 17:39	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/14/19 17:39	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/14/19 17:39	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/14/19 17:39	74-87-3	
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/14/19 17:39	75-72-9	CL
n-Decane	**<25.0**	ng	25.0	1		03/14/19 17:39	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/14/19 17:39	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/14/19 17:39	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/14/19 17:39	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/14/19 17:39	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/14/19 17:39	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/14/19 17:39	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/14/19 17:39	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/14/19 17:39	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/14/19 17:39	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/14/19 17:39	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/14/19 17:39	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/14/19 17:39	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/14/19 17:39	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/14/19 17:39		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/14/19 17:39	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/14/19 17:39	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/14/19 17:39	591-78-6	
Methylene Chloride	**<10.0**	ng	10.0	1		03/14/19 17:39	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/14/19 17:39	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/14/19 17:39	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/14/19 17:39	79-34-5	
Tetrachloroethene	**<5.0**	ng	5.0	1		03/14/19 17:39	127-18-4	
Toluene	**<5.0**	ng	5.0	1		03/14/19 17:39	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/14/19 17:39	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/14/19 17:39	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/14/19 17:39	79-01-6	
Trichlorofluoromethane	**<5.0**	ng	5.0	1		03/14/19 17:39	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/14/19 17:39	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/14/19 17:39	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:TB1.F+B **Lab ID: 7082066031** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	105	%	70-190	1		03/14/19 17:39	17060-07-0	
4-Bromofluorobenzene (S)	92	%	69-145	1		03/14/19 17:39	460-00-4	
Toluene-d8 (S)	96	%	81-125	1		03/14/19 17:39	2037-26-5	
	Analytical Method: EPA 5041/0031							
TIC Search	**No TICs Found**			1		03/18/19 17:35		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:TB2.F **Lab ID: 7082066032** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Acetone	**<8.0**	ng	8.0	1		03/18/19 17:21	67-64-1	
Benzaldehyde	**<25.0**	ng	25.0	1		03/18/19 17:21	100-52-7	
Benzene	**<5.0**	ng	5.0	1		03/18/19 17:21	71-43-2	
Bromodichloromethane	**<5.0**	ng	5.0	1		03/18/19 17:21	75-27-4	
Bromoform	**<8.0**	ng	8.0	1		03/18/19 17:21	75-25-2	
Bromomethane	**<5.0**	ng	5.0	1		03/18/19 17:21	74-83-9	
2-Butanone (MEK)	**<8.0**	ng	8.0	1		03/18/19 17:21	78-93-3	
Carbon disulfide	**<5.0**	ng	5.0	1		03/18/19 17:21	75-15-0	
Carbon tetrachloride	**<5.0**	ng	5.0	1		03/18/19 17:21	56-23-5	
Chlorobenzene	**<5.0**	ng	5.0	1		03/18/19 17:21	108-90-7	
Chloroethane	**<5.0**	ng	5.0	1		03/18/19 17:21	75-00-3	
2-Chloroethylvinyl ether	**<25.0**	ng	25.0	1		03/18/19 17:21	110-75-8	
Chloroform	**<5.0**	ng	5.0	1		03/18/19 17:21	67-66-3	
Chloromethane	**<5.0**	ng	5.0	1		03/18/19 17:21	74-87-3	CL
Chlorotrifluoromethane	**<25.0**	ng	25.0	1		03/18/19 17:21	75-72-9	CL
n-Decane	**<25.0**	ng	25.0	1		03/18/19 17:21	124-18-5	
Dibromochloromethane	**<5.0**	ng	5.0	1		03/18/19 17:21	124-48-1	
1,2-Dichlorobenzene	**<5.0**	ng	5.0	1		03/18/19 17:21	95-50-1	
1,3-Dichlorobenzene	**<5.0**	ng	5.0	1		03/18/19 17:21	541-73-1	
1,4-Dichlorobenzene	**<5.0**	ng	5.0	1		03/18/19 17:21	106-46-7	
1,1-Dichloroethane	**<5.0**	ng	5.0	1		03/18/19 17:21	75-34-3	
1,2-Dichloroethane	**<5.0**	ng	5.0	1		03/18/19 17:21	107-06-2	
1,1-Dichloroethene	**<5.0**	ng	5.0	1		03/18/19 17:21	75-35-4	
cis-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/18/19 17:21	156-59-2	
trans-1,2-Dichloroethene	**<5.0**	ng	5.0	1		03/18/19 17:21	156-60-5	
1,2-Dichloropropane	**<5.0**	ng	5.0	1		03/18/19 17:21	78-87-5	
cis-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/18/19 17:21	10061-01-5	
trans-1,3-Dichloropropene	**<5.0**	ng	5.0	1		03/18/19 17:21	10061-02-6	
Ethylbenzene	**<5.0**	ng	5.0	1		03/18/19 17:21	100-41-4	
Ethyltoluene (Total)	**<5.0**	ng	5.0	1		03/18/19 17:21		
2-Ethyltoluene	**<5.0**	ng	5.0	1		03/18/19 17:21	611-14-3	
4-Ethyltoluene	**<5.0**	ng	5.0	1		03/18/19 17:21	622-96-8	
2-Hexanone	**<8.0**	ng	8.0	1		03/18/19 17:21	591-78-6	
Methylene Chloride	**<10.0**	ng	10.0	1		03/18/19 17:21	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<8.0**	ng	8.0	1		03/18/19 17:21	108-10-1	
Styrene	**<5.0**	ng	5.0	1		03/18/19 17:21	100-42-5	
1,1,2,2-Tetrachloroethane	**<5.0**	ng	5.0	1		03/18/19 17:21	79-34-5	
Tetrachloroethene	**<5.0**	ng	5.0	1		03/18/19 17:21	127-18-4	
Toluene	**<5.0**	ng	5.0	1		03/18/19 17:21	108-88-3	
1,1,1-Trichloroethane	**<5.0**	ng	5.0	1		03/18/19 17:21	71-55-6	
1,1,2-Trichloroethane	**<5.0**	ng	5.0	1		03/18/19 17:21	79-00-5	
Trichloroethene	**<5.0**	ng	5.0	1		03/18/19 17:21	79-01-6	
Trichlorofluoromethane	**<5.0**	ng	5.0	1		03/18/19 17:21	75-69-4	
Vinyl chloride	**<5.0**	ng	5.0	1		03/18/19 17:21	75-01-4	
Xylene (Total)	**<5.0**	ng	5.0	1		03/18/19 17:21	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: VOST MARCH 2019
Pace Project No.: 7082066

Sample: TOB-OBL19_ANNUAL:TB2.F **Lab ID: 7082066032** Collected: 03/12/19 10:30 Received: 03/12/19 11:15 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Air Volatile Organics	Analytical Method: EPA 5041/0031							
Surrogates								
1,2-Dichloroethane-d4 (S)	99	%	70-190	1		03/18/19 17:21	17060-07-0	
4-Bromofluorobenzene (S)	84	%	69-145	1		03/18/19 17:21	460-00-4	
Toluene-d8 (S)	91	%	81-125	1		03/18/19 17:21	2037-26-5	
	Analytical Method: EPA 5041/0031							
TIC Search	**No TICs Found**			1		03/25/19 18:00		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: VOST MARCH 2019
Pace Project No.: 7082066

QC Batch: 105453 Analysis Method: EPA 5041/0031
QC Batch Method: EPA 5041/0031 Analysis Description: 5041 MSV
Associated Lab Samples: 7082066016, 7082066017, 7082066026, 7082066027, 7082066028, 7082066029, 7082066030, 7082066031

METHOD BLANK: 487409 Matrix: Water
Associated Lab Samples: 7082066016, 7082066017, 7082066026, 7082066027, 7082066028, 7082066029, 7082066030, 7082066031

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ng	<5.0	5.0	03/14/19 15:31	
1,1,2,2-Tetrachloroethane	ng	<5.0	5.0	03/14/19 15:31	
1,1,2-Trichloroethane	ng	<5.0	5.0	03/14/19 15:31	
1,1-Dichloroethane	ng	<5.0	5.0	03/14/19 15:31	
1,1-Dichloroethene	ng	<5.0	5.0	03/14/19 15:31	
1,2-Dichlorobenzene	ng	<5.0	5.0	03/14/19 15:31	
1,2-Dichloroethane	ng	<5.0	5.0	03/14/19 15:31	
1,2-Dichloropropane	ng	<5.0	5.0	03/14/19 15:31	
1,3-Dichlorobenzene	ng	<5.0	5.0	03/14/19 15:31	
1,4-Dichlorobenzene	ng	<5.0	5.0	03/14/19 15:31	
2-Butanone (MEK)	ng	<8.0	8.0	03/14/19 15:31	
2-Chloroethylvinyl ether	ng	<25.0	25.0	03/14/19 15:31	
2-Ethyltoluene	ng	<5.0	5.0	03/14/19 15:31	
2-Hexanone	ng	<8.0	8.0	03/14/19 15:31	
4-Ethyltoluene	ng	<5.0	5.0	03/14/19 15:31	
4-Methyl-2-pentanone (MIBK)	ng	<8.0	8.0	03/14/19 15:31	
Acetone	ng	<8.0	8.0	03/14/19 15:31	
Benzaldehyde	ng	<25.0	25.0	03/14/19 15:31	
Benzene	ng	<5.0	5.0	03/14/19 15:31	
Bromodichloromethane	ng	<5.0	5.0	03/14/19 15:31	
Bromoform	ng	<8.0	8.0	03/14/19 15:31	
Bromomethane	ng	<5.0	5.0	03/14/19 15:31	
Carbon disulfide	ng	<5.0	5.0	03/14/19 15:31	
Carbon tetrachloride	ng	<5.0	5.0	03/14/19 15:31	
Chlorobenzene	ng	<5.0	5.0	03/14/19 15:31	
Chloroethane	ng	<5.0	5.0	03/14/19 15:31	
Chloroform	ng	<5.0	5.0	03/14/19 15:31	
Chloromethane	ng	<5.0	5.0	03/14/19 15:31	
Chlorotrifluoromethane	ng	<25.0	25.0	03/14/19 15:31	CL
cis-1,2-Dichloroethene	ng	<5.0	5.0	03/14/19 15:31	
cis-1,3-Dichloropropene	ng	<5.0	5.0	03/14/19 15:31	
Dibromochloromethane	ng	<5.0	5.0	03/14/19 15:31	
Ethylbenzene	ng	<5.0	5.0	03/14/19 15:31	
Ethyltoluene (Total)	ng	<5.0	5.0	03/14/19 15:31	
Methylene Chloride	ng	<10.0	10.0	03/14/19 15:31	
n-Decane	ng	<25.0	25.0	03/14/19 15:31	
Styrene	ng	<5.0	5.0	03/14/19 15:31	
Tetrachloroethene	ng	<5.0	5.0	03/14/19 15:31	
Toluene	ng	<5.0	5.0	03/14/19 15:31	
trans-1,2-Dichloroethene	ng	<5.0	5.0	03/14/19 15:31	
trans-1,3-Dichloropropene	ng	<5.0	5.0	03/14/19 15:31	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: VOST MARCH 2019
Pace Project No.: 7082066

METHOD BLANK: 487409 Matrix: Water
Associated Lab Samples: 7082066016, 7082066017, 7082066026, 7082066027, 7082066028, 7082066029, 7082066030, 7082066031

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Trichloroethene	ng	<5.0	5.0	03/14/19 15:31	
Trichlorofluoromethane	ng	<5.0	5.0	03/14/19 15:31	
Vinyl chloride	ng	<5.0	5.0	03/14/19 15:31	
Xylene (Total)	ng	<5.0	5.0	03/14/19 15:31	
1,2-Dichloroethane-d4 (S)	%	104	70-190	03/14/19 15:31	
4-Bromofluorobenzene (S)	%	91	69-145	03/14/19 15:31	
Toluene-d8 (S)	%	96	81-125	03/14/19 15:31	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: VOST MARCH 2019
Pace Project No.: 7082066

QC Batch: 105645 Analysis Method: EPA 5041/0031
QC Batch Method: EPA 5041/0031 Analysis Description: 5041 MSV
Associated Lab Samples: 7082066002, 7082066003, 7082066005, 7082066006, 7082066007, 7082066008

METHOD BLANK: 488335 Matrix: Water
Associated Lab Samples: 7082066002, 7082066003, 7082066005, 7082066006, 7082066007, 7082066008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ng	<5.0	5.0	03/15/19 17:57	
1,1,2,2-Tetrachloroethane	ng	<5.0	5.0	03/15/19 17:57	
1,1,2-Trichloroethane	ng	<5.0	5.0	03/15/19 17:57	
1,1-Dichloroethane	ng	<5.0	5.0	03/15/19 17:57	
1,1-Dichloroethene	ng	<5.0	5.0	03/15/19 17:57	
1,2-Dichlorobenzene	ng	<5.0	5.0	03/15/19 17:57	
1,2-Dichloroethane	ng	<5.0	5.0	03/15/19 17:57	
1,2-Dichloropropane	ng	<5.0	5.0	03/15/19 17:57	
1,3-Dichlorobenzene	ng	<5.0	5.0	03/15/19 17:57	
1,4-Dichlorobenzene	ng	<5.0	5.0	03/15/19 17:57	
2-Butanone (MEK)	ng	<8.0	8.0	03/15/19 17:57	
2-Chloroethylvinyl ether	ng	<25.0	25.0	03/15/19 17:57	
2-Ethyltoluene	ng	<5.0	5.0	03/15/19 17:57	
2-Hexanone	ng	<8.0	8.0	03/15/19 17:57	
4-Ethyltoluene	ng	<5.0	5.0	03/15/19 17:57	
4-Methyl-2-pentanone (MIBK)	ng	<8.0	8.0	03/15/19 17:57	
Acetone	ng	<8.0	8.0	03/15/19 17:57	
Benzaldehyde	ng	<25.0	25.0	03/15/19 17:57	
Benzene	ng	<5.0	5.0	03/15/19 17:57	
Bromodichloromethane	ng	<5.0	5.0	03/15/19 17:57	
Bromoform	ng	<8.0	8.0	03/15/19 17:57	
Bromomethane	ng	<5.0	5.0	03/15/19 17:57	
Carbon disulfide	ng	<5.0	5.0	03/15/19 17:57	
Carbon tetrachloride	ng	<5.0	5.0	03/15/19 17:57	
Chlorobenzene	ng	<5.0	5.0	03/15/19 17:57	
Chloroethane	ng	<5.0	5.0	03/15/19 17:57	
Chloroform	ng	<5.0	5.0	03/15/19 17:57	
Chloromethane	ng	<5.0	5.0	03/15/19 17:57	
Chlorotrifluoromethane	ng	<25.0	25.0	03/15/19 17:57	
cis-1,2-Dichloroethene	ng	<5.0	5.0	03/15/19 17:57	
cis-1,3-Dichloropropene	ng	<5.0	5.0	03/15/19 17:57	
Dibromochloromethane	ng	<5.0	5.0	03/15/19 17:57	
Ethylbenzene	ng	<5.0	5.0	03/15/19 17:57	
Ethyltoluene (Total)	ng	<5.0	5.0	03/15/19 17:57	
Methylene Chloride	ng	<10.0	10.0	03/15/19 17:57	
n-Decane	ng	<25.0	25.0	03/15/19 17:57	
Styrene	ng	<5.0	5.0	03/15/19 17:57	
Tetrachloroethene	ng	<5.0	5.0	03/15/19 17:57	
Toluene	ng	<5.0	5.0	03/15/19 17:57	
trans-1,2-Dichloroethene	ng	<5.0	5.0	03/15/19 17:57	
trans-1,3-Dichloropropene	ng	<5.0	5.0	03/15/19 17:57	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: VOST MARCH 2019
Pace Project No.: 7082066

METHOD BLANK: 488335 Matrix: Water
Associated Lab Samples: 7082066002, 7082066003, 7082066005, 7082066006, 7082066007, 7082066008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Trichloroethene	ng	<5.0	5.0	03/15/19 17:57	
Trichlorofluoromethane	ng	<5.0	5.0	03/15/19 17:57	
Vinyl chloride	ng	<5.0	5.0	03/15/19 17:57	
Xylene (Total)	ng	<5.0	5.0	03/15/19 17:57	
1,2-Dichloroethane-d4 (S)	%	105	70-190	03/15/19 17:57	
4-Bromofluorobenzene (S)	%	89	69-145	03/15/19 17:57	
Toluene-d8 (S)	%	96	81-125	03/15/19 17:57	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: VOST MARCH 2019
Pace Project No.: 7082066

QC Batch: 105821
QC Batch Method: EPA 5041/0031
Analysis Method: EPA 5041/0031
Analysis Description: 5041 MSV
Associated Lab Samples: 7082066032

METHOD BLANK: 489199
Matrix: Water
Associated Lab Samples: 7082066032

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ng	<5.0	5.0	03/18/19 15:25	
1,1,2,2-Tetrachloroethane	ng	<5.0	5.0	03/18/19 15:25	
1,1,2-Trichloroethane	ng	<5.0	5.0	03/18/19 15:25	
1,1-Dichloroethane	ng	<5.0	5.0	03/18/19 15:25	
1,1-Dichloroethene	ng	<5.0	5.0	03/18/19 15:25	
1,2-Dichlorobenzene	ng	<5.0	5.0	03/18/19 15:25	
1,2-Dichloroethane	ng	<5.0	5.0	03/18/19 15:25	
1,2-Dichloropropane	ng	<5.0	5.0	03/18/19 15:25	
1,3-Dichlorobenzene	ng	<5.0	5.0	03/18/19 15:25	
1,4-Dichlorobenzene	ng	<5.0	5.0	03/18/19 15:25	
2-Butanone (MEK)	ng	<8.0	8.0	03/18/19 15:25	
2-Chloroethylvinyl ether	ng	<25.0	25.0	03/18/19 15:25	
2-Ethyltoluene	ng	<5.0	5.0	03/18/19 15:25	
2-Hexanone	ng	<8.0	8.0	03/18/19 15:25	
4-Ethyltoluene	ng	<5.0	5.0	03/18/19 15:25	
4-Methyl-2-pentanone (MIBK)	ng	<8.0	8.0	03/18/19 15:25	
Acetone	ng	<8.0	8.0	03/18/19 15:25	
Benzaldehyde	ng	<25.0	25.0	03/18/19 15:25	
Benzene	ng	<5.0	5.0	03/18/19 15:25	
Bromodichloromethane	ng	<5.0	5.0	03/18/19 15:25	
Bromoform	ng	<8.0	8.0	03/18/19 15:25	
Bromomethane	ng	<5.0	5.0	03/18/19 15:25	
Carbon disulfide	ng	<5.0	5.0	03/18/19 15:25	
Carbon tetrachloride	ng	<5.0	5.0	03/18/19 15:25	
Chlorobenzene	ng	<5.0	5.0	03/18/19 15:25	
Chloroethane	ng	<5.0	5.0	03/18/19 15:25	
Chloroform	ng	<5.0	5.0	03/18/19 15:25	
Chloromethane	ng	<5.0	5.0	03/18/19 15:25	
Chlorotrifluoromethane	ng	<25.0	25.0	03/18/19 15:25	
cis-1,2-Dichloroethene	ng	<5.0	5.0	03/18/19 15:25	
cis-1,3-Dichloropropene	ng	<5.0	5.0	03/18/19 15:25	
Dibromochloromethane	ng	<5.0	5.0	03/18/19 15:25	
Ethylbenzene	ng	<5.0	5.0	03/18/19 15:25	
Ethyltoluene (Total)	ng	<5.0	5.0	03/18/19 15:25	
Methylene Chloride	ng	<10.0	10.0	03/18/19 15:25	
n-Decane	ng	<25.0	25.0	03/18/19 15:25	
Styrene	ng	<5.0	5.0	03/18/19 15:25	
Tetrachloroethene	ng	<5.0	5.0	03/18/19 15:25	
Toluene	ng	<5.0	5.0	03/18/19 15:25	
trans-1,2-Dichloroethene	ng	<5.0	5.0	03/18/19 15:25	
trans-1,3-Dichloropropene	ng	<5.0	5.0	03/18/19 15:25	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: VOST MARCH 2019
Pace Project No.: 7082066

METHOD BLANK: 489199 Matrix: Water
Associated Lab Samples: 7082066032

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Trichloroethene	ng	<5.0	5.0	03/18/19 15:25	
Trichlorofluoromethane	ng	<5.0	5.0	03/18/19 15:25	
Vinyl chloride	ng	<5.0	5.0	03/18/19 15:25	
Xylene (Total)	ng	<5.0	5.0	03/18/19 15:25	
1,2-Dichloroethane-d4 (S)	%	95	70-190	03/18/19 15:25	
4-Bromofluorobenzene (S)	%	84	69-145	03/18/19 15:25	
Toluene-d8 (S)	%	90	81-125	03/18/19 15:25	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: VOST MARCH 2019
Pace Project No.: 7082066

QC Batch: 106579 Analysis Method: EPA 5041/0031
QC Batch Method: EPA 5041/0031 Analysis Description: 5041 MSV
Associated Lab Samples: 7082066009, 7082066010, 7082066011, 7082066012, 7082066013, 7082066014, 7082066015, 7082066018, 7082066019

METHOD BLANK: 492874 Matrix: Water
Associated Lab Samples: 7082066009, 7082066010, 7082066011, 7082066012, 7082066013, 7082066014, 7082066015, 7082066018, 7082066019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ng	<5.0	5.0	03/22/19 18:00	
1,1,2,2-Tetrachloroethane	ng	<5.0	5.0	03/22/19 18:00	
1,1,2-Trichloroethane	ng	<5.0	5.0	03/22/19 18:00	
1,1-Dichloroethane	ng	<5.0	5.0	03/22/19 18:00	
1,1-Dichloroethene	ng	<5.0	5.0	03/22/19 18:00	
1,2-Dichlorobenzene	ng	<5.0	5.0	03/22/19 18:00	
1,2-Dichloroethane	ng	<5.0	5.0	03/22/19 18:00	
1,2-Dichloropropane	ng	<5.0	5.0	03/22/19 18:00	
1,3-Dichlorobenzene	ng	<5.0	5.0	03/22/19 18:00	
1,4-Dichlorobenzene	ng	<5.0	5.0	03/22/19 18:00	
2-Butanone (MEK)	ng	<8.0	8.0	03/22/19 18:00	
2-Chloroethylvinyl ether	ng	<25.0	25.0	03/22/19 18:00	
2-Ethyltoluene	ng	<5.0	5.0	03/22/19 18:00	
2-Hexanone	ng	<8.0	8.0	03/22/19 18:00	
4-Ethyltoluene	ng	<5.0	5.0	03/22/19 18:00	
4-Methyl-2-pentanone (MIBK)	ng	<8.0	8.0	03/22/19 18:00	
Acetone	ng	<8.0	8.0	03/22/19 18:00	
Benzaldehyde	ng	<25.0	25.0	03/22/19 18:00	
Benzene	ng	<5.0	5.0	03/22/19 18:00	
Bromodichloromethane	ng	<5.0	5.0	03/22/19 18:00	
Bromoform	ng	<8.0	8.0	03/22/19 18:00	
Bromomethane	ng	<5.0	5.0	03/22/19 18:00	
Carbon disulfide	ng	<5.0	5.0	03/22/19 18:00	
Carbon tetrachloride	ng	<5.0	5.0	03/22/19 18:00	
Chlorobenzene	ng	<5.0	5.0	03/22/19 18:00	
Chloroethane	ng	<5.0	5.0	03/22/19 18:00	
Chloroform	ng	<5.0	5.0	03/22/19 18:00	
Chloromethane	ng	<5.0	5.0	03/22/19 18:00	
Chlorotrifluoromethane	ng	<25.0	25.0	03/22/19 18:00	
cis-1,2-Dichloroethene	ng	<5.0	5.0	03/22/19 18:00	
cis-1,3-Dichloropropene	ng	<5.0	5.0	03/22/19 18:00	
Dibromochloromethane	ng	<5.0	5.0	03/22/19 18:00	
Ethylbenzene	ng	<5.0	5.0	03/22/19 18:00	
Ethyltoluene (Total)	ng	<5.0	5.0	03/22/19 18:00	
Methylene Chloride	ng	<10.0	10.0	03/22/19 18:00	
n-Decane	ng	<25.0	25.0	03/22/19 18:00	
Styrene	ng	<5.0	5.0	03/22/19 18:00	
Tetrachloroethene	ng	<5.0	5.0	03/22/19 18:00	
Toluene	ng	<5.0	5.0	03/22/19 18:00	
trans-1,2-Dichloroethene	ng	<5.0	5.0	03/22/19 18:00	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: VOST MARCH 2019
Pace Project No.: 7082066

METHOD BLANK: 492874 Matrix: Water

Associated Lab Samples: 7082066009, 7082066010, 7082066011, 7082066012, 7082066013, 7082066014, 7082066015, 7082066018, 7082066019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
trans-1,3-Dichloropropene	ng	<5.0	5.0	03/22/19 18:00	
Trichloroethene	ng	<5.0	5.0	03/22/19 18:00	
Trichlorofluoromethane	ng	<5.0	5.0	03/22/19 18:00	
Vinyl chloride	ng	<5.0	5.0	03/22/19 18:00	
Xylene (Total)	ng	<5.0	5.0	03/22/19 18:00	
1,2-Dichloroethane-d4 (S)	%	84	70-190	03/22/19 18:00	
4-Bromofluorobenzene (S)	%	77	69-145	03/22/19 18:00	
Toluene-d8 (S)	%	89	81-125	03/22/19 18:00	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: VOST MARCH 2019
Pace Project No.: 7082066

QC Batch: 106744 Analysis Method: EPA 5041/0031
QC Batch Method: EPA 5041/0031 Analysis Description: 5041 MSV
Associated Lab Samples: 7082066001, 7082066004, 7082066020, 7082066021, 7082066022, 7082066023, 7082066024, 7082066025

METHOD BLANK: 493708 Matrix: Water
Associated Lab Samples: 7082066001, 7082066004, 7082066020, 7082066021, 7082066022, 7082066023, 7082066024, 7082066025

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ng	<5.0	5.0	03/25/19 15:31	
1,1,2,2-Tetrachloroethane	ng	<5.0	5.0	03/25/19 15:31	
1,1,2-Trichloroethane	ng	<5.0	5.0	03/25/19 15:31	
1,1-Dichloroethane	ng	<5.0	5.0	03/25/19 15:31	
1,1-Dichloroethene	ng	<5.0	5.0	03/25/19 15:31	
1,2-Dichlorobenzene	ng	<5.0	5.0	03/25/19 15:31	
1,2-Dichloroethane	ng	<5.0	5.0	03/25/19 15:31	
1,2-Dichloropropane	ng	<5.0	5.0	03/25/19 15:31	
1,3-Dichlorobenzene	ng	<5.0	5.0	03/25/19 15:31	
1,4-Dichlorobenzene	ng	<5.0	5.0	03/25/19 15:31	
2-Butanone (MEK)	ng	<8.0	8.0	03/25/19 15:31	
2-Chloroethylvinyl ether	ng	<25.0	25.0	03/25/19 15:31	
2-Ethyltoluene	ng	<5.0	5.0	03/25/19 15:31	
2-Hexanone	ng	<8.0	8.0	03/25/19 15:31	
4-Ethyltoluene	ng	<5.0	5.0	03/25/19 15:31	
4-Methyl-2-pentanone (MIBK)	ng	<8.0	8.0	03/25/19 15:31	
Acetone	ng	<8.0	8.0	03/25/19 15:31	
Benzaldehyde	ng	<25.0	25.0	03/25/19 15:31	
Benzene	ng	<5.0	5.0	03/25/19 15:31	
Bromodichloromethane	ng	<5.0	5.0	03/25/19 15:31	
Bromoform	ng	<8.0	8.0	03/25/19 15:31	
Bromomethane	ng	<5.0	5.0	03/25/19 15:31	
Carbon disulfide	ng	<5.0	5.0	03/25/19 15:31	
Carbon tetrachloride	ng	<5.0	5.0	03/25/19 15:31	
Chlorobenzene	ng	<5.0	5.0	03/25/19 15:31	
Chloroethane	ng	<5.0	5.0	03/25/19 15:31	
Chloroform	ng	<5.0	5.0	03/25/19 15:31	
Chloromethane	ng	<5.0	5.0	03/25/19 15:31	
Chlorotrifluoromethane	ng	<25.0	25.0	03/25/19 15:31	
cis-1,2-Dichloroethene	ng	<5.0	5.0	03/25/19 15:31	
cis-1,3-Dichloropropene	ng	<5.0	5.0	03/25/19 15:31	
Dibromochloromethane	ng	<5.0	5.0	03/25/19 15:31	
Ethylbenzene	ng	<5.0	5.0	03/25/19 15:31	
Ethyltoluene (Total)	ng	<5.0	5.0	03/25/19 15:31	
Methylene Chloride	ng	<10.0	10.0	03/25/19 15:31	
n-Decane	ng	<25.0	25.0	03/25/19 15:31	
Styrene	ng	<5.0	5.0	03/25/19 15:31	
Tetrachloroethene	ng	<5.0	5.0	03/25/19 15:31	
Toluene	ng	<5.0	5.0	03/25/19 15:31	
trans-1,2-Dichloroethene	ng	<5.0	5.0	03/25/19 15:31	
trans-1,3-Dichloropropene	ng	<5.0	5.0	03/25/19 15:31	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: VOST MARCH 2019
Pace Project No.: 7082066

METHOD BLANK: 493708 Matrix: Water
Associated Lab Samples: 7082066001, 7082066004, 7082066020, 7082066021, 7082066022, 7082066023, 7082066024, 7082066025

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Trichloroethene	ng	<5.0	5.0	03/25/19 15:31	
Trichlorofluoromethane	ng	<5.0	5.0	03/25/19 15:31	
Vinyl chloride	ng	<5.0	5.0	03/25/19 15:31	
Xylene (Total)	ng	<5.0	5.0	03/25/19 15:31	
1,2-Dichloroethane-d4 (S)	%	82	70-190	03/25/19 15:31	
4-Bromofluorobenzene (S)	%	74	69-145	03/25/19 15:31	
Toluene-d8 (S)	%	89	81-125	03/25/19 15:31	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALIFIERS

Project: VOST MARCH 2019
Pace Project No.: 7082066

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

SAMPLE QUALIFIERS

Sample: 7082066020

[1] M16.B only reported, M16.F was clogged.

Sample: 7082066032

[1] TB2.F only reported, TB2.B was clogged.

ANALYTE QUALIFIERS

CH	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.
CL	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.
N	The reported TIC has an 85% or higher match on a mass spectral library search.

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: VOST MARCH 2019
Pace Project No.: 7082066

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
7082066013	TOB-OBL19_ANNUAL:M6.F+B	EPA 5041/0031			
7082066019	TOB-OBL19_ANNUAL:M13.F+B	EPA 5041/0031			
7082066020	TOB-OBL19_ANNUAL:M16.B	EPA 5041/0031			
7082066001	TOB-OBL19_ANNUAL:U1.F+B	EPA 5041/0031	106744		
7082066002	TOB-OBL19_ANNUAL:U2.F	EPA 5041/0031	105645		
7082066003	TOB-OBL19_ANNUAL:U2.B	EPA 5041/0031	105645		
7082066004	TOB-OBL19_ANNUAL:D1.F+B	EPA 5041/0031	106744		
7082066005	TOB-OBL19_ANNUAL:D2.F	EPA 5041/0031	105645		
7082066006	TOB-OBL19_ANNUAL:D2.B	EPA 5041/0031	105645		
7082066007	TOB-OBL19_ANNUAL:D3.F	EPA 5041/0031	105645		
7082066008	TOB-OBL19_ANNUAL:D3.B	EPA 5041/0031	105645		
7082066009	TOB-OBL19_ANNUAL:F1.F+B	EPA 5041/0031	106579		
7082066010	TOB-OBL19_ANNUAL:M2.F+B	EPA 5041/0031	106579		
7082066011	TOB-OBL19_ANNUAL:M4.F+B	EPA 5041/0031	106579		
7082066012	TOB-OBL19_ANNUAL:M5.F+B	EPA 5041/0031	106579		
7082066013	TOB-OBL19_ANNUAL:M6.F+B	EPA 5041/0031	106579		
7082066014	TOB-OBL19_ANNUAL:M9(10).F+B	EPA 5041/0031	106579		
7082066015	TOB-OBL19_ANNUAL:M9(20).F+B	EPA 5041/0031	106579		
7082066016	TOB-OBL19_ANNUAL:M9(30).F	EPA 5041/0031	105453		
7082066017	TOB-OBL19_ANNUAL:M9(30).B	EPA 5041/0031	105453		
7082066018	TOB-OBL19_ANNUAL:M9(40).F+B	EPA 5041/0031	106579		
7082066019	TOB-OBL19_ANNUAL:M13.F+B	EPA 5041/0031	106579		
7082066020	TOB-OBL19_ANNUAL:M16.B	EPA 5041/0031	106744		
7082066021	TOB-OBL19_ANNUAL:M22.F+B	EPA 5041/0031	106744		
7082066022	TOB-OBL19_ANNUAL:M28.F+B	EPA 5041/0031	106744		
7082066023	TOB-OBL19_ANNUAL:M31.F+B	EPA 5041/0031	106744		
7082066024	TOB-OBL19_ANNUAL:M34.F+B	EPA 5041/0031	106744		
7082066025	TOB-OBL19_ANNUAL:M37.F+B	EPA 5041/0031	106744		
7082066026	TOB-OBL19_ANNUAL:FB1.F+B	EPA 5041/0031	105453		
7082066027	TOB-OBL19_ANNUAL:FB2.F+B	EPA 5041/0031	105453		
7082066028	TOB-OBL19_ANNUAL:M39.F	EPA 5041/0031	105453		
7082066029	TOB-OBL19_ANNUAL:M39.B	EPA 5041/0031	105453		
7082066030	TOB-OBL19_ANNUAL:FB3.F+B	EPA 5041/0031	105453		
7082066031	TOB-OBL19_ANNUAL:TB1.F+B	EPA 5041/0031	105453		
7082066032	TOB-OBL19_ANNUAL:TB2.F	EPA 5041/0031	105821		

CHAIN OF CUSTODY RECORD

RTP ENVIRONMENTAL ASSOCIATES, INC.®
AIR • WATER • SOLID WASTE CONSULTANTS
400 Post Avenue
Westbury, New York 11590
(www.rtpenv.com)
(516) 333-4526
fax (516) 333-4571

Project Name:	TOBOBL19_Annual
Project ID:	TOBOBL19_Annual
Project Location:	TOB Landfill
Laboratory:	Pace Analytical
Samplers: (Signature)	Gary Greenreich

WO#: 7082066

Test ID	Sample ID	Matrix (A, L, S)	Date	Time	Sample Method	Sample Duration	Number of Containers	Analysis Requested	
TOBOBL19_Annual	TOB-OBL19_Annual: U1.f	A	3/12/19	10:30	VOST	24 hours	1	See Letter	001
	U1.b						1		↓
	U2.f						1		002
	U2.b						1		003
	D1.f						1		004
	D1.b						1		↓
	D2.f						1		005
	D2.b						1		006
	D3.f						1		007
	D3.b					↓	1		008
	F1.f					10 mins	1		009
	F1.b						1		↓
	M2.f						1		010
	M2.b						1		↓
	M4.f						1		011
	M4.b						1		↓

Relinquished by: (Signature)	Gary Greenreich	Date/Time: 3/12/19 11:15	Received By: (Signature) [illegible]	Date/Time: 3/12/19 11:15
Relinquished by: (Signature)		Date/Time:	Received By: (Signature)	Date/Time:

Remarks:

Delivery Method: Drop-off
Custody Seals Intact: Yes No

6.0 C

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fax (516) 333-4571

Project Name:	TOBOBL19_Annual
Project ID:	TOBOBL19_Annual
Project Location:	TOB Landfill
Laboratory:	Pace Analytical
Samplers: (Signature)	Gary Gunserich

Test ID	Sample ID	Matrix (A, L, S)	Date	Time	Sample Method	Sample Duration	Number of Containers	Analysis Requested			
TOBOBL19_Annual	TOB-OBL19_Annual: M5.f	A	3/12/19	10:30	VOST	10 mins	1	See	letter	~~017~~	012
↓	M5.b	↓	↓	↓	↓	↓	1			~~018~~	↓
	M6.f						1			~~019~~	013
	M6.b						1			~~020~~	↓
	M9(10).f						1			~~021~~	014
	M9(10).b						1			~~022~~	↓
	M9(20).f						1			~~023~~	015
	M9(20).b						1			~~024~~	↓
	M9(30).f						1			~~025~~	016
	M9(30).b						1			~~026~~	017
	M9(40).f						1			~~027~~	018
	M9(40).b						1			~~028~~	↓
	M13.f						1			~~029~~	019
	M13.b						1			~~030~~	↓
	M16.f						1			~~031~~	020
↓	M16.b	↓	↓	↓	↓	↓	1			~~032~~	↓

Relinquished by: (Signature)	Gary Gunserich	Date/Time: 3/12/19 11:15	Received By: (Signature)	Date/Time: 3/12/19 11:15
Relinquished by: (Signature)		Date/Time:	Received By: (Signature)	Date/Time:

Remarks:

Delivery Method: Drop-off
Custody Seals Intact: Yes No

6.0°C

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fax (516) 333-4571

Project Name:	TOBOBL19_Annual
Project ID:	TOBOBL19_Annual
Project Location:	TOB Landfill
Laboratory:	Pace Analytical
Samplers: (Signature)	

WO#: 7082066
PM: JSA Due Date: 03/26/19
CLIENT: TOY

Test ID	Sample ID	Matrix (A, L, S)	Date	Time	Sample Method	Sample Duration	Number of Containers	Analysis Requested			
TOBOBL19_Annual	TOB-OBL19_Annual:M22.f	A	3/12/19	10:30	VOST	10 min	1	See	letter	~~033~~	021
	M22.b						1			~~034~~	↓
	M28.f						1			~~035~~	022
	M28.b						1			~~036~~	↓
	M31.f						1			~~037~~	023
	M31.b						1			~~038~~	↓
	M34.f						1			~~039~~	024
	M34.b						1			~~040~~	↓
	M37.f						1			~~041~~	025
	M37.b						1			~~042~~	↓
	FB1.f						1			~~043~~	026
	FB1.b						1			~~044~~	↓
	FB2.f						1			~~045~~	027
	FB2.b						1			~~046~~	↓
	M39.f						1			~~047~~	028
	M39.b						1			~~048~~	029

Relinquished by: (Signature) Gary Grunwich	Date/Time: 3/12/19 11:15	Received By: (Signature)	Date/Time: 3/12/19 11:15
Relinquished by: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:

Remarks:

Delivery Method: Drop-off
Custody Seals Intact: Yes No

P:\Projects\Town of Oyster Bay\OBL Monitoring\Forms & Field Data Sheets\COC.xls

6-DL

CHAIN OF CUSTODY RECORD

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Westbury, New York 11590
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(516) 333-4526
fax (516) 333-4571

Project Name:	TOBOBL19_Annual
Project ID:	TOBOBL19_Annual
Project Location:	TOB Landfill
Laboratory:	Pace Analytical
Samplers: (Signature)	

Test ID	Sample ID	Matrix (A, L, S)	Date	Time	Sample Method	Sample Duration	Number of Containers	Analysis Requested			
TOBOBL19_Annual	TOB-OBL19_Annual: FB3.f	A	3/12/19	10:30	VOST	1 min	1	See	letter	~~049~~	030
	FB3.b						1			~~050~~	↓
	TB1.f						1			~~051~~	031
	TB1.b						1			~~052~~	↓
	TB2.f						1			~~053~~	032
	TB2.b						1			~~054~~	↓
							1				
							1				
							1				
							1				
							1				
							1				
							1				
							1				
							1				
							1				
							1				

Relinquished by: (Signature)	Gary Brunsrich	Date/Time: 3/12/19 11:15	Received By: (Signature)	Date/Time: 3/12/19 11:15
Relinquished by: (Signature)		Date/Time:	Received By: (Signature)	Date/Time:

Remarks:

Delivery Method: Drop-off
Custody Seals Intact: Yes No

6.0°C

Pace Analytical

Sample Condition Upon Receipt

WO#: 7082066
PM: JSA Due Date: 03/26/19
CLIENT: TOY

Client Name: RIPenv. Projec

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☒ Client ☐ Commercial ☐ Pace ☐ Other

Tracking #:

Custody Seal on Cooler/Box Present: ☐ Yes ☒ No Seals intact: ☐ Yes ☐ No Temperature Blank Present: ☐ Yes ☒ No

Packing Material: ☐ Bubble Wrap ☒ Bubble Bags ☐ Ziploc ☐ None ☐ Other Type of Ice: Wet ☒ Blue ☐ None

Thermometer Used: TH091 Correction Factor: 0.0 ☐ Samples on ice, cooling process has begun

Cooler Temperature (°C): 6.0 Cooler Temperature Corrected (°C): 6.0 Date/Time 5035A kits placed in freezer

Temp should be above freezing to 6.0°C

USDA Regulated Soil (☐ N/A, water sample) Date and Initials of person examining contents: JK 3/12/19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check map)? ☐ YES ☐ NO

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☒ No

If Yes to either question, fill out a Regulated Soil Checklist (F-LI-C-010) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present:	☒Yes	☐No		1.
Chain of Custody Filled Out:	☒Yes	☐No		2.
Chain of Custody Relinquished:	☒Yes	☐No		3.
Sampler Name & Signature on COC:	☒Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time:	☒Yes	☐No		5.
Short Hold Time Analysis (<72hr):	☐Yes	☒No		6.
Rush Turn Around Time Requested:	☐Yes	☒No		7.
Sufficient Volume: (Triple volume provided for MS/MSD)	☒Yes	☐No		8.
Correct Containers Used:	☒Yes	☐No		9.
-Pace Containers Used:	☒Yes	☐No		
Containers Intact:	☒Yes	☐No		10.
Filtered volume received for Dissolved tests	☐Yes	☐No	☒N/A	11. Note if sediment is visible in the dissolved container.
Sample Labels match COC:	☒Yes	☐No		12.
-Includes date/time/ID/Analysis Matrix SL WT OL				
All containers needing preservation have been checked	☐Yes	☐No	☒N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl
pH paper Lot #				
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl, NaOH>9 Sulfide, NAOH>12 Cyanide) Exceptions: VOA, Coliform, TOC/DOC, Oil and Grease, DRO/8015 (water). Per Method, VOA pH is checked after analysis	☐Yes	☐No	☒N/A	Sample #
				Initial when completed: / Lot # of added preservative: / Date/Time preservative added:
Samples checked for dechlorination:	☐Yes	☐No	☒N/A	14.
KI starch test strips Lot #				
Residual chlorine strips Lot #				Positive for Res. Chlorine? Y N
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☒N/A	15.
Trip Blank Present:	☐Yes	☐No	☒N/A	16.
Trip Blank Custody Seals Present	☐Yes	☐No	☒N/A	
Pace Trip Blank Lot # (if applicable):				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: Date/Time:

Comments/ Resolution:

*** PM (Project Manager) review is documented electronically in LIMS.**

ATTACHMENT D

FIELD DATA FORMS

METEOROLOGICAL EQUIPMENT SITING DATA SHEET

Project: TOBOBL19_Annual

Project Site: TOBOBSWDC

Operators: KJS, JKB, JLB, GG

Instrument No.1 (Wind Mark III)
Location: Top of Landfill
Initial Battery Voltage:
Wind Dir. Reference: Compass N. **True WD = Measured WD +/- ( ) =**
Date & Julian Day to Set Up: 3/11/2019 (70) **Start Time (Local):**
Date & Julian Day to Take Down: **Stop Time (Local):**
Remarks:

Instrument No.2 (All-in-One)
Location:
Initial Battery Voltage:
Wind Dir. Reference: **True WD = Measured WD +/- ( ) =**
Date & Julian Day to Set Up: **Start Time (Local):**
Date & Julian Day to Take Down: **Stop Time (Local):**
Remarks:

PRESSURE WELL READING DATA SHEET

Project ID: TOBOBL19_Annual

Project Site: TOBOBSWDC

Date: 3/12/19

General Weather Conditions: Clr NW-10

Equipment ID: Dwyer 10" inclined manometer

Operators: KJS, JKB, JLB, GG

Well ID	Pressure Well Location	Color Code	Time	Reading
PW1	NW corner of landfill	blue	7:46	0.0
		green	7:46	+0.01
		blue	7:47	0.0
		green	7:47	+0.01
Well ID	**Pressure Well Location**	**Color Code**	**Time**	**Reading**
PW2	SE corner of landfill	blue	7:35	~~0.00~~
		green	7:35	+0.02
		blue	7:36	0.0
		green	7:36	+0.02
Well ID	**Pressure Well Location**	**Color Code**	**Time**	**Reading**
PW3	FTC	blue	8:02	~~-0.05~~ 0.00
		green	8:02	-0.05
		blue	8:03	0.00
		green	8:03	-0.05
Well ID	**Pressure Well Location**	**Color Code**	**Time**	**Reading**

Comments:

BLUE (Short) = 10' GREEN (Long) = 20'

Front Trap ID A055301
Back Trap ID A054958

AMBIENT AIR SAMPLING DATA SHEET

Project: TOBOBL19_Annual
Date: 3/11/2019
Project Site: TOBOBSWDC
Operators: (KJS), JKB, (JLB), (GG)
General Weather Conditions:

Sample ID: TOBOBL19_Annual
Sample Location: U1
Pump ID: R8
Nominal Flow Rate: 0.25 LPM
Sampler ID: {R- 8 }
Nominal Sample Volume: 360 liters

Initial Ambient VOC Conc. (ppm): 0.0
Leak Check: AOK
Sampling Start Time: 0947
Initial Rotameter Reading (Bottom of the S.S. Ball): 57
Initial Pressure Drop Across Traps: 7
Initial Max/Min Temperature Inside Cooler: 40/40

Rotameter Reading	Total Elapse Time	Local Time
58	18	1005
58	171	1237
58	250	1357
55	473	1742
58	475	1743
55	781	2248
54	980	207

Rotameter Reading	Total Elapse Time	Local Time
57	1232	616
58	1434	940
57	1440	947

Final Leak Check: OK
Sample Stop Time: 3/12/19 09:47
Final Rotameter Reading: 57
Total Elapse Time: 1440
Final Ambient VOC Conc. (ppm): 0.0
Final Pressure Drop Across Traps: 7
Final Max/Min Temperature Inside Cooler: 28°F/58°F

Comments:
Construction Vehicle Operating (idling) during time of pickup

Front Trap ID A0561 051
Back Trap ID A055000

AMBIENT AIR SAMPLING DATA SHEET

Project: TOBOBL19_Annual	**Date:** 3/11/2019
Project Site: TOBOBSWDC	**Operators:** (KJS) JKB, (JLB), (GG)
General Weather Conditions:	

Sample ID: TOBOBL19_Annual	**Sample Location:** U2
Pump ID: R9	**Nominal Flow Rate:** 0.25 LPM
Sampler ID: {R-9}	**Nominal Sample Volume** 360 liters

Initial Ambient VOC Conc. (ppm):	0.0
Leak Check:	OK
Sampling Start Time:	0950
Initial Rotameter Reading (Bottom of the S.S. Ball):	57
Initial Pressure Drop Across Traps:	8
Initial Max/Min Temperature Inside Cooler:	-MD.

Rotameter Reading	Total Elapse Time	Local Time
59	15	1005
60	168	1237
58	248	1358
55	478	1744
59	479	1745
55	778	2248
54	977	207

Rotameter Reading	Total Elapse Time	Local Time
0	1099	616
60	1099	621
0	1101	638
62	001	642
65	180	940

Final Leak Check:	OK
Sample Stop Time:	3/12/19 09:50
Final Rotameter Reading:	192
Total Elapse Time:	~~1283~~ ~~97~~ 1291
Final Ambient VOC Conc. (ppm):	0.0
Final Pressure Drop Across Traps:	9
Final Max/Min Temperature Inside Cooler:	- MD

Comments:

Construction Vehicle idling nearby during time of pick up.

Front Trap ID A055972
Back Trap ID A058842

AMBIENT AIR SAMPLING DATA SHEET

Project: TOBOBL19_Annual
Date: 3/11/2019
Project Site: TOBOBSWDC
Operators: KJS, JKB, JLB, GG
General Weather Conditions: Clear mid 40s

Sample ID: TOBOBL19_Annual
Sample Location: D1
Pump ID: R1
Nominal Flow Rate: 0.25 LPM
Sampler ID: {R- 1 }
Nominal Sample Volume: 360 liters

Initial Ambient VOC Conc. (ppm): 0.0 ppm
Leak Check: OK
Sampling Start Time: 9:48 am
Initial Rotameter Reading (Bottom of the S.S. Ball): 58
Initial Pressure Drop Across Traps: 7
Initial Max/Min Temperature Inside Cooler: 60°F

Rotameter Reading	Total Elapse Time	Local Time
60	00:26	10:14
65	178	12 45
~~61~~	~~254~~	~~14 04~~
60	483	1751
59	783	2252
57	983	211

Rotameter Reading	Total Elapse Time	Local Time
59	1237	627

Final Leak Check: N/A
Sample Stop Time: 948
Final Rotameter Reading: 58
Total Elapse Time: 1440
Final Ambient VOC Conc. (ppm): 0
Final Pressure Drop Across Traps: 7
Final Max/Min Temperature Inside Cooler: 64°F/26°F

Comments:

Front Trap ID A055308
Back Trap ID A058902

AMBIENT AIR SAMPLING DATA SHEET

Project: TOBOBL19_Annual
Date: 3/11/2019
Project Site: TOBOBSWDC
Operators: (KJS), JKB, (JLB), (GG)
General Weather Conditions: Clear Mid-40s

Sample ID: TOBOBL19_Annual
Sample Location: D2
Pump ID: R#2
Nominal Flow Rate: 0.25 LPM
Sampler ID: {R-2}
Nominal Sample Volume: 360 liters

Initial Ambient VOC Conc. (ppm): 0.0 ppm
Leak Check: OK
Sampling Start Time: 9:48am
Initial Rotameter Reading (Bottom of the S.S. Ball): 58
Initial Pressure Drop Across Traps: 11
Initial Max/Min Temperature Inside Cooler: 62°F

Rotameter Reading	Total Elapse Time	Local Time
61	00:26	10:14
65	179	1245
64	254	1403
60	483	1752
60	783	2252
59	982	211
58	1238	627

Rotameter Reading	Total Elapse Time	Local Time
0	1357	936
58	1357	937

Final Leak Check: OK
Sample Stop Time: 9:48
Final Rotameter Reading: 58
Total Elapse Time: 1369
Final Ambient VOC Conc. (ppm): 0
Final Pressure Drop Across Traps: 10
Final Max/Min Temperature Inside Cooler: 61/33

Comments:

Front Trap ID A055502
Back Trap ID A055737

AMBIENT AIR SAMPLING DATA SHEET

Project: TOBOBL19_Annual
Date: 3/11/2019
Project Site: TOBOBSWDC
Operators: (KJS) JKB (JLB) (GG)
General Weather Conditions:

Sample ID: TOBOBL19_Annual
Sample Location: D3
Pump ID: R5
Nominal Flow Rate: 0.25 LPM
Sampler ID: {R- 5 }
Nominal Sample Volume: 360 liters

Initial Ambient VOC Conc. (ppm): 0.0 ppm
Leak Check: OK
Sampling Start Time: 10:10 am
Initial Rotameter Reading (Bottom of the S.S. Ball): 60
Initial Pressure Drop Across Traps: 8
Initial Max/Min Temperature Inside Cooler: 64°F

Rotameter Reading	Total Elapse Time	Local Time
60	158	1248
57	239	1408
53 ~~58~~	443	1732
60	446	1735
69	706	2259
60	709	2258
59	964	215

Rotameter Reading	Total Elapse Time	Local Time
62	1221	631
0	1269	954
58	1269	954

Final Leak Check: AOK
Sample Stop Time: 10:00
Final Rotameter Reading: 58
Total Elapse Time: 1273
Final Ambient VOC Conc. (ppm): 0
Final Pressure Drop Across Traps: 8
Final Max/Min Temperature Inside Cooler: 65°F / 20°F

Comments:

Front Trap ID: A055619
Back Trap ID: A055607

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Page ____ of ____

SOIL GAS WELL SAMPLING DATA SHEET

Project ID: TOBOBL19_Annual **Location:** TOBOBSWDC **Date:** 3/11/18
Invesitgators: KJS, JKB, JLB, GG
General Weather Conditions: Wind: W-10+ Sky Condition: Clr. Temperature: 40°

Sample ID: TOBOBL19_Annual **Sampler ID:** (R - 4)
Pump ID: R4 **Sample Location:** FTC.
Well ID: F1 **Well Depth:** 30" or 10', 20', 30', or 40'
Nominal Flow Rate: 1 LPM **Nominal Sample Volume:** 10 Liters
Initial Leak Check: OK **PID ID:** RPI

Initial Ambient VOC Reading: 0.0 **Initial Well VOC Reading:** 0.0

Sample Start Time: 1050

Initial Rotameter Reading: 118
5-Minute Rotameter Reading: 119
Final Rotameter Reading: 119

Final Ambient VOC Reading: 0 **Final Well VOC Reading:** 0

Sample Stop Time: 1100 **Duration:** 10 minutes

Final Leak Check: OK

Comments:

M-9 = BLUE = 10' GREEN = 20' RED = 30' YELLOW 40'

Front Trap ID: A054961
Back Trap ID: A055559

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Page ____ of ____

SOIL GAS WELL SAMPLING DATA SHEET

Project ID: TOBOBL19_Annual **Location:** TOBOBSWDC **Date:** 3/11/19
Invesitgators: ~~KJS~~, JKB, JLB, GG
General Weather Conditions: Wind: W 10 Sky Condition: clr Temperature: 40

Sample ID: TOBOBL19_Annual **Sampler ID:** (R - 4)
Pump ID: R4 **Sample Location:** M2
Well ID: M2 **Well Depth:** 30" or 10', 20', 30', or 40'
Nominal Flow Rate: 1 LPM **Nominal Sample Volume:** 10 Liters
Initial Leak Check: 40K **PID ID:** RTP1

Initial Ambient VOC Reading: 0 **Initial Well VOC Reading:** 0

Sample Start Time: 1113

Initial Rotameter Reading: 119
5-Minute Rotameter Reading: 116
Final Rotameter Reading: 112

Final Ambient VOC Reading: 0 **Final Well VOC Reading:** 0

Sample Stop Time: 1123 **Duration:** 10 minutes

Final Leak Check: 40K

Comments:

M-9 = BLUE = 10' GREEN = 20' RED = 30' YELLOW 40'

Front Trap ID: A0 5618
Back Trap ID: A0 58 929

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Page ____ of ____

SOIL GAS WELL SAMPLING DATA SHEET

Project ID: TOBOBL19_Annual **Location:** TOBOBSWDC **Date:** 3/14/19
Invesitgators: KJS, JKB, JLB, GG
General Weather Conditions: Wind: 10 West Sky Condition: Clear Temperature: 40

Sample ID: TOBOBL19_Annual
Sampler ID: (R - 4)
Pump ID: R4
Sample Location: M4
Well ID: M4
Well Depth: 30" or 10', 20', 30', or 40'
Nominal Flow Rate: 1 LPM
Nominal Sample Volume: 10 Liters
Initial Leak Check: AOK.
PID ID: RTP 1

Initial Ambient VOC Reading: 0
Initial Well VOC Reading: 0

Sample Start Time: 1135

Initial Rotameter Reading: 120
5-Minute Rotameter Reading: 115
Final Rotameter Reading: 115

Final Ambient VOC Reading: 0
Final Well VOC Reading: 0

Sample Stop Time: 1145
Duration: ________ minutes

Final Leak Check: ________

Comments: ________

M-9 = BLUE = 10' GREEN = 20' RED = 30' YELLOW 40'

Front Trap ID: A055002
Back Trap ID: A056033

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Page ____ of ____

SOIL GAS WELL SAMPLING DATA SHEET

Project ID: TOBOBL19_Annual **Location:** TOBOBSWDC **Date:** 3/11/19
Invesitgators: KJS, JKB, JLB, GG
General Weather Conditions: Wind: W-10 Sky Condition: clr Temperature: 40

Sample ID: TOBOBL19_Annual **Sampler ID:** (R - 4)
Pump ID: R4 **Sample Location:** M5
Well ID: M5 **Well Depth:** 30" or 10', 20', 30', or 40'
Nominal Flow Rate: 1 LPM **Nominal Sample Volume:** 10 Liters
Initial Leak Check: ADK **PID ID:** RTP1

Initial Ambient VOC Reading: 0 **Initial Well VOC Reading:** 0.1

Sample Start Time: 12:14

Initial Rotameter Reading: 120
5-Minute Rotameter Reading: 122
Final Rotameter Reading: 124

Final Ambient VOC Reading: 0 **Final Well VOC Reading:** 0.1

Sample Stop Time: 1224 **Duration:** 10 minutes

Final Leak Check: ADK

Comments:

M-9 = BLUE = 10' GREEN = 20' RED = 30' YELLOW 40'

Front Trap ID: AD55930
Back Trap ID: AD56 068

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Page ____ of ____

SOIL GAS WELL SAMPLING DATA SHEET

Project ID: TOBOBL19_Annual **Location:** TOBOBSWDC **Date:** 3/11/19
Invesitgators: KJS, JKB, JLB, GG
General Weather Conditions: Wind: W-10 Sky Condition: Clear Temperature: 40

Sample ID: TOBOBL19_Annual **Sampler ID:** (R-4)
Pump ID: R4 **Sample Location:** M6
Well ID: M6 **Well Depth:** 30" or 10', 20', 30', or 40'
Nominal Flow Rate: 1 LPM **Nominal Sample Volume:** 10 Liters
Initial Leak Check: ADK **PID ID:** RAE1

Initial Ambient VOC Reading: 0 **Initial Well VOC Reading:** 0.

Sample Start Time: 1155

Initial Rotameter Reading: 120
5-Minute Rotameter Reading: 119
Final Rotameter Reading: ____

Final Ambient VOC Reading: 0 **Final Well VOC Reading:** 0

Sample Stop Time: 1205 **Duration:** 10 minutes

Final Leak Check: OK

Comments: ____

M-9 = BLUE = 10' GREEN = 20' RED = 30' YELLOW 40'

Front Trap ID: A056047
Back Trap ID: A055341

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Page ____ of ____

SOIL GAS WELL SAMPLING DATA SHEET

Project ID: TOBOBL19_Annual **Location:** TOBOBSWDC **Date:** 3/4/19
Investigators: KJS, JKB, JLB, GG
General Weather Conditions: Wind: W ~10 Sky Condition: clr Temperature: 45

Sample ID: TOBOBL19_Annual **Sampler ID:** (R-4)
Pump ID: R4 **Sample Location:** M9 10
Well ID: M9 **Well Depth:** 30" or 10', 20', 30', or 40'
Nominal Flow Rate: 1 LPM **Nominal Sample Volume:** 10 Liters
Initial Leak Check: ADK **PID ID:** RAE)

Initial Ambient VOC Reading: 0 **Initial Well VOC Reading:** 0

Sample Start Time: 1418

Initial Rotameter Reading: 120
5-Minute Rotameter Reading: 118
Final Rotameter Reading: 119

Final Ambient VOC Reading: 0 **Final Well VOC Reading:** 0

Sample Stop Time: 1428 **Duration:** 10 minutes

Final Leak Check: ADK

Comments:

M-9 = BLUE = 10' GREEN = 20' RED = 30' YELLOW 40'

Front Trap ID: A056052
Back Trap ID: A055519

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Page ____ of ____

SOIL GAS WELL SAMPLING DATA SHEET

Project ID: TOBOBL19_Annual **Location:** TOBOBSWDC **Date:** 3/11/19
Investigators: KJS, JKB, JLB, GG
General Weather Conditions: Wind: W-10 **Sky Condition:** Clr **Temperature:** 45

Sample ID: TOBOBL19_Annual **Sampler ID:** (R - 4)
Pump ID: R4 **Sample Location:** MW 20
Well ID: MW (20) **Well Depth:** 30" or 10', 20', 30', or 40'
Nominal Flow Rate: 1 LPM **Nominal Sample Volume:** 10 Liters
Initial Leak Check: AOK **PID ID:** RAE1

Initial Ambient VOC Reading: 0 **Initial Well VOC Reading:** 0

Sample Start Time: 1437

Initial Rotameter Reading: 120
5-Minute Rotameter Reading: 120
Final Rotameter Reading: 121

Final Ambient VOC Reading: 0 **Final Well VOC Reading:** 0

Sample Stop Time: 1447 **Duration:** 10 minutes

Final Leak Check: AOK

Comments:

MW = BLUE = 10' GREEN = 20' RED = 30' YELLOW 40'

Front Trap ID: A055 561
Back Trap ID: A055708

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SOIL GAS WELL SAMPLING DATA SHEET

Project ID: TOBOBL19_Annual **Location:** TOBOBSWDC **Date:** 3/11/19
Invesitgators: KJS, JKB, JLB, GG
General Weather Conditions: Wind: W-16 Sky Condition: Clr Temperature: 45

Sample ID: TOBOBL19_Annual **Sampler ID:** (R - 4)
Pump ID: R4 **Sample Location:** M9 30
Well ID: M9 **Well Depth:** 30" or 10', 20', 30', or 40'
Nominal Flow Rate: 1 LPM **Nominal Sample Volume:** 10 Liters
Initial Leak Check: AOK **PID ID:** RTP1

Initial Ambient VOC Reading: 0 **Initial Well VOC Reading:** 0

Sample Start Time: 14 58

Initial Rotameter Reading: 1.18
5-Minute Rotameter Reading: 1.22
Final Rotameter Reading: 1.20

Final Ambient VOC Reading: 0 **Final Well VOC Reading:** 0

Sample Stop Time: 15 08 **Duration:** 10 minutes

Final Leak Check: AOK

Comments:

M-9 = BLUE = 10' GREEN = 20' RED = 30' YELLOW 40'

Front Trap ID: A055 605
Back Trap ID: A054 286

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Page ____ of ____

SOIL GAS WELL SAMPLING DATA SHEET

Project ID: TOBOBL19_Annual **Location:** TOBOBSWDC **Date:** 3/11/19
Invesitgators: KJS, JKB, JLB, GG
General Weather Conditions: Wind: W-10 Sky Condition: clr Temperature: 45

Sample ID: TOBOBL19_Annual **Sampler ID:** (R-4)
Pump ID: R4 **Sample Location:** M9 40
Well ID: M9 **Well Depth:** 30" or 10', 20', 30', or 40'
Nominal Flow Rate: 1 LPM **Nominal Sample Volume:** 10 Liters
Initial Leak Check: AOK **PID ID:** RTP-1

Initial Ambient VOC Reading: 0 **Initial Well VOC Reading:** 0

Sample Start Time: 1514

Initial Rotameter Reading: 118
5-Minute Rotameter Reading: 120
Final Rotameter Reading: 121

Final Ambient VOC Reading: 0. **Final Well VOC Reading:** 0

Sample Stop Time: 1524 **Duration:** 10 minutes

Final Leak Check: AOK

Comments:

M-9 = BLUE = 10' GREEN = 20' RED = 30' YELLOW 40'

Front Trap ID: A055521
Back Trap ID: A055003

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Page _____ of _____

SOIL GAS WELL SAMPLING DATA SHEET

Project ID: TOBOBL19_Annual **Location:** TOBOBSWDC **Date:** 3/11/2019
Invesitgators: KJS, JKB, JLB, GG
General Weather Conditions: Wind: NW 10-15 mph Sky Condition: Clear Temperature: 54°F

Sample ID: TOBOBL19_Annual **Sampler ID:** (R - 3)
Pump ID: R3 **Sample Location:** M13
Well ID: M13 **Well Depth:** 30" or 10', 20', 30', or 40'
Nominal Flow Rate: 1 LPM **Nominal Sample Volume:** 10 Liters
Initial Leak Check: OK **PID ID:** RTP2

Initial Ambient VOC Reading: 0.0 ppm **Initial Well VOC Reading:** 0.0 ppm

Sample Start Time: 14:46

Initial Rotameter Reading: 128
5-Minute Rotameter Reading: 128
Final Rotameter Reading: 129

Final Ambient VOC Reading: 0.0 ppm **Final Well VOC Reading:** 0.0 ppm

Sample Stop Time: 14:56 **Duration:** 10 minutes

Final Leak Check: OK

Comments:

M-9 = BLUE = 10' GREEN = 20' RED = 30' YELLOW 40'

Front Trap ID: A055275
Back Trap ID: A055240

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Page ____ of ____

SOIL GAS WELL SAMPLING DATA SHEET

Project ID: TOBOBL19_Annual **Location:** TOBOBSWDC **Date:** 3/11/2019
Invesitgators: KJS, JKB, JLB, GG
General Weather Conditions: Wind: NW 6-15 mph Sky Condition: Clear Temperature: 54°F

Sample ID: TOBOBL19_Annual **Sampler ID:** (R - 3)
Pump ID: R3 **Sample Location:** M16
Well ID: M16 **Well Depth:** 30" or 10', 20', 30', or 40'
Nominal Flow Rate: 1 LPM **Nominal Sample Volume:** 10 Liters
Initial Leak Check: OK **PID ID:** RTP 2

Initial Ambient VOC Reading: 0.0ppm
Initial Well VOC Reading: 0.0ppm

Sample Start Time: 14:17 pm

Initial Rotameter Reading: 128
5-Minute Rotameter Reading: 130
Final Rotameter Reading: 128

Final Ambient VOC Reading: 14:27 0.0ppm
Final Well VOC Reading: 0.0ppm

Sample Stop Time: ____ **Duration:** 10 minutes

Final Leak Check: OK

Comments:

M-9 = BLUE = 10' GREEN = 20' RED = 30' YELLOW 40'

Front Trap ID: A055281
Back Trap ID: A055589

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Page ____ of ____

SOIL GAS WELL SAMPLING DATA SHEET

Project ID: TOBOBL19_Annual **Location:** TOBOBSWDC **Date:** 3/11/2019
Invesitgators: KJS, JKB, JLB, GG
General Weather Conditions: Wind: NW 5-10 mph Sky Condition: Clear Temperature: 52°F

Sample ID: TOBOBL19_Annual **Sampler ID:** (R-3)
Pump ID: R3 **Sample Location:** M22
Well ID: M22 **Well Depth:** 30" or 10', 20', 30', or 40'
Nominal Flow Rate: 1 LPM **Nominal Sample Volume:** 10 Liters
Initial Leak Check: OK **PID ID:** RAE 2

Initial Ambient VOC Reading: 0.0 ppm **Initial Well VOC Reading:** 0.0 ppm

Sample Start Time: 12:46 pm

Initial Rotameter Reading: 128
5-Minute Rotameter Reading: 128
Final Rotameter Reading: 132

Final Ambient VOC Reading: 0.0 ppm **Final Well VOC Reading:** 0.0 ppm

Sample Stop Time: 12:56 pm **Duration:** 10 minutes

Final Leak Check: OK

Comments:

M-9 = BLUE = 10' GREEN = 20' RED = 30' YELLOW 40'

Front Trap ID: A055884
Back Trap ID: A055621

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Page ____ of ____

SOIL GAS WELL SAMPLING DATA SHEET

Project ID: TOBOBL19_Annual **Location:** TOBOBSWDC **Date:** 3/11/2019
Invesitgators: KJS, JKB, JLB, (GG)
General Weather Conditions: Wind: NW 5-10 mph Sky Condition: Clear Temperature: 50°F

Sample ID: TOBOBL19_Annual **Sampler ID:** (R-3)
Pump ID: R3 **Sample Location:** M28
Well ID: M28 **Well Depth:** 30" or 10', 20', 30', or 40'
Nominal Flow Rate: 1 LPM **Nominal Sample Volume:** 10 Liters
Initial Leak Check: OK **PID ID:** RTP2

Initial Ambient VOC Reading: 0.0 ppm
Initial Well VOC Reading: 0.0 ppm

Sample Start Time: 12:16 pm

Initial Rotameter Reading: 128
5-Minute Rotameter Reading: 130
Final Rotameter Reading: 132

Final Ambient VOC Reading: 0.0 ppm
Final Well VOC Reading: 0.0 ppm

Sample Stop Time: 12:26 pm **Duration:** 10 minutes

Final Leak Check: OK

Comments: Strong Skunk odor while sampling

M-9 = BLUE = 10' GREEN = 20' RED = 30' YELLOW 40'

Front Trap ID: A055955
Back Trap ID: A055292

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Page _____ of _____

SOIL GAS WELL SAMPLING DATA SHEET

Project ID: TOBOBL19_Annual **Location:** TOBOBSWDC **Date:** 3/11/2019
Invesitgators: KJS, JKB, JLB, GG
General Weather Conditions: Wind: NW 5-10 mph **Sky Condition:** Clear **Temperature:** 50°F

Sample ID: TOBOBL19_Annual **Sampler ID:** (R - 3)
Pump ID: R3 **Sample Location:** M31
Well ID: M31 **Well Depth:** 30" or 10', 20', 30', or 40'
Nominal Flow Rate: 1 LPM **Nominal Sample Volume:** 10 Liters
Initial Leak Check: OK **PID ID:** RTP 2

Initial Ambient VOC Reading: 0.0ppm **Initial Well VOC Reading:** 0.0ppm

Sample Start Time: 11:47 am

Initial Rotameter Reading: 128
5-Minute Rotameter Reading: 131
Final Rotameter Reading: 131

Final Ambient VOC Reading: 0.0ppm **Final Well VOC Reading:** 0.0ppm

Sample Stop Time: 11:57 am **Duration:** 10 minutes

Final Leak Check: OK

Comments:

M-9 = BLUE = 10' GREEN = 20' RED = 30' YELLOW 40'

Front Trap ID: AOS6007
Back Trap ID: AOS5745

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Page ____ of ____

SOIL GAS WELL SAMPLING DATA SHEET

Project ID: TOBOBL19_Annual **Location:** TOBOBSWDC **Date:** 3/11/2019
Invesitgators: KJS, JKB, JLB, GG
General Weather Conditions: Wind: NW 5-10 mph Sky Condition: Clear Temperature: 50°F

Sample ID: TOBOBL19_Annual
Pump ID: R3
Well ID: M34
Nominal Flow Rate: 1 LPM
Initial Leak Check: OK

Sampler ID: (R - 3)
Sample Location: M 34
Well Depth: 30" or 10', 20', 30', or 40'
Nominal Sample Volume: 10 Liters
PID ID: RTP 2

Initial Ambient VOC Reading: 0.0ppm
Initial Well VOC Reading: 0.0ppm

Sample Start Time: 11:22 am

Initial Rotameter Reading: 128
5-Minute Rotameter Reading: 130
Final Rotameter Reading: 128

Final Ambient VOC Reading: 0.0 ppm
Final Well VOC Reading: 0.0ppm

Sample Stop Time: 11:32 am
Duration: 10 minutes

Final Leak Check: OK

Comments:

M-9 = BLUE = 10' GREEN = 20' RED = 30' YELLOW 40'

Front Trap ID: AOSS310
Back Trap ID: AOS8423

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Page ____ of ____

SOIL GAS WELL SAMPLING DATA SHEET

Project ID: TOBOBL19_Annual **Location:** TOBOBSWDC **Date:** 3/11/2019
Invesitgators: KJS, JKB, JLB, (GG)
General Weather Conditions: Wind: NW 5-10 mph **Sky Condition:** Clear **Temperature:** 50°F

Sample ID: TOBOBL19_Annual **Sampler ID:** (R-3)
Pump ID: R3 **Sample Location:** M37
Well ID: M37 **Well Depth:** 30" or 10', 20', 30', or 40'
Nominal Flow Rate: 1 LPM **Nominal Sample Volume:** 10 Liters
Initial Leak Check: OK **PID ID:** RTP 2

Initial Ambient VOC Reading: 0.0 ppm
Initial Well VOC Reading: 0.0 ppm

Sample Start Time: 10:55am

Initial Rotameter Reading: 128
5-Minute Rotameter Reading: 129
Final Rotameter Reading: 129

Final Ambient VOC Reading: 0.0 ppm
Final Well VOC Reading: 0.0 ppm

Sample Stop Time: 11:05am **Duration:** 10 minutes

Final Leak Check: OK

Comments: Well had water in it. Began another (this) sample with probe higher than usually to avoid flooding traps.

M-9 = BLUE = 10' GREEN = 20' RED = 30' YELLOW 40'

Front Trap ID: A055612
Back Trap ID: A058886

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Page _____ of _____

SOIL GAS WELL SAMPLING DATA SHEET

Project ID: TOBOBL19_Annual **Location:** TOBOBSWDC **Date:** 3/11/2019
Invesitgators: KJS, JKB, JLB, GG
General Weather Conditions: Wind: NW 10-15 mph Sky Condition: Clear Temperature: 52°F

Sample ID: TOBOBL19_Annual **Sampler ID:** (R - 3)
Pump ID: R3 **Sample Location:** M39
Well ID: M39 **Well Depth:** 30" or 10', 20', 30', or 40'
Nominal Flow Rate: 1 LPM **Nominal Sample Volume:** 10 Liters
Initial Leak Check: OK **PID ID:** RTP 2

Initial Ambient VOC Reading: 0.0 ppm
Initial Well VOC Reading: 0.0 ppm

Sample Start Time: 13:53

Initial Rotameter Reading: 128
5-Minute Rotameter Reading: 133
Final Rotameter Reading: 129

Final Ambient VOC Reading: 0.0 ppm
Final Well VOC Reading: 0.0 ppm

Sample Stop Time: 14:03 **Duration:** _____ minutes

Final Leak Check: OK

Comments:

M-9 = BLUE = 10' GREEN = 20' RED = 30' YELLOW 40'

Front Trap ID A054969
Back Trap ID A055617

AMBIENT AIR SAMPLING DATA SHEET

Project: TOBOBL19_Annual
Date: 3/12/2019
Project Site: TOBOBSWDC
Operators: KJS, JKB, JLB, GG
General Weather Conditions:

Sample ID: TOBOBL19_Annual
Sample Location: FB2
Pump ID:
Nominal Flow Rate: 0.25 LPM
Sampler ID: {R- }
Nominal Sample Volume: 360 liters

Initial Ambient VOC Conc. (ppm):
Leak Check:
Sampling Start Time:
Initial Rotameter Reading (Bottom of the S.S. Ball):
Initial Pressure Drop Across Traps:
Initial Max/Min Temperature Inside Cooler:

Rotameter Reading	Total Elapse Time	Local Time

Rotameter Reading	Total Elapse Time	Local Time

Final Leak Check:
Sample Stop Time:
Final Rotameter Reading:
Total Elapse Time:
Final Ambient VOC Conc. (ppm):
Final Pressure Drop Across Traps:
Final Max/Min Temperature Inside Cooler:

Comments:

Front Trap ID AOS 6151
Back Trap ID AOS 5020

AMBIENT AIR SAMPLING DATA SHEET

Project: TOBOBL19_Annual
Date: 3/11/2019
Project Site: TOBOBSWDC
Operators: (KJS), JKB, (JLB), (GG)
General Weather Conditions:

Sample ID: TOBOBL19_Annual
Sample Location: FB3
Pump ID:
Nominal Flow Rate: 0.25 LPM
Sampler ID: {R- }
Nominal Sample Volume: 360 liters

Initial Ambient VOC Conc. (ppm):
Leak Check:
Sampling Start Time:
Initial Rotameter Reading (Bottom of the S.S. Ball):
Initial Pressure Drop Across Traps:
Initial Max/Min Temperature Inside Cooler:

Rotameter Reading	Total Elapse Time	Local Time

Rotameter Reading	Total Elapse Time	Local Time

Final Leak Check:
Sample Stop Time:
Final Rotameter Reading:
Total Elapse Time:
Final Ambient VOC Conc. (ppm):
Final Pressure Drop Across Traps:
Final Max/Min Temperature Inside Cooler:

Comments:

Front Trap ID A055583
Back Trap ID A05512

AMBIENT AIR SAMPLING DATA SHEET

Project: TOBOBL19_Annual **Date:** 3/12/2019
Project Site: TOBOBSWDC **Operators:** KJS, JKB, JLB, GG
General Weather Conditions:

Sample ID: TOBOBL19_Annual **Sample Location:** TB1
Pump ID: **Nominal Flow Rate:** 0.25 LPM
Sampler ID: {R- } **Nominal Sample Volume** 360 liters

Initial Ambient VOC Conc. (ppm):
Leak Check:
Sampling Start Time:
Initial Rotameter Reading (Bottom of the S.S. Ball):
Initial Pressure Drop Across Traps:
Initial Max/Min Temperature Inside Cooler:

Rotameter Reading	Total Elapse Time	Local Time

Rotameter Reading	Total Elapse Time	Local Time

Final Leak Check:
Sample Stop Time:
Final Rotameter Reading:
Total Elapse Time:
Final Ambient VOC Conc. (ppm):
Final Pressure Drop Across Traps:
Final Max/Min Temperature Inside Cooler:

Comments:

Front Trap ID A055996
Back Trap ID A058348

AMBIENT AIR SAMPLING DATA SHEET

Project: TOBOBL19_Annual **Date:** 3/12/2019
Project Site: TOBOBSWDC **Operators:** KJS, JKB, JLB, GG
General Weather Conditions:

Sample ID: TOBOBL19_Annual **Sample Location:** TB2
Pump ID: **Nominal Flow Rate:** 0.25 LPM
Sampler ID: {R- } **Nominal Sample Volume** 360 liters

Initial Ambient VOC Conc. (ppm):
Leak Check:
Sampling Start Time:
Initial Rotameter Reading (Bottom of the S.S. Ball):
Initial Pressure Drop Across Traps:
Initial Max/Min Temperature Inside Cooler:

Rotameter Reading	Total Elapse Time	Local Time

Rotameter Reading	Total Elapse Time	Local Time

Final Leak Check:
Sample Stop Time:
Final Rotameter Reading:
Total Elapse Time:
Final Ambient VOC Conc. (ppm):
Final Pressure Drop Across Traps:
Final Max/Min Temperature Inside Cooler:

Comments:

ATTACHMENT E

EQUIPMENT CALIBRATIONS

MesaLabs

NVLAP®
NVLAP Lab Code 200661-0
Calibration

Calibration Certificate

CertificateNo.	249614	**Sold To:**	RTP Environmental Associates
Product	DCL-MH DryCal DC-Lite Medium High		400 Post Ave, Suite 405
Serial No.	101996		Westbury, NY 11590
Cal. Date	14-Aug-2018		US

All calibrations are performed at Mesa Laboratories, Inc., 10 Park Place, Butler, NJ, 07405, an ISO 17025:2005 accredited laboratory through NVLAP of NIST. This report shall not be reproduced except in full without the written approval of the laboratory. Results only relate to the items calibrated. This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

As Received Calibration Data

Technician	Lilianna Malinowska	**Lab. Pressure**	754 mmHg
		Lab. Temperature	22.4 °C

Instrument Reading	Lab Standard Reading	Deviation	Allowable Deviation	As Received
201.4 ccm	201.8 ccm	-0.2%	1.00%	In Tolerance
4998 ccm	5000.5 ccm	-0.05%	1.00%	In Tolerance
17101 ccm	17130 ccm	-0.17%	1.00%	In Tolerance

Mesa Laboratories Standards Used

Description	Standard Serial Number	Calibration Date	Calibration Due Date
ML_500_10	113778	15-Feb-2018	15-Feb-2019
ML_500_44	110104	03-Aug-2018	03-Aug-2019

MesaLabs

NVLAP Lab Code 200661-0
Calibration

As Shipped Calibration Data

Certificate No	249614	**Lab. Pressure**	750 mmHg
Technician	Lilianna Malinowska	**Lab. Temperature**	22.4 °C

Instrument Reading	Lab Standard Reading	Deviation	Allowable Deviation	As Shipped
201.1 ccm	200.45 ccm	0.32%	1.00%	In Tolerance
5014 ccm	5002 ccm	0.24%	1.00%	In Tolerance
17280 ccm	17248.5 ccm	0.18%	1.00%	In Tolerance

Mesa Laboratories Standards Used

Description	Standard Serial Number	Calibration Date	Calibration Due Date
ML_500_10	113779	01-May-2018	01-May-2019
ML_500_44	110104	03-Aug-2018	03-Aug-2019

Calibration Notes

All units are flow tested in accordance with our Procedure PR05-02 or PR01-10 with an expanded uncertainty of 0.27% using high-purity nitrogen or filtered laboratory air.

The expanded uncertainty of flow has a coverage factor of k = 2 for a confidence interval of approximately 95%.

Traceability to the International System of Units (SI) is verified by accreditation to ISO/IEC 17025 by NVLAP under NVLAP Code 200661-0.

Technician Notes:

Mohammed Aziz
Director of Engineering
Mesa Laboratories, Inc., Butler, NJ

INNOCAL®
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Vernon Hills, Illinois 60061
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www.innocalsolutions.com

NIST Traceable

Calibration Report

REPORT NUMBER
1468446

Reference Number: 1280487
PO Number: GGRUNSEICH080718

RTP Environmental Associates
400 Dosa Ave
Suite 405
Westbury, NY 11590 United States

Manufacturer:	Ashcroft	**Calibration Date:**	08/07/2018
Model Number:	25-1490-A-02L-100#W-TU	**Calibration Due Date:**	08/07/2019
Description:	Pressure Gauge, 100 to -10	**Condition As Found:**	In Tolerance
Asset Number:	CP290601	**Condition As Left:**	In Tolerance, No adjustment
Serial Number:	CP290601		
Procedure:	DS Universal Pressure Gauge-5		
Remarks:			

NIST-traceable calibration performed on the unit referenced above in accordance with customer requirements, published specifications and the lab's standard operating procedures. No adjustments were made to the unit.

Standards Utilized

Asset No.	Manufacturer	Model No.	Description	Cal. Date	Due Date
CP05091	DH Instruments Inc.	PPC3-700K A700KS/G100KS	Pressure, -14.7 to 100psi Calibrator	04/24/2018	04/30/2019

Calibration Data

FUNCTION TESTED	Nominal Value	As Found	Out of Tol	As Left	Out of Tol	CALIBRATION TOLERANCE
Increasing	0.000 inWa	0.000		Same		-2.000 to 2.000 inWa [EMU 0.012 inWa][TUR 163:1]
	-20.000 inWa	-20.000		Same		-22.000 to -18.000 inWa [EMU 0.012 inWa][TUR 161:1]
	-40.000 inWa	-40.000		Same		-41.000 to -39.000 inWa [EMU 0.013 inWa][TUR 79:1]
	-60.000 inWa	-60.000		Same		-61.000 to -59.000 inWa [EMU 0.013 inWa][TUR 78:1]
	-80.000 inWa	-80.000		Same		-82.000 to -78.000 inWa [EMU 0.013 inWa][TUR 153:1]
	-100.000 inWa	-100.000		Same		-102.000 to -98.000 inWa [EMU 0.013 inWa][TUR 151:1]
Decreasing	-80.000 inWa	-80.000		Same		-82.000 to -78.000 inWa [EMU 0.013 inWa][TUR 153:1]
	-60.000 inWa	-60.000		Same		-61.000 to -59.000 inWa [EMU 0.013 inWa][TUR 78:1]
	-40.000 inWa	-40.000		Same		-41.000 to -39.000 inWa [EMU 0.013 inWa][TUR 79:1]
	-20.000 inWa	-20.000		Same		-22.000 to -18.000 inWa [EMU 0.012 inWa][TUR 161:1]
	0.000 inWa	0.000		Same		-2.000 to 2.000 inWa [EMU 0.012 inWa][TUR 163:1]

Temperature: 21° C
Humidity: 58% RH
Rpt. No.: 1468446

Calibration Performed By:				Quality Reviewer:	
Santos, Daniel	322	Metrologist	8473273937	Pietromicco, Mike	08/07/2018
Name	ID #	Title	Phone	Name	Date

Page 1 of 1

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NIST Traceable Calibration Report

REPORT NUMBER
1468448

Reference Number: 1280487
PO Number: GGRUNSEICH080718

RPI Environmental Associates
400 Bus Ave
Suite 405
Westbury, NY 11590 United States

Manufacturer:	Ashcroft	Calibration Date:	08/07/2018
Model Number:	0-100" H2O	Calibration Due Date:	08/07/2019
Description:	Pressure, Analog Gauge 0 -100" H2O	Condition As Found:	In Tolerance
Asset Number:	CP43333	Condition As Left:	In Tolerance, No adjustment
Serial Number:	CP43333		
Procedure:	DS Universal Pressure Gauge 5		
Remarks:			

NIST-traceable calibration performed on the unit referenced above in accordance with customer requirements, published specifications and the lab's standard operating procedures. No adjustments were made to the unit.

Standards Utilized

Asset No.	Manufacturer	Model No.	Description	Cal. Date	Due Date
CP05091	DH Instruments Inc.	PPC3-700K A700KS/G100KS	Pressure, -14.7 to 100 psi Calibrator	04/24/2018	04/30/2019

Calibration Data

FUNCTION TESTED	Nominal Value	As Found	Out of Tol	As Left	Out of Tol	CALIBRATION TOLERANCE
Increasing	0.000 inWa	0.000		Same		-2.000 to 2.000 inWa [EMU 0.012 inWa][TUR 163:1]
	-20.000 inWa	-20.500		Same		-22.000 to -18.000 inWa [EMU 0.012 inWa][TUR 161:1]
	-40.000 inWa	-40.500		Same		-41.000 to -39.000 inWa [EMU 0.013 inWa][TUR 79:1]
	-60.000 inWa	-60.500		Same		-61.000 to -59.000 inWa [EMU 0.013 inWa][TUR 78:1]
	-80.000 inWa	-80.200		Same		-82.000 to -78.000 inWa [EMU 0.013 inWa][TUR 153:1]
	-100.000 inWa	-100.100		Same		-102.000 to -98.000 inWa [EMU 0.013 inWa][TUR 151:1]
Decreasing	-80.000 inWa	-80.0000		Same		-82.000 to -78.000 inWa [EMU 0.013 inWa][TUR 153:1]
	-60.000 inWa	-60.0000		Same		-61.000 to -59.000 inWa [EMU 0.013 inWa][TUR 78:1]
	-40.000 inWa	-40.5000		Same		-41.000 to -39.000 inWa [EMU 0.013 inWa][TUR 79:1]
	-20.000 inWa	-20.5000		Same		-22.000 to -18.000 inWa [EMU 0.012 inWa][TUR 161:1]
	0.000 inWa	0.0000		Same		-2.000 to 2.000 inWa [EMU 0.012 inWa][TUR 163:1]

Temperature: 21°C
Humidity: 58% RH
Rpt. No.: 1468448

Calibration Performed By:				Quality Reviewer:	
Name	ID #	Title	Phone	Name	Date
Santos, Daniel	3322	Metrologist	847-327-5837	Pietronicco, Mike	08/07/2018

APPENDIX B

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SUMMARY OF LANDFILL GAS MONITORING PROGRAMS FOR 2019

APPENDIX B

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SUMMARY OF LANDFILL GAS MONITORING PROGRAMS FOR 2019

Prepared for:

Town of Oyster Bay
Department of Public Works
Syosset, New York

Prepared by:

RTP Environmental Associates, Inc.
400 Post Avenue
Westbury, New York

September 2019

APPENDIX B

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SUMMARY OF LANDFILL GAS MONITORING PROGRAMS FOR 2019

TABLE OF CONTENTS

APPENDIX B

TABLE OF CONTENTS (continued)

TABLES AND FIGURES

ATTACHMENTS

APPENDIX B

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SUMMARY OF LANDFILL GAS MONITORING PROGRAMS FOR 2019

1.0 BACKGROUND

The Town of Oyster Bay (Town) initiated several landfill gas (LFG) detection and control programs to monitor and prevent offsite migration of LFG in the vicinity of the Oyster Bay Solid Waste Disposal Complex (OBSWDC) in the late 1970s. Figure 1.1 provides a location and description of the various facilities on the OBSWDC and adjoining properties. Initially, the Town installed permanent sampling probes around the perimeter of the OBSWDC to detect potential offsite LFG migration. Based on the LKB Engineering Report dated June 1980 (LKB, 1980), actions were immediately undertaken by the Town to alleviate off-site LFG migration onto the Nassau County Firemen's Training Center (NCFTC).

In response to reports of offsite LFG migration onto the NCFTC, the original LFG collection system (Phase 1) was installed in 1981, including eight (8) wells generally located along the property line shared with the NCFTC. These wells were connected to a blower station and vented to the atmosphere. In 1983, with further reports of migrating gas crossing Winding Road, the original collection system was expanded along Winding Road (Phase 2) with another six (6) wells. In 1985, the collection system was further expanded around the northern slope onto the western side of the Landfill (Phase 3) with an additional eight (8) wells to protect properties located on Claremont Road. A Thermal Oxidizer (TO), to control the collected LFG, was installed and began operation in late 1985.

In 1988, the Town and the New York State Department of Law (NYSDOL) entered into a Final Consent Decree for the remediation of the Old Bethpage Landfill (83 *CV*. 5357). A Remedial Action Plan (RAP), incorporated into the Consent Decree, detailed the actions to be taken by the Town in compliance with the Final Consent Decree. Appendix A, Section I. (H) of the RAP requires the Town to continue to operate and maintain the existing gas control systems in compliance with the requirements of 6 NYCRR Part 360. In order to demonstrate compliance with 6 NYCRR Part 360 and maintain a zero percent methane gas migration limitation at the landfill boundary, the Town was required to conduct a gas monitoring program, as described in the LKB Report (LKB, 1987). 6 NYCRR Part 360.4(i) states that "*any order prior to the effective date of this regulation is continued until the order expires.*" Although the Landfill must comply with the limits set in the Consent Decree, compliance with the new 6 NYCRR part 363 was reviewed in which "*a landfill must limit methane concentrations below 25% lower explosive limit (LEL)*

Prepared by:
RTP Environmental Associates, Inc.
Westbury, New York

N

0 250 500 750 1,000 2,000 Feet

2

FIGURE 1.1

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX
AND SURROUNDING AREA MAP

OLD BETHPAGE, NEW YORK

at or beyond the property boundary, and within onsite structures." As such, monitoring programs in accordance with Consent Decree requirements were initiated. A history of these monitoring activities is discussed in previous reports.

In 1991, in order to better control gas around the Briden property located at the southern end of Claremont Road, additional wells were placed along that property boundary. During that work, additional gas wells to augment the methane gas quality at the blower station were installed along the bench above the Phase 2 Pit area. These wells were connected to additional collection pipes to complete the loop around the Landfill, thereby allowing the blower station to pull gas from both ends of the collection system. This final installation was identified as the Phase 4 system. In 1992, the Town entered into a betterment agreement with Nassau County to improve control offsite migration onto the NCFTC. That agreement resulted in the installation of three (3) additional wells along the shared NCFTC/OBSWDC property line and another blower skid. The overall intent of the system was to surround the Landfill with a negative pressure zone in the landfill perimeter soils. The negative pressure was supplied by the landfill blower station.

Diminishing levels of methane attributed to the aging of the Landfill impacted the operation of the perimeter gas control system TO. Eventually, the TO became inoperable in May 2008 and was decommissioned as part of an agreement with New York State Department of Environmental Conservation (NYSDEC) (NYSDEC, 2012). In October 2010, the NYSDEC requested that the Town take supplemental quarterly samples of LFG from the perimeter collection system vent for VOC speciation of LFG collected while the TO was out of service. This task was discontinued, as per an agreement with the Town and NYSDEC, when the TO was formally decommissioned in 2012 (NYSDEC, 2012). As part of this agreement, the program was modified to include weekly methane testing of the LFG perimeter system; this monitoring began in late 2012.

Finally, in early 2015, the Town petitioned DEC to modify the Consent Decree by reducing the sampling frequency requirements from quarterly to annually. The approval for this request was granted on March 24, 2016. The following report summarizes LFG monitoring programs conducted in accordance with the Modified Consent Decree.

2.0 CURRENT SAMPLING PROGRAMS

The Town of Oyster Bay, to demonstrate conformance with the Final Consent Decree for the remediation of the OBSWDC (83 *CV*. 5357) and the modifications that have been made since 1988, has performed several surveys associated with LFG in 2019. The following surveys were conducted:

Survey No. 1. OBSWDC Perimeter Gas Well Monitoring Survey

Survey No. 2. Building/Structure Gas Survey
Survey No. 3. Supplemental Gas Monitoring Program
Survey No. 5. Zero Gas Migration Limitation Survey
Survey No. 6. Weekly Perimeter Gas Collection System Vent Monitoring

Each of these surveys was conducted in the 1st quarter of 2019 except for Survey No. 6, which is performed weekly by Town personnel and covers the period from the beginning of the 1st quarter of 2018 though the end of the 1st quarter of 2019. Also, Survey No. 3 was not performed in 2019 as there were no unusual events that would have required a supplemental survey.

RTP began performing Survey Nos. 1, 2, and 5 in 2008. The Town staff performs weekly testing of methane at the perimeter vent stack identified as Survey No. 6 and, if necessary, Survey No. 3. Detailed descriptions of the monitoring efforts and the equipment used are provided in the 2019 Annual Report. For additional information, each historical survey report can be obtained from the Town.

The monitoring at the OBSWDC of combustible gas at perimeter wells (Survey No. 1), within structures (Survey No. 2), and zero gas migration (Survey No. 5) was performed by RTP staff utilizing a GEM 2000 Plus Monitor. A stainless steel probe was attached to the monitor as used in the Zero Gas Migration Survey, and the probe was inserted into the respective wells for a period of 15 seconds or greater to determine the gas concentration. For the structures, several readings of 15 seconds or more were typically taken at various locations within the interior. The specifications for the GEM 2000 Plus and associated calibrations are provided in Attachment A. Factory calibrations of the unit are performed annually. The GEM 2000 Plus unit was factory calibrated in February 2019.

In addition, the Zero Gas Migration Limitation Survey (Survey No. 5) requires the documentation of the location of the sampling points at the landfill boundary, Nassau County Campground, Senior Citizens Housing Complex, and other areas potentially impacted by subsurface LFG migration. Based on the lack of in-field reference points, it was determined that the best way of locating sampling points, relative to the above referenced features, would be to use a Trimble® T41/5™ Global Positioning System (GPS) unit. The T41/5 system accuracy is estimated to be approximately within 2-4 meters of the actual position. The Trimble GPS can store sampling point coordinates and the percentage of combustible gas readings. The GPS approach provides a reasonably accurate estimate of the location of sampling points and potential problem gas areas, if present.

Survey No. 5 involves taking subsurface combustible gas readings for defining the zero gas migration limit including monitoring the subsurface combustible gas conditions at the Nassau County Campground. RTP

reviewed the previous sampling procedures, as described in the Hazen and Sawyer 2007 Annual Report, which involved using a slam bar to punch 12-inch deep holes into the ground every 50 feet along the perimeter of the landfill boundary, and the common boundary between the OBSWDC and the Nassau County Campground (H&S, 2007). To expedite sampling and improve ground penetration, RTP modified the sampling procedure by substituting a ¾-inch diameter, 18-inch long concrete auger bit powered by a handheld drill for the slam bar to construct the necessary unsupported subsurface sampling points. A ¼-inch diameter stainless steel tube was then used, along with a rubber stopper, to seal the nominal 18-inch deep sampling point.

The rationale for extending the soil gas sampling point to an 18-inch depth is to ensure the point would likely penetrate an impervious surface, if present. Occasionally, the drilling could not reach a full 18" depth because of rocks or other obstacles. In such cases, additional attempts to establish a point are made with the minimal depth of any soil gas sample point being at least 12 inches. A Tygon sampling line and filter are attached to the ¼-inch stainless steel probe with a rubber stopper that is used to seal the "well". The filter is used to prevent dust and debris from entering the monitor. This assembly is then attached to a multi-gas monitor to determine percent levels of combustible gas in each soil gas sample point.

A LandTEC GEM 2000 Plus Multi-Gas Monitor was used for all 2019 methane monitoring tests. Span gas is applied to check accuracy prior to each field use. The unit's minimum detection limit (MDL) is 0.1 percent of combustible gas. It takes approximately eight (8) seconds for the soil gas in a well to make its way to the sensor. The sensor typically reaches a stable reading within 15 seconds of when the probe was inserted into the well, and the peak value of the combustible gas percentage is recorded.

Survey No. 6 involves the weekly collection of LFG methane readings from the exhaust vent stack that is part of the perimeter gas collection system. The vent stack is located just southeast of the GCCS blower station. The combustible gas data was collected by Town staff using a Multi-Rae Lite Wireless Portable Multi-Gas monitor to check for methane (CH_4). The data are collected weekly and the results are provided in this report along with a discussion of sampling activities and other issues.

3.0 DISCUSSION OF RESULTS

3.1 General

Sampling data generated from Survey Nos. 1, 2, 3, and 5, identified in Section 2.0, are normally used to determine methane levels at various locations and to verify the perimeter collection system is preventing offsite migration of subsurface gas. The LFG perimeter control system (including Phases 1, 2, 3, and 4 of the perimeter collection system) completely encircles the Landfill, extending along the northern and western sides of the NCFTC, along Winding Road, and along the northwestern portion of the OBSWDC adjacent to Claremont Road. This Section also provides a discussion of the Zero Gas Migration Limitation Survey followed by the weekly perimeter vent monitoring efforts conducted in 2019.

3.2 2019 Landfill Gas Surveys

3.2.1 Perimeter Gas Well Monitoring Survey (Survey No. 1)

In past years, to confirm the gas conditions in the perimeter gas monitoring wells and make recommendations for future monitoring programs, RTP would usually perform four (4) perimeter gas well monitoring events per calendar year following previously established monitoring survey protocols; however, since the modification to the post-closure monitoring requirements, the schedule for these monitoring events has been revised to annual. As such, one (1) event was conducted in 2019; the perimeter wells along the OBSWDC property boundary and NCFTC wells were monitored for the presence of combustible gas. The locations of these wells are identified on Figures 3.1 and 3.2. The survey took place on February 27, 2019. The combustible gas data for this monitoring event at these locations is presented on Table 3.1. The combustible gas measurements show that one (1) well had detectable combustible gas levels. The Condensate Well had a reading that was 2% of the LEL for methane. Aside from a few minor exceptions, these findings are in general agreement with the 2019 Zero Gas Migration Limitation Survey.

The perimeter wells are a combination of individual well points and cluster well points containing two (2) to four (4) individual wells. Of the 46 individual physical wells to be monitored in 2019, two (2) wells, M-7 and M-21, were not monitored during this annual test because they were broken. Therefore, the well listed as “Not Available” (NA) in Table 3.1 needs to be reset, fixed, or its location adjusted as soon as practicable. RTP has been working with LKB and the Town to address issues with sampling wells. It is worth noting that several wells were removed from the list in previous years through discussions with LKB.

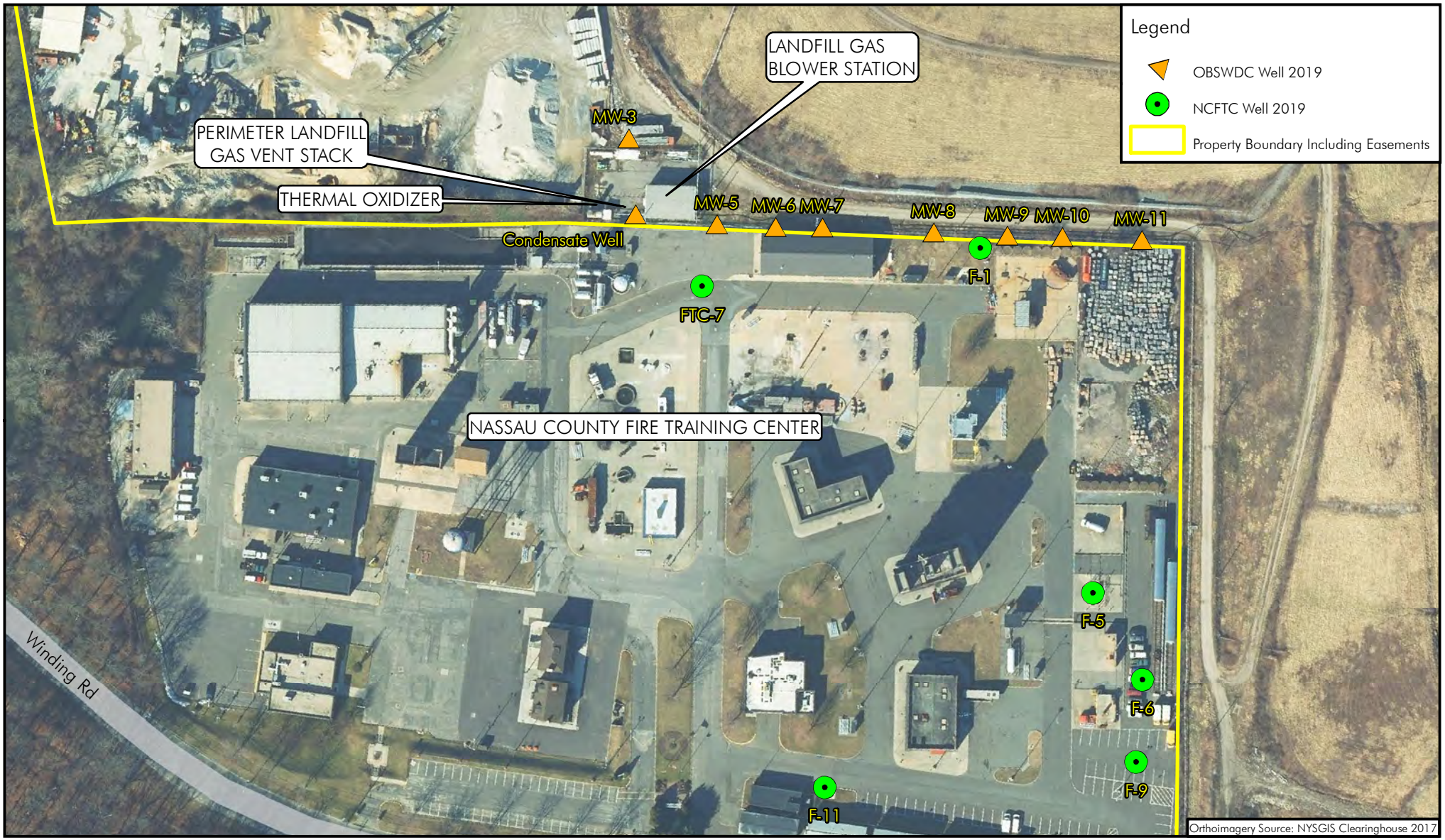
N

0 500 1,000 2,000 Feet

FIGURE 3.1
LANDFILL GAS COLLECTION HEADER AND PERIMETER GAS WELL MONITORING POINTS

TOWN OF OYSTER BAY
SOLID WASTE DISPOSAL COMPLEX
OLD BETHPAGE, NEW YORK

Prepared by:
RTP Environmental Associates, Inc.
Westbury, New York



Prepared by:
RTP Environmental Associates, Inc.
Westbury, New York

N

0 125 250 500 Feet

FIGURE 3.2
LANDFILL GAS HEADER AND WELLS ADJOINING NASSAU COUNTY FIRE TRAINING CENTER

TOWN OF OYSTER BAY
SOLID WASTE DISPOSAL COMPLEX
OLD BETHPAGE, NEW YORK

TABLE 3.1

TOWN OF OYSTER BAY, NY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

2019 GAS WELL SURVEY DATA

Sample ID	Well Depth	X	Y	% LEL
Condensate Well	Feet	1136960	213973	2
F-1	30"	1137085	214308	0
F-5 (10')	10'	1137458	214328	0
F-5 (20')	20'	1137458	214328	0
F-5(30')	30'	1137458	214328	0
F-5 (40')	40'	1137458	214328	0
F-6 (10')	10'	1137557	214354	0
F-6 (20')	20'	1137557	214354	0
F-9 (10')	10'	1137637	214326	0
F-9 (20')	20'	1137637	214326	0
F-11	UNKNOWN	1137580	214009	0
FTC-7	UNKNOWN	1137049	214021	0
M-2	30"	1137835	214327	0
M-3	30"	1137935	214562	0
M-4	30"	1137993	214518	0
M-5	30"	1138031	214796	0
M-6	30"	1138078	214733	0
M-7	30"	1138099	215021	NA
M-8	30"	1138055	215011	0
M-9 (10')	10'	1138092	215156	0
M-9 (20')	20'	1138092	215156	0
M-9 (30')	30'	1138092	215156	0
M-9 (40')	40'	1138092	215156	0
M-13	30"	1138017	215599	0
M-16	30"	1137954	216297	0
M-20	30"	1136540	216023	0
M-21	30"	1136638	216003	NA
M-28	30"	1136366	216001	0
M-30	30"	1135762	215789	0
M-31	30"	1135881	215322	0
M-39	30"	1137576	216552	0
MW-5 Upper	10'	1136991	214052	0
MW-5 Lower	20'	1136991	214052	0
MW-6 Upper	10'	1137009	214109	0
MW-6 Lower	20'	1137009	214109	0
MW-7 Upper	10'	1137024	214163	0
MW-7 Lower	20'	1137024	214163	0
MW-8 Upper	10'	1137057	214265	0
MW-8 Lower	20'	1137057	214265	0
MW-9 Upper	10'	1137080	214337	0
MW-9 Lower	20'	1137080	214337	0
MW-10 Upper	10'	1137104	214414	0
MW-10 Lower	20'	1137104	214414	0
MW-11 Upper	10'	1137120	214470	0
MW-11 Lower	20'	1137120	214470	0

Notes:

NA - Well is broken and was therefore not sampled.

UNKNOWN - Well depth not documented.

XY Coordinates in NY State Plane

3.2.2 Building/Structure Gas Survey (Survey No. 2)

RTP performed gas monitoring at several of the onsite facility locations that are still in existence and accessible on February 27, 2019. The available combustible gas data for the building/structure and permanent gas well survey are presented in Table 3.2. All readings were non-detectable (i.e., less than 1% of the LEL).

3.2.3 Supplemental Gas Monitoring Survey (Survey No. 3)

Supplemental gas monitoring surveys are performed when special conditions onsite dictate additional monitoring is necessary beyond the testing normally done to comply with the modified Consent Order. No supplemental gas monitoring surveys were conducted in 2019.

3.2.4 Zero Gas Migration Limitation Survey (Survey No. 5)

The Zero Gas Migration Limitation Survey designed to monitor the lateral migration of LFG around the outer boundary of the Landfill, was conducted by RTP personnel on February 26 & 27, 2019. The survey includes the drilling of three-quarter inch (¾") bore holes to a depth of 12 to 18 inches, spaced 50 feet apart along the outer boundary of the Landfill and other areas around the Landfill, to serve as temporary soil gas wells. Samples were collected at each well point. If a positive combustible gas reading, measured as percent of the LEL, is obtained at a sampling point, additional sampling points are installed radially outward from the landfill until a combustible gas reading of zero was obtained. This series of points would then provide the boundary of the zero gas migration limit, as required by the Consent Decree. The collected data was then used to identify the extent of combustible gas migration readings (line of zero percent combustible gas) in and around the OBSWDC. Sample points at the toe of the Landfill are not installed radially inward toward the Landfill to avoid damage to the landfill cap.

The 2019 survey results are presented graphically in Figure 3.3. The specific findings of the 2019 annual survey are as follows:

- The 2019 survey results demonstrate that LFG migration has been contained within the landfill perimeter and/or the OBSWDC boundary. The combustible gas concentrations for the line of well points were all zero or non-detect, except for two (2) points where minor (2% LEL),

TABLE 3.2

TOWN OF OYSTER BAY, NY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

2019 FACILITY COMBUSTIBLE GAS SURVEY WITHIN STRUCTURES

	Annual Test 02/27/2019
Sample ID	**% LEL**
TO Blower Station Drain 1	0
TO Blower Station Drain 2	0
RAP Building N	0
RAP Building NW	0
RAP Building S	0
RAP Building LAB	0
RAP Building Acid Tank	0
RAP Building Acid Tank	0
RAP Building Mezz	0
Guardhouse	0
Town Offices	0
Leachate Treatment Building	0
Transfer Station	0
Maintenance Garage	0
Recycling Building Area	0
Scalehouse	0

NOTE:

Combustible gas readings were taken at various locations throughout each structure.

The maximum observed value is listed.

The MDL for the LandTec GEM 2000 Plus Multi-Gas Monitor is 0.1% of combustible gas.

Prepared By:
RTP Environmental Associates, Inc.
Westbury, New York

N

0 250 500 750 1,000 Feet

FIGURE 3.3

2019 ANNUAL ZERO GAS MIGRATION LIMITATION SURVEY
February 26 & 27, 2019

TOWN OF OYSTER BAY
SOLID WASTE DISPOSAL COMPLEX
OLD BETHPAGE, NEW YORK

reportable amounts of combustible gas were detected. The protocol specifies that when a detectable concentration is identified, additional readings are to be taken further away from the landfill boundary until a reading of less than 1% LEL is observed. Along the southern portion of Landfill Access Road, sampling indicated a value of 0% LEL, just beyond the 2% LEL reading. All well point locations are identified by *NY State Plane* coordinates, and are provided in Attachment B. Hourly meteorological data measured at Republic Airport, Farmingdale, NY during the survey dates are also provided in Attachment B to this report.

- The one (1) combustible gas reading along Winding Road was taken outside of the Complex's fence line along Winding Road, away from the landfill boundary. Inside the fence line and along the northeast margin of the landfill cap, there was no combustible gas detected at the nearby sample locations.
- RTP will re-monitor these points during the next annual test, scheduled for the 2nd quarter of 2020, to assure the zero methane boundary is not present; or if present, remains onsite.

The 2019 survey data was compared to the combustible gas migration data contour compiled for 2018 as provided on Figure 3.3. As seen on the graphic plot of the 2019 and 2018 zero combustible gas contour lines at the toe of the Landfill, no significant deviations away from the toe were observed, and the 2019 Survey indicated all but one (1) of the readings at the toe of the Landfill were non-detectable (i.e., less than 1% of the LEL). The one (1) reading of 2% LEL along the southern toe of the landfill was along the OBSWDC's southern access road, and an outward reading recorded non-detectable levels of methane. As such, the 2019 0% LEL contour in this area extends to the nearest outward readings where all measurements indicated undetectable levels of methane. Also, as shown in Figure 3.3, the majority of the zero combustible gas migration data for 2019 confirms combustible gas associated with the Landfill is within the OBSWDC boundary.

3.2.5 Weekly Perimeter Gas Collection System Vent Monitoring (Survey No. 6)

Survey No. 6 was initiated as a result of the agreement between the NYSDEC and the Town (NYSDEC, 2012). In 2019, Town personnel conducted the survey on a weekly basis. As discussed in previous sections, the Town was required by the NYSDEC to collect weekly methane readings from the vent of the perimeter collection system in lieu of conducting quarterly gas monitoring at the bypass vent and annual stack testing of the decommissioned TO. The data was collected by the Town using a Multi-Rae Lite Wireless Portable Multi-Gas monitor to check for methane.

The Town first began collecting methane readings in September 2012 from the vent for the perimeter collection system at the blower station. This report includes data from the start of the 1st quarter of 2018 through the end of the 1st quarter of 2019, as presented in Table 3.3. In all, 65 weekly readings were observed.

The data indicates the methane concentrations in the collected gas ranged from a minimum of 1.0% methane to a high of 4.5% methane, with the average methane concentration recorded over the reporting period of 1.64% methane. Based on previous year's observations, levels tend to be higher around the winter or spring and lower during the autumn months. In general, methane concentrations are comparable with the average reported in the 2018 annual report of 1.61%. All of the concentrations of methane noted are below 5%, which is the LEL for methane. The Town will continue to conduct these weekly tests into 2020, in accordance with the NYSDEC request, until instructed otherwise.

TABLE 3.3

TOWN OF OYSTER BAY, NY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

WEEKLY METHANE MONITORING RESULTS
AT THE PERIMETER COLLECTION SYSTEM VENT
1st QUARTER 2018 - 1st QUARTER 2019

Week	Date of Sample	Methane Concentration (%CH_4)
1	1/3/2018	1.0%
2	1/10/2018	2.7%
3	1/19/2018	1.0%
4	1/24/2018	3.1%
5	1/31/2018	1.7%
6	2/7/2018	1.0%
7	2/14/2018	1.7%
8	2/22/2018	1.0%
9	2/28/2018	1.8%
10	3/7/2018	2.1%
11	3/14/2018	1.6%
12	3/20/2018	1.0%
13	3/28/2018	4.0%
14	4/4/2018	3.8%
15	4/11/2018	4.5%
16	4/18/2018	1.7%
17	4/25/2018	2.7%
18	5/1/2018	1.1%
19	5/9/2018	1.2%
20	5/16/2018	1.4%
21	5/23/2018	1.8%
22	5/30/2018	1.4%
23	6/6/2018	1.7%
24	6/13/2018	1.9%
25	6/20/2018	1.0%
26	6/27/2018	1.0%
27	7/5/2018	1.3%
28	7/10/2018	1.7%
29	7/17/2018	1.0%
30	7/25/2018	1.2%
31	8/1/2018	1.3%
32	8/8/2018	1.4%
33	8/15/2018	1.1%
34	8/23/2018	1.3%
35	8/29/2018	1.8%
36	9/5/2018	1.5%
37	9/12/2018	1.3%

TABLE 3.3
(continued)
TOWN OF OYSTER BAY, NY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

WEEKLY METHANE MONITORING RESULTS
AT THE PERIMETER COLLECTION SYSTEM VENT
1st QUARTER 2018 - 1st QUARTER 2019

Week	Date of Sample	Methane Concentration (%CH_4)
38	9/19/2018	1.1%
39	9/26/2018	2.5%
40	10/3/2018	1.8%
41	10/10/2018	2.1%
42	10/17/2018	1.2%
43	10/24/2018	1.0%
44	10/31/2018	1.4%
45	11/7/2018	1.0%
46	11/16/2018	2.8%
47	11/21/2018	1.5%
48	11/28/2018	1.4%
49	12/5/2018	1.0%
50	12/12/2018	1.5%
51	12/19/2018	3.7%
52	12/26/2018	1.3%
53	1/3/2019	1.5%
54	1/9/2019	1.5%
55	1/16/2019	1.1%
56	1/24/2019	1.3%
57	1/30/2019	1.0%
58	2/6/2019	1.0%
59	2/13/2019	1.4%
60	2/20/2019	1.2%
61	2/27/2019	1.0%
62	3/6/2019	1.3%
63	3/13/2019	1.7%
64	3/20/2019	2.3%
65	3/27/2019	1.2%

Five Quarter (65 week) Average:	**1.64%**

NOTE:
- Weeks notated with an asterisk (*) were missing the reading and a substitute value, as marked in italics, was provided in accordance with missing data procedures of 40 CFR 98.345(a) of the GHG Reporting Rule.

4.0 SUMMARY AND CONCLUSIONS

4.1 2019 Landfill Gas Surveys

4.1.1 Perimeter Gas Well Monitoring Survey (Survey No. 1)

Combustible gas concentration data was collected from the perimeter gas wells during one (1) individual monitoring event on February 26 & 27, 2019. The observed data indicates that one (1) of the perimeter gas wells contained low levels of combustible gas during the sampling event noted within this report. However, the Zero Gas Migration Limitation Survey indicated undetectable levels of combustible gas in the areas around the Condensate Well, and the methane levels detected were 0.1% (2% LEL), which is within the margin of error of the monitoring device. The Consent Order stipulates that methane concentrations must be limited to 0% LEL specifically at the landfill boundary; even if the new 6 NYCRR Part 363 is applied, this one (1) well falls below the 25% limit for landfill property boundaries. Therefore, the perimeter gas well monitoring data for this 2019 annual report indicates that the regulatory requirements are being met and the gas generated by the Landfill is being adequately contained by the LFG collection and control system. The only exception is the minor methane level observed along the northeast perimeter of the site; this may well be associated with other decay processes as compared to emissions from the OBSWDC Landfill.

4.1.2 Building/Structure Gas Survey (Survey No. 2)

Combustible gas concentration data was collected within the selected structures onsite during one (1) individual monitoring event on February 27, 2019, in conjunction with the Perimeter Gas Well Monitoring Survey discussed in section 4.1.1, and Zero Gas Migration Limitation Survey discussed in section 4.1.4. The observed data indicates that no structures had combustible gas above the minimum detection limit (MDL) of the analyzer. The 6NYCRR Part 360 limit for combustible gas in structures is less than 25% of the LEL. Thus, the recorded 2019 data for the building/structure surveys indicate that the regulatory requirements were being met.

4.1.3 Supplemental Monitoring of Perimeter System (Survey No. 3)

This survey was not required during the 2019 reporting period.

4.1.4 Zero Gas Migration Limitation Survey (Survey No. 5)

The Zero Gas Migration Limitation Survey data, collected by RTP personnel on February 26 & 27, 2019, is provided in Attachment B of this report. This data was used to identify all points of combustible gas or gas concentrations below combustible levels and, therefore, defined the zero percent combustible gas migration contour. As shown in Figure 3.3, the gas migration limit remained confined to within the landfill perimeter and the OBSWDC boundary.

The following conclusions are based on the site survey data:

- Combustible gas in concentrations of 2% LEL were detected above the instrument MDL at two (2) locations. At the location along Winding Road, additional points could not be taken further out from the landfill boundary in accordance with the testing protocol, which stipulates that "*when combustible gas is identified, additional readings should be taken further away from the landfill boundary until a less than 1% of the LEL is observed.*" This location is: (1) away from the landfill boundary where a 0% LEL limit applies, and (2) the point was below the 25% LEL limit for landfill property boundaries based on the recently added 6 NYCRR Part 363, which doesn't apply until the Consent Order expires. This point was also located outside of points along the toe of the Landfill. Additionally, the remaining one (1) point exceeding the 0% level occurred at the southern toe of the Landfill, along the southern portion of Landfill Access Road. An additional outward point indicated non-detectable levels of methane in the vicinity. RTP will re-monitor these points during the next annual test scheduled for the 2nd quarter of 2020 to assure the zero methane levels are maintained at the boundary.

- Points adjacent to the ones in question resulted in zero or non-detect readings. Therefore, the Zero Gas Migration Limitation Survey for 2019 indicates that any LFG generated by the landfill is currently below the LEL at the perimeter of the Landfill and at the boundary of the OBSWDC.

- All other sampling locations monitored in the 2019 survey continue to show LFG migration remained stable and within the OBSWDC property boundaries. These locations include the areas east of Winding Road, the Nassau County Campground, the Senior Citizen Housing, the Nassau County Fire Training Center (NCFTC), and other adjoining areas as shown in Figure 3.3.

4.1.5 Weekly Perimeter Gas Collection System Vent Monitoring (Survey No. 6)

Town personnel measured methane concentration data in the perimeter gas collection system exhaust vent weekly. This data, which ranges from the beginning of the 1st quarter of 2018 through the 1st quarter of 2019, is contained in Table 3.3.

The average methane concentration for the reporting period was 1.64%. There were no instances during the testing period where the methane gas concentration exceeded the LEL threshold of 5% methane in the vent of the perimeter collection system. The highest measured value of 4.5% methane on April 11, 2018 is below the threshold.

4.2 2019 Landfill Gas Monitoring Program Conclusions

The following conclusions can be drawn based on the 2019 monitoring programs at the OBSWDC:

- The zero gas migration limitation data indicated that there are no combustible levels of LFG within the sampled areas at the toe of the Landfill; therefore, combustible levels of gas are not likely extending beyond the capped landfill area. The area just off property to the northeast of the landfill property boundary had one (1) individual point where minor detectible methane levels were observed. To investigate these points more thoroughly, RTP will be re-monitoring this area during the next annual test, scheduled for the 2nd quarter of 2020, to assure off property levels are, at worst, very low and sporadic.

- The LFG perimeter collection/control system is limiting off-site gas migration and controlling combustible gas to levels that meet the requirements of the site Consent Decree, 6 NYCRR Part 360, and 6 NYCRR Part 363 based on the surveys performed as noted above.

- During the testing period, the methane concentration at the exhaust vent for the perimeter collection system averaged 1.64% over 65 data points, including some calculated readings.

REFERENCES

LKB, 1980. Preliminary Engineering Design Report: Phase 1 Gas Control and Recovery Program. Lockwood, Kessler & Bartlett, Inc., One Aerial Way, Syosset, New York, June, 1980. Submitted to: Town of Oyster Bay, Syosset, New York.

LKB, 1987. 1986 Annual Report Summarizing the Status of Landfill Gas Monitoring Programs and the Establishment of the Zero Percent Gas Migration Limitation at the Old Bethpage Landfill. Lockwood, Kessler & Bartlett, Inc., One Aerial Way, Syosset, New York, April 1987.
Submitted to: Town of Oyster Bay, Syosset, New York.

H&S, 2007. 2007 Annual Report, Summarizing the Results of Landfill Gas Monitoring Programs at the Old Bethpage Solid Waste Disposal Complex and Adjacent Areas.
Hazen and Sawyer, P.C., 498 Seventh Avenue, New York, New York, December 2007.

NYSDEC, 2012 Letter dated October 17, 2012 approving the Town of Oyster Bay's request to cease operation of the Thermal Oxidizer at the Old Bethpage Landfill.

ATTACHMENT A

GEM 2000 PLUS SPECIFICATION DATA
CALIBRATION GAS SPECIFICATION DATA

CERTIFICATION OF CALIBRATION

ISSUED BY: QED Environmental Systems, Inc. Services Facility

Date Of Calibration: February 14, 2019

Certificate Number: GM12023_9/35911

PJLA Calibration

No. 66916

Approved By Signatory

Timothy Hutchins
Laboratory Inspection

LANDTEC

QED Environmental Systems, Inc. Services Facility,
2355 Bishop Circle West, Dexter, MI 48130
www.qedenv.com

Customer: ***RTP ENVIRONMENTAL ASSOC INC***

744 GLOVER PLACE
BALDWIN, NY 11510
USA

Description: Gas Analyser ***Model:*** GEM2000Plus

Serial Number: GM12023

Accredited Results:

Methane (CH4)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
5.0	5.0	0.41
15.0	15.1	0.65
50.0	50.0	1.05

Carbon Dioxide (CO2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
5.0	4.9	0.43
15.0	15.0	0.71
50.0	50.4	1.20

Oxygen (O2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
20.7	20.7	0.25

Gas cylinders are traceable and details can be provided if requested.

CH4, CO2 readings recorded at: 31.8 °C/89.2 °F Barometric Pressure: 28.64 "Hg

O2 readings recorded at: 21.6 °C/70.8 °F

Method of Test: The analyzer is calibrated in a temperature controlled chamber using reference gases. All analyzers are calibrated in accordance with our procedure ISP-17 using high purity grade gas.

All calibrations are performed in accordance with ISO 17025 at LANDTEC, an ISO 17025:2005 – accredited service facility through PJLA.

CERTIFICATION OF CALIBRATION

PJLA ACCREDITED CALIBRATION LABORATORY NO. 66916

Certificate Number
GM12023_9/35911

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with NIST requirements.

Non Accredited results:

Pressure Transducers (inches of water column)					
Transducer	**Certified (Low)**	**Reading (Low)**	**Certified (High)**	**Reading (High)**	**Accuracy**
Static	0"	0.00"	40"	39.9"	2.0"
Differential	0"	0.00"	4"	3.9"	0.7"

Barometer (mbar)	
Reference	**Instrument Reading**
0970 mbar / 28.64 "Hg	0970 mbar / 28.64 "Hg

End of Certificate

INTERMOUNTAIN SPECIALTY GASES

520 N. Kings Road ● Nampa ● Idaho ● 83687

800-552-5003 ● www.isgases.com

CERTIFICATE OF ANALYSIS

Composition	Certification	Analytical Accuracy
Hydrogen Sulfide	25 ppm	± 5%
Carbon Monoxide	50 ppm	± 2%
Methane	2.5% (50% LEL)	± 2%
Oxygen	20.9%	± 2%
Nitrogen	Balance	

Lot # 17-6017

Mfg. Date:	8/29/2017
Transfill Date:	see cylinder
Parent Cylinder ID Number:	EB0075459

Method of Preparation:
Gravimetric/Transfilling

Method of Analysis:
The parent mix was prepared gravimetrically and is traceable to the NIST by certified weights (ID #CA10814) used to calibrate the scale. The parent mix was analyzed on a GC and Carbon Monoxide Analyzer to verify accuracy of the components. The H2S was analyzed on a Hydrogen Sulfide Analyzer to verify accuracy.

Analysis By: Tony Janquart
Quality Assurance Manager
800-552-5003
Certificate Date: 8/29/2017

ATTACHMENT B

2019 ZERO GAS MIGRATION LIMITATION SURVEY DATA
FARMINGDALE, NY METEOROLOGICAL DATA DURING SURVEY

ZERO GAS MIGRATION LIMITATION SURVEY DATA
February 26 and 27, 2019

Sample ID	% LEL	Northing	Easting
1	0	66019.061	346684.2
2	0	66022.0775	346668.3
3	0	66029.5261	346651.7
4	0	66035.052	346638.9
5	0	66043.2316	346626.2
6	0	66056.5823	346622.3
7	0	66068.1917	346606.7
8	0	66074.7573	346595.4
9	0	66087.593	346577.5
10	0	66099.4115	346573.6
11	0	66102.4586	346556.5
12	0	66083.5305	346546.2
13	0	66072.0195	346538.5
14	0	66060.0029	346531.6
15	0	66046.328	346524.5
16	0	66031.2955	346517.7
17	0	66017.0787	346513.5
18	0	66001.0056	346509.6
19	0	65988.1558	346507.9
20	0	65972.8567	346505.1
21	0	65959.5249	346503.4
22	0	65942.6305	346501.7
23	0	65928.0918	346500.2
24	0	65913.6245	346498.5
25	0	65898.0262	346496.7
26	0	65883.4919	346495.3
27	0	65867.4822	346493.2
28	0	65853.9426	346490.9
29	0	65838.4546	346490.2
30	0	65824.2544	346486.1
31	0	65804.8268	346481.5
32	0	65790.9423	346477.2
33	0	65775.9504	346472.9
34	0	65760.6528	346468.6
35	0	65746.0123	346463.7
36	0	65733.7641	346455.6
37	0	65727.3046	346443.9
38	0	65722.794	346428.9
39	0	65718.8112	346412.0
40	0	65713.123	346394.3
41	0	65707.4206	346380.2
42	0	65709.2679	346360.0
43	0	65702.4438	346347.1
44	0	65697.7792	346333.9
45	0	65692.3761	346322.6
46	0	65686.1087	346308.7
47	0	65673.1925	346288.6
48	0	65666.1548	346275.7

ZERO GAS MIGRATION LIMITATION SURVEY DATA
February 26 and 27, 2019

Sample ID	% LEL	Northing	Easting
49	0	65632.3532	346230.8
50	0	65645.7384	346218.5
51	0	65659.6568	346210.1
52	0	65665.9311	346201.2
53	0	65676.4554	346194.4
54	0	65691.7654	346179.3
55	0	65702.2829	346168.4
56	0	65717.4006	346158.1
57	0	65729.3989	346152.6
58	0	65747.2347	346166.5
59	0	65755.8683	346174.4
60	0	65763.2314	346186.4
61	0	65769.0951	346197.3
62	0	65781.5242	346211.9
63	0	65791.6611	346224.6
64	0	65802.5556	346237.8
65	0	65811.0985	346251.1
66	0	65818.5471	346261.8
67	0	65820.3122	346275.3
68	0	65824.8951	346290.4
69	0	65833.8954	346302.9
70	0	65852.0755	346311.3
71	0	65859.7443	346319.5
72	0	65851.0226	346331.3
73	0	65844.7015	346344.9
74	0	65839.2742	346357.9
75	0	65835.8338	346362.3
76	0	65620.3314	346227.1
77	0	65603.3503	346214.9
78	0	65591.0637	346208.5
79	0	65577.2687	346201.3
80	0	65563.3716	346196.3
81	0	65547.5649	346192.7
82	0	65530.771	346187.1
83	0	65512.7833	346185.5
84	0	65498.7402	346184.4
85	0	65482.1952	346189.5
86	0	65465.0896	346196.6
87	0	65449.6466	346203.1
88	0	65433.5429	346211.4
89	0	65422.924	346218.1
90	0	65411.2206	346224.8
91	0	65396.6615	346233.4
92	0	65377.756	346239.6
93	0	65364.1636	346242.9
94	0	65348.8919	346244.6
95	0	65338.139	346247.3
96	0	65324.6834	346245.3

ZERO GAS MIGRATION LIMITATION SURVEY DATA
February 26 and 27, 2019

Sample ID	% LEL	Northing	Easting
97	0	65311.4743	346242.2
98	0	65296.0663	346244.4
99	0	65280.0408	346234.5
100	0	65268.2103	346234.1
101	0	65255.3352	346234.9
102	0	65240.1609	346236.8
103	0	65224.3767	346237.5
104	0	65209.0501	346239.0
105	0	65193.1062	346240.0
106	0	65177.8493	346245.0
107	0	65163.6554	346250.8
108	0	65149.1384	346259.4
109	0	65134.0257	346263.4
110	0	65119.5214	346274.3
111	0	65130.2802	346289.2
112	0	65145.1703	346299.0
113	0	65159.6591	346309.9
114	0	65155.9704	346327.4
115	0	65146.7005	346344.4
116	0	65143.4008	346354.5
117	0	65137.7063	346375.9
118	0	65159.6175	346390.3
119	0	65161.51	346401.9
120	0	65175.3119	346407.5
121	0	65191.628	346414.6
122	0	65206.5579	346420.5
123	0	65218.4122	346425.6
124	0	65230.8644	346436.8
125	0	65229.0431	346451.3
126	0	65229.5101	346461.6
127	0	65227.1639	346476.7
128	0	65225.055	346493.3
129	0	65222.8304	346507.1
130	0	65222.3359	346519.3
131	0	65211.3763	346545.0
132	0	65223.2776	346548.4
133	0	65237.7163	346553.2
134	0	65254.1209	346555.7
135	0	65273.9287	346561.5
136	0	65293.6195	346567.4
137	0	65308.8724	346571.6
138	0	65323.3989	346575.9
139	0	65337.6335	346580.0
140	0	65352.969	346585.2
141	0	65369.0162	346590.7
142	0	65385.9747	346595.9
143	0	65386.034	346610.3
144	0	65382.0077	346626.6

ZERO GAS MIGRATION LIMITATION SURVEY DATA
February 26 and 27, 2019

Sample ID	% LEL	Northing	Easting
145	0	65377.7398	346644.2
146	0	65373.9429	346657.9
147	0	65369.8099	346674.1
148	0	65365.7412	346690.7
149	0	65360.5257	346708.1
150	0	65357.0251	346720.3
151	0	65355.9719	346736.1
152	0	65355.7636	346753.0
153	0	65350.984	346767.1
154	0	65346.1622	346782.0
155	0	65341.2994	346795.1
156	0	65340.7297	346808.2
157	0	65351.0086	346816.0
158	0	65364.8873	346824.3
159	0	65376.8107	346830.2
160	0	65390.8705	346834.7
161	0	65408.6204	346841.5
162	0	65423.535	346847.7
163	0	65436.4946	346854.1
164	0	65451.2524	346860.0
165	0	65466.0558	346867.8
166	0	65482.1096	346872.3
167	0	65497.0614	346872.7
168	0	65512.4647	346874.1
169	0	65528.1087	346873.7
170	0	65545.9579	346873.1
171	0	65560.307	346871.3
172	0	65575.2581	346869.8
173	0	65587.9786	346866.8
174	0	65605.6884	346861.8
175	0	65623.0394	346857.0
176	0	65640.6717	346853.8
177	0	65657.9538	346852.5
178	0	65672.7055	346851.6
179	0	65691.0917	346850.5
180	0	65705.3019	346849.6
181	0	65720.4369	346848.7
182	0	65734.2745	346848.3
183	0	65750.0034	346848.1
184	0	65767.0536	346847.2
185	0	65785.77	346845.8
186	0	65798.0291	346847.0
187	0	65811.1804	346846.1
188	0	65828.4426	346847.0
189	0	65844.2948	346846.7
190	0	65837.1229	346833.8
191	0	65846.9693	346819.5
192	0	65846.0896	346802.3

ZERO GAS MIGRATION LIMITATION SURVEY DATA
February 26 and 27, 2019

Sample ID	% LEL	Northing	Easting
193	0	65847.0944	346789.1
194	0	65847.4841	346774.7
195	0	65850.4915	346760.1
196	0	65858.7936	346746.7
197	0	65869.7748	346729.3
198	0	65879.5163	346719.3
199	0	65891.6376	346708.4
200	0	65904.4736	346699.9
201	0	65921.2623	346694.2
202	0	65937.8453	346690.6
203	0	65953.3273	346689.5
204	0	65969.3488	346689.4
205	0	65984.7399	346684.9
206	0	66005.9228	346682.7
207	0	65851.0912	346849.4
208	0	65870.56	346849.0
209	0	65885.2863	346848.5
210	0	65903.9933	346847.8
211	2	65919.3449	346847.7
212	0	65929.2139	346847.5
213	0	65943.5908	346849.0
214	0	65961.2603	346846.8
215	0	65985.5462	346848.1
216	0	66002.3063	346849.4
217	0	66018.3014	346850.3
218	0	66035.6587	346851.2
219	0	66052.4789	346849.7
220	0	66067.605	346849.3
221	0	66081.069	346851.7
222	0	66096.1969	346852.7
223	0	66111.6999	346852.6
224	0	66129.9145	346852.6
225	0	66144.3539	346853.3
226	0	66158.7395	346855.0
227	0	66173.3449	346852.7
228	0	66186.7167	346849.3
229	0	66198.1511	346843.8
230	0	66210.0314	346836.5
231	0	66222.6049	346824.9
232	0	66234.7433	346810.9
233	0	66237.2074	346798.5
234	0	66239.9077	346787.8
235	0	66242.2167	346771.4
236	0	66245.1237	346758.7
237	0	66249.2002	346744.7
238	0	66252.9429	346727.5
239	0	66255.7126	346712.4
240	0	66259.3488	346700.5

ZERO GAS MIGRATION LIMITATION SURVEY DATA
February 26 and 27, 2019

Sample ID	% LEL	Northing	Easting
241	0	66262.5921	346687.0
242	0	66266.2226	346674.8
243	0	66271.2373	346652.9
244	0	66271.655	346641.1
245	0	66274.9237	346626.6
246	0	66275.2595	346614.4
247	0	66282.5037	346587.4
248	0	66288.3492	346573.6
249	0	66284.9303	346554.5
250	0	66264.3952	346550.9
251	0	66256.0097	346530.4
252	0	66236.0356	346523.9
253	0	66225.2883	346520.7
254	0	66208.3595	346518.8
255	0	66188.1018	346514.6
256	0	66177.3131	346512.3
257	0	66160.3067	346506.0
258	0	66144.9495	346501.9
259	0	66134.0147	346498.9
260	0	66121.834	346496.7
261	0	66104.7532	346491.6
262	0	66090.5311	346488.7
263	0	66074.1768	346483.1
264	0	66058.8081	346478.7
265	0	66043.6655	346475.6
266	0	66030.6032	346470.7
267	0	66015.8825	346466.3
268	0	65999.0811	346462.9
269	0	65984.9469	346458.7
270	0	65971.4418	346454.0
271	0	65956.191	346449.4
272	0	65934.1245	346443.1
273	0	65922.367	346440.4
274	0	65907.9507	346437.1
275	0	65893.3698	346432.6
276	0	65877.2887	346428.2
277	0	65863.2281	346424.5
278	0	65844.6422	346419.3
279	0	65831.258	346414.0
280	0	65816.9161	346409.5
281	0	65805.0309	346406.7
282	0	65789.2749	346402.9
283	0	65784.1382	346402.4
284	0	65769.503	346398.0
285	2	65257.1975	346438.3
286	0	65252.4494	346433.8
287	0	65266.0039	346428.4
288	0	65276.4029	346418.7

ZERO GAS MIGRATION LIMITATION SURVEY DATA
February 26 and 27, 2019

Sample ID	% LEL	Northing	Easting
289	0	65291.3891	346413.7
290	0	65309.1586	346410.9
291	0	65324.7863	346407.0
292	0	65340.9039	346403.2
293	0	65356.1096	346398.0
294	0	65371.8048	346390.9
295	0	65370.2064	346372.5
296	0	65364.3189	346359.0
297	0	65360.0378	346341.3
298	0	65364.7089	346324.6
299	0	65363.0758	346316.8
300	0	65362.8166	346297.1
301	0	65366.2692	346281.0
302	0	65362.0014	346268.0
303	0	65359.4558	346255.0
304	0	65403.0411	346299.2
305	0	65415.7616	346307.9
306	0	65435.7111	346306.8
307	0	65450.584	346308.2
308	0	65465.9211	346308.4
309	0	65483.5197	346307.5
310	0	65499.09	346306.6
311	0	65515.6373	346306.6
312	0	65530.8242	346303.9
313	0	65545.8152	346302.6
314	0	65561.2861	346304.5
315	0	65677.3766	346335.8
316	0	65667.2131	346350.0
317	0	65649.2419	346359.1
318	0	65628.8003	346361.6
319	0	65614.3141	346363.8
320	0	65597.0757	346364.2
321	0	65581.0389	346364.0
322	0	65566.9833	346363.7
323	0	65553.3054	346362.2
324	0	65539.3155	346360.4
325	0	65525.3222	346360.2
326	0	65514.5193	346355.1
327	0	65497.4365	346354.1
328	0	65481.0024	346351.9
329	0	65464.8868	346350.9
330	0	65448.7995	346353.4
331	0	65433.3649	346355.5
332	0	65416.7183	346357.1
333	0	65401.8	346359.2
334	0	65385.2	346358.1

FARMINGDALE, NY METEOROLOGICAL DATA DURING SURVEY
February 26 and 27, 2019

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

Station: FARMINGDALE REPUBLIC AIRPORT, NY US 54787
Current Location: Elev: 81 ft. Lat: 40.7342° N Lon: -73.4169° W

Date & Time	Temperature (Fahrenheit)	Dew Point (Fahrenheit)	Feel (Fahrenheit)	Relative Humidity (Percent)	Wind Direction (Degrees)	Wind Speed (mph)	Wind Gust (mph)	Altimeter (inHg)	SLP (inHg)	Visibility (Miles)	Weather	Sky (Cloud Cover)	Remarks
2/27/2019 23:53	25	19	18	77	50°	6	-	30.03	30.03	10		OVC009	24-hr Min Temp (12am): 23.0°F 24-hr Max Temp (12am): 27.0°F
2/27/2019 23:43	26	19	18	74	30°	7	-	30.03	-	9		OVC009	None
2/27/2019 22:53	26	16	19	65	40°	6	-	30.06	30.06	10		OVC014	None
2/27/2019 22:40	26	15	18	62	60°	7	-	30.06	-	10		OVC014	None
2/27/2019 21:53	26	14	21	59	40°	5	-	30.09	30.09	10		OVC020	None
2/27/2019 20:53	26	15	21	62	70°	5	-	30.11	30.11	10		OVC025	None
2/27/2019 20:07	26	14	17	59	120°	9	-	30.12	-	10		BKN029 OVC035	None
2/27/2019 19:53	26	14	19	59	110°	6	-	30.13	30.14	10		OVC035	None
2/27/2019 18:53	25	12	15	57	110°	10	-	30.17	30.17	10		OVC038	6-hr Min Temp (7pm): 24.1°F 6-hr Max Temp (7pm): 26.1°F
2/27/2019 17:53	25	10	16	52	130°	9	-	30.19	30.19	10		OVC039	None
2/27/2019 16:53	**25**	**8**	**15**	**47**	**130°**	**10**	**-**	**30.2**	**30.21**	**10**		**FEW044 BKN110**	**Pressure falling rapidly**
2/27/2019 15:53	**25**	**6**	**14**	**43**	**130°**	**13**	**-**	**30.21**	**30.21**	**10**		**SCT120**	**Pressure falling rapidly**
2/27/2019 14:53	**25**	**7**	**14**	**45**	**150°**	**12**	**-**	**30.27**	**30.27**	**10**		**BKN120**	**None**
2/27/2019 13:53	**25**	**7**	**17**	**45**	**90°**	**7**	**-**	**30.3**	**30.3**	**10**		**CLR**	**None**
2/27/2019 12:53	**26**	**8**	**19**	**45**	**90°**	**6**	**-**	**30.35**	**30.35**	**10**		**FEW120**	**6-hr Min Temp (1pm): 23.0°F 6-hr Max Temp (1pm): 26.1°F**
2/27/2019 11:53	**26**	**6**	**21**	**41**	**70°**	**5**	**-**	**30.39**	**30.39**	**10**		**FEW046 BKN100**	**None**
2/27/2019 10:53	**25**	**5**	**19**	**41**	**40°**	**5**	**-**	**30.41**	**30.42**	**10**		**BKN065**	**None**
2/27/2019 9:53	**24**	**5**	**20**	**43**	**50°**	**3**	**-**	**30.44**	**30.44**	**10**		**SCT070 BKN110**	**None**
2/27/2019 8:53	**24**	**6**	**18**	**45**	**70°**	**5**	**-**	**30.45**	**30.45**	**10**		**BKN060 OVC080**	**None**
2/27/2019 7:53	**23**	**6**	**15**	**47**	**30°**	**7**	**-**	**30.47**	**30.47**	**10**		**OVC065**	**None**
2/27/2019 6:53	23	5	16	45	40°	6	-	30.44	30.45	10		OVC080	6-hr Min Temp (7am): 23.0°F 6-hr Max Temp (7am): 24.1°F
2/27/2019 5:53	23	5	13	45	30°	9	-	30.43	30.43	10		OVC085	None
2/27/2019 4:53	23	3	13	41	10°	9	-	30.43	30.43	10		OVC090	None
2/27/2019 3:53	23	3	14	41	10°	8	-	30.43	30.42	10		OVC075	None
2/27/2019 2:53	24	4	15	41	340°	8	-	30.44	30.44	10		OVC070	None
2/27/2019 1:53	24	4	14	41	10°	9	-	30.45	30.45	10		OVC080	None
2/27/2019 0:53	24	3	13	39	360°	12	-	30.46	30.46	10		OVC100	6-hr Min Temp (1am): 24.1°F 6-hr Max Temp (1am): 28.9°F
2/26/2019 23:53	25	1	10	34	350°	16	24	30.44	30.44	10		SCT120	24-hr Min Temp (12am): 25.0°F 24-hr Max Temp (12am): 37.0°F
2/26/2019 22:53	25	2	9	36	330°	17	26	30.44	30.44	10		BKN110	None
2/26/2019 21:53	25	3	10	38	340°	10	22	30.44	30.44	10		CLR	None
2/26/2019 20:53	26	1	11	33	330°	15	25	30.43	30.43	10		CLR	None
2/26/2019 19:53	28	4	14	34	350°	16	23	30.4	30.4	10		CLR	None
2/26/2019 18:53	29	5	13	35	340°	22	31	30.38	30.38	10		CLR	Peak wind: 31 mph (27 kts) from 340° at 52 min 6-hr Min Temp (7pm): 28.9°F 6-hr Max Temp (7pm): 37.0°F
2/26/2019 17:53	30	6	16	35	330°	16	26	30.34	30.34	10		CLR	Peak wind: 31 mph (27 kts) from 330° at 31 min
2/26/2019 16:53	**33**	**9**	**20**	**35**	**330°**	**18**	**24**	**30.29**	**30.29**	**10**		**CLR**	**None**
2/26/2019 15:53	**35**	**8**	**22**	**31**	**320°**	**13**	**30**	**30.28**	**30.28**	**10**		**CLR**	**Peak wind: 29 mph (26 kts) from 320° at 44 min**
2/26/2019 14:53	**36**	**8**	**24**	**30**	**310°**	**13**	**26**	**30.27**	**30.27**	**10**		**FEW060**	**None**
2/26/2019 13:53	**35**	**8**	**22**	**31**	**300°**	**14**	**28**	**30.28**	**30.28**	**10**		**CLR**	**None**
2/26/2019 12:53	**34**	**8**	**20**	**33**	**310°**	**21**	**30**	**30.28**	**30.28**	**10**		**CLR**	**Peak wind: 29 mph (26 kts) from 310° at 53 min 6-hr Min Temp (1pm): 25.0°F 6-hr Max Temp (1pm): 34.0°F**
2/26/2019 11:53	**32**	**7**	**19**	**34**	**300°**	**14**	**22**	**30.31**	**30.31**	**10**		**CLR**	**None**
2/26/2019 10:53	**31**	**6**	**17**	**34**	**280°**	**18**	**25**	**30.32**	**30.32**	**10**		**CLR**	**None**
2/26/2019 9:53	**29**	**6**	**16**	**37**	**280°**	**14**	**18**	**30.32**	**30.32**	**10**		**CLR**	**None**
2/26/2019 8:53	**28**	**5**	**13**	**36**	**310°**	**18**	**26**	**30.33**	**30.33**	**10**		**CLR**	**None**
2/26/2019 7:53	27	4	12	36	300°	12	24	30.34	30.34	10		CLR	None
2/26/2019 6:53	25	5	10	41	290°	14	22	30.33	30.33	10		CLR	6-hr Min Temp (7am): 25.0°F 6-hr Max Temp (7am): 26.1°F
2/26/2019 5:53	25	5	9	41	290°	20	28	30.31	30.31	10		CLR	None
2/26/2019 4:53	25	3	8	38	290°	15	29	30.29	30.29	10		CLR	Peak wind: 32 mph (28 kts) from 310° at 23 min
2/26/2019 3:53	25	6	8	43	300°	16	30	30.27	30.27	10		CLR	Peak wind: 32 mph (28 kts) from 290° at 33 min
2/26/2019 2:53	26	6	9	41	310°	18	31	30.24	30.24	10		CLR	Peak wind: 32 mph (28 kts) from 290° at 08 min
2/26/2019 1:53	26	7	11	43	310°	14	25	30.22	30.21	10		CLR	Peak wind: 29 mph (26 kts) from 320° at 30 min Peak wind: 31 mph (27 kts) from 320° at 00 min
2/26/2019 0:53	26	6	10	41	300°	17	30	30.2	30.19	10		CLR	6-hr Min Temp (1am): 26.1°F 6-hr Max Temp (1am): 35.1°F

*Bold values are conditions during testing

APPENDIX C

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

PERIMETER LANDFILL GAS EXHAUST VENT STACK TEST

2019 Emissions Report

APPENDIX C

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

PERIMETER LANDFILL GAS EXHAUST VENT STACK TEST

2019 Emissions Report

Prepared for:

Town of Oyster Bay
Department of Public Works
Syosset, New York

Prepared by:

RTP Environmental Associates, Inc.
400 Post Avenue
Westbury, New York

September 2019

APPENDIX C

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

PERIMETER LANDFILL GAS
EXHAUST VENT STACK TEST

2019 Emissions Report

TABLE OF CONTENTS

LIST OF TABLES AND FIGURES

ATTACHMENTS

APPENDIX C

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

PERIMETER LANDFILL GAS EXHAUST VENT TEST

2019 Emissions Report

1.0 INTRODUCTION

RTP Environmental Associates, Inc. (RTP) was retained by the Town of Oyster Bay (Town) to conduct emission measurements at the Town of Oyster Bay Solid Waste Disposal Complex (OBSWDC) facility located on Old Bethpage Sweethollow Road in Melville, New York. The Town landfill site contains a landfill gas collection and control system (GCCS) that collects subsurface landfill gases along the perimeter of the Landfill and discharges the gases via an exhaust vent at the onsite blower station. In 2016, the New York State Department of Environmental Conservation (NYSDEC), in conjunction with other modifications to the post-closure monitoring requirements, instituted the annual exhaust vent test program. The Town developed a test protocol that was approved by the NYSDEC for conducting the tests; it is included in Attachment A.

Emissions measurements were conducted at the exhaust vent stack for the perimeter collection system. The data generated from this program will be used to determine if the Town is meeting NYSDEC stipulated emission requirements.

The program was conducted by Mr. Kenneth J. Skipka and Dr. Gary Grunseich of RTP on March 28, 2019. The NYSDEC did not require a staff member present to observe the test program.

The remainder of this document provides the technical approach used during this test program and the test results. The summary of the results is presented in Section 2.0. Section 3.0 presents a description of the facility specific to the GCCS and its operating parameters. Section 4.0 presents a discussion of the sampling and analytical methods. Section 5.0 describes the quality assurance (QA) procedures applied to this program.

2.0 SUMMARY AND DISCUSSION OF RESULTS

Triplicate 60-minute samples were collected from the GCCS exhaust vent on March 28, 2019. The tests were conducted to determine the 2019 emission rates of speciated Volatile Organic Compounds (VOCs) and then determine ambient impacts using an EPA reference method dispersion model SCREEN 3. The impacts were then compared to NYSDEC ambient air quality guidelines and Title V permit thresholds. In addition, stack flowrates were measured and converted to standard conditions and applied to measured concentrations for very conservative direct comparisons to the regulatory threshold and NYSDEC ambient guidelines. The

results are presented in Table 2.1.

Table 2.1 provides the annual average 2019 emission rate per compound based on the concentrations observed during the three (3) tests. The combined speciated VOC emission rate for the year, based on the listed concentrations, was equivalent to 0.771 pounds per year for speciated VOCs via EPA Method TO-15. This total does not include concentrations for compounds that were below the minimum detection threshold for the TO-15 Method. This emission rate is significantly below the average observed in 2018 (3.209 pounds per year), and we believe the differences may be attributable to ambient air leaking into the gas collection system since flowrates for the two (2) tests were comparable. The 2019, emission rates are well below the Title V permit threshold for non-category sources (25 tons per year), and well below the hazardous air pollutant (HAP) emission thresholds for individual air pollutants (10 tons per year) and combined HAPs (25 tons per year).

The test did not include the measurement of total non-methane VOCs via EPA Method 25 that is typically used for determining non-methane organic compound (NMOC) release rates from industrial stacks. Other NMOC release rates for other emission sources on the property were not included; thus, the actual pound per year NMOC release rate for the entire facility was not calculated. However, it should be noted that there does not appear to be any significant stationary sources of VOCs at the OBSWDC.

Table 2.1 also provides the individual sample speciated VOC concentrations for the three (3) samples collected during the test. Taking into account all individual test results, two (2) of the speciated VOCs detected via Method TO-15, the in-vent stack exhaust gases were in excess of the level of respective NYSDEC annual guideline concentrations (AGC). The compounds exceeding the level of the AGC were benzene and vinyl chloride. Several compounds have individual AGCs that are below the detection limits afforded by Method TO-15. Some of these may have exceeded the level of the standard as well. No compounds exceeded the level of the respective short-term guideline concentration (SGC) threshold for individual compounds. These values are in-stack concentration levels and not in the ambient air. The actual impact on ambient air quality is considerably lower as atmospheric dilution will reduce in-stack concentrations significantly. An air quality impact analysis was completed using the EPA recommended SCREEN3 air dispersion model. SCREEN3 estimates conservative impacts compared to EPA recommended refined air dispersion modeling software such as AERMOD. Using the calculated average release rate of each of the constituents with values above the reporting limit and other parameters measured during sampling, the modeled maximum fence line annual concentrations were computed to demonstrate compliance with the respective AGC values. The model results, shown in the far right column of Table 2.1, indicate all the compounds over the laboratory reporting limit are well below their respective AGC values at the nearest property fence line.

Table 2.1
TOWN OF OYSTER BAY, NY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

2019 LFG CONCENTRATION SUMMARY FOR VENT STACK

All concentration values in µg/std-m^3

DATE:	28-Mar-19	28-Mar-19	28-Mar-19	HIGHEST REPORTING LIMIT ($\mu g/m^3$)	NYSDEC CURRENT AGC	NYSDEC 24-HOUR SGC	AVERAGE CONSTITUENT RELEASE RATE (LBS/YR)	MODELED MAXIMUM FENCE LINE ANNUAL CONCENTRATION ($\mu g/m^3$)
LOCATION:	Vent Stack	Vent Stack	Vent Stack					
SAMPLE ID:	OBAY19:LFGV1	OBAY19:LFGV2	OBAY19:LFGV3					
VACUUM START:	-30.00	-32.00	-31.00					
TIME START:	8:53	10:06	11:17					
VACUUM END:	-6.50	-10.00	-7.00					
TIME END:	9:53	11:06	12:17					
WIND DIRECTION/SPEED:	SW / 2-5 mph	SW / 2-5 mph	W / 5-10 mph					
Acetone	6.4	8.1	5.6	4.40	30,000	180,000	0.1105	0.0014
Acetonitrile					60.0	---		
Acrolein					0.35	2.5		
Acrylonitrile					0.015	---		
alpha-Pinene					270	---		
Benzene	**1.5**	**1.7**	**1.9**	0.59	0.13	1,300	0.0280	0.0004
Benzyl Chloride					0.02	240		
Bromodichloromethane				2.50	70.0	---		
Bromoform				9.60	0.91	---		
Bromomethane				1.40	5.0	3,900		
Carbon Disulfide				1.20	700	6,200		
Carbon Tetrachloride				2.30	0.17	1,900		
Chlorobenzene				1.70	60.0	---		
Chloroethane				0.98	10,000	---		
Chloroform				0.91	14.7	150		
Chloromethane	2.9	4.1	3.6	0.77	90.0	22,000	0.0583	0.0007
cis-1,2-Dichloroethene				1.50	63.0	---		
cis-1,3-Dichloropropene				1.70	0.25	---		
Cumene					400	---		
Cyclohexane					6,000	---		
Dibromochloromethane				3.20	0.10	---		
Dichlorodifluoromethane (CFC 12)	5.9	7.3	7.8	1.80	12,000	---	0.1155	0.0015
d-Limonene					---	---		
Ethanol					45,000	---		
Ethyl Acetate					3,400	---		
Ethylbenzene				1.60	1,000	---		
m,p-Xylenes				3.20	100	22,000		
Methyl Methacrylate					700	41,000		
Methyl tert-Butyl Ether				6.70	3.8	---		
Methylene Chloride				6.50	60.0	14,000		
Naphthalene					3.0	7,900		
n-Butyl Acetate					17,000	95,000		
n-Heptane					3,900	210,000		
n-Hexane					700	---		
n-Nonane					25,000	---		
n-Octane					3,300	---		
n-Propylbenzene					1,000	54,000		
o-Xylene				1.60	100	22,000		
Propene					3,000	---		
Styrene				1.60	1,000	17,000		
Tetrachloroethene			1.2	1.30	4.0	300	0.0198	0.0003
Tetrahydrofuran (THF)					350	30,000		
Toluene	2.8	2.5		1.40	5,000	37,000	0.0437	0.0006
trans-1,2-Dichloroethene				1.50	63.0	---		
trans-1,3-Dichloropropene				1.70	0.25	---		
Trichloroethene				1.00	0.20	14,000		
Trichlorofluoromethane				2.10	5,000	9,000		
Trichlorotrifluoroethane					180,000	960,000		
Vinyl Acetate				1.30	200	5,300		
Vinyl Chloride		**0.67**	**0.71**	0.48	0.11	180,000	0.0114	0.0001
1,1,1-Trichloroethane				2.00	5,000	9,000		
1,1,2,2-Tetrachloroethane				1.30	16.0	---		
1,1,2-Trichloro-1,2,2-trifluoroethane				2.90	---	---		
1,1,2-Trichloroethane				1.00	1.4	---		
1,1-Dichloroethane				1.50	0.63	---		
1,1-Dichloroethene				1.50	200	---		
1,2,4-Trichlorobenzene				13.80	---	3,700		
1,2,4-Trimethylbenzene				1.80	6.0	---		
1,2-Dibromo-3-chloropropane					0.2	---		
1,2-Dibromoethane				1.40	0.0017	---		
1,2-Dichlorotetrafluoroethane	18.7	22.9	28.1	2.60	17,000	---	0.3833	0.0049
1,2-Dichlorobenzene				2.20	200	30,000		
1,2-Dichloroethane				0.75	0.038	---		
1,2-Dichloropropane				1.70	4.0	---		
1,3,5-Trimethylbenzene				1.80	6.0	---		
1,3-Butadiene					0.033	---		
1,3-Dichlorobenzene				2.20	10.0	---		
Hexachlorobutadiene				9.90	0.045	---		
1,4-Dichlorobenzene				5.60	0.09	---		
1,4-Dioxane					0.20	3,000		
2-Butanone (Methyl ethyl ketone)				5.50	5,000	13,000		
2-Hexanone (Methyl butyl ketone)				7.60	30.0	4,000		
2-Propanol (Isopropyl Alcohol)				4.60	7,000	98,000		
3-Chloro-1-propene (Allyl Chloride)					1.0	600		
4-Ethyltoluene					---	---		
4-Methyl-2-pentanone (Methyl isobutyl ketone)				7.60	3,000	31,000		
						Total lbs/yr:	***0.771***	

Notes:

- All samples were tested by Pace Analytical for VOCs using EPA TO-15 with TIC analysis.
- AGC/SGC values are current as of June 2019.
- Shaded values indicate stack concentration exceeds the AGC.
- Values below laboratory reporting limit are considered non-detect and therefore left blank.
- Method blank for this test was below reporting limit.
- Modeled maximum annual concentrations were calculated using the EPA's SCREEN3 model.
- Model inputs included a stack height of 12 ft, stack diameter of 8.25 in, flow rate of 509.02 acfm, exit temperature of 68.0 F, flat terrain options, and rural environment.
- Closest building in the model had dimensions of Height: 10 ft, Length: 75 ft, and Width: 45 ft. Closest fence line was 10 ft away from stack.

3.0 PROCESS DESCRIPTION

The Town owns and operates a GCCS at the OBSWDC. The GCCS provides a control mechanism for fugitive vadose zone landfill gases generated by the formerly active Oyster Bay Landfill. The GCCS includes a Blower Station containing three (3) blower skids, rated at 500 cubic feet per minute (cfm) per skid. Each blower is connected to the perimeter header that collects subsurface landfill gas (LFG) emissions that have migrated to the perimeter of the Landfill. In the past, the Town was able to combust the landfill gases via a thermal oxidizer (TO); however, that unit is no longer operational. Currently, the landfill gases are collected by the GCCS perimeter wells that surround the Landfill. These gases are then directed to a common header that encircles the Landfill. The header enters the Blower Station and through a series of valves is connected to the operating blowers. The blowers exhaust into a third header that is connected to the perimeter LFG vent stack. Typically, one to two blowers are used to collect the perimeter gas with the third blower serving as a standby unit.

The system is designed to collect LFG from the entire perimeter of the Landfill. A blower assembly is located in the Blower Station in the southeast corner of the property. The blower assembly is comprised of three (3) blower packages, each with the capability of generating a vacuum of 20 inches W.C. at a design flow rate of 500 cfm. The collected LFG was combusted in a TO in the past. The TO has been decommissioned as a result of falling methane concentrations in the perimeter gas. Currently, the methane concentrations in the perimeter gas are insufficient to maintain steady state operations of the TO. As a result, the NYSDEC has allowed the collected landfill gases from the GCCS to exhaust to the atmosphere untreated.

The NYSDEC has placed an additional condition on the operation of the GCCS now that the TO is no longer in operation. The requirement includes the testing of the GCCS vent stack annually to determine if the gas concentrations exceed the State ambient air guidelines provided in DAR-1 for speciated VOCs, and to determine if the total speciated VOCs being released exceed the Title V threshold limits for VOCs.

Two (2) GCCS blowers were in operation during the stack test. The blowers are not equipped with variable speed drives and, therefore, they were operating at the design rate of 500 cfm. Since the blowers are drawing from the perimeter header surrounding the Landfill, the actual flow rate is typically less than the design value because of the back pressure caused by the header and the extraction wells. It should be noted during the test that the flow rates were comparable than the rates observed in 2018, and higher than those observed in 2017.

4.0 SAMPLING AND ANALYTICAL METHODS

Emission tests were performed on the perimeter gas vent stack to measure flowrates, moisture content and concentrations of speciated VOCs only. The following sections present a brief discussion of the various equipment and test methods used during the test program.

4.1 Pollutant Emissions Monitoring

Triplicate 60-minute emissions tests were conducted on the exhaust from the perimeter GCCS. Two (2) blowers were in operation during the entire test period. Samples of the exhaust gases were collected in SUMMA canisters using a 5-foot length of Teflon ¼-inch tubing that was inserted into the middle of the exhaust stack via the west stack port. Each 6-Liter SUMMA canister was equipped with a dedicated flow controller configured to collect slightly less than 6-Liters of exhaust gas over the 1-hour sampling period.

The field team assembled the equipment prior to the test. Flow measurements were made using a TSI 9565-P VelociCalc Multi-function Ventilation Meter and TSI 964 Probe. Temperature, humidity, barometric pressure, and flowrates were recorded according to EPA Method 1 and 2 requirements using a flowmeter and thermistor. Flows, humidities, pressures, and temperatures were recorded before and after each test.

The sampling of the exhaust gases began after the above parameters were measured. A SUMMA Canister was attached to a clean ¼-inch Teflon line and the line was inserted into the exhaust stack via the west stack port. The pertinent field data were recorded and the initial vacuum, start time, and other data were recorded on the field data sheet. The sample run was stopped after 1-hour of elapsed time and the SUMMA canister was resealed, labelled, and stored for shipment. The remaining samples followed the same sequence and the final flow readings were taken at the conclusion of the test. Samples were returned to shipping boxes and returned to Pace Analytical Services, Inc. (Pace) with a completed chain-of-custody form. The chain-of-custody form and the laboratory results are provided in Attachment B.

4.2 Volumetric Flowrate Measurements

The volumetric flowrate of the exhaust gases from the vent stack was measured in accordance with EPA Methods 1 and 2. The stack internal diameter was 8.25 inches and, therefore, according to Section 11.3.1.1 of Method 1, six (6) traverse points were selected on two (2) perpendicular diameters, shown in Table 1-2 of Method 1 and presented in Figure 4.1. The flow data was then used to calculate scfm flow volumes to determine the annual average emission rates for the individual compounds listed in Table 2.1.

Figure 4.1

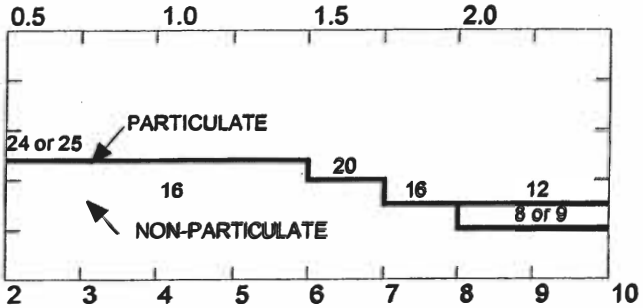
TOWN OF OYSTER BAY, NY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

Landfill Gas Vent Stack
EPA Method 1 Data Sheet

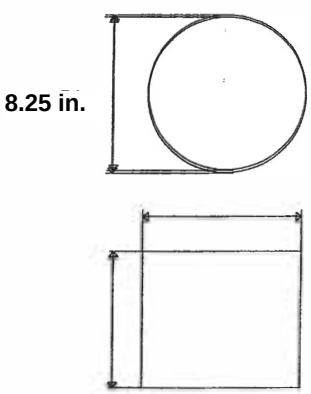
Firm: Town of Oyster Bay		Total Traverse Points Required	12
Location: Perimeter LFG Exhaust Vent Stack		Number of Ports	2
Diameters Upstream of Exit:	4.0	Points per Port	6
Diameters Downstream of Disturb.	8.0	Traverse (Horizontal or Vertical)	Horizontal
Nipple Size (in.)	1.0		

Minimum Number of Traverse Points For Particulate and Non-Particulate Traverses

Duct Diameters Upstream From Flow Disturbance



Duct Diameters Downstream From Flow Disturbance



Cross-Sectional Layout For Rectangular Stacks

Total Traverse Points	Matrix
9	3x3
12	4x3
16	4x4
20	5x4
25	5x5

Location of Points on a Circular Stack

Point Number on a Diameter	(Percent of Stack Diameter from inside Wall to Traverse Point) No. of Traverse Points on a Diameter				
	4	6	8	10	12
1	6.7	4.4	3.2	2.6	2.1
2	25.0	14.6	10.5	8.2	6.7
3	75.0	29.6	19.4	14.6	11.8
4	93.3	70.4	32.3	22.6	17.7
5		85.4	67.7	34.2	25.0
6		95.6	80.6	65.8	35.6
7			89.5	77.4	64.4
8			96.8	85.4	75.0
9				91.8	82.3
10				97.4	88.2
11					93.3
12					97.9

Traverse Point Location

Point Number	Distance From Wall (in.)	Total Distance (in.)
1	0.4	0.4
2	1.2	1.6
3	2.4	2.8
4	5.8	6.2
5	7.0	7.4
6	7.9	8.3

Test Number:		T-1	T-2	T-3	
Date:		March 28, 2019	March 28, 2019	March 28, 2019	
Time:		08:53-09:53	10:06-11:06	11:17-12:17	Average
Volumetric Flowrate	dscfm	522.38	493.88	491.89	**502.72**
	acfm	528.9	500.1	498.1	**509.02**

The actual average flowrate calculated during the collection of the three (3) samples in 2019 was below the combined 1000 cfm design capacity of the blowers. The average actual flowrate in 2019 was 509.02 cfm, which is slightly lower than the 554.70 cfm flowrate in 2018, but higher than the flowrate observed in the 2017 vent stack test of approximately 450 cfm.

4.3 Moisture Measurements

The moisture content of the exhaust gases was measured during the test by a TSI 9565-P VelociCalc Multi-function Ventilation Meter and TSI 964 Probe. The calibration documentation for this unit is provided in Attachment A.

5.0 QUALITY ASSURANCE

The RTP quality assurance program (QA) is designed to ensure that emissions measurement work is performed by qualified staff using proper equipment and following written procedures in order to provide accurate, defensible data. This program is based on the EPA Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III (EPA-600/4-77-027b).

5.1 Measurement Methods

Sampling and measurement equipment, including any other pertinent apparatus uniquely identified, underwent preventive maintenance, and were calibrated before and after the test program. Most calibrations were performed with standards traceable to the National Institute for Standards and Technology (NIST) or other appropriate references. Records of all calibration data are maintained within RTP files and are available to the Town and onsite personnel.

During the field tests, sampling performance and progress were continually evaluated, and deviations from sampling method criteria were reported to the Field Team Leader who determined the validity of the test run. All field data were recorded on prepared field data sheets.

5.2 Emissions Monitoring System

The emissions monitoring system, which includes SUMMA canisters with pressure gauges and flow controllers, was prepared by Pace Laboratories. Pace provided evacuated 6.0 Liter SUMMA canisters with 1-hour calibrated flow controllers. Each flow controller was equipped with a calibrated pressure gauge. Initial and final pressures were recorded by RTP staff during the tests. During the data reduction process, all calculations were reviewed by a senior scientist. These quality control checks provided a means to ensure that the calculations were performed correctly.

ATTACHMENT A

TEST PROTOCOL, FIELD DATA, AND CALIBRATION SHEETS

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Remedial Bureau E
625 Broadway, 12th Floor, Albany, NY 12233-7017
P: (518) 402-9813 I F: (518) 402-9819
www.dec.ny.gov

March 24, 2016

Honorable Richard T. Betz
Commissioner
Town of Oyster Bay
Department of Public Works
150 Miller Place
Syosset, New York 11791-5699

RE: Modification to Air Emissions Monitoring Program
Old Bethpage Solid Waste Disposal Complex
Consent Decree 83 CIV 5357
Site No. 130001

Dear Commissioner Betz:

The New York State Department of Environmental Conservation (Department) has reviewed the Town of Oyster Bay (Town) January 5, 2016 Petition for Reduction of Landfill Gas Monitoring at the Old Bethpage Landfill, prepared by D&B Engineers and Architects, P.C.

In response to the Town's initial submission, the Department requested, by email on February 5, 2016, that the methane collection system vent be sampled for Volatile Organic Chemicals on an annual basis. The Town agreed to perform this monitoring and provided the Old Bethpage Landfill Perimeter Gas Collection System Exhaust Testing Protocol (Attachment A) on March 11, 2016.

Pursuant to Consent Decree 83 CIV 5357 Appendix A - Remedial Action Plan, Attachment 2 - Old Bethpage Landfill Supplemental Gas Monitoring Program (Attachment B), with incorporation of the Town-prepared Old Bethpage Landfill Perimeter Gas Collection System Exhaust Testing Protocol, the Department approves the reduction of air and gas monitoring programs from quarterly to annually. Methane monitoring of the gas collection system exhaust shall continue on a weekly basis, with results presented in the quarterly Remedial Action Plan report. The Town shall report the findings of the annual air and gas monitoring program in the Annual Remedial Action Plan Report.

If you have questions or would like to discuss this matter further, please contact me by telephone at (518) 402-9813 or by email at benjamin.rung@dec.ny.gov.

Sincerely,

Benjamin Rung, P.E.
Project Manager
Remedial Section C, Remedial Bureau E
Division of Environmental Remediation

ec: M. Cruden, DER
B. Putzig, DER
W. Parish, Region 1
R. Ockerby, NYSDOH
E. Maccarone, lmaccarone@oysterbay-ny.gov
M. Russo, mrusso@oysterbay-ny.gov
N. Bergin, nbergin@oysterbay-ny.gov

Attachment A

Old Bethpage Landfill Perimeter Gas Collection System Exhaust - Proposed VOC Testing Protocol

In accordance with the request from the New York State Department of Environmental Conservation, the Town of Oyster Bay will initiate an annual sampling program to quantify the concentrations of Volatile Organic Compounds (VOCs) in the Old Bethpage Landfill perimeter gas collection system exhaust. This sampling event will be completed as part of the air emissions sampling program as dictated in Consent Decree 83 CIV 5357 with the State of New York for the Old Bethpage Landfill, as currently modified.

Each annual event shall entail collecting three 1-hour representative samples of the exhaust in a laboratory-prepared 6-Liter SUMMA canister (or equivalent) equipped with a flow regulator. Sample analysis shall be via EPA Method TO-14A, and performed by a New York State-certified environmental laboratory.

Notes

1. Sampling to be performed by the Town's Air Emissions Sampling (Air) consultant, currently RTP Environmental Associates, Inc., Westbury, New York
2. Analysis to be performed by the Town's Laboratory Analysis (Lab) consultant, currently Pace Analytical, Inc., Melville, New York

Procedures

1. When the field sampling event is scheduled, the Air consultant shall order the necessary sampling media from the Lab.
2. The Lab shall supply three (3) certified-clean SUMMA canisters equipped with a calibrated flow regulator set to a 1-hour fill time.
3. Once in the field, the Air consultant shall measure the current flow rate, temperature, humidity, and cross-sectional area of stack exhaust. This information shall be used later on to compute the volume of VOCs emitted by the stack exhaust.
4. The Air consultant shall record the precise start and finish time of the sampling, and verify the flow rate of the regulator.
5. Sufficient vacuum shall remain in the SUMMA canister to verify the sample's integrity.
6. The canister sample shall be properly identified by the Air consultant.
7. The Air consultant shall deliver the canister sample under Chain-of-Custody to the Lab consultant.
8. The Lab consultant shall analyze the sample in accordance with EPA Method TO-14A using gas chromatography and measured by a mass spectrometer.
9. The Lab consultant will provide the Air consultant with the analytical results.
10. The Air consultant will convert the data as required and compare the results to the DAR-1 short-term and annual guideline concentrations (SGCs and AGCs), and to Title V permit thresholds.
11. The results of this program shall be incorporated into the overall Air sampling program report.

Attachment B

RAP Attachment 2

OLD BETHPAGE LANDFILL
SUPPLEMENTAL GAS MONITORING PROGRAM

The supplemental landfill gas monitoring program for the Old Bethpage Landfill Remediation Program contains five components. These are 1) the collection of ambient air samples; 2) the collection of subsurface gas samples at a depth of 30"; 3) the collection of subsurface gas samples at depths of 10', 20', 30' and 40'; 4) the collection of thermal oxidizer emission samples (stack testing); and 5) the measurement of gas pressure to ascertain negative pressure created by the gas collection system. These data requirements supplement the existing methane gas monitoring program and will be reported in the annual reports produced under that program.

The location of the proposed sampling points are shown on Drawing No. 1, entitled "Old Bethpage Landfill Zero Percent Methane Gas Migration Contours, 1986 Annual Site Survey". A description of the various components of this program follows.

Ambient Air Samples

Ambient air samples (24 hr. samples) will be collected at three locations around the landfill as shown on Drawing No. 1. One location will be along Winding Road to the east and southeast of the landfill (near M-3 shown on Drawing No. 1). One location will be to the west of the landfill along Round Swamp Road (near M-33). A third location will be north of the landfill (between M-17 and M-22). Samples at these locations will be collected quarterly during the initial year of the program and, if approved by the State, on an annual basis thereafter. Samples will be analyzed for volatile organic compounds.

30" Deep Subsurface Gas Samples

Fourteen subsurface gas samples will be collected at a depth of 30" at the following locations surrounding the landfill as shown on Drawing No. 1: F-1, M-2, M-4, M-5, M-6, M-13, M-16, M-21, M-22, M-28, M-31, M-34, M-37 and M-39. Samples will be collected on a quarterly basis during the initial year of the program and, if approved by the State, on an annual basis thereafter. Samples will be analyzed for volatile organic compounds.

Subsurface Gas Samples at Various Depths

Subsurface gas samples will be collected at depths of 10', 20', 30', and 40' at location M-9 (to be repaired or replaced) shown on Drawing No. 1. Samples will be collected on a quarterly basis during the initial year of the program and, if approved by the State, on an annual basis thereafter. Samples will analyzed for volatile organic compounds.

Thermal Oxidizer Emissions

Thermal oxidizer emissions will be sampled (in the incinerator stack) on a quarterly basis during the initial year of the program. The emissions will be related to oxidizer incinerator temperatures during this initial year of sampling. Thereafter, the oxidizer temperatures will be monitored on a monthly basis to insure that temperatures needed to volatilize the organics are being maintained in the oxidizer. The emissions will continue to be sampled on an annual basis. Samples will be analyzed for volatile organic compounds.

Pressure Readings

Pressure readings will be taken at three locations around the perimeter of the gas collection system to ascertain whether a vacuum is created around the system. This data will assist in monitoring the effectiveness of the system and in determining whether the system needs adjustment or enhancement. One reading will be taken to the south of the landfill at either F-6 or F-9 (existing probes) shown on Drawing No. 1. A new probe will be installed and a reading taken to the northwest of landfill between LGV 16 and LGV 17. The third probe will be installed and a reading taken to the southeast of the landfill between TGV-1 and LGV-9. Pressure readings will be taken on a quarterly basis during the initial year of the program and, if approved by the State, on an annual basis thereafter.

Town of Oyster Bay Sold Waste Disposal Complex

Stack Vent Test Field Data Sheet

Site Location: Perimeter Blower Exhaust Vent at Blower Station

Date: 3/28/2019

Operators: Ken Skipka, Gary Grunseich

Vent Stack Test

Run 1

Port ID	Point ID	Velocity (ft/sec)
West	1	1327
	2	1457
	3	1527
	4	1588
	5	1520
	6	943
South	1	1523
	2	1584
	3	1583
	4	1516
	5	1500
	6	1030

Time: 0843

RH (Stack) (%): 23.6

Temp (Stack) (°F): 81 °F

RH (Ambient) (%): 54.9

Temp (Ambient) (°F): 42.2 °F

Baro. Pressure: 30.33

Landtec GEM 2000

CH_4 (%): 0.3

CO_2 (%): 0.5

O_2 (%): 20.3

Bal (%): 78.9

Run 2

Port ID	Point ID	Velocity (ft/sec)
West	1	1230
	2	1350
	3	1430
	4	1500
	5	1480
	6	1050
South	1	1330
	2	1430
	3	1480
	4	1470
	5	1310
	6	1210

Time: 0956

RH (Stack) (%): 20.1

Temp (Stack) (°F): 87.5 °F

RH (Ambient) (%): 48.7

Temp (Ambient) (°F): 46.4 °F

Baro. Pressure: 30.31

Landtec GEM 2000

CH_4 (%): 0.4

CO_2 (%): 0.6

O_2 (%): 20.4

Bal (%): 78.6

Run 3

Port ID	Point ID	Velocity (ft/sec)
West	1	1270
	2	1410
	3	1460
	4	1450
	5	1420
	6	1050
South	1	1250
	2	1350
	3	1400
	4	1460
	5	1380
	6	1100.

Time: 11:13

RH (Stack) (%): 19.4

Temp (Stack) (°C): 89.9 °F

RH (Ambient) (%): 42.3

Temp (Ambient) (°C): 50.5 °F

Baro. Pressure: 30.31

Landtec GEM 2000

CH_4 (%): 0.4

CO_2 (%): 0.6

O_2 (%): 19.9

Bal (%): 79.1

Run 4

Port ID	Point ID	Velocity (ft/sec)
West	1	1340
	2	1410
	3	1480
	4	1480
	5	1400
	6	970
South	1	1240
	2	1370
	3	1460
	4	1510
	5	1480
	6	1060

Time: 12:22

RH (Stack) (%): 18.3

Temp (Stack) (°C): 90.2 °F

RH (Ambient) (%): 36.5

Temp (Ambient) (°C): 51.3 °F

Baro. Pressure: 30.26

Landtec GEM 2000

CH_4 (%): 0.5

CO_2 (%): 0.7

O_2 (%): 20.9

Bal (%): 77.9

SUMMA Canister Test

	Sample 1	Sample 2	Sample 3
Sample ID:	OBSWDC:LFGV1	OBSWDC:LFGV2	OBSWDC:LFGV3
Canister/Serial #:	~~1C1481~~ 0529	0658	3017
Flow Controller #:	FC1484	FC 1493	FC 1293
Time On:	09:53	10:06	11:17
Time Off:	09:53	11:06	12:17
Vacuum On:	-30.0	-32.0	-31.0
Vacuum at 20 mins:	-22.0	-24.5	-22.5
Vacuum at 40 mins:	-14.0	-17.0	-14.1
Vacuum Off:	-6.5	-10.0	-7.0
Wind Direction:	SW	SW	W
Wind Speed:	2-5 mph.	2-5 mph.	5-10 mph.

Comments:

Lot# 17-6017

GEM 2000 Calibration: Field Inst. Methane @ 2.5% Expire 1/8/19 SDS #505

2.5% CH_4 Calibration @ 8:38 am

Note: Canister 0529 - slightly stripped threads on SWAGLOK.

INTERMOUNTAIN SPECIALTY GASES

520 N. Kings Road ● Nampa ● Idaho ● 83687

800-552-5003 ● www.isgases.com

CERTIFICATE OF ANALYSIS

Composition	Certification	Analytical Accuracy
Hydrogen Sulfide	25 ppm	± 5%
Carbon Monoxide	50 ppm	± 2%
Methane	2.5% (50% LEL)	± 2%
Oxygen	20.9%	± 2%
Nitrogen	Balance	

Lot # 17-6017

Mfg. Date:	8/29/2017
Transfill Date:	see cylinder
Parent Cylinder ID Number:	EB0075459

Method of Preparation:
Gravimetric/Transfilling

Method of Analysis:
The parent mix was prepared gravimetrically and is traceable to the NIST by certified weights (ID #CA10814) used to calibrate the scale. The parent mix was analyzed on a GC and Carbon Monoxide Analyzer to verify accuracy of the components. The H2S was analyzed on a Hydrogen Sulfide Analyzer to verify accuracy.

Analysis By: Tony Janquart
Quality Assurance Manager
800-552-5003
Certificate Date: 8/29/2017

INSTRUMENT CALIBRATION REPORT

Advanced Labs, Inc.

Pine Environmental Services, Inc

Instrument ID 19869
Description TSI 9565P VelociCalc
Calibrated 11/14/2018

Manufacturer TSI
Model Number 9565P
Serial Number 9565P1236023
Location New Jersey
Temp 71

Classification
Status pass
Frequency Yearly EOM
Department Lab
Humidity 28

Calibration Specifications

Group # 1
Group Name Barometric Pressure
Stated Accy Pct of Reading

Range Acc % 0.0000
Reading Acc % 2.0000
Plus/Minus 0.000

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
30.000 / 30.290	inHg	30.290	inHg	30.250	30.290	0.00%	Pass

Group # 2
Group Name Differential Pressure
Stated Accy Pct of Reading

Range Acc % 0.0000
Reading Acc % 1.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
-4.00 / -4.05	inH2O	-4.05	inH2O	-4.09	-4.09	0.99%	Pass
4.00 / 4.19	inH2O	4.19	inH2O	4.23	4.23	0.95%	Pass
8.00 / 8.26	inH2O	8.26	inH2O	8.32	8.32	0.73%	Pass
12.00 / 12.02	inH2O	12.02	inH2O	12.07	12.07	0.42%	Pass

Test Instruments Used During the Calibration

Test Instrument ID	Description	Manufacturer	Serial Number	(As Of Cal Entry Date) Last Cal Date	Next Cal Date
DWYER 477AV	Dwyer 477AV-000 Digital Manometer	Dwyer	005TRQ	9/21/2018	9/21/2019
DWYER 477AV-1	Dwyer 477AV-1 Digital Manometer	Dwyer	005PM2	9/21/2018	9/21/2019
DWYER 477AV-3	Dwyer 477AV-3 Digital Manometer	Dwyer	005PM1	9/21/2018	9/21/2019
OMEGA HX93AC/DP25-E	Omega HX93AC/DP25-E	Omega Engineering	1010368 035025 035026	10/11/2018	10/11/2020
OMEGA PX02K1-16A5T /DP25-E-A	Omega PX02K1-16A5T/DP25-E-A	Omega Engineering	168377/8375030	10/11/2018	10/11/2020
OMEGA WT4401-D	Omega WT4401-D	Omega Engineering	101105	10/11/2018	10/11/2020

Notes about this calibration

INSTRUMENT CALIBRATION REPORT

Advanced Labs, Inc.

Pine Environmental Services, Inc

Instrument ID 19869
Description TSI 9565P VelociCalc
Calibrated 11/14/2018

Calibration Result Calibration Successful
Who Calibrated Kevin Cole

Advanced Labs, Inc. hereby certifies that this instrument is calibrated and functions to meet the manufacture's specifications using NIST traceable standards, or is derived from accepted values of physical constants.

INSTRUMENT CALIBRATION REPORT

Advanced Labs, Inc.

Pine Environmental Services, Inc

Instrument ID 39992
Description TSI 964 Probe
Calibrated 5/21/2018

Manufacturer TSI
Model Number 964
Serial Number P17210092
Location New Jersey
Temp 79

Classification
Status pass
Frequency Yearly EOM
Department Lab
Humidity 31

Calibration Specifications

Group # 1
Group Name Relative Humidity
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
30.00 / 30.50	%	30.50	%	31.10	30.50	0.00%	Pass

Group # 2
Group Name Temperature
Stated Accy Plus / Minus
Range Acc % 0.0000
Reading Acc % 0.0000
Plus/Minus 1.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
70.00 / 76.30	°F	76.30	°F	76.10	76.30	0.00%	Pass

Group # 3
Group Name Velocity
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
0.00 / 0.00	ft/min	0.00	ft/min	0.00	0.00	0.00%	Pass
40.00 / 40.00	ft/min	40.00	ft/min	40.00	40.00	0.00%	Pass
70.00 / 70.00	ft/min	70.00	ft/min	70.00	70.00	0.00%	Pass
100.00 / 100.00	ft/min	100.00	ft/min	101.00	101.00	1.00%	Pass
150.00 / 150.00	ft/min	150.00	ft/min	153.00	153.00	2.00%	Pass
325.00 / 325.00	ft/min	325.00	ft/min	315.00	326.00	0.31%	Pass
700.00 / 700.00	ft/min	700.00	ft/min	680.00	690.00	-1.43%	Pass
1000.00 / 1000.00	ft/min	1000.00	ft/min	940.00	980.00	-2.00%	Pass
1500.00 / 1500.00	ft/min	1500.00	ft/min	1,420.00	1,470.00	-2.00%	Pass
2000.00 / 2000.00	ft/min	2000.00	ft/min	1,850.00	1,940.00	-3.00%	Pass
5000.00 / 5000.00	ft/min	5000.00	ft/min	4,700.00	5,050.00	1.00%	Pass
8000.00 / 8000.00	ft/min	8000.00	ft/min	7,950.00	8,240.00	3.00%	Pass

INSTRUMENT CALIBRATION REPORT

Advanced Labs, Inc.

Pine Environmental Services, Inc

Instrument ID 39992
Description TSI 964 Probe
Calibrated 5/21/2018

Test Instruments Used During the Calibration

				(As Of Cal Entry Date)	
Test Instrument ID	**Description**	**Manufacturer**	**Serial Number**	**Last Cal Date**	**Next Cal Date**
MICHELL DM-509-TX-01	Relative Humidity Meter	Michell	273296	8/25/2017	8/25/2018
OMEGA HX93AC/DP25-E	Omega HX93AC/DP25-E	Omega Engineering	1010368 035025 035026	9/15/2016	9/15/2018
OMEGA PX02K1-16A5T /DP25-E-A	Omega PX02K1-16A5T/DP25-E-A	Omega Engineering	168377/8375030	9/15/2016	9/15/2018
OMEGA WT4401-D	Omega WT4401-D	Omega Engineering	101105	9/15/2016	9/15/2018

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Kevin Cole

Advanced Labs, Inc. hereby certifies that this instrument is calibrated and functions to meet the manufacture's specifications using NIST traceable standards, or is derived from accepted values of physical constants.

INSTRUMENT QC PACKING LIST

Description	☐ TSI 9565 with 982 IAQ probe ☒ TSI 9565 with 960 velocity, straight probe
Display ID	19869
Annual Cal. date	11-14-18
Probe ID	39992
Annual Cal. date	5-21-18
Date Prepared	3-21-19

www.pine-environmental.com

Standard Items for both configurations	Prepared	QC check	Received by customer	Returned to Pine
TSI 9565 and carry case	✓	✓	—	—
Manual	✓	✓	—	—
AC power adapter	✓	✓	—	—
Stand	✓	✓	—	—
Rubber tubing for pressure port	✓	✓	—	—
(4) AA Alkaline batteries	✓	✓	—	—
Communications cable	✓	✓	—	—
TSI TrakPro and LogDat2 software	✓	✓	—	—
Annual calibration sheet for display	✓	✓	—	—
Annual calibration sheet for probe	✓	✓	—	—
ProCal calibration sheet	✓	✓	—	—
Standard Items for IAQ probe				
Static pressure probe (w/ magnet)	#	#	—	—
Calibration adapter with tubing	#	#	—	—
Optional Items for IAQ probe				
Ultra-zero calibration gas	#	#	—	—
Ultra-zero gas SDS	#	#	—	—
✓ *Must match gas with setup*	#	#	—	—
CO_2 and CO calibration gas mix	#	#	—	—
Calibration gas mix SDS	#	#	—	—
✓ *Must match gas mix with setup*	#	#	—	—
Regulator(s)	X	X	—	—

Prepared by: BA

QC checked by: [illegible]

Date: 3.21.

This packing list is to ensure that everything needed to operate the unit was sent and received. Upon receiving a shipment, please fill out the "Received by customer" column. Call Pine within 24 hours of receiving the equipment if any pieces are missing, damaged, or malfunctioning. Thank you for choosing Pine Environmental Services LLC.

ATTACHMENT B

LABORATORY CHAIN-OF-CUSTODY FORM AND ANALYTICAL DATA

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

April 24, 2019

Ken Skipka
RTP Environmental
400 Post Avenue (Ste.405)
Westbury, NY 11590

RE: Project: RTP ENVIRONMENTAL
Pace Project No.: 7084310

Dear Ken Skipka:
Enclosed are the analytical results for sample(s) received by the laboratory on April 03, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Jennifer Aracri
jennifer.aracri@pacelabs.com
(631)694-3040
Project Manager

Enclosures

cc: Gary Grunseich, RTP Environmental

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

CERTIFICATIONS

Project: RTP ENVIRONMENTAL
Pace Project No.: 7084310

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485
A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #: MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Massachusetts Certification #: M-MN064
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Minnesota Dept of Ag Certifcation #: via MN 027-053-137
Minnesota Petrofund Certification #: 1240
Mississippi Certification #: MN00064
Missouri Certification #: 10100
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Primary Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Vermont Certification #: VT-027053137
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

SAMPLE ANALYTE COUNT

Project: RTP ENVIRONMENTAL
Pace Project No.: 7084310

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
7084310001	**OBAY19:LFGV1**	TO-15	MJL	50	PASI-M
7084310002	**OBAY19:LFGV2**	TO-15	MJL	50	PASI-M
7084310003	**OBAY19:LFGV3**	TO-15	MJL	50	PASI-M

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: RTP ENVIRONMENTAL
Pace Project No.: 7084310

Sample: OBAY19:LFGV1 **Lab ID: 7084310001** Collected: 03/28/19 09:53 Received: 04/03/19 09:40 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Acetone	**6.4**	ug/m3	4.0	1.64		04/19/19 20:33	67-64-1	
Benzene	**1.5**	ug/m3	0.53	1.64		04/19/19 20:33	71-43-2	
Bromodichloromethane	**<0.60**	ug/m3	2.2	1.64		04/19/19 20:33	75-27-4	
Bromoform	**<2.3**	ug/m3	8.6	1.64		04/19/19 20:33	75-25-2	
Bromomethane	**<0.37**	ug/m3	1.3	1.64		04/19/19 20:33	74-83-9	
2-Butanone (MEK)	**<0.61**	ug/m3	4.9	1.64		04/19/19 20:33	78-93-3	
Carbon disulfide	**<0.36**	ug/m3	1.0	1.64		04/19/19 20:33	75-15-0	
Carbon tetrachloride	**<0.70**	ug/m3	2.1	1.64		04/19/19 20:33	56-23-5	
Chlorobenzene	**0.86J**	ug/m3	1.5	1.64		04/19/19 20:33	108-90-7	
Chloroethane	**<0.43**	ug/m3	0.88	1.64		04/19/19 20:33	75-00-3	
Chloroform	**0.58J**	ug/m3	0.81	1.64		04/19/19 20:33	67-66-3	
Chloromethane	**2.9**	ug/m3	0.69	1.64		04/19/19 20:33	74-87-3	
Dibromochloromethane	**<1.2**	ug/m3	2.8	1.64		04/19/19 20:33	124-48-1	
1,2-Dibromoethane (EDB)	**<0.60**	ug/m3	1.3	1.64		04/19/19 20:33	106-93-4	
1,2-Dichlorobenzene	**<0.82**	ug/m3	2.0	1.64		04/19/19 20:33	95-50-1	
1,3-Dichlorobenzene	**<0.95**	ug/m3	2.0	1.64		04/19/19 20:33	541-73-1	
1,4-Dichlorobenzene	**<1.6**	ug/m3	5.0	1.64		04/19/19 20:33	106-46-7	
Dichlorodifluoromethane	**5.9**	ug/m3	1.7	1.64		04/19/19 20:33	75-71-8	
1,1-Dichloroethane	**<0.37**	ug/m3	1.3	1.64		04/19/19 20:33	75-34-3	
1,2-Dichloroethane	**<0.25**	ug/m3	0.67	1.64		04/19/19 20:33	107-06-2	
1,1-Dichloroethene	**<0.45**	ug/m3	1.3	1.64		04/19/19 20:33	75-35-4	
cis-1,2-Dichloroethene	**<0.36**	ug/m3	1.3	1.64		04/19/19 20:33	156-59-2	
trans-1,2-Dichloroethene	**<0.47**	ug/m3	1.3	1.64		04/19/19 20:33	156-60-5	
1,2-Dichloropropane	**<0.38**	ug/m3	1.5	1.64		04/19/19 20:33	78-87-5	
cis-1,3-Dichloropropene	**<0.50**	ug/m3	1.5	1.64		04/19/19 20:33	10061-01-5	
trans-1,3-Dichloropropene	**<0.72**	ug/m3	1.5	1.64		04/19/19 20:33	10061-02-6	
Dichlorotetrafluoroethane	**18.7**	ug/m3	2.3	1.64		04/19/19 20:33	76-14-2	
Ethylbenzene	**<0.50**	ug/m3	1.4	1.64		04/19/19 20:33	100-41-4	
Hexachloro-1,3-butadiene	**<3.2**	ug/m3	8.9	1.64		04/19/19 20:33	87-68-3	
2-Hexanone	**<1.2**	ug/m3	6.8	1.64		04/19/19 20:33	591-78-6	
Methylene Chloride	**2.9J**	ug/m3	5.8	1.64		04/19/19 20:33	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.85**	ug/m3	6.8	1.64		04/19/19 20:33	108-10-1	
Methyl-tert-butyl ether	**<1.1**	ug/m3	6.0	1.64		04/19/19 20:33	1634-04-4	
2-Propanol	**3.8J**	ug/m3	4.1	1.64		04/19/19 20:33	67-63-0	
Styrene	**<0.56**	ug/m3	1.4	1.64		04/19/19 20:33	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.48**	ug/m3	1.1	1.64		04/19/19 20:33	79-34-5	
Tetrachloroethene	**0.92J**	ug/m3	1.1	1.64		04/19/19 20:33	127-18-4	
Toluene	**2.8**	ug/m3	1.3	1.64		04/19/19 20:33	108-88-3	
1,2,4-Trichlorobenzene	**<6.1**	ug/m3	12.4	1.64		04/19/19 20:33	120-82-1	
1,1,1-Trichloroethane	**<0.51**	ug/m3	1.8	1.64		04/19/19 20:33	71-55-6	
1,1,2-Trichloroethane	**<0.41**	ug/m3	0.91	1.64		04/19/19 20:33	79-00-5	
Trichloroethene	**<0.42**	ug/m3	0.90	1.64		04/19/19 20:33	79-01-6	
Trichlorofluoromethane	**1.3J**	ug/m3	1.9	1.64		04/19/19 20:33	75-69-4	
1,1,2-Trichlorotrifluoroethane	**<0.92**	ug/m3	2.6	1.64		04/19/19 20:33	76-13-1	
1,2,4-Trimethylbenzene	**<0.74**	ug/m3	1.6	1.64		04/19/19 20:33	95-63-6	
1,3,5-Trimethylbenzene	**<0.65**	ug/m3	1.6	1.64		04/19/19 20:33	108-67-8	
Vinyl acetate	**<0.44**	ug/m3	1.2	1.64		04/19/19 20:33	108-05-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: RTP ENVIRONMENTAL
Pace Project No.: 7084310

Sample: OBAY19:LFGV1 **Lab ID: 7084310001** Collected: 03/28/19 09:53 Received: 04/03/19 09:40 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Vinyl chloride	**<0.21**	ug/m3	0.43	1.64		04/19/19 20:33	75-01-4	
m&p-Xylene	**<1.1**	ug/m3	2.9	1.64		04/19/19 20:33	179601-23-1	
o-Xylene	**<0.56**	ug/m3	1.4	1.64		04/19/19 20:33	95-47-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: RTP ENVIRONMENTAL
Pace Project No.: 7084310

Sample: OBAY19:LFGV2 **Lab ID: 7084310002** Collected: 03/28/19 11:06 Received: 04/03/19 09:40 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Acetone	**8.1**	ug/m3	4.4	1.83		04/19/19 21:04	67-64-1	
Benzene	**1.7**	ug/m3	0.59	1.83		04/19/19 21:04	71-43-2	
Bromodichloromethane	**<0.67**	ug/m3	2.5	1.83		04/19/19 21:04	75-27-4	
Bromoform	**<2.6**	ug/m3	9.6	1.83		04/19/19 21:04	75-25-2	
Bromomethane	**<0.42**	ug/m3	1.4	1.83		04/19/19 21:04	74-83-9	
2-Butanone (MEK)	**2.5J**	ug/m3	5.5	1.83		04/19/19 21:04	78-93-3	
Carbon disulfide	**<0.40**	ug/m3	1.2	1.83		04/19/19 21:04	75-15-0	
Carbon tetrachloride	**<0.79**	ug/m3	2.3	1.83		04/19/19 21:04	56-23-5	
Chlorobenzene	**0.99J**	ug/m3	1.7	1.83		04/19/19 21:04	108-90-7	
Chloroethane	**<0.48**	ug/m3	0.98	1.83		04/19/19 21:04	75-00-3	
Chloroform	**0.60J**	ug/m3	0.91	1.83		04/19/19 21:04	67-66-3	
Chloromethane	**4.1**	ug/m3	0.77	1.83		04/19/19 21:04	74-87-3	
Dibromochloromethane	**<1.3**	ug/m3	3.2	1.83		04/19/19 21:04	124-48-1	
1,2-Dibromoethane (EDB)	**<0.67**	ug/m3	1.4	1.83		04/19/19 21:04	106-93-4	
1,2-Dichlorobenzene	**<0.91**	ug/m3	2.2	1.83		04/19/19 21:04	95-50-1	
1,3-Dichlorobenzene	**<1.1**	ug/m3	2.2	1.83		04/19/19 21:04	541-73-1	
1,4-Dichlorobenzene	**<1.8**	ug/m3	5.6	1.83		04/19/19 21:04	106-46-7	
Dichlorodifluoromethane	**7.3**	ug/m3	1.8	1.83		04/19/19 21:04	75-71-8	
1,1-Dichloroethane	**<0.41**	ug/m3	1.5	1.83		04/19/19 21:04	75-34-3	
1,2-Dichloroethane	**<0.27**	ug/m3	0.75	1.83		04/19/19 21:04	107-06-2	
1,1-Dichloroethene	**<0.50**	ug/m3	1.5	1.83		04/19/19 21:04	75-35-4	
cis-1,2-Dichloroethene	**<0.40**	ug/m3	1.5	1.83		04/19/19 21:04	156-59-2	
trans-1,2-Dichloroethene	**<0.52**	ug/m3	1.5	1.83		04/19/19 21:04	156-60-5	
1,2-Dichloropropane	**<0.42**	ug/m3	1.7	1.83		04/19/19 21:04	78-87-5	
cis-1,3-Dichloropropene	**<0.56**	ug/m3	1.7	1.83		04/19/19 21:04	10061-01-5	
trans-1,3-Dichloropropene	**<0.81**	ug/m3	1.7	1.83		04/19/19 21:04	10061-02-6	
Dichlorotetrafluoroethane	**22.9**	ug/m3	2.6	1.83		04/19/19 21:04	76-14-2	
Ethylbenzene	**<0.56**	ug/m3	1.6	1.83		04/19/19 21:04	100-41-4	
Hexachloro-1,3-butadiene	**<3.6**	ug/m3	9.9	1.83		04/19/19 21:04	87-68-3	
2-Hexanone	**<1.4**	ug/m3	7.6	1.83		04/19/19 21:04	591-78-6	
Methylene Chloride	**4.5J**	ug/m3	6.5	1.83		04/19/19 21:04	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.95**	ug/m3	7.6	1.83		04/19/19 21:04	108-10-1	
Methyl-tert-butyl ether	**<1.2**	ug/m3	6.7	1.83		04/19/19 21:04	1634-04-4	
2-Propanol	**2.6J**	ug/m3	4.6	1.83		04/19/19 21:04	67-63-0	
Styrene	**<0.63**	ug/m3	1.6	1.83		04/19/19 21:04	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.53**	ug/m3	1.3	1.83		04/19/19 21:04	79-34-5	
Tetrachloroethene	**1.1J**	ug/m3	1.3	1.83		04/19/19 21:04	127-18-4	
Toluene	**2.5**	ug/m3	1.4	1.83		04/19/19 21:04	108-88-3	
1,2,4-Trichlorobenzene	**<6.8**	ug/m3	13.8	1.83		04/19/19 21:04	120-82-1	
1,1,1-Trichloroethane	**<0.57**	ug/m3	2.0	1.83		04/19/19 21:04	71-55-6	
1,1,2-Trichloroethane	**<0.46**	ug/m3	1.0	1.83		04/19/19 21:04	79-00-5	
Trichloroethene	**<0.47**	ug/m3	1.0	1.83		04/19/19 21:04	79-01-6	
Trichlorofluoromethane	**1.2J**	ug/m3	2.1	1.83		04/19/19 21:04	75-69-4	
1,1,2-Trichlorotrifluoroethane	**<1.0**	ug/m3	2.9	1.83		04/19/19 21:04	76-13-1	
1,2,4-Trimethylbenzene	**1.0J**	ug/m3	1.8	1.83		04/19/19 21:04	95-63-6	
1,3,5-Trimethylbenzene	**<0.73**	ug/m3	1.8	1.83		04/19/19 21:04	108-67-8	
Vinyl acetate	**<0.49**	ug/m3	1.3	1.83		04/19/19 21:04	108-05-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: RTP ENVIRONMENTAL
Pace Project No.: 7084310

Sample: OBAY19:LFGV2 **Lab ID: 7084310002** Collected: 03/28/19 11:06 Received: 04/03/19 09:40 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Vinyl chloride	**0.67**	ug/m3	0.48	1.83		04/19/19 21:04	75-01-4	
m&p-Xylene	**1.7J**	ug/m3	3.2	1.83		04/19/19 21:04	179601-23-1	
o-Xylene	**0.79J**	ug/m3	1.6	1.83		04/19/19 21:04	95-47-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: RTP ENVIRONMENTAL
Pace Project No.: 7084310

Sample: OBAY19:LFGV3 **Lab ID: 7084310003** Collected: 03/28/19 12:17 Received: 04/03/19 09:40 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Acetone	**5.6**	ug/m3	4.0	1.68		04/19/19 21:35	67-64-1	
Benzene	**1.9**	ug/m3	0.55	1.68		04/19/19 21:35	71-43-2	
Bromodichloromethane	**<0.61**	ug/m3	2.3	1.68		04/19/19 21:35	75-27-4	
Bromoform	**<2.4**	ug/m3	8.8	1.68		04/19/19 21:35	75-25-2	
Bromomethane	**<0.38**	ug/m3	1.3	1.68		04/19/19 21:35	74-83-9	
2-Butanone (MEK)	**<0.62**	ug/m3	5.0	1.68		04/19/19 21:35	78-93-3	
Carbon disulfide	**<0.37**	ug/m3	1.1	1.68		04/19/19 21:35	75-15-0	
Carbon tetrachloride	**<0.72**	ug/m3	2.2	1.68		04/19/19 21:35	56-23-5	
Chlorobenzene	**1.3J**	ug/m3	1.6	1.68		04/19/19 21:35	108-90-7	
Chloroethane	**<0.44**	ug/m3	0.90	1.68		04/19/19 21:35	75-00-3	
Chloroform	**0.53J**	ug/m3	0.83	1.68		04/19/19 21:35	67-66-3	
Chloromethane	**3.6**	ug/m3	0.71	1.68		04/19/19 21:35	74-87-3	
Dibromochloromethane	**<1.2**	ug/m3	2.9	1.68		04/19/19 21:35	124-48-1	
1,2-Dibromoethane (EDB)	**<0.61**	ug/m3	1.3	1.68		04/19/19 21:35	106-93-4	
1,2-Dichlorobenzene	**<0.84**	ug/m3	2.0	1.68		04/19/19 21:35	95-50-1	
1,3-Dichlorobenzene	**<0.98**	ug/m3	2.0	1.68		04/19/19 21:35	541-73-1	
1,4-Dichlorobenzene	**1.8J**	ug/m3	5.1	1.68		04/19/19 21:35	106-46-7	
Dichlorodifluoromethane	**7.8**	ug/m3	1.7	1.68		04/19/19 21:35	75-71-8	
1,1-Dichloroethane	**<0.38**	ug/m3	1.4	1.68		04/19/19 21:35	75-34-3	
1,2-Dichloroethane	**<0.25**	ug/m3	0.69	1.68		04/19/19 21:35	107-06-2	
1,1-Dichloroethene	**<0.46**	ug/m3	1.4	1.68		04/19/19 21:35	75-35-4	
cis-1,2-Dichloroethene	**<0.37**	ug/m3	1.4	1.68		04/19/19 21:35	156-59-2	
trans-1,2-Dichloroethene	**<0.48**	ug/m3	1.4	1.68		04/19/19 21:35	156-60-5	
1,2-Dichloropropane	**<0.39**	ug/m3	1.6	1.68		04/19/19 21:35	78-87-5	
cis-1,3-Dichloropropene	**<0.51**	ug/m3	1.6	1.68		04/19/19 21:35	10061-01-5	
trans-1,3-Dichloropropene	**<0.74**	ug/m3	1.6	1.68		04/19/19 21:35	10061-02-6	
Dichlorotetrafluoroethane	**28.1**	ug/m3	2.4	1.68		04/19/19 21:35	76-14-2	
Ethylbenzene	**<0.51**	ug/m3	1.5	1.68		04/19/19 21:35	100-41-4	
Hexachloro-1,3-butadiene	**<3.3**	ug/m3	9.1	1.68		04/19/19 21:35	87-68-3	
2-Hexanone	**<1.3**	ug/m3	7.0	1.68		04/19/19 21:35	591-78-6	
Methylene Chloride	**3.4J**	ug/m3	5.9	1.68		04/19/19 21:35	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.87**	ug/m3	7.0	1.68		04/19/19 21:35	108-10-1	
Methyl-tert-butyl ether	**<1.1**	ug/m3	6.1	1.68		04/19/19 21:35	1634-04-4	
2-Propanol	**2.3J**	ug/m3	4.2	1.68		04/19/19 21:35	67-63-0	
Styrene	**<0.58**	ug/m3	1.5	1.68		04/19/19 21:35	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.49**	ug/m3	1.2	1.68		04/19/19 21:35	79-34-5	
Tetrachloroethene	**1.2**	ug/m3	1.2	1.68		04/19/19 21:35	127-18-4	
Toluene	**0.96J**	ug/m3	1.3	1.68		04/19/19 21:35	108-88-3	
1,2,4-Trichlorobenzene	**<6.2**	ug/m3	12.7	1.68		04/19/19 21:35	120-82-1	
1,1,1-Trichloroethane	**<0.52**	ug/m3	1.9	1.68		04/19/19 21:35	71-55-6	
1,1,2-Trichloroethane	**<0.42**	ug/m3	0.93	1.68		04/19/19 21:35	79-00-5	
Trichloroethene	**<0.43**	ug/m3	0.92	1.68		04/19/19 21:35	79-01-6	
Trichlorofluoromethane	**1.2J**	ug/m3	1.9	1.68		04/19/19 21:35	75-69-4	
1,1,2-Trichlorotrifluoroethane	**<0.95**	ug/m3	2.6	1.68		04/19/19 21:35	76-13-1	
1,2,4-Trimethylbenzene	**<0.76**	ug/m3	1.7	1.68		04/19/19 21:35	95-63-6	
1,3,5-Trimethylbenzene	**<0.67**	ug/m3	1.7	1.68		04/19/19 21:35	108-67-8	
Vinyl acetate	**<0.45**	ug/m3	1.2	1.68		04/19/19 21:35	108-05-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: RTP ENVIRONMENTAL
Pace Project No.: 7084310

Sample: OBAY19:LFGV3 **Lab ID: 7084310003** Collected: 03/28/19 12:17 Received: 04/03/19 09:40 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Vinyl chloride	**0.71**	ug/m3	0.44	1.68		04/19/19 21:35	75-01-4	
m&p-Xylene	**<1.2**	ug/m3	3.0	1.68		04/19/19 21:35	179601-23-1	
o-Xylene	**<0.58**	ug/m3	1.5	1.68		04/19/19 21:35	95-47-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: RTP ENVIRONMENTAL
Pace Project No.: 7084310

QC Batch: 600658 Analysis Method: TO-15
QC Batch Method: TO-15 Analysis Description: TO15 MSV AIR Low Level
Associated Lab Samples: 7084310001, 7084310002, 7084310003

METHOD BLANK: 3246768 Matrix: Air
Associated Lab Samples: 7084310001, 7084310002, 7084310003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/m3	<0.31	1.1	04/19/19 15:23	
1,1,2,2-Tetrachloroethane	ug/m3	<0.29	0.70	04/19/19 15:23	
1,1,2-Trichloroethane	ug/m3	<0.25	0.56	04/19/19 15:23	
1,1,2-Trichlorotrifluoroethane	ug/m3	<0.56	1.6	04/19/19 15:23	
1,1-Dichloroethane	ug/m3	<0.22	0.82	04/19/19 15:23	
1,1-Dichloroethene	ug/m3	<0.27	0.81	04/19/19 15:23	
1,2,4-Trichlorobenzene	ug/m3	<3.7	7.5	04/19/19 15:23	
1,2,4-Trimethylbenzene	ug/m3	<0.45	1.0	04/19/19 15:23	
1,2-Dibromoethane (EDB)	ug/m3	<0.37	0.78	04/19/19 15:23	
1,2-Dichlorobenzene	ug/m3	<0.50	1.2	04/19/19 15:23	
1,2-Dichloroethane	ug/m3	<0.15	0.41	04/19/19 15:23	
1,2-Dichloropropane	ug/m3	<0.23	0.94	04/19/19 15:23	
1,3,5-Trimethylbenzene	ug/m3	<0.40	1.0	04/19/19 15:23	
1,3-Dichlorobenzene	ug/m3	<0.58	1.2	04/19/19 15:23	
1,4-Dichlorobenzene	ug/m3	<1.0	3.1	04/19/19 15:23	
2-Butanone (MEK)	ug/m3	<0.37	3.0	04/19/19 15:23	
2-Hexanone	ug/m3	<0.74	4.2	04/19/19 15:23	
2-Propanol	ug/m3	<0.70	2.5	04/19/19 15:23	
4-Methyl-2-pentanone (MIBK)	ug/m3	<0.52	4.2	04/19/19 15:23	
Acetone	ug/m3	<1.2	2.4	04/19/19 15:23	
Benzene	ug/m3	<0.15	0.32	04/19/19 15:23	
Bromodichloromethane	ug/m3	<0.37	1.4	04/19/19 15:23	
Bromoform	ug/m3	<1.4	5.2	04/19/19 15:23	
Bromomethane	ug/m3	<0.23	0.79	04/19/19 15:23	
Carbon disulfide	ug/m3	<0.22	0.63	04/19/19 15:23	
Carbon tetrachloride	ug/m3	<0.43	1.3	04/19/19 15:23	
Chlorobenzene	ug/m3	<0.28	0.94	04/19/19 15:23	
Chloroethane	ug/m3	<0.26	0.54	04/19/19 15:23	
Chloroform	ug/m3	<0.20	0.50	04/19/19 15:23	
Chloromethane	ug/m3	<0.16	0.42	04/19/19 15:23	
cis-1,2-Dichloroethene	ug/m3	<0.22	0.81	04/19/19 15:23	
cis-1,3-Dichloropropene	ug/m3	<0.30	0.92	04/19/19 15:23	
Dibromochloromethane	ug/m3	<0.72	1.7	04/19/19 15:23	
Dichlorodifluoromethane	ug/m3	<0.29	1.0	04/19/19 15:23	
Dichlorotetrafluoroethane	ug/m3	<0.44	1.4	04/19/19 15:23	
Ethylbenzene	ug/m3	<0.30	0.88	04/19/19 15:23	
Hexachloro-1,3-butadiene	ug/m3	<2.0	5.4	04/19/19 15:23	
m&p-Xylene	ug/m3	<0.70	1.8	04/19/19 15:23	
Methyl-tert-butyl ether	ug/m3	<0.66	3.7	04/19/19 15:23	
Methylene Chloride	ug/m3	<0.94	3.5	04/19/19 15:23	
o-Xylene	ug/m3	<0.34	0.88	04/19/19 15:23	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: RTP ENVIRONMENTAL
Pace Project No.: 7084310

METHOD BLANK: 3246768 Matrix: Air
Associated Lab Samples: 7084310001, 7084310002, 7084310003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Styrene	ug/m3	<0.34	0.87	04/19/19 15:23	
Tetrachloroethene	ug/m3	<0.31	0.69	04/19/19 15:23	
Toluene	ug/m3	<0.35	0.77	04/19/19 15:23	
trans-1,2-Dichloroethene	ug/m3	<0.28	0.81	04/19/19 15:23	
trans-1,3-Dichloropropene	ug/m3	<0.44	0.92	04/19/19 15:23	
Trichloroethene	ug/m3	<0.26	0.55	04/19/19 15:23	
Trichlorofluoromethane	ug/m3	<0.37	1.1	04/19/19 15:23	
Vinyl acetate	ug/m3	<0.27	0.72	04/19/19 15:23	
Vinyl chloride	ug/m3	<0.13	0.26	04/19/19 15:23	

LABORATORY CONTROL SAMPLE: 3246769

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/m3	56.6	56.1	99	70-130	
1,1,2,2-Tetrachloroethane	ug/m3	69.8	86.7	124	70-132	
1,1,2-Trichloroethane	ug/m3	58.2	61.0	105	70-130	
1,1,2-Trichlorotrifluoroethane	ug/m3	84.9	70.4	83	70-130	
1,1-Dichloroethane	ug/m3	42.4	43.0	101	70-130	
1,1-Dichloroethene	ug/m3	43.5	37.1	85	70-130	
1,2,4-Trichlorobenzene	ug/m3	74.7	88.2	118	56-130	
1,2,4-Trimethylbenzene	ug/m3	53	60.0	113	70-134	
1,2-Dibromoethane (EDB)	ug/m3	83.6	89.9	108	70-130	
1,2-Dichlorobenzene	ug/m3	59.9	72.7	121	70-132	
1,2-Dichloroethane	ug/m3	42.8	42.1	98	70-130	
1,2-Dichloropropane	ug/m3	48.4	51.1	106	70-130	
1,3,5-Trimethylbenzene	ug/m3	53.5	57.1	107	70-132	
1,3-Dichlorobenzene	ug/m3	65.4	70.8	108	70-137	
1,4-Dichlorobenzene	ug/m3	65.4	74.3	114	70-134	
2-Butanone (MEK)	ug/m3	32.4	31.1	96	70-130	
2-Hexanone	ug/m3	42.9	51.2	119	70-135	
2-Propanol	ug/m3	26.5	32.8	124	68-130	
4-Methyl-2-pentanone (MIBK)	ug/m3	42	49.0	117	70-131	
Acetone	ug/m3	26.6	22.9	86	67-130	
Benzene	ug/m3	34.4	32.8	95	70-130	
Bromodichloromethane	ug/m3	69.5	70.6	102	70-130	
Bromoform	ug/m3	97.7	97.2	100	70-132	
Bromomethane	ug/m3	40.6	33.0	81	69-130	
Carbon disulfide	ug/m3	32.9	31.5	96	56-137	
Carbon tetrachloride	ug/m3	65.9	56.2	85	66-131	
Chlorobenzene	ug/m3	49.6	50.6	102	70-130	
Chloroethane	ug/m3	26.8	26.5	99	70-130	
Chloroform	ug/m3	52.6	51.3	98	70-130	
Chloromethane	ug/m3	22.2	19.8	89	66-130	
cis-1,2-Dichloroethene	ug/m3	41.9	42.5	101	70-130	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: RTP ENVIRONMENTAL
Pace Project No.: 7084310

LABORATORY CONTROL SAMPLE: 3246769

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
cis-1,3-Dichloropropene	ug/m3	48	48.2	100	70-133	
Dibromochloromethane	ug/m3	90	90.8	101	70-130	
Dichlorodifluoromethane	ug/m3	52.8	46.6	88	70-130	
Dichlorotetrafluoroethane	ug/m3	74.6	62.9	84	70-130	
Ethylbenzene	ug/m3	45.5	50.4	111	67-131	
Hexachloro-1,3-butadiene	ug/m3	108	140	130	66-137	
m&p-Xylene	ug/m3	45.9	56.0	122	70-132	
Methyl-tert-butyl ether	ug/m3	37.4	35.8	96	70-130	
Methylene Chloride	ug/m3	38.1	35.0	92	65-130	
o-Xylene	ug/m3	44.1	49.1	111	70-130	
Styrene	ug/m3	44.2	52.8	120	69-136	
Tetrachloroethene	ug/m3	70.3	71.6	102	70-130	
Toluene	ug/m3	39.4	41.0	104	70-130	
trans-1,2-Dichloroethene	ug/m3	41.5	39.5	95	70-130	
trans-1,3-Dichloropropene	ug/m3	44.8	56.2	126	70-134	
Trichloroethene	ug/m3	56.3	54.6	97	70-130	
Trichlorofluoromethane	ug/m3	58.8	48.7	83	65-130	
Vinyl acetate	ug/m3	35.1	38.7	110	61-133	
Vinyl chloride	ug/m3	28.1	24.4	87	70-130	

SAMPLE DUPLICATE: 3248312

Parameter	Units	30287546001 Result	Dup Result	RPD	Qualifiers
1,1,1-Trichloroethane	ug/m3	ND	<0.55		
1,1,2,2-Tetrachloroethane	ug/m3	ND	<0.52		
1,1,2-Trichloroethane	ug/m3	ND	<0.45		
1,1,2-Trichlorotrifluoroethane	ug/m3	ND	<1.0		
1,1-Dichloroethane	ug/m3	ND	<0.40		
1,1-Dichloroethene	ug/m3	ND	<0.49		
1,2,4-Trichlorobenzene	ug/m3	ND	<6.7		
1,2,4-Trimethylbenzene	ug/m3	ND	1.3J		
1,2-Dibromoethane (EDB)	ug/m3	ND	<0.66		
1,2-Dichlorobenzene	ug/m3	ND	<0.89		
1,2-Dichloroethane	ug/m3	ND	<0.27		
1,2-Dichloropropane	ug/m3	ND	<0.41		
1,3,5-Trimethylbenzene	ug/m3	ND	<0.71		
1,3-Dichlorobenzene	ug/m3	ND	<1.0		
1,4-Dichlorobenzene	ug/m3	ND	<1.8		
2-Butanone (MEK)	ug/m3	5.9	5.3J		
2-Hexanone	ug/m3	ND	<1.3		
2-Propanol	ug/m3	ND	2.3J		
4-Methyl-2-pentanone (MIBK)	ug/m3	ND	<0.93		
Acetone	ug/m3	9.4	9.6	2	
Benzene	ug/m3	ND	0.50J		
Bromodichloromethane	ug/m3	ND	<0.66		

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA

Project: RTP ENVIRONMENTAL
Pace Project No.: 7084310

SAMPLE DUPLICATE: 3248312

Parameter	Units	30287546001 Result	Dup Result	RPD	Qualifiers
Bromoform	ug/m3	ND	<2.5		
Bromomethane	ug/m3	ND	<0.41		
Carbon disulfide	ug/m3	ND	<0.39		
Carbon tetrachloride	ug/m3	ND	<0.77		
Chlorobenzene	ug/m3	ND	<0.49		
Chloroethane	ug/m3	ND	<0.47		
Chloroform	ug/m3	ND	<0.35		
Chloromethane	ug/m3	ND	<0.28		
cis-1,2-Dichloroethene	ug/m3	ND	<0.39		
cis-1,3-Dichloropropene	ug/m3	ND	<0.54		
Dibromochloromethane	ug/m3	ND	<1.3		
Dichlorodifluoromethane	ug/m3	ND	1.6J		
Dichlorotetrafluoroethane	ug/m3	ND	<0.78		
Ethylbenzene	ug/m3	ND	0.85J		
Hexachloro-1,3-butadiene	ug/m3	ND	<3.5		
m&p-Xylene	ug/m3	ND	3.1J		
Methyl-tert-butyl ether	ug/m3	ND	<1.2		
Methylene Chloride	ug/m3	ND	3.0J		
o-Xylene	ug/m3	ND	1.1J		
Styrene	ug/m3	ND	<0.62		
Tetrachloroethene	ug/m3	ND	<0.56		
Toluene	ug/m3	1.8	1.7	6	
trans-1,2-Dichloroethene	ug/m3	ND	<0.51		
trans-1,3-Dichloropropene	ug/m3	ND	<0.79		
Trichloroethene	ug/m3	ND	<0.46		
Trichlorofluoromethane	ug/m3	ND	0.70J		
Vinyl acetate	ug/m3	ND	<0.48		
Vinyl chloride	ug/m3	ND	<0.23		

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALIFIERS

Project: RTP ENVIRONMENTAL
Pace Project No.: 7084310

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RTP ENVIRONMENTAL
Pace Project No.: 7084310

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
7084310001	**OBAY19:LFGV1**	TO-15	600658		
7084310002	**OBAY19:LFGV2**	TO-15	600658		
7084310003	**OBAY19:LFGV3**	TO-15	600658		

WO#:7084310

7084310

AIR: CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

38087 Page: 1 of 1

Section A Required Client Information:
Company: RTP Environmental
Address: 400 East Ave, Ste 305
Westbury, NY 11590
Email To: skike@rtpenv.com
Phone: 516-333-6326 Fax: 516-333-7571
Requested Due Date/TAT:

Section B Required Project Information:
Report To:
Copy To:
Purchase Order No.:
Project Name:
Project Number:

Section C Invoice Information:
Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager/Sales Rep.
Pace Profile #: 38187

Program: UST / Superfund / Emissions / Clean Air Act / Voluntary Clean Up / Dry Clean / RCRA / Other

Location of Sampling by State:

Reporting Units: ug/m³ / mg/m³ / PPBV / PPMV / Other

Report Level: II. / III. / IV. / Other

Section D Required Client Information

AIR SAMPLE ID
Sample IDs MUST BE UNIQUE
Sample IDs MUST BE UNIQUE

Valid Media Codes: MEDIA / CODE
Tedlar Bag / TB
1 Liter Summa Can / 1LC
6 Liter Summa Can / 6LC
Low Volume Puff / LVP
High Volume Puff / HVP
Other / Other / PM10

ITEM #	Sample ID	MEDIA CODE	PFD Reading (dimensionless)	COLLECTED Composite Start DATE	Composite Start TIME	Composite End/Grab DATE	Composite End/Grab TIME	Canister Pressure (Initial Field - in Hg)	Canister Pressure (Final Field - in Hg)	Summa Can Number	Flow Control Number	Method: PM10	TO-C: Fixed Gas (%)	TO-3 BTEX	TO-14M (Methane)	TO-14 A	TO-15 Full List VOCs	TO-15 Short List BTEX	TO-15 Short List Chlorinated	TO-15 Short List (other)	Pace Lab ID
1	CBAY19-LFGV1			3/28/2019	8:53	3/28/2019	9:53	30.0	6.5	0529	14841				✓						001
2	CBAY19-LFGV2			3/28/2019	10:06	3/28/2019	11:06	32.0	10.0	0658	14933				✓						002
3	CBAY19-LFGV3			3/28/2019	11:17	3/28/2019	12:17	31.0	7.0	3017	12933				✓						003
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Gary Grunseich / RTP Environmental	3/28/19	13:18		3/28/19	13:18
	4/2/19	1800	Pace	04/03/19	9:40

SAMPLE CONDITIONS

Temp in °C	Y/N	Y/N	Y/N	Y/N
Received on Ice	Y/N	Y/N	Y/N	Y/N
Custody Sealed Cooler	Y/N	Y/N	Y/N	Y/N
Samples Intact	Y/N	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Gary Grunseich
SIGNATURE of SAMPLER: Gary Grunseich
DATE Signed (MM / DD / YY): 3/28/2019

ORIGINAL

1700 Elm Street SE, Suite 200, Minneapolis, MN 55414 Air Technical Phone: 612.607.6386

1700 Elm Street SE, Suite 200, Minneapolis, MN 55414 Air Technical Phone: 612.607.6386

FC046Rev.01, 03Feb2010

Pace Analytical	Document Name: Air Sample Condition Upon Receipt	Document Revised: 31Jan2019 Page 1 of 1
	Document No.: F-MN-A-106-rev.18	Issuing Authority: Pace Minnesota Quality Office

Air Sample Condition Upon Receipt

Client Name: RTP **Project #:**

WO#: 7084310

PM: JSA Due Date: 04/17/19

CLIENT: TOY

Courier: ☒Fed Ex ☐UPS ☐USPS ☐Client ☐Pace ☐SpeeDee ☐Commercial **See Exception** ☐

Tracking Number: 4879 5747 5259

Custody Seal on Cooler/Box Present? ☐Yes ☒No **Seals Intact?** ☐Yes ☒No

Packing Material: ☐Bubble Wrap ☐Bubble Bags ☒Foam ☐None ☐Tin Can ☐Other:_____ **Temp Blank rec:** ☐Yes ☒No

Temp. (TO17 and TO13 samples only) (°C): — **Corrected Temp (°C):** —

Thermometer Used: ☐G87A9170600254 ☐G87A9155100842

Temp should be above freezing to 6°C **Correction Factor:** _____ **Date & Initials of Person Examining Contents:** 04/03/19 CS

Type of Ice Received ☐Blue ☐Wet ☒None

		Comments:
Chain of Custody Present?	☒Yes ☐No	1.
Chain of Custody Filled Out?	☒Yes ☐No	2.
Chain of Custody Relinquished?	☒Yes ☐No	3.
Sampler Name and/or Signature on COC?	☒Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time?	☒Yes ☐No	5.
Short Hold Time Analysis (<72 hr)?	☐Yes ☒No	6.
Rush Turn Around Time Requested?	☐Yes ☒No	7.
Sufficient Volume?	☒Yes ☐No	8.
Correct Containers Used?	☒Yes ☐No	9.
-Pace Containers Used?	☒Yes ☐No	
Containers Intact?	☒Yes ☐No	10.
Media: (Air Can) Airbag Filter TDT Passive		11. Individually Certified Cans Y (N) (list which samples)
Is sufficient information available to reconcile samples to the COC?	☐Yes ☐No	12.
Do cans need to be pressurized (3C and ASTM 1946 DO NOT PRESSURIZE)?	☐Yes ☐No	13.

Samples Received: Pressure Gauge # ☐10AIR34 ☐10AIR35

Canisters					Canisters				
Sample Number	Can ID	Flow Controller	Initial Pressure	Final Pressure	Sample Number	Can ID	Flow Controller	Initial Pressure	Final Pressure
LEGV 1	0529	1484							
" 2	0658	1493							
" 3	3017	1293							

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐Yes ☐No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: _____ **Date:** _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)