TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX
SUMMARY OF LANDFILL GAS MONITORING PROGRAMS

2011 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

August 2012

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX
SUMMARY OF LANDFILL GAS MONITORING PROGRAMS

2011 ANNUAL REPORT

TABLE OF CONTENTS

TABLE OF CONTENTS – con't.

TABLES AND FIGURES

APPENDICES

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX
SUMMARY OF LANDFILL GAS MONITORING PROGRAMS

2011 ANNUAL REPORT

Preface

The Town of Oyster Bay (Town) has been preparing an annual summary report (Annual Report) of various landfill gas monitoring programs associated with the Old Bethpage Solid Waste Disposal Complex (OBSWDC) for more than 25 years. The OBSWDC landfill gas 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 presence of landfill gas at one time in adjacent properties and structures, the subsequent phased construction of a landfill gas control system to control off-site gas migration, the completion of the landfill capping and closure system and the requirements of the site Consent Decree 83CV5357 (1988). 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 summarizes the varying landfill gas conditions at the site over the years; the facilities constructed to accommodate those conditions and control off-site gas migration; and the modifications to the gas monitoring program to support both site conditions and facilities. Sections 2 through 5 discuss the Sampling Programs, Discussion of Results, Summary and Conclusions and Recommendations for future monitoring and control efforts, respectively.

Most of the historic information in this report was provided by Lockwood, Kessler & Bartlett, Inc. (LKB), the engineer of record for the Town on the OBSWDC and associated activities. RTP Environmental Associates, Inc. (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

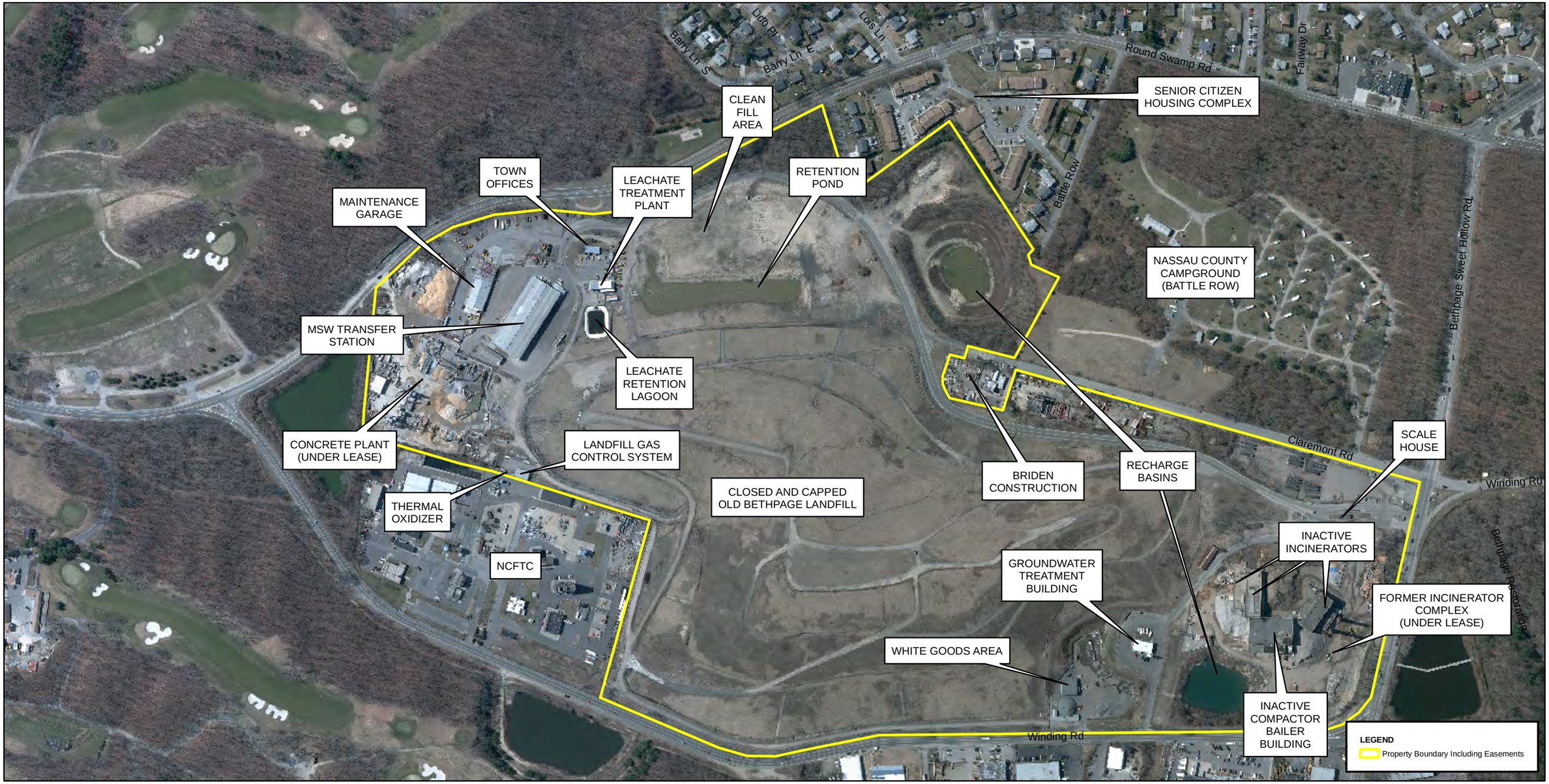
The OBSWDC is located between Winding and Claremont Roads, south of Bethpage-Sweet Hollow Road in the Town of Oyster Bay, Nassau County, New York. The OBSWDC consists of a total of 134 acres which contain a closed and capped landfill, inactive incinerators, an inactive compactor-baler facility, a Municipal 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, a white goods area, scale house, recharge basins, stockpile areas, vehicle maintenance facilities and offices. A map illustrating these facilities and adjoining areas is provided in Figure 1.1. Two (2) unutilized areas of the site are currently leased by others. One of these areas is the northeast portion of the site which includes the inactive incinerators and compactor-baler building. The second unutilized area is located at the southernmost portion of the site.

1.2 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 given 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 on the southeast. In order to prevent landfill gas (LFG) from contributing to the creation of an explosive atmosphere at the NCFTC, the Town installed a LFG control system. 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 the New York State Department of Environmental Conservation (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 (NCDH). 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 NCDH.

A variety of orders, agreements and operational permit renewals have been issued since the site's initial permit and these are discussed in previous annual reports. In April 1986, the landfill ceased operations



N

0 350 700 1,400 Feet

ORTHOIMAGERY SOURCE:
NYSGIS 2010

RTP Environmental Associates, Inc.
Westbury, New York

FIGURE 1.1
SITE LOCATION AND ADJOINING AREAS MAP

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

and all MSW received at the complex subsequently has been 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 obligated 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 M-9 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 are maintained in the oxidizer. The oxidizer emissions were to be sampled on an annual basis for VOC content); 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.

The results of the Supplemental Gas Monitoring Program required under the RAP are reported in detail in the Quarterly and Annual RAP Reports submitted in accordance with the Consent Decree.

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 are summarized in an annual engineering report addressing the status of all LFG monitoring programs, including the Zero Percent Gas Migration Limitation Survey.

The Town's current 6NYCRR Part 360 Solid Waste Management facility permit (#1-2824-00528/00005) which expired on June 17, 2012, allows for the operation of a municipal solid waste transfer station serving the Town of Oyster Bay, with a solid waste special condition stipulating quarterly monitoring of methane in the transfer station building, the maintenance building and the office building. The Town submitted a permit renewal application to the NYSDEC on December 16, 2011 and expects to receive a five (5) year permit renewal, as required by 6NYCRR Part 360.

1.3 Background on the OBSWDC Landfill Gas Control System

In response to reports of off-site landfill gas migration onto the NCFTC, the original landfill gas system (Phase 1) was installed in 1981 including eight (8) wells generally located along the shared property line 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 1984, the Town installed three (3) deep wells (designated GW-1, 2 and 3) atop the existing landfill to assess the properties of the deposited landfill mass in anticipation of letting a contract for gas to energy production. That contract was awarded in 1985 and the contractor, Energy Tactics, Inc. (ET), took possession of the three (3) wells for their use. Also 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. The TO was installed around this time.

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 wells to augment the methane gas quality were installed along the bench above the Phase 2 Pit area. Sufficient additional collection pipe was installed to complete the loop around the landfill, thereby allowing the blower station to extract gas from both ends of the collection system. This is now known as the Phase 4 system. The Phase 4 wells installed above the Phase 2 Pit area and some of the Phase 3 wells were subsequently turned over to the gas to energy contractor for this use. Since these wells were used for gas to energy, the landfill gas from the remaining wells directed to the TO had diminished overall quality. As such, Town personnel became more pro-active in managing gas flow to the TO to maintain combustion without using supplemental fuel (propane or utility natural gas).

In 1992, the Town entered into a betterment agreement with Nassau County to better control offsite migration onto the NCFTC. That agreement resulted in the installation of three (3) additional wells along the shared NCFTC property line and another blower skid (paid for by the County). It also required the Town to keep all the wells bordering the NCFTC fully open at all times to prevent the migration of landfill gas onto that site.

Until 2003, the extraction wells within the area atop the landfill were used exclusively by the gas to energy contractor. During the time that the contractor had exclusive rights to mine the landfill gas, they took over the three (3) GW wells, some Phase 3 and Phase 4 gas wells, and installed a number of additional wells (now known as the "ET wells") at the contractor's own expense. The gas-to-energy well matrix was connected by an ever changing array of gas collection piping to maximize the heat value of the mined gases. When the gas to energy equipment at the site ceased to operate due to diminishing gas quantities, the plateau area was abandoned by the contractor for further gas extraction. When the gas to energy contractor ceased operation in 2003, the portion of piping still serviceable was claimed by the Town to operate as part of the overall landfill gas collection system. When the contractor formally left the site and removed his generating equipment in 2005, the remaining wells and piping were turned over to the Town by agreement.

The diminishing levels of methane attributed to the age of the landfill have also impacted the operation of the perimeter gas control system TO. Beginning in 2003, the Town incorporated selected extraction wells formerly utilized by the gas to energy contractor to supplemental the landfill gas quality at the TO. However, the quality of this gas has continued to decrease. The TO became inoperable in May 2008 primarily due to diminishing methane gas quality. An inspection of the flare at that time indicated that extensive equipment rehabilitation was required before placing it back online. A detailed evaluation of the overall gas control system was performed to identify current conditions and make recommendations for system repairs and future system operations. The majority of the gas collection wells and piping were generally in satisfactory condition, although most required some maintenance.

Based on the results of this evaluation, certain adjustments and repairs to the perimeter collection system were performed by Town maintenance personnel. An initial repair contract was let to make necessary repairs to the perimeter landfill gas collection system. Selective repairs were made to the various broken elements of perimeter collection system in an effort to restore it to design operations in the spring of 2010. Following the completion of that contract, atmospheric air intrusion into the perimeter landfill gas collection system has been minimized. The VOC content of the discharge from the perimeter gas collection system remained low following repair of the piping system leaks.

For the long term, a two pronged approach was developed to address repair of the thermal oxidizer and rebuild the ET system to assure a reliable supply of combustible landfill gas. A cursory inspection showed the necessary repairs to the TO were specialized and thus, beyond the Town's capabilities to implement. Therefore, a contractor capable of conducting these repairs was solicited to perform further inspections and evaluation of the mechanical and electrical systems.

Additionally in 2010, the Town commissioned LKB to redesign the hydraulic flow pattern through the blower building in an effort to improve gas quality at the thermal oxidizer. This design was expected to re-allocate the available blower capacity between the perimeter landfill gas collection piping and proposed piping to connect to the existing ET wells in the interior portions of the landfill, leaving a common spare blower set. The existing gas control system would be re-configured to accommodate an 'internal" collection and flare system operating in parallel with an atmosphere-vented perimeter system. The intention of this design was to obtain LFG from the now abandoned landfill gas wells in the interior portions of the landfill thereby providing a higher quality of LFG to the repaired thermal oxidizer for destruction. Additionally, by withdrawing gas from the internal portion of the landfill, the system would provide the added benefit of reducing gas pressure build-up and hence help control potential gas migration. The LFG (typically less than 5 % methane) collected from the perimeter would continue to be vented to the atmosphere.

In November 2010, the Town solicited public bids to repair the thermal oxidizer electronics, piping, repaint the structure and return it to service, however no bids were received. The Town solicited bids for this contract again in March 2011, however only two bids were received and both were substantially higher than anticipated and the contract was not awarded.

In order to continue the Town's obligation to prevent offsite gas migration while the system repairs were being considered, the perimeter gas control system, which typically had low LFG concentrations (e.g., around 5% gas), continued operation with gas being exhausted to the atmosphere. RTP performed a preliminary assessment which roughly estimated that, from an air emissions perspective, it appeared that venting the perimeter landfill gas collection system uncontrolled may be a viable option in the future (RTP October 2, 2008 Memorandum). To evaluate whether venting perimeter gas to the atmosphere would result in a significant risk to public health or the environment while the status of the TO was being determined, the NYSDEC directed the Town to assess emissions from direct venting of the perimeter collection system gas.

RTP collected data to determine emission rates and evaluate potential impacts. Specifically, using a single site-specific total non-methane organic compound data point collected at the blower station in

2007, at a LFG flow rate of 500 cubic feet per minute (cfm), RTP calculated total VOC emissions to be 4.4 tons per year. RTP also calculated hazardous air pollutant (HAP) emissions to be 3.6 tons per year based on the USEPA AP-42 HAP emission factors for MSW-generated LFG. Based on these data and assumptions, VOC and HAP emissions from the uncontrolled release of perimeter system gas as configured at 500 cfm were estimated to be below air-permitting thresholds.

As a follow-up to the initial assessment, RTP collected a 10-Liter Tedlar bag sample of landfill gas at the blower on October 16, 2008 and had it analyzed for speciated VOCs via EPA Method TO-15. To assess the significance of these results with respect to air quality, LKB compared them to the NYSDEC DAR-1 SGCs and AGC (Short-Term and Annual Guideline Concentrations, respectively). No VOCs were detected in the perimeter system gas at concentrations exceeding the respective SGC or AGC. Based on this one (1) actual gas sample, VOC emissions from the gas collection system are not significantly impacting local ambient air quality. Further, the quarterly monitoring of ambient air and soil gas at the site since 2008 have not indicated any specific impacts from the perimeter gas control system emissions or offsite soil gas conditions, although several HAP compounds are found to be significantly in excess of AGC values in both upwind and downwind ambient samples.

Currently, due to the lack of landfill gas, only one skid is operating according to LKB. This skid currently discharges gases collected by the perimeter landfill gas collection system directly to the atmosphere through a stack located adjacent to the blower building at EL 105.25. Based on the inside stack diameter of 8 inches, the exit velocity is estimated at 10.2 feet per second at currently 960 cfm (parallel). The other two blower skids in the building are maintained as contingency units.

The estimate for re-configuring the blower station piping and constructing new landfill gas collection piping was also substantially higher than anticipated. When combined with the estimate for separating the flow from the internal “ET” and perimeter landfill gas control systems, the total expenditure by the Town was estimated at approximately $1,000,000. Upon receipt of these estimates, further work required to develop both of these projects to completion was suspended indefinitely by the Town.

Based on the above discussion, the Town believes that rehabilitating the interior portions of the landfill gas collection system and combusting the collected gases through the TO is no longer warranted for both economic and technical reasons. LKB’s evaluation of the system operations noted that methane production capacity of the landfill continues to decline, making efficient operation of a reconfigured

system unattainable over the long term. This evaluation was based on a review of the existing gas data, the age of the landfill and declining gas generation.

Therefore, in 2011, the Town requested from NYSDEC that it be allowed to discontinue the operation of the TO permanently. Furthermore, with the TO no longer operating, there is no need to reconfigure the blower building or construct new piping into the interior sections of the landfill. The NYSDEC, in their response dated August 31, 2011, requested additional details.

LKB is currently preparing a response to the NYSDEC request for additional information. This response will include:

1. The October 2, 2008 RTP project memo evaluating the impacts of direct venting of LFG collected around of the landfill perimeter to the atmosphere.

2. February 3, 2010 LKB letter report evaluating the greenhouse gas emission potential from the Old Bethpage Landfill (OBL) sited within the OBSWDC.

3. The 2010 Gas Migration Summary Report

4. This 2011 Gas Migration Summary report

1.4 Background of the Ambient Air, Soil Gas, Pressure Monitoring and Thermal Oxidizer Tests

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 meteorology monitoring to assure upwind samples are representative of upwind sources and downwind samples captured the impact of landfill activities. Soil gas samples have been collected quarterly from a group of preselected wells, when available. Unavailable access to soil gas wells at times precludes sample collection. Soil gas pressures have been collected quarterly from a separate group of preselected wells. The results of these quarterly sampling efforts are analyzed and summarized in RAP Quarterly Reports. RAP Attachment 2 also initially required quarterly monitoring of TO emissions. The emission measurement program characterized VOC air emissions from combusting LFG in the TO at the OBSWDC. The Consent Decree also provided for an automatic reduction in the quarterly testing frequency of the TO stack emissions to annual testing after the initial year of monitoring.

The change to annual testing of the TO emissions took place on November 10, 1992. In summary, the results of the testing indicated that the TO emissions were minimal and the impact was within NYSDEC Annual and Short-Term Concentration Guidelines.

In 2011, four (4) quarterly rounds of ambient air, subsurface soil gas sampling and pressure readings were performed. The 2011 results have been submitted to the Town in separate RTP reports and therefore, will not be addressed in this 2011 Annual Report. The TO was not tested in 2011, as discussed above.

1.5 Background of Gas Detection and Control Programs

As noted above, the Town initiated several landfill gas 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 as previously discussed in Section 1.3.

In 2008, an accident caused a breach in the perimeter gas control system near Briden Construction. The system design allowed the majority of the collection system to be placed back in operation shortly after the breach of the collection header along the western slope of the landfill. The broken header was sealed in two (2) locations adjoining the breach allowing negative pressure to be maintained while final repairs were being arranged. While certain adjustments and repairs to the system are routinely performed by Town maintenance personnel, a system-wide inspection was performed following the accident and a repair contract was developed to implement repairs that were beyond the Town's capabilities. The repairs to the perimeter gas control system were completed in 2010. The system has been collecting perimeter gas during 2011, and a negative pressure barrier is being maintained at the landfill perimeter. The negative pressure is supplied by the blower station near the TO. Some maintenance was required on the blower station due to a motor malfunction in late May of 2011. Repairs were promptly completed by the Town and the blower station returned to service.

1.6 Background on Energy Production and NCFTC Projects

In December 1985, the Town granted and leased all rights to the LFG, which was produced within the existing portions of the OBSWDC, to ET. This lease was to remain in force for 25 years. However, ET suspended energy production in 2003 due to diminishing gas quality, as discussed in Section 1.3.

In order to maintain a safe environment for training activities at the NCFTC, the County and the Town agreed to jointly study the occurrence of subsurface combustible gas on the NCFTC and recommend appropriate remedial measures. These studies culminated with both parties entering into a betterment agreement in 1992. The County and Town have since concluded that, with the improvements to the Town's facilities and the construction of the County's remediation facilities, all subsurface LFG along the common border of the NCFTC/OBSWDC are being effectively controlled.

2.0 SAMPLING PROGRAMS

Historically, the sampling by TOB personnel 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 landfill gas system, revisions to operating permit special conditions and changing gas 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.

An extensive evaluation of the historic gas monitoring programs was performed by LKB, including the program's initial purpose, to assess the applicability to current site conditions and regulatory requirements. The evaluation was discussed in detail in the 2008-2009 Report and resulted in modifications to the OBSWDC site and area-wide monitoring programs. The changes in approach were intended to make the programs more reflective of the current LFG conditions and current permit conditions, while not affecting LFG migration detection or whether further remedial actions should be initiated, as necessary (LKB, 2009).

The sampling and surveying programs were historically organized based on monthly, quarterly and annual monitoring periods. Table 2.1 provides the currently active monitoring survey programs that document landfill gas related conditions at the OBSWDC and surrounding areas. This list was amended to its current form as a result of the monitoring program evaluation discussed in the 2008-2009 Annual Report. The following sections describe the monitoring activities and equipment associated with required monitoring efforts for the 2011 calendar year.

TABLE 2.1

TOWN OF OYSTER BAY
OBSWDC MONITORING PROGRAM
SUMMARY OF 2011 LANDFILL GAS MONITORING PROGRAMS

Survey No.	Survey Description	Frequency of Monitoring	Monitoring Performed By
1.	OBSWDC Perimeter Gas Monitoring Well Survey	Quarterly	RTP
2.	Building Structure Survey	Quarterly	RTP
3.	Supplemental Gas Monitoring Program	As Necessary	TOB
4.	Ambient VOC Air Sampling, Subsurface VOC Gas Sampling, Soil Gas Pressure Readings	Quarterly	RTP
5.	Thermal Oxidizer Emissions Sampling for VOCs	Annually	RTP
6.	Thermal Oxidizer Temperature Reporting	Monthly	TOB
7.	Zero Gas Migration Limitation Survey	Annually	RTP

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

2.1 Monitoring Equipment and Operation

Most of the monitoring surveys identified in Table 2.1 required the use of handheld portable combustible gas monitors; the exceptions are Survey Nos. 4, 5 and 6. For these activities, a detailed description of the monitoring equipment is provided in Appendix F of each Quarterly RAP Report. RTP began performing Survey Nos. 1, 2 and 7 in 2008, which was reported in the 2008-2009 Annual Report. The Town or other consultants were completing these tasks prior to RTP's involvement.

Beginning in 2008, RTP was tasked with taking subsurface combustible gas readings for defining the zero gas migration limit (Survey No. 7) 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 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 substituted a ¾ inch diameter, 18 inch long concrete auger bit, powered by a handheld drill for the slam bar to make the necessary unsupported subsurface sampling points. A ¼ inch 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 to ensure the point would likely penetrate an impervious surface, if present. Occasionally, the drilling cannot reach a full 18" depth because of rocks or other obstacles. In those cases, additional attempts to drill a point are made with the minimal depth of any soil gas sample point being at least 12 inches. A Tygon sampling line and a filter are attached to the stainless steel probe; 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 2011 tests. The unit's minimum detection limit is 0.1 percent of combustible gas, measured digitally. It takes approximately 8-seconds for the soil gas in a well to make its way to the sensor. The sensor reaches a stable reading within 15-seconds and the peak value of the combustible gas percentage is recorded. The monitoring of combustible gas at perimeter wells and within structures at the OBSWDC also utilized the 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 structures. The specifications for the GEM 2000 and associated calibration are provided in Appendix A. The GEM 2000 unit was factory calibrated in January 2011 and span gas is supplied to check accuracy prior to each field use. Annual factory calibrations of the unit are recommended by LandTEC.

Each survey requires the documentation of the location of the sampling points at the landfill boundary, Nassau County Campground, Senior Citizens Housing Complex and other features potentially impacted by subsurface LFG migration from the landfill. 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 GEOXH Global Positioning System (GPS) unit. Tests conducted in 2009 used a Trimble GEOXT, which was also effective. According to the manufacturer, the system accuracy of the GEOXT is approximately 3 feet of the actual position. The GEOXH was selected because the system accuracy is estimated at approximately 4 inches. Both Trimble GPSs allow automated storage of sampling point coordinates and input of percentage of combustible gas. The GPS approach provides an accurate recording of the location of sampling points and potential problem gas areas, if present.

2.2 2011 Gas Monitoring Activities

RTP was tasked with performing five of the seven surveys listed in Table 2.1 during 2011. The first surveys conducted are listed as Survey Nos. 1 and 2, in Table 2.1. The quarterly surveys for 2011 were

performed in March, May, September and December. The data from these surveys are provided in Section 3 of this report.

In October 2010, the NYSDEC, requested that the Town take quarterly samples of landfill gas from the perimeter collection system vent for VOC speciation of landfill gas collected while the TO is out of service. Data from the Survey No. 3 test during 2011 are provided in Section 3.3.

The ambient air VOC sampling, subsurface VOC soil gas sampling and soil gas pressure readings (Survey No. 4) were performed quarterly during 2011. The data for 2011 are provided under separate cover in four (4) quarterly reports and one (1) annual summary.

RTP could not perform Survey No. 5 during 2011 since the TO was still out of service. The TO tests have been historically reported in separate stand alone stack test reports which will continue if the TO is placed back in service.

Although not part of the gas monitoring effort, the Town is required to supply monthly temperature data for the TO as part of the RAP. This is identified as Survey No. 6 in Table 2.1. Since the TO was out of service in 2011, the Town did not perform Survey No. 6. The Town and LKB are in discussions with the NYSDEC concerning the future operation of the TO (LKB, 2012).

Finally, RTP was tasked with performing the Zero Gas Migration Limitation Survey (Survey No. 7). The 2011 survey was performed on September 15-16, 2011. The data for the limitation survey is discussed in Section 3 of this report.

3.0 DISCUSSION OF RESULTS

3.1 General

Sampling data generated from survey program Nos. 1, 2, 3 and 7, identified in Table 2.1 earlier, are used to detect potential problematic areas and to develop design parameters for modification and expansion of LFG perimeter control system, as necessary. The LFG perimeter control system (included in 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. The gas header and various monitoring wells are depicted on

Figure 3.1 and Figure 3.2. This section provides a discussion of the Zero Gas Migration Survey followed by the other quarterly surveys and the special landfill gas speciated sampling efforts conducted in 2011.

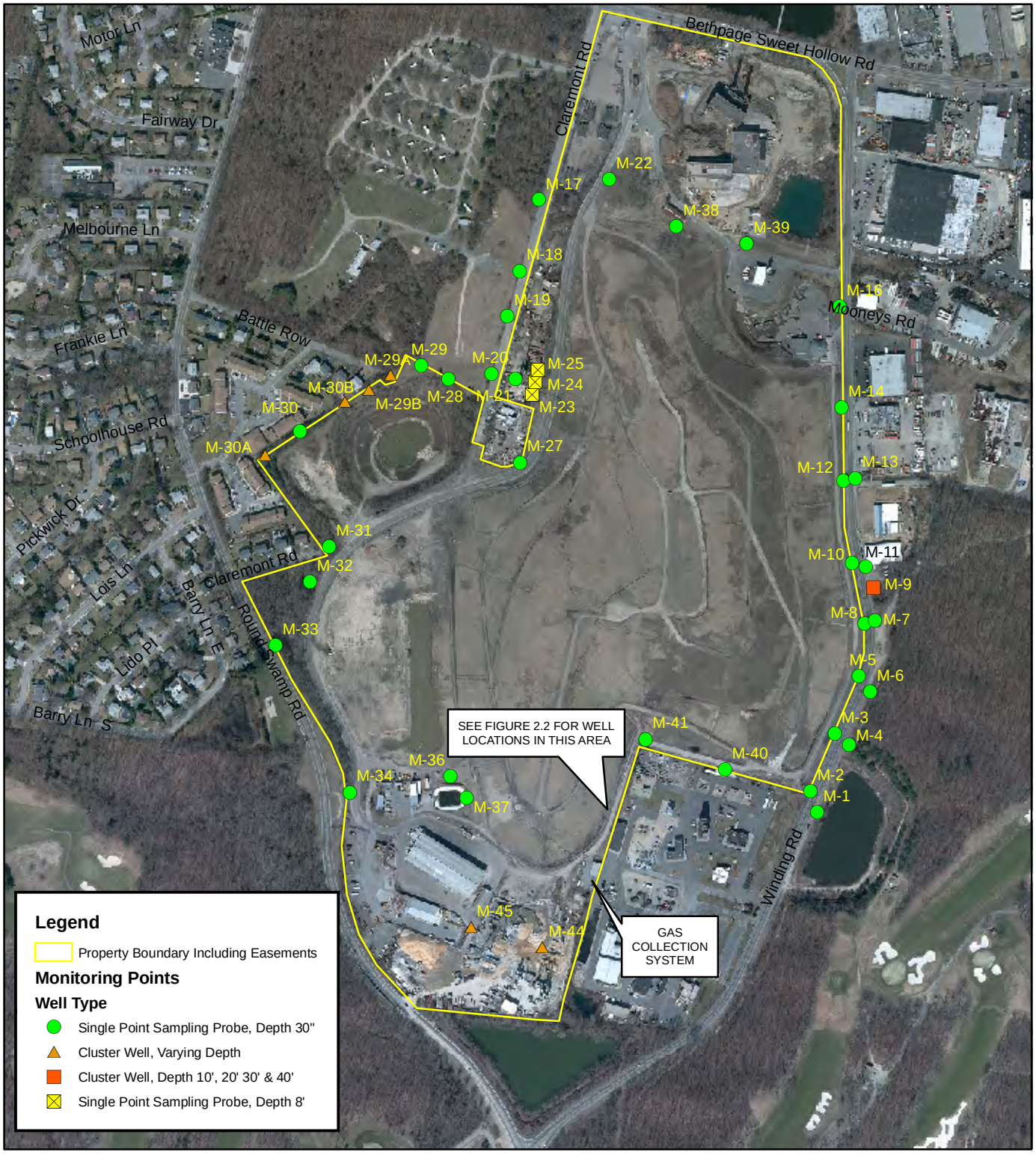
3.2 Landfill Gas Surveys

3.2.1 2011 Zero Gas Migration Limitation Survey

The 2011 Zero Gas Migration Limitation Survey, consisting of sampling points exploring the lateral migration of LFG around the outer boundary of the landfill, was conducted by RTP personnel during September 15-16, 2011. Three-quarter inch (3/4") bore holes were drilled to a depth of 12 to 18 inches and spaced 50’ apart along the outer boundary of the landfill and other areas around the landfill to serve as temporary soil gas wells. When a positive combustible gas reading (measured as % LEL) was obtained at a sampling point, additional sampling points were installed radially outward until a zero combustible gas reading 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 “line of zero percent combustible gas” readings 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 2011 annual survey data are presented graphically in Figure 3.3. The specific findings of the 2011 annual survey are as follows:

- The results of the 2011 annual survey demonstrate that LFG migration has been contained within the OBSWDC boundary. As shown on Figure 3.1, the combustible gas concentrations for the line of well points are all zero except for two (2) points along a landfill haul road, one east of the recharge basin near Briden Construction and the other at the northern tip of the landfill cap. A small group of points to the west of the retention pond near the clean fill area and one (1) point to the east of the retention pond also detected low concentrations of combustible gas during the annual survey. Combustible gas readings are provided on Figure 3.1 and the NY State Plane coordinates and all gas readings are provided in Appendix B. It should be noted that these combustible gas readings are reported in percent of LEL (Lower Explosive Limit, which is 5% combustible gas), not percent gas. Therefore, a result of "2" is 2% of 5%, or 0.1% combustible gas in the soil gas. Hourly meteorological data measured atop the landfill during the survey dates are also provided in Appendix B.



N

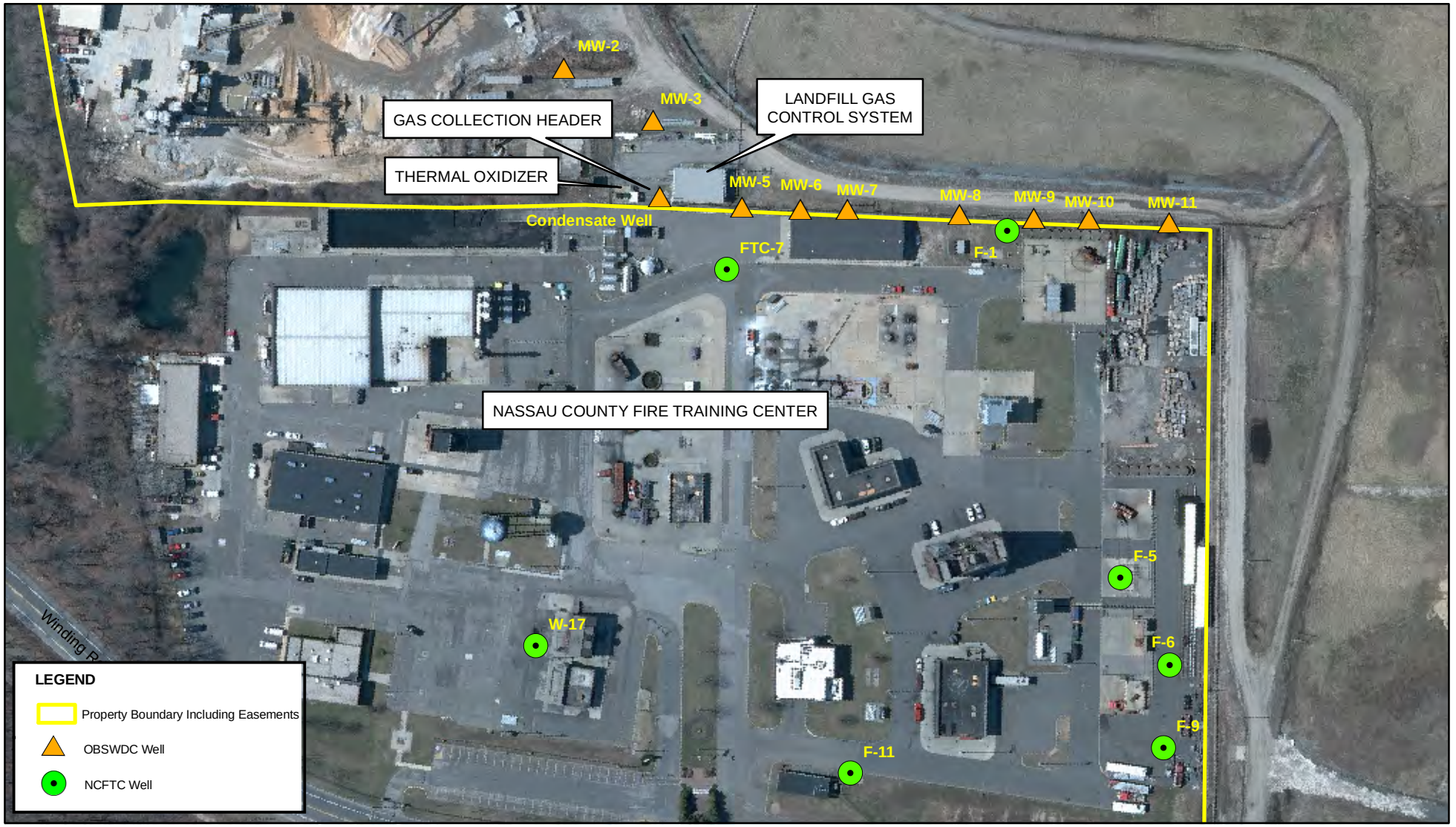
0 250 500 1,000 Feet

ORTHOIMAGERY SOURCE:
NYSGIS 2010

RTP Environmental Associates, Inc.
Westbury, New York

FIGURE 3.1
LANDFILL GAS COLLECTION HEADER AND PERIMETER WELL MONITORING POINTS

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



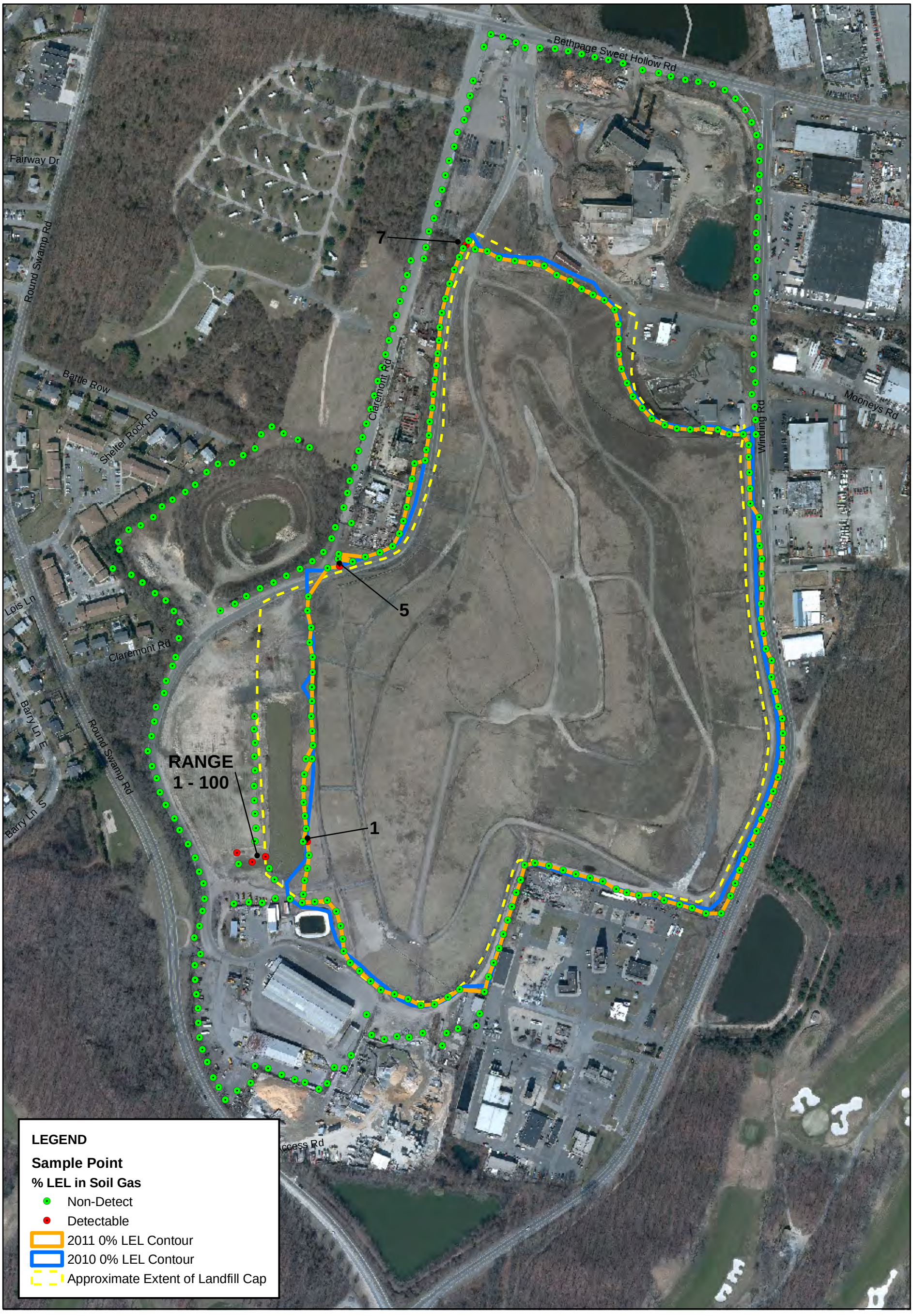
0 62.5 125 250 375 500 Feet

ORTHOIMAGERY SOURCE:
NYSGIS 2010

RTP Environmental Associates, Inc.
Westbury, New York

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



N

0 125 250 500 750 1,000 Feet

ORTHOIMAGERY SOURCE:
NYSGIS 2010

RTP Environmental Associates, Inc.
Westbury, New York

FIGURE 3.3
2011 ANNUAL ZERO GAS MIGRATION LIMITATION SURVEY

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

- Combustible gas readings above zero specific to the landfill cap perimeter were limited to one (1) very low reading, as shown in Figure 3.1. This point was on the western portion of the OBSWDC property (adjacent to the retention pond on the west side of the landfill). LFG was also detected west of the retention pond on the west side of the landfill and east of the internal landfill perimeter road. In all cases, the soil gas concentration decreased within a few seconds of recording the peak.

- concentration at a well, except for the area to the west of the landfill retention pond where one elevated reading persisted.

In response to the above findings, LKB was contacted and informed of the survey findings (LKB, 2010). LKB's analysis of the available data regarding the soils deposited in the Phase 2 area indicated that the detections within the southern area of former Phase 2 pit area are attributed to the shallow soil most recently placed there, not to the landfill, which is separated from the fill area by the storm water retention area in the Phase 2 pit. Specifically, the soil in this area contains 1-3 percent naturally occurring organics and is high in fines. Therefore, it contains enough organics to generate detectable levels of methane, and has a high porosity but low permeability to retain the methane. LKB expects that methane levels in the former Phase 2 pit area will continue to decline over time as the organics in the soil are broken down as indicated by the data obtained from 2008 through 2011. Accordingly, no recommendations of any action regarding the methane levels in the former Phase 2 pit area were made at this time, with the exception of performing gas monitoring if an excavation is performed in this area (LKB, 2010).

The 2011 Annual Survey data was compared to the combustible gas migration data contour compiled for 2010 as provided on Figure 3.1. As seen from the graphic plot of the 2011 data and 2010 zero combustible gas contour lines at the toe of the landfill, no significant deviations away from the toe of the were observed. Overall, the 2011 Survey indicated three (3) locations where combustible gas at low concentrations. All of those locations were very localized as additional samples radially away from the toe of the landfill measured no detectable landfill gas. Also, as shown in Figure 3.1, the remaining zero combustible gas migration data for 2011 confirms combustible gas associated with the landfill is well within the OBSWDC boundary.

3.2.2 2011 Perimeter Monitoring Well Survey

In an effort to confirm the gas conditions in the perimeter gas monitoring wells and make recommendations for future monitoring programs, RTP performed four (4) perimeter gas well monitoring events in 2011 following previously established monitoring survey protocols. The perimeter wells along

the OBSWDC property boundary and at the NCFTC were monitored for the presence of combustible gas. The locations of these wells are identified on Figures 2.1 and 2.2. The actual surveys took place on March 8, May 27, September 14 and December 13-14, 2011. The combustible gas data for all four (4) monitoring events at these locations are presented on Table 3.1. The combustible gas measurements show that, for all four quarters of monitoring, no wells had detectable combustible gas levels. These findings are in general agreement with the 2011 Zero Gas Migration Limitation Survey.

It is worth noting that several wells were unable to be sampled due to obstructions. Well F6 was unable to be sampled during the first and fourth quarters due to car obstructions. Similarly, well F9 was also unable to be sampled during the first and second quarters, due to a well obstruction. During the third quarter, well MW2 was unable to be sampled due to overgrown vegetation. Details regarding the wells and cause of obstruction are provided in Table 3.1 and on the field data sheets in Appendix B. Of the 77 well locations that were historically able to be sampled in the past, 23 locations (30% of the total) were not able to be sampled in 2011. Therefore, the wells listed as "NA" or "obstructed" should be reset or the obstructions removed as soon as practicable.

3.2.3 2011 Building/Structure Survey

RTP performed gas monitoring at several of the onsite facility locations that are still in existence. A total of four (4) separate surveys were conducted in conjunction with the above-referenced perimeter gas well monitoring survey discussed in Section 3.2.2. All readings were non-detectable (i.e., less than 1% of the LEL). The available combustible gas data for the building/structure survey are presented in Table 3.2.

3.3 2011 Supplemental Monitoring Survey

Beginning in October 2010, the NYSDEC requested that supplemental monitoring be performed. The supplemental monitoring for 2011 required sampling and analysis of the landfill gas collected by the perimeter collection/control system. This gas is normally directed to the TO and combusted; however, in 2011, the TO was down for repairs. As a result, the perimeter gas was vented to the atmosphere at the blower station bypass vent. The NYSDEC requested quarterly testing of this exhaust beginning in October 2010 and quarterly monitoring is to continue while the TO is inoperative. There were four (4) quarterly tests of the exhaust from the bypass vent in 2011. These tests occurred on March 8, June 16, September 14 and December 13-14 of 2011. The laboratory results are presented in Appendix C and are discussed below.

TABLE 3.1

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

2011 GAS WELL SURVEY DATA

			March 2011	May 2011	September 2011	December 2011
Sample ID	X	Y	% LEL	% LEL	% LEL	% LEL
Condensate Well	1136960	213973	0	0	0	0
F-1	1137085	214308	0	0	0	0
F-5 (10')	1137458	214328	0	0	0	0
F-5 (20')	1137458	214328	0	0	0	0
F-5(30')	1137458	214328	0	0	0	0
F-5 (40')	1137458	214328	0	0	0	0
F-6 (10')	1137557	214354	NA	0	0	COVERED
F-6 (20')	1137557	214354	NA	0	0	COVERED
F-9 (10')	1137637	214326	NA	NA	0	0
F-9 (20')	1137637	214326	NA	NA	0	0
F-11	1137580	214009	0	0	0	0
FTC-7	1137049	214021	0	0	0	0
M-1	1137862	214244	NA	NA	NA	NA
M-2	1137835	214327	0	0	0	0
M-3	1137935	214562	0	0	0	0
M-4	1137993	214518	0	0	0	0
M-5	1138031	214796	0	0	0	0
M-6	1138078	214733	0	0	0	0
M-7	1138099	215021	0	0	0	0
M-8	1138055	215011	0	0	0	0
M-9 (10')	1138092	215156	0	0	0	0
M-9 (20')	1138092	215156	0	0	0	0
M-9 (30')	1138092	215156	0	0	0	0
M-9 (40')	1138092	215156	0	0	0	0
M-10	1138005	215254	0	0	0	0
M-11	1138062	215240	NA	NA	NA	NA
M-12	1137969	215589	0	0*	0	0
M-13	1138017	215599	0	0	0	0
M-14	1137961	215887	0	0	0	0
M-16	1137954	216297	0	0	0	0
M-17	1136732	216730	NA	NA	NA	NA
M-18	1136654	216441	0	0	0	0
M-19	1136605	216259	0	0	0	0
M-20	1136540	216023	0	0	0	0
M-21	1136638	216003	NA	NA	NA	NA
M-22	1137018	216814	0	0	0	0
M-23	1136705	215938	NA	NA	NA	NA
M-24	1136716	215991	NA	NA	NA	NA
M-25	1136728	216040	NA	NA	NA	NA
M-27	1136658	215664	NA	NA	NA	NA
M-28	1136366	216001	0	0	0	0

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

2011 GAS WELL SURVEY DATA

			March 2011	May 2011	September 2011	December 2011
Sample ID	X	Y	% LEL	% LEL	% LEL	% LEL
M-29	1136254	216057	NA	NA	NA	NA
M-29A	1136129	216019	NA	NA	NA	NA
M-29B	1136042	215959	NA	NA	NA	NA
M-30	1135762	215789	0	0	0	0
M-30A	1135620	215694	NA	NA	NA	NA
M-30B	1135945	215911	NA	NA	NA	NA
M-31	1135881	215322	0	0	0	0
M-32	1135804	215179	NA	NA	NA	NA
M-33	1135663	214920	NA	NA	NA	NA
M-34	1135965	214324	0	0	0	0
M-36	1136373	214389	NA	NA	NA	NA
M-37	1136439	214302	0	0	0	0
M-38	1137290	216623	NA	NA	NA	NA
M-39	1137576	216552	0	0	0	0
M-40	1137488	214417	NA	NA	NA	NA
M-41	1137166	214540	NA	NA	NA	NA
M-44	1136746	213695	NA	NA	NA	NA
M-45	1136456	213777	NA	NA	NA	NA
MW-2 Upper	1136807	213912	0	0	OVGRN	0
MW-2 Lower	1136807	213912	0	0	OVGRN	0
MW-3 Upper	1136882	213987	0	0	0	0
MW-3 Lower	1136882	213987	NA	NA	NA	NA
MW-5 Upper	1136991	214052	0	0	0	0
MW-5 Lower	1136991	214052	0	0	0	0
MW-6 Upper	1137009	214109	0	0	0	0
MW-6 Lower	1137009	214109	0	0	0	0
MW-7 Upper	1137024	214163	0	0	0	0
MW-7 Lower	1137024	214163	0	0	0	0
MW-8 Upper	1137057	214265	0	0	0	0
MW-8 Lower	1137057	214265	0	0	0	0
MW-9 Upper	1137080	214337	0	0	0	0
MW-9 Lower	1137080	214337	0	0	0	0
MW-10 Upper	1137104	214414	0	0	0	0
MW-10 Lower	1137104	214414	0	0	0	0
MW-11 Upper	1137120	214470	0	0	0	0
MW-11 Lower	1137120	214470	NA	NA	NA	NA
W-17	1137370	213733	0	0	0	0

* Well could not be located, new point drilled and sampled.

NOTES:

NA - Well unable to be located

OVGRN - Overgrown, well unable to be sampled

XY Coordinates in NY State Plane

COVERED- Well was covered and unable to be sampled

TABLE 3.2

2011 FACILITY COMBUSTIBLE GAS SURVEY WITHIN STRUCTURES

	March 8, 2011	June 16, 2011	Sept. 14, 2011	Dec. 13-14, 2011
Sample ID	% LEL	% LEL	% LEL	% LEL
TO Blower Station Drain 1	0	0	0	0
TO Blower Station Drain 2	0	0	0	0
Groundwater Treatment Building N	0	0	0	0
Groundwater Treatment Building NW	0	0	0	0
Groundwater Treatment Building S	0	0	0	0
Groundwater Treatment Building LAB	0	0	0	0
Groundwater Treatment Building Acid Tank	0	0	0	0
Groundwater Treatment Building Acid Tank	0	0	0	0
Groundwater Treatment Building Mezz	0	0	0	0
Guardhouse	0	0	0	0
Town Offices	0	0	0	0
Leachate Treatment Building	0	0	0	0
Transfer Station	0	0	0	0
Maintenance Garage	0	0	0	0
Recycling Building Area	0	0	0	0
Scalehouse	0	0	0	0

NOTE:
*** Combustible gas readings were taken at various locations throughout each structure. The maximum observed value is listed.**

Two (2) 40-minute samples at the vent were scheduled to be collected during the 24-hour ambient air quality tests conducted quarterly at the OBSWDC. RTP arrived to conduct testing on March 2, 2011, but collected no samples since it was discovered that the blower station was not operational and positive pressure readings were noted at pressure wells PW1, PW2 and PW3. RTP returned to test the wells and vent on March 8, 2011 when the blower station was believed to be once again operational. Negative pressures in the pressure wells were noted on March 8 affirming that the blower station was operational. However, during sampling on March 8 it was noted that the blower station was operating at a reduced capacity, thereby causing the vent data to be suspect for this particular quarter. Conversations with LKB confirmed that blowers #1 and #3 were down during this period potentially causing lower concentrations

during the first quarter of 2011. During the ambient and soil gas well tests conducted on May 26-27, 2011, it was also noted that the blower station was not operating; therefore, RTP did not collect vent samples. RTP returned to test the wells and vent on June 16, 2011 when the blower station was once again operational. The non-methane volatile organics, methane and carbon dioxide concentrations were measured on June 16 in addition to speciated VOCs. The NYSDEC has established Air Guide 1 which provides the current guidelines for ambient air concentrations of various air toxics. These guidelines are updated periodically by the NYSDEC with the most recent update in October 2010 and current as of June 2012. The NYSDEC guidelines applicable to the sample results reported herein are presented in Table 3.3. Please note that the concentrations of specific compounds in the LFG were compared directly to short- and long-term ambient toxic guidelines. The LFG samples are not ambient air samples; therefore, perimeter vent concentrations exceeding the level of a guideline do not necessarily constitute an exceedance.

The samples collected at the OBSWDC during the quarterly tests were analyzed by Columbia Analytical Services (CAS). CAS is certified by the New York State Department of Health, NELAP NY Lab ID No. 11221, and follows a NELAP-approved quality assurance program. Samples were analyzed for total non-methane organic compounds (NMOCs) per modified EPA Method TO-3 using a gas chromatograph equipped with a flame ionization detector (FID). The samples were also analyzed for methane and carbon dioxide according to EPA Method 3C (single injection) using a gas chromatograph equipped with a thermal conductivity detector (TCD). Finally, the samples were also analyzed for selected VOCs and tentatively identified compounds (TICs) in accordance with EPA Method TO-15 (EPA/625/R-96/010b). The analytical system, was comprised of a gas chromatograph/mass spectrometer (GC/MS) interfaced to a whole air preconcentrator. Tedlar bags were used to collect the samples for transport to the laboratory. Each Tedlar bag was preconditioned three (3) times prior to the collection of the sample.

The LFG perimeter collection system gas samples were collected according to the above referenced protocols from the bypass vent at the TO blower station, packaged and then shipped to CAS for analysis. The analytical results presented in Table 3.4 are based on the laboratory reports contained in Appendix C. During the fourth quarter of 2011, CAS noted that one of the samples (OBL-2) was lost in shipment. As such, only one sample (OBL-1) was analyzed. As shown in Table 3.4, several compounds were detected in the perimeter system exhaust vent gas. In general, the compounds and concentrations collected were in reasonable agreement with previous quarter results. The shaded values indicate compound concentrations that exceed the respective state ambient air guidelines. Table 3.4 provides a direct comparison of LFG concentrations to ambient air guidelines. As noted previously, soil gas is not subject to ambient air requirements, and therefore, an exceedance does not constitute a violation of any guidelines. The lowest state guidelines for observed constituents are for vinyl chloride and benzene which, on average, the LFG

TABLE 3.3

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

2011 PROGRAM TARGET COMPOUND LIST
AND NYSDEC AMBIENT AIR GUIDELINE CONCENTRATIONS

CHEMICAL NAME	CAS NUMBER	AIRS CODE	SGC ug/m3	W (SGC)	AGC ug/m3	W (AGC)	T	CODES													
								1		3	4	5	6	7	8	9	10	11	12	13	14	15
Acetone	00067-64-1	4	180,000	Z	30,000	H	L				I											
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			H	I											
Bromomethane	00074-83-9	4	3,900	D	5.0	E	M			H	I											
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	I											
Carbon Tetrachloride	00056-23-5	4	1,900	D	0.17	E	H	U		H	B											
Chlorobenzene	00108-90-7	4	---		110	T	M			H	I											
Chloroform	00067-66-3	4	150	D	0.043	E	M	U		H	I											
Chloromethane	00074-87-3	4	22,000	D	90	E	M			H	I											
Dibromochloromethane	00124-48-1	4	---		0.10	d	M															
1,2-Dichlorobenzene (o)	00095-50-1	4	30,000	Z	200	H	M				I											
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	I											
1,1-Dichloroethane	00075-34-3	4	---		0.63	D	L	U		H	I											
1,2-Dichloroethane	00107-06-2	4	---		0.038	E	M	U		H	I											
1,1-Dichloroethene	00075-35-4	4	---		70	D	M			H	I											
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												
cis-1,3-Dichloropropene	10061-01-5	4	---		0.25	E		U		H	I											
trans-1,3-Dichloropropene	10061-02-6	4	---		0.25	E		U		H	I											
Ethylbenzene	00100-41-4	4	54,000	Z	1,000	E	M			H	I											
2-Ethyltoluene	611-14-3		----		0.10	d																
4-Ethyltoluene	622-96-8		----		0.10	d																
2-Hexanone	00591-78-6	4	4,000	Z	30	E																
Methylene Chloride	00075-09-2	6	14,000	D	2.1	E	M	U		H	I											
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	I											
1,1,2,2-Tetrachloroethane	00079-34-5	4	---		16	T	M			H	I											
Tetrachloroethene	00127-18-4	4	1,000	H	1.0	H	M	U		H	I											
Toluene	00108-88-3	4	37,000	D	5,000	E	L			H	I											
1,1,1-Trichloroethane	00071-55-6	6	9,000	E	5,000	E	L			H	I											
1,1,2-Trichloroethane	00079-00-5	4	---		1.40	D	M			H	I											
Trichloroethene	00079-01-6	4	14,000	Z	0.50	D	M	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											
m,p-Xylene	179601-23-1	4	4,300	D	100	E	M			H	I											
o-Xylene	95-47-6	4	4,300	D	100	E	M			H	I											
Decane	00124-18-5	4	---		700	A	M										R					

TABLE 3.3
(Continued)

2011 PROGRAM TARGET COMPOUND LIST
AND NYSDEC AMBIENT AIR GUIDELINE CONCENTRATIONS

NOTES:

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 ACGIH TLV.
(Y) SGC is based on ACGIH TLV Ceiling limit.
(Z) SGC is based on ACGIH STEL.
(d) AGC assigned Moderate Toxicity "de minimis" limit.
(*) AGC assigned High Toxicity "de minimis" limit.
(----) There is no SGC for this compound.

WHO (W), Source of special AGC/SGC Interim Assignment:

(s) AGC/SGC based upon Equivalent FEDERAL or NYS Standard.
(X) There is no AGC/SGC value for this contaminant.

-----codes-----

' 111111
123456789012345:

codes, (Position 1):

(U) AGC equivalent to "one in a million risk".

codes, (Position 3):

(H) FEDERAL HAP identified by 1990 CAAA.

codes, (Positions 4 & 5):

(A) ACGIH Human Carcinogen.
(B) ACGIH Suspected Human Carcinogen.
(C) ACGIH Ceiling Limit.
(G) ACGIH Simple Asphyxiant.
(I) Refer to ACGIH Handbook.
(K) Multiple TLVs assigned in ACGIH Handbook.

codes, (Position 8):

(Q) REFERENCED AGC adjusted for elemental assignment.

codes, (Position 9):

(Q) REFERENCED SGC adjusted for elemental assignment.

codes, (Position 10):

(R) AGC ASSIGNED TO REFERENCED COMPOUND.

codes, (Position 11):

(R) SGC ASSIGNED TO REFERENCED COMPOUND.

codes, (Position 12):

(Q) AGC ASSIGNED AS DIFFERENT ELEMENT(s) & ADJUSTED.

codes, (Position 13):

(Q) SGC ASSIGNED AS DIFFERENT ELEMENT(s) & ADJUSTED.

codes, (Position 14):

(M) REFERENCED AGC adjusted for MOLECULAR WEIGHTS.

codes, (Position 15):

(M) REFERENCED SGC adjusted for MOLECULAR WEIGHTS.

- AGC/SGC recently revised October 2010 and are still current as of August 2012.

TABLE 3.4

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SUMMARY OF SPECIATED LANDFILL GAS SAMPLES FOR 2011

Quarterly I.D.	1st Quarter*		2nd Quarter*		3rd Quarter**		4th Quarter**		ANNUAL AVERAGE	CURRENT	CURRENT
Sample ID	OBL-1	OBL-2	OBL-1	OBL-2	OBL-1	OBL-2	OBL-1	OBL-2[†]	---	SGC	AGC
Methane (% v/v)*	0.326	0.246	3.46	3.49	4.60	4.40	5.30	4.50	3.3	---	---
Carbon Dioxide (% v/v)*	2.32	1.64	3.80	3.75	4.60	4.30	5.50	4.80	3.8	---	---
NMOC (ppmV)**	ND	ND	45.0	40.0	30.0	30.0	ND	---	36.3	---	---
Target Constituents ($\mu g/m^3$)											
Acetone	54.00		54.00	53.00	61.0	68.0	78.00		61.33	180,000	30,000
Benzene	**5.70**	**7.70**	**36.00**	**41.00**	**34.0**	**42.0**	**51.0**		**31.1**	----	0.13
Bromodichloromethane										1,300	70.0
Bromoform										---	0.91
Bromomethane										---	5.0
2-Butanone										3,900	5,000
Carbon Disulfide										13,000	700
Carbon Tetrachloride										6,200	0.17
Chlorobenzene		5.50	34.00	33.00	16.0	18.0	39.0		24.3	1,900	110
Chloroform										---	0.043
Chloromethane										---	90
Dibromochloromethane										----	0.10
1,2-Dichlorobenzene (o)										150	200
1,3-Dichlorobenzene (m)										22,000	10
1,4-Dichlorobenzene (p)										---	0.09
1,1-Dichloroethane										---	0.63
1,2-Dichloroethane										30,000	0.038
1,1-Dichloroethene										---	70
cis-1,2-Dichloroethene										---	63
trans-1,2-Dichloroethene										---	63
1,2-Dichloropropane										---	4.0
1,3-Dichloropropene, cis isomers										---	0.25
1,3-Dichloropropene, trans isomers										---	0.25
Ethylbenzene	5.30	5.20	22.00	23.00	15.0	16.0	26.0		16.1	----	1,000
2-Ethyltoluene										----	0.10
4-Ethyltoluene										---	0.10
2-Hexanone										54,000	30
Methylene Chloride			**5.60**	**5.90**		**5.0**			**5.5**	----	2.1
4-Methyl-2-Pentanone										9,000	3,000
Styrene										4,000	1,000
1,1,2,2-Tetrachloroethane										14,000	16
Tetrachloroethene			**7.70**	**7.80**	**7.3**	**8.2**	**6.9**		**7.6**	31,000	1.0
Toluene	14.00		17.00	23.00	51.0	65.0	11.0		30.2	17,000	5,000
1,1,1-Trichloroethane										---	5,000
1,1,2-Trichloroethane										1,000	1.40
Trichloroethene										37,000	0.50
Trichlorofluoromethane						5.2			5.2	9,000	5,000
Vinyl Chloride			**14.00**	**15.00**	**16.0**	**19.0**	**24.0**		**17.6**	---	0.11
m,p-Xylenes			13.00	13.00	11.0	11.0	16.0		12.8	14,000	100
o-Xylenes			6.80	6.50			6.5		6.6	9,000	100
n-Decane			27.00	31.00	20.0	24.0			25.5	180,000	700

TABLE 3.4
(Continued)

SUMMARY OF LANDFILL GAS SAMPLING FROM 2011
ADDITIONAL TENTATIVELY IDENTIFIED COMPOUNDS

Quarterly	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		ANNUAL AVERAGE	CURRENT	CURRENT
Sample ID	OBL-1	OBL-2	OBL-1	OBL-2	OBL-1	OBL-2	OBL-1	OBL-2	---	SGC	AGC
TIC Constituents											
Propane	37.00	67.00	200.00	210.00	390	470	260		233	---	43,000
Isobutene	29.00		96.00	110.00	210	250	190		148	---	57,000
n-Butane	27.00	44.00	120.00	130.00	290	330	210		164	---	57,000
2-Methylpentane			84.00		200	230			171	350,000	4,200
3-Methylpentane				97.00	180	210			162	350,000	4,200
4-Methyldecane			160.00	140.00					150	---	---
Dichlorofluoromethane (CFC 112)		32.00							32	---	100
1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	90.00	120.00					210		140	---	17,000
Unknown (RT: 23.36)			83.00						83	---	---
Unidentified Compound (RT: 24.83)							210		210		
Unidentified Compound (RT: 25.78)							220		220		
Unidentified Compound (RT: 25.83)					140	150			145		
Unidentified Compound (RT: 26.13)					210	220			215		
$C_{10}H_{22}$ Branched Alkane (RT: 23.41)			150.00	150.00					150	---	---
$C_{10}H_{22}$ Branched Alkane (RT: 23.85)			92.00	91.00					92	---	---
$C_{10}H_{22}$ Branched Alkane (RT: 24.53)							150		150		
$C_{10}H_{22}$ Branched Alkane (RT: 24.62)							210		210		
$C_{10}H_{20}$ Compound + Unidentified Compound (RT: 24.14)			120.00	130.00					125	---	---
$C_{11}H_{24}$ Branched Alkane (RT: 24.06)			190.00	190.00					190	---	---
$C_{11}H_{24}$ Branched Alkane (RT: 24.74)							260		260		
$C_{11}H_{24}$ Branched Alkane (RT: 24.77)					200	190			195		
$C_{11}H_{24}$ Branched Alkane (RT: 25.70)							260		260		
$C_{11}H_{24}$ Branched Alkane (RT: 25.74)					130	130			130		
$C_{12}H_{26}$ Branched Alkane (RT:25.15)			130.00	130.00					130	---	---
$C_{12}H_{26}$ Branched Alkane (RT:25.44)				220.00					220	---	---
$C_{12}H_{26}$ Branched Alkane (RT:25.45)			230.00						230	---	---
$C_{12}H_{26}$ Branched Alkane (RT:25.66)			110.00	140.00					125	---	---
$C_{12}H_{26}$ Branched Alkane (RT:25.74)				190.00					190	---	---
$C_{12}H_{26}$ Branched Alkane (RT:25.75)			180.00						180	---	---
$C_{12}H_{26}$ Branched Alkane (RT:25.78)				97.00					97	---	---
$C_{12}H_{26}$ Branched Alkane (RT:25.79)			90.00						90	---	---
$C_{12}H_{26}$ Branched Alkane (RT:26.08)							340		340		
$C_{12}H_{26}$ Branched Alkane (RT:26.33)					160	160			160		
$C_{12}H_{26}$ Branched Alkane (RT:26.37)							230		230		
$C_{12}H_{26}$ Branched Alkane (RT:26.42)					210	200			205		
Ethanol	35.00								35	---	45,000
2,4-Dimethylheptane	50.00				130	130			103	---	---
n-Pentane		27.00		86.00	180	210			126	---	4,200
Isoprene		47.00							47	---	---
Isooctane		26.00							26	---	3,300
Isopentane					140	150			145		
Dimethyloctane Isomer					110				110		
Methylcyclopentane						120			120		
Propene							160.00		160	---	---
2,6-Dimethyloctane							200.00		200	---	---
Propylcyclohexane							140.00		140	---	---

NOTES:

* Methane and Carbon Dioxide Method Reporting Limits (MRLs) are 0.1%; Non-Methane Organic Carbon (NMOC) MRL is 1.0 ppmV; and Target Constituent MRLs are 5.0 mg/m3 except for m,p-Xylene at 10 mg/m^3 and Acetone, Carbon Disulfide, and 2-Butanone at 50 mg/m^3.

** Methane reported from values recorded by the LandTEC GEM 2000 Plus Multi-Gas Monitor on-site at the time of testing. All other methane values presented are being reported as part of the laboratory analysis of landfill gas samples by Columbia Analytical Services, Inc.

† During the 4th quarter, the tedlar bag for sample TOB-OBL-2 was lost in shipment; therefore, the sample could not be analyzed.

- All values are reported in micrograms per standard cubic meter (mg/std-m^3), except where noted.
- Blank values:
  Targeted Compounds and Targeted TICs- All blank values are below the MRL.
  Additional Tentatively Identified Compounds- All blank values are either below the respective TIC MRL.
- Values in shaded areas are at or exceed the level of the current (recently revised October 2010 and still current as of August 2012) and/or previous ambient air Annual Guideline Concentration (AGC) values. However, it is important to note that LFG concentrations are not ambient concentrations, and therfore, should not be compared to ambient guidelines. As such, these exceedances of guidelines, do not constitute an exceedance of an ambient guideline.

concentrations exceed the guidelines by 160 times and 238 times, respectively. Other compounds exceeding the state guidelines were methylene chloride and tetrachloroethene. Although the perimeter gas exits the bypass vent at concentrations in excess of the guideline, these concentrations are rapidly reduced because of atmospheric dilution effects that reduces levels to within ambient annual guideline values. With the exception of vinyl chloride, which has not been detected during quarterly ambient or soil gas sampling, these compounds are in agreement with the quarterly ambient air quality tests that were performed concurrently and reported in a separate report.

No TICs, as identified in the second section of Table 3.4, exceed their respective state AGC. No target or TIC compounds exceed their respective SGCs.

4.0 SUMMARY AND CONCLUSIONS

4.1 Landfill Gas Surveys

4.1.1 2011 Zero Gas Migration Limitation Survey

The 2011 Annual Zero Gas Migration Limitation Survey data, collected by RTP personnel on September 15-16, 2011, are provided in Appendix B. This data was used to identify all points with zero combustible gas, and therefore, defines the zero percent combustible gas migration contour. As shown in Figure 3.1, the gas migration limit remained confined to the OBSWDC complex.

The following conclusions are based on the site survey data obtained during the 2011 annual site survey:

- Both the southern (contiguous to the NCFTC) and eastern portions of the OBSWDC, which had reportedly experienced offsite migration of LFG in the past, did not have combustible gas in those areas. Combustible gas was detected between the southwestern boundary of the landfill and the perimeter road. This area was located just north of the Town's site offices and the leachate retention lagoon on the western side of the landfill. This is in the area where gas was detected in 2008, 2009 and 2010. Additional detections of combustible gas were found on the northern tip of the landfill cap and to the east of the recharge basin along the landfill haul road just south of Briden Construction. LKB's analysis of the available information regarding the soils deposited in this area indicated that the detections within the southern area of former Phase 2 pit area are attributed to the shallow soil most recently placed there, and not to the landfill which is separated from the fill area by the storm water retention area in the Phase 2 pit. Accordingly, no

recommended actions regarding the methane levels in the former Phase 2 pit area are suggested at this time. The area where gas was detected is contained onsite since readings on the west side of the perimeter road all show zero combustible gas. One (1) combustible gas reading was also located onsite near the retention pond and one just south of Briden Construction.

- The Zero Gas Migration Limitation Survey for 2011 indicates that LFG generated by the landfill is currently being contained by the landfill gas control system (See Figure 3.1).

- All other sampling locations monitored in the 2011 Annual Site Survey continue to show that the zero percent combustible gas migration limit remained stable and within the OBSWDC property boundaries. This includes the areas east of Winding Road, the Nassau County Campground, the Senior Citizen Housing, the NCFTC and other adjoining areas.

4.1.2 2011 Perimeter Gas Well Monitoring Surveys

Combustible gas concentration data collected from the perimeter gas monitoring wells over four (4) individual monitoring events, one (1) per quarter, indicate that no methane gas was detected at any of the wells sampled during any of the 2011 quarterly efforts. The observed concentrations were well below the LEL which is the NYCRR Part 360 limit for combustible gas at the property boundary. Therefore, the 2011 perimeter gas well monitoring data indicates that the regulatory requirements are being met and the LFG generated by the landfill is currently being contained by the landfill gas collection and control system.

4.1.3 2011 Building/Structure Survey

Combustible gas concentration data was collected within the selected structures onsite over four (4) individual monitoring events, one per quarter. The observed data indicate that no structure had even trace amounts of combustible gas as all readings measured to be below the minimum detection limit (MDL) of the analyzer and were recorded as zero percent of the LEL. The 6 NYCRR Part 360 limit for combustible gas in structures is greater than 25% of the LEL. Therefore, the 2011 building/structure survey data indicates that the regulatory requirements are being met.

4.2 2011 Supplemental Monitoring Survey

Supplemental monitoring of landfill gas at the blower station bypass vent at the blower station was requested by the NYSDEC. The vent concentration data indicates that, based on seven (7) grab samples

(2 per quarter; except for the lost sample in the 4th quarter), between four (4) to twelve (12) target air toxic compounds were detected at fairly low concentrations along with approximately 51 TICs. Four (4) compounds, benzene, methylene chloride, tetrachloroethene and vinyl chloride exceeded the respective NYSDEC AGC guideline value for ambient air. These levels are expected to be diluted significantly prior to reaching ground level of surrounding properties, and therefore, are unlikely to exceed AGC guidelines offsite. This conclusion is in general agreement with the results of the 2011 Quarterly Ambient Air Monitoring Program. Non-methane organics averaged 29 ppm over the 4 samples. Methane increased from 0.25% during the first quarter to 5.3% during the fourth quarter monitoring events as shown in Table 3.4.

4.3 2011 Monitoring Program Conclusions

The following conclusions can be drawn based on the 2011 monitoring programs at the OBSWDC.

- The zero gas migration limit data indicate the combustible levels of landfill gas, in general, are not extending beyond the capped landfill area. In the Phase 2 pit area, just west of the onsite retention pond gas is present at mostly non-combustible levels but the source of that gas appears to be organic soil that was used as fill in the area. Also in 2011, there were two (2) locations that showed LEL readings above zero, one at the north end of the capped area and one north of the leachate pond near the Town offices.

- The speciated compounds detected in the LFG perimeter collection control system (blower station) bypass vent exhaust are at levels that should not be a cause for concern. The concentration of methane measured continues to be well below the levels necessary to operate the TO (LKB, 2011).

- The LFG perimeter collection/control system is preventing off-site gas migration and controlling combustible gas to levels that meet the requirements of the site Consent Decree and 6 NYCRR Part 360.

5.0 RECOMMENDATIONS

5.1 General

The programs discussed in this report represent a continuation of certain relevant programs developed in previous reports, specifically the Comprehensive Land Use and Operations Plan (LKB, 1979), the 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 (LKB, 1987), and are an integral part of the Final Consent Decree and the regulations currently governing the operation of the OBSWDC. As part of the Consent Decree, the Town is obligated, under Appendix AI.(H), to demonstrate compliance with the requirements of 6 NYCRR Part 360, and maintain a zero methane gas limitation at the landfill boundary. The Town is to conduct the monitoring program described in the LKB 1986 Annual Report, "to be amended as necessary" (LKB, 1987).

The OBSWDC landfill gas 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 2008-2009 Annual Report and the 2010 Annual Report; the diminishing levels of landfill gas being generated by the Old Bethpage Landfill as it ages; and the modifications to site operational permits since the initial program was undertaken. In addition to regulatory compliance, these programs provide the Town with essential data for adjusting operational activities at the site. The following discussion provides the recommended monitoring programs for the 2012 calendar year.

5.2 Recommended 2012 Monitoring Programs

The following recommendations were developed by LKB and the Town in conjunction with discussions with the NYSDEC, and are presented here as part of the summary of landfill gas monitoring programs. As the Old Bethpage Landfill continues to age, LFG production continues to decrease. Production rate decreases have been confirmed by several findings including: the shutdown of the ET facility in 2003; the decrease in high quality (high percent methane) gas mined 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.

The monitoring conducted during the 2011 calendar year indicates that there have been no significant expansions of the areas containing combustible gas. Other monitoring data from perimeter monitoring wells on the NCFTC and onsite structures indicate little change between the 2011 versus 2010

observations, and most compounds were well within the respective AGC and SGC guidelines. Based on the above, it is recommended that the monitoring program conducted in 2011 be continued for 2012. Therefore, the surveys identified in Table 5.1 and discussed in more detail in the paragraphs that follow are recommended for the 2012 calendar year.

1. OBSWDC Perimeter Gas Monitoring Well Survey. Combustible gas surveys will be performed at the available OBSWDC perimeter gas monitoring wells identified on Figures 3.1 and 3.2 and will occur during the quarterly ambient air, soil gas and pressure testing performed by RTP. As noted in Section 3.2.2, several wells could not be located and are presumed to be destroyed. The Town should review and mark these wells. For wells that were obstructed, F-6 and F-9, these wells are near the property boundary of the NCFTC and OBSWDC and not far from the landfill base. These wells were obstructed by equipment used by the academy, but efforts should be made to discuss with academy personnel of the importance of not obstructing these crucial monitoring locations. The Town should work with the property owners/leasers to remove the obstruction or alternatively to relocate the well as soon as practicable. Where monitoring wells under the Town's control may be obstructed by vegetation, Town personnel can cut back weed growth.

   Of the wells that cannot be located and are presumed destroyed, LKB has recommended that M-1, M-11, M-21, M-23, M-24, M-25, M-27, M-29, M-29A, M-29B, M-30A, M-30B, M-32, M-33, M-40, M-41, M44 and MW-11 lower should be re-installed as they are located near inhabited structures. Other wells from this grouping M-17, M-38, M-36, M-45 and MW-3 lower can safely be dropped from the monitoring list as they do not protect inhabited structures or the nearby structures are not in direct contact with the soil. Of the wells that can be located and are currently are monitored, M-18, M-19, M-22, M-34, and M-37 no longer need to be monitored as they do not protect inhabited structures or the nearby structures are not in direct contact with the soil and have not shown any recordable methane reading. The remaining wells that are currently monitored should continue to be monitored. (LKB, 2012)

2. Building Structure Survey. Combustible gas surveys will be conducted at the following on-site structures: scale house, guard house, Groundwater Treatment building, Town offices, leachate treatment building, transfer station, maintenance garage, recycling area buildings and blower station for the TO. Monitoring will be performed quarterly during the quarterly ambient air, soil gas and pressure testing performed by RTP.

3. Supplemental Gas Monitoring Program- LFG System Bypass Vent Monitoring. A supplemental gas monitoring program was instituted in 2010 to monitor releases to the atmosphere of the gas from the perimeter collection system, as requested by the NYSDEC. The four (4) sampling events that were conducted in 2011 show fairly low concentrations of landfill gas exiting the LFG perimeter collection/control system bypass vent, as indicated by measured range of quantity methane concentrations between 0.25% to 5.3%. Based on these data, continuing the quarterly sampling of the bypass vent is recommended for 2012, as long as the TO remains inoperable. Should the TO be repaired in 2012, a stack test of the TO will be performed. In addition, should the TO become operational, monthly temperature recordings will resume for the TO as per the Consent Decree. The Town is also in discussions with the NYSDEC to remove the TO from the system as discussed in Section 1.3.

4. Ambient VOC Air Sampling, Subsurface VOC Gas Sampling and Soil Gas Pressure Readings. These surveys will be performed quarterly and the data included in quarterly reports and summarized in a separate annual report.

5. Thermal Oxidizer Emissions Sampling for VOCs. At this time, TO sampling has been suspended due to declining combustible gas generation rendering the unit inoperable. As noted previously, the Town recommends that the TO be decommissioned and has requested relief from NYSDEC to no longer operate the TO and allow the perimeter gas to be vented to the atmosphere. Depending on the outcome of those discussions, this portion of the program may or may not be resumed.

6. Thermal Oxidizer Monthly Temperature Reporting. Depending on the outcome of discussions with the NYSDEC regarding TO monitoring noted above, this portion of the program may or may not be resumed.

7. Zero Gas Migration Limitation Survey. The annual monitoring of the zero gas migration limit will continue. The primary focus of this effort should be along the edge of the landfill liner to ensure subsurface gas migration is contained within the limits of the landfill boundary. This will assure, along with the quarterly monitoring survey, that onsite and offsite structures are not being impacted by landfill generated combustible gas. This annual survey has been extended to cover areas between onsite and offsite structures and the landfill, including the buildings identified in the Building Structure Survey (No. 2 above). The annual survey of the border of the Nassau County Campground will be performed as part of this survey.

TABLE 5.1

2012 MONITORING PROGRAM

ACTIVITY SCHEDULE

Survey No.	Survey Description	Frequency of Monitoring	Monitoring Performed By
1.	OBSWDC Perimeter Gas Monitoring Well Survey	Quarterly	RTP
2.	Building Structure Survey	Quarterly	RTP
3.	Supplemental Gas Monitoring Program a. LFG System Bypass Vent Monitoring	Quarterly	RTP
4.	Ambient VOC Air Sampling, Subsurface VOC Gas Sampling, Soil Gas Pressure Readings	Quarterly	RTP
5.	Thermal Oxidizer Emissions Sampling for VOCs	TBD	RTP
6.	Thermal Oxidizer Temperature Reporting	TBD	TOB
7.	Zero Gas Migration Limitation Survey	Annually	RTP

Notes: RTP – RTP Environmental Associates, Inc.
TOB – Town of Oyster Bay staff
TBD - To Be Determined

5.3 Gas Extraction System Condensate Discharge

The Town has been permitted by the Nassau County Department of Public Works to discharge condensate from the gas extraction system to the Nassau County Sewer System. Condensate from the Phase 1 and 2 Gas Control Systems and some carryover of condensate mist from the Phase 3 Gas Control System is directed through a bed of lime chips prior to discharge. Most condensate generated by the Phase 3 and 4 Gas Control Systems is discharged by gravity to leachate collection well "A" and ultimately pumped to and treated at the Town's Leachate Treatment Plant prior to discharge to the Nassau County Sewer System. No modifications to the condensate management program were recommended by LKB for the 2011 calendar year (LKB, 2010). The activities should be continued for the 2012 calendar year.

5.4 Future Operation of the Landfill Gas Control System

After 30 years of operation, the quantity and quality (methane content) of gas generated by the landfill have diminished significantly, and the LFG system facilities and equipment are at the end of their useful service life. However, the rehabilitation work contractually let by the Town or performed by Town personnel has extended the serviceability of the perimeter landfill gas collection system wells, piping, and

the critical blower station components necessary to assure reliable operation. The Town has been vigilant in maintaining collection system integrity and will continue to make repairs and adjustments as necessary, and proposes to continue the operation of the collection system in its current operational mode to control potential off-site landfill gas migration.

REFERENCES

LKB, 1979. Comprehensive Land Use and Operations Plan.
Lockwood, Kessler & Bartlett, Inc., One Aerial Way, Syosset, New York, 1979.
Submitted to: Town of Oyster Bay, Syosset, New York.

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.

RTP, 2008 RTP Project Memorandum: OBSWDC – Landfill Gas Emission Calculations
RTP Environmental Associates, Inc., 400 Post Avenue, Westbury, New York, October 2008.
Submitted to: Lockwood, Kessler & Bartlett, Inc., Syosset, New York

LKB, 2009 Communications with LKB Staff.

LKB, 2010 Communications with LKB Staff.

LKB, 2011 Communications with LKB Staff.

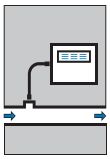
LKB, 2012 Communications with LKB Staff.

APPENDIX A
GEM 2000 PLUS SPECIFICATION DATA
CALIBRATION GAS SPECIFICATION DATA

LANDTEC

GEM™2000PLUS

PORTABLE GAS ANALYZER INSTRUMENTATION



Enhanced Model Enables Field Technicians

The GEM™2000 PLUS is designed & field proven to monitor landfill gas extraction systems accurately & efficiently. The GEM™2000 PLUS offers all the advantages and capabilities of the GEM™2000. Utilizing new technology the GEM™2000 PLUS adds the enhanced ability to read Carbon Monoxide and Hydrogen Sulfide.

Features

- Measures CO & H_2S gases
- Measures % CH_4, CO_2 and O_2 Volume, static pressure and differential pressure
- Calculates balance gas, flow (SCFM) and calorific value (KW or BTU)
- Displays % LEL of CH_4 and user-defined comments
- Records site and well conditions
- Extended operation (10 - 14 hrs use from one charge)
- Certified instrinsically safe for landfill use
- Two instruments in one (GA and GEM mode)

Benefits

- Minimize erroneous CO readings
- No need to take more than one instrument to site
- Can be used for routine sub-surface migration monitoring of landfill site perimeter probes and for measuring gas composition, pressure and flow in gas extraction systems
- The user is able to set up comments and questions to record information at site and at each sample point
- Ensures consistent collection of data for accurate analysis
- Allows balancing of gas extraction systems

Applications

- Subsurface Migration Probes
- Gas Extraction Wells
- Flare Monitoring
- Landfills

 850 South Via Lata, Suite 112 Colton, CA 92324 Phone (800) LANDTEC, (909) 783-3636
Visit our web site at http://www.LANDTECNA.com

Technical Specification

Gases Measured	CO_2, CH_4, by dual wavelength infrared cell with reference channel. O_2, H_2S, CO (Hydrogen compensated) by internal electrochemical cell

Range			
CH_4	0-100% Reading	O_2	0-25%
CO_2	0-100% Reading	CO	0-2000ppm
		H_2S	0-500ppm

Gas Accuracy	CH_4	CO_2	O_2
0-5%	±0.3%	±0.3%	±1.0%
5-15%	±1.0%	±1.0%	±1.0%
15% - Full Scale	±3.0%	±3.0%	±1.0%

Other Parameters	Unit	Resolution	Comments
Energy	BTU/hr	1000 BTU/hr	Calculated from specific parameters.
Static Pressure	in.H_2O	0.1 in.H_2O	Direct Measurement
Differential Pressure	in.H_2O	0.001 in.H_2O	Direct Measurement

CO Measurement	Compensated for interference from Hydrogen up to 1% Hydrogen. Cross sensitivity approx 1%.
Flow	Typically 300 cc/min
Flow with 5.9 in.Hg vacuum	Approximately 250 cc/min
Operating Temperature Range	32°F - 104°F
Relative Humidity	0-95% non condensing
Barometric Pressure	±5.9 in.Hg from calibration pressure
Barometric Pressure Accuracy	±1% typically
Battery Life	Typical use 10 hours from fully charged
Charge Time	Approximately 2 hours from complete discharge.

LANDTEC North America
Western Sales Office
(800) 821-0496 • Fax (909) 825-0591
Eastern Sales Office
(800) 390-7745 • Fax (301) 391-6546

LANDTEC South America
+55(11) 5181-6591 • Fax +55(11) 5181-6585
www.LANDTEC.com.br

CERTIFICATION OF CALIBRATION

ISSUED BY: Landtec North America Instrument Services Facility
Date Of Calibration: February 23, 2011
Certificate Number: GM12023_4/4601

PJLA Calibration Accreditation
No. 66916

Approved By Signatory

Javier Lujan
Laboratory Inspection

Landtec North America Instrument Services Facility,
850 South Via Lata, Suite 112, Colton CA, 92324
Web site: www.landtecna.com

Customer: ***RTP Environmental Associates, Inc.***

400 Post Ave
Suite 405
Westbury, NY 11740

Description: Gas Analyser

Model: GEM2000Plus
Serial Number: GM12023

Accredited Results:

Methane (CH4)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
50.03	50.03	1.10
15.01	15.01	0.66
5.03	5.03	0.42

Carbon Dioxide (CO2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
49.97	49.96	1.20
14.99	14.70	0.71
4.97	4.80	0.43

Oxygen (O2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
21.27	21.32	0.25

Gas cylinders are traceable and details can be provided if requested.

CH4, CO2 readings recorded at: 31.4°C/88.6°F Barometric Pressure: 28.96"hg

O2 readings recorded at: 22.1°C/71.8°F

Method of Test: The analyser is calibrated in a temperature controlled chamber using reference gases.

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.

CERTIFICATION OF CALIBRATION

PJLA ACCREDITED CALIBRATION LABORATORY NO. 66916

Certificate Number
GM12023_4/4601

Non-Accredited results:

Pressure Transducers (inches of water column)					
Transducer	**Certified (Low)**	**Reading (Low)**	**Certified (High)**	**Reading (High)**	**Accuracy**
Static	0"	0.0"	40"	39.0"	2.0
Differential	0"	0.0"	4"	4.0"	0.7

Barometer (mb)	
Reference	**Reading**
0981mb / 28.98"hg	0981mb / 28.96"hg

Additional Gas Cells		
Gas	**Certified Gas (ppm)**	**Instrument Reading (ppm)**
H2	1000	LOW
CO	500	485
H2S	25	25

As received gas check readings:

Methane (CH4)	
Certified Gas (%)	**Instrument Reading (%)**
59.99	68.92
15.01	17.10
5.03	6.10

Carbon Dioxide (CO2)	
Certified Gas (%)	**Instrument Reading (%)**
40.01	39.78
14.99	15.60
4.97	5.20

Oxygen (O2)	
Certified Gas (%)	**Instrument Reading (%)**
21.27	22.33

As received Gas readings recorded at: 18.18°C/64.7°F
As received Barometric Pressure recorded at: 29.10 "hg

End of Certificate

Quality Control Check List

Model No.:	GEM-2K+	Serial No.:	12023
RA No.:	29504		
Technician:	jlujan	Date:	2/24/2011
Repair Tech :	kgermano	Time:	9:18 AM

Options

- Software Version: ☑
- Key 3 Cold Start: ☐
- Key 8 Options: ☐
- Service Date: ☑

Display

- Function: ☑
- Contrast Adjustment: ☑
- Company Name: ☑
- 'Ex' Warning Screen: ☐

Time/Date

- Current Time: ☐
- Current Date: ☑
- Date Format: ☑

Display

- Cal Cert Figure Check: ☑
- Baro. Press. Reading: ☑
- Temp Reading: ☑
- Gas Pod Registers: ☑
- Flow Pod Registers: ☐
- CH4 Zero: ☑
- Raw Values CH4 CO2: ☑

Gas Check

- O2 Air: ☑
- O2 5%: ☑
- O2 0%: ☑
- 0.5% CH4/CO2: ☑
- 5.0% CH4/CO2: ☑
- 15.0% CH4/CO2: ☑
- 60.0/40.0% CH4/CO2: ☑
- (GEM Only) Balance%: ☑

Transducer Check (GEM Only)

- Differential Leak Test: ☑
- Static Leak Test: ☑
- Differential Press. Test: ☑
- Static Pressure Test: ☑
- Side To Side: ☐

Memory Comms.

- Store Readings: ☑
- Reading View: ☑
- Down Load: ☑
- Memory Clear: ☑

MK II Batt. & Charger

- MKII Charging: ☐
- MKII Off Current: ☐
- MKII On Current: ☐
- MKII Display: ☐
- Battery Voltage Correct: ☐

- Completed? ☑
- N/A ☐

Physical Condition

- Case: ☑
- Membrane: ☑
- Case Fittings: ☑
- Case Back Fitting: ☑
- Lemo Plug: ☑
- Carrying Strap: ☐
- Inlet Filter: ☑
- Housings Secure: ☑

Labels

- Unit Label: ☑
- Serial Number: ☑
- Battery Warning: ☐
- GI (UK): ☐
- Void Labels: ☑
- 'CE' Label: ☑
- Case Screen Printing: ☐

Flow

- Vacuum: ☑
- Flow > 300cc: ☑
- 200cc Check: ☐
- Flow fail Occurs: ☑
- Affect on Baro. Press: ☐

- Calibration Certificate: ☑

Western Region/Corporate Offices
850 South Via Lata, Suite 112, Colton, California 92324
Telephone: (909) 783-3636 Fax: (909) 825-0591
WWW.CES-LANDTEC.COM

APPENDIX B

2011 ZERO GAS MIGRATION LIMITATION SURVEY DATA
FARMINGDALE, NY METEOROLOGICAL DATA DURING SURVEY

ZERO GAS MIGRATION LIMITATION SURVEY DATA
SEPTEMBER 15 and 16, 2011

Date	Time	Sample ID	% LEL	X	Y
9/15/2011	08:21 am	1	0	1137933	216020
9/15/2011	08:22 am	2	0	1137932	215976
9/15/2011	08:23 am	3	0	1137936	215921
9/15/2011	08:24 am	4	0	1137937	215864
9/15/2011	08:25 am	5	0	1137938	215811
9/15/2011	08:31 am	6	0	1137969	215762
9/15/2011	08:32 am	7	0	1137965	215709
9/15/2011	08:33 am	8	0	1137972	215658
9/15/2011	08:33 am	9	0	1137979	215612
9/15/2011	08:34 am	10	0	1137979	215558
9/15/2011	08:35 am	11	0	1137981	215506
9/15/2011	08:36 am	12	0	1137977	215451
9/15/2011	08:38 am	13	0	1137977	215396
9/15/2011	08:39 am	14	0	1137986	215344
9/15/2011	08:40 am	15	0	1137994	215290
9/15/2011	08:41 am	16	0	1138015	215248
9/15/2011	08:42 am	17	0	1138014	215188
9/15/2011	08:43 am	18	0	1138027	215136
9/15/2011	08:44 am	19	0	1138039	215083
9/15/2011	08:46 am	20	0	1138052	215039
9/15/2011	08:47 am	21	0	1138056	214986
9/15/2011	08:48 am	22	0	1138054	214935
9/15/2011	08:49 am	23	0	1138051	214885
9/15/2011	08:50 am	24	0	1138037	214829
9/15/2011	08:51 am	25	0	1138020	214778
9/15/2011	08:52 am	26	0	1138001	214729
9/15/2011	08:53 am	27	0	1137979	214677
9/15/2011	08:54 am	28	0	1137961	214636
9/15/2011	08:55 am	29	0	1137940	214588
9/15/2011	08:57 am	30	0	1137917	214536
9/15/2011	08:58 am	31	0	1137899	214495
9/15/2011	08:59 am	32	0	1137884	214449
9/15/2011	09:00 am	33	0	1137867	214404
9/15/2011	09:02 am	34	0	1137833	214342
9/15/2011	09:27 am	35	0	1137780	214340
9/15/2011	09:28 am	36	0	1137729	214359
9/15/2011	09:28 am	37	0	1137685	214372
9/15/2011	09:29 am	38	0	1137630	214386
9/15/2011	09:29 am	39	0	1137596	214409
9/15/2011	09:31 am	40	0	1137538	214404
9/15/2011	09:32 am	41	0	1137495	214415
9/15/2011	09:33 am	42	0	1137457	214428
9/15/2011	09:34 am	43	0	1137409	214455
9/15/2011	09:36 am	44	0	1137364	214468
9/15/2011	09:36 am	45	0	1137313	214481
9/15/2011	09:38 am	46	0	1137267	214496
9/15/2011	09:39 am	47	0	1137216	214511

ZERO GAS MIGRATION LIMITATION SURVEY DATA
SEPTEMBER 15 and 16, 2011

Date	Time	Sample ID	% LEL	X	Y
9/15/2011	09:40 am	48	0	1137166	214521
9/15/2011	09:41 am	49	0	1137129	214514
9/15/2011	09:42 am	50	0	1137115	214460
9/15/2011	09:44 am	51	0	1137099	214415
9/15/2011	09:45 am	52	0	1137083	214365
9/15/2011	09:47 am	53	0	1137068	214317
9/15/2011	09:48 am	54	0	1137052	214266
9/15/2011	09:49 am	55	0	1137038	214215
9/15/2011	09:49 am	56	0	1137019	214164
9/15/2011	09:50 am	57	0	1136999	214113
9/15/2011	09:51 am	58	0	1136984	214060
9/15/2011	09:53 am	59	0	1136969	213981
9/15/2011	09:55 am	60	0	1136956	213938
9/15/2011	09:59 am	61	0	1136891	213926
9/15/2011	10:00 am	62	0	1136849	213912
9/15/2011	10:00 am	63	0	1136833	213867
9/15/2011	10:04 am	64	0	1136763	213911
9/15/2011	10:05 am	65	0	1136714	213896
9/15/2011	10:06 am	66	0	1136672	213900
9/15/2011	10:07 am	67	0	1136626	213889
9/15/2011	10:08 am	68	0	1136580	213905
9/15/2011	10:12 am	69	0	1136563	213978
9/15/2011	10:15 am	70	0	1136507	213833
9/15/2011	10:16 am	71	0	1136482	213786
9/15/2011	10:18 am	72	0	1136447	213788
9/15/2011	10:32 am	73	0	1136421	213731
9/15/2011	10:34 am	74	0	1136392	213711
9/15/2011	10:35 am	75	0	1136342	213735
9/15/2011	10:39 am	76	0	1136305	213744
9/15/2011	10:39 am	77	0	1136258	213763
9/15/2011	10:40 am	78	0	1136209	213785
9/15/2011	10:41 am	79	0	1136163	213794
9/15/2011	10:42 am	80	0	1136146	213733
9/15/2011	10:43 am	81	0	1136098	213706
9/15/2011	10:47 am	82	0	1136056	213672
9/15/2011	10:48 am	83	0	1136033	213718
9/15/2011	10:49 am	84	0	1136012	213751
9/15/2011	10:51 am	85	0	1135992	213808
9/15/2011	10:52 am	86	0	1135974	213854
9/15/2011	10:53 am	87	0	1135964	213896
9/15/2011	10:54 am	88	0	1135960	213949
9/15/2011	10:56 am	89	0	1135958	214001
9/15/2011	12:14 pm	90	0	1135953	214052
9/15/2011	12:16 pm	91	0	1135948	214104
9/15/2011	12:17 pm	92	0	1135947	214155
9/15/2011	12:19 pm	93	0	1135967	214195
9/15/2011	12:20 pm	94	0	1135944	214254

ZERO GAS MIGRATION LIMITATION SURVEY DATA
SEPTEMBER 15 and 16, 2011

Date	Time	Sample ID	% LEL	X	Y
9/15/2011	12:21 pm	95	0	1135964	214296
9/15/2011	12:22 pm	96	0	1135974	214349
9/15/2011	12:23 pm	97	0	1135982	214394
9/15/2011	12:24 pm	98	0	1135978	214449
9/15/2011	12:25 pm	99	0	1135963	214490
9/15/2011	12:26 pm	100	0	1135948	214540
9/15/2011	12:27 pm	101	0	1135923	214589
9/15/2011	12:27 pm	102	0	1135892	214640
9/15/2011	12:28 pm	103	0	1135874	214681
9/15/2011	12:29 pm	104	0	1135842	214729
9/15/2011	12:31 pm	105	0	1135821	214774
9/15/2011	12:32 pm	106	0	1135810	214825
9/15/2011	12:32 pm	107	0	1135794	214869
9/15/2011	12:33 pm	108	0	1135778	214923
9/15/2011	12:34 pm	109	0	1135792	214976
9/15/2011	12:35 pm	110	0	1135801	215029
9/15/2011	12:36 pm	111	0	1135807	215080
9/15/2011	12:37 pm	112	0	1135837	215130
9/15/2011	12:38 pm	113	0	1135844	215174
9/15/2011	12:39 pm	114	0	1135867	215227
9/15/2011	12:40 pm	115	0	1135878	215260
9/15/2011	12:41 pm	116	0	1135889	215327
9/15/2011	12:43 pm	117	0	1135893	215385
9/15/2011	12:44 pm	118	0	1135871	215423
9/15/2011	12:46 pm	119	0	1135842	215462
9/15/2011	12:47 pm	120	0	1135804	215489
9/15/2011	12:49 pm	121	0	1135759	215527
9/15/2011	12:50 pm	122	0	1135719	215555
9/15/2011	12:51 pm	123	0	1135653	215576
9/15/2011	12:53 pm	124	0	1135677	215644
9/15/2011	12:58 pm	125	0	1135672	215672
9/15/2011	12:59 pm	126	0	1135709	215715
9/15/2011	01:00 pm	127	0	1135752	215731
9/15/2011	01:01 pm	128	0	1135798	215760
9/15/2011	01:02 pm	129	0	1135830	215799
9/15/2011	01:03 pm	130	0	1135867	215824
9/15/2011	01:04 pm	131	0	1135913	215851
9/15/2011	01:06 pm	132	0	1135948	215877
9/15/2011	01:07 pm	133	0	1135989	215922
9/15/2011	01:07 pm	134	0	1136029	215951
9/15/2011	01:08 pm	135	0	1136080	215956
9/15/2011	01:09 pm	136	0	1136120	215983
9/15/2011	01:10 pm	137	0	1136162	216007
9/15/2011	01:11 pm	138	0	1136185	216058
9/15/2011	01:12 pm	139	0	1136222	216085
9/15/2011	01:13 pm	140	0	1136265	216062
9/15/2011	01:14 pm	141	0	1136315	216039

ZERO GAS MIGRATION LIMITATION SURVEY DATA
SEPTEMBER 15 and 16, 2011

Date	Time	Sample ID	% LEL	X	Y
9/15/2011	01:15 pm	142	0	1136359	216012
9/16/2011	09:48 am	143	0	1136450	215725
9/16/2011	09:49 am	144	0	1136437	215684
9/16/2011	09:50 am	145	0	1136408	215636
9/16/2011	09:51 am	146	0	1136368	215603
9/16/2011	09:52 am	147	0	1136324	215575
9/16/2011	09:53 am	148	0	1136274	215551
9/16/2011	09:54 am	149	0	1136229	215526
9/16/2011	09:55 am	150	0	1136180	215505
9/16/2011	09:56 am	151	0	1136131	215477
9/16/2011	09:57 am	152	0	1136090	215450
9/16/2011	09:59 am	153	0	1136038	215426
9/16/2011	10:03 am	154	0	1136354	215476
9/16/2011	10:04 am	155	0	1136350	215426
9/16/2011	10:05 am	156	0	1136363	215365
9/16/2011	10:06 am	157	0	1136358	215312
9/16/2011	10:07 am	158	0	1136369	215259
9/16/2011	10:08 am	159	0	1136370	215205
9/16/2011	10:08 am	160	0	1136367	215151
9/16/2011	10:10 am	161	0	1136367	215100
9/16/2011	10:11 am	162	0	1136364	215049
9/16/2011	10:12 am	163	0	1136369	214993
9/16/2011	10:13 am	164	0	1136370	214944
9/16/2011	10:14 am	165	0	1136366	214894
9/16/2011	10:16 am	166	0	1136345	214893
9/16/2011	10:17 am	167	0	1136339	214839
9/16/2011	10:17 am	168	0	1136336	214789
9/16/2011	10:18 am	169	0	1136337	214739
9/16/2011	10:19 am	170	0	1136342	214690
9/16/2011	10:20 am	171	0	1136346	214644
9/16/2011	10:22 am	172	1	1136350	214597
9/16/2011	10:23 am	173	0	1136334	214597
9/16/2011	10:24 am	174	0	1136356	214549
9/16/2011	10:25 am	175	0	1136350	214502
9/16/2011	10:26 am	176	0	1136341	214458
9/16/2011	10:27 am	177	0	1136336	214409
9/16/2011	10:28 am	178	0	1136331	214379
9/16/2011	10:30 am	179	0	1136377	214383
9/16/2011	10:32 am	180	0	1136421	214387
9/16/2011	10:32 am	181	0	1136453	214348
9/16/2011	10:33 am	182	0	1136469	214296
9/16/2011	10:34 am	183	0	1136477	214249
9/16/2011	10:35 am	184	0	1136480	214206
9/16/2011	10:36 am	185	0	1136504	214163
9/16/2011	10:37 am	186	0	1136537	214133
9/16/2011	10:38 am	187	0	1136577	214098
9/16/2011	10:39 am	188	0	1136614	214066

ZERO GAS MIGRATION LIMITATION SURVEY DATA
SEPTEMBER 15 and 16, 2011

Date	Time	Sample ID	% LEL	X	Y
9/16/2011	10:41 am	189	0	1136663	214050
9/16/2011	10:42 am	190	0	1136711	214033
9/16/2011	10:44 am	191	0	1136757	214012
9/16/2011	10:45 am	192	0	1136806	214014
9/16/2011	10:47 am	193	0	1136854	214040
9/16/2011	10:48 am	194	0	1136896	214068
9/16/2011	10:54 am	195	0	1136288	214393
9/16/2011	10:56 am	196	0	1136235	214395
9/16/2011	10:58 am	197	0	1136188	214379
9/16/2011	10:59 am	198	0	1136141	214381
9/16/2011	11:00 am	199	0	1136087	214376
9/16/2011	12:19 pm	200	0	1137913	216059
9/16/2011	12:20 pm	201	0	1137863	216059
9/16/2011	12:21 pm	202	0	1137821	216077
9/16/2011	12:22 pm	203	0	1137769	216078
9/16/2011	12:23 pm	204	0	1137722	216075
9/16/2011	12:25 pm	205	0	1137675	216080
9/16/2011	12:26 pm	206	0	1137631	216091
9/16/2011	12:26 pm	207	0	1137585	216114
9/16/2011	12:27 pm	208	0	1137551	216152
9/16/2011	12:28 pm	209	0	1137517	216192
9/16/2011	12:30 pm	210	0	1137496	216242
9/16/2011	12:31 pm	211	0	1137476	216292
9/16/2011	12:31 pm	212	0	1137468	216345
9/16/2011	12:32 pm	213	0	1137466	216400
9/16/2011	12:33 pm	214	0	1137465	216453
9/16/2011	12:35 pm	215	0	1137452	216504
9/16/2011	12:36 pm	216	0	1137415	216539
9/16/2011	12:37 pm	217	0	1137374	216558
9/16/2011	12:39 pm	218	0	1137333	216579
9/16/2011	12:40 pm	219	0	1137292	216609
9/16/2011	12:41 pm	220	0	1137244	216630
9/16/2011	12:42 pm	221	0	1137200	216662
9/16/2011	12:43 pm	222	0	1137147	216670
9/16/2011	12:43 pm	223	0	1137094	216679
9/16/2011	12:44 pm	224	0	1137037	216690
9/16/2011	12:45 pm	225	0	1136994	216714
9/16/2011	12:46 pm	226	0	1136952	216722
9/16/2011	12:47 pm	227	7	1136920	216736
9/16/2011	12:49 pm	228	0	1136909	216724
9/16/2011	12:50 pm	229	0	1136929	216752
9/16/2011	12:52 pm	230	0	1136895	216693
9/16/2011	12:53 pm	231	0	1136877	216648
9/16/2011	12:54 pm	232	0	1136860	216599
9/16/2011	12:55 pm	233	0	1136844	216544
9/16/2011	12:56 pm	234	0	1136833	216494
9/16/2011	12:57 pm	235	0	1136825	216442

ZERO GAS MIGRATION LIMITATION SURVEY DATA
SEPTEMBER 15 and 16, 2011

Date	Time	Sample ID	% LEL	X	Y
9/16/2011	12:58 pm	236	0	1136822	216395
9/16/2011	12:59 pm	237	0	1136817	216348
9/16/2011	01:00 pm	238	0	1136813	216305
9/16/2011	01:01 pm	239	0	1136807	216254
9/16/2011	01:02 pm	240	0	1136802	216202
9/16/2011	01:03 pm	241	0	1136799	216153
9/16/2011	01:04 pm	242	0	1136790	216103
9/16/2011	01:05 pm	243	0	1136786	216055
9/16/2011	01:06 pm	244	0	1136778	216002
9/16/2011	01:07 pm	245	0	1136772	215965
9/16/2011	01:08 pm	246	0	1136735	215954
9/16/2011	01:09 pm	247	0	1136725	215899
9/16/2011	01:10 pm	248	0	1136714	215846
9/16/2011	01:11 pm	249	0	1136706	215798
9/16/2011	01:12 pm	250	0	1136695	215748
9/16/2011	01:12 pm	251	0	1136680	215703
9/16/2011	01:13 pm	252	0	1136656	215656
9/16/2011	01:14 pm	253	0	1136610	215635
9/16/2011	01:17 pm	254	0	1136558	215618
9/16/2011	01:18 pm	255	0	1136512	215602
9/16/2011	01:19 pm	256	5	1136466	215585
9/16/2011	01:44 pm	257	0	1136461	215611
9/16/2011	01:45 pm	258	0	1136462	215630
9/16/2011	01:46 pm	259	0	1136422	215579
9/16/2011	01:51 pm	260	0	1136233	214462
9/16/2011	01:53 pm	261	0	1136214	214501
9/16/2011	01:54 pm	262	6	1136201	214543
9/16/2011	01:55 pm	263	100	1136152	214525
9/16/2011	01:57 pm	264	0	1136104	214518
9/16/2011	01:58 pm	265	1	1136098	214557
9/16/2011	02:00 pm	266	0	1136162	214600
9/16/2011	02:01 pm	267	0	1136166	214647
9/16/2011	02:02 pm	268	0	1136163	214698
9/16/2011	02:03 pm	269	0	1136161	214746
9/16/2011	02:04 pm	270	0	1136159	214799
9/16/2011	02:06 pm	271	0	1136162	214853
9/16/2011	02:08 pm	272	0	1136160	214903
9/16/2011	02:09 pm	273	0	1136163	214952
9/16/2011	02:10 pm	274	0	1136159	215001
9/16/2011	02:11 pm	275	0	1136161	215048
9/16/2011	02:18 pm	276	0	1136945	217326
9/16/2011	02:20 pm	277	0	1136934	217272
9/16/2011	02:21 pm	278	0	1136924	217225
9/16/2011	02:21 pm	279	0	1136913	217184
9/16/2011	02:22 pm	280	0	1136888	217142
9/16/2011	02:23 pm	281	0	1136877	217089
9/16/2011	02:24 pm	282	0	1136858	217040

ZERO GAS MIGRATION LIMITATION SURVEY DATA
SEPTEMBER 15 and 16, 2011

Date	Time	Sample ID	% LEL	X	Y
9/16/2011	02:25 pm	283	0	1136845	216987
9/16/2011	02:26 pm	284	0	1136833	216935
9/16/2011	02:27 pm	285	0	1136817	216885
9/16/2011	02:28 pm	286	0	1136805	216832
9/16/2011	02:29 pm	287	0	1136785	216786
9/16/2011	02:30 pm	288	0	1136774	216727
9/16/2011	02:31 pm	289	0	1136768	216689
9/16/2011	02:32 pm	290	0	1136722	216680
9/16/2011	02:33 pm	291	0	1136708	216629
9/16/2011	02:34 pm	292	0	1136695	216581
9/16/2011	02:43 pm	293	0	1136683	216536
9/16/2011	02:44 pm	294	0	1136669	216485
9/16/2011	02:45 pm	295	0	1136657	216436
9/16/2011	02:46 pm	296	0	1136643	216393
9/16/2011	02:47 pm	297	0	1136630	216346
9/16/2011	02:48 pm	298	0	1136617	216298
9/16/2011	02:48 pm	299	0	1136603	216249
9/16/2011	02:49 pm	300	0	1136591	216197
9/16/2011	02:50 pm	301	0	1136577	216149
9/16/2011	02:51 pm	302	0	1136561	216096
9/16/2011	02:52 pm	303	0	1136548	216049
9/16/2011	02:53 pm	304	0	1136534	216000
9/16/2011	02:54 pm	305	0	1136519	215941
9/16/2011	02:54 pm	306	0	1136503	215891
9/16/2011	02:55 pm	307	0	1136494	215847
9/16/2011	02:56 pm	308	0	1136481	215796
9/16/2011	02:57 pm	309	0	1136508	215740
9/16/2011	03:04 pm	310	0	1136983	217446
9/16/2011	03:06 pm	311	0	1137008	217492
9/16/2011	03:07 pm	312	0	1137051	217484
9/16/2011	03:08 pm	313	0	1137098	217462
9/16/2011	03:09 pm	314	0	1137130	217443
9/16/2011	03:10 pm	315	0	1137184	217442
9/16/2011	03:10 pm	316	0	1137238	217441
9/16/2011	03:11 pm	317	0	1137285	217431
9/16/2011	03:12 pm	318	0	1137334	217421
9/16/2011	03:14 pm	319	0	1137381	217411
9/16/2011	03:15 pm	320	0	1137429	217400
9/16/2011	03:16 pm	321	0	1137482	217388
9/16/2011	03:18 pm	322	0	1137551	217365
9/16/2011	03:20 pm	323	0	1137610	217353
9/16/2011	03:20 pm	324	0	1137654	217342
9/16/2011	03:21 pm	325	0	1137705	217330
9/16/2011	03:22 pm	326	0	1137751	217321
9/16/2011	03:23 pm	327	0	1137803	217313
9/16/2011	03:25 pm	328	0	1137847	217292
9/16/2011	03:26 pm	329	0	1137886	217262

ZERO GAS MIGRATION LIMITATION SURVEY DATA
SEPTEMBER 15 and 16, 2011

Date	Time	Sample ID	% LEL	X	Y
9/16/2011	03:27 pm	330	0	1137920	217221
9/16/2011	03:28 pm	331	0	1137943	217177
9/16/2011	03:29 pm	332	0	1137960	217131
9/16/2011	03:30 pm	333	0	1137974	217088
9/16/2011	03:31 pm	334	0	1137970	217039
9/16/2011	03:32 pm	335	0	1137971	216988
9/16/2011	03:33 pm	336	0	1137967	216938
9/16/2011	03:34 pm	337	0	1137968	216893
9/16/2011	03:35 pm	338	0	1137962	216835
9/16/2011	03:36 pm	339	0	1137959	216779
9/16/2011	03:37 pm	340	0	1137962	216728
9/16/2011	03:38 pm	341	0	1137964	216681
9/16/2011	03:39 pm	342	0	1137957	216622
9/16/2011	03:40 pm	343	0	1137960	216566
9/16/2011	03:41 pm	344	0	1137956	216511
9/16/2011	03:42 pm	345	0	1137950	216461
9/16/2011	03:43 pm	346	0	1137950	216403
9/16/2011	03:44 pm	347	0	1137951	216345
9/16/2011	03:45 pm	348	0	1137948	216291
9/16/2011	03:46 pm	349	0	1137956	216243
9/16/2011	03:48 pm	350	0	1137944	216202
9/16/2011	03:48 pm	351	0	1137954	216158
9/16/2011	03:49 pm	352	0	1137957	216110
9/16/2011	03:51 pm	353	0	1137959	216059

APPENDIX C
CAS ANALYTICAL DATA FOR VENT SAMPLES

LABORATORY REPORT

March 24, 2011

Brian Aerne
RTP Environmental Associates, Inc.
400 Post Avenue, Suite 105
Westbury, NY 11590

RE: TOB-OBL11-1 LFG Sampling / TOB-OBL

Dear Brian:

Enclosed are the results of the samples submitted to our laboratory on March 9, 2011. For your reference, these analyses have been assigned our service request number P1100876.

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

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; United States Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP), Certificate No. L10-3; Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-09-TX; Minnesota Department of Health, Certificate No. 11495AA; Washington State Department of Ecology, ELAP Lab ID: C946. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

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

Respectfully submitted,

Columbia Analytical Services, Inc.

Kate Aguilera
Project Manager

Client:	RTP Environmental Associates, Inc.	CAS Project No:	P1100876
Project:	TOB-OBL11-1 LFG Sampling / TOB-OBL	New York Lab ID:	11221

CASE NARRATIVE

The samples were received intact under chain of custody on March 9, 2011 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Total Gaseous Non-Methane Organics as Methane Analysis

The samples were analyzed for total gaseous non-methane organics as methane per modified EPA Method TO-3 using a gas chromatograph equipped with a flame ionization detector (FID).

Fixed Gases Analysis

The samples were also analyzed for fixed gases (methane and carbon dioxide) according to modified EPA Method 3C (single injection) using a gas chromatograph equipped with a thermal conductivity detector (TCD).

Volatile Organic Compound Analysis

The samples were also analyzed for selected volatile organic compounds and tentatively identified compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. The analytical system was comprised of a gas chromatograph/ mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. According to the method, the use of Tedlar bags is considered a method modification.

The response for the third Internal Standard in the sample labeled "TOB-OBL11-1:2" was outside control criteria because of suspected matrix interference. Additionally, the lower control criterion for the second and third Surrogate Standard in this sample was exceeded. Insufficient sample remained for additional analysis.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

DETAIL SUMMARY REPORT

Client: RTP Environmental Associates, Inc. Service Request: P1100876

Project ID: TOB-OBL11-1 LFG Sampling / TOB-OBL

Date Received: 3/9/2011

Time Received: 10:05

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	TO-3 Modified - C1C6+ Bag	3C Modified - Fxd Gases Bag	TO-15 Modified - VOC Bags
TOB-OBL11-1:1	P1100876-001	Air	3/8/2011	08:55	X	X	X
TOB-OBL11-1:2	P1100876-002	Air	3/8/2011	10:08	X	X	X

CHAIN OF CUSTODY RECORD

RTP Environmental Associates, Inc.
400 Post Avenue, Suite ~~105~~ 405
Westbury, NY 11590
Ph: (516) 333-4526
Fax: (516) 333-4571

Project name:	TOB-OBL11-1 LFG Sampling
Project ID:	TOB-OBL
Project Location:	Oyster Bay Landfill
Laboratory:	Columbia Analytical
Samplers: (Signature)	BA

P110876 Page 1 of 1

Test ID	Sample ID	Matrix (A, L, S)	Date	Time	Sample Method	Sample Duration	Number of Containers	Analysis Requested: TO-3 Modified (TNMOC)	3C Modified (CH4 & CO2)	TO-15 Modified (Custom List)	
030811	TOB-OBL11-1:1	A	3/8/11	8:55	Grab	65 min	1	✓	✓	✓	
030811	TOB-OBL11-1:2	A	3/8/11	10:08	Grab	65 min	1	✓	✓	✓	

Relinquished by: (Signature)	Date/Time: 3/8/11 / 14:00	Received By: (Signature)	Date/Time: 3/9/11 1005
Relinquished by: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:

Remarks: ATTN: Kate Aguilera

Pleas call Brian Aerne @ 516-333-4526 with any questions. Thank you!

Delivery Method: UPS Priority Overnight

Custody Seals Intact: Yes No

\\Rtpdc01\public\RTPNY\Forms\Chain of Custodies\TOB LFG COC

Columbia Analytical Services™ 2655 Park Center Drive, Suite A, Simi Valley, CA 93065 | 805.526.7161 | www.caslab.com

Sample Acceptance Check Form

Client: RTP Environmental Associates, Inc. Work order: P1100876

Project: TOB-OBL11-1 LFG Sampling / TOB-OBL

Sample(s) received on: 03/09/11 Date opened: 03/09/11 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Container(s) **supplied by CAS**?	☐	☒	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
	Cooler Temperature _____ °C Blank Temperature _____ °C			
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1100876-001.01	1.0 L Tedlar Bag					
P1100876-002.01	1.0 L Tedlar Bag					

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

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

RESULTS OF ANALYSIS

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **TOB-OBL11-1:1** CAS Project ID: P1100876
Client Project ID: **TOB-OBL11-1 LFG Sampling / TOB-OBL** CAS Sample ID: P1100876-001

Test Code: EPA Method 3C Modified Date Collected: 03/08/11
Instrument ID: HP5890 II/GC1/TCD Date Received: 03/09/11
Analyst: Lauryn Keeler Date Analyzed: 03/10/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
74-82-8	**Methane**	**0.326**	0.10	
124-38-9	**Carbon Dioxide**	**2.32**	0.10	

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

RESULTS OF ANALYSIS

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **TOB-OBL11-1:2** CAS Project ID: P1100876
Client Project ID: **TOB-OBL11-1 LFG Sampling / TOB-OBL** CAS Sample ID: P1100876-002

Test Code: EPA Method 3C Modified Date Collected: 03/08/11
Instrument ID: HP5890 II/GC1/TCD Date Received: 03/09/11
Analyst: Lauryn Keeler Date Analyzed: 03/10/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
74-82-8	**Methane**	**0.246**	0.10	
124-38-9	**Carbon Dioxide**	**1.64**	0.10	

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

RESULTS OF ANALYSIS

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **Method Blank** CAS Project ID: P1100876
Client Project ID: **TOB-OBL11-1 LFG Sampling / TOB-OBL** CAS Sample ID: P110310-MB

Test Code: EPA Method 3C Modified Date Collected: NA
Instrument ID: HP5890 II/GC1/TCD Date Received: NA
Analyst: Lauryn Keeler Date Analyzed: 3/10/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
74-82-8	Methane	ND	0.10	
124-38-9	Carbon Dioxide	ND	0.10	

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

Client: **RTP Environmental Associates, Inc.**
Client Project ID: **TOB-OBL11-1 LFG Sampling / TOB-OBL** CAS Project ID: P1100876

Total Gaseous Nonmethane Organics (TGNMO) as Methane

Test Code: EPA TO-3 Modified
Instrument ID: HP5890 II/GC8/FID Date(s) Collected: 3/8/11
Analyst: Dante Munoz-Castaneda Date Received: 3/9/11
Sampling Media: 1.0 L Tedlar Bag(s) Date Analyzed: 3/9/11
Test Notes:

Client Sample ID	CAS Sample ID	Injection Volume ml(s)	**Result ppmV**	MRL ppmV	Data Qualifier
TOB-OBL11-1:1	P1100876-001	1.0	ND	1.0	
TOB-OBL11-1:2	P1100876-002	1.0	ND	1.0	
Method Blank	P110309-MB	1.0	ND	1.0	

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

RESULTS OF ANALYSIS

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **TOB-OBL11-1:1**
Client Project ID: **TOB-OBL11-1 LFG Sampling / TOB-OBL**

CAS Project ID: P1100876
CAS Sample ID: P1100876-001

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3
Analyst: Simon Cao
Sampling Media: 1.0 L Tedlar Bag
Test Notes:

Date Collected: 3/8/11
Date Received: 3/9/11
Date Analyzed: 3/10/11
Volume(s) Analyzed: 0.10 Liter(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	5.0	ND	2.4	
75-01-4	Vinyl Chloride	ND	5.0	ND	2.0	
74-83-9	Bromomethane	ND	5.0	ND	1.3	
75-00-3	Chloroethane	ND	5.0	ND	1.9	
67-64-1	Acetone	**54**	50	**23**	21	
75-69-4	Trichlorofluoromethane	ND	5.0	ND	0.89	
75-35-4	1,1-Dichloroethene	ND	5.0	ND	1.3	
75-09-2	Methylene Chloride	ND	5.0	ND	1.4	
75-15-0	Carbon Disulfide	ND	50	ND	16	
156-60-5	trans-1,2-Dichloroethene	ND	5.0	ND	1.3	
75-34-3	1,1-Dichloroethane	ND	5.0	ND	1.2	
78-93-3	2-Butanone (MEK)	ND	50	ND	17	
156-59-2	cis-1,2-Dichloroethene	ND	5.0	ND	1.3	
67-66-3	Chloroform	ND	5.0	ND	1.0	
107-06-2	1,2-Dichloroethane	ND	5.0	ND	1.2	
71-55-6	1,1,1-Trichloroethane	ND	5.0	ND	0.92	
71-43-2	Benzene	**5.7**	5.0	**1.8**	1.6	
56-23-5	Carbon Tetrachloride	ND	5.0	ND	0.80	
78-87-5	1,2-Dichloropropane	ND	5.0	ND	1.1	
75-27-4	Bromodichloromethane	ND	5.0	ND	0.75	
79-01-6	Trichloroethene	ND	5.0	ND	0.93	

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

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **TOB-OBL11-1:1** CAS Project ID: P1100876
Client Project ID: **TOB-OBL11-1 LFG Sampling / TOB-OBL** CAS Sample ID: P1100876-001

Test Code: EPA TO-15 Modified Date Collected: 3/8/11
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: 3/9/11
Analyst: Simon Cao Date Analyzed: 3/10/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
10061-01-5	cis-1,3-Dichloropropene	ND	5.0	ND	1.1	
108-10-1	4-Methyl-2-pentanone	ND	5.0	ND	1.2	
10061-02-6	trans-1,3-Dichloropropene	ND	5.0	ND	1.1	
79-00-5	1,1,2-Trichloroethane	ND	5.0	ND	0.92	
108-88-3	Toluene	**14**	5.0	**3.8**	1.3	
591-78-6	2-Hexanone	ND	5.0	ND	1.2	
124-48-1	Dibromochloromethane	ND	5.0	ND	0.59	
127-18-4	Tetrachloroethene	ND	5.0	ND	0.74	
108-90-7	Chlorobenzene	ND	5.0	ND	1.1	
100-41-4	Ethylbenzene	**5.3**	5.0	**1.2**	1.2	
179601-23-1	m,p-Xylenes	ND	10	ND	2.3	
75-25-2	Bromoform	ND	5.0	ND	0.48	
100-42-5	Styrene	ND	5.0	ND	1.2	
95-47-6	o-Xylene	ND	5.0	ND	1.2	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0	ND	0.73	
622-96-8	4-Ethyltoluene	ND	5.0	ND	1.0	
611-14-3	2-Ethyltoluene	ND	5.0	ND	1.0	
124-18-5	n-Decane	ND	5.0	ND	0.86	
541-73-1	1,3-Dichlorobenzene	ND	5.0	ND	0.83	
106-46-7	1,4-Dichlorobenzene	ND	5.0	ND	0.83	
95-50-1	1,2-Dichlorobenzene	ND	5.0	ND	0.83	

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

Client: **RTP Environmental Associates, Inc.**

Client Sample ID: **TOB-OBL11-1:1** CAS Project ID: P1100876

Client Project ID: **TOB-OBL11-1 LFG Sampling / TOB-OBL** CAS Sample ID: P1100876-001

Tentatively Identified Compounds

Test Code:	EPA TO-15 Modified	Date Collected:	3/8/11
Instrument ID:	Tekmar AUTOCAN/HP5973/HP6890/MS3	Date Received:	3/9/11
Analyst:	Simon Cao	Date Analyzed:	3/10/11
Sampling Media:	1.0 L Tedlar Bag	Volume(s) Analyzed:	0.10 Liter(s)
Test Notes:	**T**		

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
4.55	Propane	**37**	
5.20	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	**90**	
5.57	Isobutene	**29**	
5.75	n-Butane	**27**	
6.71	Ethanol	**35**	
20.64	2,4-Dimethylheptane	**50**	

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

RESULTS OF ANALYSIS

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **TOB-OBL11-1:2** CAS Project ID: P1100876
Client Project ID: **TOB-OBL11-1 LFG Sampling / TOB-OBL** CAS Sample ID: P1100876-002

Test Code: EPA TO-15 Modified Date Collected: 3/8/11
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 3/9/11
Analyst: Lusine Hakobyan Date Analyzed: 3/9/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	5.0	ND	2.4	
75-01-4	Vinyl Chloride	ND	5.0	ND	2.0	
74-83-9	Bromomethane	ND	5.0	ND	1.3	
75-00-3	Chloroethane	ND	5.0	ND	1.9	
67-64-1	Acetone	ND	50	ND	21	
75-69-4	Trichlorofluoromethane	ND	5.0	ND	0.89	
75-35-4	1,1-Dichloroethene	ND	5.0	ND	1.3	
75-09-2	Methylene Chloride	ND	5.0	ND	1.4	
75-15-0	Carbon Disulfide	ND	50	ND	16	
156-60-5	trans-1,2-Dichloroethene	ND	5.0	ND	1.3	
75-34-3	1,1-Dichloroethane	ND	5.0	ND	1.2	
78-93-3	2-Butanone (MEK)	ND	50	ND	17	
156-59-2	cis-1,2-Dichloroethene	ND	5.0	ND	1.3	
67-66-3	Chloroform	ND	5.0	ND	1.0	
107-06-2	1,2-Dichloroethane	ND	5.0	ND	1.2	
71-55-6	1,1,1-Trichloroethane	ND	5.0	ND	0.92	
71-43-2	Benzene	**7.7**	5.0	**2.4**	1.6	
56-23-5	Carbon Tetrachloride	ND	5.0	ND	0.80	
78-87-5	1,2-Dichloropropane	ND	5.0	ND	1.1	
75-27-4	Bromodichloromethane	ND	5.0	ND	0.75	
79-01-6	Trichloroethene	ND	5.0	ND	0.93	

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

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **TOB-OBL11-1:2** CAS Project ID: P1100876
Client Project ID: **TOB-OBL11-1 LFG Sampling / TOB-OBL** CAS Sample ID: P1100876-002

Test Code: EPA TO-15 Modified Date Collected: 3/8/11
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 3/9/11
Analyst: Lusine Hakobyan Date Analyzed: 3/9/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
10061-01-5	cis-1,3-Dichloropropene	ND	5.0	ND	1.1	
108-10-1	4-Methyl-2-pentanone	ND	5.0	ND	1.2	
10061-02-6	trans-1,3-Dichloropropene	ND	5.0	ND	1.1	
79-00-5	1,1,2-Trichloroethane	ND	5.0	ND	0.92	
108-88-3	Toluene	ND	5.0	ND	1.3	
591-78-6	2-Hexanone	ND	5.0	ND	1.2	
124-48-1	Dibromochloromethane	ND	5.0	ND	0.59	
127-18-4	Tetrachloroethene	ND	5.0	ND	0.74	
108-90-7	Chlorobenzene	**5.5**	5.0	**1.2**	1.1	
100-41-4	Ethylbenzene	**5.2**	5.0	**1.2**	1.2	
179601-23-1	m,p-Xylenes	ND	10	ND	2.3	
75-25-2	Bromoform	ND	5.0	ND	0.48	
100-42-5	Styrene	ND	5.0	ND	1.2	
95-47-6	o-Xylene	ND	5.0	ND	1.2	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0	ND	0.73	
622-96-8	4-Ethyltoluene	ND	5.0	ND	1.0	
611-14-3	2-Ethyltoluene	ND	5.0	ND	1.0	
124-18-5	n-Decane	ND	5.0	ND	0.86	
541-73-1	1,3-Dichlorobenzene	ND	5.0	ND	0.83	
106-46-7	1,4-Dichlorobenzene	ND	5.0	ND	0.83	
95-50-1	1,2-Dichlorobenzene	ND	5.0	ND	0.83	

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

Client: **RTP Environmental Associates, Inc.**

Client Sample ID: **TOB-OBL11-1:2** CAS Project ID: P1100876

Client Project ID: **TOB-OBL11-1 LFG Sampling / TOB-OBL** CAS Sample ID: P1100876-002

Tentatively Identified Compounds

Test Code:	EPA TO-15 Modified	Date Collected:	3/8/11
Instrument ID:	Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16	Date Received:	3/9/11
Analyst:	Lusine Hakobyan	Date Analyzed:	3/9/11
Sampling Media:	1.0 L Tedlar Bag	Volume(s) Analyzed:	0.10 Liter(s)
Test Notes:	**T**		

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
4.98	Propane	**67**	
5.11	Dichlorodifluoromethane (CFC 12)	**32**	
5.70	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	**120**	
6.11	Isoprene	**47**	
6.31	n-Butane	**44**	
9.06	n-Pentane	**27**	
17.02	Isooctane	**26**	

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

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **Method Blank** CAS Project ID: P1100876
Client Project ID: **TOB-OBL11-1 LFG Sampling / TOB-OBL** CAS Sample ID: P110309-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 3/9/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	0.50	ND	0.24	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane	ND	0.50	ND	0.089	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
67-66-3	Chloroform	ND	0.50	ND	0.10	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	

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

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **Method Blank** CAS Project ID: P1100876
Client Project ID: **TOB-OBL11-1 LFG Sampling / TOB-OBL** CAS Sample ID: P110309-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 3/9/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
611-14-3	2-Ethyltoluene	ND	0.50	ND	0.10	
124-18-5	n-Decane	ND	0.50	ND	0.086	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	

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

Client: **RTP Environmental Associates, Inc.**

Client Sample ID: **Method Blank** CAS Project ID: P1100876

Client Project ID: **TOB-OBL11-1 LFG Sampling / TOB-OBL** CAS Sample ID: P110309-MB

Tentatively Identified Compounds

Test Code:	EPA TO-15 Modified	Date Collected:	NA
Instrument ID:	Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16	Date Received:	NA
Analyst:	Lusine Hakobyan	Date Analyzed:	3/9/11
Sampling Media:	1.0 L Tedlar Bag	Volume(s) Analyzed:	1.00 Liter(s)
Test Notes:			

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
	No Compounds Detected		

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **Method Blank** CAS Project ID: P1100876
Client Project ID: **TOB-OBL11-1 LFG Sampling / TOB-OBL** CAS Sample ID: P110310-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: NA
Analyst: Simon Cao Date Analyzed: 3/10/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	0.50	ND	0.24	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane	ND	0.50	ND	0.089	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
67-66-3	Chloroform	ND	0.50	ND	0.10	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	

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

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **Method Blank** CAS Project ID: P1100876
Client Project ID: **TOB-OBL11-1 LFG Sampling / TOB-OBL** CAS Sample ID: P110310-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: NA
Analyst: Simon Cao Date Analyzed: 3/10/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
611-14-3	2-Ethyltoluene	ND	0.50	ND	0.10	
124-18-5	n-Decane	ND	0.50	ND	0.086	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	

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

Client: **RTP Environmental Associates, Inc.**

Client Sample ID: **Method Blank** CAS Project ID: P1100876

Client Project ID: **TOB-OBL11-1 LFG Sampling / TOB-OBL** CAS Sample ID: P110310-MB

Tentatively Identified Compounds

Test Code:	EPA TO-15 Modified	Date Collected:	NA
Instrument ID:	Tekmar AUTOCAN/HP5973/HP6890/MS3	Date Received:	NA
Analyst:	Simon Cao	Date Analyzed:	3/10/11
Sampling Media:	1.0 L Tedlar Bag	Volume(s) Analyzed:	1.00 Liter(s)
Test Notes:			

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
	No Compounds Detected		

SURROGATE SPIKE RECOVERY RESULTS

Client: **RTP Environmental Associates, Inc.**
Client Project ID: **TOB-OBL11-1 LFG Sampling / TOB-OBL** CAS Project ID: P1100876

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date(s) Collected: 3/8/11
Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date(s) Received: 3/9/11
Analyst: Simon Cao/Lusine Hakobyan Date(s) Analyzed: 3/9 - 3/10/11
Sampling Media: 1.0 L Tedlar Bag(s)
Test Notes:

Client Sample ID	CAS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P110309-MB	**101**	**98**	**99**	70-130	
Method Blank	P110310-MB	**99**	**99**	**90**	70-130	
TOB-OBL11-1:1	P1100876-001	**97**	**107**	**100**	70-130	
TOB-OBL11-1:2	P1100876-002	**101**	**54**	**56**	70-130	**S**

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.
S = Surrogate recovery not within specified limits.

LABORATORY REPORT

July 1, 2011

Brian Aerne
RTP Environmental Associates, Inc.
400 Post Avenue, Suite 105
Westbury, NY 11590

RE: TOB-OBL 11-2 LFG Sampling / TOB-OBL

Dear Brian:

Enclosed are the results of the samples submitted to our laboratory on June 17, 2011. For your reference, these analyses have been assigned our service request number P1102291.

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

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; United States Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP), Certificate No. L10-3-R1; Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-10-1; Minnesota Department of Health, NELAP Certificate No. 219474; Washington State Department of Ecology, ELAP Lab ID: C946. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

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

Respectfully submitted,

Columbia Analytical Services, Inc.

For Kate Aguilera
Project Manager

Client:	RTP Environmental Associates, Inc.	CAS Project No:	P1102291
Project:	TOB-OBL 11-2 LFG Sampling / TOB-OBL	New York Lab ID:	11221

CASE NARRATIVE

The samples were received intact under chain of custody on June 17, 2011 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Fixed Gases Analysis

The samples were analyzed for fixed gases (methane and carbon dioxide) according to modified EPA Method 3C (single injection) using a gas chromatograph equipped with a thermal conductivity detector (TCD).

Total Gaseous Non-Methane Organics as Methane Analysis

The samples were also analyzed for total gaseous non-methane organics as methane per modified EPA Method TO-3 using a gas chromatograph equipped with a flame ionization detector (FID).

Volatile Organic Compound Analysis

The samples were also analyzed for selected volatile organic compounds and tentatively identified compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. The analytical system was comprised of a gas chromatograph/mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. According to the method, the use of Tedlar bags is considered a method modification.

DETAIL SUMMARY REPORT

Client: RTP Environmental Associates, Inc. Service Request: P1102291
Project ID: TOB-OBL 11-2 LFG Sampling / TOB-OBL

Date Received: 6/17/2011
Time Received: 10:05

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	TO-3 Modified - C1C6+ Bag	3C Modified - Fxd Gases Bag	TO-15 Modified - VOC Bags
TOB-OBL11-2:1	P1102291-001	Air	6/16/2011	11:30	X	X	X
TOB-OBL11-2:2	P1102291-002	Air	6/16/2011	12:40	X	X	X

CHAIN OF CUSTODY RECORD

RTP Environmental Associates, Inc.
400 Post Avenue, Suite 105
Westbury, NY 11590
Ph: (516) 333-4526
Fax: (516) 333-4571

Project name:	TOB-OBL11-2 LFG Sampling
Project ID:	TOB-OBL
Project Location:	Oyster Bay Landfill
Laboratory:	Columbia Analytical
Samplers: (Signature)	BA

P1102291 Page 1 of 1

Test ID	Sample ID	Matrix (A, L, S)	Date	Time	Sample Method	Sample Duration	Number of Containers	Analysis Requested: TO-3 Modified (TNMOC)	3C Modified (CH4 & CO2)	TO-15 Modified (Custom List)	
(1)	06161	TOB-OBL11-2:1	A	6/16/11	11:30	Grab	90 min	1	✓	✓	✓	
(2)	06161	TOB-OBL11-2:2	A	6/16/11	12:40	Grab	40 min	1	✓	✓	✓	

Relinquished by: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:
	6/16/11 14:00		6/17/11 1005
Relinquished by: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:

Remarks: ATTN: Kate Aguilera

Pleas call Brian Aerne @ 516-333-4526 with any questions. Thank you!

Delivery Method: UPS Priority Overnight

Custody Seals Intact: Yes (No)

\\Rpdc01\Public\Projects\Projects\Town of Oyster Bay\OBL Monitoring\Forms & Field Data Sheets\LFG COC

Columbia Analytical Services™ 2655 Park Center Drive, Suite A, Simi Valley, CA 93065 | 805.526.7161 | www.caslab.com

Sample Acceptance Check Form

Client: RTP Environmental Associates, Inc. Work order: P1102291

Project: TOB-OBL 11-2 LFG Sampling / TOB-OBL

Sample(s) received on: 6/17/11 Date opened: 6/17/11 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Container(s) **supplied by CAS**?	☐	☒	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
	Cooler Temperature _____ °C Blank Temperature _____ °C			
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1102291-001.01	1.0 L Tedlar Bag					
P1102291-002.01	1.0 L Tedlar Bag					

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

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

RESULTS OF ANALYSIS

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **TOB-OBL11-2:1** CAS Project ID: P1102291
Client Project ID: **TOB-OBL 11-2 LFG Sampling / TOB-OBL** CAS Sample ID: P1102291-001

Test Code: EPA Method 3C Modified Date Collected: 6/16/11
Instrument ID: HP5890 II/GC1/TCD Date Received: 6/17/11
Analyst: Dante Munoz-Castaneda Date Analyzed: 6/17/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
74-82-8	**Methane**	**3.46**	0.10	
124-38-9	**Carbon Dioxide**	**3.80**	0.10	

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

RESULTS OF ANALYSIS

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **TOB-OBL11-2:2** CAS Project ID: P1102291
Client Project ID: **TOB-OBL 11-2 LFG Sampling / TOB-OBL** CAS Sample ID: P1102291-002

Test Code: EPA Method 3C Modified Date Collected: 6/16/11
Instrument ID: HP5890 II/GC1/TCD Date Received: 6/17/11
Analyst: Dante Munoz-Castaneda Date Analyzed: 6/17/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
74-82-8	**Methane**	**3.49**	0.10	
124-38-9	**Carbon Dioxide**	**3.75**	0.10	

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

RESULTS OF ANALYSIS

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **Method Blank** CAS Project ID: P1102291
Client Project ID: **TOB-OBL 11-2 LFG Sampling / TOB-OBL** CAS Sample ID: P110617-MB

Test Code: EPA Method 3C Modified Date Collected: NA
Instrument ID: HP5890 II/GC1/TCD Date Received: NA
Analyst: Dante Munoz-Castaneda Date Analyzed: 6/17/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
74-82-8	Methane	ND	0.10	
124-38-9	Carbon Dioxide	ND	0.10	

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

Client: **RTP Environmental Associates, Inc.**
Client Project ID: **TOB-OBL 11-2 LFG Sampling / TOB-OBL** CAS Project ID: P1102291

Total Gaseous Nonmethane Organics (TGNMO) as Methane

Test Code: EPA TO-3 Modified
Instrument ID: HP5890 II/GC8/FID Date(s) Collected: 6/16/11
Analyst: Dante Munoz-Castaneda Date Received: 6/17/11
Sampling Media: 1.0 L Tedlar Bag(s) Date Analyzed: 6/17/11
Test Notes:

Client Sample ID	CAS Sample ID	Injection Volume ml(s)	**Result ppmV**	MRL ppmV	Data Qualifier
TOB-OBL11-2:1	P1102291-001	0.50	**45**	2.0	
TOB-OBL11-2:2	P1102291-002	0.50	**40**	2.0	
Method Blank	P110617-MB	1.0	ND	1.0	

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

RESULTS OF ANALYSIS

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **TOB-OBL11-2:1**
Client Project ID: **TOB-OBL 11-2 LFG Sampling / TOB-OBL**

CAS Project ID: P1102291
CAS Sample ID: P1102291-001

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3
Analyst: Simon Cao
Sampling Media: 1.0 L Tedlar Bag
Test Notes:

Date Collected: 6/16/11
Date Received: 6/17/11
Date Analyzed: 6/17/11
Volume(s) Analyzed: 0.10 Liter(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	5.0	ND	2.4	
75-01-4	Vinyl Chloride	**14**	5.0	**5.6**	2.0	
74-83-9	Bromomethane	ND	5.0	ND	1.3	
75-00-3	Chloroethane	ND	5.0	ND	1.9	
67-64-1	Acetone	**54**	50	**23**	21	
75-69-4	Trichlorofluoromethane	ND	5.0	ND	0.89	
75-35-4	1,1-Dichloroethene	ND	5.0	ND	1.3	
75-09-2	Methylene Chloride	**5.6**	5.0	**1.6**	1.4	
75-15-0	Carbon Disulfide	ND	50	ND	16	
156-60-5	trans-1,2-Dichloroethene	ND	5.0	ND	1.3	
75-34-3	1,1-Dichloroethane	ND	5.0	ND	1.2	
78-93-3	2-Butanone (MEK)	ND	50	ND	17	
156-59-2	cis-1,2-Dichloroethene	ND	5.0	ND	1.3	
67-66-3	Chloroform	ND	5.0	ND	1.0	
107-06-2	1,2-Dichloroethane	ND	5.0	ND	1.2	
71-55-6	1,1,1-Trichloroethane	ND	5.0	ND	0.92	
71-43-2	Benzene	**36**	5.0	**11**	1.6	
56-23-5	Carbon Tetrachloride	ND	5.0	ND	0.80	
78-87-5	1,2-Dichloropropane	ND	5.0	ND	1.1	
75-27-4	Bromodichloromethane	ND	5.0	ND	0.75	
79-01-6	Trichloroethene	ND	5.0	ND	0.93	

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

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **TOB-OBL11-2:1** CAS Project ID: P1102291
Client Project ID: **TOB-OBL 11-2 LFG Sampling / TOB-OBL** CAS Sample ID: P1102291-001

Test Code: EPA TO-15 Modified Date Collected: 6/16/11
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: 6/17/11
Analyst: Simon Cao Date Analyzed: 6/17/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
10061-01-5	cis-1,3-Dichloropropene	ND	5.0	ND	1.1	
108-10-1	4-Methyl-2-pentanone	ND	5.0	ND	1.2	
10061-02-6	trans-1,3-Dichloropropene	ND	5.0	ND	1.1	
79-00-5	1,1,2-Trichloroethane	ND	5.0	ND	0.92	
108-88-3	Toluene	**17**	5.0	**4.4**	1.3	
591-78-6	2-Hexanone	ND	5.0	ND	1.2	
124-48-1	Dibromochloromethane	ND	5.0	ND	0.59	
127-18-4	Tetrachloroethene	**7.7**	5.0	**1.1**	0.74	
108-90-7	Chlorobenzene	**34**	5.0	**7.3**	1.1	
100-41-4	Ethylbenzene	**22**	5.0	**5.1**	1.2	
179601-23-1	m,p-Xylenes	**13**	10	**3.0**	2.3	
75-25-2	Bromoform	ND	5.0	ND	0.48	
100-42-5	Styrene	ND	5.0	ND	1.2	
95-47-6	o-Xylene	**6.8**	5.0	**1.6**	1.2	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0	ND	0.73	
622-96-8	4-Ethyltoluene	ND	5.0	ND	1.0	
611-14-3	2-Ethyltoluene	ND	5.0	ND	1.0	
124-18-5	n-Decane	**27**	5.0	**4.6**	0.86	
541-73-1	1,3-Dichlorobenzene	ND	5.0	ND	0.83	
106-46-7	1,4-Dichlorobenzene	ND	5.0	ND	0.83	
95-50-1	1,2-Dichlorobenzene	ND	5.0	ND	0.83	

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

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **TOB-OBL11-2:1** CAS Project ID: P1102291
Client Project ID: **TOB-OBL 11-2 LFG Sampling / TOB-OBL** CAS Sample ID: P1102291-001

Tentatively Identified Compounds

Test Code: EPA TO-15 Modified Date Collected: 6/16/11
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: 6/17/11
Analyst: Simon Cao Date Analyzed: 6/17/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 0.10 Liter(s)
Test Notes: **T**

GC/MS Retention Time	Compound Identification	Concentration µg/m³	Data Qualifier
4.56	Propane	**200**	
5.57	Isobutene	**96**	
5.75	n-Butane	**120**	
10.89	2-Methylpentane	**84**	
23.26	Unidentified Compound	**83**	
23.41	C10H22 Branched Alkane	**150**	
23.85	C10H22 Branched Alkane	**92**	
24.06	C11H24 Branched Alkane	**190**	
24.14	C10H20 Compound + Unidentified Compound	**120**	
25.06	4-Methyldecane	**160**	
25.15	C12H26 Branched Alkane	**130**	
25.45	C12H26 Branched Alkane	**230**	
25.66	C12H26 Branched Alkane	**110**	
25.75	C12H26 Branched Alkane	**180**	
25.79	C12H26 Branched Alkane	**90**	

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

RESULTS OF ANALYSIS

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **TOB-OBL11-2:2** CAS Project ID: P1102291
Client Project ID: **TOB-OBL 11-2 LFG Sampling / TOB-OBL** CAS Sample ID: P1102291-002

Test Code: EPA TO-15 Modified Date Collected: 6/16/11
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: 6/17/11
Analyst: Simon Cao Date Analyzed: 6/17/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	5.0	ND	2.4	
75-01-4	Vinyl Chloride	**15**	5.0	**6.0**	2.0	
74-83-9	Bromomethane	ND	5.0	ND	1.3	
75-00-3	Chloroethane	ND	5.0	ND	1.9	
67-64-1	Acetone	**53**	50	**23**	21	
75-69-4	Trichlorofluoromethane	ND	5.0	ND	0.89	
75-35-4	1,1-Dichloroethene	ND	5.0	ND	1.3	
75-09-2	Methylene Chloride	**5.9**	5.0	**1.7**	1.4	
75-15-0	Carbon Disulfide	ND	50	ND	16	
156-60-5	trans-1,2-Dichloroethene	ND	5.0	ND	1.3	
75-34-3	1,1-Dichloroethane	ND	5.0	ND	1.2	
78-93-3	2-Butanone (MEK)	ND	50	ND	17	
156-59-2	cis-1,2-Dichloroethene	ND	5.0	ND	1.3	
67-66-3	Chloroform	ND	5.0	ND	1.0	
107-06-2	1,2-Dichloroethane	ND	5.0	ND	1.2	
71-55-6	1,1,1-Trichloroethane	ND	5.0	ND	0.92	
71-43-2	Benzene	**41**	5.0	**13**	1.6	
56-23-5	Carbon Tetrachloride	ND	5.0	ND	0.80	
78-87-5	1,2-Dichloropropane	ND	5.0	ND	1.1	
75-27-4	Bromodichloromethane	ND	5.0	ND	0.75	
79-01-6	Trichloroethene	ND	5.0	ND	0.93	

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

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **TOB-OBL11-2:2** CAS Project ID: P1102291
Client Project ID: **TOB-OBL 11-2 LFG Sampling / TOB-OBL** CAS Sample ID: P1102291-002

Test Code: EPA TO-15 Modified Date Collected: 6/16/11
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: 6/17/11
Analyst: Simon Cao Date Analyzed: 6/17/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
10061-01-5	cis-1,3-Dichloropropene	ND	5.0	ND	1.1	
108-10-1	4-Methyl-2-pentanone	ND	5.0	ND	1.2	
10061-02-6	trans-1,3-Dichloropropene	ND	5.0	ND	1.1	
79-00-5	1,1,2-Trichloroethane	ND	5.0	ND	0.92	
108-88-3	Toluene	**23**	5.0	**6.2**	1.3	
591-78-6	2-Hexanone	ND	5.0	ND	1.2	
124-48-1	Dibromochloromethane	ND	5.0	ND	0.59	
127-18-4	Tetrachloroethene	**7.8**	5.0	**1.2**	0.74	
108-90-7	Chlorobenzene	**33**	5.0	**7.2**	1.1	
100-41-4	Ethylbenzene	**23**	5.0	**5.4**	1.2	
179601-23-1	m,p-Xylenes	**13**	10	**3.1**	2.3	
75-25-2	Bromoform	ND	5.0	ND	0.48	
100-42-5	Styrene	ND	5.0	ND	1.2	
95-47-6	o-Xylene	**6.5**	5.0	**1.5**	1.2	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0	ND	0.73	
622-96-8	4-Ethyltoluene	ND	5.0	ND	1.0	
611-14-3	2-Ethyltoluene	ND	5.0	ND	1.0	
124-18-5	n-Decane	**31**	5.0	**5.3**	0.86	
541-73-1	1,3-Dichlorobenzene	ND	5.0	ND	0.83	
106-46-7	1,4-Dichlorobenzene	ND	5.0	ND	0.83	
95-50-1	1,2-Dichlorobenzene	ND	5.0	ND	0.83	

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

Client: **RTP Environmental Associates, Inc.**

Client Sample ID: **TOB-OBL11-2:2** CAS Project ID: P1102291

Client Project ID: **TOB-OBL 11-2 LFG Sampling / TOB-OBL** CAS Sample ID: P1102291-002

Tentatively Identified Compounds

Test Code:	EPA TO-15 Modified	Date Collected:	6/16/11
Instrument ID:	Tekmar AUTOCAN/HP5973/HP6890/MS3	Date Received:	6/17/11
Analyst:	Simon Cao	Date Analyzed:	6/17/11
Sampling Media:	1.0 L Tedlar Bag	Volume(s) Analyzed:	0.10 Liter(s)
Test Notes:	**T**		

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
4.57	Propane	**210**	
5.58	Isobutene	**110**	
5.76	n-Butane	**130**	
8.31	n-Pentane	**86**	
10.90	2-Methylpentane	**97**	
23.41	C10H22 Branched Alkane	**150**	
23.85	C10H22 Branched Alkane	**91**	
24.06	C11H24 Branched Alkane	**190**	
24.14	C10H20 Compound + Unidentified Compound	**130**	
25.06	4-Methyldecane	**140**	
25.15	C12H26 Branched Alkane	**130**	
25.44	C12H26 Branched Alkane	**220**	
25.66	C12H26 Branched Alkane	**140**	
25.74	C12H26 Branched Alkane	**190**	
25.78	C12H26 Branched Alkane	**97**	

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

RESULTS OF ANALYSIS

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **Method Blank** CAS Project ID: P1102291
Client Project ID: **TOB-OBL 11-2 LFG Sampling / TOB-OBL** CAS Sample ID: P110617-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: NA
Analyst: Simon Cao Date Analyzed: 6/17/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	0.50	ND	0.24	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane	ND	0.50	ND	0.089	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
67-66-3	Chloroform	ND	0.50	ND	0.10	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	

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

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **Method Blank** CAS Project ID: P1102291
Client Project ID: **TOB-OBL 11-2 LFG Sampling / TOB-OBL** CAS Sample ID: P110617-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: NA
Analyst: Simon Cao Date Analyzed: 6/17/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
611-14-3	2-Ethyltoluene	ND	0.50	ND	0.10	
124-18-5	n-Decane	ND	0.50	ND	0.086	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	

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

Client: **RTP Environmental Associates, Inc.**

Client Sample ID: **Method Blank** CAS Project ID: P1102291

Client Project ID: **TOB-OBL 11-2 LFG Sampling / TOB-OBL** CAS Sample ID: P110617-MB

Tentatively Identified Compounds

Test Code: EPA TO-15 Modified Date Collected: NA

Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: NA

Analyst: Simon Cao Date Analyzed: 6/17/11

Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
	No Compounds Detected		

SURROGATE SPIKE RECOVERY RESULTS

Client: **RTP Environmental Associates, Inc.**
Client Project ID: **TOB-OBL 11-2 LFG Sampling / TOB-OBL** CAS Project ID: P1102291

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date(s) Collected: 6/16/11
Analyst: Simon Cao Date(s) Received: 6/17/11
Sampling Media: 1.0 L Tedlar Bag(s) Date(s) Analyzed: 6/17/11
Test Notes:

Client Sample ID	CAS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P110617-MB	**84**	**102**	**115**	70-130	
TOB-OBL11-2:1	P1102291-001	**82**	**105**	**125**	70-130	
TOB-OBL11-2:2	P1102291-002	**81**	**106**	**125**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

LABORATORY REPORT

September 29, 2011

Brian Aerne
RTP Environmental Associates, Inc.
400 Post Avenue, Suite 405
Westbury, NY 11590

RE: Town of Oyster Bay / TOBOBSWDC

Dear Brian:

Enclosed are the results of the samples submitted to our laboratory on September 15, 2011. For your reference, these analyses have been assigned our service request number P1103529.

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

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; United States Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP), Certificate No. L10-3-R2; Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-11-2; Minnesota Department of Health, NELAP Certificate No. 219474; Washington State Department of Ecology, ELAP Lab ID: C946. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

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

Respectfully submitted,

Columbia Analytical Services, Inc.

Kate Aguilera
Project Manager

Client:	RTP Environmental Associates, Inc.	CAS Project No:	P1103529
Project:	Town of Oyster Bay / TOBOBSWDC	New York Lab ID:	11221

CASE NARRATIVE

The samples were received intact under chain of custody on September 15, 2011 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Total Gaseous Non-Methane Organics as Methane Analysis

The samples were analyzed for total gaseous non-methane organics as methane per modified EPA Method TO-3 using a gas chromatograph equipped with a flame ionization detector (FID).

Volatile Organic Compound Analysis

The samples were also analyzed for selected volatile organic compounds and tentatively identified compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. The analytical system was comprised of a gas chromatograph/mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. According to the method, the use of Tedlar bags is considered a method modification.

DETAIL SUMMARY REPORT

Client: RTP Environmental Associates, Inc. Service Request: P1103529
Project ID: Town of Oyster Bay / TOBOBSWDC

Date Received: 9/15/2011
Time Received: 10:00

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	TO-3 Modified - C1C6+ Bag	TO-15 Modified - VOC Bags
TOB-OBL-1	P1103529-001	Air	9/14/2011	11:10	X	X
TOB-OBL-2	P1103529-002	Air	9/14/2011	12:00	X	X

CHAIN OF CUSTODY RECORD

RTP Environmental Associates, Inc.
400 Post Avenue, Suite 105
Westbury, NY 11590
Ph: (516) 333-4526
Fax: (516) 333-4571

P1103529 Page ____ of ____

Project name:	Town of Oyster Bay
Project ID:	TOBOBSWDC
Project Location:	Oyster Bay Solid Waste Disposal Complex
Laboratory:	Columbia Analytical
Samplers: (Signature)	VV

Test ID	Sample ID	Matrix (A, L, S)	Date	Time	Sample Method	Sample Duration	Number of Containers	Analysis Requested: TO-3 Modified (TNMOC)	Analysis Requested: TO-15 Modified (Custom List)	Analysis Requested	Analysis Requested
TOBOBL11-3	TOB-OBL-1	A	9/14/11	11:10	Grab	45 min	1	X	X		
TOBOBL11-3	TOB-OBL-2	A	9/14/11	12:00	Grab	45 min	1	X	X		

Relinquished by: (Signature)	Date/Time: 9/14/11 / 13:40	Received By: (Signature)	Date/Time: 9/15/11 1000
Relinquished by: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:

Remarks: ATTN: Kate Aguilera

Please call Brian Aerne or Vincent Varricchio @ 516-333-4526 with any questions. Thank you!

Delivery Method:	UPS Priority Overnight
Custody Seals Intact:	Yes No

P:\Projects\Projects\Town of Oyster Bay\OBL Monitoring\Forms & Field Data Sheets\LFG COC-TOB

Columbia Analytical Services™ 2655 Park Center Drive, Suite A, Simi Valley, CA 93065 | 805.526.7161 | www.caslab.com

Sample Acceptance Check Form

Client: RTP Environmental Associates, Inc. Work order: P1103529

Project: Town of Oyster Bay / TOBOBSWDC

Sample(s) received on: 9/15/11 Date opened: 9/15/11 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Container(s) **supplied by CAS**?	☐	☒	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1103529-001.01	1.0 L Tedlar Bag					
P1103529-002.01	1.0 L Tedlar Bag					

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

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

Client: **RTP Environmental Associates, Inc.**
Client Project ID: **Town of Oyster Bay / TOBOBSWDC** CAS Project ID: P1103529

Total Gaseous Nonmethane Organics (TGNMO) as Methane

Test Code: EPA TO-3 Modified
Instrument ID: HP5890 II/GC8/FID Date(s) Collected: 9/14/11
Analyst: Dante Munoz-Castaneda Date Received: 9/15/11
Sampling Media: 1.0 L Tedlar Bag(s) Date Analyzed: 9/15/11
Test Notes:

Client Sample ID	CAS Sample ID	Injection Volume ml(s)	**Result ppmV**	MRL ppmV	Data Qualifier
TOB-OBL-1	P1103529-001	1.0	**30**	1.0	
TOB-OBL-2	P1103529-002	1.0	**30**	1.0	
Method Blank	P110915-MB	1.0	ND	1.0	

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

RESULTS OF ANALYSIS

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **TOB-OBL-1** CAS Project ID: P1103529
Client Project ID: **Town of Oyster Bay / TOBOBSWDC** CAS Sample ID: P1103529-001

Test Code: EPA TO-15 Modified Date Collected: 9/14/11
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 9/15/11
Analyst: Chris Cornett Date Analyzed: 9/15/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	5.0	ND	2.4	
75-01-4	Vinyl Chloride	**16**	5.0	**6.3**	2.0	
74-83-9	Bromomethane	ND	5.0	ND	1.3	
75-00-3	Chloroethane	ND	5.0	ND	1.9	
67-64-1	Acetone	**61**	50	**26**	21	
75-69-4	Trichlorofluoromethane	ND	5.0	ND	0.89	
75-35-4	1,1-Dichloroethene	ND	5.0	ND	1.3	
75-09-2	Methylene Chloride	ND	5.0	ND	1.4	
75-15-0	Carbon Disulfide	ND	50	ND	16	
156-60-5	trans-1,2-Dichloroethene	ND	5.0	ND	1.3	
75-34-3	1,1-Dichloroethane	ND	5.0	ND	1.2	
78-93-3	2-Butanone (MEK)	ND	50	ND	17	
156-59-2	cis-1,2-Dichloroethene	ND	5.0	ND	1.3	
67-66-3	Chloroform	ND	5.0	ND	1.0	
107-06-2	1,2-Dichloroethane	ND	5.0	ND	1.2	
71-55-6	1,1,1-Trichloroethane	ND	5.0	ND	0.92	
71-43-2	Benzene	**34**	5.0	**11**	1.6	
56-23-5	Carbon Tetrachloride	ND	5.0	ND	0.80	
78-87-5	1,2-Dichloropropane	ND	5.0	ND	1.1	
75-27-4	Bromodichloromethane	ND	5.0	ND	0.75	
79-01-6	Trichloroethene	ND	5.0	ND	0.93	

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

RESULTS OF ANALYSIS

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **TOB-OBL-1** CAS Project ID: P1103529
Client Project ID: **Town of Oyster Bay / TOBOBSWDC** CAS Sample ID: P1103529-001

Test Code: EPA TO-15 Modified Date Collected: 9/14/11
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 9/15/11
Analyst: Chris Cornett Date Analyzed: 9/15/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
10061-01-5	cis-1,3-Dichloropropene	ND	5.0	ND	1.1	
108-10-1	4-Methyl-2-pentanone	ND	5.0	ND	1.2	
10061-02-6	trans-1,3-Dichloropropene	ND	5.0	ND	1.1	
79-00-5	1,1,2-Trichloroethane	ND	5.0	ND	0.92	
108-88-3	Toluene	**51**	5.0	**14**	1.3	
591-78-6	2-Hexanone	ND	5.0	ND	1.2	
124-48-1	Dibromochloromethane	ND	5.0	ND	0.59	
127-18-4	Tetrachloroethene	**7.3**	5.0	**1.1**	0.74	
108-90-7	Chlorobenzene	**16**	5.0	**3.5**	1.1	
100-41-4	Ethylbenzene	**15**	5.0	**3.6**	1.2	
179601-23-1	m,p-Xylenes	**11**	10	**2.5**	2.3	
75-25-2	Bromoform	ND	5.0	ND	0.48	
100-42-5	Styrene	ND	5.0	ND	1.2	
95-47-6	o-Xylene	ND	5.0	ND	1.2	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0	ND	0.73	
622-96-8	4-Ethyltoluene	ND	5.0	ND	1.0	
611-14-3	2-Ethyltoluene	ND	5.0	ND	1.0	
124-18-5	n-Decane	**20**	5.0	**3.4**	0.86	
541-73-1	1,3-Dichlorobenzene	ND	5.0	ND	0.83	
106-46-7	1,4-Dichlorobenzene	ND	5.0	ND	0.83	
95-50-1	1,2-Dichlorobenzene	ND	5.0	ND	0.83	

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

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **TOB-OBL-1** CAS Project ID: P1103529
Client Project ID: **Town of Oyster Bay / TOBOBSWDC** CAS Sample ID: P1103529-001

Tentatively Identified Compounds

Test Code: EPA TO-15 Modified Date Collected: 9/14/11
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 9/15/11
Analyst: Chris Cornett Date Analyzed: 9/15/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 0.10 Liter(s)
Test Notes: **T**

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
4.99	Propane	**390**	
6.12	Isobutene	**210**	
6.32	n-Butane	**290**	
8.21	Isopentane	**140**	
9.07	n-Pentane	**180**	
11.78	2-Methylpentane	**200**	
12.39	3-Methylpentane	**180**	
21.44	2,4-Dimethylheptane	**130**	
24.14	Dimethyloctane Isomer	**110**	
24.77	C11H24 Branched Alkane	**200**	
25.74	C11H24 Branched Alkane	**130**	
25.83	Unidentified Compound	**140**	
26.13	Unidentified Compound	**210**	
26.33	C12H26 Branched Alkane	**160**	
26.42	C12H26 Branched Alkane	**210**	

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

RESULTS OF ANALYSIS

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **TOB-OBL-2**
Client Project ID: **Town of Oyster Bay / TOBOBSWDC**

CAS Project ID: P1103529
CAS Sample ID: P1103529-002

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 1.0 L Tedlar Bag
Test Notes:

Date Collected: 9/14/11
Date Received: 9/15/11
Date Analyzed: 9/15/11
Volume(s) Analyzed: 0.10 Liter(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	5.0	ND	2.4	
75-01-4	Vinyl Chloride	**19**	5.0	**7.6**	2.0	
74-83-9	Bromomethane	ND	5.0	ND	1.3	
75-00-3	Chloroethane	ND	5.0	ND	1.9	
67-64-1	Acetone	**68**	50	**29**	21	
75-69-4	Trichlorofluoromethane	**5.2**	5.0	**0.92**	0.89	
75-35-4	1,1-Dichloroethene	ND	5.0	ND	1.3	
75-09-2	Methylene Chloride	**5.0**	5.0	**1.4**	1.4	
75-15-0	Carbon Disulfide	ND	50	ND	16	
156-60-5	trans-1,2-Dichloroethene	ND	5.0	ND	1.3	
75-34-3	1,1-Dichloroethane	ND	5.0	ND	1.2	
78-93-3	2-Butanone (MEK)	ND	50	ND	17	
156-59-2	cis-1,2-Dichloroethene	ND	5.0	ND	1.3	
67-66-3	Chloroform	ND	5.0	ND	1.0	
107-06-2	1,2-Dichloroethane	ND	5.0	ND	1.2	
71-55-6	1,1,1-Trichloroethane	ND	5.0	ND	0.92	
71-43-2	Benzene	**42**	5.0	**13**	1.6	
56-23-5	Carbon Tetrachloride	ND	5.0	ND	0.80	
78-87-5	1,2-Dichloropropane	ND	5.0	ND	1.1	
75-27-4	Bromodichloromethane	ND	5.0	ND	0.75	
79-01-6	Trichloroethene	ND	5.0	ND	0.93	

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

RESULTS OF ANALYSIS

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **TOB-OBL-2** CAS Project ID: P1103529
Client Project ID: **Town of Oyster Bay / TOBOBSWDC** CAS Sample ID: P1103529-002

Test Code: EPA TO-15 Modified Date Collected: 9/14/11
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 9/15/11
Analyst: Chris Cornett Date Analyzed: 9/15/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
10061-01-5	cis-1,3-Dichloropropene	ND	5.0	ND	1.1	
108-10-1	4-Methyl-2-pentanone	ND	5.0	ND	1.2	
10061-02-6	trans-1,3-Dichloropropene	ND	5.0	ND	1.1	
79-00-5	1,1,2-Trichloroethane	ND	5.0	ND	0.92	
108-88-3	Toluene	**65**	5.0	**17**	1.3	
591-78-6	2-Hexanone	ND	5.0	ND	1.2	
124-48-1	Dibromochloromethane	ND	5.0	ND	0.59	
127-18-4	Tetrachloroethene	**8.2**	5.0	**1.2**	0.74	
108-90-7	Chlorobenzene	**18**	5.0	**4.0**	1.1	
100-41-4	Ethylbenzene	**16**	5.0	**3.6**	1.2	
179601-23-1	m,p-Xylenes	**11**	10	**2.6**	2.3	
75-25-2	Bromoform	ND	5.0	ND	0.48	
100-42-5	Styrene	ND	5.0	ND	1.2	
95-47-6	o-Xylene	ND	5.0	ND	1.2	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0	ND	0.73	
622-96-8	4-Ethyltoluene	ND	5.0	ND	1.0	
611-14-3	2-Ethyltoluene	ND	5.0	ND	1.0	
124-18-5	n-Decane	**24**	5.0	**4.1**	0.86	
541-73-1	1,3-Dichlorobenzene	ND	5.0	ND	0.83	
106-46-7	1,4-Dichlorobenzene	ND	5.0	ND	0.83	
95-50-1	1,2-Dichlorobenzene	ND	5.0	ND	0.83	

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

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **TOB-OBL-2** CAS Project ID: P1103529
Client Project ID: **Town of Oyster Bay / TOBOBSWDC** CAS Sample ID: P1103529-002

Tentatively Identified Compounds

Test Code: EPA TO-15 Modified Date Collected: 9/14/11
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 9/15/11
Analyst: Chris Cornett Date Analyzed: 9/15/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 0.10 Liter(s)
Test Notes: **T**

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
4.99	Propane	**470**	
6.12	Isobutene	**250**	
6.32	n-Butane	**330**	
8.21	Isopentane	**150**	
9.06	n-Pentane	**210**	
11.78	2-Methylpentane	**230**	
12.39	3-Methylpentane	**210**	
14.36	Methylcyclopentane	**120**	
21.44	2,4-Dimethylheptane	**130**	
24.77	C11H24 Branched Alkane	**190**	
25.74	C11H24 Branched Alkane	**130**	
25.83	Unidentified Compound	**150**	
26.13	Unidentified Compound	**220**	
26.33	C12H26 Branched Alkane	**160**	
26.42	C12H26 Branched Alkane	**200**	

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

RESULTS OF ANALYSIS

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **Method Blank** CAS Project ID: P1103529
Client Project ID: **Town of Oyster Bay / TOBOBSWDC** CAS Sample ID: P110915-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Chris Cornett Date Analyzed: 9/15/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	0.50	ND	0.24	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane	ND	0.50	ND	0.089	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
67-66-3	Chloroform	ND	0.50	ND	0.10	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	

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

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **Method Blank** CAS Project ID: P1103529
Client Project ID: **Town of Oyster Bay / TOBOBSWDC** CAS Sample ID: P110915-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Chris Cornett Date Analyzed: 9/15/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
611-14-3	2-Ethyltoluene	ND	0.50	ND	0.10	
124-18-5	n-Decane	ND	0.50	ND	0.086	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	

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

Client: **RTP Environmental Associates, Inc.**

Client Sample ID: **Method Blank** CAS Project ID: P1103529

Client Project ID: **Town of Oyster Bay / TOBOBSWDC** CAS Sample ID: P110915-MB

Tentatively Identified Compounds

Test Code: EPA TO-15 Modified Date Collected: NA

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

Analyst: Chris Cornett Date Analyzed: 9/15/11

Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
	No Compounds Detected		

SURROGATE SPIKE RECOVERY RESULTS

Client: **RTP Environmental Associates, Inc.**
Client Project ID: **Town of Oyster Bay / TOBOBSWDC** CAS Project ID: P1103529

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date(s) Collected: 9/14/11
Analyst: Chris Cornett Date(s) Received: 9/15/11
Sampling Media: 1.0 L Tedlar Bag(s) Date(s) Analyzed: 9/15/11
Test Notes:

Client Sample ID	CAS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P110915-MB	**90**	**101**	**95**	70-130	
TOB-OBL-1	P1103529-001	**95**	**101**	**99**	70-130	
TOB-OBL-2	P1103529-002	**96**	**102**	**99**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

LABORATORY REPORT

December 30, 2011

Brian Aerne
RTP Environmental Associates, Inc.
400 Post Avenue, Suite 405
Westbury, NY 11590

RE: Town of Oyster Bay / TOBOBSWDC

Dear Brian:

Enclosed are the results of the sample submitted to our laboratory on December 15, 2011. For your reference, these analyses have been assigned our service request number P1104851.

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

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; United States Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP), Certificate No. L10-3-R2; Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-11-2; Minnesota Department of Health, NELAP Certificate No. 219474; Washington State Department of Ecology, ELAP Lab ID: C946. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

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

Respectfully submitted,

Columbia Analytical Services, Inc.

For Kate Aguilera
Project Manager

Client:	RTP Environmental Associates, Inc.	CAS Project No:	P1104851
Project:	Town of Oyster Bay / TOBOBSWDC	New York Lab ID:	11221

CASE NARRATIVE

The samples were received intact under chain of custody on December 15, 2011 and were stored in accordance with the analytical method requirements. The tedlar bag for sample TOB-OBL-2 (P1104851-002) was received flat; therefore, the sample could not be analyzed. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the sample at the time of sample receipt.

Total Gaseous Non-Methane Organics as Methane Analysis

The sample was analyzed for total gaseous non-methane organics as methane per modified EPA Method TO-3 using a gas chromatograph equipped with a flame ionization detector (FID).

Volatile Organic Compound Analysis

The sample was also analyzed for volatile organic compounds and tentatively identified compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. The analytical system was comprised of a gas chromatograph/mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. According to the method, the use of Tedlar bags is considered a method modification.

DETAIL SUMMARY REPORT

Client: RTP Environmental Associates, Inc. Service Request: P1104851
Project ID: Town of Oyster Bay / TOBOBSWDC

Date Received: 12/15/2011
Time Received: 10:10

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	TO-3 Modified - C1C6+ Bag	TO-15 Modified - VOC Bags
TOB-OBL-1	P1104851-001	Air	12/13/2011	15:26	X	X

CHAIN OF CUSTODY RECORD

RTP Environmental Associates, Inc.
400 Post Avenue, Suite 405
Westbury, NY 11590
Ph: (516) 333-4526
Fax: (516) 333-4571

Project name:	Town of Oyster Bay
Project ID:	TOBOBSWDC
Project Location:	Oyster Bay Solid Waste Disposal Complex
Laboratory:	Columbia Analytical
Samplers: (Signature)	VV

P1104551 Page 1 of 1

Test ID	Sample ID	Matrix (A, L, S)	Date	Time	Sample Method	Sample Duration	Number of Containers	Analysis Requested: TO-3 Modified (TNMOC)	Analysis Requested: TO-15 Modified (Custom List)	Analysis Requested	Analysis Requested
TOBOBL11-4	TOB-OBL-1	A	12/13/2011	15:26	Grab	45 mins	1	X	X		
TOBOBL11-4	TOB-OBL-2	A	12/14/2011	12:17	Grab	45 mins	1	X	X		

Relinquished by: (Signature)	Date/Time: 12/14/11 / 15:30	Received By: (Signature)	Date/Time: 12/15/11 1010
Relinquished by: (Signature)	Date/Time: /	Received By: (Signature)	Date/Time:

Remarks: ATTN: Kate Aguilera

Please call Brian Aerne or Vincent Varricchio @ 516-333-4526 with any questions. Thank you!

Delivery Method: UPS Priority Overnight

Custody Seals Intact: Yes No

Columbia Analytical Services™ 2655 Park Center Drive, Suite A, Simi Valley, CA 93065 | 805.526.7161 | www.caslab.com

Sample Acceptance Check Form

Client: RTP Environmental Associates, Inc. Work order: P1104851

Project: Town of Oyster Bay / TOBOBSWDC

Sample(s) received on: 12/15/11 Date opened: 12/15/11 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Container(s) **supplied by CAS**?	☐	☒	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☐	☒	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1104851-001.01	1.0 L Tedlar Bag					
P1104851-002.01	1.0 L Tedlar Bag					FLAT BAG

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

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

Client: **RTP Environmental Associates, Inc.**
Client Project ID: **Town of Oyster Bay / TOBOBSWDC** CAS Project ID: P1104851

Total Gaseous Nonmethane Organics (TGNMO) as Methane

Test Code: EPA TO-3 Modified
Instrument ID: HP5890 II/GC8/FID Date(s) Collected: 12/13/11
Analyst: Dante Munoz-Castaneda Date Received: 12/15/11
Sampling Media: 1.0 L Tedlar Bag(s) Date Analyzed: 12/15/11
Test Notes:

Client Sample ID	CAS Sample ID	Injection Volume ml(s)	**Result ppmV**	MRL ppmV	Data Qualifier
TOB-OBL-1	P1104851-001	0.10	ND	10	
Method Blank	P111215-MB	1.0	ND	1.0	

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

RESULTS OF ANALYSIS

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **TOB-OBL-1** CAS Project ID: P1104851
Client Project ID: **Town of Oyster Bay / TOBOBSWDC** CAS Sample ID: P1104851-001

Test Code: EPA TO-15 Modified Date Collected: 12/13/11
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/15/11
Analyst: Lusine Hakobyan Date Analyzed: 12/15/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	5.0	ND	2.4	
75-01-4	Vinyl Chloride	**24**	5.0	**9.6**	2.0	
74-83-9	Bromomethane	ND	5.0	ND	1.3	
75-00-3	Chloroethane	ND	5.0	ND	1.9	
67-64-1	Acetone	**78**	50	**33**	21	
75-69-4	Trichlorofluoromethane	ND	5.0	ND	0.89	
75-35-4	1,1-Dichloroethene	ND	5.0	ND	1.3	
75-09-2	Methylene Chloride	ND	5.0	ND	1.4	
75-15-0	Carbon Disulfide	ND	50	ND	16	
156-60-5	trans-1,2-Dichloroethene	ND	5.0	ND	1.3	
75-34-3	1,1-Dichloroethane	ND	5.0	ND	1.2	
78-93-3	2-Butanone (MEK)	ND	50	ND	17	
156-59-2	cis-1,2-Dichloroethene	ND	5.0	ND	1.3	
67-66-3	Chloroform	ND	5.0	ND	1.0	
107-06-2	1,2-Dichloroethane	ND	5.0	ND	1.2	
71-55-6	1,1,1-Trichloroethane	ND	5.0	ND	0.92	
71-43-2	Benzene	**51**	5.0	**16**	1.6	
56-23-5	Carbon Tetrachloride	ND	5.0	ND	0.80	
78-87-5	1,2-Dichloropropane	ND	5.0	ND	1.1	
75-27-4	Bromodichloromethane	ND	5.0	ND	0.75	
79-01-6	Trichloroethene	ND	5.0	ND	0.93	

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

RESULTS OF ANALYSIS

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **TOB-OBL-1** CAS Project ID: P1104851
Client Project ID: **Town of Oyster Bay / TOBOBSWDC** CAS Sample ID: P1104851-001

Test Code: EPA TO-15 Modified Date Collected: 12/13/11
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/15/11
Analyst: Lusine Hakobyan Date Analyzed: 12/15/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
10061-01-5	cis-1,3-Dichloropropene	ND	5.0	ND	1.1	
108-10-1	4-Methyl-2-pentanone	ND	5.0	ND	1.2	
10061-02-6	trans-1,3-Dichloropropene	ND	5.0	ND	1.1	
79-00-5	1,1,2-Trichloroethane	ND	5.0	ND	0.92	
108-88-3	Toluene	**11**	5.0	**3.0**	1.3	
591-78-6	2-Hexanone	ND	5.0	ND	1.2	
124-48-1	Dibromochloromethane	ND	5.0	ND	0.59	
127-18-4	Tetrachloroethene	**6.9**	5.0	**1.0**	0.74	
108-90-7	Chlorobenzene	**39**	5.0	**8.6**	1.1	
100-41-4	Ethylbenzene	**26**	5.0	**5.9**	1.2	
179601-23-1	m,p-Xylenes	**16**	10	**3.7**	2.3	
75-25-2	Bromoform	ND	5.0	ND	0.48	
100-42-5	Styrene	ND	5.0	ND	1.2	
95-47-6	o-Xylene	**6.5**	5.0	**1.5**	1.2	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0	ND	0.73	
622-96-8	4-Ethyltoluene	ND	5.0	ND	1.0	
611-14-3	2-Ethyltoluene	ND	5.0	ND	1.0	
124-18-5	n-Decane	ND	5.0	ND	0.86	
541-73-1	1,3-Dichlorobenzene	ND	5.0	ND	0.83	
106-46-7	1,4-Dichlorobenzene	ND	5.0	ND	0.83	
95-50-1	1,2-Dichlorobenzene	ND	5.0	ND	0.83	

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

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **TOB-OBL-1** CAS Project ID: P1104851
Client Project ID: **Town of Oyster Bay / TOBOBSWDC** CAS Sample ID: P1104851-001

Tentatively Identified Compounds

Test Code: EPA TO-15 Modified Date Collected: 12/13/11
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 12/15/11
Analyst: Lusine Hakobyan Date Analyzed: 12/15/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 0.10 Liter(s)
Test Notes: **T**

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
4.94	Propene	**160**	
4.99	Propane	**260**	
5.70	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	**210**	
6.12	Isobutene	**190**	
6.31	n-Butane	**210**	
24.10	2,6-Dimethyloctane	**200**	
24.17	Propylcyclohexane	**140**	
24.53	C10H22 Branched Alkane	**150**	
24.62	C10H22 Branched Alkane	**210**	
24.74	C11H24 Branched Alkane	**260**	
24.83	Unidentified Compound	**210**	
25.70	C11H24 Branched Alkane	**260**	
25.78	Unidentified Compound	**220**	
26.08	C12H26 Branched Alkane	**340**	
26.37	C12H26 Branched Alkane	**230**	

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

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **Method Blank** CAS Project ID: P1104851
Client Project ID: **Town of Oyster Bay / TOBOBSWDC** CAS Sample ID: P111215-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 12/15/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
74-87-3	Chloromethane	ND	0.50	ND	0.24	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane	ND	0.50	ND	0.089	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
67-66-3	Chloroform	ND	0.50	ND	0.10	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	

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

Client: **RTP Environmental Associates, Inc.**
Client Sample ID: **Method Blank** CAS Project ID: P1104851
Client Project ID: **Town of Oyster Bay / TOBOBSWDC** CAS Sample ID: P111215-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 12/15/11
Sampling Media: 1.0 L Tedlar Bag Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
611-14-3	2-Ethyltoluene	ND	0.50	ND	0.10	
124-18-5	n-Decane	ND	0.50	ND	0.086	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	

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

Client: **RTP Environmental Associates, Inc.**

Client Sample ID: **Method Blank** CAS Project ID: P1104851

Client Project ID: **Town of Oyster Bay / TOBOBSWDC** CAS Sample ID: P111215-MB

Tentatively Identified Compounds

Test Code:	EPA TO-15 Modified	Date Collected:	NA
Instrument ID:	Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16	Date Received:	NA
Analyst:	Lusine Hakobyan	Date Analyzed:	12/15/11
Sampling Media:	1.0 L Tedlar Bag	Volume(s) Analyzed:	1.00 Liter(s)
Test Notes:			

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
	No Compounds Detected		

SURROGATE SPIKE RECOVERY RESULTS

Client: **RTP Environmental Associates, Inc.**
Client Project ID: **Town of Oyster Bay / TOBOBSWDC** CAS Project ID: P1104851

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date(s) Collected: 12/13/11
Analyst: Lusine Hakobyan Date(s) Received: 12/15/11
Sampling Media: 1.0 L Tedlar Bag(s) Date(s) Analyzed: 12/15/11
Test Notes:

Client Sample ID	CAS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P111215-MB	**101**	**100**	**101**	70-130	
TOB-OBL-1	P1104851-001	**103**	**99**	**102**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.