SITE ANALYTICAL PLAN

CARROLL LANDFILL
CARROLL, NEW YORK

SEALAND WASTE, LLC

Prepared on behalf of:

Sealand Waste, LLC
85 High Tech Drive
Rush, New York 14543

Prepared by:

DAIGLER ENGINEERING P.C.
2620 Grand Island Blvd.
Grand Island, New York 14072-2131

October 2011

Revised October 2015

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APPROVAL OF THE SITE ANALYTICAL PLAN

This Site Analytical Plan (SAP) has been reviewed by the Analytical Quality Assurance (AQA) Officer designated below. The AQA officer concurs with and approves the content and procedures described in this SAP. The AQA Officer's resume is provided in Attachment 1 of this SAP.

Bethany Acquisto 11/28/16

Bethany Acquisto, Ph.D.
Senior Scientist, Daigler Engineering, PC

Date

SITE ANALYTICAL PLAN
Carroll Landfill

Sealand Waste, LLC

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1 INTRODUCTION

This site analytical plan (SAP) has been developed specifically for the Carroll Construction and Demolition (C&D) Debris Landfill located in the Town of Carroll, New York. The Town of Carroll is situated in the southeast corner of Chautauqua County. The topography of the area is controlled by the Allegheny Plateau or the Cattaraugus Hills subsection of the Appalachian Uplands. The site is approximately 53 acres and is characterized as relatively rugged terrain, sloping from the northwestern corner to the southeast with a 160 foot drop in elevation across the site under existing conditions. Currently the site is in large part undeveloped and over half the site is forested. The site conditions are likely to present some special consideration during field activities related to access to sampling locations.

The Carroll Landfill (formerly Jones-Carroll Landfill) was originally the site of a gravel mine. The gravel mine operated in the 1960s into the 1980s. In March of 1990, the site began C&D debris disposal operations under a Part 360 (Section 7.3) permit for a C&D debris landfill three acres or less in size. The permitted three-acre footprint was exhausted in 2006 and the landfill was closed. Plans to purchase and expand the landfill under section 360-7.4, C&D debris landfill greater than three acres in size, have been initiated by Sealand Waste, LLC (Sealand) which necessitated the need for this SAP.

The purpose of the SAP is to provide an orderly set of standard operating procedures to ensure the Carroll Landfill environmental monitoring program is carried out with consistency across the site and between sampling events. It has been prepared in accordance with the New York State regulation 6 NYCRR subdivision 360-2.11(d) and guidelines in the New York State Department of Environmental Conservation (NYSDEC) Technical and Administrative Guidance Memorandum (TAGM) for the Development and Review of Site Analytical Plans (TAGM SW-96-09, effective May 3, 2001). Adherence to the procedures and standards detailed in this document will result in the generation of representative and comparable analytical data.

It is acknowledged that the SAP is a fluid document. Revisions and modifications are expected as the site matures and the environmental monitoring program changes to accommodate the evolving conditions. Provisions for identifying and correcting shortcomings of the SAP are part of quality assurance objectives contained herein. Any material revisions to the SAP must be

submitted to the NYSDEC, Region 9 for review and approval prior to implementation. The NYSDEC will also be notified by letter if any of the personnel specified in this plan are replaced. This includes the AQA officer and the laboratory. The affected sections of the SAP will be modified and submitted for the NYSDEC's file. Revisions other than Rev 0 must be accompanied by a revision history listing the changes made.

2 DATA QUALITY OBJECTIVES

The overall goal of the Carroll Landfill Environmental Monitoring Program is to identify possible exposure to contaminants from the landfill by recognizing a possible release to the environment close enough to the source to allow sufficient time to react and contain any such release. The quality of the data produced must be sufficient to enable the detection and, if necessary, quantification of contamination directly or indirectly linked to the site or its operation. Furthermore, these data must be associated with a high level of confidence. To ensure detection of contamination from the landfill or its operations is possible, the program must include the contaminants of concern at appropriate detection levels. More specific objectives for these data are media and user specific.

2.1 CONTAMINANTS OF CONCERN

Decomposition of C&D wastes can result in the release of many of the same contaminants as municipal solid waste, although generally in much lower concentrations. The compounds typically found in C&D waste leachate include: ammonia, chloride, metals (e.g., aluminum, arsenic, cadmium, calcium, copper, chromium, iron, lead, magnesium, manganese, potassium, and sodium), sulfate, total dissolved solids, volatile organic compounds (e.g., ethlybenzene, methlylene chloride, and toluene), and semi-volatile organic compounds (Townsend *et al*., 2000; Citizens' Preservation Fund, 2011; and Lewis *et al*., 2008). Any compound found in the leachate has the possibility of becoming a contaminant of concern in groundwater, surface water, and sediment.

Non-traditional contaminants of concern identified for surface waters include dissolved oxygen concentration and temperature. These parameters are important to the health of trout spawning waters.

All contaminants of concern are included in the environmental monitoring program as detailed in the Carroll Environmental Monitoring Plan (EMP). Analytical methods and detection limits for each analyte in the environmental monitoring program are included in Attachment 6.

2.2 MEDIA/DATA TYPES USERS AND USES

The environmental monitoring program as detailed in the Carroll EMP calls for sampling of four separate media types; leachate, groundwater, surface water, and sediment. The scope of this SAP is limited to these four media types. Data from each of these media types may be used by neighbors of the Carroll Landfill, the general public, and other interested parties. Appropriate local government officials are also potential users of all data types, especially if the facility is subject to contingency monitoring. Contingency monitoring under certain circumstances requires Sealand to notify local government officials of recognized and confirmed impacts. Media-specific data users and uses, as well as, standards and action levels are covered in the sections below.

2.2.1 Leachate

Samples of leachate will be collected from the primary and secondary leachate collection systems to be installed under the Carroll Landfill. Leachate data are used to establish site-specific indicator parameters in evaluating data for impacts from the landfill on groundwater and surface water. Leachate data are also used to establish treatability and treatment options. Users of the leachate data include Sealand and their independent contractor responsible for the preparation of environmental monitoring reports, the NYSDEC Division of Materials Management (DMM) who reviews the reports for regulatory compliance, and the wastewater treatment plant that accepts the leachate for treatment.

There are no applicable standards or action levels for leachate data.

2.2.2 Groundwater

Groundwater samples will be collected from an appropriate array of monitoring wells installed on the Carroll Landfill property and from the groundwater suppression systems installed underneath both the existing and future landfill baseliners. The wells will monitor upgradient, downgradient, and cross-gradient groundwater in the critical stratigraphic section(s) as described in the EMP. Samples taken from the groundwater suppression systems will be considered downgradient samples. Upgradient and cross-gradient groundwater data will be used to establish natural background groundwater quality at the Carroll Landfill site. Downgradient groundwater data will be used to identify possible impacts to groundwater from the Carroll Landfill and/or its operations and, if discovered to monitor contaminant movement, assess offsite consequences, and if necessary, assess the efficacy of remedial actions. Onsite groundwater monitoring will

also be used to demonstrate compliance with Part 360 regulations. Users of these data will include Sealand and their independent contractor responsible for the preparation of environmental monitoring reports and the NYSDEC DMM who reviews the reports for regulatory compliance. Data collected from the existing and future groundwater suppression systems may also be used by the NYSDEC Division of Water (DW). The discharges from these systems are discussed in the Stormwater Pollution Prevention Plan and may be included in the facility's State Pollutant Discharge Elimination System (SPDES) permit since they currently, or are proposed for, discharge to surface waters.

Groundwater samples may also be taken, pending permission, from nearby downgradient, privately-owned drinking water wells. If permission is granted, these samples will be used to monitor the quality of the drinking water for health and safety concerns. Additional users for any sampling data from private water wells include the owner and users of the well and the Chautauqua County Department of Health who has requested these samples be taken.

All groundwater data will be compared against 6 NYCRR Part 703 standards for fresh groundwater (Class GA), last amended August 1999 or Class GA guidance values from the latest NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1 (TOGS 1.1.1). Action levels include exceedance of any Part 703 GA standard or TOGS guidance values or the thresholds established using statistical analysis as described in the Carroll Landfill EMP. Data from the groundwater drains may also be compared to Part 703 surface water standards or TOGS guidance values for C(TS) streams given that they discharge to a surface water system.

2.2.3 Surface Water and Sediment

Surface water discharge and sediment sampling, as prescribed in the EMP, will produce data that will help identify possible impacts to surface water from landfill operations. Surface water and sediment data will be used not only for Part 360 compliance, but for compliance with the facility's SPDES stormwater permit(s) as well. Users of these data include Sealand and their independent contractor responsible for the preparation of environmental monitoring reports and SPDES reporting and the NYSDEC DMM and DW who review the reports for regulatory compliance. Local watershed associations, such as the Conewango Creek Watershed Association, may also be potential users of the surface water sampling data. Watershed

associations could use surface water data to assess the water quality and overall health of streams within their watershed.

Surface water discharges from the Carroll Landfill site are tributary to Storehouse Run. Storehouse Run is classified as a Class C(TS) stream by the NYSDEC due to its known population of spawning trout. Therefore, 6 NYCRR Part 703 and 704 standards for Class C and/or trout or trout spawning waters will apply to surface water data. Surface water data will also be subject to any effluent limitations set forth in Carroll Landfill's SPDES permit(s). The action level for surface water data will be any exceedance of a Part 703 or 704 Class C, C(T), or C(TS) water quality standard or SPDES effluent limit. According to the EMP, sediment data will be compared to lower and severe effect levels set forth in the NYSDEC Technical Guidance for Screening Contaminated Sediments.

2.3 QUALITATIVE DATA QUALITY OBJECTIVES

2.3.1 Representativeness

Representativeness is a parameter that qualifies how well sample data represent or characterize the population from which it is taken. Representativeness is generally a reflection of the appropriateness of the sample design, including the chosen sample locations, the number of samples, and the conditions under which the samples are collected. The representativeness of sample data collected for the Carroll Landfill environmental monitoring program is discussed in the EMP.

2.3.2 Comparability

Comparability is a qualitative measure of the confidence with which one data set can be compared to another. Data collected from similar sample locations and under similar conditions should be comparable. Comparability will be ensured by adherence to standard operating procedures as detailed in this SAP and its attachments.

2.3.3 Defensibility

As long as the field and laboratory protocols are followed and the data quality objectives defined in this section are consistently met, sample data associated with the Carroll Landfill environmental monitoring program will be defensible. Defensibility will also be supported by

requiring the laboratory performing the sample analysis to maintain their New York State Department of Health Environmental Laboratory Approval Program (DOH ELAP) certifications.

2.4 QUANTITATIVE DATA QUALITY OBJECTIVES

The following subsections detail measures taken to quantify the validity and usability of data produced for the environmental monitoring of the Carroll Landfill site. A summary table of quantitative data quality objectives, Table 2-1, is included at the end of this section.

2.4.1 Precision

Precision is a measure of the degree of agreement among replicate analyses. It quantifies the repeatability or reproducibility of a given measurement. There are several measures of precision. The measure of precision that will be used for the Carroll Landfill environmental monitoring program is the relative percent difference (*RPD*). *RPD* is used as an indication of repeatability between a sample and it's duplicate. This measure is calculated as, $RPD = \frac{|x_s - x_d|}{\overline{x_{s\&d}}}$ where, x_s, x_d, and $\overline{x_{s\&d}}$ are the value of the sample, the value of the duplicate, and the mean of the sample and duplicate values, respectively.

To quantify precision, duplicate field samples will be taken at a frequency of one per media type (i.e., groundwater, surface water, and sediment) per sampling event. Duplicate sampling will not be required for leachate as precision is not critical for this dataset. Samples may also be split in the laboratory for duplicate analysis. Analysis of both a field duplicate and a laboratory duplicate will allow for the separation of field precision from laboratory precision. Duplicate matrix spikes may also be used to assess precision. Laboratory duplicates and matrix spike duplicates will be prepared per the contracted laboratory's quality assurance program, but shall be performed at a frequency of no less than one per media, per sampling event for laboratory duplicates and one per sampling event for matrix spike duplicates. The acceptable limit of precision for all duplicates of aqueous samples is an *RPD* of less than 20% when the value is above five times its contract-required detection limit (CRDL) or an absolute difference (*RPD* numerator only) less than the CRDL when both the sample and the duplicate are below five times the CRDL. Sediment is naturally more heterogeneous; therefore, the acceptable *RPD* of a sediment sample duplicate is less than 50%.

2.4.2 Accuracy

Accuracy is the agreement of a measured value with its true value. Accuracy is reduced by a number of possible sources of error in a measurement that includes: field conditions, sampling procedures, sample handling, sample preservation, sample matrix interference, laboratory sample preparation, and laboratory analysis equipment and/or technique. Accuracy will be supported in several ways through both field and laboratory measures. Measures of accuracy are generally quantitative; however, qualitatively, accuracy for both field and laboratory measurements can be upheld through adherence to specified holding times and appropriate calibration of equipment and instrumentation. Equipment calibration will be covered in Section 4, Field Sampling Procedures, and calibration of laboratory instrumentation will be performed per the contracted laboratory's quality assurance program (QAP).

Quantitative field measures used to ensure accuracy include field blanks, trip blanks, and equipment blanks. Field blanks are samples of laboratory-grade water prepared in the field. Field blanks can be used to assess the cleanliness of the sample containers at the point of use and to identify possible contamination due to the environment in which the samples are taken. Trip blanks are samples of laboratory-grade water that are prepared in the laboratory and carried through the sample event undisturbed. Trip blanks assess error due to shipment and handling procedures. Finally, equipment blanks are prepared by running laboratory-grade water over or through the sampling equipment used during sample collection. Equipment blanks are prepared between samples after shared sampling equipment has been cleaned, in this way they can be used to detect cross-contamination via improper or insufficient cleaning protocol for sampling equipment.

Equipment blanks will include the error associated with field and trip blanks. Therefore, equipment blanks will be prepared at a rate of one per sampling event. Equipment blanks must be below the CRDL for the data set to be valid. Field blanks and trip blanks will be collected only if necessary to diagnose sources of contamination in equipment blanks.

Quantitative laboratory measures used to ensure accuracy include the use of known and unknown quality control samples and matrix spikes. Laboratory accuracy using method blanks or laboratory blanks and standard reference materials (laboratory control samples) can be

calculated by a comparison of an ongoing mean with the true value. These data provide an indication of bias within the equipment and/or the procedure and can be reported as relative bias. Relative bias is calculated as (*Observed value – Known value*) ÷ *Known value*, and an acceptable range is ± 25%.

Matrix spikes provide a measure of error associated with sample matrix interference. For maximum usefulness the spike concentration must be prepared at a concentration near that of the expected concentration of the sample. Matrix spike results are typically reported as percent recovery. Percent recovery is calculated as the measured value of the spiked sample divided by the measured value of the original sample plus the known value of spike added. Acceptable percent recovery is between 75 and 125%. All measures of laboratory accuracy will be performed per the contracted laboratory's QAP, but matrix spikes will be at a frequency of no less than one per sampling event.

2.4.3 Completeness

Completeness is a qualitative measure that represents the rate of successful sampling and analysis. Sample collection and field measurements are not always possible due to low well yield, sampling equipment failure, inclement weather, and other conditions. A minimum of 85% of the prescribed samples must be collected for field activities to count as a valid sampling event. The sampling event must be repeated if this value is not met or exceeded. Laboratory analyses are also subject to a minimum of 85% completeness. For the laboratory, completeness is defined as the percentage of valid results for parameters within the sampling event's parameter list. Valid results are those that were not rejected based on the data quality objectives described in this section or for any other reason.

TABLE 2-1: SUMMARY OF QUANTITATIVE DATA QUALITY OBJECTIVES

Measure	Indicator	Frequency	Objective
Precision	Field Duplicate	One per event	Aqueous: *RPD* < 20% if values > 5 times CRDL or absolute difference < CRDL if values < 5 times CRDL Sediment: RPD < 50%
	Laboratory Duplicate, Matrix Spike Duplicate	One per event (or per laboratory QAP)	
Accuracy	Equipment Blanks	One per event	Value < +CRDL and > -CRDL
	Field Blanks, Trip Blanks	As necessary and requested by the AQA[1] officer	
	Laboratory Blanks	Per laboratory QAP	
	Laboratory Control Samples	Per laboratory QAP	Relative bias = ± 25%
	Matrix Spikes	One per event (or per laboratory QAP)	% Recovery = 75 – 125%
Completeness	Field Completeness, Laboratory Completeness	One per event	Completeness > 85%

[1] AQA = Analytical Quality Assurance

3 ANALYTICAL QUALITY ASSURANCE / ANALYTICAL QUALITY CONTROL (AQA/AQC)

3.1 AQA/AQC REQUIREMENTS

Achievement of the data quality objectives laid out in Section 2 will be facilitated through the AQA/AQC requirements. AQA/AQC is a set of interdependent procedures. AQA is a program under which data are collected and handled. It is an overall management plan followed to ensure good quality deliverables are produced. AQC is a set of analytical measurements used to assess the quality of the deliverables after they are produced. Thus, AQC measures are feedback tools used to rate the success of the AQA program. Together AQA/AQC provides a system of checks and balances.

Although many of the AQA/AQC requirements may overlap with the NYSDEC's Analytical Services Protocol (ASP), the Carroll Landfill does not propose to follow the ASP or its deliverables as part of their monitoring program. The NYSDEC ASP protocol is designed for investigation and remediation of state hazardous waste sites. Neither the Part 360 regulations nor the current conditions at the Carroll Landfill require the ASP's level of AQA/AQC.

The AQA requirements for the Carroll Landfill's environmental monitoring program include the following components.

- The analytical laboratory contracted to perform the sample analysis must be accredited under the DOH's ELAP. The contract laboratory's current ELAP certificates are provided as Attachment 2. The ELAP certificates in Attachment 2 will be updated whenever a revision to the SAP is issued; however, expired ELAP certificates will not be a cause for issuance of a revision in and of itself. In the interim, the AQA officer will keep a file of current ELAP certificates which can be made available upon request;
- All laboratory work must follow standard operating procedures. The contract laboratory's analytical standard operating procedures are included in their Quality Assurance Manual. All standard operating procedures (SOPs) in this manual are incorporated by reference. A Table of Contents for the Quality Assurance Manual is provided as Attachment 3. Copies of this Manual can be made available to the NYSDEC upon request;

- The analytical laboratory must have a written quality assurance program under which they perform any services related to the Carroll Landfill. The contract laboratory's AQA/AQC procedures are included in their Quality Assurance Manual which is incorporated by reference. (See Table of Contents in Attachment 3. Copies of the full document available to the NYSDEC upon request);
- Field services must be performed either by the ELAP laboratory themselves or by onsite personnel trained by the ELAP laboratory;
- Field sampling must follow standard operating procedures as discussed in Section 4. The contract laboratory's Field Sampling Manual Table of Contents is provided as Attachment 4. All listed SOPs are incorporated herein by reference;
- All samples will be recorded on field observations forms and tracked under strict chain of custody protocols, as discussed in Section 4. A blank field observations form and chain of custody form to be used for the Carroll Landfill are included as Attachment 5;
- The analytical methods used must be appropriate for the media, environmental conditions, expected concentration range, and minimum detection limits required by the facility's Part 360 permit. A table of specific analytical methods to be used for this facility is included as Attachment 6;
- Equipment/Instrument calibrations and preventative maintenance must be performed at an appropriate frequency as determined by the contract laboratory's manuals or the manufacturers' specifications;
- Field and laboratory data will be appropriately managed, maintained, and reviewed for validity and usability according to the data quality assessment measures detailed in Section 6 of this SAP; and,
- AQA reports and associated corrective measures, if required, must be prepared as detailed in Section 3.3, to provide a system of ongoing confirmation, and betterment when necessary, of all procedures required for the production of good quality environmental data for the Carroll Landfill.

The AQC requirements for Carroll Landfill's environmental monitoring program include the following components.

- Quality control (QC) samples will be taken as detailed in Table 2-1;
- The field duplicate and equipment blank QC samples will be submitted to the laboratory as blind samples;
- QC samples such as duplicates and matrix spikes will only be performed on matrices required for detection monitoring (i.e., groundwater and surface water sample). No QC samples are required for leachate monitoring;
- Calibration data will be assessed alongside QC samples to assess data quality as detailed in Section 6; and,
- All QC results will be analyzed and periodically reported in a quality assurance (QA) report as detailed in Section 3.3.

3.2 PROJECT ORGANIZATION AND RESPONSIBILITIES

Adherence to an AQA/AQC program is critical to the development of a protective environmental monitoring program and a successful AQA/AQC program requires diligence by all those involved from the top all the way down. Figure 3-1 is an organization chart for the Carroll Landfill environmental monitoring program. Key personnel are noted by name where applicable. AQA/AQC responsibilities for each level of the organizational chart are discussed below.

3.2.1 Owner/Operator

The owner/operator has the overall responsibility to protect the health of the environment and neighboring property owners from possible impacts from the landfill by ensuring that the AQA officer is performing his or her duties as prescribed by this SAP. This can be assessed by review of the Environmental Monitoring Reports and the QA Reports.

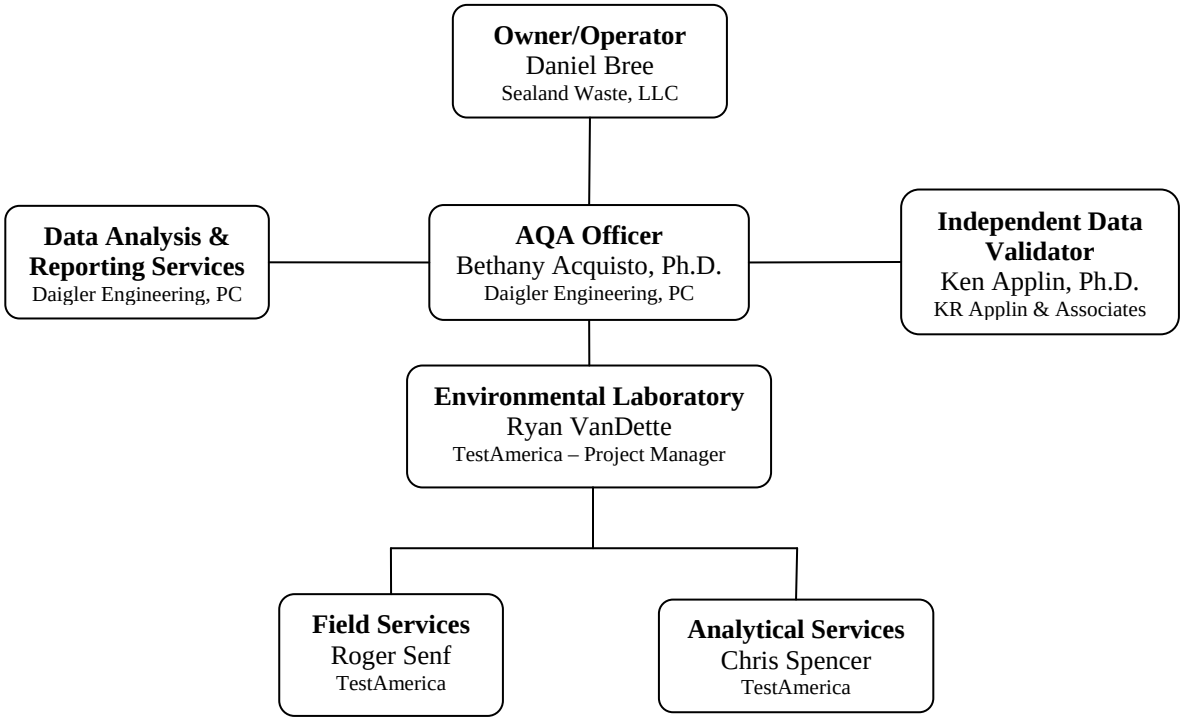

FIGURE 3-1: ORGANIZATION CHART FOR CARROLL LANDFILL ENVIRONMENTAL MONITORING PROGRAM

3.2.2 Analytical Quality Assurance (AQA) Officer

The AQA officer has the main responsibility to ensure this SAP and its referenced procedural documents are being carried out with minimal deviation. The AQA officer will arrange and oversee support services including the environmental laboratory performing the field sampling and laboratory analyses, the independent data validator, and the data analysis and reporting services. The AQA officer is responsible for providing data usability analysis and preparation of data validation and usability assessments for inclusion in the quarterly Environmental Monitoring Reports for all routine sampling events. QA reports, as defined below, will also be prepared by the AQA officer on a periodic basis to be submitted to the owner/operator.

The AQA officer must be informed of any QA problems experienced by the field samplers or in the laboratory and, if necessary, contribute to the decision on proper corrective actions. Significant issues or complaints regarding compliance with this SAP will be collected and evaluated by the AQA officer who will then make decisions on the appropriateness of revisions

to the SAP or its referenced procedural documents. Should revisions be deemed appropriate, the AQA officer is responsible for keeping this SAP up to date.

The AQA officer identified for the Carroll Landfill is Bethany Acquisto, Ph.D. Between her doctoral and post-doctoral work with the U.S. Environmental Protection Agency's (USEPA's) Office of Research and Development, Dr. Acquisto accumulated nearly ten years of laboratory experience including, development of experimental protocols, field sampling procedures, laboratory analysis methods, quality control requirements, data management and interpretation, data usability assessments, and reporting. While working with the USEPA, Dr. Acquisto was responsible for independently preparing two Quality Assurance Project Plans according to Agency standards which are developed to withstand the rigor of legal defense, and for the review of project plans developed by others outside the Agency. As coauthor of the Carroll Landfill EMP and author of this SAP, she is intimately familiar with the site's AQA/AQC requirements.

3.2.3 Independent Data Validator

The independent data validator has the responsibility of producing data validation and usability reports for all baseline monitoring events. The validity of the analytical results will be assessed in accordance with appropriate USEPA guidance documents. The usability of data will be assessed via comparison with the Data Quality Objectives as established in this SAP.

The independent data validator for the Carroll Landfill's environmental monitoring program has been identified as Ken Applin, Ph.D. Dr. Applin possesses a wealth of training, education and experience in geochemistry and the review of laboratory analytical data as applied to landfill projects.

3.2.4 Data Analysis & Reporting Services

Data analysis and reporting services will be provided by Daigler Engineering, PC (DE). DE staff engineers will analyze the datasets for trending and compare data points to applicable standards and trigger values as described in the EMP. Quarterly Environmental Monitoring Reports will be prepared and submitted to the NYSDEC, Region 9 within 60 days of the close of the 4th quarter for inclusion within the annual report and within 90 days of the close of the other three quarters.

3.2.5 Environmental Laboratory

The Environmental laboratory contracted for the Carroll Landfill's environmental monitoring program is TestAmerica Laboratories, Inc. (TestAmerica) located in Amherst, New York. The Project Manager, Ryan VanDette, is the main point of contact at the laboratory. The Project Manager is responsible for ensuring adherence to the policies and procedures provided in the laboratory Quality Assurance Manual by providing supervision for all field and analytical services performed by TestAmerica related to the Carroll Landfill. Submittal of data packages, including data validation reports for routine monitoring events, to the appropriate data users will also be the Project Manager's responsibility.

All comments and suggestions on this SAP from the laboratory staff will be collected by the Project Manager and transmitted to the AQA officer for consideration. Conversely, the Project Manager will accept comments and suggestions on the Quality Assurance and Field Sampling Manuals, and the Table of Methods and detection and quantification limits provided in Attachments 3, 4, and 6, respectively, from the AQA officer. Updated versions of these documents and the laboratory's ELAP certificates must be provided to the AQA officer by the Project Manager in a timely manner.

3.2.6 Field Services

Field services will be provided by TestAmerica. Field services personnel and management are responsible either for performing sampling and field testing themselves or for providing training to onsite personnel to ensure sampling and field services are performed in accordance with the Field Sampling Manual and this SAP, and identifying any deviation from written procedures and protocols. Preparing and updating the Field Sampling Manual will also be performed by field services personnel and management. Finally, field services personnel and management are responsible for reporting any identified weaknesses or suggestions for improvement of the SAP to the Project Manager.

3.2.7 Analytical Services

Analytical services will be provided by TestAmerica. Analytical services personnel and management are responsible for performing laboratory testing in accordance with the Quality Assurance Manual and this SAP and identifying any deviation from written procedures and protocols. Preparing and updating the Quality Assurance Manual will also be performed by

analytical services personnel and management. Finally, analytical services personnel and management are responsible for reporting any identified weaknesses or suggestions for improvement of the SAP to the Project Manager.

3.3 QUALITY ASSURANCE REPORTS

Each Environmental Monitoring Report for Carroll Landfill will contain a separate AQA section in which the data quality will be discussed. The results of the precision, accuracy, and completeness of the data package will be included. In addition, a separate QA report will be prepared by the AQA officer for the landfill owner/operator on a biannual basis. This QA report will include:

- Ongoing laboratory performance assessments using the running mean of the *RPD*, relative bias, and completeness, as described in Section 2.4;
- An assessment of possible consistent matrix interferences based on long-term percent recovery data;
- An assessment of data characteristics and the ability of the EMP and SAP to appropriately capture, analyze, and report them;
- The results of any surprise audits performed over the two year period, as described in Section 4.3.6; and,
- Identification of AQA/AQC problems and a description of their resolution or recommended solutions.

4 FIELD SAMPLING PROCEDURES

Field sampling will be conducted by the contract laboratory. Sampling locations and frequencies will be as discussed in the EMP. The laboratory maintains their own SOPs for field sampling. SOPs applicable to the Carroll Landfill are listed in Attachment 4, Field Sampling Manual for the Carroll Landfill. These SOPs are generic in nature. Procedures specific to the regulations presented in 6 NYCRR paragraph 360-2.11(d)(3) and field conditions at the Carroll Landfill are discussed in the sections below.

4.1 PRE-SAMPLING ACTIVITIES

The Carroll Landfill sampling program will be uploaded into the TestAmerica data management system. Prior to each sampling event TestAmerica will prepare a sample kit consisting of the proper number and size sample bottles pre-loaded with preservative, if necessary, and affixed with pre-printed labels. The sample bottles will be packed in coolers for transport to and from the site. Pre-populated chain of custody forms will accompany the sample kit. The remaining information on the chain of custody form will be completed in the field according to TestAmerica SOP No. BF-FS-001 (Rev 1). A blank TestAmerica chain of custody form is provided in Attachment 5, as an example. Preparation of the sample kit prior to arrival on location will help reduce error associated with forgetting samples or preservatives, as well as, increase the efficiency and organization of the sampling event.

Calibration of field monitoring instrumentation will be performed each morning of the sampling event. Calibration will be re-checked after each group of 10 samples and evaluated for instrument drift. Field monitoring instrumentation includes pH/redox meter, turbidity meter, specific conductivity meter, dissolved oxygen meter, and thermometer. Calibration procedures will be performed according to the manufacturer's instructions or TestAmerica SOPs, No. BF-FS-006 (Rev 2) and No. BF-FS-009 (Rev 0). Calibration results will be recorded on a field observations form. A blank field observations form for the Carroll Landfill environmental monitoring program is included in Attachment 5, as an example.

In addition to calibration information, sampling date, weather conditions, and sampling personnel should be noted on the field observations forms. The condition of each sampling location should be assessed prior to sampling and any unusual conditions (e.g., colors, odors,

surface sheens, evidence of tampering, etc.) should be reported on the field observations form, as well. TestAmerica SOP No. BF-FS-003 (Rev 1) details the information to be collected and recorded on the field observations form when performing environmental sampling.

Where dedicated sampling equipment is not used, decontamination of sampling equipment and field monitoring instrumentation will be performed prior to sampling and in between each sample location. Decontamination procedure will be as detailed in TestAmerica SOP No. BF-FS-004 (Rev 1). All sampling equipment will be constructed of inert materials.

4.2 GENERAL SAMPLING AND HANDLING PROCEDURES

All samples collected for the Carroll Landfill environmental monitoring program will be grab samples. At each sampling location, sample bottles will be filled in order of the parameter's volatilization sensitivity. Based on the Part 360 parameter lists for routine and baseline events, the order of collection for specific parameter groups is:

1. Volatile Organics;
2. Field Parameters;
3. Total Organic Carbon;
4. Metals;
5. Phenols and Cyanides; and,
6. Remaining Water Quality Parameters.

Should a situation arise at any time during the sampling event that precludes adherence to the laboratory SOPs or the protocols detailed in this SAP, field services personnel must document the situation on the field observations form. Documentation must include a full description of the issue and the course of action taken. Field changes that are potentially significant must be brought to the attention of the AQA officer prior to leaving the site.

Sample packaging and shipping procedures are covered in TestAmerica SOP No. BF-FS-002 (Rev 1). Sample bottles will be transported in coolers containing sufficient ice to maintain an internal temperature of $4 \pm 2^{o}C$. Appropriate packing materials, such as bubble wrap, cardboard, and/or Styrofoam will be used to prevent breakage when necessary. Coolers will be sealed once full and delivered at the end of the sampling day to the laboratory by field personnel or by

overnight carrier, ground shipping. Coolers will be accompanied by chain of custody documentation.

4.3 SYSTEM SPECIFIC SAMPLING AND HANDLING PROCEDURES

The Carroll Landfill environmental monitoring program, as detailed in the EMP, includes six different types of systems; (1) a system of onsite groundwater monitoring wells, (2) a surface water system including Storehouse Run, its tributaries, and its benthic sediment, (3) the landfill leachate collection systems, (4) a groundwater drain tile system installed under the existing landfill, (5) a groundwater suppression system associated with the landfill expansion, and (6) offsite private, residential, water supply wells. Each system has some unique sampling and handling procedures. System specific procedures are discussed in the following sections.

4.3.1 Groundwater Monitoring Well Sampling Techniques

Field data collection applied to groundwater monitoring wells are detailed in TestAmerica SOP No. BF-FS-003 (Rev 1). Proper sampling techniques will follow either conventional or low-flow methods as detailed in TestAmerica SOPs No. BF-FS-005 (Rev 5) or No. BF-FS-007 (Rev 1), respectively. Groundwater samples will be taken with dedicated bailers (conventional method) or dedicated peristaltic tubing (low-flow method). The following approach will be consistently applied at each well.

1. Upon arriving at each monitoring well location, a background reading of volatile organic vapors will be taken with a photoionization detector (PID) within a few feet of the wellhead. The background PID reading will be recorded on the field observations form.

2. The well casing will be unlocked and carefully removed. The headspace within the well will be analyzed for the presence of volatile organic, and possibly explosive, gases using the PID. The wellhead PID reading will be recorded on the field observations form.

3. Static water level will be measured using the wetted tape method or an electronic water level indicator.

4. Although unlikely, as a case of good practice standing water in the well will be checked for immiscible layers. Any floaters, sinkers, or multi-phased/multi-layered fluids found must be sampled and analyzed separately.

5. Monitoring wells will be purged using conventional or low-flow methods. Low-flow methods will be used in situations of excess turbidity or poor recharge, as established in the field. Regardless of method, the water level should not be reduced to below the top of the sandpack while purging, if possible. Once established both the appropriate pump rate and depth of pump intake are to be recorded for each well and must remain the same for every sampling event. While low-flow purging, specific conductivity, temperature, and pH, at a minimum, will be monitored to determine when fresh formation water has fully replaced the stagnant water in the well, as described in TestAmerica SOP No. BF-FS-007 (Rev 1).

6. Purge water will be discharged to the ground surface downgradient and away from the wellhead.

7. After purging three well volumes (conventional sampling) or once the indicator parameters (specific conductivity, temperature, and pH) stabilize (low-flow sampling) the event's samples may be drawn. For low-flow sampling the indicator parameters are expected to stabilize within four hours. Should these indicator parameters fail to stabilize, sampling can commence after four hours of purging and an explanation of any attempts to achieve stabilization should be fully documented on the field observations form. Under no circumstances will sampling take place greater than 24 hours after well purging.

8. The well casing will be carefully replaced and locked.

Water quality sampling of the groundwater monitoring wells will begin with the upgradient and cross-gradient wells as identified in the EMP. All groundwater samples taken will be unfiltered, unless excessive turbidity is unavoidable. If turbidity is greater than 50 NTU despite efforts to minimize suspended sediment, both field-filtered and unfiltered samples will be collected for the inorganic parameters. Samples collected for all other parameters will be unfiltered only.

4.3.2 Surface Water and Sediment Sampling Techniques

Surface water and the underlying sediment will be sampled from upstream and downstream locations as specified in the EMP. Collection of surface water samples is covered in TestAmerica SOP No. BF-FS-005 (Rev 2). Surface water samples should be taken prior to sediment samples. Care must be taken to avoid capturing streambed sediments in the surface water samples. Surface water sampling must begin at the most downstream location and work upstream to avoid disturbances from bottom sediments stirred by sampling at upstream locations.

Sampling at surface water and sediment locations will follow the steps below.

1. Measure water depth with a staff gauge or similar.

2. In flowing water bodies, measure velocity using a current meter or equivalent.

3. If water depth is greater than three feet, check the water body visually for stratification. If stratification is observed, each stratum must be sampled separately and measured for specific conductivity for evidence of contamination. If the specific conductivity of any one stratum (or stratums) is greater than 50% higher than any other stratum, samples from each stratum must be analyzed separately. If all stratums are within 50% of each other then individual stratum samples from each stratum will be composited on an equal volume basis for analysis.

4. Surface water samples will be collected as described in TestAmerica SOP No. BF-FS-005 (Rev 2).

5. Sediment samples will be collected immediately following collection of the surface water samples and at the same location.

6. Sediment samples should consist of the upper five centimeters of material when available.

7. If water depth is less than four inches and the flow is low enough that sample washing is not problematic, sediment samples will be taken using a trowel or stainless steel spoon.

8. If the water depth is greater than four inches or if sample washing is significant, sediment samples will be taken using a revolving bucket sampler (US BMH80 or equivalent). Should the bed material consist of dense clay or gravel, the revolving bucket sampler may not be ideal. In such a situation, a hand corer may be utilized to obtain the sediment sample.

4.3.3 Leachate Sampling Techniques

Leachate samples will be collected from the primary and secondary leachate sumps with dedicated bladder, low-flow sampling pumps. Use of dedicated sampling pumps instead of sampling from the discharge of the leachate sump pumps is required to maintain the integrity of the leachate samples. Pneumatic sampling pumps will be installed on the primary and secondary leachate collection pipes within their respective sideriser pipes. Twin tubing will be run up each sideriser strapped to the discharge hose of the sump pumps. Caps with quick connect tube fittings will be embedded into the sideriser blind flanges at the surface. Field data collection procedures for leachate sampling will be as identified in Section 4.14 in TestAmerica SOP No. BF-FS-003 (Rev 1). Sampling of the primary and secondary leachate from their siderisers will follow the steps below.

1. Connect the compressed gas source to the pump controller.
2. Connect the controller to the air supply fitting on the sideriser blind flange.
3. Connect sampling tubing to the pump discharge fitting on the sideriser blind flange.
4. Activate the controller and allow discharge tubing to flush.
5. Collect the water quality samples from the sampling tubing.
6. Measure and record field parameters according to TestAmerica SOP No. BF-FS-003 (Rev 1).
7. Disconnect all tubing from the sideriser blind flange.

4.3.4 Groundwater Drain System Sampling Techniques

Per the EMP, Drain Tile 2 from the existing landfill's groundwater drainage system will be sampled until its removal as the construction of the expanded landfill progresses. Drain Tile 2 is a four-inch diameter Schedule 40 PVC pipe which daylights at the base of a steep slope below the southeast corner of the existing landfill. When observed, Drain Tile 2 is typically found actively flowing onto the ground surface. Samples taken from this location will follow the steps below:

1. Estimate the flowrate of the groundwater coming from the drain by timing with a stopwatch the time required to collect a known volume of sample.

2. Collect samples by placing the open sample container directly in the flow coming from the drain tile.

3. Measure and record field parameters according to TestAmerica SOP No. BF-FS-003 (Rev 1).

4.3.5 Groundwater Drain Sampling Techniques

Sampling of the porewater drain (GWD-1) will follow the same procedures as the leachate described in Section 4.3.3. The porewater drain sideriser pipe will be fit with a dedicated bladder, low-flow sampling pump within the sump. Twin tubing will be run up the sideriser strapped to the discharge hose of the sump pump. Sampling of the groundwater from the porewater drain sideriser will follow the steps laid out in Section 4.3.3.

4.3.6 Residential Water Supply Well Sampling Techniques

Several privately–owned, water supply wells are located on adjacent residential property immediately downgradient of the site. Pending permission from the property owner(s), one or more of these wells will be included in the environmental monitoring program for the Carroll Landfill. At least 24 hours prior to each sampling event, the property owner must be notified. Permission to sample the well must be granted before accessing the property.

Ideally, samples are taken directly from residential wells in the same manner as the environmental monitoring wells. However, if this is not possible, purge and sample from the spigot closest to the well. If possible, disconnect all filters, softeners, aerators, etc. that are

online prior to the sampling point, including those attached directly to the spigot itself. For samples collected after the pressure tank, the water must be purged long enough to flush out the water stored in the tank and the pipes to ensure a fresh sample of formation water. Once a method is established for each residential water well sampled, it must be documented and consistently applied during each sampling event.

4.4 FIELD SAMPLING QUALITY ASSURANCE AND QUALITY CONTROL

Field sampling QA/QC measures will be used to identify and correct deficiencies in the sampling procedures and techniques prescribed herein. The following QA/QC measures will be utilized at Carroll Landfill:

- Equipment blanks will be taken at a rate of one per event as discussed in Section 2;
- Field duplicates will be taken at a rate of three per event (one each for groundwater, surface water, and sediment) as discussed in Section 2;
- Field observations forms are reviewed during preparation of monitoring reports for deviation from historical trends in field parameter results and calibration information;
- Precision, accuracy, and completeness of field parameter results will be calculated for every sampling event and reported in the biannual QA Report (see section 3.3);
- All observations and noted deviations from written procedures documented on the field observations forms will be reviewed for significance and repetitiveness; and,
- Surprise audits will be conducted during a sampling event by the AQA officer once every three years to ensure the field sampling techniques and protocols are being properly executed by field services personnel.

Should the findings of the above QA/QC measures identify deficiencies in the field sampling procedures, a separate Field Sampling Report will be prepared for submission to the NYSDEC. A Field Sampling Report will include a description of the deficiency, the corrective actions taken, and the persons responsible for implementing the corrective actions. If revisions to this SAP are required the document will be reissued as a revision. As specified in Section 1, revisions must be accompanied by an entry in the Revision History Log (Attachment 7) which

describes the changes made. The revised SAP must be submitted to the NYSDEC and the contracted laboratory performing the field services.

5 LABORATORY PROCEDURES

5.1 ANALYTICAL LABORATORY

Field and analytical services for the Carroll Landfill facility will be provided by TestAmerica Laboratories, Inc. The address of the local Buffalo office out of which our field services personnel work and our samples will be analyzed is:

TestAmerica Laboratories, Inc.
10 Hazelwood Drive, Suite 106
Amherst, NY 14228

Contacts at TestAmerica for the Carroll Landfill include:

Ryan VanDette
Project Manager assigned to Carroll Landfill
Tel (716) 504-9830 | Fax (716) 691-7991
ryan.vandette@testamericainc.com

Chris Spencer
Laboratory Director
Tel (716) 504-9852 | Cel (716) 316-3912
chris.spencer@testamericainc.com

Roger Senf
Field Services Supervisor
Tel (716) 504-9836 | Cel (716) 870-8732
roger.senf@testamericainc.com

The Buffalo office of TestAmerica holds current ELAP certification in the following categories of environmental analyses; potable water, non-potable water, and solid and hazardous wastes. These ELAP certifications include the subcategories necessary to meet the analytical requirements of the Carroll Landfill environmental monitoring program. Copies of TestAmerica Buffalo's current ELAP Certificates of Accreditation as of the date of this revision are included in this SAP as Attachment 2.

A Quality Assurance Manual of TestAmerica Buffalo's SOPs was complied for the Carroll Landfill. Only those SOPs applicable to the Carroll Landfill are included. The list of applicable TestAmerica SOPs for the Laboratory Quality Assurance Manual for Carroll Landfill is included as Attachment 3 to this SAP. All SOPs listed are incorporated by reference. The complete

Laboratory Quality Assurance Manual for Carroll Landfill can be made available to the NYSDEC upon request.

5.2 ANALYTICAL METHODS

The monitoring program for the Carroll C&D Debris Landfill will include up to the 6 NYCRR Part 360 Expanded Parameters List. A table of these parameters is included in Attachment 6. The table was prepared by TestAmerica Buffalo and includes the specific analytical method employed by their laboratory, method detection limits, holding times, and laboratory-specific practical quantitation limits.

5.3 DELIVERABLES

Laboratory reports will be consistent with the applicable recommendations of the National Environmental Laboratory Accreditation Conference (2002). The results of all environmental tests or series of tests shall be reported clearly with sufficient calibration certificates, quality control data, and any other information specific to the methods performed to assess their validity and usability. Reporting requirements for each analyte include concentration (or flow) in the appropriate significant figures using the appropriate units, method detection limits, and practical quantitation limits.

The data package will include a narrative regarding any deviations, additions, or exclusions from the specifications in this SAP or its associated SOPs. When appropriate and necessary, the narrative should also include opinions and interpretations regarding the results, specifically the quality of the results. TestAmerica uses a proprietary laboratory information management system, referred to as TAiLS. Laboratory reports and analytical data will be provided to the AQA officer in electronic format through TestAmerica's online interactive data delivery portal, TotalAccess, and on CD. Printed format will be required only upon request.

If required, electronic data deliverables (EDDs) will be submitted using an appropriate EDD template for upload to the NYSDEC's environmental data management system, EQuIS. The templates will be run through the NYSDEC's error detection program and final checklist prior to submission to assure the quality of the EDD. TestAmerica has already established the capability to submit EDD packages in the appropriate format directly to the NYSDEC.

6 DATA QUALITY ASSESSMENT

The quality of the results from each sampling event must be reviewed. Data quality assessment consists of two phases, data validation and data usability analysis. The findings of the data quality assessment will be used to refine this SAP and the laboratory SOPs when necessary. Poor quality data will not be used in the environmental monitoring program. The information gathered from the data quality assessment will be used to produce the biannual QA reports discussed in Section 3.3. A summary of the findings of the data quality assessment for each individual sampling event will be included in the quarterly environmental monitoring reports.

6.1 DATA VALIDATION

Data validation is the process of assessing the quality of data by reviewing the associated laboratory program controls and other QA/QC criteria specific to the analytical methods employed. After each sampling event the data package must be validated for completeness and compliance. The results of the data validation must be documented in a data validation report.

Environmental data for Carroll Landfill's routine sampling events will be validated by the laboratory performing the analysis, currently TestAmerica. Baseline or expanded sampling events must be validated by an independent party. The independent data validator for the Carroll Landfill Environmental Monitoring Program is Ken Applin of KR Applin and Associates. Data validation will be performed on a minimum of 20% of the data generated for each sampling event. This exceeds the 5% minimum requirement stated in clause 360-2.11(d)(5)(i)(*c*).

Procedures for data validation found in national guidance documentation will be followed specific to the analyte and the method employed. Applicable guidance documents are as follows:

TABLE 6-1: APPLICABLE DATA VALIDATION GUIDANCE DOCUMENTS

Parameters	USEPA Guidance
Method 6010B Metals*	USEPA Region 2 SOP #HW-2a, ICP-AES Data Validation (Revision 15, December 2012)
Mercury & Cyanide	USEPA Region 2 SOP #HW-2c, Mercury and Cyanide Data Validation (Revision 15, December 2012)
Volatile Organic Compounds*	USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (June 2008) and USEPA Region 2 SOP #HW-33, Low-Medium Volatile Data Validation (Revision 3, March 2013)
Semi-Volatile Organic Compounds*	USEPA Region 2 SOP #HW-35, Low-Medium Volatile Data Validation (Revision 3, March 2013)
Pesticides*	USEPA Region 2 SOP #HW-36, Pesticide Data Validation (Revision 4, May 2013)
Aroclors	USEPA Region 2 SOP #HW-37, Polychlorinated Biphenyl (PCB) Aroclor Data Validation (Revision 3, May 2013)

*See Attachment 6 for a full list of analytes.

For analytes that have no established data validation procedures (e.g., wet chemistry parameters and herbicides), data validation procedures established by the laboratory must be followed. Data validation criteria are included in the applicable TestAmerica SOPs.

6.1.1 Data Completeness

Data package completeness will be determined as described in NYSDEC TAGM SW-96-09 (2001) by reviewing the package to ensure the following pieces are included:

- All sample chain of custody forms;
- Case narratives including sample analysis summaries;
- AQA/AQC summary forms and supporting documentation;
- Relevant calibration data and supporting documentation;
- Instrument and method performance data;
- Documentation showing the laboratory's ability to attain the method detection limits for analytes in the required matrices (i.e., water and sediment);
- All applicable data report forms, including field observations forms, sample preparation logs, analytical run logs, extraction logs, digestion logs, and examples of the calculations used in determining final concentrations; and,

- Raw data used in the identification and quantification of the contract-specified analytes.

Any deficiencies in the completeness of the data package will be brought to the attention of the AQA officer and/or the laboratory immediately. The laboratory will be given 10 calendar days to rectify the deficiency.

6.1.2 Data Compliance

Data compliance will be assessed on each data package prepared for the Carroll Landfill as part of the environmental monitoring program. Data compliance will be determined by an analysis of the following criteria as defined in NYSDEC TAGM SW-96-09 (2001):

- Completeness of the data package as described above;
- Samples have been taken and data have been produced and reported in a manner consistent with the requirements of this SAP;
- All AQA/AQC criteria established in this SAP have been satisfied;
- Instrument calibrations, both initial and continuing, were performed and documented;
- Data reporting forms include all information necessary to calculate reported data from raw data (e.g., sample dilutions and concentration factors, standard curve information, and correction factors);
- Sample re-measurement and sample clean-up procedures are described, when applicable; and,
- All problems encountered during sample collection and analysis and their corrective actions are adequately described in the case narrative.

As part of the data compliance assessment the validator will conduct a comparison of the raw data to the reported data for a representative number of datum to verify that compounds were appropriately identified, units are correct, and that transcription errors are not present. Validators will recalculate approximately 5% of the sample analytical data to confirm reported results. If recalculation does not confirm the reported results, the frequency of recalculations must be increased until adequate confidence in the data set is gained. The validator's rationale for determining adequate confidence must be described in the data validation report.

All data that fail established validation criteria must be clearly flagged with an appropriate qualifier. Standard letter qualifiers (J, R, U, etc.) as described in the referenced guidance documents above will be used.

6.1.3 Data Validation Report

As discussed above, the data validator will produce a data validation report that summarizes the data review for each sampling event. The data validation report must include:

- A general assessment of the overall quality of the data package;
- The results of the data completeness and data compliance assessments;
- A table of qualified results;
- Any failures to reconcile raw data with the reported results; and,
- A "detailed assessment by the validator of the degree to which the data may have been compromised by any deviation from protocol, AQA/AQC breakdowns, lack of analytical control, etc., that occurred during the sampling acquisition and analytical processes" (NYSDEC, 2001).

The data validation report must be submitted to the AQA officer or incorporated into the case narrative when provided internally by the laboratory. The data validation report will be submitted to the laboratory as well when validation is performed independently. A copy of the data validation report (or select pages from the report, if appropriate) will be submitted to the NYSDEC as an attachment to the quarterly Environmental Monitoring Report prepared for the validated event.

6.2 DATA USABILITY ANALYSIS

The data usability analysis is an evaluation of the data within the context of the original data quality objectives established in Section 2 of this SAP. The data usability analysis will be performed on each validated data set by the AQA officer. The results of the usability analysis will be summarized in the quarterly Environmental Monitoring Report submitted to the NYSDEC.

The data usability analysis is clearly defined in subparagraph 360-2.11(d)(5)(ii) as consisting of the following:

- An assessment to determine if the data quality objectives were met;
- A comparison of the analytical data with historical results to evaluate consistency of these data;
- An evaluation of field duplicate results to indicate the samples are representative;
- A comparison of the results of all field blanks, trip blanks, equipment rinsate blanks, and method blanks with full data sets to provide information concerning contaminants that may have been introduced during sampling, shipping, or analyzing;
- An evaluation of matrix spikes to assess the performance of the analytical method with respect to the sample matrix, and determine whether these data have been biased high or low due to matrix effects;
- An integration of the field and laboratory data with geological, hydrogeological, and meteorological data to provide information about the extent of contamination, if it occurs; and,
- A comparison of precision, accuracy, representativeness, comparability, completeness, and defensibility of data generated with that required to meet the data quality objectives established in the site analytical plan.

7 REFERENCES

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New York State Department of Environmental Conservation (NYSDEC) (2004) Technical and Operational Guidance Series 1.1.1 (TOGS 1.1.1) *Ambient Water Quality Standards And Guidance Values And Groundwater Effluent Limitations.* Division of Water. Last full reissue date: June 1998, includes all addendum and errata up through June 2004.

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Townsend, Timothy G., Yong-Chul Jang, and William Weber (2000) *Continued Research Into the Characteristics of Leachate From Construction and Demolition Waste Landfills.*

Report #00-04, University Of Florida, Florida Center for Solid and Hazardous Waste Management, Gainesville, FL.

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U.S. Environmental Protection Agency (2013) *USEPA Region 2 SOP #HW-35, Low-Medium Volatile Data Validation* (Revision 3). Hazardous Waste Support Section. March 2013.

U.S. Environmental Protection Agency (2013) *USEPA Region 2 SOP #HW-36, Pesticide Data Validation* (Revision 4). Hazardous Waste Support Section. May 2013.

U.S. Environmental Protection Agency (2013) *USEPA Region 2 SOP #HW-37, Polychlorinated Biphenyl (PCB) Aroclor Data Validation* (Revision 3). Hazardous Waste Support Section. May 2013.

U.S. Environmental Protection Agency (2008) *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review.* OSWER 9240.1-48, USEPA 540-R-08-01, Office of Superfund Remediation and Technology Innovation, Washington, DC 20460. June 2008.

ATTACHMENT 1

AQA Officer’s Resume

Bethany Acquisto, Ph.D.
Senior Scientist/Group Manager

Summary of Experience

- ❑ Wastewater Disinfection and Biosolids Management Research
- ❑ Environmental Data Analysis
- ❑ Report and Permit Application Preparation

Education

Ph. D. Civil Engineering
University at Buffalo
Area of Emphasis: Environmental Engineering
Professional Concentration: Ultraviolet Wastewater Disinfection
Degree Granted: 2003

M. S. Civil Engineering
University at Buffalo
Area of Emphasis: Environmental Engineering
Professional Concentration: Wastewater Disinfection and Microbiology
Degree Granted: 1998

B. S. Environmental and Forest Biology
State University of New York College of Environmental Science and Forestry
Area of Emphasis: Environmental Science and Macrobiology
Degree Granted: 1995

Professional Experience

2007 – present
Senior Scientist/Group Manager - Daigler Engineering, P.C., Grand Island, New York

Senior Scientist – Responsible for data analysis and reporting related to environmental monitoring, producing permit application documents, and design and demonstration activities related to wastewater treatment and treatment components.

- Designed 3 pathogen reduction demonstration studies to represent a modified sludge pasteurization technology, a filter press lime stabilization technology, and an electro-dewatering technology to the U.S. EPA's Pathogen Equivalency Committee.
- Prepared air emissions inventory and air permits for a municipal solid waste landfill.
- Designed package plant sewage treatment plant for rural campground expansion.
- Prepared initial permit and permit modification application for federal wetland disturbances, individual SPDES, general SPDES for stormwater construction, mined land reclamation, nationwide Army Corps of Engineers permits, and solid waste facilities.
- Prepared scoping document and environmental assessment for solid waste facility applications.
- Provide data analysis and reporting for an environmental monitoring program including groundwater, surface water, and process water.
- Modeled existing and future conditions floodplain using HEC-RAS and prepared reports.
- Provide supportive AutoCAD modeling, figure and drawing production for various projects.

Group Manager – Responsible for office productivity with regards to personnel, equipment, software, and supplies, as well as, ensuring product quality management.

2003 – 2007
Environmental Engineer - U.S. EPA, Office of Research and Development, Edison, NJ and Cincinnati, Ohio

Environmental Engineer/Research Scientist – Responsible for providing essential support for PEC, participating in Agency strategic planning exercises, writing and reviewing Agency documents, and presenting Agency research through oral presentations and technical articles. Responsible for

researching, designing, and conducting field/laboratory research studies in support of current and/or future Agency regulations in the areas of solids and stormwater management.

- Designed & conducted field/laboratory study to assess alternative measures of sewage sludge stability at a sewage treatment plant employing anaerobic digestion with methane recovery.
- Provided essential support for the PEC which reviews innovative sewage sludge treatment processes in terms of pathogen reduction capability to those which are already regulatorily accepted for land application of biosolids. Primary duties included:
  - » Development of content for first comprehensive website to assist interested public and potential applicants through the equivalency process (http://www.epa.gov/nrmrl/pec/)
  - » Development of searchable database/tracking system for PEC applications (>450 records)
  - » Review of and response to equivalency applications and supporting correspondence
  - » Organization of and participation in a retreat for PEC and nationwide experts to review and update procedures for the equivalency process
- Designed and participated in sampling for laboratory project on size characterization of particle-bound nutrients in stormwater runoff. Produced data analysis and reported on results.
- Authored 2 chapters of a >250 page published book on stormwater best management practices.
- Prepared and presented 9 oral presentations and 2 poster presentations at national and international conferences and workshops.
- Authored 2 papers for conference proceedings.
- Reviewed Agency documents, both internal and external, within focus area of wastewater disinfection, solids disinfection, solids management, land application of biosolids, CAFOs, and stormwater management.

1997 - 2002
Research Assistant/Technician – Research Foundation of the State University of New York, Buffalo, New York

Research Assistant – Responsible for developing, conducting, and disseminating results into the scientific community for two large research projects on ultraviolet and ultrasound disinfection of wastewater. Also, responsible for operating a 600 gpm ultraviolet pilot plant for over a year at a local WWTP which entailed trouble shooting problems, coordinating maintenance, performing weekly cleaning and twice weekly sampling and analysis. Authored or co-authored 4 manuscripts published in highly respected trade journals.

Research Technician – Responsible for completing several short term studies for the purposes of troubleshooting and problem solving issues with industrial waste streams and stormwater/combined sewer overflows.

1992 - 1995
Environmental/Regulatory Compliance Intern – West Valley Nuclear Services, West Valley, New York

Environmental/Regulatory Compliance Intern – Responsible for auditing environmental compliance responsibilities, researching and developing a site-wide air emissions inventory, developing materials for and arranging public relations and site inspection activities at the Department of Energy's West Valley Demonstration Project.

Professional Affiliations & Registrations

Member - Water Environment Federation (New York Chapter) and their Disinfection and Residuals & Biosolids Committees

ATTACHMENT 2

Laboratory ELAP Certificates of Accreditation

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2016
Issued April 01, 2015

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. KENE E. KASPEREK
TESTAMERICA BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES POTABLE WATER
All approved analytes are listed below:

Dissolved Gases	
Acetylene	RSK-175
Ethane	RSK-175
Ethene (Ethylene)	RSK-175
Methane	RSK-175
Propane	RSK-175
Fuel Additives	
Methyl tert-butyl ether	EPA 524.2
Naphthalene	EPA 524.2
Metals I	
Arsenic, Total	EPA 200.8 Rev. 5.4
Barium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Cadmium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Chromium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Copper, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Iron, Total	EPA 200.7 Rev. 4.4
Lead, Total	EPA 200.8 Rev. 5.4
Manganese, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Mercury, Total	EPA 245.1 Rev. 3.0
Selenium, Total	EPA 200.8 Rev. 5.4
Silver, Total	EPA 200.7 Rev. 4.4

Metals I	
Silver, Total	EPA 200.8 Rev. 5.4
Zinc, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Metals II	
Aluminum, Total	EPA 200.7 Rev. 4.4
Antimony, Total	EPA 200.8 Rev. 5.4
Beryllium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Molybdenum, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Nickel, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Thallium, Total	EPA 200.8 Rev. 5.4
Vanadium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Metals III	
Boron, Total	EPA 200.7 Rev. 4.4
Calcium, Total	EPA 200.7 Rev. 4.4
Magnesium, Total	EPA 200.7 Rev. 4.4
Potassium, Total	EPA 200.7 Rev. 4.4
Sodium, Total	EPA 200.7 Rev. 4.4
Microextractibles	
1,2-Dibromo-3-chloropropane	EPA 504.1
1,2-Dibromoethane	EPA 504.1

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2016
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CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. KENE E. KASPEREK
TESTAMERICA BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES POTABLE WATER
All approved analytes are listed below:

Miscellaneous	
Endothall	EPA 548.1
Methyl Iodide	EPA 524.2
Organic Carbon, Dissolved	SM 19-22 5310D (-00)
Organic Carbon, Total	SM 19-22 5310D (-00)
Turbidity	EPA 180.1 Rev. 2.0
Non-Metals	
Alkalinity	EPA 310.2
	SM 18-22 2320B (-97)
Calcium Hardness	EPA 200.7 Rev. 4.4
	SM 18-22 2340B (-97)
Chloride	EPA 300.0 Rev. 2.1
	SM 18-22 4110B (-00)
	SM 21-22 4500-Cl- E (-97)
Color	SM 18-22 2120B (-01)
Cyanide	SM 18-22 4500-CN E (-99)
	EPA 335.4 Rev. 1.0
Fluoride, Total	EPA 300.0 Rev. 2.1
	SM 18-22 4110B (-00)
	SM 18-22 4500-F C (-97)
Nitrate (as N)	EPA 353.2 Rev. 2.0
	EPA 300.0 Rev. 2.1
	SM 18-22 4110B (-00)
Nitrite (as N)	EPA 353.2 Rev. 2.0
Orthophosphate (as P)	SM 18-22 4500-P E (-99)
Solids, Total Dissolved	SM 18-22 2540C (-97)

Non-Metals	
Specific Conductance	EPA 120.1 Rev. 1982
Sulfate (as SO4)	ASTM D516-90, 02, 07 & 11
	EPA 300.0 Rev. 2.1
	SM 18-22 4110B (-00)
Trihalomethanes	
Bromodichloromethane	EPA 524.2
Bromoform	EPA 524.2
Chloroform	EPA 524.2
Dibromochloromethane	EPA 524.2
Total Trihalomethanes	EPA 524.2
Volatile Aromatics	
1,2,3-Trichlorobenzene	EPA 524.2
1,2,4-Trichlorobenzene	EPA 524.2
1,2,4-Trimethylbenzene	EPA 524.2
1,2-Dichlorobenzene	EPA 524.2
1,3,5-Trimethylbenzene	EPA 524.2
1,3-Dichlorobenzene	EPA 524.2
1,4-Dichlorobenzene	EPA 524.2
2-Chlorotoluene	EPA 524.2
4-Chlorotoluene	EPA 524.2
Benzene	EPA 524.2
Bromobenzene	EPA 524.2
Chlorobenzene	EPA 524.2
Ethyl benzene	EPA 524.2
Hexachlorobutadiene	EPA 524.2

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Volatile Aromatics

Isopropylbenzene	EPA 524.2
n-Butylbenzene	EPA 524.2
n-Propylbenzene	EPA 524.2
p-Isopropyltoluene (P-Cymene)	EPA 524.2
sec-Butylbenzene	EPA 524.2
Styrene	EPA 524.2
tert-Butylbenzene	EPA 524.2
Toluene	EPA 524.2
Total Xylenes	EPA 524.2

Volatile Halocarbons

1,1,1,2-Tetrachloroethane	EPA 524.2
1,1,1-Trichloroethane	EPA 524.2
1,1,2,2-Tetrachloroethane	EPA 524.2
1,1,2-Trichloroethane	EPA 524.2
1,1-Dichloroethane	EPA 524.2
1,1-Dichloroethene	EPA 524.2
1,1-Dichloropropene	EPA 524.2
1,2,3-Trichloropropane	EPA 524.2
1,2-Dichloroethane	EPA 524.2
1,2-Dichloropropane	EPA 524.2
1,3-Dichloropropane	EPA 524.2
2,2-Dichloropropane	EPA 524.2
Bromochloromethane	EPA 524.2
Bromomethane	EPA 524.2
Carbon tetrachloride	EPA 524.2

Volatile Halocarbons

Chloroethane	EPA 524.2
Chloromethane	EPA 524.2
cis-1,2-Dichloroethene	EPA 524.2
cis-1,3-Dichloropropene	EPA 524.2
Dibromomethane	EPA 524.2
Dichlorodifluoromethane	EPA 524.2
Methylene chloride	EPA 524.2
Tetrachloroethene	EPA 524.2
trans-1,2-Dichloroethene	EPA 524.2
trans-1,3-Dichloropropene	EPA 524.2
Trichloroethene	EPA 524.2
Trichlorofluoromethane	EPA 524.2
Vinyl chloride	EPA 524.2

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Acrylates	
Acrolein (Propenal)	EPA 8260C
	EPA 624
Acrylonitrile	EPA 8260C
	EPA 624
Ethyl methacrylate	EPA 8260C
Methyl acrylonitrile	EPA 8260C
Methyl methacrylate	EPA 8260C
Amines	
1,2-Diphenylhydrazine	EPA 8270D
1,4-Phenylenediamine	EPA 8270D
1-Naphthylamine	EPA 8270D
2-Naphthylamine	EPA 8270D
2-Nitroaniline	EPA 8270D
3-Nitroaniline	EPA 8270D
4-Chloroaniline	EPA 8270D
4-Nitroaniline	EPA 8270D
5-Nitro-o-toluidine	EPA 8270D
Aniline	EPA 625
	EPA 8270D
Carbazole	EPA 625
	EPA 8270D
Diphenylamine	EPA 8270D
Methapyrilene	EPA 8270D
Pronamide	EPA 8270D
Propionitrile	EPA 8260C

Amines	
Pyridine	EPA 625
	EPA 8270D
Benzidines	
3,3'-Dichlorobenzidine	EPA 625
	EPA 8270D
3,3'-Dimethylbenzidine	EPA 8270D
Benzidine	EPA 625
	EPA 8270D
Chlorinated Hydrocarbon Pesticides	
4,4'-DDD	EPA 8081B
	EPA 608
4,4'-DDE	EPA 8081B
	EPA 608
4,4'-DDT	EPA 8081B
	EPA 608
Aldrin	EPA 8081B
	EPA 608
alpha-BHC	EPA 8081B
	EPA 608
alpha-Chlordane	EPA 8081B
beta-BHC	EPA 8081B
	EPA 608
Chlordane Total	EPA 8081B
	EPA 608
Chlorobenzilate	EPA 8270D

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Chlorinated Hydrocarbon Pesticides	
delta-BHC	EPA 8081B
	EPA 608
Diallate	EPA 8270D
Dieldrin	EPA 8081B
	EPA 608
Endosulfan I	EPA 8081B
	EPA 608
Endosulfan II	EPA 8081B
	EPA 608
Endosulfan sulfate	EPA 8081B
	EPA 608
Endrin	EPA 8081B
	EPA 608
Endrin aldehyde	EPA 8081B
	EPA 608
Endrin Ketone	EPA 8081B
gamma-Chlordane	EPA 8081B
Heptachlor	EPA 8081B
	EPA 608
Heptachlor epoxide	EPA 8081B
	EPA 608
Isodrin	EPA 8270D
Kepone	EPA 8270D
Lindane	EPA 8081B
	EPA 608
Methoxychlor	EPA 8081B

Chlorinated Hydrocarbon Pesticides	
Methoxychlor	EPA 608
Mirex	EPA 8081B
PCNB	EPA 8270D
Toxaphene	EPA 8081B
	EPA 608

Chlorinated Hydrocarbons	
1,2,3-Trichlorobenzene	EPA 8260C
1,2,4,5-Tetrachlorobenzene	EPA 8270D
1,2,4-Trichlorobenzene	EPA 625
	EPA 8270D
2-Chloronaphthalene	EPA 625
	EPA 8270D
Hexachlorobenzene	EPA 625
	EPA 8270D
Hexachlorobutadiene	EPA 625
	EPA 8270D
Hexachlorocyclopentadiene	EPA 625
	EPA 8270D
Hexachloroethane	EPA 625
	EPA 8270D
Hexachloropropene	EPA 8270D
Pentachlorobenzene	EPA 8270D

Chlorophenoxy Acid Pesticides	
2,4,5-T	EPA 8151A
2,4,5-TP (Silvex)	EPA 8151A

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Chlorophenoxy Acid Pesticides	
2,4-D	EPA 8151A
Dalapon	EPA 8151A
Dichloroprop	EPA 8151A
Dinoseb	EPA 8151A
	EPA 8270D
Demand	
Biochemical Oxygen Demand	SM 5210B-01,-11
Carbonaceous BOD	SM 5210B-01,-11
Chemical Oxygen Demand	EPA 410.4 Rev. 2.0
Dissolved Gases	
Acetylene	RSK-175
Ethane	RSK-175
Ethene (Ethylene)	RSK-175
Methane	RSK-175
Propane	RSK-175
Fuel Oxygenates	
Di-isopropyl ether	EPA 8260C
Ethanol	EPA 8015D
Methyl tert-butyl ether	EPA 8260C
	EPA 8021B
tert-amyl methyl ether (TAME)	EPA 8260C
tert-butyl alcohol	EPA 8260C
	EPA 8015D
tert-butyl ethyl ether (ETBE)	EPA 8260C

Haloethers	
2,2'-Oxybis(1-chloropropane)	EPA 625
	EPA 8270D
4-Bromophenylphenyl ether	EPA 625
	EPA 8270D
4-Chlorophenylphenyl ether	EPA 625
	EPA 8270D
Bis(2-chloroethoxy)methane	EPA 625
	EPA 8270D
Bis(2-chloroethyl)ether	EPA 625
	EPA 8270D
Metals I	
Barium, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
	EPA 6020A
	EPA 200.8 Rev. 5.4
Cadmium, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
	EPA 6020A
	EPA 200.8 Rev. 5.4
Calcium, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
Chromium, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
	EPA 6020A
	EPA 200.8 Rev. 5.4

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Metals I	
Copper, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
	EPA 6020A
	EPA 200.8 Rev. 5.4
Iron, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
Lead, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
	EPA 6020A
	EPA 200.8 Rev. 5.4
Magnesium, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
Manganese, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
	EPA 6020A
	EPA 200.8 Rev. 5.4
Nickel, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
	EPA 6020A
	EPA 200.8 Rev. 5.4
Potassium, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
Silver, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
	EPA 6020A
	EPA 200.8 Rev. 5.4
Metals I	
Sodium, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
Strontium, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
	EPA 6020A
	EPA 200.8 Rev. 5.4
Metals II	
Aluminum, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
Antimony, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
	EPA 6020A
	EPA 200.8 Rev. 5.4
Arsenic, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
	EPA 6020A
	EPA 200.8 Rev. 5.4
Beryllium, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
	EPA 6020A
	EPA 200.8 Rev. 5.4
Chromium VI	EPA 7196A
	SM 3500-Cr B-09,-11
Mercury, Total	EPA 245.1 Rev. 3.0
	EPA 7470A

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Metals II	
Selenium, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
	EPA 6020A
	EPA 200.8 Rev. 5.4
Vanadium, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
	EPA 6020A
	EPA 200.8 Rev. 5.4
Zinc, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
	EPA 6020A
	EPA 200.8 Rev. 5.4
Metals III	
Cobalt, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
	EPA 6020A
	EPA 200.8 Rev. 5.4
Molybdenum, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
	EPA 6020A
	EPA 200.8 Rev. 5.4
Thallium, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
	EPA 6020A
	EPA 200.8 Rev. 5.4
Metals III	
Tin, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
Titanium, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
Mineral	
Alkalinity	EPA 310.2
	SM 2320B-97,-11
Calcium Hardness	EPA 200.7 Rev. 4.4
Chloride	EPA 300.0 Rev. 2.1
	SM 4110B-00,-11
	SM 4500-Cl- E-97,-11
	EPA 9056A
Fluoride, Total	EPA 300.0 Rev. 2.1
	SM 4110B-00,-11
	SM 4500-F C-97,-11
	EPA 9056A
Hardness, Total	SM 2340C-97,-11
	SM 2340B-97,-11
Sulfate (as SO4)	ASTM D516-07
	EPA 300.0 Rev. 2.1
	SM 4110B-00,-11
	EPA 9056A
Miscellaneous	
Boron, Total	EPA 200.7 Rev. 4.4
	EPA 6010C

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Miscellaneous	
Bromide	EPA 300.0 Rev. 2.1
	SM 4110B-00,-11
	EPA 9056A
Color	SM 2120B-01,-11
Cyanide, Total	LACHAT QuikChem 10-204-00-1-X
	SM 4500-CN E-99,-11
	EPA 335.4 Rev. 1.0
	EPA 9012B
Oil and Grease Total Recoverable (HEM)	EPA 1664A
Organic Carbon, Total	SM 5310D-00,-11
	EPA 9060A
Phenols	EPA 420.1 Rev. 1978
	EPA 9065
Specific Conductance	EPA 120.1 Rev. 1982
	SM 2510B-97,-11
	EPA 9050A
Sulfide (as S)	SM 4500-S2- F-00,-11
	SM 4500-S2- D-00,-11
Surfactant (MBAS)	SM 5540C-00,-11
Total Organic Halides	EPA 9020B
Total Petroleum Hydrocarbons	EPA 1664A
Turbidity	EPA 180.1 Rev. 2.0
Nitroaromatics and Isophorone	
1,3,5-Trinitrobenzene	EPA 8270D
1,3-Dinitrobenzene	EPA 8270D

Nitroaromatics and Isophorone	
1,4-Naphthoquinone	EPA 8270D
2,4-Dinitrotoluene	EPA 625
	EPA 8270D
2,6-Dinitrotoluene	EPA 625
	EPA 8270D
Isophorone	EPA 625
	EPA 8270D
Nitrobenzene	EPA 625
	EPA 8270D
Nitrosoamines	
N-Nitrosodiethylamine	EPA 8270D
N-Nitrosodimethylamine	EPA 625
	EPA 8270D
N-Nitrosodi-n-butylamine	EPA 8270D
N-Nitrosodi-n-propylamine	EPA 625
	EPA 8270D
N-Nitrosodiphenylamine	EPA 625
	EPA 8270D
N-nitrosomethylethylamine	EPA 8270D
N-nitrosomorpholine	EPA 8270D
N-nitrosopiperidine	EPA 8270D
N-Nitrosopyrrolidine	EPA 8270D
Nutrient	
Ammonia (as N)	EPA 350.1 Rev. 2.0
Kjeldahl Nitrogen, Total	EPA 351.2 Rev. 2.0

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Nutrient	
Nitrate (as N)	EPA 353.2 Rev. 2.0
	EPA 300.0 Rev. 2.1
	SM 4110B-00,-11
	SM 4500-NO3 F-00,-11
	EPA 9056A
Nitrate-Nitrite (as N)	EPA 353.2 Rev. 2.0
Nitrite (as N)	EPA 353.2 Rev. 2.0
	SM 4500-NO3 F-00,-11
Orthophosphate (as P)	SM 4500-P E-99,-11
Phosphorus, Total	SM 4500-P E-99,-11
Organophosphate Pesticides	
Atrazine	EPA 8270D
Dimethoate	EPA 8270D
Disulfoton	EPA 8270D
Famphur	EPA 8270D
Parathion ethyl	EPA 8270D
Parathion methyl	EPA 8270D
Phorate	EPA 8270D
Simazine	EPA 8270D
Thionazin	EPA 8270D
Petroleum Hydrocarbons	
Diesel Range Organics	EPA 8015D
Gasoline Range Organics	EPA 8015D

Phthalate Esters	
Benzyl butyl phthalate	EPA 625
	EPA 8270D
Bis(2-ethylhexyl) phthalate	EPA 625
	EPA 8270D
Diethyl phthalate	EPA 625
	EPA 8270D
Dimethyl phthalate	EPA 625
	EPA 8270D
Di-n-butyl phthalate	EPA 625
	EPA 8270D
Di-n-octyl phthalate	EPA 625
	EPA 8270D
Polychlorinated Biphenyls	
PCB-1016	EPA 8082A
	EPA 608
PCB-1221	EPA 8082A
	EPA 608
PCB-1232	EPA 8082A
	EPA 608
PCB-1242	EPA 8082A
	EPA 608
PCB-1248	EPA 8082A
	EPA 608
PCB-1254	EPA 8082A
	EPA 608

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Polychlorinated Biphenyls	
PCB-1260	EPA 8082A
	EPA 608
PCB-1262	EPA 8082A
PCB-1268	EPA 8082A
Polynuclear Aromatics	
2-Acetylaminofluorene	EPA 8270D
3-Methylcholanthrene	EPA 8270D
7,12-Dimethylbenzyl (a) anthracene	EPA 8270D
Acenaphthene	EPA 625
	EPA 8270D
Acenaphthylene	EPA 625
	EPA 8270D
Anthracene	EPA 625
	EPA 8270D
Benzo(a)anthracene	EPA 625
	EPA 8270D
Benzo(a)pyrene	EPA 625
	EPA 8270D
Benzo(b)fluoranthene	EPA 625
	EPA 8270D
Benzo(ghi)perylene	EPA 625
	EPA 8270D
Benzo(k)fluoranthene	EPA 625
	EPA 8270D
Chrysene	EPA 625

Polynuclear Aromatics	
Chrysene	EPA 8270D
Dibenzo(a,h)anthracene	EPA 625
	EPA 8270D
Fluoranthene	EPA 625
	EPA 8270D
Fluorene	EPA 625
	EPA 8270D
Indeno(1,2,3-cd)pyrene	EPA 625
	EPA 8270D
Naphthalene	EPA 625
	EPA 8270D
Phenanthrene	EPA 625
	EPA 8270D
Pyrene	EPA 625
	EPA 8270D
Priority Pollutant Phenols	
2,3,4,6 Tetrachlorophenol	EPA 8270D
2,4,5-Trichlorophenol	EPA 625
	EPA 8270D
2,4,6-Trichlorophenol	EPA 625
	EPA 8270D
2,4-Dichlorophenol	EPA 625
	EPA 8270D
2,4-Dimethylphenol	EPA 625
	EPA 8270D

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

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CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

NY Lab Id No: 10026

MR. KENE E. KASPEREK
TESTAMERICA BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Priority Pollutant Phenols	
2,4-Dinitrophenol	EPA 625
	EPA 8270D
2,6-Dichlorophenol	EPA 8270D
2-Chlorophenol	EPA 625
	EPA 8270D
2-Methyl-4,6-dinitrophenol	EPA 625
	EPA 8270D
2-Methylphenol	EPA 8270D
2-Nitrophenol	EPA 625
	EPA 8270D
3-Methylphenol	EPA 8270D
4-Chloro-3-methylphenol	EPA 625
	EPA 8270D
4-Methylphenol	EPA 8270D
4-Nitrophenol	EPA 625
	EPA 8270D
Cresols, Total	EPA 625
	EPA 8270D
Pentachlorophenol	EPA 8151A
	EPA 625
	EPA 8270D
Phenol	EPA 625
	EPA 8270D
Residue	
Settleable Solids	SM 2540 F-97,-11

Residue	
Solids, Total	SM 2540 B-97,-11
Solids, Total Dissolved	SM 2540 C-97,-11
Solids, Total Suspended	SM 2540 D-97,-11
Solids, Volatile	SM 2540 E-97,-11
Semi-Volatile Organics	
1,1'-Biphenyl	EPA 8270D
1,2-Dichlorobenzene, Semi-volatile	EPA 8270D
1,3-Dichlorobenzene, Semi-volatile	EPA 8270D
1,4-Dichlorobenzene, Semi-volatile	EPA 8270D
2-Methylnaphthalene	EPA 8270D
4-Amino biphenyl	EPA 8270D
Acetophenone	EPA 625
	EPA 8270D
Benzaldehyde	EPA 8270D
Benzoic Acid	EPA 8270D
Benzyl alcohol	EPA 8270D
Caprolactam	EPA 8270D
Dibenzofuran	EPA 8270D
Ethyl methanesulfonate	EPA 8270D
Isosafrole	EPA 8270D
Methyl methanesulfonate	EPA 8270D
n-Decane	EPA 625
n-Octadecane	EPA 625
O,O,O-Triethyl phosphorothioate	EPA 8270D
p-Dimethylaminoazobenzene	EPA 8270D

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Semi-Volatile Organics	
Phenacetin	EPA 8270D
Safrole	EPA 8270D
Volatile Aromatics	
1,2,4-Trichlorobenzene, Volatile	EPA 8260C
1,2,4-Trimethylbenzene	EPA 8260C
	EPA 8021B
1,2-Dichlorobenzene	EPA 8260C
	EPA 624
1,3,5-Trimethylbenzene	EPA 8260C
	EPA 8021B
1,3-Dichlorobenzene	EPA 8260C
	EPA 624
1,4-Dichlorobenzene	EPA 8260C
	EPA 624
2-Chlorotoluene	EPA 8260C
4-Chlorotoluene	EPA 8260C
Benzene	EPA 8260C
	EPA 8021B
	EPA 624
	EPA 602
Bromobenzene	EPA 8260C
Chlorobenzene	EPA 8260C
	EPA 624
Ethyl benzene	EPA 8260C
	EPA 8021B

Volatile Aromatics	
Ethyl benzene	EPA 624
	EPA 602
Isopropylbenzene	EPA 8260C
	EPA 8021B
m/p-Xylenes	EPA 8260C
	EPA 624
Naphthalene, Volatile	EPA 8260C
	EPA 8021B
n-Butylbenzene	EPA 8260C
	EPA 8021B
n-Propylbenzene	EPA 8260C
	EPA 8021B
o-Xylene	EPA 8260C
	EPA 624
p-Isopropyltoluene (P-Cymene)	EPA 8260C
	EPA 8021B
sec-Butylbenzene	EPA 8260C
	EPA 8021B
Styrene	EPA 8260C
	EPA 624
tert-Butylbenzene	EPA 8260C
	EPA 8021B
Toluene	EPA 8260C
	EPA 8021B
	EPA 624
	EPA 602

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All approved analytes are listed below:

Volatile Aromatics	
Total Xylenes	EPA 8260C
	EPA 8021B
	EPA 624
	EPA 602
Volatile Chlorinated Organics	
Epichlorohydrin	EPA 8260C
Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 8260C
1,1,1-Trichloroethane	EPA 8260C
	EPA 624
1,1,2,2-Tetrachloroethane	EPA 8260C
	EPA 624
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260C
1,1,2-Trichloroethane	EPA 8260C
	EPA 624
1,1-Dichloroethane	EPA 8260C
	EPA 624
1,1-Dichloroethene	EPA 8260C
	EPA 624
1,1-Dichloropropene	EPA 8260C
1,2,3-Trichloropropane	EPA 8260C
1,2-Dibromo-3-chloropropane	EPA 8260C
	EPA 8011
1,2-Dibromoethane	EPA 8260C
	EPA 8011
Volatile Halocarbons	
1,2-Dichloroethane	EPA 8260C
	EPA 624
1,2-Dichloropropane	EPA 8260C
	EPA 624
1,3-Dichloropropane	EPA 8260C
2,2-Dichloropropane	EPA 8260C
2-Chloro-1,3-butadiene (Chloroprene)	EPA 8260C
2-Chloroethylvinyl ether	EPA 8260C
	EPA 624
3-Chloropropene (Allyl chloride)	EPA 8260C
Bromochloromethane	EPA 8260C
Bromodichloromethane	EPA 8260C
	EPA 624
Bromoform	EPA 8260C
	EPA 624
Bromomethane	EPA 8260C
	EPA 624
Carbon tetrachloride	EPA 8260C
	EPA 624
Chloroethane	EPA 8260C
	EPA 624
Chloroform	EPA 8260C
	EPA 624
Chloromethane	EPA 8260C
	EPA 624
cis-1,2-Dichloroethene	EPA 8260C

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Volatile Halocarbons

cis-1,2-Dichloroethene	EPA 624
cis-1,3-Dichloropropene	EPA 8260C
	EPA 624
Dibromochloromethane	EPA 8260C
	EPA 624
Dibromomethane	EPA 8260C
Dichlorodifluoromethane	EPA 8260C
	EPA 624
Hexachlorobutadiene, Volatile	EPA 8260C
Methyl Iodide	EPA 8260C
Methylene chloride	EPA 8260C
	EPA 624
Tetrachloroethene	EPA 8260C
	EPA 624
trans-1,2-Dichloroethene	EPA 8260C
	EPA 624
trans-1,3-Dichloropropene	EPA 8260C
	EPA 624
trans-1,4-Dichloro-2-butene	EPA 8260C
Trichloroethene	EPA 8260C
	EPA 624
Trichlorofluoromethane	EPA 8260C
	EPA 624
Vinyl chloride	EPA 8260C
	EPA 624

Volatiles Organics

1,4-Dioxane	EPA 8260C
2-Butanone (Methylethyl ketone)	EPA 8260C
2-Hexanone	EPA 8260C
2-Nitropropane	EPA 8260C
4-Methyl-2-Pentanone	EPA 8260C
Acetone	EPA 8260C
Acetonitrile	EPA 8260C
Carbon Disulfide	EPA 8260C
Cyclohexane	EPA 8260C
Ethyl Acetate	EPA 8260C
Ethylene Glycol	EPA 8260C
	EPA 8015D
Isobutyl alcohol	EPA 8260C
	EPA 8015D
Methyl acetate	EPA 8260C
Methyl cyclohexane	EPA 8260C
o-Toluidine	EPA 8270D
Vinyl acetate	EPA 8260C

Sample Preparation Methods

SM 4500-P B(5)-99,-11
EPA 5030C
EPA 200.2
EPA 3010A
EPA 3005A
EPA 3510C

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All approved analytes are listed below:

Sample Preparation Methods

EPA 3020A

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All approved analytes are listed below:

Acrylates	
Acrolein (Propenal)	EPA 8260C
Acrylonitrile	EPA 8260C
Ethyl methacrylate	EPA 8260C
Methyl acrylonitrile	EPA 8260C
Methyl methacrylate	EPA 8260C
Amines	
1,2-Diphenylhydrazine	EPA 8270D
1,4-Phenylenediamine	EPA 8270D
1-Naphthylamine	EPA 8270D
2-Naphthylamine	EPA 8270D
2-Nitroaniline	EPA 8270D
3-Nitroaniline	EPA 8270D
4-Chloroaniline	EPA 8270D
4-Nitroaniline	EPA 8270D
5-Nitro-o-toluidine	EPA 8270D
Aniline	EPA 8270D
Carbazole	EPA 8270D
Diphenylamine	EPA 8270D
Methapyrilene	EPA 8270D
Pronamide	EPA 8270D
Benzidines	
3,3'-Dichlorobenzidine	EPA 8270D
3,3'-Dimethylbenzidine	EPA 8270D
Benzidine	EPA 8270D

Characteristic Testing	
Corrosivity	EPA 9040C
	EPA 9045D
Free Liquids	EPA 9095B
Ignitability	EPA 1010A
Synthetic Precipitation Leaching Proc.	EPA 1312
TCLP	EPA 1311
Chlorinated Hydrocarbon Pesticides	
2,4'-DDD (Mitotane)	EPA 8081B
4,4'-DDD	EPA 8081B
4,4'-DDE	EPA 8081B
4,4'-DDT	EPA 8081B
Aldrin	EPA 8081B
alpha-BHC	EPA 8081B
alpha-Chlordane	EPA 8081B
Atrazine	EPA 8270D
beta-BHC	EPA 8081B
Chlordane Total	EPA 8081B
Chlorobenzilate	EPA 8270D
delta-BHC	EPA 8081B
Diallate	EPA 8270D
Dieldrin	EPA 8081B
Endosulfan I	EPA 8081B
Endosulfan II	EPA 8081B
Endosulfan sulfate	EPA 8081B
Endrin	EPA 8081B

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All approved analytes are listed below:

Chlorinated Hydrocarbon Pesticides	
Endrin aldehyde	EPA 8081B
Endrin Ketone	EPA 8081B
gamma-Chlordane	EPA 8081B
Heptachlor	EPA 8081B
Heptachlor epoxide	EPA 8081B
Kepone	EPA 8270D
Lindane	EPA 8081B
Methoxychlor	EPA 8081B
Mirex	EPA 8081B
Pentachloronitrobenzene	EPA 8270D
Toxaphene	EPA 8081B
Chlorinated Hydrocarbons	
1,2,3-Trichlorobenzene	EPA 8260C
1,2,4,5-Tetrachlorobenzene	EPA 8270D
1,2,4-Trichlorobenzene	EPA 8270D
2-Chloronaphthalene	EPA 8270D
Hexachlorobenzene	EPA 8270D
Hexachlorobutadiene	EPA 8270D
Hexachlorocyclopentadiene	EPA 8270D
Hexachloroethane	EPA 8270D
Hexachlorophene	EPA 8270D
Hexachloropropene	EPA 8270D
Pentachlorobenzene	EPA 8270D
Chlorophenoxy Acid Pesticides	
2,4,5-T	EPA 8151A
Chlorophenoxy Acid Pesticides	
2,4,5-TP (Silvex)	EPA 8151A
2,4-D	EPA 8151A
Dalapon	EPA 8151A
Dichloroprop	EPA 8151A
Dinoseb	EPA 8151A
Pentachlorophenol	EPA 8151A
Haloethers	
2,2'-Oxybis(1-chloropropane)	EPA 8270D
4-Bromophenylphenyl ether	EPA 8270D
4-Chlorophenylphenyl ether	EPA 8270D
Bis(2-chloroethoxy)methane	EPA 8270D
Bis(2-chloroethyl)ether	EPA 8270D
Metals I	
Barium, Total	EPA 6010C
	EPA 6020A
Cadmium, Total	EPA 6010C
	EPA 6020A
Calcium, Total	EPA 6010C
Chromium, Total	EPA 6010C
	EPA 6020A
Copper, Total	EPA 6010C
	EPA 6020A
Iron, Total	EPA 6010C
Lead, Total	EPA 6010C
	EPA 6020A

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Metals I	
Magnesium, Total	EPA 6010C
Manganese, Total	EPA 6010C
	EPA 6020A
Nickel, Total	EPA 6010C
	EPA 6020A
Potassium, Total	EPA 6010C
Silver, Total	EPA 6010C
	EPA 6020A
Sodium, Total	EPA 6010C
Strontium, Total	EPA 6010C
Metals II	
Aluminum, Total	EPA 6010C
Antimony, Total	EPA 6010C
	EPA 6020A
Arsenic, Total	EPA 6010C
	EPA 6020A
Beryllium, Total	EPA 6010C
	EPA 6020A
Lithium, Total	EPA 6010C
Mercury, Total	EPA 7471B
Selenium, Total	EPA 6010C
	EPA 6020A
Vanadium, Total	EPA 6010C
Zinc, Total	EPA 6010C
	EPA 6020A

Metals III	
Cobalt, Total	EPA 6010C
	EPA 6020A
Molybdenum, Total	EPA 6010C
	EPA 6020A
Thallium, Total	EPA 6010C
	EPA 6020A
Tin, Total	EPA 6010C
Titanium, Total	EPA 6010C
Minerals	
Bromide	EPA 9056A
Chloride	EPA 9251
	EPA 9056A
Fluoride, Total	EPA 9056A
Sulfate (as SO4)	EPA 9038
	EPA 9056A
Miscellaneous	
Boron, Total	EPA 6010C
Cyanide, Total	EPA 9012B
Organic Carbon, Total	EPA 9060A
Phenols	EPA 9065
Specific Conductance	EPA 9050A
Nitroaromatics and Isophorone	
1,3,5-Trinitrobenzene	EPA 8270D
1,3-Dinitrobenzene	EPA 8270D

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Nitroaromatics and Isophorone	
1,4-Dinitrobenzene	EPA 8270D
1,4-Naphthoquinone	EPA 8270D
2,4-Dinitrotoluene	EPA 8270D
2,6-Dinitrotoluene	EPA 8270D
4-Dimethylaminoazobenzene	EPA 8270D
Hydroquinone	EPA 8270D
Isophorone	EPA 8270D
Nitrobenzene	EPA 8270D
Pyridine	EPA 8270D
Nitrosoamines	
N-Nitrosodiethylamine	EPA 8270D
N-Nitrosodimethylamine	EPA 8270D
N-Nitrosodi-n-butylamine	EPA 8270D
N-Nitrosodi-n-propylamine	EPA 8270D
N-Nitrosodiphenylamine	EPA 8270D
N-nitrosomethylethylamine	EPA 8270D
N-nitrosomorpholine	EPA 8270D
N-nitrosopiperidine	EPA 8270D
N-Nitrosopyrrolidine	EPA 8270D
Nutrients	
Nitrate (as N)	EPA 9056A
Organophosphate Pesticides	
Dimethoate	EPA 8270D
Disulfoton	EPA 8270D
Organophosphate Pesticides	
Famphur	EPA 8270D
Parathion ethyl	EPA 8270D
Parathion methyl	EPA 8270D
Phorate	EPA 8270D
Sulfotepp	EPA 8270D
Petroleum Hydrocarbons	
Diesel Range Organics	EPA 8015D
Gasoline Range Organics	EPA 8015D
Phthalate Esters	
Benzyl butyl phthalate	EPA 8270D
Bis(2-ethylhexyl) phthalate	EPA 8270D
Diethyl phthalate	EPA 8270D
Dimethyl phthalate	EPA 8270D
Di-n-butyl phthalate	EPA 8270D
Di-n-octyl phthalate	EPA 8270D
Polychlorinated Biphenyls	
PCB-1016	EPA 8082A
PCB-1221	EPA 8082A
PCB-1232	EPA 8082A
PCB-1242	EPA 8082A
PCB-1248	EPA 8082A
PCB-1254	EPA 8082A
PCB-1260	EPA 8082A
PCB-1262	EPA 8082A

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Polychlorinated Biphenyls	
PCB-1268	EPA 8082A
PCBs in Oil	EPA 8082A
Polynuclear Aromatic Hydrocarbons	
3-Methylcholanthrene	EPA 8270D
7,12-Dimethylbenzyl (a) anthracene	EPA 8270D
Acenaphthene	EPA 8270D
Acenaphthylene	EPA 8270D
Anthracene	EPA 8270D
Benzo(a)anthracene	EPA 8270D
Benzo(a)pyrene	EPA 8270D
Benzo(b)fluoranthene	EPA 8270D
Benzo(ghi)perylene	EPA 8270D
Benzo(k)fluoranthene	EPA 8270D
Chrysene	EPA 8270D
Dibenzo(a,e)pyrene	EPA 8270D
Dibenzo(a,h)anthracene	EPA 8270D
Fluoranthene	EPA 8270D
Fluorene	EPA 8270D
Indeno(1,2,3-cd)pyrene	EPA 8270D
Naphthalene	EPA 8270D
Phenanthrene	EPA 8270D
Pyrene	EPA 8270D
Priority Pollutant Phenols	
2,3,4,6 Tetrachlorophenol	EPA 8270D
2,4,5-Trichlorophenol	EPA 8270D
Priority Pollutant Phenols	
2,4,6-Trichlorophenol	EPA 8270D
2,4-Dichlorophenol	EPA 8270D
2,4-Dimethylphenol	EPA 8270D
2,4-Dinitrophenol	EPA 8270D
2,6-Dichlorophenol	EPA 8270D
2-Chlorophenol	EPA 8270D
2-Methyl-4,6-dinitrophenol	EPA 8270D
2-Methylphenol	EPA 8270D
2-Nitrophenol	EPA 8270D
3-Methylphenol	EPA 8270D
4-Chloro-3-methylphenol	EPA 8270D
4-Methylphenol	EPA 8270D
4-Nitrophenol	EPA 8270D
Pentachlorophenol	EPA 8270D
Phenol	EPA 8270D
Semi-Volatile Organics	
1,1'-Biphenyl	EPA 8270D
1,2-Dichlorobenzene, Semi-volatile	EPA 8270D
1,3-Dichlorobenzene, Semi-volatile	EPA 8270D
1,4-Dichlorobenzene, Semi-volatile	EPA 8270D
2-Methylnaphthalene	EPA 8270D
4-Amino biphenyl	EPA 8270D
Acetophenone	EPA 8270D
Benzaldehyde	EPA 8270D
Benzoic Acid	EPA 8270D

Serial No.: 53016

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2016
Issued April 01, 2015
Revised June 16, 2015

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. KENE E. KASPEREK
TESTAMERICA BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Semi-Volatile Organics	
Benzyl alcohol	EPA 8270D
Caprolactam	EPA 8270D
Dibenzofuran	EPA 8270D
Ethyl methanesulfonate	EPA 8270D
Isosafrole	EPA 8270D
Methyl methanesulfonate	EPA 8270D
O,O,O-Triethyl phosphorothioate	EPA 8270D
Phenacetin	EPA 8270D
Safrole	EPA 8270D

Volatile Aromatics	
1,2,4-Trichlorobenzene, Volatile	EPA 8260C
1,2,4-Trimethylbenzene	EPA 8260C
	EPA 8021B
1,2-Dichlorobenzene	EPA 8260C
1,3,5-Trimethylbenzene	EPA 8260C
	EPA 8021B
1,3-Dichlorobenzene	EPA 8260C
1,4-Dichlorobenzene	EPA 8260C
2-Chlorotoluene	EPA 8260C
	EPA 8021B
4-Chlorotoluene	EPA 8260C
	EPA 8021B
Benzene	EPA 8260C
	EPA 8021B
Bromobenzene	EPA 8260C

Volatile Aromatics	
Bromobenzene	EPA 8021B
Chlorobenzene	EPA 8260C
Ethyl benzene	EPA 8260C
	EPA 8021B
Isopropylbenzene	EPA 8260C
	EPA 8021B
m/p-Xylenes	EPA 8260C
Naphthalene, Volatile	EPA 8260C
n-Butylbenzene	EPA 8260C
	EPA 8021B
n-Propylbenzene	EPA 8260C
	EPA 8021B
o-Xylene	EPA 8260C
p-Isopropyltoluene (P-Cymene)	EPA 8260C
	EPA 8021B
sec-Butylbenzene	EPA 8260C
	EPA 8021B
Styrene	EPA 8260C
tert-Butylbenzene	EPA 8260C
	EPA 8021B
Toluene	EPA 8260C
	EPA 8021B
Total Xylenes	EPA 8260C
	EPA 8021B

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Volatile Chlorinated Organics	
Epichlorohydrin	EPA 8260C
Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 8260C
1,1,1-Trichloroethane	EPA 8260C
1,1,2,2-Tetrachloroethane	EPA 8260C
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260C
1,1,2-Trichloroethane	EPA 8260C
1,1-Dichloroethane	EPA 8260C
1,1-Dichloroethene	EPA 8260C
1,1-Dichloropropene	EPA 8260C
1,2,3-Trichloropropane	EPA 8260C
1,2-Dibromo-3-chloropropane	EPA 8260C
1,2-Dibromoethane	EPA 8260C
1,2-Dichloroethane	EPA 8260C
1,2-Dichloropropane	EPA 8260C
1,3-Dichloropropane	EPA 8260C
2,2-Dichloropropane	EPA 8260C
2-Chloro-1,3-butadiene (Chloroprene)	EPA 8260C
2-Chloroethylvinyl ether	EPA 8260C
3-Chloropropene (Allyl chloride)	EPA 8260C
Bromochloromethane	EPA 8260C
Bromodichloromethane	EPA 8260C
Bromoform	EPA 8260C
Bromomethane	EPA 8260C
Carbon tetrachloride	EPA 8260C

Volatile Halocarbons	
Chloroethane	EPA 8260C
Chloroform	EPA 8260C
Chloromethane	EPA 8260C
cis-1,2-Dichloroethene	EPA 8260C
cis-1,3-Dichloropropene	EPA 8260C
Dibromochloromethane	EPA 8260C
Dibromomethane	EPA 8260C
	EPA 8021B
Dichlorodifluoromethane	EPA 8260C
Hexachlorobutadiene, Volatile	EPA 8260C
Methyl Iodide	EPA 8260C
Methylene chloride	EPA 8260C
Tetrachloroethene	EPA 8260C
trans-1,2-Dichloroethene	EPA 8260C
trans-1,3-Dichloropropene	EPA 8260C
trans-1,4-Dichloro-2-butene	EPA 8260C
Trichloroethene	EPA 8260C
Trichlorofluoromethane	EPA 8260C
Vinyl chloride	EPA 8260C
Volatile Organics	
1,4-Dioxane	EPA 8260C
2-Butanone (Methylethyl ketone)	EPA 8260C
2-Hexanone	EPA 8260C
2-Nitropropane	EPA 8260C
4-Methyl-2-Pentanone	EPA 8260C

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

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All approved analytes are listed below:

Volatile Organics	
Acetone	EPA 8260C
Acetonitrile	EPA 8260C
Carbon Disulfide	EPA 8260C
Cyclohexane	EPA 8260C
Ethyl Acetate	EPA 8260C
Ethylene Glycol	EPA 8015D
Isobutyl alcohol	EPA 8260C
	EPA 8015D
Methyl acetate	EPA 8260C
Methyl cyclohexane	EPA 8260C
Methyl tert-butyl ether	EPA 8260C
Propionitrile	EPA 8260C
tert-butyl alcohol	EPA 8015D
Vinyl acetate	EPA 8260C
Sample Preparation Methods	
	EPA 5035A-L
	EPA 5035A-H
	EPA 3580A
	EPA 3010A
	EPA 3005A
	EPA 3050B
	EPA 3550C
	EPA 3020A
	EPA 3546

Serial No.: 53016

Property of the New York State Department of Health. Certificates are valid only at the address shown, must be conspicuously posted, and are printed on secure paper. Continued accreditation depends on successful ongoing participation in the Program. Consumers are urged to call (518) 485-5570 to verify the laboratory's accreditation status.

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

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is hereby APPROVED as an Environmental Laboratory for the category
ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved subcategories and/or analytes are listed below:

Miscellaneous

Lead in Paint	EPA 6010C

Sample Preparation Methods

	EPA 3050B

Serial No.: 52804

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

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Issued April 01, 2015

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MR. KENE E. KASPEREK
TESTAMERICA BUFFALO
10 HAZELWOOD DRIVE
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES AIR AND EMISSIONS
All approved analytes are listed below:

Polynuclear Aromatics	
Benzo(a)pyrene	NIOSH 5515
Naphthalene	NIOSH 5515
Purgeable Aromatics	
Benzene	NIOSH 1501
Ethyl benzene	NIOSH 1501
m/p-Xylenes	NIOSH 1501
o-Xylene	NIOSH 1501
Toluene	NIOSH 1501
Total Xylenes	NIOSH 1501

Serial No.: 51869

ATTACHMENT 3

Laboratory Quality Assurance Manual for the Carroll Landfill

(List of Applicable TAL SOP Titles)

List of Titles Only: The following TestAmerica Laboratories, Inc. (TAL) SOPs are hereby incorporated by reference. Copies of these documents can be made available upon request.

LIST OF TAL's LABORATORY SOPs FOR CARROLL LANDFILL

TAL SOP No.	Title
Quality Assurance Procedures	
BF-QA-001	The Determination of Method Detection Limits
BF-QA-002	Quality Control Limits
BF-QA-004	Laboratory Personnel Training
BF-QA-005	Preventative and Corrective Action Procedure
BF-QA-006	Data Quality Review
BF-QA-007	Reporting Requirements for Multiple Sample Analysis
BF-QA-010	Performance and System Audit
BF-QA-011	Management Review
BF-QA-012	Measurement Uncertainty
Sample Handling Procedures	
BF-PM-003	Bottle Order Set-up
BF-PM-004	Sample Receipt Verification
BF-RP-001	Field Data Entry and Closure
BF-SR-001	Cooler Shipping – Bottle Kits and Samples
BF-SR-002	Receipt of Analytical Samples
BF-SR-003	Sample Receipt; Temperature Monitoring
BF-SR-008	Workshare/Subcontract of Samples (Internal Chain-of-Custody Form)
BF-SR-013	Strict Internal Chain-of-Custody
General Practice Procedures	
BF-GP-001	Calibration of Autopipettes, Re-pipettors, & Syringes
BF-GP-002	Support Equipment: Maintenance, Record Keeping, and Corrective Actions of Analytical Balances, Temperature Control Devices, and Reagent Water
BF-GP-003	Glassware Cleaning
BF-GP-004	Determination of Dry Weight
BF-GP-005	Sample Homogenization and Subsampling
BF-GP-006	Evaluation of Initial Calibration
BF-GP-010	Tracking of Critical Holding Time Parameters
BF-GP-011	Sample Storage and Handling Procedures for Mitigation of Sample and Laboratory Contamination
BF-GP-012	Technical Data Review Requirements
BF-GP-014	Final Review and Assembly of GC/MS Data Deliverables
BF-GP-015	Records Storage and Retention
BF-GP-019	Standard Traceability and Preparation Logbooks
BF-GP-020	Thermometer Calibration
BF-PM-005	Correctness of Analysis
Wet Chemistry Procedures	
BR-GT-006	Hydrometer Grain Size Distribution
BF-WC-001	Color - Method 110.2
BF-WC-002	Total Hardness
BF-WC-003	Total Filterable Residue (TDS)
BF-WC-004	Total Non-Filterable Residue (TSS)
BF-WC-008	Turbidity – Method 180.1
BF-WC-010	Alkalinity – Method 310.2 (Colorimetric, Automated)
BF-WC-015	Total Cyanide – Methods 335.4, 9012A, SM4500-Cn E, Lachat 10-204-00-1
BF-WC-018	pH – Method 9040B/4500-H^+B
BF-WC-019	Ammonia Nitrogen – Method 350.1 Automated Phenate
BF-WC-020	Total Kjeldahl Nitrogen – Method 351.2
BF-WC-021	Nitrate+Nitrite Nitrogen, Nitrite Nitrogen and Nitrate Nitrogen – Method 353.2, Automated Cadmium Reduction Method

BF-WC-025	Biochemical Oxygen Demand (BOD-5 Day Method 405.1)/Carbonaceous Biochemical Oxygen Demand (CBOD) [Method 5210B]
BF-WC-026	Chemical Oxygen Demand (Colormetric) – Method 410.4/HACH 8000
BF-WC-029	Total Recoverable Phenolics Method 420.4/9066
BF-WC-035	Soil and Waste pH Method SW-846 3rd Edition 9040B and 9045C
BF-WC-039	Hexavalent Chromium 7196A & SM 3500-Cr
BF-WC-047	Review and Closure of Wet Chemistry Data

Inorganic Parameters Procedures

BF-ME-001	Metals Department Batching Procedure
BF-ME-002	Method 2005A/200.2 Sample Preparation of Waters for Total Recoverable or Dissolved Metals for analysis by ICP-AES, ICP-MS, or GFAA
BF-ME-003	Method 3010A Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by ICP-AES
BF-ME-005	Method 3050B: Acid Digestion of Sediments, Sludges, and Soils
BF-ME-009	Thermo Scientific ICAP 6500 Analysis – Method No(s). 6010B/6010C/200.7/CLP
BF-ME-011	Mercury Preparation and Analysis [Methods 7470A,7471A, 245.1]
BF-ME-013	Laboratory Data Review Metals
BF-ME-018	Establishment of Instrument Detection Limits and Linear Ranges for ICP Analysis
BF-MB-007	Ion Chromatography – Methods 300.0/9056/4110 B (Bromide, Chloride, Sulfate)

Organic Parameters Procedures

BF-MV-005	Analytical Methods for the Analysis of GC/MS Volatile Samples [SW-846 Method 8260 B]
BF-MV-010	Primary Standards Preparation
BF-MB-010	Analytical Methods for GC/MS Semivolatile Samples by SW-846 8270D
BF-MB-011	Total Organic Carbon: Method 9060 and SM 5310D
BF-GE-004	Organochlorine Pesticides [Method 608 and 8081]
BF-GE-008	Analysis of PCBs – SW846 8082/40CFR 608
BF-GE-009	Chlorinated Herbicides [Method 8151A]

ATTACHMENT 4

Laboratory Field Sampling Manual for the Carroll Landfill

(List of Applicable TAL SOP Titles)

List of Titles Only: The following TestAmerica Laboratories, Inc. (TAL) SOPs are hereby incorporated by reference. Copies of these documents can be made available upon request.

LIST OF TAL's FIELD SOPs FOR CARROLL LANDFILL

TAL SOP Number	Title
BF-FS-001	Chain of Custody Documentation
BF-FS-002	Sample Packaging and Shipment OffSite
BF-FS-003	Groundwater Sampling Field Data Collection
BF-FS-004	Equipment Decontamination
BF-FS-005	Groundwater/Surface Water Sampling
BF-FS-006	Calibration of Field Meters
BF-FS-007	Low Flow Sampling Procedures
BF-FS-009	Temperature-Field; Measurement of Temperature in the Field by Standard Method 2550 B

ATTACHMENT 5

Field Observations Form
and
Chain of Custody Form

FIELD OBSERVATIONS

Facility: _____ Sample Point ID: _____

Field Personnel: _____ Sample Matrix: _____

MONITORTING WELL INSPECTION:

Date/Time _____ / _____ Cond of seal: ( ) Good ( ) Cracked _____ %
( ) None ( ) Buried

Prot. Casing/riser height: _____ Cond of prot. Casing/riser: ( ) Unlocked ( ) Good
( ) Loose ( ) Flush Mount
( ) Damaged _____

If prot.casing; depth to riser below: _____

Gas Meter (Calibration/ Reading): % Gas: _____ / _____ % LEL: _____ / _____

Vol. Organic Meter (Calibration/Reading): Volatiles (ppm) _____ / _____

PURGE INFORMATION:

Date / Time Initiated: _____ / _____ Date / Time Completed: _____ / _____

Surf. Meas. Pt: ( ) Prot. Casing ( ) Riser Riser Diameter, Inches: _____

Initial Water Level, Feet: _____ Elevation. G/W MSL: _____

Well Total Depth, Feet: _____ Method of Well Purge: _____

One (1) Riser Volume, Gal: _____ Dedicated: Y / N

Total Volume Purged, Gal: _____ Purged To Dryness Y / N

Purge Observations: _____ Start _____ Finish _____

PURGE DATA: (if applicable)

Time	Purge Rate (gpm/htz)	Cumulative Volume	Temp. (C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other	Other

Field Form
Revision 0
03/14/02

FIELD OBSERVATIONS (continued)

SAMPLING INFORMATION: POINT ID _____

Date/Time _____ / _____ Water Level @ Sampling, Feet: _____

Method of Sampling: _____ Dedicated: Y / N

Multi-phased/ layered: ( ) Yes ( ) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ( )	Other ( )

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____ NTU std. = _____ NTU _____ NTU std. = _____ NTU

Solutions: _____

pH Serial #: _____ 4.0 std.= _____ 7.0 std.= _____ 10.0 std. = _____

Solutions: _____

Conductivity Serial #: _____ _____ umhos/cm= _____ _____ umhos/cm= _____

Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: _____

Sample Characteristics: _____

COMMENTS AND OBSERVATIONS: _____

I certify that sampling procedures were in accordance with all applicable EPA, State and Site-Specific protocals.

Date: ___ / ___ / ___ By: _____ Company: _____

Buffalo
10 Hazelwood Drive

Amherst, NY 14228
phone 716.504.9852 fax 716.691.7991

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	**Project Manager:**	**Site Contact:**	**Date:**	COC No:
Your Company Name here	**Tel/Fax:**	**Lab Contact:**	**Carrier:**	_____ of _____ COCs
Address	**Analysis Turnaround Time**			Job No.
City/State/Zip	Calendar (C) or Work Days (W) _____			
(xxx) xxx-xxxx Phone	TAT if different from Below _____			
(xxx) xxx-xxxx FAX	☐ 2 weeks			SDG No.
Project Name:	☐ 1 week			
Site:	☐ 2 days			
P O #	☐ 1 day			

Sample Identification	**Sample Date**	**Sample Time**	**Sample Type**	**Matrix**	**# of Cont.**	**Filtered Sample**																		Sample Specific Notes:

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

Possible Hazard Identification

☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For _____ Months*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

ATTACHMENT 6

Table of Analytical Methods and Limits

TestAmerica Part 360 Expanded Parameters

Analyte Description	CAS Number	Method Code	MDL (µg/L)	RL* (µg/L)	Preparatory Holding Time (days)	Analytical Holding Time (days)
1,1,1,2-Tetrachloroethane	630-20-6	8260B Volatile Organic Compounds (GC/MS)	0.35	1	14	14
1,1,1-Trichloroethane	71-55-6	8260B Volatile Organic Compounds (GC/MS)	0.82	1	14	14
1,1,2,2-Tetrachloroethane	79-34-5	8260B Volatile Organic Compounds (GC/MS)	0.21	1	14	14
1,1,2-Trichloroethane	79-00-5	8260B Volatile Organic Compounds (GC/MS)	0.23	1	14	14
1,1-Dichloroethane	75-34-3	8260B Volatile Organic Compounds (GC/MS)	0.38	1	14	14
1,1-Dichloroethene	75-35-4	8260B Volatile Organic Compounds (GC/MS)	0.29	1	14	14
1,1-Dichloropropene	563-58-6	8260B Volatile Organic Compounds (GC/MS)	0.72	1	14	14
1,2,3-Trichloropropane	96-18-4	8260B Volatile Organic Compounds (GC/MS)	0.89	1	14	14
1,2,4-Trichlorobenzene	120-82-1	8260B Volatile Organic Compounds (GC/MS)	0.41	1	14	14
1,2-Dibromo-3-Chloropropane	96-12-8	8260B Volatile Organic Compounds (GC/MS)	0.39	1	14	14
1,2-Dibromoethane	106-93-4	8260B Volatile Organic Compounds (GC/MS)	0.73	1	14	14
1,2-Dichlorobenzene	95-50-1	8260B Volatile Organic Compounds (GC/MS)	0.79	1	14	14
1,2-Dichloroethane	107-06-2	8260B Volatile Organic Compounds (GC/MS)	0.21	1	14	14
1,2-Dichloroethene, Total	540-59-0	8260B Volatile Organic Compounds (GC/MS)	0.7	2	14	14
1,2-Dichloropropane	78-87-5	8260B Volatile Organic Compounds (GC/MS)	0.72	1	14	14
1,3-Dichlorobenzene	541-73-1	8260B Volatile Organic Compounds (GC/MS)	0.78	1	14	14
1,3-Dichloropropane	142-28-9	8260B Volatile Organic Compounds (GC/MS)	0.75	1	14	14
1,4-Dichlorobenzene	106-46-7	8260B Volatile Organic Compounds (GC/MS)	0.84	1	14	14
2,2-Dichloropropane	594-20-7	8260B Volatile Organic Compounds (GC/MS)	0.4	1	14	14
2-Hexanone	591-78-6	8260B Volatile Organic Compounds (GC/MS)	1.24	5	14	14
2-Butanone (MEK)	78-93-3	8260B Volatile Organic Compounds (GC/MS)	1.32	10	14	14
4-Methyl-2-pentanone (MIBK)	108-10-1	8260B Volatile Organic Compounds (GC/MS)	2.1	5	14	14
Acetone	67-64-1	8260B Volatile Organic Compounds (GC/MS)	3	10	14	14
Acetonitrile	75-05-8	8260B Volatile Organic Compounds (GC/MS)	26	40	14	14
Acrolein	107-02-8	8260B Volatile Organic Compounds (GC/MS)	18	20	14	14
Acrylonitrile	107-13-1	8260B Volatile Organic Compounds (GC/MS)	0.83	5	14	14
Allyl chloride	107-05-1	8260B Volatile Organic Compounds (GC/MS)	0.44	1	14	14
Benzene	71-43-2	8260B Volatile Organic Compounds (GC/MS)	0.41	1	14	14
Bromochloromethane	74-97-5	8260B Volatile Organic Compounds (GC/MS)	0.87	1	14	14
Bromodichloromethane	75-27-4	8260B Volatile Organic Compounds (GC/MS)	0.39	1	14	14
Bromoform	75-25-2	8260B Volatile Organic Compounds (GC/MS)	0.26	1	14	14
Bromomethane	74-83-9	8260B Volatile Organic Compounds (GC/MS)	0.69	1	14	14
Carbon disulfide	75-15-0	8260B Volatile Organic Compounds (GC/MS)	0.19	1	14	14
Carbon tetrachloride	56-23-5	8260B Volatile Organic Compounds (GC/MS)	0.27	1	14	14
Chlorobenzene	108-90-7	8260B Volatile Organic Compounds (GC/MS)	0.75	1	14	14
Dibromochloromethane	124-48-1	8260B Volatile Organic Compounds (GC/MS)	0.32	1	14	14
Chloroethane	75-00-3	8260B Volatile Organic Compounds (GC/MS)	0.32	1	14	14
Chloroform	67-66-3	8260B Volatile Organic Compounds (GC/MS)	0.34	1	14	14
Chloromethane	74-87-3	8260B Volatile Organic Compounds (GC/MS)	0.35	1	14	14
Chloroprene	126-99-8	8260B Volatile Organic Compounds (GC/MS)	0.49	1	14	14
cis-1,2-Dichloroethene	156-59-2	8260B Volatile Organic Compounds (GC/MS)	0.81	1	14	14
cis-1,3-Dichloropropene	10061-01-5	8260B Volatile Organic Compounds (GC/MS)	0.36	1	14	14
Dibromomethane	74-95-3	8260B Volatile Organic Compounds (GC/MS)	0.41	1	14	14
Dichlorodifluoromethane	75-71-8	8260B Volatile Organic Compounds (GC/MS)	0.68	1	14	14
Ethyl methacrylate	97-63-2	8260B Volatile Organic Compounds (GC/MS)	0.59	1	14	14
Ethylbenzene	100-41-4	8260B Volatile Organic Compounds (GC/MS)	0.74	1	14	14
Hexachlorobutadiene	87-68-3	8260B Volatile Organic Compounds (GC/MS)	0.28	1	14	14
Iodomethane	74-88-4	8260B Volatile Organic Compounds (GC/MS)	0.3	1	14	14
Isobutyl alcohol	78-83-1	8260B Volatile Organic Compounds (GC/MS)	20	40	14	14
Methacrylonitrile	126-98-7	8260B Volatile Organic Compounds (GC/MS)	0.69	5	14	14
Methyl methacrylate	80-62-6	8260B Volatile Organic Compounds (GC/MS)	0.61	1	14	14
Methylene Chloride	75-09-2	8260B Volatile Organic Compounds (GC/MS)	0.44	1	14	14
Naphthalene	91-20-3	8260B Volatile Organic Compounds (GC/MS)	0.43	1	14	14
Pentachloroethane	76-01-7	8260B Volatile Organic Compounds (GC/MS)	0.34	1	14	14
Propionitrile	107-12-0	8260B Volatile Organic Compounds (GC/MS)	5.8	10	14	14
Styrene	100-42-5	8260B Volatile Organic Compounds (GC/MS)	0.73	1	14	14
Tetrachloroethene	127-18-4	8260B Volatile Organic Compounds (GC/MS)	0.36	1	14	14
Toluene	108-88-3	8260B Volatile Organic Compounds (GC/MS)	0.51	1	14	14
trans-1,2-Dichloroethene	156-60-5	8260B Volatile Organic Compounds (GC/MS)	0.9	1	14	14
trans-1,3-Dichloropropene	10061-02-6	8260B Volatile Organic Compounds (GC/MS)	0.37	1	14	14
trans-1,4-Dichloro-2-butene	110-57-6	8260B Volatile Organic Compounds (GC/MS)	2.11	5	14	14
Trichloroethene	79-01-6	8260B Volatile Organic Compounds (GC/MS)	0.46	1	14	14
Trichlorofluoromethane	75-69-4	8260B Volatile Organic Compounds (GC/MS)	0.88	1	14	14

Analyte Description	CAS Number	Method Code	MDL (µg/L)	RL* (µg/L)	Preparatory Holding Time (days)	Analytical Holding Time (days)
Vinyl acetate	108-05-4	8260B Volatile Organic Compounds (GC/MS)	0.85	5	14	14
Vinyl chloride	75-01-4	8260B Volatile Organic Compounds (GC/MS)	0.9	1	14	14
Xylenes, Total	1330-20-7	8260B Volatile Organic Compounds (GC/MS)	0.66	2	14	14
m,p-Xylene	179601-23-1	8260B Volatile Organic Compounds (GC/MS)	0.66	2	14	14
o-Xylene	95-47-6	8260B Volatile Organic Compounds (GC/MS)	0.76	1	14	14
1,2,4,5-Tetrachlorobenzene	95-94-3	8270C Semivolatile Organic Compounds (GC/MS)	0.58	5	7	40
1,2,4-Trichlorobenzene	120-82-1	8270C Semivolatile Organic Compounds (GC/MS)	0.44	10	7	40
1,2-Dichlorobenzene	95-50-1	8270C Semivolatile Organic Compounds (GC/MS)	0.4	10	7	40
1,3,5-Trinitrobenzene	99-35-4	8270C Semivolatile Organic Compounds (GC/MS)	2.5	10	7	40
1,3-Dichlorobenzene	541-73-1	8270C Semivolatile Organic Compounds (GC/MS)	0.48	10	7	40
1,3-Dinitrobenzene	99-65-0	8270C Semivolatile Organic Compounds (GC/MS)	0.82	20	7	40
1,4-Dichlorobenzene	106-46-7	8270C Semivolatile Organic Compounds (GC/MS)	0.46	10	7	40
1,4-Naphthoquinone	130-15-4	8270C Semivolatile Organic Compounds (GC/MS)	0.24327	10	7	40
1-Naphthylamine	134-32-7	8270C Semivolatile Organic Compounds (GC/MS)	1.3	10	7	40
2,3,4,6-Tetrachlorophenol	58-90-2	8270C Semivolatile Organic Compounds (GC/MS)	0.32	5	7	40
2,4,5-Trichlorophenol	95-95-4	8270C Semivolatile Organic Compounds (GC/MS)	0.48	5	7	40
2,4,6-Trichlorophenol	88-06-2	8270C Semivolatile Organic Compounds (GC/MS)	0.61	5	7	40
2,4-Dichlorophenol	120-83-2	8270C Semivolatile Organic Compounds (GC/MS)	0.51	5	7	40
2,4-Dimethylphenol	105-67-9	8270C Semivolatile Organic Compounds (GC/MS)	0.5	5	7	40
2,4-Dinitrophenol	51-28-5	8270C Semivolatile Organic Compounds (GC/MS)	2.22	10	7	40
2,4-Dinitrotoluene	121-14-2	8270C Semivolatile Organic Compounds (GC/MS)	0.447	5	7	40
2,6-Dichlorophenol	87-65-0	8270C Semivolatile Organic Compounds (GC/MS)	0.46	10	7	40
2,6-Dinitrotoluene	606-20-2	8270C Semivolatile Organic Compounds (GC/MS)	0.4	5	7	40
2-Acetylaminofluorene	53-96-3	8270C Semivolatile Organic Compounds (GC/MS)	2.3	10	7	40
2-Chloronaphthalene	91-58-7	8270C Semivolatile Organic Compounds (GC/MS)	0.46	5	7	40
2-Chlorophenol	95-57-8	8270C Semivolatile Organic Compounds (GC/MS)	0.53	5	7	40
2-Methylnaphthalene	91-57-6	8270C Semivolatile Organic Compounds (GC/MS)	0.6	5	7	40
2-Methylphenol	95-48-7	8270C Semivolatile Organic Compounds (GC/MS)	0.4	5	7	40
2-Naphthylamine	91-59-8	8270C Semivolatile Organic Compounds (GC/MS)	2.5	10	7	40
2-Nitroaniline	88-74-4	8270C Semivolatile Organic Compounds (GC/MS)	0.42	10	7	40
2-Nitrophenol	88-75-5	8270C Semivolatile Organic Compounds (GC/MS)	0.48	5	7	40
2-Toluidine	95-53-4	8270C Semivolatile Organic Compounds (GC/MS)	1.48	10	7	40
3 & 4 Methylphenol	15831-10-4	8270C Semivolatile Organic Compounds (GC/MS)	0.36	10	7	40
3,3'-Dichlorobenzidine	91-94-1	8270C Semivolatile Organic Compounds (GC/MS)	0.4	5	7	40
3,3'-Dimethylbenzidine	119-93-7	8270C Semivolatile Organic Compounds (GC/MS)	2.5	40	7	40
3-Methylcholanthrene	56-49-5	8270C Semivolatile Organic Compounds (GC/MS)	2.5	10	7	40
3-Nitroaniline	99-09-2	8270C Semivolatile Organic Compounds (GC/MS)	0.48	10	7	40
4,6-Dinitro-2-methylphenol	534-52-1	8270C Semivolatile Organic Compounds (GC/MS)	2.2	10	7	40
4-Aminobiphenyl	92-67-1	8270C Semivolatile Organic Compounds (GC/MS)	0.81	10	7	40
4-Bromophenyl phenyl ether	101-55-3	8270C Semivolatile Organic Compounds (GC/MS)	0.45	5	7	40
4-Chloro-3-methylphenol	59-50-7	8270C Semivolatile Organic Compounds (GC/MS)	0.45	5	7	40
4-Chloroaniline	106-47-8	8270C Semivolatile Organic Compounds (GC/MS)	0.59	5	7	40
4-Chlorophenyl phenyl ether	7005-72-3	8270C Semivolatile Organic Compounds (GC/MS)	0.35	5	7	40
4-Nitroaniline	100-01-6	8270C Semivolatile Organic Compounds (GC/MS)	0.25	10	7	40
4-Nitrophenol	100-02-7	8270C Semivolatile Organic Compounds (GC/MS)	1.52	10	7	40
7,12-Dimethylbenz(a)anthracene	57-97-6	8270C Semivolatile Organic Compounds (GC/MS)	0.62	10	7	40
Acenaphthene	83-32-9	8270C Semivolatile Organic Compounds (GC/MS)	0.41	5	7	40
Acenaphthylene	208-96-8	8270C Semivolatile Organic Compounds (GC/MS)	0.38	5	7	40
Acetophenone	98-86-2	8270C Semivolatile Organic Compounds (GC/MS)	0.54	5	7	40
Anthracene	120-12-7	8270C Semivolatile Organic Compounds (GC/MS)	0.28	5	7	40
Benzo(a)anthracene	56-55-3	8270C Semivolatile Organic Compounds (GC/MS)	0.36	5	7	40
Benzo(a)pyrene	50-32-8	8270C Semivolatile Organic Compounds (GC/MS)	0.47	5	7	40
Benzo(b)fluoranthene	205-99-2	8270C Semivolatile Organic Compounds (GC/MS)	0.34	5	7	40
Benzo(g,h,i)perylene	191-24-2	8270C Semivolatile Organic Compounds (GC/MS)	0.35	5	7	40
Benzo(k)fluoranthene	207-08-9	8270C Semivolatile Organic Compounds (GC/MS)	0.73	5	7	40
Benzyl alcohol	100-51-6	8270C Semivolatile Organic Compounds (GC/MS)	0.44	20	7	40
Bis(2-chloroethoxy)methane	111-91-1	8270C Semivolatile Organic Compounds (GC/MS)	0.35	5	7	40
Bis(2-chloroethyl)ether	111-44-4	8270C Semivolatile Organic Compounds (GC/MS)	0.4	5	7	40
bis (2-chloroisopropyl) ether	108-60-1	8270C Semivolatile Organic Compounds (GC/MS)	0.52	5	7	40
Bis(2-ethylhexyl) phthalate	117-81-7	8270C Semivolatile Organic Compounds (GC/MS)	1.8	5	7	40
Butyl benzyl phthalate	85-68-7	8270C Semivolatile Organic Compounds (GC/MS)	0.42	5	7	40
Chrysene	218-01-9	8270C Semivolatile Organic Compounds (GC/MS)	0.33	5	7	40
Diallate	2303-16-4	8270C Semivolatile Organic Compounds (GC/MS)	2.5	10	7	40
Dibenz(a,h)anthracene	53-70-3	8270C Semivolatile Organic Compounds (GC/MS)	0.42	5	7	40
Dibenzofuran	132-64-9	8270C Semivolatile Organic Compounds (GC/MS)	0.51	10	7	40

Analyte Description	CAS Number	Method Code	MDL (µg/L)	RL* (µg/L)	Preparatory Holding Time (days)	Analytical Holding Time (days)
Diethyl phthalate	84-66-2	8270C Semivolatile Organic Compounds (GC/MS)	0.22	5	7	40
Dimethoate	60-51-5	8270C Semivolatile Organic Compounds (GC/MS)	0.54	10	7	40
Dimethyl phthalate	131-11-3	8270C Semivolatile Organic Compounds (GC/MS)	0.36	5	7	40
Di-n-butyl phthalate	84-74-2	8270C Semivolatile Organic Compounds (GC/MS)	0.31	5	7	40
Di-n-octyl phthalate	117-84-0	8270C Semivolatile Organic Compounds (GC/MS)	0.47	5	7	40
Dinoseb	88-85-7	8270C Semivolatile Organic Compounds (GC/MS)	2.93619	10	7	40
Diphenylamine	122-39-4	8270C Semivolatile Organic Compounds (GC/MS)	0.82	10	7	40
Disulfoton	298-04-4	8270C Semivolatile Organic Compounds (GC/MS)	0.42	10	7	40
Ethyl methanesulfonate	62-50-0	8270C Semivolatile Organic Compounds (GC/MS)	0.39	10	7	40
Famphur	52-85-7	8270C Semivolatile Organic Compounds (GC/MS)	1.9	40	7	40
Fluoranthene	206-44-0	8270C Semivolatile Organic Compounds (GC/MS)	0.4	5	7	40
Fluorene	86-73-7	8270C Semivolatile Organic Compounds (GC/MS)	0.36	5	7	40
Hexachlorobenzene	118-74-1	8270C Semivolatile Organic Compounds (GC/MS)	0.51	5	7	40
Hexachlorobutadiene	87-68-3	8270C Semivolatile Organic Compounds (GC/MS)	0.68	5	7	40
Hexachlorocyclopentadiene	77-47-4	8270C Semivolatile Organic Compounds (GC/MS)	0.59	5	7	40
Hexachloroethane	67-72-1	8270C Semivolatile Organic Compounds (GC/MS)	0.59	5	7	40
Hexachloropropene	1888-71-7	8270C Semivolatile Organic Compounds (GC/MS)	2.5	10	7	40
Indeno(1,2,3-cd)pyrene	193-39-5	8270C Semivolatile Organic Compounds (GC/MS)	0.47	5	7	40
Isodrin	465-73-6	8270C Semivolatile Organic Compounds (GC/MS)	0.18	10	7	40
Isophorone	78-59-1	8270C Semivolatile Organic Compounds (GC/MS)	0.43	5	7	40
Isosafrole	120-58-1	8270C Semivolatile Organic Compounds (GC/MS)	0.58	10	7	40
Kepone	143-50-0	8270C Semivolatile Organic Compounds (GC/MS)	1.8	50	7	40
Methapyrilene	91-80-5	8270C Semivolatile Organic Compounds (GC/MS)	1.8	50	7	40
Methyl methanesulfonate	66-27-3	8270C Semivolatile Organic Compounds (GC/MS)	2.5	10	7	40
Safrole	94-59-7	8270C Semivolatile Organic Compounds (GC/MS)	0.46	10	7	40
Thionazin	297-97-2	8270C Semivolatile Organic Compounds (GC/MS)	0.38	10	7	40
Naphthalene	91-20-3	8270C Semivolatile Organic Compounds (GC/MS)	0.76	5	7	40
Nitrobenzene	98-95-3	8270C Semivolatile Organic Compounds (GC/MS)	0.29	5	7	40
N-Nitro-o-toluidine	99-55-8	8270C Semivolatile Organic Compounds (GC/MS)	0.65594	10	7	40
N-Nitrosodiethylamine	55-18-5	8270C Semivolatile Organic Compounds (GC/MS)	0.36	10	7	40
N-Nitrosodimethylamine	62-75-9	8270C Semivolatile Organic Compounds (GC/MS)	2.2	10	7	40
N-Nitrosodi-n-butylamine	924-16-3	8270C Semivolatile Organic Compounds (GC/MS)	0.6	10	7	40
N-Nitrosodi-n-propylamine	621-64-7	8270C Semivolatile Organic Compounds (GC/MS)	0.54	5	7	40
N-Nitrosodiphenylamine	86-30-6	8270C Semivolatile Organic Compounds (GC/MS)	0.51	5	7	40
N-Nitrosomethylethylamine	10595-95-6	8270C Semivolatile Organic Compounds (GC/MS)	2.5	10	7	40
N-Nitrosopiperidine	100-75-4	8270C Semivolatile Organic Compounds (GC/MS)	2.5	10	7	40
N-Nitrosopyrrolidine	930-55-2	8270C Semivolatile Organic Compounds (GC/MS)	2.5	10	7	40
o,o',o''-Triethylphosphorothioate	126-68-1	8270C Semivolatile Organic Compounds (GC/MS)	0.43	10	7	40
Parathion ethyl	56-38-2	8270C Semivolatile Organic Compounds (GC/MS)	0.64	10	7	40
Parathion-methyl	298-00-0	8270C Semivolatile Organic Compounds (GC/MS)	0.37025	10	7	40
p-Dimethylamino azobenzene	60-11-7	8270C Semivolatile Organic Compounds (GC/MS)	0.75	10	7	40
Pentachlorobenzene	608-93-5	8270C Semivolatile Organic Compounds (GC/MS)	0.53	10	7	40
Pentachloronitrobenzene	82-68-8	8270C Semivolatile Organic Compounds (GC/MS)	2.5	10	7	40
Pentachlorophenol	87-86-5	8270C Semivolatile Organic Compounds (GC/MS)	2.2	10	7	40
Phenacetin	62-44-2	8270C Semivolatile Organic Compounds (GC/MS)	0.61	10	7	40
Phenanthrene	85-01-8	8270C Semivolatile Organic Compounds (GC/MS)	0.44	5	7	40
Phenol	108-95-2	8270C Semivolatile Organic Compounds (GC/MS)	0.39	5	7	40
Phorate	298-02-2	8270C Semivolatile Organic Compounds (GC/MS)	0.5	10	7	40
p-Phenylene diamine	106-50-3	8270C Semivolatile Organic Compounds (GC/MS)	200	800	7	40
Pronamide	23950-58-5	8270C Semivolatile Organic Compounds (GC/MS)	2.5	10	7	40
Pyrene	129-00-0	8270C Semivolatile Organic Compounds (GC/MS)	0.34	5	7	40
4,4'-DDD	72-54-8	8081A Organochlorine Pesticides (GC)	0.0092	0.05	7	40
4,4'-DDE	72-55-9	8081A Organochlorine Pesticides (GC)	0.0116	0.05	7	40
4,4'-DDT	50-29-3	8081A Organochlorine Pesticides (GC)	0.011	0.05	7	40
Aldrin	309-00-2	8081A Organochlorine Pesticides (GC)	0.0066	0.05	7	40
alpha-BHC	319-84-6	8081A Organochlorine Pesticides (GC)	0.0066	0.05	7	40
beta-BHC	319-85-7	8081A Organochlorine Pesticides (GC)	0.0248	0.05	7	40
Chlordane (technical)	57-74-9	8081A Organochlorine Pesticides (GC)	0.029	0.5	7	40
delta-BHC	319-86-8	8081A Organochlorine Pesticides (GC)	0.01	0.05	7	40
Dieldrin	60-57-1	8081A Organochlorine Pesticides (GC)	0.0098	0.05	7	40
Endosulfan I	959-98-8	8081A Organochlorine Pesticides (GC)	0.011	0.05	7	40
Endosulfan II	33213-65-9	8081A Organochlorine Pesticides (GC)	0.012	0.05	7	40
Endosulfan sulfate	1031-07-8	8081A Organochlorine Pesticides (GC)	0.0157	0.05	7	40
Endrin	72-20-8	8081A Organochlorine Pesticides (GC)	0.0138	0.05	7	40
Endrin aldehyde	7421-93-4	8081A Organochlorine Pesticides (GC)	0.0163	0.05	7	40

Analyte Description	CAS Number	Method Code	MDL (µg/L)	RL* (µg/L)	Preparatory Holding Time (days)	Analytical Holding Time (days)
gamma-BHC (Lindane)	58-89-9	8081A Organochlorine Pesticides (GC)	0.006	0.05	7	40
Heptachlor	76-44-8	8081A Organochlorine Pesticides (GC)	0.0085	0.05	7	40
Heptachlor epoxide	1024-57-3	8081A Organochlorine Pesticides (GC)	0.0053	0.05	7	40
Methoxychlor	72-43-5	8081A Organochlorine Pesticides (GC)	0.0141	0.05	7	40
Toxaphene	8001-35-2	8081A Organochlorine Pesticides (GC)	0.12	0.5	7	40
DCB Decachlorobiphenyl	2051-24-3	8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography		0.5	365	365
PCB-1016	12674-11-2	8083 Polychlorinated Biphenyls (PCBs) by Gas Chromatography	0.176	0.5	365	365
PCB-1221	11104-28-2	8084 Polychlorinated Biphenyls (PCBs) by Gas Chromatography	0.176	0.5	365	365
PCB-1232	11141-16-5	8085 Polychlorinated Biphenyls (PCBs) by Gas Chromatography	0.176	0.5	365	365
PCB-1242	53469-21-9	8086 Polychlorinated Biphenyls (PCBs) by Gas Chromatography	0.176	0.5	365	365
PCB-1248	12672-29-6	8087 Polychlorinated Biphenyls (PCBs) by Gas Chromatography	0.176	0.5	365	365
PCB-1254	11097-69-1	8088 Polychlorinated Biphenyls (PCBs) by Gas Chromatography	0.25	0.5	365	365
PCB-1260	11096-82-5	8089 Polychlorinated Biphenyls (PCBs) by Gas Chromatography	0.25	0.5	365	365
2,4,5-T	93-76-5	8151A Herbicides (GC)	0.149	0.5	7	40
2,4-D	94-75-7	8151A Herbicides (GC)	0.4	0.5	7	40
Dinoseb	88-85-7	8151A Herbicides (GC)	0.18	0.5	7	40
Silvex (2,4,5-TP)	93-72-1	8151A Herbicides (GC)	0.36	0.5	7	40
Aluminum	7429-90-5	6010B Metals (ICP)	60	200	180	180
Antimony	7440-36-0	6010B Metals (ICP)	6.79	20	180	180
Arsenic	7440-38-2	6010B Metals (ICP)	5.55	10	180	180
Barium	7440-39-3	6010B Metals (ICP)	0.5	2	180	180
Beryllium	7440-41-7	6010B Metals (ICP)	0.3	2	180	180
Boron	7440-42-8	6010B Metals (ICP)	4	20	180	180
Cadmium	7440-43-9	6010B Metals (ICP)	0.33	1	180	180
Calcium	7440-70-2	6010B Metals (ICP)	100	500	180	180
Chromium	7440-47-3	6010B Metals (ICP)	0.87	4	180	180
Cobalt	7440-48-4	6010B Metals (ICP)	0.63	4	180	180
Copper	7440-50-8	6010B Metals (ICP)	1.5	10	180	180
Iron	7439-89-6	6010B Metals (ICP)	19.3	50	180	180
Lead	7439-92-1	6010B Metals (ICP)	3	5	180	180
Magnesium	7439-95-4	6010B Metals (ICP)	43.4	200	180	180
Manganese	7439-96-5	6010B Metals (ICP)	0.3	3	180	180
Nickel	7440-02-0	6010B Metals (ICP)	1.26	10	180	180
Potassium	7440-09-7	6010B Metals (ICP)	200	500	180	180
Selenium	7782-49-2	6010B Metals (ICP)	8.7	15	180	180
Silver	7440-22-4	6010B Metals (ICP)	1.7	3	180	180
Sodium	7440-23-5	6010B Metals (ICP)	324	1000	180	180
Thallium	7440-28-0	6010B Metals (ICP)	10.24	20	180	180
Tin	7440-31-5	6010B Metals (ICP)	5.05	10	180	180
Vanadium	7440-62-2	6010B Metals (ICP)	1.08	5	180	180
Zinc	7440-66-6	6010B Metals (ICP)	1.7	10	180	180
Mercury	7439-97-6	7470A Mercury (CVAA)	0.12	0.2	NA	28
Bromide	24959-67-9	9056 Anions, Ion Chromatography	73	200	NA	28
Alkalinity, Total	STL00171	310.2 Wet Chemistry	4000	10000	NA	14
Ammonia	7664-41-7	350.1 Wet Chemistry	9	20	NA	28
Biochemical Oxygen Demand	STL00311	5210B Wet Chemistry	2000	2000	NA	2
Chloride	16887-00-6	9056 Anions, Ion Chromatography	280	500	NA	28
Chromium, Hexavalent	18540-29-9	7196A Wet Chemistry	5	10	NA	1
Chemical Oxygen Demand	STL00070	410.4 Wet Chemistry	5000	10000	NA	28
Color, Colorimetric	STL00153	2120B Wet Chemistry		0.01**	NA	2
Cyanide, Total	57-12-5	9012 Wet Chemistry	5	10	NA	14
Hardness as calcium carbonate	STL00009	2340C Wet Chemistry	525	2000	NA	180
Nitrate as N	14797-55-8	353.2_UP Wet Chemistry	11	50	NA	2
Phenolics, Total Recoverable	STL00166	TR 9066 Wet Chemistry	5	10	NA	28
Total Dissolved Solids	STL00242	2540C Wet Chemistry	4000	10000	NA	7
Sulfate	14808-79-8	9056 Anions, Ion Chromatography	350	2000	NA	28
Total Kjeldahl Nitrogen	STL00296	351.2 Wet Chemistry	150	200	NA	28
Total Organic Carbon	7440-44-0	9060 Wet Chemistry	434	1000	NA	28
Turbidity		180.1 Wet Chemistry			NA	2

*TestAmerica Reporting Limt (RL) = Practical QuantitationLimit (PQL)

**Color Units (C.U.)

ATTACHMENT 7

Revision History Log

REVISION HISTORY LOG

for the

CARROLL LANDFILL SITE ANALYICAL PLAN

Date of Revision	Description
February 2014	Addressed NYSDEC comments on Rev 0 received via e-mail on 9/10/2012. Updated document for consistency with changes elsewhere in the expansion application and new USEPA guidance documents for data validation.
October 2015	Addressed NYSDEC Comments on Rev 1 received via phone on 11/13/14. Revised document for consistency with changes elsewhere in the expansion application and to update TAL ELAP Certifications.