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To: Nicole Rice, Langan Project Engineer

From: Emily Strake, Langan Senior Project Chemist/Risk Assessor

Date: March 22, 2016

Re: Data Usability Summary Report
For 450 Union Street
Ambient Air and Soil Gas Samples Collected February 2016
Langan Project No.: 170301202

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of ambient air and soil gas samples collected on February 14, 2016 by Langan Engineering and Environmental Services ("Langan") at 450 Union Street site ("the Site"). The samples were analyzed by Alpha Analytical (NYSDOH ELAP registration # 11148) for volatile organic compounds (VOCs) using the analytical method specified below.

- Full List VOCs by EPA Compendium Method TO-15 (1/1999) and TO-15 with SIM

Table 1, below, summarizes the laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review.

Table 1: Sample Summary

<i>SDG</i>	<i>Lab Sample ID</i>	<i>Client Sample ID</i>	<i>Sample Date</i>	<i>Analytical Parameters</i>
L1604136	L1604136-01	SSV08_021416	2/14/2016	VOCs
L1604136	L1604136-02	AS01_021416	2/14/2016	VOCs
L1604136	L1604136-03	AA01_021416	2/14/2016	VOCs
L1604136	L1604136-04	SV06_021416	2/14/2016	VOCs
L1604136	L1604136-05	SSV07_021416	2/14/2016	VOCs
L1604136	L1604136-06	DUP01_021416	2/14/2016	VOCs
L1604136	L1604136-07	SV04_021416	2/14/2016	VOCs
L1604136	L1604136-08	SSV05_021416	2/14/2016	VOCs

Validation Overview

This data validation was performed in accordance with USEPA Region II Standard Operating Procedure (SOP) #HW-31, "Validating Volatile Organic Analysis of Ambient Air in Canister by Method TO-15" (June 9, 2014, Revision 6), and the USEPA Contract Laboratory Program, "National Functional Guidelines for Superfund Organic Methods Data Review" (USEPA-540R-08-01, June 2008).

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Validation includes reconstruction of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. Items subject to review in this memorandum include holding times, canister certification, canister pressure, instrument tuning, instrument calibration, laboratory blanks, laboratory control samples, system monitoring compounds, internal standard area counts, target compound identification and quantification, chromatograms, and overall system performance.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the USEPA's guidelines and best professional judgment:

- R** – The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
- J** – The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.
- UU** – The analyte was not detected at a level greater than or equal to the reporting limit (RL); however, the reported RL is approximate and may be inaccurate or imprecise.
- U** – The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the RL or the sample concentration for results impacted by blank contamination.
- NJ** – The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

If any validation qualifiers are assigned these qualifiers should supersede any laboratory-applied qualifiers. Data that is not qualified as a result of this data validation is considered acceptable on the basis of the items specified for review. Data that is qualified as "R" are not sufficiently valid and technically supportable to be used for data interpretation. Data that is otherwise qualified due to minor data quality anomalies are usable, as qualified.

Table 2: Validator-applied qualification

<i>Client Sample ID</i>	<i>Analysis</i>	<i>Analyte</i>	<i>CAS #</i>	<i>Validator Qualifier</i>
SV06_021416	VOCs	Acetone	67-64-1	J
SSV07_021416	VOCs	Acetone	67-64-1	R
SSV07_021416	VOCs	Isopropanol	67-63-0	J

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<i>Client Sample ID</i>	<i>Analysis</i>	<i>Analyte</i>	<i>CAS #</i>	<i>Validator Qualifier</i>
SSV07_021416	VOCs	Ethyl acetate	141-78-6	J
DUP01_021416	VOCs	Acetone	67-64-1	R
DUP01_021416	VOCs	Isopropanol	67-63-0	J
DUP01_021416	VOCs	Ethyl acetate	141-78-6	UJ

Major Deficiencies:

Major deficiencies include those that grossly impact data quality and necessitate the rejection of results. The section below describes the major deficiencies that were identified.

VOCs by USEPA TO-15:

The presence of acetone could not be determined in samples SSV07_021416 and DUP01_021416 due to co-elution with a non-target peak. The associated non-detect sample results are rejected.

Minor Deficiencies:

Minor deficiencies include anomalies that directly impact data quality and necessitate qualification, but do not result in unusable data. The section below describes the minor deficiencies that were identified.

VOCs by USEPA TO-15:

A non-target compound co-eluted with the peak for acetone and the reported positive detection is qualified as "J" for sample SV06_021416.

Other Deficiencies:

Other deficiencies include anomalies that do not directly impact data quality and do not necessitate qualification. No other deficiencies were identified.

Comments:

A field duplicate and parent sample pair (DUP01_021416 and SSV07_021416) was collected and analyzed for VOCs. For results less than 5X the RL, analytes meet the precision criteria if the absolute difference is less than $\pm 1X$ the RL. For results greater than 5X the RL, analytes meet the precision criteria if the RPD is less than or equal to 35%. Isopropanol and ethyl acetate did not meet the precision criteria and the associated sample results were qualified as estimated.

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On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given fraction is not mentioned above, that means that all specified criteria were met for that parameter. All sample holdtimes were met and the data packages met ASP Category B requirements.

All data are considered usable, as qualified. In addition, completeness, defined as the percentage of analytical results that are judged to be valid, is 99%.

Signed:



Emily Strake

Senior Project Chemist/Risk Assessor