APPENDIX F

DUSRs for all Endpoint Samples (CD)

DUSRs for Excavation Endpoint Samples

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1414332
November 3, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected June 27, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by S. McTavey of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1414332. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

The results of supporting QC analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of four (4) soil samples and one (1) duplicate were analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples. Additionally, one site-specific matrix spike/matrix spike duplicate (MS/MSD) (per 20 or fewer samples) should be submitted for each matrix. A MS/MSD was provided in this SDG.

Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria were used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, and qualified analytical data are listed in Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were discrepancies that are not likely to affect the analytical results but should be noted:

- The field logbook was not signed and dated at the conclusion of the day as required in the FSP;
- There are instances where corrections in the field logbook were not initialed as required in the FSP;
- The field logbook fails to identify the location of field activity, the names and titles of field team members, and the purpose of the field activity; and
- Sample TRIP BLANK has no collection time written on the c-o-c.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples
One trip blank sample was submitted for analysis in this SDG. All results had ND levels and require no qualification.

Per the QAPP, one field blank sample was required per 20 or fewer samples per matrix. None were collected with this SDG, but the field blank in data package L1414753 satisfies this requirement.

5.4.2 Laboratory Blank Samples
Acetone was detected above the MDL but below the RL in the 8260C laboratory method blank for soil and qualified "J" by the lab as required. Associated samples (L1414332-01 through -05) had detections less than the RL and less than two times the blank result for the analyte, so all results for acetone should be qualified non-detect (U) at the RL. These are shown in Table 2. Also, as noted in the CN, iron was detected in the preparation blank above the RL, but the associated samples had results in excess of ten times the preparation blank result, so no qualification is necessary. Additionally, lead was detected above the MDL but below the RL. Associated samples were either ND or had results more than ten times the blank result, so no qualification is required.

All other compounds for all other analyses were ND at the RL. The laboratory interval standard and surrogate recoveries for all laboratory blanks met the project objectives.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the following exceptions:

- The LCS % recovery for chloroethane was above acceptance criteria (biased high) and qualified "Q" by the lab; the only associated sample, TRIP BLANK, was ND for the analyte, so no qualification is required; and
- The LCS/LCSD % recoveries for benzoic acid were below acceptance criteria (biased low); associated samples (L1414332-01 through -05) are qualified "UJ" and are listed in Table 2.

5.7 Laboratory Duplicate

Laboratory duplicates were run for total solids and total mercury and the relative percent differences (RPDs) were within laboratory limits.

5.8 Matrix Spike/Matrix Spike Duplicates

The laboratory MS/MSD analyses were performed on B5-EP (EL-6) (Lab ID: L1414332-02) for VOCs. The following compounds were outside the acceptance criteria:

- 1,2-Dibromo-3-chloropropane (67%), hexachlorobutadiene (64/62%), naphthalene (67/68%), 1,2,3-trichlorobenzene (69/67%), and 1,2,4-trichlorobenzene (69/66%) all had MS or MSD % recoveries below accepted limits. The applicable results from this sample (L1414332-02) are qualified "UJ" in Table 2.

The laboratory MS/MSD analyses were performed on B5-EP (EL-6) (Lab ID: L1414332-02) for metals. The following recoveries were outside acceptance criteria:

- Aluminum (MS of 412%), calcium (0/0%), iron (0/0%), and manganese (41/0%). As stated in the CN, no qualification is necessary because sample concentrations are greater than four times the spike amount added;
- Zinc (MSD of 130%). The post digestion spike was less than 125% recovery so the associated sample results in the batch (L1414332-01, -02, and -04) are qualified "J" in Table 2 as they are deemed to be sufficiently similar to the sample used for the matrix spike; and
- Mercury (MS of 153% and 154%). Since associated samples are non-detect, no qualification is required.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0).

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1414332 are usable for determining concentrations of the COCs in soil at the Site, although the concentrations of compounds listed on Table 2 should be considered to be estimated ("J" qualified) or not detected ("U" qualified).

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples free of charge for 30 days from the date the project is completed. After 30 days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples.

Please contact Client Services at 800-624-9220 with any questions.

Report Submission

Case Narrative (continued)

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

The WG702793-4/-5 MS/MSD recoveries, performed on L1414332-02, are outside the acceptance criteria for 1,2-dibromo-3-chloropropane (MS at 67%), hexachlorobutadiene (64%/62%), naphthalene (67%/68%), 1,2,3-trichlorobenzene (69%/67%), and 1,2,4-trichlorobenzene (69%/66%); however, the associated LCS/LCSD recoveries are within overall method allowances. No further action was required.

Semivolatile Organics

The WG702896-2/-3 LCS/LCSD recoveries, associated with L1414332-01 through -05, are below the acceptance criteria for benzoic acid (7%/6%); however, it has been identified as a "difficult" analyte. The results of the associated samples are reported.

Metals

L1414332-01 through -05 have elevated detection limits for all elements, with the exception of mercury, due to the dilutions required by matrix interferences encountered during analysis.

The WG702583-1 Method Blank, associated with L1414332-01, -02, and -04, has a concentration above the reporting limit for iron. Since the associated sample concentrations are greater than 10x the blank concentration for this analyte, no qualification of the results was performed.

The WG702583-3/-4 MS/MSD recoveries for aluminum (MS at 412%), calcium (0%/0%), iron (0%/0%), and manganese (41%/0%), performed on L1414332-02, do not apply because the sample concentrations are greater than four times the spike amount added.

The WG702583-4 MSD recovery, performed on L1414332-02, is outside the acceptance criteria for zinc (130%). A post digestion spike was performed and was within acceptance criteria.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris Report Date: 07/08/14

Title: Technical Director/Representative

Sample Delivery Group Form

Laboratory Job number: L1414332

Project Number: E040

Project Name: 520 WEST 28TH STREET **Received:** 06/27/2014 16:20

Client Account: Integral Consulting, Inc. **Received by:** MC/RS

Samples Delivered by: COURIER **Call Tracker #**

Bill Of Laden N/A **Trackingnum**

Coc Present Present

Container Status Intact **Sample IDs**

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt N/A **Are samples Properly Preserved?** Yes

Initial pH **preserved in house with** **Final pH**

Other Issues

Chlorine Check N/A

Are VOA/VPH Vials Present? Yes

Aqueous: Do Vials Contain Head Space? No

Soils: Is MeOHCovering the Soil? N/A Encores

Reagent H2O Preserved vials Frozen on 06/28/14 12:59

Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	4.2 - IR Gun	No	No

Project Manager: Katie O'Brien **Review Date:** 07/01/2014

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
B6-EP (EL-6)	6/27/2014	L1414332-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
B5-EP (EL-6)	6/27/2014	L1414332-02	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
A5-EP (EL-6)	6/27/2014	L1414332-03	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
C5/C6-EP (EL-6)	6/27/2014	L1414332-04	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
DUPLICATE	6/27/2014	L1414332-05	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
TRIP BLANK	6/27/2014	L1414332-06	WATER	SW-846 8260C

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
L1414332-01/B6-EP (EL-6)	Acetone	10 U	Acetone detected in method blank
L1414332-02/B5-EP (EL-6)	Acetone	11 U	Acetone detected in method blank
L1414332-03/A5-EP (EL-6)	Acetone	11 U	Acetone detected in method blank
L1414332-04/C5/C6-EP (EL-6)	Acetone	10 U	Acetone detected in method blank
L1414332-05/DUPLICATE	Acetone	10 U	Acetone detected in method blank
L1414332-01/B6-EP (EL-6)	Benzoic Acid	UJ	LCS/LCSD recoveries below acceptance criteria
L1414332-02/B5-EP (EL-6)	Benzoic Acid	UJ	LCS/LCSD recoveries below acceptance criteria
L1414332-03/A5-EP (EL-6)	Benzoic Acid	UJ	LCS/LCSD recoveries below acceptance criteria
L1414332-04/C5/C6-EP (EL-6)	Benzoic Acid	UJ	LCS/LCSD recoveries below acceptance criteria
L1414332-05/DUPLICATE	Benzoic Acid	UJ	LCS/LCSD recoveries below acceptance criteria
L1414332-02/B5-EP (EL-6)	1,2-dibromo-3-chloropropane	UJ	MS/MSD recoveries below acceptance criteria
L1414332-02/B5-EP (EL-6)	Hexachlorobutadiene	UJ	MS/MSD recoveries below acceptance criteria
L1414332-02/B5-EP (EL-6)	Naphthalene	UJ	MS/MSD recoveries below acceptance criteria
L1414332-02/B5-EP (EL-6)	1,2,3-trichlorobenzene	UJ	MS/MSD recoveries below acceptance criteria
L1414332-02/B5-EP (EL-6)	1,2,4-trichlorobenzene	UJ	MS/MSD recoveries below acceptance criteria
L1414332-01/B6-EP (EL-6)	Zinc	J	MSD recovery above acceptance criteria
L1414332-02/B5-EP (EL-6)	Zinc	J	MSD recovery above acceptance criteria
L1414332-04/C5/C6-EP (EL-6)	Zinc	J	MSD recovery above acceptance criteria

Notes:

U - Non-detected

UJ - Non-detected compound; approximated quantitation limit due to QC issues

J - Estimated concentration

The values listed under the qualification column for acetone are the RLs for the applicable samples

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1414753
November 4, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected July 2, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by S. McTavey of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1414753. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

The results of supporting QC analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of two (2) soil samples were analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, and total mercury. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples. Additionally, one site-specific matrix spike/matrix spike duplicate (MS/MSD) (per 20 or fewer samples) should be submitted for each matrix. A field blank was provided in this SDG.

Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria were used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, but no analytical data require qualification, as shown in Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were discrepancies that are not likely to affect the analytical results but should be noted:

- The sample listed as A4-EP-EL-5.75 on the c-o-c and laboratory sample log-in does not match the sample name in the field logbook;
- The field logbook does not specify when the sample FIELD BLANK was collected;
- The field logbook does not appear to have been signed and dated at the conclusion of the day as required in the FSP;
- The field logbook fails to identify the location of field activity, the names and titles of field team members, and the purpose of the field activity as required in the FSP; and
- Sample TRIP BLANK 7-2-14 has no collection time written on the c-o-c.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples
One trip blank sample was submitted for analysis in this SDG. All analytes were ND at the RL.

One field blank sample was submitted for analysis in the SDG. All analytes were ND at the RL with the following exceptions:

- Naphthalene was detected above the MDL but below the RL. It was non-detect in either sample therefore no qualification is required.
- Antimony was detected above the MDL but below the RL. It was non-detect in either sample therefore no qualification is required.
- Barium, chromium, copper, manganese, nickel, and zinc were detected above the MDL but below the RL. Both samples had results well above 10 times the blank amount for these metals, so no qualification is required.
- Sodium was detected above the RL, but both samples had results well above 10 times the blank amount for this metal, so no qualification is required.

5.4.2 Laboratory Blank Samples
All compounds for all analyses were ND at the RL. With the following exceptions:

- Aluminum and calcium were detected above the RL in the method blank. These two metals in both samples were well above 10 times the blank amount, so no qualification is required.

The laboratory interval standard and surrogate recoveries for all laboratory blanks met the project objectives.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the following exceptions:

- The LCS % recovery for aniline was below acceptance criteria (biased low); the associated samples did not have this compound reported, therefore no qualification is required; and
- The LCS/LCSD % recoveries for the following pesticides were above acceptance criteria (biased high): delta-BHC (LCSD at 154%), lindane (LCSD at 160%), alpha-BHC (153%/166%), heptachlor (167%/183%), aldrin (158%/173%), heptachlor epoxide (LCSD at 159%), endrin (167%/179%), endrin ketone (LCSD at 156%), dieldrin (155%/169%), 4,4'-DDE (152%/167%), 4,4'-DDD (161%/177%), 4,4'-DDT (190%/209%), endosulfan I (154%/168%), endosulfan II (LCSD at 163%), endosulfan sulfate (LCSD at 152%), methoxychlor (157%/177%), cis-chlordane (LCSD at 160%), and trans-chlordane (LCSD at 161%). All results were non-detect in the samples, therefore no qualification is required.

5.7 Laboratory Duplicate

Laboratory duplicates were run for total solids and total metals and the relative percent differences (RPDs) were within laboratory limits.

5.8 Matrix Spike/Matrix Spike Duplicates

A laboratory MS/MSD analysis was performed for total metals and total mercury as a batch quality control sample on a sample from a SDG not related to this site. It cannot be determined if the samples in this SDG are sufficiently similar to the sample used for the Matrix Spike, and thus no qualification is required. However, the one in 20 requirement is satisfied with the collection of a MS/MSD in data package L1414332.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0). The one in 20 requirement for field duplicates is satisfied with the collection of a duplicate in data package L1417834.

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1414753 are usable for determining concentrations of the COCs in soil at the Site.

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples free of charge for 30 days from the date the project is completed. After 30 days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples.

Please contact Client Services at 800-624-9220 with any questions.

Report Submission

Case Narrative (continued)

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Pesticides

The WG703860-2/-3 LCS/LCSD recoveries, associated with L1414753-01 and -02, are above the acceptance criteria for delta-BHC (LCSD at 154%), lindane (LCSD at 160%), alpha-BHC (153%/166%), heptachlor (167%/183%), aldrin (158%/173%), heptachlor epoxide (LCSD at 159%), endrin (167%/179%), endrin ketone (LCSD at 156%), dieldrin (155%/169%), 4,4'-DDE (152%/167%), 4,4'-DDD (161%/177%), 4,4'-DDT (190%/209%), endosulfan I (154%/168%), endosulfan II (LCSD at 163%), endosulfan sulfate (LCSD at 152%), methoxychlor (157%/177%), cis-chlordane (LCSD at 160%), and trans-chlordane (LCSD at 161%); however, the associated samples are non-detect for these target compounds. The results of the original analysis are reported.

Metals

L1414753-01 and -02 have elevated detection limits for all elements, with the exception of mercury, due to the dilutions required by matrix interferences encountered during analysis.

L1414753-04: The Field Blank has a concentration above the reporting limit for sodium. The results were confirmed.

The WG703791-1 Method Blank, associated with L1414753-01 and -02, has concentrations above the reporting limit for aluminum and calcium. Since the associated sample concentrations are greater than 10x the blank concentration for this analyte, no qualification of the results was performed.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris Report Date: 07/10/14

Title: Technical Director/Representative

Sample Delivery Group Form

Laboratory Job number: L1414753

Project Number: E040

Project Name: 520 WEST 28TH STREET **Received:** 07/02/2014 15:35

Client Account: Integral Consulting, Inc. **Received by:** RR/WM

Samples Delivered by: COURIER **Call Tracker #**

Bill Of Laden N/A **Trackingnum**

Coc Present Present

Container Status Intact **Sample IDs**

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt <2, 7 **Are samples Properly Preserved?** Yes

Initial pH **preserved in house with** **Final pH**

Other Issues

Chlorine Check N/A

Are VOA/VPH Vials Present? Yes

Aqueous: Do Vials Contain Head Space? No

Soils: Is MeOHCovering the Soil? Yes

Reagent H2O Preserved vials Frozen on 07/03/14 03:42

Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	2.8 - IR Gun	No	No

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
A4-EP-EL-5.75	7/2/2014	L1414753-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
B4/C4-EP-EL-5.75	7/2/2014	L1414753-02	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
TRIP BLANK 7-2-14	7/2/2014	L1414753-03	AQUEOUS	SW-846 8260C
FIELD BLANK	7/2/2014	L1414753-04	AQUEOUS	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, and 7471B

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
None	None	None	None

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1415494
November 5, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected July 10, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by S. McTavey of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1415494. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

The results of supporting QC analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of two (2) soil samples were analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples. Additionally, one site-specific matrix spike/matrix spike duplicate (MS/MSD) (per 20 or fewer samples) should be submitted for each matrix.

Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria were used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, and qualified analytical data are listed in Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were discrepancies that are not likely to affect the analytical results but should be noted:

- There are instances where corrections in the field logbook were not initialed as required in the FSP;
- The field logbook fails to identify the location of field activity, the names and titles of field team members, and the purpose of the field activity as required in the FSP;
- The sample TRIP BLANK 7-10-14 (collection time, sampler's initials and sample matrix) is incorrectly listed on the c-o-c as a dash; and
- The laboratory did not maintain the client's sample ID of the TRIP BLANK 7-10-14 as shown on the c-o-c and instead list the sample ID as TRIP BLANK.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses except for the following:

- The % difference (%D) was outside the opening maximum %D limit for bromomethane. It was not detected in either soil sample, but both samples require UJ qualification as noted on Table 2.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples
One trip blank sample was submitted for analysis in this SDG. Acetone was detected in the trip blank above the MDL but below two times the RL. It was not detected in either soil sample therefore no qualification is required.

Per the QAPP, one field blank sample was required per each media per 20 or fewer samples; however, none were collected with this SDG. The one in twenty requirement is satisfied with the collection of a field blank in data package L1414753.
5.4.2 Laboratory Blank Samples
All compounds were ND at the RL for all analyses. The laboratory interval standard and surrogate recoveries for all laboratory blanks met the project objectives.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the following exception:

- The recovery for bromomethane was above acceptance criteria for both soil samples but was not detected in the samples. Therefore no qualification is required.

5.7 Laboratory Duplicate

Laboratory duplicates were run for total solids and metals and the relative percent differences (RPDs) were within laboratory limits.

5.8 Matrix Spike/Matrix Spike Duplicates

The laboratory MS/MSD analyses were performed on a sample from a different site therefore the MS/MSD cannot be determined sufficiently similar to the soil samples in this SDG. However, the one in 20 requirement is satisfied with the collection of a MS/MSD in data package L1414332.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0). The one in 20 requirement for field duplicates is satisfied with the collection of a duplicate in data package L1414332.

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1415494 are usable for determining concentrations of the COCs in soil at the Site, although the concentrations of compounds listed on Table 2 should be considered to be estimated ("J" qualified) or not detected ("U" qualified).

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples free of charge for 30 days from the date the project is completed. After 30 days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples.

Please contact Client Services at 800-624-9220 with any questions.

Report Submission

Case Narrative (continued)

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Total Metals

L1415494-01 and -02 have elevated detection limits for all elements, with the exception of mercury, due to the dilutions required by matrix interferences encountered during analysis.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom Report Date: 07/21/14

Title: Technical Director/Representative

Sample Delivery Group Form

Laboratory Job number: L1415494

Project Number: E040

Project Name: 520 WEST 28TH STREET **Received:** 07/11/2014 08:20

Client Account: Integral Consulting, Inc. **Received by:** WM/RS

Samples Delivered by: COURIER **Call Tracker #**

Bill Of Laden N/A **Trackingnum**

Coc Present Present

Container Status Intact **Sample IDs**

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt N/A **Are samples Properly Preserved?** Yes

Initial pH **preserved in house with** **Final pH**

Other Issues

Chlorine Check N/A

Are VOA/VPH Vials Present? Yes

Aqueous: Do Vials Contain Head Space? No

Soils: Is MeOHCovering the Soil? N/A Encores

Reagent H2O Preserved vials Frozen on 07/12/14 02:57

Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	3.1 - Temp. Blank	No	No

Project Manager: Katie O'Brien **Review Date:** 07/14/2014

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
B3-EP (EL-5.75)	7/10/2014	L1415494-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
A3-EP (EL-5.75)	7/10/2014	L1415494-02	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
TRIP BLANK 7-10-14	7/10/2014	L1415494-03	WATER	SW-846 8260C

Table 2. Qualified Analytical Data

Table 2. Qualified Analytical Data	Analyte	Qualification	Reason for Qualification
L1415494-01/B3-EP (EL-5.75)	Bromomethane	UJ	Opening CCV %D above maximum limit
L1415494-02/A3-EP (EL-5.75)	Bromomethane	UJ	Opening CCV %D above maximum limit

Notes:

UJ - Non-detected compound; approximated quantitation limit due to QC issues

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1417610
November 12, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected August 5, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by S. McTavey of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1417610. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

- Field notes.

The results of supporting QC analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of one (1) soil sample was analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples. Additionally, one site-specific matrix spike/matrix spike duplicate (MS/MSD) (per 20 or fewer samples) should be submitted for each matrix. A MS/MSD was provided in this SDG.

Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria will be used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, and qualified analytical data are listed in Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were discrepancies that are not likely to affect the analytical results but should be noted:

- The field logbook fails to identify the names and titles of field team members, and the purpose of the field activity as required in the FSP; and
- TRIP BLANK.8-5-14 had no collection time or sampler's initials written on the c-o-c.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples
One trip blank sample was submitted for analysis in this SDG. All results were ND. No qualification is required.

Per the QAPP, one field blank sample was required per 20 or fewer samples for each media; however, none were collected with this SDG. The one in 20 requirement is satisfied with the collection of a field blank in data package L1414753.

5.4.2 Laboratory Blank Samples
All compounds were ND at the RL for all analyses. The laboratory interval standard and surrogate recoveries for all laboratory blanks met the project objectives.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the exceptions noted below. No qualification is necessary.

- The % recovery (%R) for LCSD for 1,4-Dichlorobenzene was above acceptance criteria, but was ND in the sample.
- The %R for LCSD for p-isopropyltoluene was above acceptance criteria, but was ND in the sample.
- The %R for LCSD for p-Ethyltoluene was above acceptance criteria, but was ND in the sample.
- The %R for LCSD for Aniline was below acceptance criteria, but was not analyzed for.

5.7 Laboratory Duplicate

A laboratory duplicate was run for total solids and the relative percent differences (RPDs) were within laboratory limits.

5.8 Matrix Spike/Matrix Spike Duplicates

The laboratory MS/MSD analyses were performed on WG712114-3/-4 (Lab ID: L1417610-01) and WG712507-3/-4 (Lab ID L1417610-01). The following compounds were outside the acceptance criteria:

- 2-Hexanone (68%) had MSD % recovery below accepted limits. Associated sample results are qualified "UJ" as shown in Table 2.
- Total Aluminum, Total Iron, and Total Magnesium MS/MSD %R exceeded laboratory limits and they were present in the sample at more than five times the RL. However, the RPD was less than 20. No qualification is necessary.
- Total Mercury MS/MSD %R exceeded laboratory limits. It was ND in the sample. No qualification is required.
- Total Potassium MS %R exceeded laboratory limits and it was present at more than five times the RL in the sample. However, the RPD was less than 20. No qualification is necessary.
- Total Manganese MS/MSD %R was below laboratory limits and it was present in the sample at more than five times the RL. However, the RPD was less than 20. No qualification is necessary.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0). The one in 20 requirement for field duplicates is satisfied with the collection of a duplicate in data package L1414332.

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1417610 are usable for determining concentrations of the COCs in soil at the Site, although the concentrations of compounds listed on Table 2 should be considered to be estimated ("J" qualified) or not detected ("U" qualified).

Project Name: 520 WEST 28TH STREET
Project Number: E040

Lab Number: L1417610
Report Date: 08/13/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: 520 WEST 28TH STREET **Lab Number:** L1417610
Project Number: E040 **Report Date:** 08/13/14

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

The WG713093-5 MSD recovery, performed on L1417610-01, is outside the acceptance criteria for 2-hexanone (68%); however, the associated LCS/LCSD recoveries are within overall method allowances. No further action was required.

Metals

L1417610-01 has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by matrix interferences encountered during analysis.

The WG712114-3/-4 MS/MSD recoveries for aluminum (813%/766%), iron (1020%/1020%), and manganese (0%/0%), performed on L1417610-01, do not apply because the sample concentrations are greater than four times the spike amounts added.

The WG712114-3/-4 MS/MSD recoveries, performed on L1417610-01, are outside the acceptance criteria for magnesium (142%/133%) and potassium (MS at 132%). A post digestion spike was performed and yielded an unacceptable recovery for potassium (132%); all other compounds were within acceptance criteria. This has been attributed to sample matrix.

The WG712508-3/-4 MS/MSD recoveries, performed on L1417610-01, is outside the acceptance criteria for mercury (125%/125%). A post digestion spike was performed and was within acceptance criteria.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Cristin Walker

Title: Technical Director/Representative Date: 08/13/14

Sample Delivery Group Form

Laboratory Job number: L1417610

Project Number: E040

Project Name: 520 WEST 28TH STREET **Received:** 08/06/2014 10:55

Client Account: Integral Consulting, Inc. **Received by:** WM

Samples Delivered by: COURIER **Call Tracker #**

Bill Of Laden N/A **Trackingnum**

Coc Present Present

Container Status Intact **Sample IDs**

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt N/A **Are samples Properly Preserved?** Yes

Initial pH **preserved in house with** **Final pH**

Other Issues

Chlorine Check N/A

Are VOA/VPH Vials Present? Yes

Aqueous: Do Vials Contain Head Space? No

Soils: Is MeOHCovering the Soil? N/A Encores

Reagent H2O Preserved vials Frozen on 08/07/14 05:14

Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	2.5 - Temp. Blank	No	No

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
C2/C3.EP.EL-5.75	8/5/2014	L1417610-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
TRIP BLANK.8-5-14	8/5/2014	L1417610-02	WATER	SW-846 8260C

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
L1417610-01 / C2/C3.EP.EL-5.75	2-Hexanone	UJ	MSD below acceptable range

Notes:

UJ - Non-detected compound; approximated quantitation limit due to QC issues

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1417834
November 12, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected August 7, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by S. McTavey of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1417834. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

The results of supporting QC analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of one (1) soil sample, one (1) field blank and one (1) duplicate were analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific matrix spike/matrix spike duplicate (MS/MSD) for every 20 or fewer samples of a given matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples.

Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria were used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, and qualified analytical data are listed in Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were discrepancies that are not likely to affect the analytical results but should be noted:

- The field logbook fails to identify the location of field activity, the names and titles of field team members, and the purpose of the field activity as required in the FSP;
- Samples DUPLICATE and TRIP BLANK-8-7-14 have no collection times written on the c-o-c; and
- The sample TRIP BLANK-8-7-14 has no sampler's initials listed on the c-o-c.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples

One trip blank sample was submitted for analysis in this SDG. Acetone was detected in the trip blank above the MDL but below the RL. It was not detected in sample B2-EP-EL-5.75 (Lab ID: L1417834-01), but it was detected in sample DUPLICATE (Lab ID: L1417834-04) below the RL. The sample DUPLICATE result is qualified "U" as shown in Table 2.

Per the QAPP, one field blank was submitted for analysis in this SDG. All analytes were ND with the exceptions noted below. No qualification is necessary.

- Total Zinc was present in the field blank above the RL and it was present in the sample at greater than or equal to five times the RL.
- Total Arsenic, Total Barium, Total Chromium, Total Copper, and Total Magnesium were present in the field blank above the MDL and below the RL. All were present in the sample at greater than or equal to five times the RL.
- Total Antimony was present in the field blank above the MDL and below the RL, but it was ND in the sample.

5.4.2 Laboratory Blank Samples

Toluene was detected in the laboratory blank above the MDL but below the RL. It was detected in the sample and duplicate above the MDL but below the RL. The sample and duplicate results are qualified "U" as shown in Table 2. The laboratory interval standard and surrogate recoveries for all laboratory blanks met the project objectives. Hexachlorobutiadiene and hexachloroethane were detected in the laboratory blank above the MDL but below the RL. They were not detected in the sample or duplicate. No qualification is necessary.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the following exception:

- Acrolein LCS and LCSD % recoveries exceeded the VOC objectives. It was not analyzed for in the samples. No qualification is necessary.

5.7 Laboratory Duplicate

Laboratory duplicates were run for metals and total solids; the relative percent differences (RPDs) were within laboratory limits.

5.8 Matrix Spike/Matrix Spike Duplicates

The laboratory MS/MSD analyses were performed on a sample from a different site and therefore the MS/MSD cannot be considered sufficiently similar to the soil samples in this SDG. The one in 20 requirement is satisfied with the collection of a MS/MSD in data package L1417610.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine

any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0).

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1417834 are usable for determining concentrations of the COCs in soil at the Site, although the concentrations of compounds listed on Table 2 should be considered to be not detected ("U" qualified).

Project Name: 520 WEST 28TH STREET
Project Number: E040

Lab Number: L1417834
Report Date: 08/18/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: 520 WEST 28TH STREET **Lab Number:** L1417834
Project Number: E040 **Report Date:** 08/18/14

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Metals

L1417834-01 and -04 have elevated detection limits for all elements, with the exception of mercury, due to the dilution required by matrix interferences encountered during analysis.

The L1417834-02 Field Blank has a concentration above the reporting limit for zinc. The results were confirmed.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Cristin Walker

Title: Technical Director/Representative Date: 08/18/14

Sample Delivery Group Form

Laboratory Job number: L1417834

Project Number: E040

Project Name: 520 WEST 28TH STREET **Received:** 08/07/2014 14:40

Client Account: Integral Consulting, Inc. **Received by:** RR/RS

Samples Delivered by: COURIER **Call Tracker #**

Bill Of Laden N/A **Trackingnum**

Coc Present Present

Container Status Intact **Sample IDs**

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt <2, 7 **Are samples Properly Preserved?** Yes

Initial pH **preserved in house with** **Final pH**

Other Issues

Chlorine Check N/A

Are VOA/VPH Vials Present? Yes

Aqueous: Do Vials Contain Head Space? N/A

Soils: Is MeOHCovering the Soil? N/A ENCORES

Reagent H2O Preserved vials Frozen on 08/08/14 02:28

Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	2.8 - IR Gun	No	No

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
B2-EP-EL-5.75	8/7/2014	L1417834-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
FIELD BLANK-8-7-14	8/7/2014	L1417834-02	WATER	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
TRIP BLANK-8-7-14	8/7/2014	L1417834-03	WATER	SW-846 8260C
DUPLICATE	8/7/2014	L1417834-04	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
L1417834-04 / DUPLICATE	Acetone	U	Present in trip blank at less than the RL.
L1417834-01 / B2-EP-EL-5.75	Toluene	U	Present in laboratory blank at less than the RL.
L1417834-04 / DUPLICATE	Toluene	U	Present in laboratory blank at less than the RL.

Notes:

U - Non-detected

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1418729
November 12, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected August 18, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by S. McTavey of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1418729. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

The results of supporting QC analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of one (1) soil sample was analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific matrix spike/matrix spike duplicate (MS/MSD) for every 20 or fewer samples of a given matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples.

Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria were used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, however no analytical data was qualified as shown in Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were discrepancies that are not likely to affect the analytical results but should be noted:

- The field logbook fails to identify the location of field activity, the names and titles of field team members, and the purpose of the field activity as required in the FSP;
- The laboratory failed to use the client's sample ID for sample C2/C3 EP EL-6.75 as it is written as C2/C3-EP-EL-6.75 on the c-o-c and field notes;
- TRIP BLANK-8.18.14 had no collection time or sampler's initials written on the c-o-c; and
- The relinquished date and time is missing from the third transfer on the c-o-c.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples
One trip blank sample was submitted for analysis in this SDG. All analytes were ND. No qualification is necessary.

Per the QAPP, one field blank sample was required per 20 or fewer samples for each media; however, none were collected with this SDG. The one in 20 requirement is satisfied with the collection of a field blank in data package L1417834.

5.4.2 Laboratory Blank Samples
All VOC and SVOC analytes in the laboratory blank were ND. The laboratory interval standard and surrogate recoveries for all laboratory blanks met the project objectives.
Total Chromium was present in the laboratory blank above the MDL but below the RL. It was detected in the sample greater than ten times the RL, so no qualification is necessary.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the exceptions noted below. No Qualification is necessary.

- Bromomethane LCS and LCSD % recoveries exceeded the project objectives. It was ND in the sample.
- Dichlorodifluoromethane LCS and LCSD % recoveries exceeded the project objectives. It was ND in the sample.

5.7 Laboratory Duplicate

Laboratory duplicates were run for total solids and metals and the relative percent differences (RPDs) were within laboratory limits.

5.8 Matrix Spike/Matrix Spike Duplicates

The laboratory MS/MSD analyses were performed on a sample from a different site therefore the MS/MSD cannot be considered sufficiently similar to the soil samples in this SDG. The one in 20 requirement is satisfied with the collection of a MS/MSD in data package L1417610.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0). The one in 20 requirement for field duplicates is satisfied with the collection of a duplicate in data package L1417834.

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1418729 are usable for determining concentrations of the COCs in soil at the Site.

Project Name: 520 WEST 28TH STREET
Project Number: E040

Lab Number: L1418729
Report Date: 08/21/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name:	520 WEST 28TH STREET	**Lab Number:**	L1418729
Project Number:	E040	**Report Date:**	08/21/14

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Metals

L1418729-01 has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by matrix interferences encountered during analysis.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Lisa Westerlind

Title: Technical Director/Representative Date: 08/21/14

Sample Delivery Group Form

Laboratory Job number: L1418729

Project Number: E040

Project Name: 520 WEST 28TH STREET **Received:** 08/18/2014 15:30

Client Account: Integral Consulting, Inc. **Received by:** RR/WM

Samples Delivered by: COURIER **Call Tracker #**

Bill Of Laden N/A **Trackingnum**

Coc Present Present

Container Status Intact **Sample IDs**

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt N/A **Are samples Properly Preserved?** Yes

Initial pH **preserved in house with** **Final pH**

Other Issues

Chlorine Check N/A

Are VOA/VPH Vials Present? Yes

Aqueous: Do Vials Contain Head Space? No

Soils: Is MeOHCovering the Soil? N/A ENCORES

Reagent H2O Preserved vials Frozen on 08/18/14 23:31

Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	No	No	3.6 - IR Gun	No	No

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
C2/C3-EP EL-6.75	8/18/2014	L1418729-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
TRIP BLANK-8.18.14	8/18/2014	L1418729-02	WATER	SW-846 8260C

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
None	None	None	None

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1419272
November 12, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected August 22, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by S. McTavey of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1419272. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

The results of supporting QC analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of one (1) soil sample was analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific matrix spike/matrix spike duplicate (MS/MSD) for every 20 or fewer samples of a given matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples.

Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria were used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, however no analytical data requires qualification as shown in Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were discrepancies that are not likely to affect the analytical results but should be noted:

- There are instances where corrections in the field logbook were not initialed as required in the FSP;
- The field logbook fails to identify the location of field activity, the names and titles of field team members, and the purpose of the field activity as required in the FSP; and
- The c-o-c lists the collection time and sampler's initials for sample TRIP BLANK 8-22-14 lists the incorrectly as a dash.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples
One trip blank sample was submitted for analysis in this SDG. All results were ND. No qualification is necessary.

Per the QAPP, one field blank sample was required per 20 or fewer samples for each media; however, none were collected with this SDG. The one in 20 requirement is satisfied with the collection of a field blank in data package L1417834.

5.4.2 Laboratory Blank Samples
All blank results were ND. No qualification is necessary. All other compounds for all other analyses were ND at the RL.

The laboratory interval standard and surrogate recoveries for all laboratory blanks met the project objectives except for 4-Terphenyl-d14, which was above acceptance criteria. However, all other recoveries were within acceptance criteria therefore no qualification is necessary.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the following exceptions:

- Iodomethane LCS/LCSD % recoveries were below the project objectives. The chemical was not analyzed for in the sample and therefore no qualification is required.
- Tetrahydrofuran LCSD % recovery was below the project objectives. The chemical was not analyzed for in the sample and therefore no qualification is required.

5.7 Laboratory Duplicate

Laboratory duplicates were run for total solids and metals and the percent RPDs were within laboratory limits with the following exceptions:

- Total Aluminum, Total Barium, Total Cobalt, Total Iron, Total Magnesium, and Total Nickel RPDs were greater than the laboratory limit. The sample results were more than five times the RL.
- Total Lead and Total Zinc RPDs were greater than the laboratory limit. The sample results were less than five times the RL.

However, the sample used is from another site and it cannot be considered sufficiently similar to the soil samples in this SDG. No qualifications are necessary.

5.8 Matrix Spike/Matrix Spike Duplicates

The laboratory MS/MSD analyses were performed on a sample form a different site therefore the MS/MSD cannot be considered sufficiently similar to the soil samples in this SDG. The one in 20 requirement is satisfied with the collection of a MS/MSD in data package L1417610.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional

issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0). The one in 20 requirement for field duplicates is satisfied with the collection of a duplicate in data package L1417834.

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1419272 are usable for determining concentrations of the COCs in soil at the Site.

Project Name: 520 WEST 28TH STREET
Project Number: E040

Lab Number: L1419272
Report Date: 08/29/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name:	520 WEST 28TH STREET	**Lab Number:**	L1419272
Project Number:	E040	**Report Date:**	08/29/14

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Metals

L1419272-01 has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by matrix interferences encountered during analysis.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Lisa Westerlind

Title: Technical Director/Representative Date: 08/29/14

Sample Delivery Group Form

Laboratory Job number: L1419272

Project Number: E040

Project Name: 520 WEST 28TH STREET **Received:** 08/22/2014 14:55

Client Account: Integral Consulting, Inc. **Received by:** RS/WM

Samples Delivered by: COURIER **Call Tracker #**

Bill Of Laden N/A **Trackingnum**

Coc Present Present

Container Status Intact **Sample IDs**

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt N/A **Are samples Properly Preserved?** Yes

Initial pH **preserved in house with** **Final pH**

Other Issues

Chlorine Check N/A

Are VOA/VPH Vials Present? Yes

Aqueous: Do Vials Contain Head Space? No

Soils: Is MeOHCovering the Soil? N/A Encore

Reagent H2O Preserved vials Frozen on 08/23/14 01:30

Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	2.4 - IR Gun	No	No

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
A2-EP-EL-7	8/22/2014	L1419272-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
TRIP BLANK 8-22-14	8/22/2014	L1419272-02	WATER	SW-846 8260C

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
None	None	None	None

DUSRs for Offsite Sidewall Endpoint Samples

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1408930
November 13, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected April 28, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by S. McTavey of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1408930. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

The results of supporting quality control (QC) analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of three (3) soil samples were analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific matrix spike/matrix spike duplicate (MS/MSD) for every 20 or fewer samples of a given matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples.

Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria were used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, and qualified analytical data are listed in Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were discrepancies that are not likely to affect the analytical results but should be noted:

- There are instances where corrections in the field logbook were not initialed as required by the FSP;
- The field logbook fails to identify the location of field activity, the names and titles of field team members, and the purpose of the field activity as required by the FSP; and
- The collection date, time, and sampler's initials for sample TRIP BLANK are not listed on the c-o-c.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples
One trip blank sample was submitted for analysis in this SDG. All results were ND at the RL for all analytes.

Per the QAPP, one field blank sample was required per 20 or fewer samples for each media; however, none were collected with this SDG. The one in 20 requirement is satisfied with the collection of a field blank in data package L1410975.

5.4.2 Laboratory Blank Samples
All samples were ND at the RL for all analytes with the following exceptions:

- Total arsenic was detected in the laboratory method blank above the MDL but below the RL. It was detected in all three samples above the RL, so no qualification is required.
- Total antimony was detected in the laboratory method blank above the MDL but below the RL. It was detected in all three samples. In two of the samples, D6-SW (2') and B6-SW (3') the detection was below the RL, therefore these two samples should be qualified with a "U" and reported at the RL.
- Total silver was detected in the laboratory method blank above the MDL but below the RL. It was detected in all three samples. In one sample, B6-SW (3') the detection was below the RL, therefore this sample should be qualified with a "U" and reported at the RL.

The laboratory interval standard and surrogate recoveries for all laboratory blanks met the laboratory objectives.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits except for decachlorobiphenyl which exceeded the laboratory standard for sample C6-SW (2.5') (Lab ID: L1408930-02). Since all other surrogate recoveries were within QC limits, no qualification is required.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the following exceptions:

- 2-Chloroethylvinyl ether LCS/LCSD percent recovery (%R) was below the project objective. It was not an analyte in the samples. No qualification is necessary.
- 2-Butanone LCSD %R was below the laboratory limit but above the project objective. It was ND in the samples. No qualification is necessary.

5.7 Laboratory Duplicate

Laboratory duplicates were run for total solids and metals and the relative percent difference (RPDs) were within laboratory limits with the following exception:

- Total Nickel RPD exceeded the RPD limits. The duplicate was performed on a sample from a different site therefore the RPD cannot be considered sufficiently similar to the soil samples in this SDG. No qualifications are necessary.

5.8 Matrix Spike/Matrix Spike Duplicates

The laboratory MS/MSD analyses were performed on a sample form a different site therefore the MS/MSD cannot be considered sufficiently similar to the soil samples in this SDG. The one in 20 requirement is satisfied with the collection of a MS/MSD in data package L1410189.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0). The one in 20 requirement for field duplicates is satisfied with the collection of a duplicate in data package L1409762.

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1408930 are usable for determining concentrations of the COCs in soil at the Site, although the concentrations of compounds listed on Table 2 should be considered not detected ("U" qualified).

Project Name:	520 WEST 28TH STREET	**Lab Number:**	L1408930
Project Number:	E040	**Report Date:**	05/05/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: 520 WEST 28TH STREET **Lab Number:** L1408930
Project Number: E040 **Report Date:** 05/05/14

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Pesticides

L1408930-02 has elevated detection limits due to the dilution required by the sample matrix.

Total Metals

L1408930-01, -02, and -03 have elevated detection limits for all elements, with the exception of mercury, due to the dilutions required by matrix interferences encountered during analysis.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 05/05/14

Sample Delivery Group Form

Laboratory Job number: L1408930

Project Number: E040

Project Name: 520 WEST 28TH STREET **Received:** 04/28/2014 16:00

Client Account: Integral Consulting, Inc. **Received by:** WM

Samples Delivered by: COURIER **Call Tracker #**

Bill Of Laden N/A **Trackingnum**

Coc Present Present

Container Status Intact **Sample IDs**

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt N/A **Are samples Properly Preserved?** Yes

Initial pH **preserved in house with** **Final pH**

Other Issues

Chlorine Check N/A

Are VOA/VPH Vials Present? Yes

Aqueous: Do Vials Contain Head Space? No

Soils: Is MeOHCovering the Soil? N/A Encores

Reagent H2O Preserved vials Frozen on 04/29/14 03:09

Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	2.2 - Temp. Blank	No	No

Project Manager: Katie O'Brien **Review Date:** 04/29/2014

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
D6-SW (2')	4/28/2014	L1408930-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
C6-SW (2.5')	4/28/2014	L1408930-02	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
B6-SW (3')	4/28/2014	L1408930-03	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
TRIP BLANK	4/28/2014	L1408930-04	WATER	SW-846 8260C

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
D6-SW (2') / L1408930-01	Total antimony	4.7 U	Analyte detected in laboratory blank
B6-SW (3') / L1408930-03	Total antimony	4.5 U	Analyte detected in laboratory blank
B6-SW (3') / L1408930-04	Total silver	0.90 U	Analyte detected in laboratory blank

Notes:

U - Non-detected

The values listed under the qualification column are the RLs for the applicable samples

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1407766
November 13, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected April 14, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by S. McTavey of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1407766. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

The results of supporting QC analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of one (1) soil sample was analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific matrix spike/matrix spike duplicate (MS/MSD) for every 20 or fewer samples of a given matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples.

Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria were used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, however no analytical data required qualification as shown in Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were several discrepancies that are not likely to affect the analytical results but should be noted:

- There are instances where corrections in the field logbook were not initialed as required in the FSP;
- The field logbook fails to identify the names and titles of field team members, and the purpose of the field activity as required in the FSP; and
- The collection time, sampler's initials, and sample matrix are not listed for sample TRIP BLANK on the c-o-c.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples
One trip blank sample was submitted for analysis in this SDG. Samples were ND at the RL for all analytes. No qualification is necessary.

Per the QAPP, one field blank sample was required per 20 or fewer samples for each media; however, none were collected with this SDG. The one in 20 requirement is satisfied with the collection of a field blank in data package L1410975.

5.4.2 Laboratory Blank Samples
Samples were ND at the RL for all analytes except the following:

- Total iron was detected in the laboratory blank above the MDL but below the RQ. Total iron was detected in the sample at a level greater than the RL. No qualification is required.

The laboratory interval standard and surrogate recoveries for all laboratory blanks met the project objectives.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the following exceptions:

- Iodomethane LCS/LCSD percent recovery (%R) was below the laboratory acceptance standard. It was not an analyte in the sample. No qualification is necessary.
- 2,4-Dinitrotoluene LCSD %R exceeded the laboratory standards. It was ND in the sample. No qualification is necessary.

5.7 Laboratory Duplicate

A laboratory duplicate was run for total solids and the relative percent differences (RPDs) were within laboratory limits. A laboratory duplicate was run for mercury and the percent RPDs exceeded the laboratory limits. The duplicate was performed on a sample from a different site therefore the RPD cannot be considered sufficiently similar to the soil samples in this SDG. No qualifications are necessary.

5.8 Matrix Spike/Matrix Spike Duplicates

The laboratory MS/MSD analyses were performed on a sample form a different site therefore the MS/MSD cannot be considered sufficiently similar to the soil samples in this SDG. The one in 20 requirement is satisfied with the collection of a MS/MSD in data package L1410189.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0). The one in 20 requirement for field duplicates is satisfied with the collection of a duplicate in data package L1409762.

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1407766 are usable for determining concentrations of the COCs in soil at the Site.

Project Name:	520 W. 28TH ST.	**Lab Number:**	L1407766
Project Number:	E040	**Report Date:**	04/21/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name:	520 W. 28TH ST.	**Lab Number:**	L1407766
Project Number:	E040	**Report Date:**	04/21/14

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Total Metals

L1407766-01 has elevated detection limits for all elements, with the exception of mercury, due to the analytical dilution required by matrix interferences encountered during analysis.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative Date: 04/21/14

Sample Delivery Group Form

Laboratory Job number: L1407766

Project Number: E040
Project Name: 520 W. 28TH ST.
Client Account: Integral Consulting, Inc.
Received: 04/14/2014 13:18
Received by: RS

Samples Delivered by: COURIER
Call Tracker #
Bill Of Laden N/A
Trackingnum
Coc Present Present

Container Status Intact
Sample IDs

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt N/A
Are samples Properly Preserved? Yes
Initial pH
preserved in house with
Final pH
Other Issues
Chlorine Check N/A

Are VOA/VPH Vials Present? Yes
Aqueous: Do Vials Contain Head Space? N/A
Soils: Is MeOHCovering the Soil? N/A Encore
Reagent H2O Preserved vials Frozen on 04/15/14 02:28
Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	2.9 - IR Gun	No	No

Project Manager: Nichole Hunt
Review Date: 04/15/2014

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
G2-SW (8')	4/14/2014	L1407766-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
TRIP BLANK	4/14/2014	L1407766-02	WATER	SW-846 8260C

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
None	None	None	None

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1407159
November 13, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected April 7, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by S. McTavey of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1407159. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

The results of supporting QC analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of two (2) soil samples were analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific matrix spike/matrix spike duplicate (MS/MSD) for every 20 or fewer samples of a given matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples. Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria were used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, however no analytical data required qualification as shown in Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were discrepancies that are not likely to affect the analytical results but should be noted:

- There are instances where corrections in the field logbook were not initialed as required in the FSP;
- The field logbook fails to identify the names and titles of field team members, and the purpose of the field activity as required in the FSP; and
- The collection date, time, and sampler's initials for sample TRIP BLANK is not listed on the c-o-c.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples
One trip blank sample was submitted for analysis in this SDG. All analytes were ND. No qualification is necessary.

Per the QAPP, one field blank sample was required per 20 or fewer samples for each media; however, none were collected with this SDG. The one in 20 requirement is satisfied with the collection of a field blank in data package L1410975.

5.4.2 Laboratory Blank Samples
All samples were ND at the RL for all analytes. No qualification is necessary. The laboratory interval standard and surrogate recoveries for all laboratory blanks met the project objectives.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the following exceptions:

- 2,4-Dinitrotoluene LCSD percent recovery exceeded the laboratory standards. It was ND in both samples. No qualification is necessary.

5.7 Laboratory Duplicate

Laboratory duplicates were run for total solids and metals and the relative percent differences (RPDs) were within laboratory limits with the exception of Total Mercury which exceeded the acceptable limits. The duplicate was performed on a sample from a different site therefore the RPD cannot be considered sufficiently similar to the soil samples in this SDG. No qualifications are necessary.

5.8 Matrix Spike/Matrix Spike Duplicates

The laboratory MS/MSD analyses were performed on a sample from a different site and therefore the MS/MSD cannot be considered sufficiently similar to the soil samples in this SDG. The one in 20 requirement is satisfied with the collection of a MS/MSD in data package L1410189.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0). The one in 20 requirement for field duplicates is satisfied with the collection of a duplicate in data package L1409762.

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1407159 are usable for determining concentrations of the COCs in soil at the Site.

Project Name: 520 W. 28TH ST. **Lab Number:** L1407159
Project Number: E040 **Report Date:** 04/14/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: 520 W. 28TH ST. **Lab Number:** L1407159
Project Number: E040 **Report Date:** 04/14/14

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Total Metals

L1407159-01 and -02 have elevated detection limits for all elements, with the exception of mercury, due to the dilution required by matrix interferences encountered during analysis.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 04/14/14

Sample Delivery Group Form

Laboratory Job number: L1407159

Project Number: E040

Project Name: 520 W. 28TH ST. **Received:** 04/07/2014 13:18

Client Account: Integral Consulting, Inc. **Received by:** SH

Samples Delivered by: COURIER **Call Tracker #**

Bill Of Laden N/A **Trackingnum**

Coc Present Present

Container Status Intact **Sample IDs**

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt N/A **Are samples Properly Preserved?** Yes

Initial pH **preserved in house with** **Final pH**

Other Issues

Chlorine Check N/A

Are VOA/VPH Vials Present? Yes

Aqueous: Do Vials Contain Head Space? No

Soils: Is MeOHCovering the Soil? N/A Encores

Reagent H2O Preserved vials Frozen on 04/08/14 00:35

Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	4.0 - IR Gun	No	No

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
D2-SW (3.5')	4/7/2014	L1407159-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
F2-SW (4.5')	4/7/2014	L1407159-02	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
TRIP BLANK	4/7/2014	L1407159-03	SOIL	SW-846 8260C

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
None	None	None	None

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1406335
November 13, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected March 26, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by S. McTavey of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1406335. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

The results of supporting QC analyses were summarized in the CN and reported in the LDR.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

3.0 Introduction

A total of two (2) soil samples were analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific matrix spike/matrix spike duplicate (MS/MSD) for every 20 or fewer samples of a given matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples. Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria were used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, and qualified analytical data are listed in Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CNs, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were discrepancies that are not likely to affect the analytical results but should be noted:

- There are instances where corrections in the field logbook were not initialed as required in the FSP;
- The field logbook fails to identify the names and titles of field team members, and the purpose of the field activity as required in the FSP; and
- The collection date, time, and sampler's initials for sample TRIP BLANK is not listed on the c-o-c.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples

One trip blank sample was submitted for analysis in this SDG. All analytes were ND. No qualification is necessary.

Per the QAPP, one field blank sample was required per 20 or fewer samples for each media; however, none were collected with this SDG. The one in 20 requirement is satisfied with the collection of a field blank in data package L1410975.

5.4.2 Laboratory Blank Samples

Toluene was detected above the MDL but below the RL in one laboratory method blank and qualified "J" by the lab as required. All associated samples were ND for the analyte, so no qualification is necessary. Bromomethane was detected above the MDL but below the RL in one laboratory method blank and qualified "J" by the lab as required. All associated samples were ND for the analyte, so no qualification is necessary. All other compounds for all other analyses were ND at the RL.

Total lead was present in the metals blank above the MDL but below the RL. Total lead was detected in the sample above the RL. No qualification is necessary.

The laboratory interval standard and surrogate recoveries for all laboratory blanks met the project objectives.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the following exceptions:

- Trichlorofluoromethane LCSD was below the laboratory objective. It was ND in both samples: D4 SW (3.5') (Lab ID. L1406335-01) and D5-SW (4.5') (Lab ID. L1406335-02). The analyte is qualified "UJ" as shown in Table 2.
- 2,4-Dinitrotoluene LCS/LCSD exceeded the laboratory objective. It was ND in both samples: D4 SW (3.5') (Lab ID. L1406335-01) and D5-SW (4.5') (Lab ID. L1406335-02). No qualification is necessary.

5.7 Laboratory Duplicate

Laboratory duplicates were run for total solids and mercury and the relative percent differences (RPDs) were within laboratory limits.

5.8 Matrix Spike/Matrix Spike Duplicates

The laboratory MS/MSD analyses were performed on a sample from a different site therefore the MS/MSD cannot be considered sufficiently similar to the soil samples in this SDG. The recoveries met the project objectives except the following:

- Total Aluminum, Total Iron, and Total Magnesium MS/MSD percent recovery (%R) was below the laboratory standard. All sample results were greater than five times the RL. No post-digestion spike was performed.
- Total Calcium MS %R was below the laboratory standard. The sample result was greater than five times the RL. No post-digestion spike was performed.
- Total Arsenic MSD %R was below the laboratory standard. The sample result was greater than five times the RL. No post-digestion spike was performed.
- Total Manganese and Total Mercury MS %R exceeded the laboratory standard. Both sample results were greater than five times the RL. No post-digestion spike was performed.

However, since the sample cannot be considered sufficiently similar to the soil samples in the SDG, no qualification is necessary. The one in 20 requirement is satisfied with the collection of a MS/MSD in data package L1410189.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0). The one in 20 requirement for field duplicates is satisfied with the collection of a duplicate in data package L1409762.

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1406335 are usable for determining concentrations of the COCs in soil at the Site, although the concentrations of compounds listed on Table 2 should be considered to be estimated ("J" qualified) or not detected ("U" qualified).

Project Name: 520 W. 28TH ST. **Lab Number:** L1406335
Project Number: E040 **Report Date:** 04/02/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: 520 W. 28TH ST. **Lab Number:** L1406335
Project Number: E040 **Report Date:** 04/02/14

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Semivolatile Organics

L1406335-01 has elevated detection limits due to the dilution required by the matrix interferences encountered during the concentration of the sample and the analytical dilution required by the sample matrix.

Total Metals

L1406335-01 and -02 have elevated detection limits for all elements, with the exception of mercury, due to the dilutions required by matrix interferences encountered during analysis.

The WG678754-4 MS recovery for mercury (1260%), performed on L1406335-01, does not apply because the sample concentration is greater than four times the spike amount added.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative Date: 04/02/14

Sample Delivery Group Form

Laboratory Job number: L1406335

Project Number: E040

Project Name: 520 W28TH ST.

Received: 03/26/2014 14:33

Client Account: Integral Consulting, Inc.

Received by: SH/WM

Samples Delivered by: COURIER

Call Tracker #

Bill Of Laden N/A

Trackingnum

Coc Present Present

Container Status Intact

Sample IDs

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt N/A

Are samples Properly Preserved? Yes

Initial pH

preserved in house with

Final pH

Other Issues

Chlorine Check N/A

Are VOA/VPH Vials Present? Yes

Aqueous: Do Vials Contain Head Space? No

Soils: Is MeOHCovering the Soil? N/A Encores

Reagent H2O Preserved vials Frozen on 03/27/14 02:30

Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	4.1 - IR Gun	No	No

Project Manager: Katie O'Brien

Review Date: 03/27/2014

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
D4-SW (3.5')	3/26/2014	L1406335-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
D5-SW (4.5')	3/26/2014	L1406335-02	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
TRIP BLANK	3/26/2014	L1406335-03	WATER	SW-846 8260C

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
L1406335-01/D4-SW (3.5')	Trichlorofluoromethane	UJ	LCSD %R < Lab standard, Sample was ND
L1406335-02/D5-SW (4.5')	Trichlorofluoromethane	UJ	LCSD %R < Lab standard, Sample was ND

Note:
UJ - Non-detected compound; approximated quantitation limit due to QC issues

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1406264
November 12, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected March 25, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by S. McTavey of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1406264. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

The results of supporting QC analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of two (2) soil samples were analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific matrix spike/matrix spike duplicate (MS/MSD) for every 20 or fewer samples of a given matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples.

Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria were used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, however no analytical data required qualification as shown on Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were discrepancies that are not likely to affect the analytical results but should be noted:

- The collection date, time, and sampler's initials for sample TRIP BLANK is not listed on the c-o-c;
- There are instances where corrections in the field logbook were not initialed as required in the FSP; and
- The field logbook fails to identify the names and titles of field team members, and the purpose of the field activity as required in the FSP.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples
One trip blank sample was submitted for analysis in this SDG. All analytes were ND. No qualification is necessary.

Per the QAPP, one field blank sample was required per 20 or fewer samples for each media; however, none were collected with this SDG. The one in 20 requirement is satisfied with the collection of a field blank in data package L1410975.

5.4.2 Laboratory Blank Samples
Toluene was detected above the MDL but below the RL in one laboratory method blank and qualified "J" by the lab as required. All associated samples were ND for the analyte, so no qualification is necessary. Bromomethane was detected above the MDL but below the RL in one laboratory method blank and qualified "J" by the lab as required. All associated samples were ND for the analyte, so no qualification is necessary.

All other compounds for all other analyses were ND at the RL. The laboratory interval standard and surrogate recoveries for all laboratory blanks met the project objectives.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits except for the following surrogate recoveries for sample D6-SW (2.5') (Lab ID. L1406264-02):

- Decachlorobiphenyl exceeded the surrogate percent recovery (%R) acceptance criteria for both Column A and Column B. The sample was not analyzed for this analyte. No qualification is necessary.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the following exceptions:

- 2,4-Dinotrotoluene LCS/LCSD %Rs exceeded the laboratory recovery limits. It was ND in both samples. No qualification is necessary.

5.7 Laboratory Duplicate

Laboratory duplicates were run for, total mercury, total arsenic, and total solids and the relative percent differences (RPDs) were within laboratory limits.

5.8 Matrix Spike/Matrix Spike Duplicates

The laboratory MS/MSD analyses were performed on a sample form a different site therefore the MS/MSD cannot be considered sufficiently similar to the soil samples in this SDG. The one in 20 requirement is satisfied with the collection of a MS/MSD in data package L1410189.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0). The one in 20 requirement for field duplicates is satisfied with the collection of a duplicate in data package L1409762.

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1406264 are usable for determining concentrations of the COCs in soil at the Site.

Project Name: 520 W28TH ST.
Project Number: E040

Lab Number: L1406264
Report Date: 04/01/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: 520 W28TH ST. **Lab Number:** L1406264
Project Number: E040 **Report Date:** 04/01/14

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 04/01/14

Sample Delivery Group Form

Laboratory Job number: L1406264

Project Number: E040
Project Name: 520 W28TH ST.
Client Account: Integral Consulting, Inc.
Received: 03/25/2014 15:10
Received by: WM

Samples Delivered by: COURIER
Call Tracker #
Bill Of Laden N/A
Trackingnum
Coc Present Present

Container Status Intact
Sample IDs

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt N/A
Are samples Properly Preserved? Yes
Initial pH
preserved in house with
Final pH
Other Issues
Chlorine Check N/A

Are VOA/VPH Vials Present? Yes
Aqueous: Do Vials Contain Head Space? No
Soils: Is MeOHCovering the Soil? N/A Encores
Reagent H2O Preserved vials Frozen on 03/26/14 03:32
Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	3.5 - Temp. Blank	No	No

Project Manager: Katie O'Brien
Review Date: 03/26/2014

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
D3-SW (8.5')	3/22/2014	L1406264-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
D6-SW (2.5')	3/22/2014	L1406264-02	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
TRIP BLANK	3/22/2014	L1406264-03	WATER	SW-846 8260C

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
None	None	None	None

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L14412615
November 19, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected June 10, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by S. McTavey of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1412615. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

The results of supporting QC analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of one (1) soil sample was analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific matrix spike/matrix spike duplicate (MS/MSD) for every 20 or fewer samples of a given matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples.

Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria were used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, and qualified analytical data are listed in Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were discrepancies that are not likely to affect the analytical results but should be noted:

- There are instances where corrections in the field logbook were not initialed as required in the FSP;
- The field logbook fails to identify the names and titles of field team members, and the purpose of the field activity as required in the FSP; and
- The collection date and time and sampler's initials for sample TRIP BLANK-6-10-14 are not listed on the c-o-c.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples
One trip blank sample was submitted for analysis in this SDG. All analytes were ND levels and require no qualification.

Per the QAPP, one field blank sample was required per 20 or fewer samples for each media; however, none were collected with this SDG. The one in 20 requirement is satisfied with the collection of a field blank in data package L1411861.

5.4.2 Laboratory Blank Samples
Total Lead was detected in the laboratory blank above the MDL and below the RL. Total Lead was detected in the sample above the MDL and below the RL. Report at the RL and qualify with "U" as shown in Table 2.

All other analytes were ND for all analyses.

The laboratory interval standard and surrogate recoveries for all laboratory blanks met the project objectives.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the following exceptions:

- Acrolein LCS/LCSD percent recoveries (%Rs) exceeded the laboratory acceptance standard. It was not an analyte in the sample. No qualification is necessary.
- Vinyl chloride LCS/LCSD %Rs exceeded the laboratory acceptance standard. It was ND in the sample. No qualification is necessary.
- Styrene LCSD %R exceeded the laboratory acceptance standard. It was ND in the sample. No qualification is necessary.
- 2,4-Dinitrotoluene LCS/LCSD %Rs exceeded the laboratory acceptance standard. It was ND in the sample. No qualification is necessary.

5.7 Laboratory Duplicate

Laboratory duplicates were run for total solids and mercury and the relative percent differences (RPDs) were within laboratory limits.

5.8 Matrix Spike/Matrix Spike Duplicates

The laboratory MS/MSD analyses were performed on a sample form a different site therefore the MS/MSD cannot be considered sufficiently similar to the soil samples in this SDG. The one in 20 requirement is satisfied with the collection of a MS/MSD in data package L1412260.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection but they do not indicate measurement of VOCs with a photoionization detector (PID) as required by the FSP. Additional issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates

have met the project objectives (Section 4.0). The one in 20 requirement for field duplicates is satisfied with the collection of a duplicate in data package L1411861.

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1412615 are usable for determining concentrations of the COCs in soil at the Site, although the concentrations of compounds listed on Table 2 should be considered not detected ("U" qualified).

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples free of charge for 30 days from the date the project is completed. After 30 days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples.

Please contact Client Services at 800-624-9220 with any questions.

Report Submission

Case Narrative (continued)

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Metals

L1412615-01 has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by matrix interferences encountered during analysis.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Report Date: 06/17/14

Title: Technical Director/Representative

Sample Delivery Group Form

Laboratory Job number: L1412615

Project Number: E040

Project Name: 520 WEST 28TH STREET **Received:** 06/10/2014 16:46

Client Account: Integral Consulting, Inc. **Received by:** SH

Samples Delivered by: COURIER **Call Tracker #**

Bill Of Laden N/A **Trackingnum**

Coc Present Present

Container Status Intact **Sample IDs**

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt N/A **Are samples Properly Preserved?** Yes

Initial pH **preserved in house with** **Final pH**

Other Issues

Chlorine Check N/A

Are VOA/VPH Vials Present? Yes

Aqueous: Do Vials Contain Head Space? No

Soils: Is MeOHCovering the Soil? N/A Encores

Reagent H2O Preserved vials Frozen on 06/11/14 00:19

Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	2.7 - IR Gun	No	No

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
G2-SOUTH-SW-10FTBG	6/10/2014	L1412615-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
TRIP BLANK-6-10-14	6/10/2014	L1412615-02	WATER	SW-846 8260C

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
G2-SOUTH-SW-10FTBG / L1412615-01	Total Lead	4.7 U	Detected in the laboratory blank

Notes:

U - Non-detected

The value listed under the qualification column is the RL for the applicable sample

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1412376
November 17, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected June 6, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by S. McTavey of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1412376. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

The results of supporting QC analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of one (1) soil sample was analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific matrix spike/matrix spike duplicate (MS/MSD) for every 20 or fewer samples of a given matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples.

Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria were used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, and qualified analytical data are listed in Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were discrepancies that are not likely to affect the analytical results but should be noted:

- There are instances where corrections in the field logbook were not initialed as required in the FSP;
- The field logbook fails to identify the names and titles of field team members, and the purpose of the field activity as required in the FSP;
- The collection date and time and sampler's initials for sample TRIP BLANK-6-6-14 are not listed on the c-o-c; and
- The c-o-c does not show that the sampler relinquished the samples to the laboratory.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples
One trip blank sample was submitted for analysis in this SDG. All analytes were ND. No qualification is necessary.

Per the QAPP, one field blank sample was required per 20 or fewer samples for each media; however, none were collected with this SDG. The one in 20 requirement is satisfied with the collection of a field blank in data package L1411861.

5.4.2 Laboratory Blank Samples
Total Silver was present on the laboratory blank above the MDL and below the RL. It was present in the sample above the MDL and below the RL. Report at the RL and qualify with "U" as shown in Table 2.

All other compounds for all other analyses were ND at the RL. The laboratory interval standard and surrogate recoveries for all laboratory blanks met the project objectives.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the following exceptions:

- Acetone relative percent difference (RPD) exceeded the laboratory standard. It was ND in the sample. No qualification is necessary.
- Acrolein LCS/LCSD percent recoveries (%Rs) exceeded laboratory limits. It was not an analyte in the sample. No qualification is necessary.
- 2,4-Dinitrotoluene and pentachlorophenol LCS/LCSD %Rs exceeded the laboratory limits. Both were ND in the sample. No qualification is necessary.

5.7 Laboratory Duplicate

Laboratory duplicates were run for total solids, total metals, and Total Mercury and the RPDs were within laboratory limits with the following exceptions.

- Total Aluminum, Total Barium, Total Calcium, Total Copper, Total Iron, Total Lead, Total Manganese, Total Potassium, and Total Sodium RPDs exceeded laboratory limits. All were present above the RL. Both the samples and duplicates were greater than 5 times the RL. Qualify with "J" as shown in Table 2.
- Total Arsenic RPD exceeded laboratory limits. It was present above the RL. The duplicate was less than 5 times the RL but the difference between the sample and duplicate is greater than the RL. Qualify with "J" as shown in Table 2.

5.8 Matrix Spike/Matrix Spike Duplicates

The laboratory MS/MSD analyses were performed on a sample form a different site therefore the MS/MSD cannot be considered sufficiently similar to the soil samples in this SDG. The one in 20 requirement is satisfied with the collection of a MS/MSD in data package L1412260.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional

issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0). The one in 20 requirement for field duplicates is satisfied with the collection of a duplicate in data package L1411861.

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1412376 are usable for determining concentrations of the COCs in soil at the Site, although the concentrations of compounds listed on Table 2 should be considered to be estimated ("J" qualified) or not detected ("U" qualified).

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples free of charge for 30 days from the date the project is completed. After 30 days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples.

Please contact Client Services at 800-624-9220 with any questions.

Report Submission

Case Narrative (continued)

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Total Metals

L1412376-01 has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by matrix interferences encountered during analysis.

The WG696981-4 MS recoveries for aluminum (0%), iron (0%), lead (0%) and manganese (21%), performed on L1412376-01, do not apply because the sample concentrations are greater than four times the spike amounts added.

The WG696981-4 MS recoveries, performed on L1412376-01, are outside the acceptance criteria for magnesium (52%) and zinc (189%). A post digestion spike was performed and yielded unacceptable recoveries for magnesium (10%) and zinc (40%). This has been attributed to sample matrix.

The WG696981-3 Laboratory Duplicate RPDs, performed on L1412376-01, are outside the acceptance criteria for aluminum (26%), arsenic (54%), barium (55%), calcium (31%), copper (26%), iron (30%), lead (97%), manganese (25%), potassium (23%) and sodium (31%). The elevated RPDs have been attributed to the non-homogeneous nature of the sample utilized for the laboratory duplicate.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris Report Date: 06/13/14

Title: Technical Director/Representative

Sample Delivery Group Form

Laboratory Job number: L1412376

Project Number: E040

Project Name: 520 WEST 28TH STREET **Received:** 06/06/2014 17:45

Client Account: Integral Consulting, Inc. **Received by:** RS/WM

Samples Delivered by: COURIER **Call Tracker #**

Bill Of Laden N/A **Trackingnum**

Coc Present Present

Container Status Intact **Sample IDs**

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt N/A **Are samples Properly Preserved?** Yes

Initial pH **preserved in house with** **Final pH**

Other Issues

Chlorine Check N/A

Are VOA/VPH Vials Present? Yes

Aqueous: Do Vials Contain Head Space? No

Soils: Is MeOHCovering the Soil? N/A Encore

Reagent H2O Preserved vials Frozen on 06/07/14 03:00

Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	2.9 - IR Gun	No	No

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
G1-SOUTH-SW-7.5FTBG	6/6/2014	L1412376-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
TRIP BLANK-6-6-14	6/6/2014	L1412376-02	WATER	SW-846 8260C

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
G21-SOUTH-SW-7.5FTBG / L1412376-01	Total Silver	0.99 U	Analyte detected in the laboratory blank
G21-SOUTH-SW-7.5FTBG / L1412376-01	Total Aluminum, Total Barium, Total Calcium, Total Copper, Total Iron, Total Lead, Total Manganese, Total Potassium, and Total Sodium	J	RPD exceeds limit in laboratory duplicate
G21-SOUTH-SW-7.5FTBG / L1412376-01	Total Arsenic	J	RPD exceeds limit in laboratory duplicate

Notes:

U - Non-detected

J - Estimated concentration

The value listed under the qualification column is the RLs for the applicable sample

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1412260
November 17, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected June 4, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by S. McTavey of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1412260. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C –VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

The results of supporting QC analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of one (1) soil sample was analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific matrix spike/matrix spike duplicate (MS/MSD) for every 20 or fewer samples of a given matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples.

Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria were used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, and qualified analytical data are listed in Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site. However, due to the MSD recovery of hexachlorobutadiene falling below the percent recovery (%R) of 20%, the result for this analyte in sample G1-SW-10FTBG (Lab ID: L1412260-01) is deemed unusable and qualified as rejected "R"; All other laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were discrepancies that are not likely to affect the analytical results but should be noted:

- There are instances where corrections in the field logbook were not initialed as required in the FSP;
- The field logbook fails to identify the names and titles of field team members, and the purpose of the field activity as required in the FSP;
- The collection time and sampler's initials for sample TRIP BLANK-6-4-14 is not listed on the c-o-c;
- The sample listed as TRIP BLANK-6-4-14 on the c-o-c does not match the laboratory sample log-in sample listed as TRIP BLANK; and
- It is recorded in the field logbook that MS/MSD sample volumes were collected. However, the MS/MSD is not listed on the c-o-c and this incident is noted on the laboratory SDGF.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples
One trip blank sample was submitted for analysis in this SDG. All analytes for the sample were ND. No qualifications are required.

Per the QAPP, one field blank sample was required per 20 or fewer samples for each media; however, none were collected with this SDG. The one in 20 requirement is satisfied with the collection of a field blank in data package L1411861.

5.4.2 Laboratory Blank Samples
Bromomethane was detected above the MDL but below the RL in the laboratory method blank and qualified "J" by the lab as required. The associated samples were ND for bromomethane; therefore, no qualification is necessary. Acetone was also detected above the MDL but below the RL in the laboratory method blank and qualified "J" by the lab as required. Acetone was found in the sample at more than two times the RL; therefore no additional qualification is required.

Total Copper and Total Manganese were detected in the laboratory blank above the MDL and below the RL and qualified "J" by the lab as required. These compounds were detected in the sample above the RL and greater than ten times the blank concentration. No qualification is required.

All other compounds for all other analyses were ND at the RL.

The laboratory interval standard and surrogate recoveries for all laboratory blanks met the project objectives.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the following exceptions:

- Acetone relative percent difference (RPD) exceeded the laboratory limit. Acetone was not detected in the associated sample; therefore no additional data qualifiers are required.
- 2,4-dinitrotoluene LCS/LCSD percent recoveries (%R) exceeded the laboratory acceptance standard. This compound was not detected in the associated sample; therefore no additional data qualifiers are required.

5.7 Laboratory Duplicate

Laboratory duplicates were run for total solids and the RPDs were within laboratory limits.

5.8 Matrix Spike/Matrix Spike Duplicates

The laboratory MS/MSD analyses were performed on G1-SW-10FTBG (Lab ID: L1412260-01). The following compounds were outside the acceptance criteria:

- Acetone MS/MSD %R exceeded the laboratory limits. It was detected in the associated sample. Associated sample results are qualified "J" as shown in Table 2.
- Hexachlorobutadiene MS/MSD %R was below the laboratory limits. The MSD %R was less than 20%. This compound was not detected in the associated sample. Associated sample results are qualified "R" as shown in Table 2.
- 1,2,4-trimethylbenzene and 1,4-diethylbenzene MS/MSD %R were below the laboratory limits. These compounds were detected in the associated sample below the RL. Associated sample results are qualified "J" as shown in Table 2.
- Carbon tetrachloride, dibromochloromethane, tetrachloroethene, chlorobenzene, trichlorofluoromethane, 1,1,1-trichloroethane, bromodichloromethane, trans-1,3-dichloropropene, cis-1,3-dicholorpropene, 1,1-dichloropropene, bromoform, 1,1,2,2-tetrachloroethane, toluene, ethylbenzene, trichloroethene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, p/m-xylene, o-xylene, styrene, vinyl acetate, 1,2,3-trichloropropane, 2,2-dichloropropane, 1,2-dibromoethane, 1,3-dichloropropane, 1,1,1,2-tetrachloroethane, bromobenzene, n-butylbenzene, sec-butylbenzene, tert-butylbenzene, o-chlorotoluene, p-chlorotoluene, 1,2-dibromo-3-chloropropane, isopropylbenzene, p-isopropyltoluene, naphthalene, n-propylbenzene, 1,2,3-trichlorobenzene, 1,2,4-trichlorobenzene, 1,3,5-trimethylbenzene, 4-ethyltoluene, 1,2,4,5-tetramethylbenzene, ethyl ether, and trans-1,4-dichloro-2-butene MS/MSD %Rs were below the laboratory limits. All analytes were not detected in the associated sample. Associated sample results are qualified "UJ" as shown in Table 2.
- 1,2-dichloropropane, 1,1,2-trichloroethane, benzene, and carbon disulfide MS %Rs were below the laboratory limits. All analytes were not detected in the associated sample. Associated sample results are qualified "UJ" as shown in Table 2.
- Total Mercury MS %R was below the laboratory limits. The MSD %R and RPD exceeded the laboratory limits. Mercury was not detected in the associated sample. Associated sample results are qualified "J+" and "J-" as shown on Table 2.
- Total Aluminum and Total Iron MS/MSD %R exceeded acceptable standards. The associated sample concentrations were more than 4 times the spike added so no qualification is required.
- Total Manganese MS/MSD %R exceeded acceptable standards and this compound was detected in the associated sample. The post digestion spike sample was within laboratory limits. Associated sample results are qualified "J" as shown in Table 2.
- Total Calcium, Total Chromium, Total Lead, Total Magnesium, and Total Potassium MS %R exceeded acceptable standards. The post digestion spike samples were within laboratory limits. These compounds were detected in the associated sample. Associated sample results are qualified "J" as shown in Table 2.
- Total Sodium MSD %R exceeded acceptable standards. The post digestion spike sample was within laboratory limits. Sodium was detected in the associated sample. Associated sample results are qualified "J" as shown in Table 2.
- Total Chromium, Total Magnesium, and Total Potassium RPD exceeded laboratory limits. All associated sample results were more than 5x the RL. Associated sample results are qualified "J" as shown in Table 2.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0). The

one in 20 requirement for field duplicates is satisfied with the collection of a duplicate in data package L1411861.

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1412260 are usable for determining concentrations of the COCs in soil at the Site with the except of hexachlorobutadiene (rejected), although the concentrations of compounds listed on Table 2 should be considered to be estimated ("J" qualified) or not detected ("UJ" qualified).

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples free of charge for 30 days from the date the project is completed. After 30 days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples.

Please contact Client Services at 800-624-9220 with any questions.

Report Submission

Case Narrative (continued)

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

The WG696859-4/-5 MS/MSD recoveries, performed on L1412260-01, are outside the acceptance criteria for carbon tetrachloride (52%/55%), 1,2-dichloropropane (MS at 68%), dibromochloromethane (53%/59%) ,1,1,2-trichloroethane (MS at 65%), tetrachloroethene (46%/47%), chlorobenzene (45%/48%), trichlorofluoromethane (49%/53%), 1,1,1-trichloroethane (60%/66%), bromodichloromethane (62%/69%), trans-1,3-dichloropropene (54%/58%), cis-1,3-dichloropropene (58%/63%), 1,1-dichloropropene (57%/61%), bromoform (47%/52%), 1,1,2,2-tetrachloroethane (50%/55%), benzene (MS at 65%), toluene (50%/53%), ethylbenzene (42%/44%), trichloroethene (57%/62%), 1,2-dichlorobenzene (34%/34%), 1,3-dichlorobenzene (35%/34%), 1,4-dichlorobenzene (35%/34%), p/m-xylene (42%/42%), o-xylene (42%/43%), styrene (41%/43%), carbon disulfide (MS at 57%), vinyl acetate (58%/53%), 1,2,3-trichloropropane (53%/60%), 2,2-dichloropropane (62%/60%), 1,2-dibromoethane (58%/64%), 1,3-dichloropropane (61%/67%), 1,1,1,2-tetrachloroethane (47%/51%), bromobenzene (40%/42%), n-butylbenzene (29%/26%), sec-butylbenzene (32%/30%), tert-butylbenzene (34%/32%), o-chlorotoluene (37%/36%), p-chlorotoluene (36%/36%), 1,2-dibromo-3-chloropropane (41%/44%), hexachlorobutadiene (20%/18%), isopropylbenzene (38%/38%), p-isopropyltoluene (31%/29%), naphthalene (28%/28%), n-propylbenzene (37%/35%), 1,2,3-trichlorobenzene (24%/22%), 1,2,4-trichlorobenzene (25%/23%), 1,3,5-trimethylbenzene (35%/33%), 1,2,4-trimethylbenzene (34%/33%), 1,4-diethylbenzene (30%/29%), 4-ethyltoluene (37%/36%), 1,2,4,5-tetramethylbenzene (26%/25%), ethyl ether (57%/58%), trans-1,4-dichloro-2-butene (43%/45%), and acetone (177%/150%); however, the associated LCS/LCSD recoveries are within overall method allowances. No further action was required.

Semivolatile Organics

L1412260-01 has elevated detection limits due to the dilution required by the sample matrix.

Pesticides

Sample Delivery Group Form

Laboratory Job number: L1412260

Project Number: E040

Project Name: 520 WEST 28TH STREET **Received:** 06/05/2014 14:30

Client Account: Integral Consulting, Inc. **Received by:** RS/SH

Samples Delivered by: COURIER **Call Tracker #** 58775

Bill Of Laden N/A **Trackingnum**

Coc Present Present

Container Status Intact **Sample IDs**

All Containers Accounted For? Yes

Were Extra Samples Received? No

received volume for Ms/MSD for volatiles, however not requested on coc

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt N/A **Are samples Properly Preserved?** Yes

Initial pH **preserved in house with** **Final pH**

Other Issues

Chlorine Check N/A

Are VOA/VPH Vials Present? Yes

Aqueous: Do Vials Contain Head Space? No

Soils: Is MeOHCovering the Soil? N/A Encore

Reagent H2O Preserved vials Frozen on 06/06/14 04:45

Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	2.9 - IR Gun	No	No

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
G1-SW-10FTBG	6/4/2014	L1412260-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
TRIP BLANK-6-4-14	6/4/2014	L1412260-02	WATER	SW-846 8260C

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
G1-SW-10FTBG / L1412260-01	Carbon tetrachloride, dibromochloromethane, tetrachloroethene, chlorobenzene, trichlorofluoromethane, 1,1,1-trichloroethane, bromodichloromethane, trans-1,3-dichloropropene, cis-1,3-dichloropropene, 1,1-dichloropropene, bromoform, 1,1,2,2-tetrachloroethane, toluene, ethylbenzene, trichloroethene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, p/m-xylene, o-xylene, styrene, vinyl acetate, 1,2,3-trichloropropane, 2,2-dichloropropane, 1,2-dibromoethane, 1,3-dichloropropane, 1,1,1,2-tetrachloroethane, bromobenzene	UJ	MS/MSD %R below laboratory limits
G1-SW-10FTBG / L1412260-01	n-butylbenzene, sec-butylbenzene, tert-butylbenzene, o-chlorotoluene, p-chlorotoluene, 1,2-dibromo-3-chloropropane, isopropylbenzene, p-isopropyltoluene, naphthalene, n-propylbenzene, 1,2,3-trichlorobenzene, 1,2,4-trichlorobenzene, 1,3,5-trimethylbenzene, 4-ethyltoluene, 1,2,4,5-tetramethylbenzene, ethyl ether, and trans-1,4-dichloro-2-butene	UJ	MS/MSD %R below laboratory limits
G1-SW-10FTBG / L1412260-01	Hexachlorobutadiene	R	MSD %R less than 20%
G1-SW-10FTBG / L1412260-01	1,2,4-trimethylbenzene and 1,4-diethylbenzene	J	MS/MSD %R below laboratory limit
G1-SW-10FTBG / L1412260-01	Acetone	J	MS/MSD %R above laboratory limit
G1-SW-10FTBG / L1412260-01	1,2-dichloropropane, 1,1,2-trichloroethane, benzene, carbon disulfide	UJ	MS %R below laboratory limit
G1-SW-10FTBG / L1412260-01	Total Mercury	J+ J-	MS %R below laboratory limits, MSD %R above laboratory limits
G1-SW-10FTBG / L1412260-01	Total Manganese	J	MS/MSD %R above laboratory limits
G1-SW-10FTBG / L1412260-01	Total Calcium, Total Lead	J	MS %R above laboratory limits
G1-SW-10FTBG / L1412260-01	Total Sodium	J	MSD %R above laboratory limits
G1-SW-10FTBG / L1412260-01	Total Chromium, Total Magnesium, Total Potassium	J	MS %R and RPD above laboratory limits

Notes:

U - Non-detected

UJ - Non-detected compound; approximated quantitation limit due to QC issues

J - Estimated concentration

J+ - Estimated concentration biased high

J- - Estimated concentration biased low

R - Unusable data

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1411980
November 17, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected June 3, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by S. McTavey of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1411980. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

The results of supporting QC analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of one (1) soil sample was analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific matrix spike/matrix spike duplicate (MS/MSD) for every 20 or fewer samples of a given matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples.

Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria were used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, and qualified analytical data are listed in Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were discrepancies that are not likely to affect the analytical results but should be noted:

- There are instances where corrections in the field logbook were not initialed as required in the FSP;
- The field logbook fails to identify names and titles of field team members, and the purpose of the field activity as required in the FSP; and
- The collection time and sampler's initials for sample TRIP BLANK 6-3-14 is not listed on the c-o-c.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples
One trip blank sample was submitted for analysis in this SDG. All analytes were ND. No qualification is necessary.

Per the QAPP, one field blank sample was required per 20 or fewer samples for each media; however, none were collected with this SDG. The one in 20 requirement is satisfied with the collection of a field blank in data package L1411861.

5.4.2 Laboratory Blank Samples
All analytes were ND for all analyses except the following:

- Chloromethane was detected above the MDL but below the RL in the laboratory method blank. All associated samples were ND for the analyte, so no qualification is necessary.
- Total Aluminum, Lead, and Magnesium were detected above the MDL but below the RL in the laboratory blank. Sample concentrations were detected above the RL, so no qualification is required.
- Total Iron was detected above the RL in the laboratory blank. The sample concentration was greater than 10 times the blank concentration, so no qualification is required.
- Total Sodium was detected above the MDL but below the RL in the laboratory blank. The sample concentration was detected above the MDL but below the RL. Report this value at the RL and qualify as non-detect "U".

The laboratory interval standard and surrogate recoveries for all laboratory blanks met the project objectives.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the following exceptions:

- 2-Chloroethylvinyl ether LCS percent recovery (%R) was below the laboratory limits. It was not an analyte in the sample. No qualification is necessary.
- Acrolein LCS/LCSD %Rs were below the laboratory limits. It was not an analyte in the sample. No qualification is necessary.
- 2,4-Dinitrotoluene LCS/LCSD %Rs exceeded the laboratory standards. It was ND in the sample. No qualification is necessary.

5.7 Laboratory Duplicate

Laboratory duplicates were run for total solids, metals and the relative percent differences (RPDs) were within laboratory limits with the following exceptions listed below. However, the duplicate was performed on a sample from a different site therefore the RPD cannot be considered sufficiently similar to the soil samples in this SDG. No qualifications are necessary.

- Total Cobalt and Total Nickel RPD exceeded the laboratory limits.

5.8 Matrix Spike/Matrix Spike Duplicates

The laboratory MS/MSD analyses were performed on a sample form a different site therefore the MS/MSD cannot be considered sufficiently similar to the soil samples in this SDG. The one in 20 requirement for MS/MSD is satisfied with the collection of a MS/MSD in data package L1412260.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0). The one in 20 requirement for field duplicates is satisfied with the collection of a duplicate in data package L1411861.

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1411980 are usable for determining concentrations of the COCs in soil at the Site, although the concentrations of compounds listed on Table 2 should be considered not detected ("U" qualified).

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples free of charge for 30 days from the date the project is completed. After 30 days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples.

Please contact Client Services at 800-624-9220 with any questions.

Report Submission

Case Narrative (continued)

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Semivolatile Organics

The WG695581-2/-3 LCS/LCSD recoveries, associated with L1411980-01, are outside the acceptance criteria for 2,4-dinitrotoluene (116%/104%), but within the overall method allowances. The results of the associated samples are reported.

Metals

L1411980-01 has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by matrix interferences encountered during analysis.

The WG696207-1 Method Blank, associated with L1411980-01, has a concentration above the reporting limit for iron. Since the associated sample concentrations are greater than 10x the blank concentration for this analyte, no qualification of the results was performed.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:  Report Date: 06/10/14

Title: Technical Director/Representative

Sample Delivery Group Form

Laboratory Job number: L1411980

Project Number: E040

Project Name: 520 WEST 28TH STREET **Received:** 06/03/2014 16:35

Client Account: Integral Consulting, Inc. **Received by:** WM/RS

Samples Delivered by: COURIER **Call Tracker #**

Bill Of Laden N/A **Trackingnum**

Coc Present Present

Container Status Intact **Sample IDs**

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt N/A **Are samples Properly Preserved?** Yes

Initial pH **preserved in house with** **Final pH**

Other Issues

Chlorine Check N/A

Are VOA/VPH Vials Present? Yes

Aqueous: Do Vials Contain Head Space? No

Soils: Is MeOHCovering the Soil? N/A Encores

Reagent H2O Preserved vials Frozen on 06/04/14 02:59

Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	2.7 - Temp. Blank	No	No

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
F1-SW-11FTBG	6/3/2014	L1411980-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
TRIP BLANK 6-3-14	6/3/2014	L1411980-02	WATER	SW-846 8260C

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
F1-SW-11FTBG / L1411980-01	Total Sodium	180 U	Analyte detected in laboratory blank

Notes:

U - Non-detected

The value listed under the qualification column is the RL for the applicable sample

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1411861
November 17, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected June 2, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by S. McTavey of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1411861. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

The results of supporting quality control (QC) analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of two (2) soil samples were analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, and total mercury. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific matrix spike/matrix spike duplicate (MS/MSD) for every 20 or fewer samples of a given matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples.

Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria were used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, however no analytical data requires qualification as shown in Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were several discrepancies that are not likely to affect the analytical results but should be noted:

- There are instances where corrections in the field logbook were not initialed as required in the FSP;
- The field logbook fails to identify the names and titles of field team members, and the purpose of the field activity as required in the FSP; and
- The collection time and sampler's initials for sample TRIP BLANK is not listed on the c-o-c.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies.. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples
One trip blank was submitted for analysis in this SDG. All analytes were ND in the sample except:

- Acetone was detected in the trip blank above the MDL and below the RL. It was ND in the sample. No qualification is necessary.

Per the QAPP, one field blank sample was required per 20 or fewer samples for each media; one was collected with this SDG.. All analytes were ND in the sample except:

- Toluene was detected in the field blank above the RL. It was ND in the sample. No qualification is necessary.
- Acetone was detected in the field blank above the MDL and below the RL. It was ND in the sample. No qualification is necessary.
- Total Aluminum, Total Barium, Total Magnesium, Total Sodium, and Total Zinc were detected in the field blank above the MDL but below the RL. All were detected in the sample above the RL. No qualifications as necessary.

5.4.2 Laboratory Blank Samples
Chloromethane was detected above the MDL but below the RL in the laboratory method blank. Chloromethane was ND in the sample. No qualification is necessary.

Total Aluminum, Total Magnesium, Total Sodium, and Total Zinc were detected above the MDL but below the RL. All were present in the sample above the RL. No qualification is necessary.

The laboratory interval standard and surrogate recoveries for all laboratory blanks met the project objectives.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits with the exception below:

- Decachlorobiphenyl % recovery (%R) exceeded the acceptance criteria. Since all other surrogates were within appetence criteria, no qualification is necessary.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the following exceptions:

- 2-Chloroethylvinyl ether LCD %R was below the laboratory standards. It was not an analyte in the sample. No qualification is necessary.
- Acrolein LCS/LCSD %Rs were below the laboratory limits. It was not an analyte in the sample. No qualification is necessary.
- 2,4-Dinotrotoluene and Pentachlorophenol LCD/LCSD %Rs exceeded the laboratory standards. They were ND in the sample. No qualification is necessary.
- p-Chloro-m-cresol and Phenol LCS %R exceeded the laboratory limits. They were ND in the sample. No qualification is necessary.
- Benzaldehyde relative percent difference (RPD) exceeded the laboratory limits. It was not an analyte in the sample. No qualification is necessary.

5.7 Laboratory Duplicate

Laboratory duplicates were run for total solids, metals and mercury and the RPDs were within laboratory limits. The duplicate was performed on a sample from a different site therefore the RPD cannot be considered sufficiently similar to the soil samples in this SDG. No qualifications are necessary.

5.8 Matrix Spike/Matrix Spike Duplicates

The laboratory MS/MSD analyses were performed on a sample form a different site therefore the MS/MSD cannot be considered sufficiently similar to the soil samples in this SDG. The one in 20 requirement for MS/MSD is satisfied with the collection of a MS/MSD in data package L1412260.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0).

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1411861 are usable for determining concentrations of the COCs in soil at the Site.

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples free of charge for 30 days from the date the project is completed. After 30 days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples.

Please contact Client Services at 800-624-9220 with any questions.

Report Submission

Case Narrative (continued)

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1411861-03: The Field Blank has results for toluene present above the reporting limit. The sample vial was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

Semivolatile Organics

The WG694900-2/-3 LCS/LCSD recoveries, associated with L1411861-03, are below the acceptance criteria for benzoic acid (9%/9%); however, it has been identified as a "difficult" analyte. The results of the associated samples are reported.

Total Metals

L1411861-01 and -02 have elevated detection limits for all elements, with the exception of mercury, due to the dilutions required by matrix interferences encountered during analysis.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:  Report Date: 06/10/14

Title: Technical Director/Representative

Sample Delivery Group Form

Laboratory Job number: L1411861

Project Number: E040

Project Name: 520 WEST 28TH STREET **Received:** 06/03/2014 07:35

Client Account: Integral Consulting, Inc. **Received by:** RS/SH

Samples Delivered by: COURIER **Call Tracker #**

Bill Of Laden N/A **Trackingnum**

Coc Present Present

Container Status Intact **Sample IDs**

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt <2, 7 **Are samples Properly Preserved?** Yes

Initial pH **preserved in house with** **Final pH**

Other Issues

Chlorine Check N/A

Are VOA/VPH Vials Present? Yes

Aqueous: Do Vials Contain Head Space? No

Soils: Is MeOHCovering the Soil? N/A Encore

Reagent H2O Preserved vials Frozen on 06/04/14 01:34

Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	3.3 - IR Gun	No	No

Project Manager: Katie O'Brien **Review Date:** 06/04/2014

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
E1-SW-11 FTBG	6/2/2014	L1411861-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
DUPLICATE	6/2/2014	L1411861-02	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
FIELD BLANK-6-2-14	6/2/2014	L1411861-03	WATER	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, and 7471B
TRIP BLANK-6-2-14	6/2/2014	L1411861-04	WATER	SW-846 8260C

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
None	None	None	None

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1411718
November 17, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected May 30, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by S. McTavey of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1411718. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

The results of supporting QC analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of one (1) soil sample was analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. The one in 20 requirement for field duplicates is satisfied with the collection of a duplicate in data package L1409762. One trip blank is required with each sample delivery group (SDG) of VOC samples.

Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria were used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, however no analytical data required qualification as shown in Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were several discrepancies that are not likely to affect the analytical results but should be noted:

- There are instances where corrections in the field logbook were not initialed as required in the FSP;
- The field logbook fails to identify the names and titles of field team members, and the purpose of the field activity as required in the FSP;
- The collection date and time, and sampler's initials for sample TRIP BLANK-5-30-14 is not listed on the c-o-c; and
- The laboratory did not maintain the sample ID of the TRIP BLANK-5-30-14 from the client c-o-c and has it logged in as TRIP BLANK-53014.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples
One trip blank sample was submitted for analysis in this SDG. The trip blank was ND at the RL for all analytes. No qualification is necessary.

Per the QAPP, one field blank sample was required per 20 or fewer samples for each media; however, none were collected with this SDG. The one in 20 requirement is satisfied with the collection of a field blank in data package L1410975.

5.4.2 Laboratory Blank Samples
All samples were ND at the RL for all analytes with the following exceptions:

- Total Antimony was present above the MDL and below the RL. It was ND in the sample. No qualification is necessary.
- Total Lead was present above the MDL and below the RL. It was present in the sample above the RL. No qualification is necessary.

The laboratory interval standard and surrogate recoveries for all laboratory blanks met the project objectives.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the following exceptions:

- Acrolein LCS/LCSD percent recoveries (%Rs) exceeded the laboratory acceptance standard. It was not an analyte in the sample. No qualification is necessary
- 2,4-Dinitrotoluene LCS/LCSD %Rs exceeded the laboratory standards. It was ND in the sample. No qualification is necessary.

5.7 Laboratory Duplicate

Laboratory duplicates were run for total solids, mercury and metals on Lab ID. L1411734-01 and the relative percent differences (RPDs) were within laboratory limits with the exceptions noted below. The duplicate was performed on a sample from a different site therefore the RPD cannot be considered sufficiently similar to the soil samples in this SDG. No qualifications are necessary.

- Total Arsenic, Total Calcium, Total Chromium, Total Cobalt, Total Copper, Total Iron, Total Lead, Total Magnesium, Total Nickel, Total Potassium, Total Sodium, Total Vanadium, and Total Zinc RPD exceeded laboratory limits.

5.8 Matrix Spike/Matrix Spike Duplicates

The laboratory MS/MSD analyses were performed on a sample form a different site therefore the MS/MSD cannot be considered sufficiently similar to the soil samples in this SDG. The one in 20 requirement is satisfied with the collection of a MS/MSD in data package L1410189.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine

any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0). The one in 20 requirement for field duplicates is satisfied with the collection of a duplicate in data package L1409762.

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1411718 are usable for determining concentrations of the COCs in soil at the Site.

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples free of charge for 30 days from the date the project is completed. After 30 days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples.

Please contact Client Services at 800-624-9220 with any questions.

Report Submission

Case Narrative (continued)

This report replaces the report issued June 6, 2014. L1411718-01 was re-analyzed for Semivolatile Organics.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1411718-01 has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

Total Metals

L1411718-01 has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by matrix interferences encountered during analysis.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom Report Date: 06/11/14

Title: Technical Director/Representative

Sample Delivery Group Form

Laboratory Job number: L1411718

Project Number: E040

Project Name: 520 WEST 28TH STREET **Received:** 05/30/2014 16:05

Client Account: Integral Consulting, Inc. **Received by:** WM/RS

Samples Delivered by: COURIER **Call Tracker #**

Bill Of Laden N/A **Trackingnum**

Coc Present Present

Container Status Intact **Sample IDs**

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt N/A **Are samples Properly Preserved?** Yes

Initial pH **preserved in house with** **Final pH**

Other Issues

Chlorine Check N/A

Are VOA/VPH Vials Present? Yes

Aqueous: Do Vials Contain Head Space? No

Soils: Is MeOHCovering the Soil? N/A Encores

Reagent H2O Preserved vials Frozen on 05/31/14 03:08

Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	2.5 - Temp. Blank	No	No

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
D1-SW-12FTBG	5/30/2014	L1411718-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
TRIP BLANK-5-30-14	5/30/2014	L1411718-02	WATER	SW-846 8260C

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
None	None	None	None

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1411366
November 17, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected May 27, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1411366. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

The results of supporting QC analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of one (1) soil sample was analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific matrix spike/matrix spike duplicate (MS/MSD) for every 20 or fewer samples of a given matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples.

Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria were used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, however no analytical data required qualification as shown on Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were discrepancies that are not likely to affect the analytical results but should be noted:

- The collection date, time, and sampler's initials for sample TRIP BLANK is not listed on the c-o-c; and
- The field logbook fails to identify the location of field activity, the names and titles of field team members, and the purpose of the field activity as required in the FSP.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples

One trip blank sample was submitted for analysis in this SDG. All analytes were ND. No qualifications are necessary.

Per the QAPP, one field blank sample was required per 20 or fewer samples for each media; however, none were collected with this SDG. The one in 20 requirement is satisfied with the collection of a field blank in data package L1410975.

5.4.2 Laboratory Blank Samples
All analytes in the laboratory blanks were ND. No qualifications are necessary.

The laboratory interval standard and surrogate recoveries for all laboratory blanks met the project objectives.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits except for:

- Decachlorobiphenyl percent recovery (%R) exceeded the laboratory acceptance criteria. As this was the only surrogate outside of acceptance criteria,, no qualification is necessary.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the following exceptions:

- Acrolein LCS/LCSD %R exceeded the laboratory limits. It was not analyzed for in the sample. No qualification is necessary.
- Bromomethane LCSD %R exceeded the laboratory limits. It was not detected in the sample. No qualification is necessary.
- 2-Hexanone relative percent difference (RPD) exceeded the laboratory standards. It was ND in the sample. No qualification is necessary.
- 2,4-Dinitrotoluene LCS/LCSD %R exceeded the laboratory standards. It was not analyzed for in the sample. No qualification is necessary.
- 4-Nitrophenol LCS/LCSD %R exceeded the laboratory standards. It was ND in the sample. No qualification is necessary.
- Pentachlorophenol LCSD %R exceeded the laboratory standards. It was ND in the sample. No qualification is necessary.
- Benzoic Acid RPD exceeded the laboratory standards. It was ND in the sample. No qualification is necessary.

5.7 Laboratory Duplicate

Laboratory duplicates were run for total solids, metals and mercury and the RPDs were within laboratory limits with the exceptions noted below. The duplicate was performed on a sample from a different site therefore the RPD cannot be considered sufficiently similar to the soil samples in this SDG. No qualifications are necessary.

- Total Aluminum, Total Barium, Total Cobalt, Total Copper, Total Lead, Total Manganese, Total Nickel, Total Potassium and Total Zinc RPD exceeded laboratory limits.

5.8 Matrix Spike/Matrix Spike Duplicates

The laboratory MS/MSD analyses were performed on a sample form a different site therefore the MS/MSD cannot be considered sufficiently similar to the soil samples in this SDG. The one in 20 requirement is satisfied with the collection of a MS/MSD in data package L1410189.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0). The one in 20 requirement for field duplicates is satisfied with the collection of a duplicate in data package L1409762.

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1411366 are usable for determining concentrations of the COCs in soil at the Site.

Project Name: 520 WEST 28TH ST. **Lab Number:** L1411366
Project Number: E040 **Report Date:** 06/03/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name:	520 WEST 28TH ST.	**Lab Number:**	L1411366
Project Number:	E040	**Report Date:**	06/03/14

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Metals

L1411366-01 has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by matrix interferences encountered during analysis.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative Date: 06/03/14

Sample Delivery Group Form

Laboratory Job number: L1411366

Project Number: E040
Project Name: 520 WEST 28TH ST.
Client Account: Integral Consulting, Inc.
Received: 05/27/2014 14:52
Received by: RS/SH

Samples Delivered by: COURIER
Call Tracker #
Bill Of Laden N/A
Trackingnum
Coc Present Present

Container Status Intact
Sample IDs

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt N/A
Are samples Properly Preserved? Yes
Initial pH
preserved in house with
Final pH
Other Issues
Chlorine Check N/A

Are VOA/VPH Vials Present? Yes
Aqueous: Do Vials Contain Head Space? No
Soils: Is MeOHCovering the Soil? N/A encore
Reagent H2O Preserved vials Frozen on 05/28/14 02:30
Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	2.3 - IR Gun	No	No

Project Manager: Katie O'Brien
Review Date: 05/28/2014

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
C1-SW-12FBG	5/27/2014	L1411366-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
TRIP BLANK 5-27-14	5/27/2014	L1411366-02	WATER	SW-846 8260C

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
None	None	None	None

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1411199
November 17, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected May 23, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by S. McTavey of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1411199. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

The results of supporting QC analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of one (1) soil sample was analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific matrix spike/matrix spike duplicate (MS/MSD) for every 20 or fewer samples of a given matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples.

Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria will be used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, and qualified analytical data are listed in Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were discrepancies that are not likely to affect the analytical results but should be noted:

- There are instances where corrections in the field logbook were not initialed as required in the FSP;
- The field logbook fails to identify the location of field activity, the names and titles of field team members, and the purpose of the field activity as required in the FSP;
- The collection date, time, and sampler's initials for sample TRIP BLANKis not listed on the c-o-c; and
- In one instance, the time samples were transferred between people is not recorded on the c-o-c by the relinquisher.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples
One trip blank sample was submitted for analysis in this SDG.

Toluene was detected in the trip blank above the RL. It was detected in the sample above the MDL and below the RL. Report at the RL and qualify as non-detect, "U" as shown in Table 2.

Per the QAPP, one field blank sample was required per 20 or fewer samples for each media; however, none were collected with this SDG. The one in 20 requirement is satisfied with the collection of a field blank in data package L1410975.

5.4.2 Laboratory Blank Samples
Bromomethane was detected above the MDL but below the RL in the laboratory method blank. Bromomethane was detected in the sample above the MDL and below the RL. Report at the RL and qualify as non-detect, "U" as shown in Table 2.

Bis (2-Ethylehexyl)phthalate was detected above the MDL but below the RL in the laboratory method blank. It was ND in the sample. No qualification is necessary.

Total Aluminum was detected in the laboratory blank above the MDL but below the RL. It was detected in the sample greater than the RL. No qualification is necessary.

Total Silver was detected in the laboratory blank above the MDL but below the RL. It was detected in the sample above the MDL but below the RL. Report at the RL and qualify as non-detect, "U" as shown in Table 2.

The laboratory interval standard and surrogate recoveries for all laboratory blanks met the project objectives.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the following exceptions:

- 1,4-Dioxane, 1,1-Dichlorethene, Dichlorodifluoromethane, and Trichlorofluoromethane relative percent differences (RPDs) exceeded the laboratory limit. They were ND in the sample. No qualification is necessary.
- Vinyl Chloride LCS percent recovery (%R) and RPD exceeded laboratory limits. It was ND in the sample. No qualification is necessary.
- Cyclohexane, 1,1,2-Trichloro-1,2,2-Trifluoroethane RPD exceeded the laboratory limit. They were not analyzed for in the sample. No qualification is necessary.
- Methylcyclohexane LCSD %R and RPD exceeded laboratory limits. It was not analyzed for in the sample. No qualification is necessary.
- 1,4-Diethylbenzene LCSD %R exceeded laboratory limits. It was present in the sample above the MDL and below the RL. It is qualified "J" as shown in Table 2.
- 2,4-Dinitrotoluene LCS/LCSD %R exceeded the laboratory standards. It was ND in the sample. No qualification is necessary.
- 2-Chlorophenol, Pentachlorophenol, and Phenol LCSD %R exceeded the laboratory standards. They were ND in the sample. No qualification is necessary.

5.7 Laboratory Duplicate

Laboratory duplicates were run for total solids, mercury, and metals and the percent RPDs were within laboratory limits with the following exception:

- Total Barium, Total Calcium, Total Lead, Total Nickel, and Total Zinc laboratory duplicate sample RPDs exceeded laboratory limits. They were detected in the sample greater than five times the RL. They are qualified "J" as shown in Table 2.

5.8 Matrix Spike/Matrix Spike Duplicates

The following compounds were outside the acceptance criteria:

- Mercury MS %R exceeded the laboratory limit. However, the duplicate was performed on a sample from a different site therefore the MS %R cannot be considered sufficiently similar to the soil samples in this SDG. No qualification is necessary.
- Total Aluminum, Total Calcium, Total Iron, and Total Manganese MS %Rs exceeded the laboratory standard. However, the sample concentrations were greater than four times the spike added therefore no qualification is necessary.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0). The one in 20 requirement for field duplicates is satisfied with the collection of a duplicate in data package L1409762.

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1411199 are usable for determining concentrations of the COCs in soil at the Site, although the concentrations of compounds listed on Table 2 should be considered to be estimated ("J" qualified) or not detected ("U" qualified).

Project Name: 520 WEST 28TH STREET
Project Number: E040

Lab Number: L1411199
Report Date: 06/02/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: 520 WEST 28TH STREET **Lab Number:** L1411199
Project Number: E040 **Report Date:** 06/02/14

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1411199-02: The Trip Blank has results for toluene present above the reporting limit. The sample vial was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.

Metals

L1411199-01 has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by matrix interferences encountered during analysis.

The WG694213-4 MS recoveries for aluminum (163%), calcium (0%), iron (0%), and manganese (65%), performed on L1411199-01, do not apply because the sample concentrations are greater than four times the spike amount added.

The WG694213-3 Laboratory Duplicate RPDs, performed on L1411199-01, are outside the acceptance criteria for barium (35%), calcium (63%), lead (59%), nickel (46%), and zinc (41%). The elevated RPDs have been attributed to the non-homogeneous nature of the sample utilized for the laboratory duplicate.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Lisa Westerlind

Title: Technical Director/Representative Date: 06/02/14

Sample Delivery Group Form

Laboratory Job number: L1411199

Project Number: E040

Project Name: 520 WEST 28TH STREET **Received:** 05/23/2014 14:40

Client Account: Integral Consulting, Inc. **Received by:** RR/RS

Samples Delivered by: COURIER **Call Tracker #**

Bill Of Laden N/A **Trackingnum**

Coc Present Present

Container Status Intact **Sample IDs**

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt N/A **Are samples Properly Preserved?** Yes

Initial pH **preserved in house with** **Final pH**

Other Issues

Chlorine Check N/A

Are VOA/VPH Vials Present? No

Aqueous: Do Vials Contain Head Space? N/A

Soils: Is MeOHCovering the Soil? N/A

Reagent H2O Preserved vials Frozen on N/A

Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	3.7 - IR Gun	No	No

Project Manager: Katie O'Brien **Review Date:** 05/23/2014

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
B1-SW-12 FTBG	5/23/2014	L1411199-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
TRIP BLANK 5-23-14	5/23/2014	L1411199-02	WATER	SW-846 8260C

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
B1-SW-12 FTBG / L1411199-01	Toluene	92 U	Analyte present in trip blank
B1-SW-12 FTBG / L1411199-01	Bromomethane	120 U	Analyte present in the laboratory blank
B1-SW-12 FTBG / L1411199-01	Total Silver	0.91 U	Analyte present in the laboratory blank
B1-SW-12 FTBG / L1411199-01	1,4-Diethylbenzene	J	LCSD %R exceeds laboratory limits.
B1-SW-12 FTBG / L1411199-01	Total Barium, Total Calcium, Total Lead, Total Nickel, Total Zinc	J	Laboratory duplicate sample RPD exceeds limits

Notes:

U - Non-detected

J - Estimated concentration

The values listed under the qualification column are the RLs for the applicable samples

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1410975
November 15, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected May 20, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1410975. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

The results of supporting quality control (QC) analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of one (1) soil sample was analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, and total mercury. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific matrix spike/matrix spike duplicate (MS/MSD) for every 20 or fewer samples of a given matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples.

Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria were used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, and qualified analytical data are listed in Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were discrepancies that are not likely to affect the analytical results but should be noted:

- There are instances where corrections in the field logbook were not initialed as required in the FSP;
- The field logbook fails to identify the names and titles of field team members, and the purpose of the field activity as required in the FSP; and
- The collection time for sample TRIP BLANK is not listed on the c-o-c.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples
One trip blank sample was submitted for analysis in this SDG. All samples were ND except the following:

- Toluene was detected in the trip blank above the RL. It was ND in the sample. No qualification is required.

Per the QAPP, one field blank sample was required per each media. This SDG contains one Field Blank. All samples were ND except the following:

- Toluene was detected in the field blank above the RL. It was ND in the sample. No qualification is required.
- Total Aluminum, Total Arsenic, Total Chromium, Total Copper, and Total Zinc were present in the field blank above the MDL but below the RL. All were present in the sample greater than the RL. No qualification is necessary.
- Total Antimony was present in the field blank above the MDL but below the RL. It was present in the sample less than the RL. Report at RL and qualify as non-detect, "U" as shown in Table 2.

5.4.2 Laboratory Blank Samples
Toluene was detected above the MDL but below the RL in the laboratory method blank. It was ND in the sample. No qualification is necessary.

Bromomethane was detected above the MDL but below the RL in the laboratory method blank. It was not detected in the sample. No qualification is necessary.

Total Antimony was detected above the MDL but below the RL. It was detected in the sample less than RL. The result should be reported at the RL and qualified as non-detect, "U" as shown in Table 2.

Total silver was detected above the MDL but below the RL. It was detected in the sample less than the RL. The result should be reported at the RL and qualified as non-detect, "U" as shown in Table 2.

The laboratory interval standard and surrogate recoveries for all laboratory blanks met the project objectives.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the following exceptions:

- n-Butylbenzene LCSD percent recovery (%R) exceeded the laboratory standards. It was ND in the sample. No qualification is necessary.
- Aniline LCS/LCSD %Rs exceeded the laboratory limit. It was not analyzed for in the sample. No qualification is necessary.
- 2,4-Dinitrotoluene LCS/LCSD %Rs exceeded the laboratory standards. It was ND in the sample. No qualification is necessary.
- p-Chloro-m-Cresol LCSD %R exceeded the laboratory standards. It was ND in the sample. No qualification is necessary.

- Pentachlorophenol LCSD %R exceeded the laboratory standards. It was ND in the sample. No qualification is necessary.
- Phenol LCS %R exceeded the laboratory standards. It was ND in the sample. No qualification is necessary.
- Total Selenium LCS %R exceeded the laboratory standards. It was ND in the sample. No qualification is necessary.

5.7 Laboratory Duplicate

Laboratory duplicates were run for total metals, total mercury, and total solids and the relative percent differences (RPDs) were within laboratory limits with the exception noted below.

- Total Beryllium, Total Barium, Total Calcium, Total Lead, Total Potassium, Total Sodium, and Total Zinc had RPD greater than laboratory limits. However, the duplicate was performed on a sample from a different site therefore the RPD cannot be considered sufficiently similar to the soil samples in this SDG. No qualifications are necessary.

5.8 Matrix Spike/Matrix Spike Duplicates

The laboratory MS/MSD analyses were performed on a sample form a different site therefore the MS/MSD cannot be considered sufficiently similar to the soil samples in this SDG. The one in 20 requirement is satisfied with the collection of a MS/MSD in data package L1410189.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0). The one in 20 requirement for field duplicates is satisfied with the collection of a duplicate in data package L1409762.

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1410975 are usable for determining concentrations of the COCs in soil at the Site, although the concentrations of compounds listed on Table 2 should be considered not detected (“U” qualified).

Project Name: 520 WEST 28TH ST. **Lab Number:** L1410975
Project Number: E040 **Report Date:** 06/03/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name:	520 WEST 28TH ST.	**Lab Number:**	L1410975
Project Number:	E040	**Report Date:**	06/03/14

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L1410975-02, -03: The Field Blank and Trip Blank (respectively) had results for toluene present above the reporting limit. The sample vials were verified as being labeled correctly by the laboratory and the previous analyses showed there was no potential for carry over.

Semivolatile Organics

L1410975-01 has elevated detection limits due to the dilution required by matrix interferences encountered during the concentration of the sample.

Pesticides

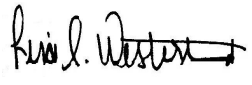
L1410975-02 was re-extracted, outside of holding time, due to a laboratory error on the original extraction. The results of both extractions are reported. Please note, there is no LCS/LCSD data available from the original extraction.

Metals

L1410975-01 has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by matrix interferences encountered during analysis.

The WG691808-2 LCS recovery, associated with L1410975-02, is above the acceptance criteria for selenium (124%); however, the associated samples are non-detect for this target compound. The results of the original analysis are reported.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:  Lisa Westerlind

Title: Technical Director/Representative Date: 06/03/14

Sample Delivery Group Form

Laboratory Job number: L1410975

Project Number: E040

Project Name: 520 WEST 28TH ST. **Received:** 05/21/2014 16:00

Client Account: Integral Consulting, Inc. **Received by:** WM/ER

Samples Delivered by: COURIER **Call Tracker #**

Bill Of Laden N/A **Trackingnum**

Coc Present Present

Container Status Intact **Sample IDs**

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt <2,7 **Are samples Properly Preserved?** Yes

Initial pH **preserved in house with** **Final pH**

Other Issues

Chlorine Check N/A

Are VOA/VPH Vials Present? Yes

Aqueous: Do Vials Contain Head Space? No

Soils: Is MeOHCovering the Soil? N/A Encores

Reagent H2O Preserved vials Frozen on 05/22/14 08:43

Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	2.8 - Temp. Blank	No	No

Project Manager: Katie O'Brien **Review Date:** 05/22/2014

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
A1 WEST-SW 7 FBG	5/20/2014	L1410975-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
FIELD BLANK 5-21-14	5/21/2014	L1410975-02	WATER	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, and 7471B
TRIP BLANK 5-21-14	5/21/2014	L1410975-03	WATER	SW-846 8260C

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
A1 WEST-SW 7 FBG / L1410975-01	Total Antimony	4.4 U	Analyte present in field and laboratory blanks
A1 WEST-SW 7 FBG / L1410975-01	Total Silver	0.87 U	Analyte present in laboratory blank

Notes:

U - Non-detected

The values listed under the qualification column are the RLs for the applicable samples

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1410708
November 15, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected May 19, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1410708. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

The results of supporting QC analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of one (1) soil sample was analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific matrix spike/matrix spike duplicate (MS/MSD) for every 20 or fewer samples of a given matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples.

Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria were used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, and qualified analytical data are listed in Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were several discrepancies that are not likely to affect the analytical results but should be noted:

- There are instances where corrections in the field logbook were not initialed as required in the FSP;
- The field logbook fails to identify the names and titles of field team members, and the purpose of the field activity as required in the FSP; and
- The collection time and sampler's initials for sample TRIP BLANK are not listed on the c-o-c.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples

One trip blank sample was submitted for analysis in this SDG. All samples were ND at the RL for all analytes. No qualification is necessary.

Per the QAPP, one field blank sample was required per 20 or fewer samples for each media; however, none were collected with this SDG. The one in 20 requirement is satisfied with the collection of a field blank in data package L1410975.

5.4.2 Laboratory Blank Samples
Toluene was detected above the MDL but below the RL in the VOC laboratory method blank. It was detected above the MDL and below the RL in the sample. Report at the RL and qualify as non-detect, "U".

Total Calcium was detected above the MDL but below the RL. It was present above the RL in the sample. No qualification is necessary.

All laboratory blanks were ND at the RL for all other analytes.

The laboratory interval standard and surrogate recoveries for all laboratory blanks met the project objectives.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the following exception:

- 2,4-Dinitrotoluene LCS/LCSD percent recoveries (%R) exceeded the laboratory standards. It was ND in the sample. No qualification is necessary.

5.7 Laboratory Duplicate

Laboratory duplicates were run for total solids, mercury, and metals and the relative percent differences (RPDs) were within laboratory limits with the following exception:

- Total Lead and Total Nickel RPD exceeded the laboratory standard. Total lead and nickel has sample concentrations greater than 5 times the RL. Qualify the associated sample as "J".

5.8 Matrix Spike/Matrix Spike Duplicates

The laboratory MS/MSD analyses were performed on A1-SW 5 FBG (Lab ID: L1410708-01). The following compounds were outside the acceptance criteria:

- Total Lead and Total Magnesium, have MS %R exceeding acceptance limits. All post-digestion spikes for these metals have %R within limits. Both were detected in the sample. Qualify as "J."
- Total Aluminum, Total Iron, and Total Manganese have MS %R exceeding the acceptance limits. However the sample concentrations were greater than 4 times the spike added, so no qualification is required.
- Total Mercury MS %R was below laboratory Limits. However the sample concentration was greater than four times the spike added, so no qualification is required.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine

any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0). The one in 20 requirement for field duplicates is satisfied with the collection of a duplicate in data package L1409762.

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1410708 are usable for determining concentrations of the COCs in soil at the Site, although the concentrations of compounds listed on Table 2 should be considered to be estimated ("J" qualified) or not detected ("U" qualified).

Project Name: 520 W 28TH ST
Project Number: E040

Lab Number: L1410708
Report Date: 05/27/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: 520 W 28TH ST
Project Number: E040

Lab Number: L1410708
Report Date: 05/27/14

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Metals

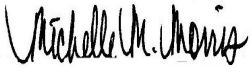
L1410708-01 has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by matrix interferences encountered during analysis.

The WG692002-4 MS recoveries for aluminum (574%), iron (1150%), and manganese (138%), performed on L1410708-01, do not apply because the sample concentrations are greater than four times the spike amount added.

The WG692002-4 MS recoveries, performed on L1410708-01, are outside the acceptance criteria for lead (130%) and magnesium (126%). A post digestion spike was performed and yielded an unacceptable recovery for magnesium (79%); all other compounds were within acceptance criteria. This has been attributed to sample matrix.

The WG692002-3 Laboratory Duplicate RPDs, performed on L1410708-01, are outside the acceptance criteria for lead (22%) and nickel (27%). The elevated RPDs have been attributed to the non-homogeneous nature of the sample utilized for the laboratory duplicate.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:  Michelle M. Morris

Title: Technical Director/Representative Date: 05/27/14

Sample Delivery Group Form

Laboratory Job number: L1410708

Project Number: E040

Project Name: 520 W 28TH ST **Received:** 05/19/2014 15:50

Client Account: Integral Consulting, Inc. **Received by:** RR/WM

Samples Delivered by: COURIER **Call Tracker #**

Bill Of Laden N/A **Trackingnum**

Coc Present Present

Container Status Intact **Sample IDs**

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt N/A **Are samples Properly Preserved?** Yes

Initial pH **preserved in house with** **Final pH**

Other Issues

Chlorine Check N/A

Are VOA/VPH Vials Present? Yes

Aqueous: Do Vials Contain Head Space? No

Soils: Is MeOHCovering the Soil? N/A Encores

Reagent H2O Preserved vials Frozen on 05/20/14 01:57

Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	5.1 - IR Gun	No	No

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
A1-SW 5 FBG	5/19/2014	L1410708-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
TRIP BLANK 5-19-14	5/19/2014	L1410708-02	WATER	SW-846 8260C

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
A1-SW 5 FBG / L1410708-01	Toluene	1.6 U	Analyte detected in the laboratory blank
A1-SW 5 FBG / L1410708-01	Total Lead, Total Nickel	J	RPD exceeded the laboratory limits in laboratory duplicate
A1-SW 5 FBG / L1410708-01	Total Lead, Total Magnesium	J	MS %R above acceptance limit

Notes:

U - Non-detected

J - Estimated concentration

The values listed under the qualification column are the RLs for the applicable samples

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1410408
November 15, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected May 14, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by S. McTavey of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1410408. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

The results of supporting QC analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of two (2) soil samples were analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific matrix spike/matrix spike duplicate (MS/MSD) for every 20 or fewer samples of a given matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples.

Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria were used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, and qualified analytical data are listed in Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were discrepancies that are not likely to affect the analytical results but should be noted:

- There are instances where corrections in the field logbook were not initialed as required in the FSP;
- The field logbook fails to identify the names and titles of field team members, and the purpose of the field activity as required in the FSP; and
- The collection time for the sample TRIP BLANK is not listed on the c-o-c.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples

One trip blank sample was submitted for analysis in this SDG. Acetone was detected in the trip blank above the MDL but below the RL. It was ND in the two samples. No qualification is necessary.

Per the QAPP, one field blank sample was required per 20 or fewer samples for each media; however, none were collected with this SDG. The one in 20 requirement is satisfied with the collection of a field blank in data package L1410975.

5.4.2 Laboratory Blank Samples
Bis-(2-ethylhexyl) Phthalate was detected in the blank above the MDL but below the RL in the SVOC laboratory method blank. It was detected in sample A3-SW-6 FTBG (Lab ID: L1410408-01) above the MDL and below the RL. Report at the RL and qualify with a "U". It was also detected in sample A2-SW-7 FTBG (Lab ID: L1410408-03) above the RL therefore no qualification is necessary.

Total Iron was detected in the blank above the MDL and below the RL. It was detected in both samples above the RL. No qualification is necessary.

All other analytes were ND in the laboratory blanks for all analyses.

The laboratory interval standard and surrogate recoveries for all laboratory blanks met the project objectives.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the following exceptions:

- Bromomethane LCS percent recovery (%R) exceeded the laboratory standard. It was not detected in either sample. No qualification is necessary.
- 2,4-Dinitrotoluene LCS/LCSD %R exceeded the laboratory standards. It was ND in both samples. No qualification is necessary.
- p-Chloro-m-Cresol LCS %R exceeded the laboratory standards. It was ND in both samples. No qualification is necessary.

5.7 Laboratory Duplicate

Laboratory duplicates were run for total solids, total metals, and mercury and the relative percent differences (RPDs) were within laboratory limits with the following exception:

- Total Arsenic, Total Barium, Total Calcium, Total Chromium, Total Lead, Total Magnesium, Total Nickel, Total Potassium, and Total Zinc RPDs exceeded the laboratory standard. The duplicate was performed on a sample from a different site therefore the RPD cannot be considered sufficiently similar to the soil samples in this SDG. No qualifications are necessary.

5.8 Matrix Spike/Matrix Spike Duplicates

The laboratory MS/MSD analyses were performed on a sample form a different site therefore the MS/MSD cannot be considered sufficiently similar to the soil samples in this SDG. The one in 20 requirement is satisfied with the collection of a MS/MSD in data package L1410189.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine

any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0). The one in 20 requirement for field duplicates is satisfied with the collection of a duplicate in data package L1409762.

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1410408 are usable for determining concentrations of the COCs in soil at the Site, although the concentrations of compounds listed on Table 2 should be considered not detected ("U" qualified).

Project Name: 520 W. 28TH ST. **Lab Number:** L1410408
Project Number: E040 **Report Date:** 05/22/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: 520 W. 28TH ST. **Lab Number:** L1410408
Project Number: E040 **Report Date:** 05/22/14

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Total Metals

L1410408-01 and -03 have elevated detection limits for all elements, with the exception of mercury, due to the dilutions required by matrix interferences encountered during analysis.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative Date: 05/22/14

Sample Delivery Group Form

Laboratory Job number: L1410408

Project Number: E040
Project Name: 520 W28TH ST.
Client Account: Integral Consulting, Inc.
Received: 05/14/2014 15:44
Received by: LT/BB

Samples Delivered by: COURIER
Call Tracker #
Bill Of Laden N/A
Trackingnum
Coc Present Present

Container Status Intact
Sample IDs

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt N/A
Are samples Properly Preserved? Yes
Initial pH
preserved in house with
Final pH
Other Issues
Chlorine Check N/A

Are VOA/VPH Vials Present? Yes
Aqueous: Do Vials Contain Head Space? No
Soils: Is MeOHCovering the Soil? Yes +Encores
Reagent H2O Preserved vials Frozen on 05/15/14 11:37
Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	2.8 - IR Gun	No	No

Project Manager: Katie O'Brien
Review Date: 05/16/2014

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
A3-SW-6 FTBG	5/14/2014	L1410408-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
TRIP BLANK-5/14/14	5/14/2014	L1410408-02	WATER	SW-846 8260C
A2-SW-7 FTBG	5/14/2014	L1410408-03	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
A3-SW-6 FTBG / L1410408-01	Bis-(2-Ethylhexyl) Phthalate	180 U	Analyte detected in the laboratory method blank

Notes:

U - Non-detected

The values listed under the qualification column are the RLs for the applicable samples

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1410189
November 14, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected May 13, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by S. McTavey of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1410189. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

The results of supporting QC analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of one (1) soil sample was analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples. Additionally, one site-specific matrix spike/matrix spike duplicate (MS/MSD) (per 20 or fewer samples) should be submitted for each matrix. A MS/MSD was provided in this SDG.

Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria were used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, and qualified analytical data are listed in Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were discrepancies that are not likely to affect the analytical results but should be noted:

- There are instances where corrections in the field logbook were not initialed as required in the FSP;
- The field logbook fails to identify the names and titles of field team members, and the purpose of the field activity as required in the FSP; and
- The collection time and sampler's initials for sample TRIP BLANK (are not listed on the c-o-c.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples
One trip blank sample was submitted for analysis in this SDG. Acetone was detected in the trip blank above the MDL but below the RL. It was ND in sample A4-SW (8') (Lab ID: L1410189-01). No qualification is necessary. All other analytes were ND and require no qualification.

Per the QAPP, one field blank sample was required per 20 or fewer samples for each media; however, none were collected with this SDG. The one in 20 requirement is satisfied with the collection of a field blank in data package L1410975.

5.4.2 Laboratory Blank Samples
Toluene, Bromomethane, and Acetone were detected above the MDL but below the RL in the laboratory method blank. The associated sample was ND for the analyte, so no qualification is necessary. All other compounds for all other analyses were ND at the RL.

The laboratory interval standard and surrogate recoveries for all laboratory blanks met the project objectives.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the following exception:

- 2,4-Dinitrotoluene LCS/LCSD percent recoveries (%R) exceeded the laboratory standards. It was ND in the sample. No qualification is necessary.

5.7 Laboratory Duplicate

Laboratory duplicates were run for total solids and the relative percent differences (RPDs) were within laboratory limits.

5.8 Matrix Spike/Matrix Spike Duplicates

The laboratory MS/MSD analyses were performed on A4-SW (8') (Lab ID: L1324198-01). The following compounds were outside the acceptance criteria:

- Total Mercury MS/MSD %R exceeded the acceptance criteria. The sample result was ND for this sample. No post-digestion spike was performed. No qualification is necessary.
- Total Aluminum and Total Iron MS/MSD %R exceeded laboratory limits. However the sample concentration was greater than 4 times the spike added, therefore no qualification is necessary.
- Total Magnesium MS/MSD %R exceeded laboratory limits. The post-digestion spike was within laboratory limits. It was detected in the sample. Qualify as "J" as shown in Table 2.
- Total Aluminum Matrix Spike RPD exceeded laboratory limits. However the sample concentration was greater than 4 times the spike added, therefore no qualification is necessary.
- Total Manganese MS/MSD %R is below laboratory limits. However the sample concentration was greater than 4 times the spike added, therefore no qualification is necessary.Total Potassium MSD %R exceeded laboratory limits. It was detected in the sample. The post-digestion spike was within laboratory limits. Qualify as "J" as shown in Table 2.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0). The one in 20 requirement for field duplicates is satisfied with the collection of a duplicate in data package L1409762.

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1410189 are usable for determining concentrations of the COCs in soil at the Site, although the concentrations of compounds listed on Table 2 should be considered to be estimated ("J" qualified).

Project Name: 520 WEST 28TH ST. **Lab Number:** L1410189
Project Number: E040 **Report Date:** 05/20/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: 520 WEST 28TH ST. **Lab Number:** L1410189
Project Number: E040 **Report Date:** 05/20/14

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Metals

L1410189-01 has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by matrix interferences encountered during analysis.

The WG689923-3/-4 MS/MSD recoveries, performed on L1410189-01, are outside the acceptance criteria for mercury (127%/131%). A post digestion spike was performed and was within acceptance criteria.

The WG690119-3/-4 MS/MSD recoveries for aluminum (501%/841%), iron (1100%/2380%), and manganese (0%/0%), performed on L1410189-01, do not apply because the sample concentrations are greater than four times the spike amounts added. In addition, the associated MS/MSD RPD is above the acceptance criteria for aluminum (21%).

The WG690119-3/-4 MS/MSD recoveries, performed on L1410189-01, are outside the acceptance criteria for magnesium (138%/156%) and potassium (MSD at 128%). A post digestion spike was performed and was within acceptance criteria.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative Date: 05/20/14

Sample Delivery Group Form

Laboratory Job number: L1410189

Project Number: E040
Project Name: 520 WEST 28TH ST.
Client Account: Integral Consulting, Inc.
Received: 05/13/2014 15:40
Received by: RR/WM

Samples Delivered by: COURIER
Call Tracker #
Bill Of Laden N/A
Trackingnum
Coc Present Present

Container Status Intact
Sample IDs

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt N/A
Are samples Properly Preserved? Yes
Initial pH
preserved in house with
Final pH
Other Issues
Chlorine Check N/A

Are VOA/VPH Vials Present? Yes
Aqueous: Do Vials Contain Head Space? No
Soils: Is MeOHCovering the Soil? N/A Encores
Reagent H2O Preserved vials Frozen on 05/14/14 02:15
Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	3.7 - IR Gun	No	No

Project Manager: Katie O'Brien
Review Date: 05/16/2014

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
A4-SW (8')	5/13/2014	L1410189-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
TRIP BLANK	5/13/2014	L1410189-02	WATER	SW-846 8260C

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
L1410189-01/A4-SW (8')	Total Magnesium	J	MS/MSD percent recovery exceeds recovery limits
L1410189-01/A4-SW (8')	Total Potassium	J	MS/MSD percent recovery exceeds recovery limits

Notes:

J - Estimated concentration

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1409762
November 13, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected May 7, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by S. McTavey of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1409762. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

The results of supporting QC analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of two (2) soil samples were analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific matrix spike/matrix spike duplicate (MS/MSD) for every 20 or fewer samples of a given matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples.

Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria will be used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, however no analytical data required qualification as shown in Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the SDGF, the trip blank was not received with the original shipment. The sample TRIP BLANK was received on 5/9/14. The sample was shipped with a copy of the original c-o-c. All samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were discrepancies that are not likely to affect the analytical results but should be noted:

- There are instances where corrections in the field logbook were not initialed as required in the FSP;
- Sample DUPLICATE does not have the sample matrix or sampler's initials written on the c-o-c; and
- Sample TRIP BLANK does not have the collection date, time, sample matrix or sampler's initials written on the c-o-c.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples
One trip blank sample was submitted for analysis in this SDG. All samples were ND at the RL. It should be noted that the trip blank was not submitted at the same time as the samples in this SDG therefore it probably does "not assess the potential for contamination of samples due to contaminant migration during sample shipment and storage" as stated in the QAPP.

Per the QAPP, one field blank sample was required per 20 or fewer samples for each media; however, none were collected with this SDG. The one in 20 requirement is satisfied with the collection of a field blank in data package L1410975.

5.4.2 Laboratory Blank Samples
Bis(2-ethylhexyl)phthalate was detected above the MDL but below the RL. It was ND in both samples. No qualification is necessary. All other compounds for all other analyses were ND at the RL. The laboratory interval standard and surrogate recoveries for all laboratory blanks met the project objectives.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the following exception:

- 4-Nitroaniline, p-Chloro-m-cresol, 4-Nitrophenol, Pentachlorophenol, and Phenol LCS/LCSD percent recoveries (%R) exceeded the laboratory limit. They were ND in the samples. No qualification is necessary.

5.7 Laboratory Duplicate

Laboratory duplicates were run for total solids and metals and the relative percent differences (RPDs) were within laboratory limits with the following exceptions:

- Total Chromium RPD exceeded the laboratory standard. It was present in the samples at greater than five times the RL. Total Silver RPD exceeded the laboratory standard. It was ND in the samples. The
- Total Arsenic RPD exceeded the laboratory standard. It was present in the samples at greater than five times the RL and the difference is less than the RL.

However the laboratory duplicate was performed on a sample from a different site therefore the RPD cannot be considered sufficiently similar to the soil samples in this SDG. No qualifications are necessary.

5.8 Matrix Spike/Matrix Spike Duplicates

The laboratory MS/MSD analyses were performed on a sample form a different site therefore the MS/MSD cannot be considered sufficiently similar to the soil samples in this SDG. The one in 20 requirement is satisfied with the collection of a MS/MSD in data package L1410189.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine

any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0).

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1409762 are usable for determining concentrations of the COCs in soil at the Site.

Project Name: 520 W.28TH ST.
Project Number: E040

Lab Number: L1409762
Report Date: 05/14/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: 520 W.28TH ST. **Lab Number:** L1409762
Project Number: E040 **Report Date:** 05/14/14

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Total Metals

L1409762-01 and -02 have elevated detection limits for all elements, with the exception of mercury, due to the dilutions required by matrix interferences encountered during analysis.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative Date: 05/14/14

Sample Delivery Group Form

Laboratory Job number: L1409762

Project Number: E040

Project Name: 520 W.28TH ST. **Received:** 05/07/2014 16:05

Client Account: Integral Consulting, Inc. **Received by:** WM/SH

Samples Delivered by: COURIER **Call Tracker #** 57966

Bill Of Laden N/A **Trackingnum**

Coc Present Present

Container Status Intact **Sample IDs**

All Containers Accounted For? No

Trip Blank not received.; Trip Blank rec'd 5/9/14 01:15. Sample rec'd w/copy of original chain.

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt N/A **Are samples Properly Preserved?** Yes

Initial pH **preserved in house with** **Final pH**

Other Issues

Chlorine Check N/A

Are VOA/VPH Vials Present? Yes

Aqueous: Do Vials Contain Head Space? No

Soils: Is MeOHCovering the Soil? N/A Encores

Reagent H2O Preserved vials Frozen on 05/08/14 04:04

Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	5.0 - Temp. Blank	No	No
B	Absent	Yes	No	3.2 - IR Gun	No	No

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
A5-SW (9.5')	5/7/2014	L1409762-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
DUPLICATE	5/7/2014	L1409762-02	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
TRIP BLANK	5/7/2014	L1409762-03	WATER	SW-846 8260C

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
None	None	None	None

DATA USABILITY SUMMARY REPORT
Laboratory Data Package L1409223
November 13, 2014

1.0 General Information

Geosyntec Consultants, Inc. reviewed one laboratory data package from Alpha Analytical (Westborough, MA) for the analysis of soil samples collected May 1, 2014 at the property located at 514-520 West 28th Street (Site) in New York, New York. Samples were collected by S. McTavey of Integral Consulting, Inc., New York, New York (Integral). The data were reviewed for conformance to the requirements of the guidance document EPA National Functional Guidelines for Data Review (EPA NFG) for organic and inorganic compounds and adherence to project objectives outlined in the Site Quality Assurance Project Plan[1] (QAPP).

This Data Usability Summary Report (DUSR) and associated laboratory package is labeled as laboratory project L1409223. The sample analysis Case Narrative (CN) and Sample Delivery Group Form (SDGF) for this data package are provided as part of this DUSR. The sample chain-of-custody (c-o-c) form for the samples is provided near the front of the full Cat. B Laboratory Data Report (LDR).

2.0 Intended Use of Data

The intended use of the data reviewed as part of this DUSR is to provide current data on concentrations of chemicals of concern (COCs) in the soil at the affected Site. Samples were analyzed for:

- EPA Method 8260C – Volatile Organic Compounds (VOCs) by GC/MS;
- EPA Method 8270D – Semi-volatile Organic Compounds (SVOCs) by GC/MS;
- EPA Method 8082A – Polychlorinated Biphenyls (PCBs) by GC;
- EPA Method 8081B – Organochlorine Pesticides (OCPs) by GC;
- EPA Method 6010C – Total Metals;
- EPA Method 7471B – Total Mercury; and
- Standard Method 2540G – Total Solids

One aqueous trip blank sample was submitted for quality control (QC) purposes to check for contamination due to sample handling, storage, and shipping procedures. This water sample was analyzed for:

- EPA Method 8260C – VOCs by GC/MS.

The data reviewed as part of this DUSR were validated as described in the EPA NFGs and the results of the review and validation are discussed in this DUSR. The laboratory submittals, documents, and field data that were examined include:

- Reportable and raw data;
- CN, SDFG and full Cat. B LDR;
- Sample c-o-c forms;
- Site QAPP and Field Sampling Plan (FSP)[2]; and
- Field notes.

[1] Appendix E, Quality Assurance Project Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street, New York, NY 10001, Block 699, Lot 43 NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

[2] Appendix F, Field Sampling Plan for the West 28th Street Remedial Action Work Plan for the Property Located at 514-520 W28th Street New York, NY 10001, Block 699, Lots 43 and 44, NYSDEC BCP No. C231082. Integral Engineering P.C., December 2013.

The results of supporting QC analyses were summarized in the CN and reported in the LDR.

3.0 Introduction

A total of one (1) soil sample was analyzed for VOCs, SVOCs, PCBs, OCPs, total metals, total mercury, and total solids. One (1) aqueous sample was analyzed for VOCs only. Table 1 lists the sample identifications cross-referenced to laboratory identifications including the date sampled.

4.0 Project Objectives

The project objectives were to allow determination of precision, accuracy, and comparability of soil data. Per the project QAPP, one field duplicate and one field blank (when non-dedicated equipment is used) are required per 20 or fewer samples collected for each matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific matrix spike/matrix spike duplicate (MS/MSD) for every 20 or fewer samples of a given matrix. One trip blank is required with each sample delivery group (SDG) of VOC samples.

Analytical data objectives were not specified in the QAPP; therefore, laboratory and NFG specific criteria were used and are presented in the following sections.

5.0 Data Review and Validation Results

The following sections include a summary of sample analytical and validation results.

5.1 Analytical Results

As stated in the CN, some sample exceptions were noted, and qualified analytical data are listed in Table 2. All soil data were reported on a dry weight basis (percent solids). As summarized in the CN, none of the laboratory exceptions appear to have a practical impact on the usability of the data for the COCs at the Site; therefore, the laboratory results were accepted, and non-detected (ND) results are reported as less than the value of the reporting limit (RL)/method detection limit (MDL).

5.2 Field Documentation, Sample Preservation and Holding Times

Samples were evaluated for agreement with the field notes and c-o-c and all laboratory sample log-ins were consistent with the c-o-c. As noted in the CN and SDGF, all samples were received in the appropriate containers and in good condition. Sample receipt temperatures were within the acceptance criteria of 4 ± 2 °C. Samples were preserved in the field and prepared and analyzed within holding times specified in the QAPP and SW-846 Table 2-36.

There were discrepancies that are not likely to affect the analytical results but should be noted:

- There are instances where corrections in the field logbook were not initialed as required by the FSP;
- Sample A6-SW (3') has wrong date written on the c-o-c;
- The field logbook fails to identify names and titles of field team members, and the purpose of the field activity as required by the FSP;
- The collection date, time, and sampler's initials for sample TRIP BLANK () are not listed on the c-o-c; and
- The transfer of samples was not properly documented in the relinquished and received by section of the c-o-c.

5.3 Calibrations

Initial and continuing calibrations were performed using required standard concentrations and at required frequencies. ICV and CCV data met EPA SW-846 and Standard Method requirements for all analyses.

5.4 Blanks

Trip Blank and Field Blank QAPP requirements are listed above in Section 4.0.

5.4.1 Field and Trip Blank Samples
One trip blank sample was submitted for VOC analysis in this SDG. All samples were ND at the RL for all analytes. No qualification is necessary.

Per the QAPP, one field blank sample was required per 20 or fewer samples for each media; however, none were collected with this SDG. The one in 20 requirement is satisfied with the collection of a field blank in data package L1410975.

5.4.2 Laboratory Blank Samples
All samples were ND at the RL for all analytes with the following exceptions:

- Toluene was detected above the MDL but below the RL. It was ND in the sample. No qualification is necessary.
- Acetone was detected above the MDL but below the RL. It was detected in the sample above the MDL but below the RL. Report at RL and qualify as non-detect "U".
- Total aluminum and zinc were detected above the MDL but below the RL. They were detected in the sample above the RL, therefore no qualification is required.
- Total selenium was detected above the MDL but below the RL. It was detected in the sample above the MDL but below the RL. The result should be reported at the RL and qualified "U".

The laboratory interval standard and surrogate recoveries for all laboratory blanks met the laboratory objectives.

5.5 Internal Standard and Surrogate Recoveries

Internal standard areas and retention times met acceptance criteria for all analyses. Surrogates were added to all samples and blanks as required by method SW-846. All surrogate recoveries were within QC limits.

5.6 Laboratory Control Samples

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries met the project objectives of 70-130% (VOCs), 40-140% (SVOCs), 40-140% (PCBs), 30-150% (OCPs), or 80-120% (metals) recovery (or lab equivalent) with the following exceptions:

- 1,4-Dioxane LCSD percent recovery (%R) for VOCs exceeded the laboratory limits. It was ND in the sample. No qualification is necessary.
- 1,4-Dioxane relative percent different (RPD) for SVOCs exceeded the laboratory limits. It was ND in the sample. No qualification is necessary.
- 2,4-Dinotrotoluene LCS/LCSD %R exceeded the laboratory limits. It was ND in the sample. No qualification is necessary.

5.7 Laboratory Duplicate

Laboratory duplicates were run for total solids and metals and the RPDs were within laboratory limits with the following exceptions:

- Total Arsenic and Total Lead RPD exceeded the laboratory limits. The duplicate was performed on a sample from a different site therefore the duplicate cannot be considered sufficiently similar to the soil samples in this SDG. No qualifications are necessary.

5.8 Matrix Spike/Matrix Spike Duplicates

The laboratory MS/MSD analyses were performed on a sample form a different site therefore the MS/MSD cannot be considered sufficiently similar to the soil samples in this SDG. The one in 20 requirement is satisfied with the collection of a MS/MSD in data package L1410189.

5.9 Field Procedures

All samples were collected using standard industry practices, as per the QAPP and FSP. The field notes document soil sample collection and indicate measurement of VOCs with a photoionization detector (PID) as required, but they do not specify the PID instrument used and its detection limits. Additional issues with field documents are outlined in Section 5.2 and should be evaluated by Integral to determine any impact to the analytical data. Integral should also evaluate the results of the field duplicate samples to determine if the associated samples and duplicates have met the project objectives (Section 4.0). The one in 20 requirement for field duplicates is satisfied with the collection of a duplicate in data package L1409762.

5.10 Data Review and Validation Summary

The results of this DUSR indicate that the analytical data collected in L1409223 are usable for determining concentrations of the COCs in soil at the Site, although the concentrations of compounds listed on Table 2 should be considered not detected ("U" qualified).

Project Name: 520 W 28TH ST.
Project Number: E040

Lab Number: L1409223
Report Date: 05/08/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: 520 W 28TH ST. **Lab Number:** L1409223
Project Number: E040 **Report Date:** 05/08/14

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Total Metals

L1409223-01 has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by matrix interferences encountered during analysis.

Semivolatile Organics

L1409223-01: Please note that benzo(b)fluoranthene and benzo(k)fluoranthene could not be accurately integrated on the original analysis at such a high concentration, and therefore is only reported from the diluted analysis.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Lisa Westerlind

Title: Technical Director/Representative Date: 05/08/14

Sample Delivery Group Form

Laboratory Job number: L1409223

Project Number: E040

Project Name: 520 W 28TH ST. **Received:** 05/01/2014 11:50

Client Account: Integral Consulting, Inc. **Received by:** RS/WM

Samples Delivered by: COURIER **Call Tracker #**

Bill Of Laden N/A **Trackingnum**

Coc Present Present

Container Status Intact **Sample IDs**

All Containers Accounted For? Yes

Were Extra Samples Received? No

Do Sample Labels and COC agree? Yes

Are Samples in Appropriate Containers? Yes

Are Samples Received within Holding time? Yes

pH of Samples upon Receipt N/A **Are samples Properly Preserved?** Yes

Initial pH **preserved in house with** **Final pH**

Other Issues

Chlorine Check N/A

Are VOA/VPH Vials Present? Yes

Aqueous: Do Vials Contain Head Space? No

Soils: Is MeOHCovering the Soil? N/A Encore

Reagent H2O Preserved vials Frozen on 05/02/14 01:37

Frozen by Client N/A

Cooler	Seal	Ice Present	Blue Ice Present	Temp. (Celsius)	Frozen upon Receipt	Delivered Direct from Site
A	Absent	Yes	No	3.7 - IR Gun	No	No

Table 1. Cross-Reference Field Sample Identifications and Laboratory Identifications

Field Identification	Sample Date	Laboratory Identification	Matrix	Analysis
A6-SW (3')	5/1/2014	L1409223-01	SOIL	SW-846 8260C, 8270D, 8082A, 8081B, 6010C, 7471B; and SM 2540G
TRIP BLANK	5/1/2014	L1409223-02	WATER	SW-846 8260C

Table 2. Qualified Analytical Data

Field ID/Lab ID	Analyte	Qualification	Reason for Qualification
A6-SW (3') / L1409223-01	Total selenium	2.0 U	Analyte detected in the laboratory blank
A6-SW (3') / L1409223-01	Acetone	13 U	Analyte detected in the laboratory blank

Notes:

U - Non-detected

The values listed under the qualification column are the RLs for the applicable samples