

**SITE ASSESSMENT REPORT
EAST SIDE NEIGHBORHOOD, CHICAGO, ILLINOIS**

FINAL

Prepared for

The City of Chicago



Submitted by

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REGULATORY AND TECHNICAL ACRONYMS

ASTM	American Society of Testing Materials
CA	Cancer
CDPH	City of Chicago Department of Public Health
COC	Chain of Custody
COPC	Chemicals of Potential Concern
DOL	City of Chicago Department of Law
EPA	U.S. Environmental Protection Agency
GIS	Geographic Information Systems
ICP-AES	Inductively Coupled Plasma – Atomic Emission Spectroscopy
IDEM	Indiana Department of Environmental Management
IEPA	Illinois Environmental Protection Agency
MS	Mass Spectroscopy
NC	Non-Cancerous
NELAP	National Environmental Laboratory Accreditation Program
NWS	National Weather Service
PM	Particulate Matter
RML	Removal Management Levels
QA/QC	Quality Assurance/Quality Control
RO	Remediation Objectives
RSL	Regional Screening Levels
SAP	Sampling and Analysis Plan
STAT	STAT Analysis, Inc.
TACO	Tiered Approach to Corrective Action Objectives

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EXECUTIVE SUMMARY

Introduction: Tetra Tech, Inc. (Tetra Tech) was tasked by the City of Chicago to perform an environmental investigation of the East Side neighborhood which is located on the Southeast Side of Chicago, Illinois. The investigation included the collection of surface soil samples at residential properties in the East Side neighborhood. The samples were collected to evaluate the impact of fugitive dust emissions from metals, minerals, and other industrial materials handled, stored and processed at S.H. Bell Company's Chicago South Avenue "O" Terminal (S.H. Bell facility), which is located to the immediate west and generally upwind of the 80-acre (.125 sq. mi.) portion of the Southeast Side neighborhood where soil sampling was performed (sampling area).

The sampling area is bounded to the north by E. 100th Street; to the east by S. Ewing Avenue; to the south by E. 104th Street; and to the west by S. Avenue N, S. Avenue O, S. Calumet River Street, and the S.H. Bell facility. The S.H. Bell Company has been in business since 1933. The company provides handling, storage, processing, packaging, and record keeping services to a customer base comprised of producers, traders, and consumers of metals, minerals, and semi-finished industrial materials.

The East Side neighborhood is one of the 77 official community areas of Chicago, Illinois. It is located on the far south side of the city, between the Calumet River and the Illinois-Indiana state line, approximately 15 miles south of Downtown Chicago. The neighborhood has its own park on Lake Michigan (Calumet Park) and its own forest preserve (Eggers Grove Forest Preserve). Most of the streets going north and south are named after the alphabet, with Avenue B closest to the Indiana state line and Avenue O closer to the Calumet River.

Description of Field Investigation: Tetra Tech prepared a Sampling and Analysis Plan (SAP) dated December 2017 that described proposed sampling locations based on air dispersion modeling of fugitive dust emissions and potential manganese concentrations in the East Side neighborhood. Field investigative activities began with door-to-door canvassing for access agreements and the collection of surface soil samples in the City rights of way adjacent to their residences (i.e., in the exposed soil area typically located between the sidewalk and the roadway). Only rights of way in front of properties whose owners had signed access agreements or granted verbal access to the City were sampled. On January 31st, 2018, due to access agreements obtained for properties, Tetra Tech collected soil samples from 16 locations out of the 31 sample locations proposed in the Sampling and Analysis Plan. A total of 19 samples were collected from the 16 locations (duplicate samples were collected at three locations) using a hand trowel from the top 0-6 inches of soil beneath the grass cap in the City right-of-way in front of residences. All soil samples were collected and packaged under Tetra Tech Environmental Standard Operating Procedures which were developed in compliance with ASTM International and U.S. EPA standards. The surface soil samples were submitted to STAT Analysis, Inc. (STAT) in Chicago, Illinois, under chain-of-custody procedures. STAT Analysis is accredited by the Illinois Environmental Protection Agency in accordance with the National Environmental Laboratory Accreditation Program (NELAP).

On March 7 and March 8, 2018, Tetra Tech returned to the sampling area to request access and collect surface soil samples from 23 additional proposed locations. A total of 13 surface soil samples were collected from 11 locations in rights of way where access was granted (duplicate samples were collected from two locations). The same sampling procedures described in the SAP and implemented in the January

sampling event were followed. The samples were again submitted to STAT for analysis of the same nine metals as described below.

Analysis of Soil Samples: STAT conducted ICP-MS analysis of the soil samples for the nine selected metals for the investigation (arsenic, cadmium, chromium [total], cobalt, iron, lead, manganese, mercury, and nickel). Upon receipt of the analytical data package from STAT, Tetra Tech compared the results to the following:

- Federal (U.S. Environmental Protection Agency [EPA] residential soil regional screening levels [RSL])
- State (Illinois Environmental Protection Agency [Illinois EPA] Tiered Approach to Corrective Action Objectives [TACO] Tier 1 soil remediation objectives [RO] for residential properties.
- EPA Removal Management Levels (RML)
- Illinois EPA background concentrations as defined by Title 35 of the Illinois Administrative Code, Part 742, TACO.

Based on site assessment soil sample analytical results, arsenic, iron, lead, and manganese concentrations exceeded one or more of the federal and state residential screening levels:

- Arsenic was detected at concentrations above the EPA Resident Soil RSL Cancer (CA) of 0.68 mg/kg in all 32 soil samples and above the EPA RML of 68 in one soil sample.
- Iron was detected at concentrations above the EPA Resident Soil RSL Non-Cancerous (NC) of 55,000 mg/kg in one soil samples.
- Lead was detected at concentrations above the EPA Resident Soil RSL (NC) and TACO Tier 1 Soil RO of 400 mg/kg in 10 soil samples.
- Manganese was detected at concentrations above the TACO Tier 1 Soil RO for Residential Properties Ingestion (Ing) of 1,600 mg/kg in 24 soil samples. Manganese also was detected at concentrations above the EPA Removal Management Level (RML) of 5,500 mg/kg in 3 soil sample locations.

Mercury exceeded its TACO Tier 1 soil RO only for construction workers at most of the sampling locations. Finally, no screening levels were exceeded for cadmium, chromium, cobalt, and nickel.

Conclusions and Recommendations: Based on the sample results, there is evidence to suggest that manganese detected in the sampling area may be due to manganese in historical fugitive emissions radiating from the S.H. Bell facility. S.H. Bell has indicated that through improved operations, emissions from their facility are better controlled now than in the past. The contamination found in the sampling area soil may be indicative of legacy contamination from past operations at S.H. Bell as well as other manganese handlers in the area.

This preliminary conclusion should be verified with additional air and soil sampling. Other operations in the area also handle manganese and should be evaluated as potential contributors of manganese to air and soil in their surrounding communities.

1.0 INTRODUCTION

Tetra Tech, Inc. (Tetra Tech) was tasked by the City of Chicago to prepare a site assessment report summarizing the results of surface soil samples collected from residential properties in the East Side neighborhood located on the Southeast Side of Chicago, Illinois. Sampling was conducted in accordance with the Tetra Tech Sampling and Analysis Plan (SAP) submitted to the City of Chicago on December 6, 2017. The samples were collected to evaluate the impact of fugitive dust emissions from a metals, minerals, and industrial materials handling, storage, and processing facility (S.H. Bell Company's Chicago South Avenue "O" Terminal [S.H. Bell facility]) that borders the neighborhood to the west (see Figure 1).

This site assessment report covers the following activities:

- Collection of surface soil samples for laboratory analysis of select inductively coupled plasma – atomic emission spectroscopy (ICP-AES) and ICP- mass spectroscopy (MS) metals, specifically arsenic, cadmium, chromium, cobalt, iron, lead, manganese, mercury, and nickel
- Preparing geographic information system (GIS) maps

This site assessment report is organized into the following sections:

- Executive summary
- Introduction – Provides a brief description of the objectives and scope of site assessment activities
- Site Background – Details the site location and description
- Field Investigation – Discusses the methods and procedures used during the site assessment
- Analytical Results – Presents and summarizes the analytical results for the samples collected during the site assessment
- Findings and Discussion – Discusses observations related to contaminant concentration distribution for the analytes that were found to exceed one or more federal and state screening levels
- Conclusions – Presents the main findings of the site assessment
- Reference Section

In addition, this site assessment report contains five appendices. Appendix A includes figures for this report. Appendix B the field logbook notes and Appendix C provides the photographic documentation log of conditions during the site assessment. Appendix D provides chain of custody records and Appendix E provides summary tables of analytical results and the data validation reports. The laboratory analytical reports for samples collected during the site assessment are included as an attachment to this report.

2.0 SITE BACKGROUND

This section describes the site and its location.

2.1 SITE LOCATION AND LAYOUT

The site (sampling area) is an approximately 80-acre (0.125 square mile [mile²]) area immediately west of the S.H. Bell facility within the boundary of the East Side neighborhood located in Chicago, Cook County, Illinois (Appendix A, Figure 1). The site and sampling area is bounded to the north by E. 100th Street; to the east by S. Ewing Avenue; to the south by E. 104th Street; and to the west by S. Avenue N, S. Avenue O, S. Calumet River Street, and the S.H. Bell facility (Appendix A, Figure 2). The overall East Side neighborhood is bounded by the Calumet River to the north and west, State Line Road (4100 E) to the east, and 126th street (12600 S) to the south. The East Side neighborhood has a total area of approximately 2.8 square miles (East Side, Chicago, Wikipedia, n.d.).

2.2 SITE DESCRIPTION

The East Side neighborhood is one of the 77 official community areas of Chicago, Illinois. It is located on the far south side of the city, between the Calumet River and the Illinois-Indiana state line, approximately 15 miles south of Downtown Chicago. The neighborhood has its own park on Lake Michigan (Calumet Park) and its own forest preserve (Eggers Grove Forest Preserve). Most of the streets going north and south are named after the alphabet, with Avenue B closest to the Indiana state line and Avenue O closer to the Calumet River.

Many of the homes in the neighborhood are Chicago-style bungalows, and the southeast portion of East Side contains many newer homes (including some bungalows) built after 1980. Most of the neighborhood's residents are Hispanic (East Side, Chicago, Wikipedia, n.d.). The S.H. Bell company borders the site to the west and the company has been in business at the current location since 1973. The company provides handling, storage, processing, packaging, and record keeping services to a customer base comprised of producers, traders, and consumers of metals, minerals, and semi-finished industrial materials.

2.3 PREVIOUS INVESTIGATIONS

In October 2017, as part of the environmental investigation of manganese and assessment of potential residential health risks in the Southeast Chicago Area project, Tetra Tech conducted an air dispersion modeling analysis of the S.H. Bell facility in Chicago, Illinois (Tetra Tech 2017). The modeling analysis was conducted to estimate the fugitive dust emissions and potential manganese concentrations and

deposition in the East Side neighborhood. Data inputs for the model used potential emission sources at the facility including dust collectors/bag houses, material transfer areas, indoor and outdoor storage piles and haul roads, as well as five years (2012 to 2016) of hourly surface observations of wind speed and direction collected by Indiana Department of Environmental Management (IDEM) at a site located nearby in Hammond, Indiana; hourly surface observations collected by the National Weather Service (NWS) at Midway Airport located in Chicago, Illinois; and upper air data collected by NWS near Lincoln, Illinois. The model results were presented in a Draft Air Dispersion Modeling Analysis Report submitted to the City in October 2017 (Tetra Tech 2017a).

Based on the results of the air dispersion modeling analysis, the City tasked Tetra Tech to conduct surface soil sampling in the East Side neighborhood to determine the placement of air sampling equipment and to estimate direct contact exposures to metals in the surface soil. The particulate matter (PM) air dispersion model-predicted deposition figure of that report was utilized to identify the soil sample locations proposed in the Sampling and Analysis Plan (SAP) submitted by Tetra Tech in December 2017 (Tetra Tech 2017b). The SAP specified the numbers and locations of surface soil samples to be collected, the sampling methodology to be used, the samples analytical parameters and methods, and the quality assurance/quality control (QA/QC) measures for the site.

3.0 FIELD INVESTIGATION

Site assessment activities included door-to-door canvassing for access agreements and the collection of surface soil samples. Chicago Department of Public Health (CDPH) representatives and Tetra Tech field staff conducted site assessment activities. Sampling activities were documented in the field logbook (Appendix B) in accordance with the SAP and photographed. A photolog is provided in Appendix C.

3.1 OBTAINING ACCESS AGREEMENTS

On January 18th and January 23rd, 2018, representatives from Tetra Tech and CDPH conducted door-to-door canvassing to obtain access agreements for surface soil sample collection. Though samples were collected in the public right-of-ways, the City of Chicago Department of Law (DOL) requested that verbal or written access be granted before sample collection. A team of Tetra Tech and CDPH representatives knocked on the door of each of the 31 properties identified for sampling. If there was no response, a packet containing fact sheets about investigation activities, the health impacts of manganese, investigation contact information, and an access agreement was left at the property. All documents were available in both English and Spanish. Written access and verbal agreements to CDPH was obtained from 16 of the 31 residential and residential-like properties identified for sampling in the SAP. Due to the number of

proposed sample locations that were limited by access restrictions, the 16 properties that granted access to sample were unevenly distributed throughout the Site.

In order to fill data gaps and obtain a more complete representation of the investigation area, Tetra Tech and CDPH identified 23 additional residential and residential-like properties for sampling in March 2018. On March 7 and March 8, 2018, the Tetra Tech field team knocked on the door of each property to obtain access. If there was no response, Tetra Tech knocked the door of any adjacent residential or residential-like properties to obtain access to sample. Verbal access was granted from 11 of the 23 residential and residential-like properties identified for additional sampling.

3.2 SURFACE SOIL SAMPLING

On January 31st, 2018, the field team of Tetra Tech engineer, Eric Blake, and environmental scientist, Rachel Houle, collected soil samples from 16 locations out of the 31 residential and residential-like sample locations proposed in the SAP. Only properties that had signed access agreements or granted verbal access to CDPH were sampled; two CDPH employees were onsite to assist Tetra Tech with sampling activities. A total of 19 surface soil samples were collected from the 16 locations using a hand trowel from the top 0-6 inches of soil beneath the grass cap in the right-of-way in front of the property in accordance with the CDPH-approved SAP (duplicate samples were collected at three locations). The surface soil samples collected were placed in Ziploc[®]-style bags and the soil was homogenized. The samples were then placed in 8-ounce glass jars provided by STAT Analysis Corporation (STAT), the subcontracted laboratory. Soil not used for the sample was placed back in the hole and the grass cap was replaced. After collecting each sample, sampling equipment was decontaminated using an Alconox solution, a scrub brush, and distilled water. Decontamination fluids were disposed of at the site through the City of Chicago combined sewer system. A chain of custody (COC) form was completed and the samples were submitted to STAT Analysis in Chicago, Illinois for ICP-MS analysis of the nine selected metals for the investigation (arsenic, cadmium, chromium [total], cobalt, iron, lead, manganese, and nickel) and for SW7471B analysis for mercury. COC forms are provided in Appendix D.

Three field duplicate samples and one matrix spike samples were collected in accordance with the QC procedures laid out in the SAP. Additionally, one rinsate sample was collected for quality control. The rinsate sample was collected at the end of sampling activities after the final decontamination of sampling equipment had occurred. Distilled water was poured over the hand trowel and collected in a STAT-provided sampling container in accordance with the SAP.

On March 7 and March 8, 2018, Tetra Tech returned to the site to request verbal access and collect surface soil samples from proposed residential and residential-like properties to obtain better soil sampling coverages across the site. A total of 13 surface soil samples were collected from 11 locations in the right-of-way at properties where access was granted (duplicate samples were also collected from two right-of-way locations). The same sampling procedures described in the SAP and implemented in the January sampling event were followed. Two QC rinsate samples and one matrix spike sample were collected. COC forms were completed at the end of each day and the samples were submitted to STAT for analysis of the nine selected metals. Soil sample results are discussed in Section 4.1.

4.0 ANALYTICAL RESULTS

During this sampling mission, Tetra Tech collected surface soil samples from the site. The samples were collected to determine the concentrations of contaminants, and whether the contamination exceeds federal (U.S. Environmental Protection Agency [EPA] residential soil regional screening levels [RSL]) and state (Illinois Environmental Protection Agency [Illinois EPA] Tiered Approach to Corrective Action Objectives [TACO] Tier 1 soil remediation objectives [RO] for residential properties).

The soil samples were analyzed for nine target metals identified for this investigation. The target metals results were compared to EPA residential soil RSLs and Illinois EPA TACO Tier 1 ROs for residential properties. The soil concentrations were also compared to EPA Removal Management Levels (RML).

Tetra Tech reviewed and validated all the sample results. All sampling results were found to be usable. The results are summarized in the data summary tables provided in Appendix C along with the data validation reports and validated sample results. Level IV analytical data packages are provided in an attachment that follows the appendices.

The soil sample results for metals were compared to EPA RSLs; EPA RMLs; and TACO RO industrial criteria. These screening levels are briefly described below. Appendix A, Figure 3 displays the soil sample locations and laboratory metals results. Appendix E, Table 1 displays the laboratory results for target metals in soil compared to EPA RSL, EPA RML, and Illinois EPA TACO Tier 1 ROs for residential properties as well as Illinois EPA specified background concentrations.

- U.S. Environmental Protection Agency (EPA) Regional Screening Levels (RSL) – as defined in the RSL User’s Guide (<https://www.epa.gov/risk/regional-screening-levels-rsls-users-guide-november-2017#intro>), RSLs are “chemical-specific concentrations for individual contaminants in air, drinking water and soil that may warrant further investigation or site cleanup”. RSLs are NOT cleanup standards, but may serve as preliminary remediation goals “early in the process – e.g., at RI scoping and at screening of chemicals of potential concern (COPCs) for the baseline

risk assessment.” RSLs are risk-based, but utilize generic, rather than site-specific exposure assumptions.

- EPA Regional Removal Management Levels (RMLs) – as defined in the RML User’s Guide (<https://www.epa.gov/risk/regional-removal-management-levels-rmls-users-guide>), RMLs are “chemical-specific concentrations for individual contaminants in tap water and soil that may be used to support the decision for EPA to undertake a removal action”. EPA notes further that “RMLs may be used to support the decision to undertake a removal action, but final cleanup levels should be selected to address the site-specific threat”. As for RSLs, RMLs are risk-based, but utilize generic, rather than site-specific exposure assumptions.
- Illinois EPA Tiered Approach to Corrective Action Objectives (TACO) – remediation objectives (RO) are medium-specific, risk-based, and site-specific concentrations developed following Illinois Environmental Protection Agency’s (Illinois EPA) TACO methodology that “protect human health and take into account site conditions and land use” (<http://www.epa.state.il.us/land/taco/forms/taco-fact-sheets.pdf>). All TACO ROs are risk-based. However, exposure assumptions are based on generic assumptions for Tier 1 and graduate to an allowance for site-specific exposure assumptions under Tier 3.

Soil sample analytical results are summarized below for analytes with concentrations that exceeded screening levels at one or more properties. No exceedances of either EPA screening levels or TACO ROs levels were identified for four metals: cadmium, chromium, cobalt, and nickel.

- Arsenic exceeded the EPA residential soil RSL Cancer (CA) of 0.68 in all 32 soil samples and above the EPA RML of 68 in one soil sample.
- Iron exceeded the EPA residential soil RSL of 55,000 mg/kg at only one single location – ES-SS-33 (70,000 mg/kg). Because iron exceeded the EPA soil RSL at only one location, it is not shown on Figure 3.
- Lead exceeded the EPA residential soil RSL and the TACO Tier 1 soil RO for residential properties of 400 mg/kg in 10 soil samples. The lead exceedances ranged from 420 to 980 mg/kg.
- Manganese exceeded the EPA RML of 5,500 mg/kg in 3 soil sample locations. Manganese exceeded the EPA residential soil RSL (1,800 mg/kg) in 22 soil samples and the TACO Tier 1 soil RO for residential properties of 1,600 mg/kg in 24 soil samples. The manganese exceedances ranged from 1,700 to 13,000 mg/kg.
- Mercury exceeded the TACO Tier 1 soil RO for construction workers of 0.1 mg/kg in the 24 samples ranging from 0.13 to 0.88 mg/kg.

5.0 FINDINGS AND DISCUSSION

This section discusses observations related to the distribution of contaminant concentrations for the five metals (arsenic, iron, lead, manganese, and mercury) that were detected above one or more EPA screening levels or IEPA ROs:

- **Arsenic** was found at concentrations exceeding the state-specified background of 13 mg/kg at only seven properties. These locations are evenly distributed across much of the Site (sampling area). However, none of the exceedances noted are among the samples collected adjacent to and downwind (east) of the S.H. Bell facility. Also, the two highest arsenic concentrations were found beyond the east (ES-SS-33; 180 mg/kg) and south (ES-SS-49 and -49D; 25.5 and 25 mg/kg) boundaries of the Site (sampling area). This distribution suggests that arsenic may not be attributed to the site.
- **Iron** was found at a concentration exceeding the EPA residential soil RSL of 55,000 mg/kg at one location – ES-SS-33 (70,000 mg/kg). This location is beyond the eastern boundary of the Site (sampling area).
- **Lead** was detected at concentrations exceeding the EPA residential soil RSL and TACO Tier 1 soil RO for residential properties of 400 mg/kg at nine properties. These locations are distributed across the mid-center (and beyond) of the Site (sampling area). Lead was not detected above 400 mg/kg at (1) the properties immediately across from (east of) the S.H. Bell facility or (2) in the northern- or southernmost sampling locations.
- **Manganese** was detected at concentrations exceeding the EPA RML of 5,500 mg/kg for Manganese at 3 sampling locations. Manganese was found at concentrations exceeding either or both the EPA residential soil RSL (1,800 mg/kg) and TACO Tier 1 soil RO for residential properties (1,600 mg/kg) at all but nine properties. The nine properties where manganese did not exceed federal or state screening levels are ES-SS-25, ES-SS-26, ES-SS-28, ES-SS-31, ES-SS-36, ES-SS-39, ES-SS-41, ES-SS-49 and ES-SS-49-D, and ES-SS-51. Eight of these nine locations are among the locations at greatest distance from the S.H. Bell facility. The single exception, ES-SS-41, is located near the east-west center of the Site (sampling area). As shown in Figure 3, the manganese concentrations measured in soil generally show decreasing concentrations at greater distance from the S.H. Bell facility. The manganese sampling results may be sorted into three general groups representing: Group 1 - locations closest to the S.H. Bell facility; Group 2- locations farther from the S.H. Bell facility, near the center of the Site (sampling area); and Group 3 - locations farthest from the S.H. Bell facility. The manganese results (in milligrams per kilogram [mg/kg]) for these three groups are summarized below:

(1) Seven (7) Locations within one block to the S.H. Bell facility:

• SS-04/D	-	12,000/13,000
• SS-05	-	3,800
• SS-10	-	3,700
• SS-17	-	4,800
• SS-45	-	6,000
• SS-46	-	6,000
• SS-48/D	-	4,700/4,500
Mean concentration:		5,914 mg/kg

(2) Four (4) Locations between Groups 1 and 3:

• SS-13	-	4,300
• SS-20	-	2,900
• SS-23	-	4,400
• SS-30/D	-	4,000/3,200
Mean concentration:		3,800 mg/kg

(3) Sixteen (16) Locations farthest from S.H. Bell:

• SS-14	-	2,200*
• SS-18/D	-	2,000/1,900*
• SS-19	-	2,200*
• SS-24	-	2,000*
• SS-25	-	1,600
• SS-26	-	1,600
• SS-28	-	950
• SS-29	-	2,300*
• SS-31	-	420
• SS-33	-	2,200*
• SS-36	-	1,700*
• SS-39	-	840
• SS-41	-	1,200
• SS-43	-	2,000*
• SS-49/D	-	1,400/1,300
• SS-51	-	1,700*
Mean concentration:		1,638 mg/kg

* Exceeds Mn screening level of 1,600 mg/kg

(Note: manganese has a TACO Tier 1 soil RO for construction workers of 8,700 mg/kg, that is lower than the TACO Tier 1 residential inhalation-based RO. This construction worker, inhalation-based RO was exceeded at a single location – ES-SS-04 (12,500 mg/kg). This location (SS-04) is located immediately across the street from (east of) the S.H. Bell facility).

- **Mercury** in the metallic form was found at concentrations exceeding its TACO Tier 1 soil RO for construction workers of 0.1 mg/kg in 24 soil samples at concentrations ranging from 0.13 to 0.88 mg/kg. These locations are distributed in an arc across the middle of the Site (sampling area) (16 locations), as well as four locations at the northwest-most location (SS-45), a location immediately across from S.H. Bell (SS-04-D), and two locations beyond the eastern (SS-33) and southern (SS-49/D) boundaries of the Site (sampling area).

6.0 CONCLUSIONS

Tetra Tech collected 32 surface soil samples from the right-of-ways of residential properties adjacent to the street at the Site (the approximately 80-acre sampling area closest to the S.H. Bell facility within the larger (East Side neighborhood). Based on site assessment soil sample analytical results, arsenic, iron, lead, and manganese concentrations exceeded one or more of the federal and state residential screening

levels. Mercury only exceeded its TACO Tier 1 soil RO for construction workers at most of the sampling locations. Finally, no screening levels were exceeded for cadmium, chromium, cobalt, and nickel.

Based on the sample results, there is evidence to suggest that manganese detected in the sampling area may be due to manganese in historical fugitive emissions radiating from the S.H. Bell facility. S.H. Bell has indicated that through improved operations, emissions from their facility may be better controlled. The contamination found in the sampling area soil may be indicative of legacy contamination from past operations at S.H. Bell as well as other manganese handlers in the area.

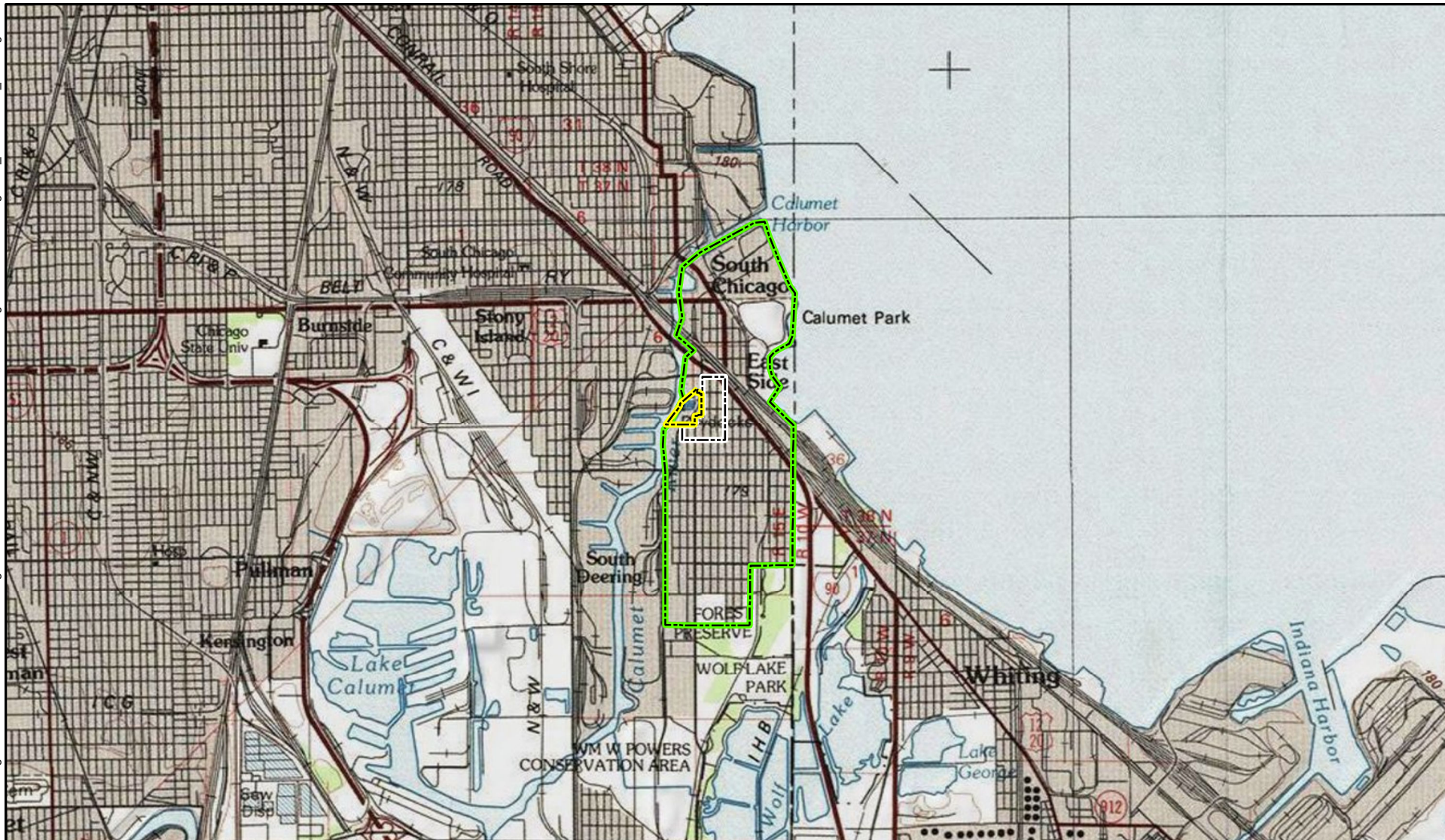
This preliminary conclusion should be verified with additional air and soil sampling. Other operations in the area also handle manganese and should be evaluated as potential contributors of manganese to air and soil in their surrounding communities.

7.0 REFERENCES

- Tetra Tech, 2017b. "Residential Sampling and Analysis Plan, East Side Neighborhood, Chicago, Illinois." December 6, 2017.
- Tetra Tech Inc. (Tetra Tech), 2017a. "Air Dispersion Modeling Analysis Report." October, 2017.
- Wikipedia, 2018. https://en.wikipedia.org/wiki/East_Side,_Chicago. Accessed April 3, 2018.

APPENDIX A
FIGURES




- 1 – SITE LOCATION MAP
- 2 – SITE LAYOUT MAP
- 3 – SOIL SAMPLING RESULTS

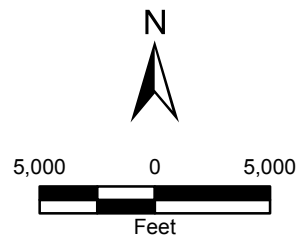


Reference Map



Legend

-  S.H. Bell Property Boundary
-  Site (Sampling Area)
-  East Side Neighborhood



SH Bell East Side Neighborhood
Chicago, IL

Figure 1
Site Location Map



Prepared For: City of Chicago



Prepared By: Tetra Tech, Inc.

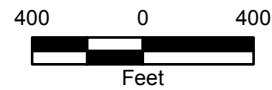


Reference Map



Legend

-  S.H. Bell Property Boundary
-  Site (Sampling Area)



SH Bell East Side Neighborhood
Chicago, IL

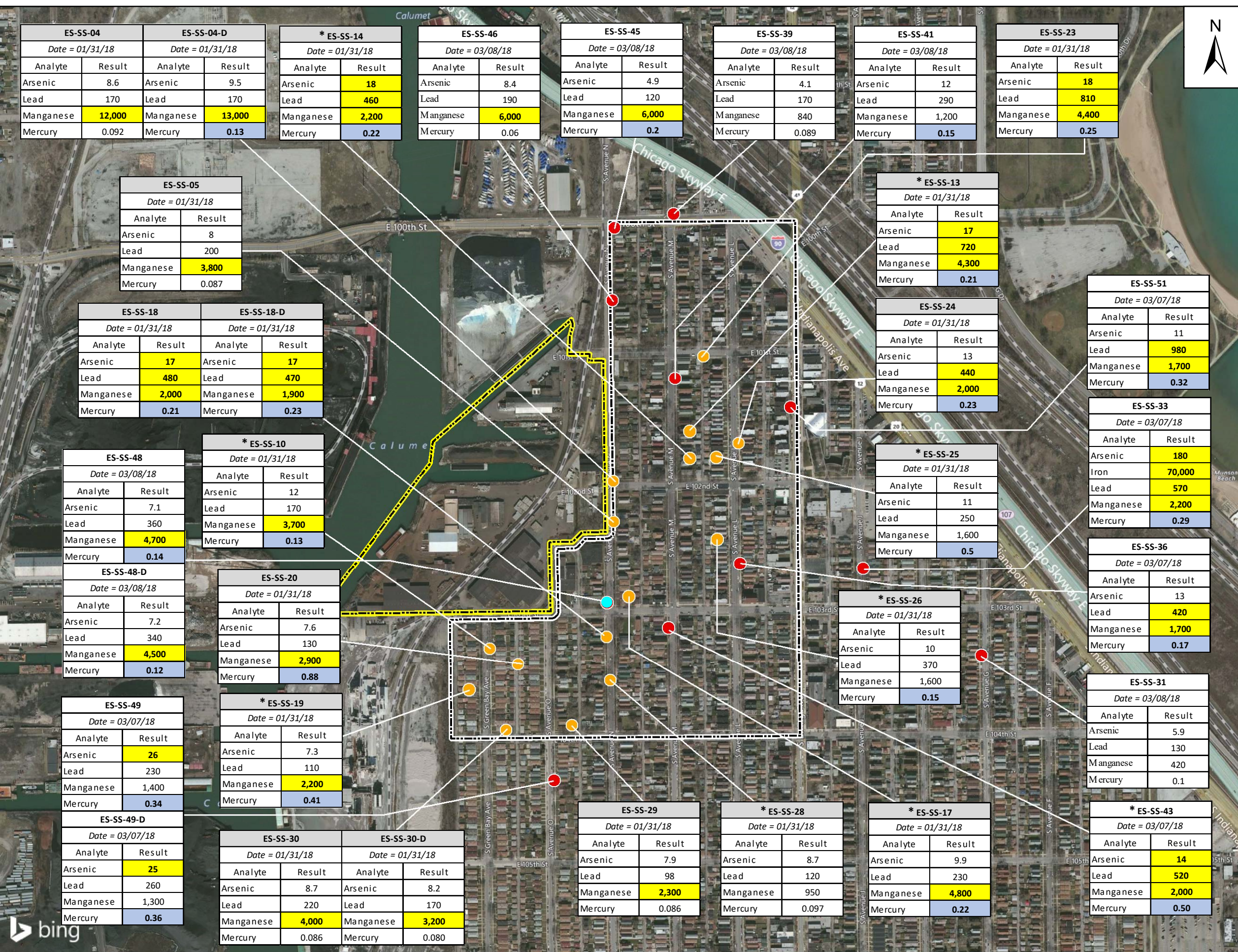
Figure 2
Site Layout Map



Prepared For: City of Chicago

Prepared By: Tetra Tech, Inc.

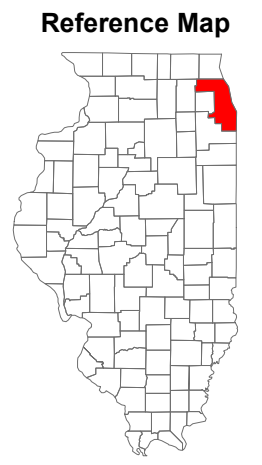
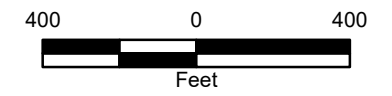
File Path: L:\S-state\ES2284 - Chicago 2\FM\DPH-DOL Privileged and Confidential\Enviro Investigation of Mn and Public Health Risk East Side Neighborhood SE Chicago\GIS_Files\mxd\2018-5\Figs-SoilSampleResults.mxd



- Legend**
- Soil Sample Location - March 2018
 - Soil Sample Location - January 2018
 - S.H. Bell Property Boundary
 - Site (Sampling Area)
 - 2,200 Result exceeds the screening level
 - 0.25 Result exceeds TACO inhalation-based Remediation Objective for construction workers of 0.1 mg/kg

All results presented in units of milligrams per kilogram (mg/kg)

* = Volunteers for soil testing - list provided by Debbie (Musiker) Chizewer, Environmental Advocacy Clinic, Bluhm Legal Clinic, Northwestern University School of Law



SH Bell East Side Neighborhood
Chicago, IL

Figure 3
Residential Soil Sample
Analytical Results



Prepared For: City of Chicago Prepared By: Tetra Tech, Inc.

APPENDIX B
FIELD LOGBOOK NOTES

2/31/8

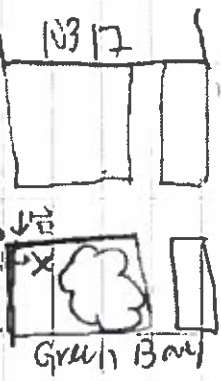
855 Terraceh field team (Hour Blake)

Must City of Chicago Felipe and Tiffany at McDonalds near neighborhood

- weather 31°, high of 42°, winds SSW 18mph, 55% humidity, partly cloudy

905 TT and city onsite at first property (Sample 10)

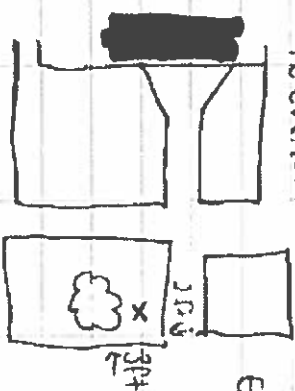
915 TT DeConnning hoisel, marking sample location



Gravel
ES-SS 10-013118
9:20
RH/EB

920 collecting sample, sandy loam, TT begins dig on travels

925 TT collecting GPS data point for ES 10
935 Onsite at property (Sample 20), marking sample location

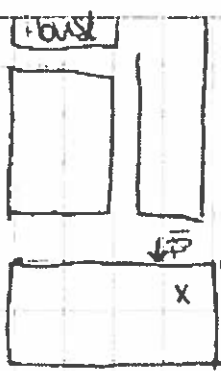


Gravel
ES-SS-20-013118
9:40
RH/EB

940 TT collecting sample ES-SS-20, sandy loam

945 TT collecting GPS point, DeConnning sampling equipment

950 Onsite at property (Sample 30), marking sample location



Gravel
ES-SS-30-013118
ES-SS-30-013118-D
9:55
Sandy loam

955 Collecting samples ES-SS-30 and duplicate ES-SS-30-013118-D

1000 Blake deConnning sampling equipment, Hour collecting GPS point

1002 Onsite at property (Sample 29)



Gravel
ES-SS-29-013118
10:08
RH/EB
Sandy loam

10:08 TT collecting sample and GPS data point for ES-SS-29

Res - on Row

1010 becoming sampling equipment
 1015 ON SITE at [redacted] (Sample 28)
 1018 Only Felipe OFFSITE will be back after
 in 1st day



ES-SS-28 - 013118
 10:25 EB/RH
 /oamy clay

1022a SIAQ CHAIRS & MAINTAINED ~3"

1025 BIRDS COLLECTING SAMPLE, HOYLE
 COLLECTING GPS POINT. DECOMING
 SOUNDING EQUIPMENT

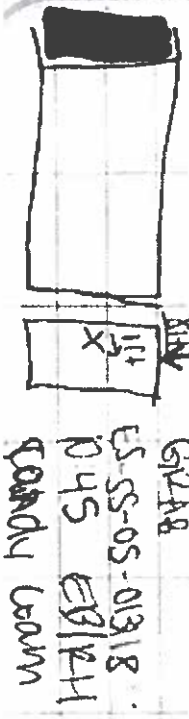
1030 ON SITE at [redacted] (Sample 18)
 GRAB



ES-SS-18-013118 and ES-SS-18-013118-D
 10:35 EB/RH
 SANDY LOAM

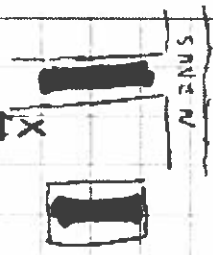
1035 Collecting samples ES-SS-18 and ES-SS-18A
 COLLECTING GPS POINT

1037 DECOMING SAMPLING EQUIPMENT
 1040 ON SITE at [redacted] (Sample 5)
 GRAB



ES-SS-05-013118
 1045 EB/RH
 SANDY LOAM

1045 Collecting Sample ES-SS-05
 10:47 + HOYLE COLLECTING GPS POINT, BRUCE
 DECOMING EQUIPMENT
 1050 ON SITE at [redacted] (Sample 4)



Grab soil sample
 ES-SS-04-013118
 10:55 EB/RH
 SANDY LOAM

1055 Collecting sample ES-SS-04 (Hoyle)
 1100 Hoyle collecting GPS point, Hoyle decoming equipment
 Also: duplicate sample ES-SS-04-013118-D
 also collected at 10:55

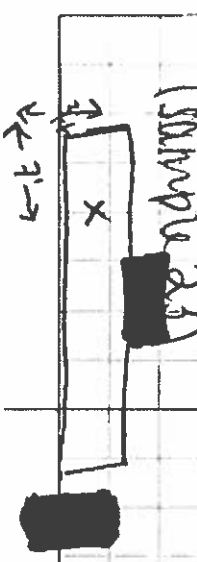
1105 ON SITE at [redacted] (Sample 24)
 Grab



ES-SS-24-013118
 11:00 EB/RH
 SANDY LOAM

110 Collecting soil sample ES-SS-24 (Bruce).
 Hoyle collecting GPS point

112 decoming sampling equipment
 1120 ON SITE at [redacted] (Sample 23)



Return to Room

ES-SS-23 013118 GPARB

11:25 EP/RPH

Sandy Loam

11:25 Blake collecting soil sample, Houde

collecting GRS points

11:30 TT Houde working to match

homes with vertical occurs and equipment

sample location determined by phone

models, by additional sampling points

located!

11:55 onsite at [redacted] (Sample 25);

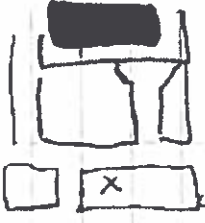
Cathy Felipe back onsite

GPARB

ES-SS-25 013118

12:00 EB/RPH

Sandy loam



12:00 Blake collecting sample; Houde collecting

GRS point. Resident came outside and

asked what result would be given, gave him

an information packet with FBI stats and

project contact information.

12:03 Decomming sampling materials

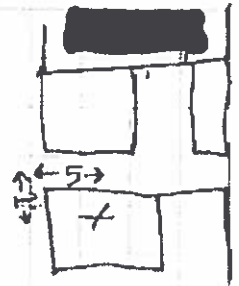
12:05 Onsite at [redacted] (Sample 26)

GPARB

ES-SS-26-013118

12:10 EB/RPH

Sandy Loam



12:10 Blake collecting sample, Houde collecting

GRS points

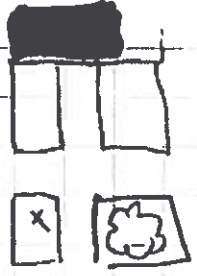
12:12 Decomming sample equipment

GPARB

ES-SS-14-013118

12:20 EB/RPH

Sandy Loam



12:20 Blake collecting sample; Houde

collecting GRS point

12:23 Decomming sample equipment

12:25 Onsite at [redacted] (Sample 13)

Grab soil sample

ES-SS-13-013118


12:25 EB/RPH


Clay loam




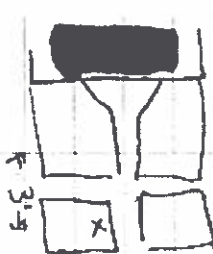
12:25 Houde collecting sample, Blake collecting GRS point

12:28 Decomming sample equipment

12:32  (Sample 17)
 GRAB
 ES-SS-17-013118
 12:35 EB/PH
 sandy loam




12:35 Blake collecting sample, blank
 collecting GPS point
 12:37 determining sample location
 12:40 onsite at 
 (sample 19) GRAB
 ES-SS-19-013118
 12:45 PH/EB
 sandy loam

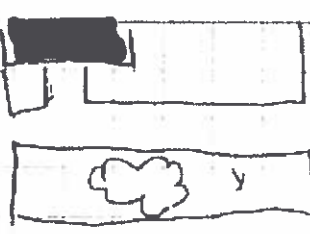





12:45 Blake collecting sample, while
 collecting GPS point
 12:48 Begin final ditch
 12:50 collected single blank sample ES-Rinse
 12:55 All personnel off site, Houli and Blake
 heading back to office to fill out sample labels
 and chain of custody then deliver samples
 to STAT Analysis

3/7/18

9:00 Tetra Tech team (Houli & Blake)
 onsite to request access + sample
 9:05 ACCESS granted from 
 Sample # 46; begin prelim down
 of sampling equipment

(GRAB)
 ES-SS-46-030718
 9:10 PH/EB
 sandy loam



9:10 Blake collecting sample, Houli
 collecting GPS point
 9:15 determining sample equipment
 9:20 onsite at  request
 access; no answer. Will try
 again tomorrow
 9:30 onsite at  to request
 access; no answer will try again
 tomorrow
 9:40 onsite at  to request access;
 talked to employee of company that owns
 corner parking lot, request will be in
 tomorrow to grant access

Ben in Room

10:00 onsite at [redacted] to request access; asked to ring bell tomorrow to sample

10:05 onsite at [redacted] to request access; no answer. will try again tomorrow

10:10 onsite at [redacted] to request access; no answer. will try again tomorrow

10:20 onsite at [redacted] to request access; no answer. will try again tomorrow

10:25 onsite at [redacted] access granted from [redacted] (sample #43)



GRAB ES-SS-43-030718
10:30 EB/PAH
SR Vialroom

10:30 collecting sample via GPS point

10:40 Decoded weight [redacted] to request access; no answer will try again tomorrow

10:55 onsite at [redacted] to request access; no answer will try again tomorrow

11:05 onsite at [redacted] to request access; no answer will try again tomorrow

11:10 onsite at [redacted] to request access - access granted from 10:24/1 (sample #36)



GRAB ES-SS-36-030718
11:15 EB/PAH
Sandy Loom

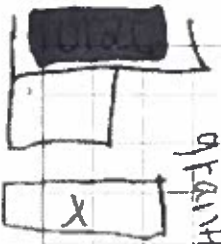
11:15 collecting sample's GPS point

11:20 DECON equipment

11:23 onsite at 10:55 to request access; no answer. will try again tomorrow

11:30 onsite at [redacted] to request access. no answer, will try again tomorrow

11:35 onsite at [redacted] access granted from outdoor (sample #5)

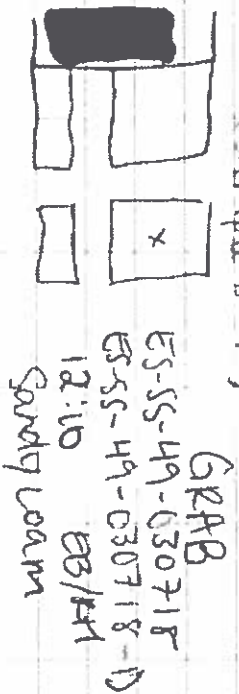


GRAB ES-SS-51-030718
11:40 EB/PAH
Sandy Loom

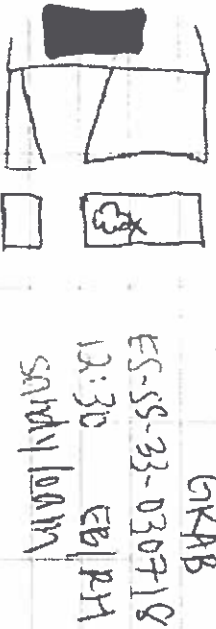
11:40 collecting sample: GPS points
 11:45 Decon equipment
 11:55 onsite at [redacted] to gain access,
 Spoke to [redacted] at 1030, will
 return tomorrow with [redacted] in [redacted]

12:00 onsite at [redacted]
 no answer. Will try again tomorrow.

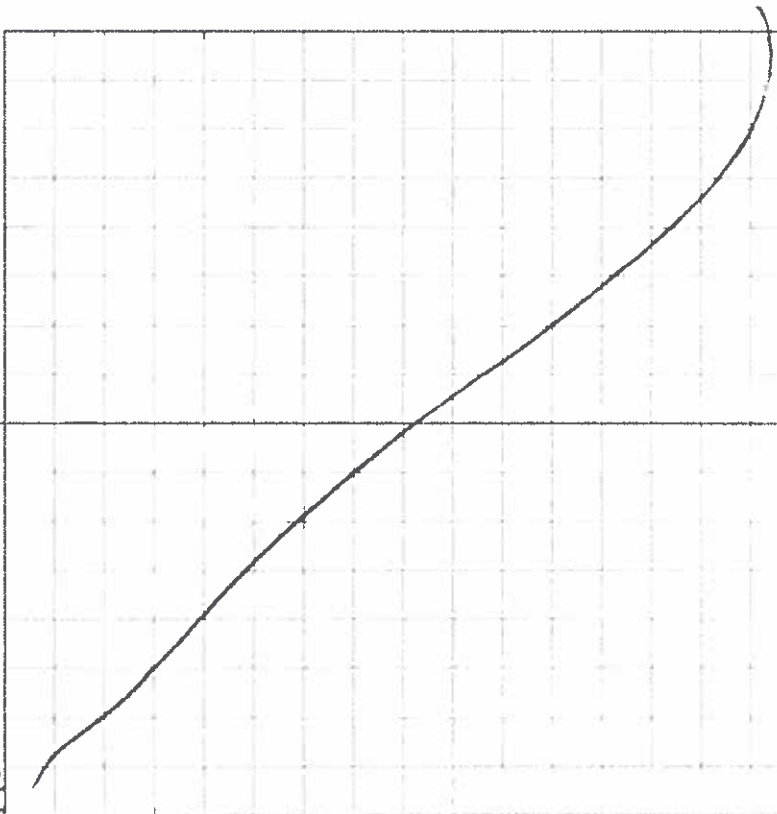
Note: [redacted] did not have
 nearby equipment. Access not requested
 12:05 onsite at [redacted] to request
 Access Access granted from [redacted]
 (sample # 49)



12:10 Collecting sample + duplicate, GPS point
 12:15 Decon equipment
 12:25 onsite at [redacted], owner granted
 access (sample # 33)



12:30 collecting sample: GPS points
 12:35 Decon equipment
 12:40 onsite at [redacted] to request access,
 no answer. Will try again tomorrow.
 12:45 TT reading back to office to package
 samples & deliver to STAT lab for
 analysis

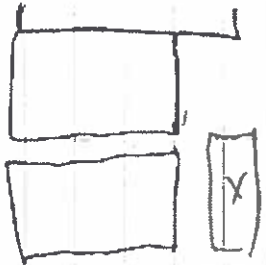


EB/PH

14 3/8/18

9:20 TerraTech team (Howe, Blaine) onsite

at [redacted] to request access.
Access granted from [redacted] (sample #31)



GRAB
ES-SS-31-030818
9:30 EB/RH
sandy loam w/
tau gravel

9:30 Collecting sample: GRB point

9:35 Decon equipment

9:40 onsite at [redacted] to request access.

NO ANSWER. Will not sample

9:45 onsite at [redacted] to request access.

9:48 NO ANSWER. Will not sample.

9:50 onsite at [redacted] to request access. NO ANSWER.

10:00 onsite at [redacted] to request access.

NO ANSWER. Will not sample.

10:05 onsite at [redacted] to request access.

NO ANSWER. Will not sample.

10:10 onsite at [redacted] to request access.

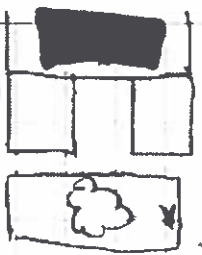
NO ANSWER. Will not sample.

10:20 onsite at [redacted] to request access.

NO ANSWER. Will not sample.

10:25 onsite at [redacted] to request access.

Access granted (Sample #39)



GRAB
ES-SS-39-030818
EB/RH 10:30
~~fortified loam w/~~
loamy sand w/ fine gravel

10:30 Collecting sample: GRB point

10:33 Decon Sampling Equipment

10:35 onsite at [redacted] to request access. NO ANSWER. Will not sample.

NO ANSWER. Will not sample.

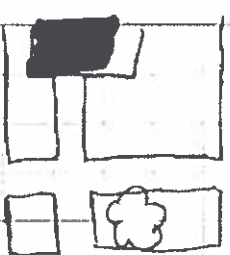
11:00 [redacted] to request access.

NO ANSWER, will not sample.

11:03 onsite at [redacted] to request access.

11:06 onsite at [redacted] to request access.

Access granted from [redacted] (sample #41)



GRAB
ES-SS-41-030818
11:15 EB/RH
Loam

11:15 Collecting sample: GRB point

11:20 Decon sampling equipment

11:25 onsite at [redacted] to request access.

Access granted from business at [redacted] (sample #45)



No cell service

6 PAB

ES-55-45-030818

EB/PH 11:30

Sandy Loan

11:30 Collecting sample + GPS

11:33 Accen sample equipment

11:35 ONITE at [redacted] to request access

No answer, will not sample

11:40 DIGER at [redacted] to request access

Access granted from party living to sample

parking lot (sample # 48)

GRAB

ES-55-48-030818 + Dup "D"

11:45 EB/PH

Sandy loan w/ small

chunks of slag

1145 Grabbing sample and duplicate and

GPS point

11:50 Begin final decon

11:55 collecting ringstone sample

12:00 TT crew offsite to package samples

Deliver to SMT for analysis

Parking



PM

PM

APPENDIX C
PHOTOGRAPHIC DOCUMENTATION LOG



Photographic Documentation

Client: City of Chicago
Site Name: East Side Neighborhood
Location: Chicago, Illinois

Prepared by: Tetra Tech, Inc.
Dates: January 31st, March 7th, and March 8th, 2018.

Photograph No. 1

Date: 1/31/2018

Description: Tetra Tech collecting a surface soil sample in the right-of-way with a hand trowel.



Photograph No. 2

Date: 1/31/2018

Description: Tetra Tech decontaminating sampling equipment with analconox solution, a scrub brush, and distilled water.





Photographic Documentation

Client: City of Chicago
Site Name: East Side Neighborhood
Location: Chicago, Illinois

Prepared by: Tetra Tech, Inc.
Dates: January 31st, March 7th, and March 8th, 2018.

Photograph No. 3

Date: 1/31/2018

Description: Evidence of industrial byproducts in the surface soil at one of the sampling locations.



Photograph No. 4

Date: 3/7/2018

Description: View of a sampling location in the right-of-way.





Photographic Documentation

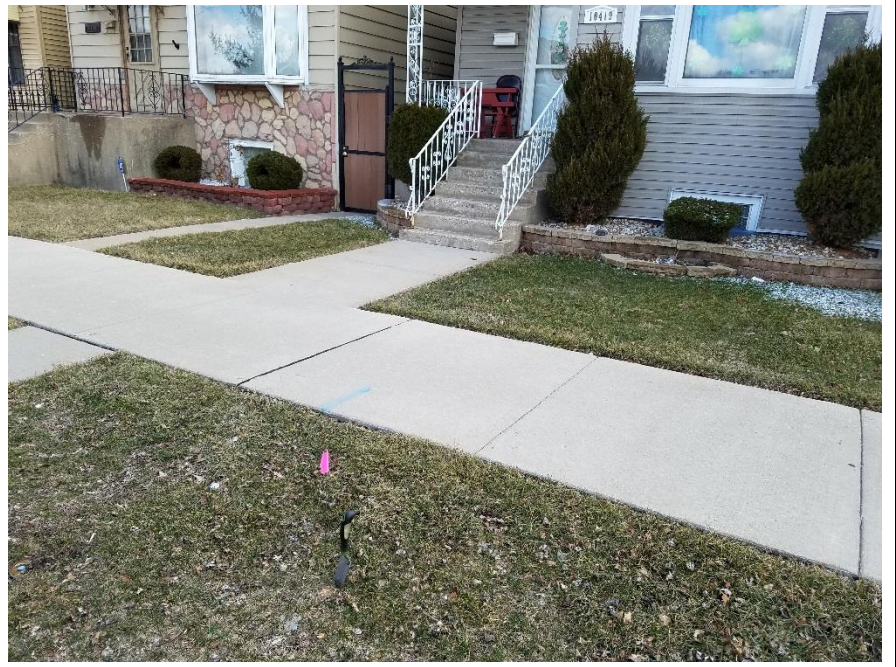
Client: City of Chicago
Site Name: East Side Neighborhood
Location: Chicago, Illinois

Prepared by: Tetra Tech, Inc.
Dates: January 31st, March 7th, and March 8th, 2018.

Photograph No. 5

Date: 3/7/2018

Description: View of a sampling location in the right-of-way.



APPENDIX D
SAMPLE CHAIN-OF-CUSTODY RECORDS

STAT Analysis Corporation

2242 W. Harrison Suite 200, Chicago, Illinois 60612 Phone: (312) 733-0551 Fax: (312) 733-2386
 e-mail address: STATinfo@STATAnalysis.com

N^o: 903851

Page: 1 of 1

CHAIN OF CUSTODY RECORD

Company: TINUTCH
 Project Number: 1035284402 Client Tracking No.:
 Project Name: Eastside Neighborhood
 Project Location: CINCINNATI
 Sampler(s): ERIC BLAKE
 Report To: STACY DULLEY Phone: 513-201-7444
 Fax:

QC Level: 1 2 3 4 X
 e-mail: STATinfo@STATAnalysis.com

Client Sample Number/Description:	Date Taken	Time Taken	Matrix	Comp.	Grab	Preserv.	No. of Containers
CS-416-030718	3/17/18	10:10	SS	X	X	A	2
CS-417-030718	3/17/18	10:20	SS	X	X	A	2
CS-418-030718	3/17/18	11:15	SS	X	X	A	2
CS-419-030718	3/17/18	11:40	SS	X	X	A	2
CS-420-030718	3/17/18	12:10	SS	X	X	A	2
CS-421-030718	3/17/18	12:40	SS	X	X	A	2
CS-422-030718	3/17/18	17:30	SS	X	X	A	2
CS-423-030718	3/17/18	17:45	W	X	X	B	2

Relinquished by: (Signature) _____ Date/Time: 3/17/18 15:50
 Received by: (Signature) _____ Date/Time: 3/17/18 15:50
 Relinquished by: (Signature) _____ Date/Time: _____
 Received by: (Signature) _____ Date/Time: _____
 Relinquished by: (Signature) _____ Date/Time: _____
 Received by: (Signature) _____ Date/Time: _____

Quote No.:	
P.O. No.:	
Turn Around Time (Days):	1 2 3 4 5-7 10
Results Needed:	<u>GREYIM</u>
Additional Information:	<u>MS/MSD</u>
Lab. No.:	

Laboratory Work Order No.:
 Received on Ice: Yes No
 Temperature: _____ °C
 Comments: PREPARED FOR ANALYSIS -
PREPARED FOR ANALYSIS TO ANALYSIS
DIRECTION
 Preservation Code: A = None B = HNO₃ C = NaOH
 D = H₂SO₄ E = HCl F = 5035/EnCore G = Other

Company: STATTECH
 Project Number: 103SS-22404002 Client Tracking No.:
 Project Name: EAST Side Neighborhood
 Project Location: Chicago IL
 Sampler(s): ROBERT HULL + ERIC BLAKE
 Report To: STAIN DIVISION Phone: 312-2017419
 Fax:

QC Level	1	2	3	4	Date Taken	Time Taken	Matrix	Comp.	Grab	Preserv.	No. of Containers
Client Sample Number/Description:											
					5/8/18	9:30	SS		X	A	1
					5/8/18	10:30	SS		X	A	1
					5/8/18	11:15	SS		X	A	1
					5/8/18	11:30	SS		X	A	1
					5/8/18	11:40	SS		X	A	1
					5/8/18	11:55	W		X	B	2
					5/8/18	11:45	SS		X	A	1

Quote No.:																				
P.O. No.:																				
Turn Around Time (Days):	1	2	3	4	5	7	10													
Results Needed:	PREHM																			
Additional Information:	3 12/18																			
Lab No.:																				

Relinquished by: (Signature) PHALE Date/Time: APR 12:55
 Received by: (Signature) PHALE Date/Time: 5/11 12:55
 Relinquished by: (Signature) _____ Date/Time: _____
 Received by: (Signature) _____ Date/Time: _____
 Relinquished by: (Signature) _____ Date/Time: _____
 Received by: (Signature) _____ Date/Time: _____

Comments: PHALE'S CONFIDENTIAL - PREPARED FOR USE BY ATTORNEY DIRECTOR PREHM RESULTS BY MONDAY MARCH 12th
 Preservation Code: A = None B = HNO₃ C = NaOH
 D = H₂SO₄ E = HCl F = 5035/EnCore G = Other

Laboratory Work Order No.:
 Received on Ice: Yes No
 Temperature: _____ °C

CHAIN OF CUSTODY RECORD

Company: Tetra Tech
 Project Number: 103S328404002 Client Tracking No.:
 Project Name: East Side Neighborhood
 Project Location: Chicago, IL
 Sampler(s): Rachel Howell, Eric Blake
 Report To: Stacey Durley Phone: 312-201-7419
 Fax:

QC Level: 1 2 3 4 X e-mail: stacey.durley@tetratech.com

Client Sample Number/Description:	Date Taken	Time Taken	Matrix	Comp.	Grab	Preserv.	No. of Containers
ES-SS-10-013118	1/31/18	9:20	SS	X	A		1
ES-SS-20-013118	1/31/18	9:40	SS	X	A		1
ES-SS-30-013118	1/31/18	9:55	SS	X	A		1
ES-SS-30-013118-D	1/31/18	9:55	SS	X	A		1
ES-SS-29-013118	1/31/18	10:08	SS	X	A		1
ES-SS-28-013118	1/31/18	10:25	SS	X	A		1
ES-SS-18-013118	1/31/18	10:38	SS	X	A		1
ES-SS-18-013118-D	1/31/18	10:35	SS	X	A		1
ES-SS-05-013118	1/31/18	10:45	SS	X	A		1
ES-SS-04-013118	1/31/18	10:55	SS	X	A		1
ES-SS-04-013118-D	1/31/18	10:55	SS	X	A		1
ES-SS-24-013118	1/31/18	11:10	SS	X	A		1
ES-SS-23-013118	1/31/18	11:25	SS	X	A		1
ES-SS-25-013118	1/31/18	12:00	SS	X	A		1
ES-SS-26-013118	1/31/18	12:10	SS	X	A		1
ES-SS-14-013118	1/31/18	12:20	SS	X	A		1
ES-SS-13-013118	1/31/18	12:25	SS	X	A		1
ES-SS-17-013118	1/31/18	12:35	SS	X	A		1
ES-SS-19-013118	1/31/18	12:45	SS	X	A		1
ES-RINSATE	1/31/18	12:50	W	X	B		2

Quote No.:
 P.O. No.:
 Turn Around Time (Days):
 1 2 3 4 5-7 10
 Results Needed: PRELIM
2/2/18 am/ppm
 Additional Information:
 Lab. No.:
 MS/MSD

Relinquished by: (Signature) [Signature] Date/Time: 14:45 1/31/18
 Received by: (Signature)
 Relinquished by: (Signature)
 Received by: (Signature)
 Relinquished by: (Signature)
 Received by: (Signature)

Comments: Privileged and Confidential - Prepared Pursuant to Attorney Direction
PRELIMINARY RESULTS BY FRIDAY 2/2
 Preservation Code: A = None B = HNO₃ C = NaOH
 D = H₂SO₄ E = HCl F = 5035/EnCore G = Other

Laboratory Work Order No.:
 Received on Ice: Yes No
 Temperature: °C

APPENDIX E
ANALYTICAL RESULTS TABLE AND DATA VALIDATION REPORTS

1 – SOIL SAMPLE RESULTS

**TABLE 1
SUMMARY SURFACE SOIL SAMPLE RESULTS AT RESIDENTIAL PROPERTIES
CITY OF CHICAGO
S.H. BELL EAST SIDE NEIGHBORHOOD
CHICAGO, ILLINOIS**

Analyte	USEPA Resident Soil RSL ¹ (mg/kg)		TACO Tier 1 Soil RO for Residential Properties ² (mg/kg)		USEPA Removal Management Levels (mg/kg) ⁶ Total Hazard Quotient = 3.0	Concentrations in Background Soils - MSA ² (mg/kg)	ES-SS-04-013118	ES-SS-04-013118-D	ES-SS-05-013118	ES-SS-10-013118	ES-SS-13-013118	ES-SS-14-013118	ES-SS-17-013118	ES-SS-18-013118	ES-SS-18-013118-D	ES-SS-19-013118
	CA	NC	Ing	Inh	Residential Soil		Concentration (mg/kg)	Concentration (mg/kg)	Concentration (mg/kg)	Concentration (mg/kg)	Concentration (mg/kg)	Concentration (mg/kg)	Concentration (mg/kg)	Concentration (mg/kg)	Concentration (mg/kg)	Concentration (mg/kg)
Arsenic	0.68	35	--	750	68	13	8.6	9.5	8.0	12	17	18	9.9	17	17	7.3
Cadmium	2,100	71	78	1,800	210	0.6	1.3	1.3	1.3	1.9	2.9	3.1	2.3	2.9	2.6	0.92
Chromium ⁵	--	120,000	120,000	270	350,000	16.2	100	140	44	52	72	43	110	38	37	57
Cobalt	420	23	4,700	--	70	8.9	11	13	5.7	8.4	8.1	6.3	8.3	5.9	6.6	6.5
Iron	--	55,000	--	--	160,000	15,900	23,000	22,000	25,000	25,000	34,000	30,000	30,000	40,000	41,000	23,000
Lead	--	400	400	--	400	36.0	170	170	200	170	720	460	230	480	470	110
Manganese ³	--	1,800	1,600	69,000	5,500	636	12,000	13,000	3,800	3,700	4,300	2,200	4,800	2,000	1,900	2,200
Mercury ⁴	--	11	23	10	33	0.06	0.092	0.13	0.087	0.13	0.21	0.22	0.22	0.21	0.23	0.41
Nickel	15,000	1,500	1,600	13,000	4,600	18.0	33	25	19	26	28	21	27	21	22	22

above background
 above EPA RSL
 above TACO
 above RML
 above EPA RSL and TACO
 March 2018 samples

-- Not applicable
 CA Cancer-based
 Ing Ingestion-based
 Inh Inhalation-based
 MSA Metropolitan Strategic Area
 mg/kg Milligram per kilogram
 NC Noncancer-based
 RO Remedial objective
 TACO Tiered Approach to Corrective Action Objectives

¹ U.S. Environmental Protection Agency (EPA). 2017. "Regional Screening Level (RSLs) – Generic Tables (November 2017)." <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-november-2017>
² Illinois Pollution Control Board (IPCB). 2013. Title 35 of the Illinois Administrative Code, Part 742, Tiered Approach to Corrective Action Objectives. July 15. On-line Address: <http://www.ipcb.state.il.us/documents/dsweb/Get/Document-38408/>
³ Manganese has a TACO inhalation-based RO for construction workers of 8,700 mg/kg. This RO is exceeded only at ES-SS-04-013118 (12,500 mg/kg). RML for manganese is for non-diet exposure.
⁴ Mercury has a TACO inhalation-based RO for construction workers of 0.1 mg/kg. This RO is exceeded at ES-SS-04-013118 (0.13 mg/kg), ES-SS-10-013118 (0.13 mg/kg), ES-SS-13-013118 (0.21 mg/kg), ES-SS-14-013118 (0.22 mg/kg), ES-SS-17-013118 (0.22 mg/kg), ES-SS-18-013118 (0.22 mg/kg), ES-SS-19-013118 (0.41 mg/kg), ES-SS-20-013118 (0.88 mg/kg), ES-SS-23-013118 (0.25 mg/kg), ES-SS-24-013118 (0.23 mg/kg), ES-SS-25-013118 (0.50 mg/kg), ES-SS-26-013118 (0.15 mg/kg), ES-SS-33-030718 (0.29 mg/kg), ES-SS-36-030718 (0.17 mg/kg), ES-SS-41-030818 (0.5 mg/kg), ES-SS-45-030818 (0.2 mg/kg), ES-SS-48-030818 (0.13 mg/kg), ES-SS-49-030718 (0.35 mg/kg), and ES-SS-51-030718 (0.32 mg/kg).
⁵ Chromium was assumed to be present in trivalent form.
⁶ RMLs (Target risk = 1E-04 and HI = 1) can be found at <https://www.epa.gov/risk/regional-removal-management-levels-chemicals-rmls>. Nickel is assumed to be in the form of soluble salts.

**TABLE 1
SUMMARY SURFACE SOIL SAMPLE RESULTS AT RESIDENTIAL PROPERTIES
CITY OF CHICAGO
S.H. BELL EAST SIDE NEIGHBORHOOD
CHICAGO, ILLINOIS**

Analyte	USEPA Resident Soil RSL ¹ (mg/kg)		TACO Tier 1 Soil RO for Residential Properties ² (mg/kg)		USEPA Removal Management Levels (mg/kg) ⁶ Total Hazard Quotient = 3.0	Concentrations in Background Soils - MSA ² (mg/kg)	ES-SS-20-013118	ES-SS-23-013118	ES-SS-24-013118	ES-SS-25-013118	ES-SS-26-013118	ES-SS-28-013118	ES-SS-29-013118	ES-SS-30-013118	ES-SS-30-013118-D	ES-SS-31-030818
	CA	NC	Ing	Inh	Residential Soil		Concentration (mg/kg)	Concentration (mg/kg)	Concentration (mg/kg)	Concentration (mg/kg)	Concentration (mg/kg)	Concentration (mg/kg)	Concentration (mg/kg)	Concentration (mg/kg)	Concentration (mg/kg)	Concentration (mg/kg)
Arsenic	0.68	35	--	750	68	13	7.6	18	13	11	10	8.7	7.9	8.7	8.2	5.9
Cadmium	2,100	71	78	1,800	210	0.6	1.2	3.1	2.3	2.0	2.0	0.93	1.8	1.4	1.4	1.1
Chromium ⁵	--	120,000	120,000	270	350,000	16.2	40	140	47	42	47	27	58	120	82	25
Cobalt	420	23	4,700	--	70	8.9	6.6	6.4	7.2	8.7	7.8	11	6.8	5.5	5.3	3.7
Iron	--	55,000	--	--	160,000	15,900	19,000	38,000	25,000	25,000	29,000	24,000	19,000	26,000	25,000	13,000
Lead	--	400	400	--	400	36.0	130	810	440	250	370	120	98	220	170	130
Manganese ³	--	1,800	1,600	69,000	5,500	636	2,900	4,400	2,000	1,600	1,600	950	2,300	4,000	3,200	420
Mercury ⁴	--	11	23	10	33	0.06	0.88	0.25	0.23	0.50	0.15	0.097	0.086	0.086	0.080	0.1
Nickel	15,000	1,500	1,600	13,000	4,600	18.0	20	26	24	25	25	23	18	20	19	12

Grey	above background
Yellow	above EPA RSL
Orange	above TACO
Green	above RML
Red	above EPA RSL and TACO
Blue	March 2018 samples

- Not applicable
- CA Cancer-based
- Ing Ingestion-based
- Inh Inhalation-based
- MSA Metropolitan Strategic Area
- mg/kg Milligram per kilogram
- NC Noncancer-based
- RO Remedial objective
- TACO Tiered Approach to Corrective Action Objectives

¹ U.S. Environmental Protection Agency (EPA). 2017. "Regional Screening Level (RSLs) – Generic Tables (November 2017)." <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-november-2017>

² Illinois Pollution Control Board (IPCB). 2013. Title 35 of the Illinois Administrative Code, Part 742, Tiered Approach to Corrective Action Objectives. July 15. On-line Address: <http://www.ipcb.state.il.us/documents/dsweb/Get/Document-38408/>

³ Manganese has an TACO inhalation-based RO for construction workers of 8,700 mg/kg. This RO is exceeded only at ES-SS-04-013118 (12,500 mg/kg). RML for manganese is for non-diet exposure.

⁴ Mercury has a TACO inhalation-based RO for construction workers of 0.1 mg/kg. This RO is exceeded at ES-SS-04-013118 (0.13 mg/kg), ES-SS-10-013118 (0.13 mg/kg), ES-SS-13-013118 (0.21 mg/kg), ES-SS-14-013118 (0.22 mg/kg), ES-SS-17-013118 (0.22 mg/kg), ES-SS-18-013118 (0.22 mg/kg), ES-SS-19-013118 (0.41 mg/kg), ES-SS-20-013118 (0.88 mg/kg), ES-SS-23-013118 (0.25 mg/kg), ES-SS-24-013118 (0.23 mg/kg), ES-SS-25-013118 (0.50 mg/kg), ES-SS-26-013118 (0.15 mg/kg), ES-SS-33-030718 (0.29 mg/kg), ES-SS-36-030718 (0.17 mg/kg), ES-SS-41-030818 (0.5 mg/kg), ES-SS-45-030818 (0.2 mg/kg), ES-SS-48-030818 (0.13 mg/kg), ES-SS-49-030718 (0.35 mg/kg), and ES-SS-51-030718 (0.32 mg/kg).

⁵ Chromium was assumed to be present in trivalent form.

⁶ RMLs (Target risk = 1E-04 and HI = 1) can be found at <https://www.epa.gov/risk/regional-removal-management-levels-chemicals-rmls>. Nickel is assumed to be in the form of soluble salts.

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CITY OF CHICAGO
S.H. BELL EAST SIDE NEIGHBORHOOD
CHICAGO, ILLINOIS**

Analyte	USEPA Resident Soil RSL ¹ (mg/kg)		TACO Tier 1 Soil RO for Residential Properties ² (mg/kg)		USEPA Removal Management Levels (mg/kg) ⁶ Total Hazard Quotient = 3.0	Concentrations in Background Soils - MSA ² (mg/kg)	ES-SS-33-030718	ES-SS-36-030718	ES-SS-39-030818	ES-SS-41-030818	ES-SS-43-030718	ES-SS-45-030818	ES-SS-46-030818	ES-SS-48-030818	ES-SS-48-030818-D	ES-SS-49-030718
	CA	NC	Ing	Inh	Residential Soil		Concentration (mg/kg)	Concentration (mg/kg)	Concentration (mg/kg)	Concentration (mg/kg)	Concentration (mg/kg)	Concentration (mg/kg)	Concentration (mg/kg)	Concentration (mg/kg)	Concentration (mg/kg)	Concentration (mg/kg)
Arsenic	0.68	35	--	750	68	13	180	13	4.1	12	14	4.9	8.4	7.1	7.2	25.5
Cadmium	2,100	71	78	1,800	210	0.6	4.7	2.5	0.72	1.8	2.6	1.8	1.2	2.2	2.1	2.5
Chromium ⁵	--	120,000	120,000	270	350,000	16.2	55	50	19	31	45	65	60	68	65	46.5
Cobalt	420	23	4,700	--	70	8.9	8.5	7.6	3.1	6.9	6.9	8.5	7.7	7.1	7.1	7.45
Iron	--	55,000	--	--	160,000	15,900	70,000	33,000	12,000	21,000	31,000	19,000	27,000	23,000	22,000	38,500
Lead	--	400	400	--	400	36.0	570	420	170	290	520	120	190	360	340	245
Manganese ³	--	1,800	1,600	69,000	5,500	636	2,200	1,700	840	1,200	2,000	6,000	6,000	4,700	4,500	1,350
Mercury ⁴	--	11	23	10	33	0.06	0.29	0.17	0.089	0.15	0.5	0.2	0.06	0.14	0.12	0.35
Nickel	15,000	1,500	1,600	13,000	4,600	18.0	29	28	10	18	25	28	20	25	36	24

Grey	above background
Yellow	above EPA RSL
Orange	above TACO
Green	above RML
Red	above EPA RSL and TACO
Blue	March 2018 samples

- Not applicable
- CA Cancer-based
- Ing Ingestion-based
- Inh Inhalation-based
- MSA Metropolitan Strategic Area
- mg/kg Milligram per kilogram
- NC Noncancer-based
- RO Remedial objective
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¹ U.S. Environmental Protection Agency (EPA). 2017. "Regional Screening Level (RSLs) – Generic Tables (November 2017)." <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-november-2017>

² Illinois Pollution Control Board (IPCB). 2013. Title 35 of the Illinois Administrative Code, Part 742, Tiered Approach to Corrective Action Objectives. July 15. On-line Address: <http://www.ipcb.state.il.us/documents/dsweb/Get/Document-38408/>

³ Manganese has an TACO inhalation-based RO for construction workers of 8,700 mg/kg. This RO is exceeded only at ES-SS-04-013118 (12,500 mg/kg). RML for manganese is for non-diet exposure.

⁴ Mercury has a TACO inhalation-based RO for construction workers of 0.1 mg/kg. This RO is exceeded at ES-SS-04-013118 (0.13 mg/kg), ES-SS-10-013118 (0.13 mg/kg), ES-SS-13-013118 (0.21 mg/kg), ES-SS-14-013118 (0.22 mg/kg), ES-SS-17-013118 (0.22 mg/kg), ES-SS-18-013118 (0.22 mg/kg), ES-SS-19-013118 (0.41 mg/kg), ES-SS-20-013118 (0.88 mg/kg), ES-SS-23-013118 (0.25 mg/kg), ES-SS-24-013118 (0.23 mg/kg), ES-SS-25-013118 (0.50 mg/kg), ES-SS-26-013118 (0.15 mg/kg), ES-SS-33-030718 (0.29 mg/kg), ES-SS-36-030718 (0.17 mg/kg), ES-SS-41-030818 (0.5 mg/kg), ES-SS-45-030818 (0.2 mg/kg), ES-SS-48-030818 (0.13 mg/kg), ES-SS-49-030718 (0.35 mg/kg), and ES-SS-51-030718 (0.32 mg/kg).

⁵ Chromium was assumed to be present in trivalent form.

⁶ RMLs (Target risk = 1E-04 and HI = 1) can be found at <https://www.epa.gov/risk/regional-removal-management-levels-chemicals-rmls>. Nickel is assumed to be in the form of soluble salts.

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CITY OF CHICAGO
S.H. BELL EAST SIDE NEIGHBORHOOD
CHICAGO, ILLINOIS

Analyte	USEPA Resident Soil RSL ¹ (mg/kg)		TACO Tier 1 Soil RO for Residential Properties ² (mg/kg)		USEPA Removal Management Levels (mg/kg) ⁶ Total Hazard Quotient = 3.0	Concentrations in Background Soils - MSA ² (mg/kg)	ES-SS-49-030718-D	ES-SS-51-030718
	CA	NC	Ing	Inh	Residential Soil		Concentration (mg/kg)	Concentration (mg/kg)
Arsenic	0.68	35	--	750	68	13	25	11
Cadmium	2,100	71	78	1,800	210	0.6	2.5	2.6
Chromium ⁵	--	120,000	120,000	270	350,000	16.2	46	45
Cobalt	420	23	4,700	--	70	8.9	7.5	5.5
Iron	--	55,000	--	--	160,000	15,900	39,000	29,000
Lead	--	400	400	--	400	36.0	260	980
Manganese ³	--	1,800	1,600	69,000	5,500	636	1,300	1,700
Mercury ⁴	--	11	23	10	33	0.06	0.36	0.32
Nickel	15,000	1,500	1,600	13,000	4,600	18.0	25	26

	above background
	above EPA RSL
	above TACO
	above RML
	above EPA RSL and TACO
	March 2018 samples

- Not applicable
- CA Cancer-based
- Ing Ingestion-based
- Inh Inhalation-based
- MSA Metropolitan Strategic Area
- mg/kg Milligram per kilogram
- NC Noncancer-based
- RO Remedial objective
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¹ U.S. Environmental Protection Agency (EPA). 2017. "Regional Screening Level (RSLs) – Generic Tables (November 2017)." <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-november-2017>

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³ Manganese has an TACO inhalation-based RO for construction workers of 8,700 mg/kg. This RO is exceeded only at ES-SS-04-013118 (12,500 mg/kg). RML for manganese is for non-diet exposure.

⁴ Mercury has a TACO inhalation-based RO for construction workers of 0.1 mg/kg. This RO is exceeded at ES-SS-04-013118 (0.13 mg/kg), ES-SS-10-013118 (0.13 mg/kg), ES-SS-13-013118 (0.21 mg/kg), ES-SS-14-013118 (0.22 mg/kg), ES-SS-17-013118 (0.22 mg/kg), ES-SS-18-013118 (0.22 mg/kg), ES-SS-19-013118 (0.41 mg/kg), ES-SS-20-013118 (0.88 mg/kg), ES-SS-23-013118 (0.25 mg/kg), ES-SS-24-013118 (0.23 mg/kg), ES-SS-25-013118 (0.50 mg/kg), ES-SS-26-013118 (0.15 mg/kg), ES-SS-33-030718 (0.29 mg/kg), ES-SS-36-030718 (0.17 mg/kg), ES-SS-41-030818 (0.5 mg/kg), ES-SS-45-030818 (0.2 mg/kg), ES-SS-48-030818 (0.13 mg/kg), ES-SS-49-030718 (0.35 mg/kg), and ES-SS-51-030718 (0.32 mg/kg).

⁵ Chromium was assumed to be present in trivalent form.

⁶ RMLs (Target risk = 1E-04 and HI = 1) can be found at <https://www.epa.gov/risk/regional-removal-management-levels-chemicals-rmls>. Nickel is assumed to be in the form of soluble salts.

ANALYTICAL RESULTS SUMMARY
STAT REPORT NO. 18010697

Laboratory ID :	18010697-001	18010697-002	18010697-003	18010697-004
Client Sample ID :	ES-SS-10-013118	ES-SS-20-013118	ES-SS-30-013118	ES-SS-30-013118-D
Date Collected :	01/31/2018 09:20	01/31/2018 09:40	01/31/2018 09:55	01/31/2018 09:55

Analyte	Test Method	Units				
Percent Moisture	D2974	wt%	32.8	26.6	22.3	22.3
Arsenic	SW6020A	mg/Kg-dry	12	7.6	8.7	8.2
Cadmium	SW6020A	mg/Kg-dry	1.9	1.2	1.4	1.4
Chromium	SW6020A	mg/Kg-dry	52	40	120	82
Cobalt	SW6020A	mg/Kg-dry	8.4	6.6	5.5	5.3
Iron	SW6020A	mg/Kg-dry	25000	19000	26000	25000
Lead	SW6020A	mg/Kg-dry	170	130	220	170
Manganese	SW6020A	mg/Kg-dry	3700	2900	4000	3200
Mercury	SW7471B	mg/Kg-dry	0.13	0.88	0.086	0.080
Nickel	SW6020A	mg/Kg-dry	26	20	20	19
Arsenic	SW6020A	mg/L				
Cadmium	SW6020A	mg/L				
Chromium	SW6020A	mg/L				
Cobalt	SW6020A	mg/L				
Iron	SW6020A	mg/L				
Lead	SW6020A	mg/L				
Manganese	SW6020A	mg/L				
Mercury	SW7470A	mg/L				
Nickel	SW6020A	mg/L				

ANALYTICAL RESULTS SUMMARY
STAT REPORT NO. 18010697

Laboratory ID :	18010697-005	18010697-006	18010697-007	18010697-008
Client Sample ID :	ES-SS-29-013118	ES-SS-28-013118	ES-SS-18-013118	ES-SS-18-013118-D
Date Collected :	01/31/2018 10:08	01/31/2018 10:25	01/31/2018 10:35	01/31/2018 10:35

Analyte	Test Method	Units				
Percent Moisture	D2974	wt%	23.4	13.6	24.3	26.5
Arsenic	SW6020A	mg/Kg-dry	7.9	8.7	17	17
Cadmium	SW6020A	mg/Kg-dry	1.8	0.93	2.9	2.6
Chromium	SW6020A	mg/Kg-dry	58	27	38	37
Cobalt	SW6020A	mg/Kg-dry	6.8	11	5.9	6.6
Iron	SW6020A	mg/Kg-dry	19000	24000	40000	41000
Lead	SW6020A	mg/Kg-dry	98	120	480	470
Manganese	SW6020A	mg/Kg-dry	2300	950	2000	1900
Mercury	SW7471B	mg/Kg-dry	0.086	0.097	0.21	0.23
Nickel	SW6020A	mg/Kg-dry	18	23	21	22
Arsenic	SW6020A	mg/L				
Cadmium	SW6020A	mg/L				
Chromium	SW6020A	mg/L				
Cobalt	SW6020A	mg/L				
Iron	SW6020A	mg/L				
Lead	SW6020A	mg/L				
Manganese	SW6020A	mg/L				
Mercury	SW7470A	mg/L				
Nickel	SW6020A	mg/L				

ANALYTICAL RESULTS SUMMARY
STAT REPORT NO. 18010697

Laboratory ID :	18010697-009	18010697-010	18010697-011	18010697-012
Client Sample ID :	ES-SS-05-013118	ES-SS-04-013118	ES-SS-04-013118-D	ES-SS-24-013118
Date Collected :	01/31/2018 10:45	01/31/2018 10:55	01/31/2018 10:55	01/31/2018 11:10

Analyte	Test Method	Units				
Percent Moisture	D2974	wt%	23.6	22.3	19.7	26.2
Arsenic	SW6020A	mg/Kg-dry	8.0	8.6	9.5	13
Cadmium	SW6020A	mg/Kg-dry	1.3	1.3	1.3	2.3
Chromium	SW6020A	mg/Kg-dry	44	100	140	47
Cobalt	SW6020A	mg/Kg-dry	5.7	11	13	7.2
Iron	SW6020A	mg/Kg-dry	25000	23000	22000	25000
Lead	SW6020A	mg/Kg-dry	200	170	170	440
Manganese	SW6020A	mg/Kg-dry	3800	12000	13000	2000
Mercury	SW7471B	mg/Kg-dry	0.087	0.092	0.13	0.23
Nickel	SW6020A	mg/Kg-dry	19	33	25	24
Arsenic	SW6020A	mg/L				
Cadmium	SW6020A	mg/L				
Chromium	SW6020A	mg/L				
Cobalt	SW6020A	mg/L				
Iron	SW6020A	mg/L				
Lead	SW6020A	mg/L				
Manganese	SW6020A	mg/L				
Mercury	SW7470A	mg/L				
Nickel	SW6020A	mg/L				

ANALYTICAL RESULTS SUMMARY
STAT REPORT NO. 18010697

Laboratory ID :	18010697-013	18010697-014	18010697-015	18010697-016
Client Sample ID :	ES-SS-23-013118	ES-SS-25-013118	ES-SS-26-013118	ES-SS-14-013118
Date Collected :	01/31/2018 11:25	01/31/2018 12:00	01/31/2018 12:10	01/31/2018 12:20

Analyte	Test Method	Units				
Percent Moisture	D2974	wt%	32.5	27.3	24.7	25.7
Arsenic	SW6020A	mg/Kg-dry	18	11	10	18
Cadmium	SW6020A	mg/Kg-dry	3.1	2.0	2.0	3.1
Chromium	SW6020A	mg/Kg-dry	140	42	47	43
Cobalt	SW6020A	mg/Kg-dry	6.4	8.7	7.8	6.3
Iron	SW6020A	mg/Kg-dry	38000	25000	29000	30000
Lead	SW6020A	mg/Kg-dry	810	250	370	460
Manganese	SW6020A	mg/Kg-dry	4400	1600	1600	2200
Mercury	SW7471B	mg/Kg-dry	0.25	0.50	0.15	0.22
Nickel	SW6020A	mg/Kg-dry	26	25	25	21
Arsenic	SW6020A	mg/L				
Cadmium	SW6020A	mg/L				
Chromium	SW6020A	mg/L				
Cobalt	SW6020A	mg/L				
Iron	SW6020A	mg/L				
Lead	SW6020A	mg/L				
Manganese	SW6020A	mg/L				
Mercury	SW7470A	mg/L				
Nickel	SW6020A	mg/L				

ANALYTICAL RESULTS SUMMARY
STAT REPORT NO. 18010697

Laboratory ID :	18010697-017	18010697-018	18010697-019	18010697-020
Client Sample ID :	ES-SS-13-013118	ES-SS-17-013118	ES-SS-19-013118	ES-Rinstat
Date Collected :	01/31/2018 12:25	01/31/2018 12:35	01/31/2018 12:45	01/31/2018 12:50

Analyte	Test Method	Units				
Percent Moisture	D2974	wt%	31.0	29.2	28.2	
Arsenic	SW6020A	mg/Kg-dry	17	9.9	7.3	
Cadmium	SW6020A	mg/Kg-dry	2.9	2.3	0.92	
Chromium	SW6020A	mg/Kg-dry	72	110	57	
Cobalt	SW6020A	mg/Kg-dry	8.1	8.3	6.5	
Iron	SW6020A	mg/Kg-dry	34000	30000	23000	
Lead	SW6020A	mg/Kg-dry	720	230	110	
Manganese	SW6020A	mg/Kg-dry	4300	4800	2200	
Mercury	SW7471B	mg/Kg-dry	0.21	0.22	0.41	
Nickel	SW6020A	mg/Kg-dry	28	27	22	
Arsenic	SW6020A	mg/L				< 0.0040
Cadmium	SW6020A	mg/L				< 0.0020
Chromium	SW6020A	mg/L				< 0.0040
Cobalt	SW6020A	mg/L				< 0.0040
Iron	SW6020A	mg/L				< 0.10
Lead	SW6020A	mg/L				< 0.0020
Manganese	SW6020A	mg/L				< 0.0040
Mercury	SW7470A	mg/L				< 0.00020
Nickel	SW6020A	mg/L				< 0.0040

18030148 Validated

Laboratory ID : 18030148-007 18030148-003 18030148-002
 Client Sample ID : ES-SS-33-030718 ES-SS-36-030718 ES-SS-43-030718
 Date Collected : 03/07/2018 12:30 03/07/2018 11:15 03/07/2018 10:30

Analyte	Test Method	Units			
Percent Moisture	D2974	wt%	33.7	24.0	25.6
Arsenic	SW6020A	mg/Kg-dry	180	13	14
Cadmium	SW6020A	mg/Kg-dry	4.7	2.5	2.6
Chromium	SW6020A	mg/Kg-dry	55	50	45
Cobalt	SW6020A	mg/Kg-dry	8.5	7.6	6.9
Iron	SW6020A	mg/Kg-dry	70000	33000	31000
Lead	SW6020A	mg/Kg-dry	570	420	520
Manganese	SW6020A	mg/Kg-dry	2200	1700	2000
Mercury	SW7471B	mg/Kg-dry	0.29	0.17	0.50
Nickel	SW6020A	mg/Kg-dry	29	28	25
Arsenic	SW6020A	mg/L			
Cadmium	SW6020A	mg/L			
Chromium	SW6020A	mg/L			
Cobalt	SW6020A	mg/L			
Iron	SW6020A	mg/L			
Lead	SW6020A	mg/L			
Manganese	SW6020A	mg/L			
Mercury	SW7470A	mg/L			
Nickel	SW6020A	mg/L			

18030148 Validated

18030148-001	18030148-005	18030148-006	18030148-004	18030148-008
ES-SS-46-030718	ES-SS-49-030718	ES-SS-49-030718-D	ES-SS-51-030718	ES-Rinsate-030718
03/07/2018 09:10	03/07/2018 12:10	03/07/2018 12:10	03/07/2018 11:40	03/07/2018 13:45

15.9	24.2	24.6	20.9
8.4	26	25	11
1.2	2.5	2.5	2.6
60	47	46	45
7.7	7.4	7.5	5.5
27000	38000	39000	29000
190	230	260	980
6000	1400	1300	1700
0.060	0.34	0.36	0.32
20	23	25	26

0.0040 U
0.0020 U
0.0040 U
0.0040 U
0.010 U
0.0020 U
0.0040 U
0.00020 U
0.0040 U

18030169 Validated

Laboratory ID : 18030169-001 18030169-002 18030169-003
 Client Sample ID : ES-SS-31-030818 ES-SS-39-030818 ES-SS-41-030818
 Date Collected : 03/08/2018 09:30 03/08/2018 10:30 03/08/2018 11:15

Analyte	Test Method	Units			
Percent Moisture	D2974	wt%	20.0	15.1	27.5
Arsenic	SW6020A	mg/Kg-dry	5.9	4.1	12
Cadmium	SW6020A	mg/Kg-dry	1.1	0.72	1.8
Chromium	SW6020A	mg/Kg-dry	25	19	31
Cobalt	SW6020A	mg/Kg-dry	3.7	3.1	6.9
Iron	SW6020A	mg/Kg-dry	13000	12000	21000
Lead	SW6020A	mg/Kg-dry	130	170	290
Manganese	SW6020A	mg/Kg-dry	420	840	1200
Mercury	SW7471B	mg/Kg-dry	0.10	0.089	0.15
Nickel	SW6020A	mg/Kg-dry	12	10	18
Arsenic	SW6020A	mg/L			
Cadmium	SW6020A	mg/L			
Chromium	SW6020A	mg/L			
Cobalt	SW6020A	mg/L			
Iron	SW6020A	mg/L			
Lead	SW6020A	mg/L			
Manganese	SW6020A	mg/L			
Mercury	SW7470A	mg/L			
Nickel	SW6020A	mg/L			

18030169 Validated

18030169-004	18030169-005	18030169-007	18030169-006
ES-SS-45-030818	ES-SS-48-030818	ES-SS-48-030818-D	ES-Rinsate-030818
03/08/2018 11:30	03/08/2018 11:45	03/08/2018 11:45	03/08/2018 11:55

19.9	22.0	19.0
4.9	7.1	7.2
1.8	2.2	2.1
65	68	65
8.5	7.1	7.1
19000	23000	22000
120	360	340
6000	4700	4500
0.20	0.14	0.12
28	25	36

0.0040 U
0.0020 U
0.0040 U
0.0040 U
0.010 U
0.0020 U
0.0040 U
0.00020 U
0.0040 U

DATA VALIDATION REPORT

This report documents the validation of the analytical results for various surface soil samples and associated quality control (QC) samples collected in March 2018 from the East Side Neighborhood of Chicago, Illinois. Tetra Tech personnel collected the samples to determine the nature and extent of the contamination present at the site. The samples were hand-delivered to STAT Analysis Corporation (STAT) in Chicago for analysis. STAT identified each batch of samples as separate work order, performed the requested analyses, and submitted the results in two reports (18030148 and 18030169). These analyses included selected metals by U.S. Environmental Protection Agency (EPA) SW-846 Methods 6020A, 7470A, and 7471B.

Tetra Tech validated the data from the samples in general accordance with the EPA National Functional Guidelines (NFG) for Inorganic Superfund Data Review, dated January 2017. The NFGs were modified as needed to correspond to the specific requirements of the methods used in the analyses and STAT's laboratory-specific guidelines. The validation was based on the following quality control (QC) parameters, as applicable to each analysis:

- Holding time and sample preservation
- Blanks
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Analyte quantitation

The following sections discuss the validation report for each work order, in turn, with the focus on the QC parameters with irregularities. The final section provides an overall evaluation of the results of the validation. Attached is a spreadsheet for each work order, prepared from STAT's electronic data deliverable (EDD) with the validated results, including any qualifications added during the validation. The added qualifiers may include:

- No qualifier: Data are acceptable as reported
- U: Analyte analyzed for but not detected above the listed reporting limit.
- J: Analyte detected, but concentration is estimated QC reasons
- J-: Analyte detected, but concentration is estimated for QC reasons and may be biased low
- J+: Analyte detected, but concentration is estimated for QC reasons and may be biased high
- UJ: Analyte not detected and the sample reporting limit is considered estimated for QC reasons

- R: Results are rejected; the analyte may or may not be present. Re-sampling and re-analysis are necessary for verification.

1.0 Work Order No. 18030148

Work Order No. 18030148 includes six surface soil samples, one field duplicate soil sample, and one rinsate blank collected on March 7, 2018. There were no problems with holding times and sample preservation, LCS results, and field duplicate results.

The aqueous laboratory blank yielded low concentrations of arsenic, chromium, iron, lead, and manganese. The rinsate blank yielded no reportable amounts of any metals; therefore, no qualifications were applied.

The soil MS/MSD analyses were performed on sample ES-SS-51-030718. Recoveries of iron, lead, and manganese could not be determined because the unspiked sample contained more than ten times the amounts of the spikes. No qualifications were applied for these data gaps. The chromium recoveries were 86 and 64 percent, versus limits of 75 to 125 percent. The average recovery was within the limits; therefore, no qualifications were applied.

SW-846 Method 6020A analyses were performed at dilutions (10-fold for soil and 2-fold for the rinsate blank) to minimize matrix interference. This increased reporting limits correspondingly, but not above relevant regulatory limits. No qualifications were applied.

2.0 Work Order No. 18030169

Work Order No. 18030169 includes five surface soil samples, one field duplicate soil sample, and one rinsate blank collected on March 8, 2018. There were no problems with holding times and sample preservation, LCS results, MS/MSD results, and field duplicate results. The Method 6020A MS/MSD analyses were performed on samples from other sites and were not evaluated.

The soil mercury blank yielded a low concentration. The soil samples yielded mercury concentrations more than ten times the blank concentration; therefore, no qualifications were applied.

SW-846 Method 6020A analyses were performed at dilutions (10-fold for soil and 2-fold for the rinsate blank) to minimize matrix interference. This increased reporting limits correspondingly, but not above relevant regulatory limits. In addition, all soil samples for iron and two soil samples (ES-SS-45-030818 and ES-SS-48-030818) for manganese were analyzed at a further 10-fold dilution to bring their high concentrations within the calibration range. No qualifications were applied.

3.0 Overall Evaluation

The analyses were acceptable, with results neither rejected nor qualified.

DATA VALIDATION REPORT

This report documents data validation of the analytical report for soil samples collected on 31 January 2018 by Tetra Tech Inc. in the East Side Neighborhood in Chicago, Illinois. The samples were sent to the STAT Analysis Corporation (STAT) facility in Chicago, which analyzed them for selected metals by U.S. Environmental Protection Agency (EPA) SW-846 Methods 9020A, 7470A, and 7471B. Tetra Tech validated the analytical report in general accordance with the EPA contract laboratory program (CLP) national functional guidelines (NFG) for inorganic review, dated January 2017. The requirements of the NFG were modified, as appropriate, to correspond to the specific requirements of the laboratory's specific variants of these non-CLP methods. The validation was based on the following quality control (QC) parameters, as applicable to each analysis:

- Holding times and sample preservation
- Blanks
- Matrix spike/matrix spike duplicate (MS/MSD) analyses
- Laboratory control samples (LCS)
- Field duplicate results
- Analyte quantitation

The following section discusses the validation of the sample delivery group (SDG), focusing only on parameters with irregularities. The final section of this report provides an overall evaluation of the results of the validation of all results from all analyses, including any qualifiers added by Tetra Tech. The qualifiers added may include:

- No qualifier: Data are acceptable as reported.
- U: Analyte analyzed for but not detected above the listed reporting limit.
- J: Analyte detected, but concentration is estimated for QC reasons.
- J-: Analyte detected, but concentration is estimated for QC reasons and may be biased low.
- J+: Analyte detected, but concentration is estimated for QC reasons and may be biased high.
- UJ: Analyte not detected and the sample reporting limit is considered estimated for QC reasons.
- R: Data are unusable; the analyte may or may not be present. Re-sampling and re-analysis are necessary for verification.

1.0 SDG No. 18010697

SDG No. 18010697 includes sixteen surface soil samples and four quality control (QC) sample, three field duplicate soil samples and one aqueous equipment rinsate blank. There were no problems with holding time and sample preservation, LCS results, field duplicate results, and analyte quantitation.

The aqueous laboratory blank yielded low concentrations of several metals. The rinsate blank yielded no detectable concentrations of any analytes, so no qualifications were applied. The soil laboratory blank yielded a low concentration of iron, but all soil samples yielded iron concentrations more than three orders of magnitude higher. Again, no qualifications were applied.

MS/MSD analyses were performed on sample ES-SS-14-013118. The unspiked concentrations of iron, lead and manganese were more than four times the amount of the spikes, so recoveries of those three metals could not be determined. Recoveries for all other metals and the relative percent differences for all metals were well within QC limits, so no qualifications were required.

2.0 Overall Evaluation

The analyses went well, with results neither rejected nor qualified. The analytical results may be used, as reported, for any purpose.

ATTACHMENT
LABORATORY ANALYTICAL REPORTS

STAT Analysis Corporation

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766

Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

February 02, 2018

Tetra Tech EM Inc.
1 South Wacker Drive
Chicago, IL 60606

Telephone: (312) 201-7700

Fax: (312) 938-0118

Analytical Report for STAT Work Order: 18010697 Revision 0

RE: 103S328404002, East Side Neighborhood, Chicago, IL

Dear Stacey Durley:

STAT Analysis received 20 samples for the referenced project on 1/31/2018 3:20:00 PM. The analytical results are presented in the following report.

All analyses were performed in accordance with the requirements of 35 IAC Part 186 / NELAP standards. Analyses were performed in accordance with methods as referenced on the analytical report. Those analytical results expressed on a dry weight basis are also noted on the analytical report.

All analyses were performed within established holding time criteria, and all Quality Control criteria met EPA or laboratory specifications except when noted in the Case Narrative or Analytical Report. If required, an estimate of uncertainty for the analyses can be provided. A listing of accredited methods/parameters can also be provided.

Thank you for the opportunity to serve you and I look forward to working with you in the future. If you have any questions regarding the enclosed materials, please contact me at (312) 733-0551.

Sincerely,



Craig Chawla
Project Manager

The information contained in this report and any attachments is confidential information intended only for the use of the individual or entities named above. The results of this report relate only to the samples tested. If you have received this report in error, please notify us immediately by phone. This report shall not be reproduced, except in its entirety, unless written approval has been obtained from the laboratory. This analytical report shall become property of the Customer upon payment in full. Otherwise, STAT will be under no obligation to support, defend or discuss the analytical report.

Client: Tetra Tech EM Inc.**Project:** 103S328404002, East Side Neighborhood, Chicago, IL **Work Order Sample Summary****Work Order:** 18010697 Revision 0

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
18010697-001A	ES-SS-10-013118		1/31/2018 9:20:00 AM	1/31/2018
18010697-002A	ES-SS-20-013118		1/31/2018 9:40:00 AM	1/31/2018
18010697-003A	ES-SS-30-013118		1/31/2018 9:55:00 AM	1/31/2018
18010697-004A	ES-SS-30-013118-D		1/31/2018 9:55:00 AM	1/31/2018
18010697-005A	ES-SS-29-013118		1/31/2018 10:08:00 AM	1/31/2018
18010697-006A	ES-SS-28-013118		1/31/2018 10:25:00 AM	1/31/2018
18010697-007A	ES-SS-18-013118		1/31/2018 10:35:00 AM	1/31/2018
18010697-008A	ES-SS-18-013118-D		1/31/2018 10:35:00 AM	1/31/2018
18010697-009A	ES-SS-05-013118		1/31/2018 10:45:00 AM	1/31/2018
18010697-010A	ES-SS-04-013118		1/31/2018 10:55:00 AM	1/31/2018
18010697-011A	ES-SS-04-013118-D		1/31/2018 10:55:00 AM	1/31/2018
18010697-012A	ES-SS-24-013118		1/31/2018 11:10:00 AM	1/31/2018
18010697-013A	ES-SS-23-013118		1/31/2018 11:25:00 AM	1/31/2018
18010697-014A	ES-SS-25-013118		1/31/2018 12:00:00 PM	1/31/2018
18010697-015A	ES-SS-26-013118		1/31/2018 12:10:00 PM	1/31/2018
18010697-016A	ES-SS-14-013118		1/31/2018 12:20:00 PM	1/31/2018
18010697-017A	ES-SS-13-013118		1/31/2018 12:25:00 PM	1/31/2018
18010697-018A	ES-SS-17-013118		1/31/2018 12:35:00 PM	1/31/2018
18010697-019A	ES-SS-19-013118		1/31/2018 12:45:00 PM	1/31/2018
18010697-020A	ES-Rinstat		1/31/2018 12:50:00 PM	1/31/2018

CLIENT: Tetra Tech EM Inc.
Project: 103S328404002, East Side Neighborhood, Chicago, IL
Work Order: 18010697 Revision 0

CASE NARRATIVE

Please refer to Analytical QC Summary Report for QC outliers.

STAT Analysis Corporation

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766

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Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Report Date: February 02, 2018

ANALYTICAL RESULTS

Print Date: February 02, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-10-013118

Work Order: 18010697 Revision 0

Tag Number:

Project: 103S328404002, East Side Neighborhood, Chicago, Collection Date: 1/31/2018 9:20:00 AM

Lab ID: 18010697-001A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)				Prep Date: 1/31/2018	Analyst: JG
Arsenic	12	1.3		mg/Kg-dry	10	2/1/2018
Cadmium	1.9	0.66		mg/Kg-dry	10	2/1/2018
Chromium	52	1.3		mg/Kg-dry	10	2/1/2018
Cobalt	8.4	1.3		mg/Kg-dry	10	2/1/2018
Iron	25000	390		mg/Kg-dry	100	2/1/2018
Lead	170	0.66		mg/Kg-dry	10	2/1/2018
Manganese	3700	13		mg/Kg-dry	100	2/1/2018
Nickel	26	1.3		mg/Kg-dry	10	2/1/2018
Mercury	SW7471B				Prep Date: 1/31/2018	Analyst: LB
Mercury	0.13	0.025		mg/Kg-dry	1	1/31/2018
Percent Moisture	D2974				Prep Date: 1/31/2018	Analyst: RW
Percent Moisture	32.8	0.2	*	wt%	1	2/1/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

STAT Analysis Corporation

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Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Report Date: February 02, 2018

ANALYTICAL RESULTS

Print Date: February 02, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-20-013118

Work Order: 18010697 Revision 0

Tag Number:

Project: 103S328404002, East Side Neighborhood, Chicago, Collection Date: 1/31/2018 9:40:00 AM

Lab ID: 18010697-002A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)				Prep Date: 1/31/2018	Analyst: JG
Arsenic	7.6	1.2		mg/Kg-dry	10	2/1/2018
Cadmium	1.2	0.59		mg/Kg-dry	10	2/1/2018
Chromium	40	1.2		mg/Kg-dry	10	2/1/2018
Cobalt	6.6	1.2		mg/Kg-dry	10	2/1/2018
Iron	19000	350		mg/Kg-dry	100	2/1/2018
Lead	130	0.59		mg/Kg-dry	10	2/1/2018
Manganese	2900	12		mg/Kg-dry	100	2/1/2018
Nickel	20	1.2		mg/Kg-dry	10	2/1/2018
Mercury	SW7471B				Prep Date: 1/31/2018	Analyst: LB
Mercury	0.88	0.063		mg/Kg-dry	3	1/31/2018
Percent Moisture	D2974				Prep Date: 1/31/2018	Analyst: RW
Percent Moisture	26.6	0.2	*	wt%	1	2/1/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Report Date: February 02, 2018

ANALYTICAL RESULTS

Print Date: February 02, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-30-013118

Work Order: 18010697 Revision 0

Tag Number:

Project: 103S328404002, East Side Neighborhood, Chicago, Collection Date: 1/31/2018 9:55:00 AM

Lab ID: 18010697-003A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)		Prep Date: 1/31/2018		Analyst: JG	
Arsenic	8.7	1.1		mg/Kg-dry	10	2/1/2018
Cadmium	1.4	0.57		mg/Kg-dry	10	2/1/2018
Chromium	120	1.1		mg/Kg-dry	10	2/1/2018
Cobalt	5.5	1.1		mg/Kg-dry	10	2/1/2018
Iron	26000	340		mg/Kg-dry	100	2/1/2018
Lead	220	0.57		mg/Kg-dry	10	2/1/2018
Manganese	4000	11		mg/Kg-dry	100	2/1/2018
Nickel	20	1.1		mg/Kg-dry	10	2/1/2018
Mercury	SW7471B		Prep Date: 1/31/2018		Analyst: LB	
Mercury	0.086	0.021		mg/Kg-dry	1	1/31/2018
Percent Moisture	D2974		Prep Date: 1/31/2018		Analyst: RW	
Percent Moisture	22.3	0.2	*	wt%	1	2/1/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

STAT Analysis Corporation

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Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Report Date: February 02, 2018

ANALYTICAL RESULTS

Print Date: February 02, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-30-013118-D

Work Order: 18010697 Revision 0

Tag Number:

Project: 103S328404002, East Side Neighborhood, Chicago, Collection Date: 1/31/2018 9:55:00 AM

Lab ID: 18010697-004A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)		Prep Date: 1/31/2018		Analyst: JG	
Arsenic	8.2	1.1		mg/Kg-dry	10	2/1/2018
Cadmium	1.4	0.57		mg/Kg-dry	10	2/1/2018
Chromium	82	1.1		mg/Kg-dry	10	2/1/2018
Cobalt	5.3	1.1		mg/Kg-dry	10	2/1/2018
Iron	25000	340		mg/Kg-dry	100	2/1/2018
Lead	170	0.57		mg/Kg-dry	10	2/1/2018
Manganese	3200	11		mg/Kg-dry	100	2/1/2018
Nickel	19	1.1		mg/Kg-dry	10	2/1/2018
Mercury	SW7471B		Prep Date: 1/31/2018		Analyst: LB	
Mercury	0.080	0.024		mg/Kg-dry	1	1/31/2018
Percent Moisture	D2974		Prep Date: 1/31/2018		Analyst: RW	
Percent Moisture	22.3	0.2	*	wt%	1	2/1/2018

Qualifiers:

ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 HT - Sample received past holding time
 * - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis
 S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range
 H - Holding time exceeded

STAT Analysis Corporation

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766

Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Report Date: February 02, 2018

ANALYTICAL RESULTS

Print Date: February 02, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-29-013118

Work Order: 18010697 Revision 0

Tag Number:

Project: 103S328404002, East Side Neighborhood, Chicago, Collection Date: 1/31/2018 10:08:00 AM

Lab ID: 18010697-005A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)		Prep Date: 1/31/2018		Analyst: JG	
Arsenic	7.9	1.1		mg/Kg-dry	10	2/1/2018
Cadmium	1.8	0.56		mg/Kg-dry	10	2/1/2018
Chromium	58	1.1		mg/Kg-dry	10	2/1/2018
Cobalt	6.8	1.1		mg/Kg-dry	10	2/1/2018
Iron	19000	340		mg/Kg-dry	100	2/1/2018
Lead	98	0.56		mg/Kg-dry	10	2/1/2018
Manganese	2300	11		mg/Kg-dry	100	2/1/2018
Nickel	18	1.1		mg/Kg-dry	10	2/1/2018
Mercury	SW7471B		Prep Date: 1/31/2018		Analyst: LB	
Mercury	0.086	0.023		mg/Kg-dry	1	1/31/2018
Percent Moisture	D2974		Prep Date: 1/31/2018		Analyst: RW	
Percent Moisture	23.4	0.2	*	wt%	1	2/1/2018

Qualifiers:

ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 HT - Sample received past holding time
 * - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis
 S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range
 H - Holding time exceeded

STAT Analysis Corporation

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766

Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Report Date: February 02, 2018

ANALYTICAL RESULTS

Print Date: February 02, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-28-013118

Work Order: 18010697 Revision 0

Tag Number:

Project: 103S328404002, East Side Neighborhood, Chicago, Collection Date: 1/31/2018 10:25:00 AM

Lab ID: 18010697-006A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)		Prep Date: 1/31/2018		Analyst: JG	
Arsenic	8.7	1.0		mg/Kg-dry	10	2/1/2018
Cadmium	0.93	0.51		mg/Kg-dry	10	2/1/2018
Chromium	27	1.0		mg/Kg-dry	10	2/1/2018
Cobalt	11	1.0		mg/Kg-dry	10	2/1/2018
Iron	24000	310		mg/Kg-dry	100	2/1/2018
Lead	120	0.51		mg/Kg-dry	10	2/1/2018
Manganese	950	10		mg/Kg-dry	100	2/1/2018
Nickel	23	1.0		mg/Kg-dry	10	2/1/2018
Mercury	SW7471B		Prep Date: 1/31/2018		Analyst: LB	
Mercury	0.097	0.017		mg/Kg-dry	1	1/31/2018
Percent Moisture	D2974		Prep Date: 1/31/2018		Analyst: RW	
Percent Moisture	13.6	0.2	*	wt%	1	2/1/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Report Date: February 02, 2018

ANALYTICAL RESULTS

Print Date: February 02, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-18-013118

Work Order: 18010697 Revision 0

Tag Number:

Project: 103S328404002, East Side Neighborhood, Chicago, Collection Date: 1/31/2018 10:35:00 AM

Lab ID: 18010697-007A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)		Prep Date: 1/31/2018		Analyst: JG	
Arsenic	17	1.1		mg/Kg-dry	10	2/1/2018
Cadmium	2.9	0.55		mg/Kg-dry	10	2/1/2018
Chromium	38	1.1		mg/Kg-dry	10	2/1/2018
Cobalt	5.9	1.1		mg/Kg-dry	10	2/1/2018
Iron	40000	330		mg/Kg-dry	100	2/1/2018
Lead	480	0.55		mg/Kg-dry	10	2/1/2018
Manganese	2000	11		mg/Kg-dry	100	2/1/2018
Nickel	21	1.1		mg/Kg-dry	10	2/1/2018
Mercury	SW7471B		Prep Date: 1/31/2018		Analyst: LB	
Mercury	0.21	0.024		mg/Kg-dry	1	1/31/2018
Percent Moisture	D2974		Prep Date: 1/31/2018		Analyst: RW	
Percent Moisture	24.3	0.2	*	wt%	1	2/1/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Report Date: February 02, 2018

ANALYTICAL RESULTS

Print Date: February 02, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-18-013118-D

Work Order: 18010697 Revision 0

Tag Number:

Project: 103S328404002, East Side Neighborhood, Chicago, Collection Date: 1/31/2018 10:35:00 AM

Lab ID: 18010697-008A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)		Prep Date: 1/31/2018		Analyst: JG	
Arsenic	17	1.1		mg/Kg-dry	10	2/1/2018
Cadmium	2.6	0.57		mg/Kg-dry	10	2/1/2018
Chromium	37	1.1		mg/Kg-dry	10	2/1/2018
Cobalt	6.6	1.1		mg/Kg-dry	10	2/1/2018
Iron	41000	340		mg/Kg-dry	100	2/1/2018
Lead	470	0.57		mg/Kg-dry	10	2/1/2018
Manganese	1900	11		mg/Kg-dry	100	2/1/2018
Nickel	22	1.1		mg/Kg-dry	10	2/1/2018
Mercury	SW7471B		Prep Date: 1/31/2018		Analyst: LB	
Mercury	0.23	0.023		mg/Kg-dry	1	1/31/2018
Percent Moisture	D2974		Prep Date: 1/31/2018		Analyst: RW	
Percent Moisture	26.5	0.2	*	wt%	1	2/1/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Report Date: February 02, 2018

ANALYTICAL RESULTS

Print Date: February 02, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-05-013118

Work Order: 18010697 Revision 0

Tag Number:

Project: 103S328404002, East Side Neighborhood, Chicago, Collection Date: 1/31/2018 10:45:00 AM

Lab ID: 18010697-009A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)		Prep Date: 1/31/2018		Analyst: JG	
Arsenic	8.0	1.1		mg/Kg-dry	10	2/1/2018
Cadmium	1.3	0.56		mg/Kg-dry	10	2/1/2018
Chromium	44	1.1		mg/Kg-dry	10	2/1/2018
Cobalt	5.7	1.1		mg/Kg-dry	10	2/1/2018
Iron	25000	330		mg/Kg-dry	100	2/1/2018
Lead	200	0.56		mg/Kg-dry	10	2/1/2018
Manganese	3800	11		mg/Kg-dry	100	2/1/2018
Nickel	19	1.1		mg/Kg-dry	10	2/1/2018
Mercury	SW7471B		Prep Date: 1/31/2018		Analyst: LB	
Mercury	0.087	0.025		mg/Kg-dry	1	1/31/2018
Percent Moisture	D2974		Prep Date: 1/31/2018		Analyst: RW	
Percent Moisture	23.6	0.2	*	wt%	1	2/1/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Report Date: February 02, 2018

ANALYTICAL RESULTS

Print Date: February 02, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-04-013118

Work Order: 18010697 Revision 0

Tag Number:

Project: 103S328404002, East Side Neighborhood, Chicago, Collection Date: 1/31/2018 10:55:00 AM

Lab ID: 18010697-010A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)		Prep Date: 1/31/2018		Analyst: JG	
Arsenic	8.6	1.1		mg/Kg-dry	10	2/1/2018
Cadmium	1.3	0.57		mg/Kg-dry	10	2/1/2018
Chromium	100	1.1		mg/Kg-dry	10	2/1/2018
Cobalt	11	1.1		mg/Kg-dry	10	2/1/2018
Iron	23000	340		mg/Kg-dry	100	2/1/2018
Lead	170	0.57		mg/Kg-dry	10	2/1/2018
Manganese	12000	110		mg/Kg-dry	1000	2/1/2018
Nickel	33	1.1		mg/Kg-dry	10	2/1/2018
Mercury	SW7471B		Prep Date: 1/31/2018		Analyst: LB	
Mercury	0.092	0.023		mg/Kg-dry	1	1/31/2018
Percent Moisture	D2974		Prep Date: 1/31/2018		Analyst: RW	
Percent Moisture	22.3	0.2	*	wt%	1	2/1/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Report Date: February 02, 2018

ANALYTICAL RESULTS

Print Date: February 02, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-04-013118-D

Work Order: 18010697 Revision 0

Tag Number:

Project: 103S328404002, East Side Neighborhood, Chicago, Collection Date: 1/31/2018 10:55:00 AM

Lab ID: 18010697-011A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)		Prep Date: 1/31/2018		Analyst: JG	
Arsenic	9.5	1.1		mg/Kg-dry	10	2/1/2018
Cadmium	1.3	0.53		mg/Kg-dry	10	2/1/2018
Chromium	140	1.1		mg/Kg-dry	10	2/1/2018
Cobalt	13	1.1		mg/Kg-dry	10	2/1/2018
Iron	22000	320		mg/Kg-dry	100	2/1/2018
Lead	170	0.53		mg/Kg-dry	10	2/1/2018
Manganese	13000	110		mg/Kg-dry	1000	2/1/2018
Nickel	25	1.1		mg/Kg-dry	10	2/1/2018
Mercury	SW7471B		Prep Date: 1/31/2018		Analyst: LB	
Mercury	0.13	0.024		mg/Kg-dry	1	1/31/2018
Percent Moisture	D2974		Prep Date: 1/31/2018		Analyst: RW	
Percent Moisture	19.7	0.2	*	wt%	1	2/1/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Report Date: February 02, 2018

ANALYTICAL RESULTS

Print Date: February 02, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-24-013118

Work Order: 18010697 Revision 0

Tag Number:

Project: 103S328404002, East Side Neighborhood, Chicago, Collection Date: 1/31/2018 11:10:00 AM

Lab ID: 18010697-012A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)		Prep Date: 1/31/2018		Analyst: JG	
Arsenic	13	1.2		mg/Kg-dry	10	2/1/2018
Cadmium	2.3	0.60		mg/Kg-dry	10	2/1/2018
Chromium	47	1.2		mg/Kg-dry	10	2/1/2018
Cobalt	7.2	1.2		mg/Kg-dry	10	2/1/2018
Iron	25000	360		mg/Kg-dry	100	2/1/2018
Lead	440	0.60		mg/Kg-dry	10	2/1/2018
Manganese	2000	12		mg/Kg-dry	100	2/1/2018
Nickel	24	1.2		mg/Kg-dry	10	2/1/2018
Mercury	SW7471B		Prep Date: 1/31/2018		Analyst: LB	
Mercury	0.23	0.027		mg/Kg-dry	1	1/31/2018
Percent Moisture	D2974		Prep Date: 1/31/2018		Analyst: RW	
Percent Moisture	26.2	0.2	*	wt%	1	2/1/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Report Date: February 02, 2018

ANALYTICAL RESULTS

Print Date: February 02, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-23-013118

Work Order: 18010697 Revision 0

Tag Number:

Project: 103S328404002, East Side Neighborhood, Chicago, Collection Date: 1/31/2018 11:25:00 AM

Lab ID: 18010697-013A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)				Prep Date: 1/31/2018	Analyst: JG
Arsenic	18	1.3		mg/Kg-dry	10	2/1/2018
Cadmium	3.1	0.67		mg/Kg-dry	10	2/1/2018
Chromium	140	1.3		mg/Kg-dry	10	2/1/2018
Cobalt	6.4	1.3		mg/Kg-dry	10	2/1/2018
Iron	38000	400		mg/Kg-dry	100	2/1/2018
Lead	810	0.67		mg/Kg-dry	10	2/1/2018
Manganese	4400	13		mg/Kg-dry	100	2/1/2018
Nickel	26	1.3		mg/Kg-dry	10	2/1/2018
Mercury	SW7471B				Prep Date: 1/31/2018	Analyst: LB
Mercury	0.25	0.024		mg/Kg-dry	1	1/31/2018
Percent Moisture	D2974				Prep Date: 1/31/2018	Analyst: RW
Percent Moisture	32.5	0.2	*	wt%	1	2/1/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Report Date: February 02, 2018

ANALYTICAL RESULTS

Print Date: February 02, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-25-013118

Work Order: 18010697 Revision 0

Tag Number:

Project: 103S328404002, East Side Neighborhood, Chicago, Collection Date: 1/31/2018 12:00:00 PM

Lab ID: 18010697-014A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)				Prep Date: 1/31/2018	Analyst: JG
Arsenic	11	1.2		mg/Kg-dry	10	2/1/2018
Cadmium	2.0	0.59		mg/Kg-dry	10	2/1/2018
Chromium	42	1.2		mg/Kg-dry	10	2/1/2018
Cobalt	8.7	1.2		mg/Kg-dry	10	2/1/2018
Iron	25000	360		mg/Kg-dry	100	2/1/2018
Lead	250	0.59		mg/Kg-dry	10	2/1/2018
Manganese	1600	12		mg/Kg-dry	100	2/1/2018
Nickel	25	1.2		mg/Kg-dry	10	2/1/2018
Mercury	SW7471B				Prep Date: 1/31/2018	Analyst: LB
Mercury	0.50	0.023		mg/Kg-dry	1	1/31/2018
Percent Moisture	D2974				Prep Date: 1/31/2018	Analyst: RW
Percent Moisture	27.3	0.2	*	wt%	1	2/1/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Report Date: February 02, 2018

ANALYTICAL RESULTS

Print Date: February 02, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-26-013118

Work Order: 18010697 Revision 0

Tag Number:

Project: 103S328404002, East Side Neighborhood, Chicago, Collection Date: 1/31/2018 12:10:00 PM

Lab ID: 18010697-015A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)		Prep Date: 1/31/2018		Analyst: JG	
Arsenic	10	1.1		mg/Kg-dry	10	2/1/2018
Cadmium	2.0	0.55		mg/Kg-dry	10	2/1/2018
Chromium	47	1.1		mg/Kg-dry	10	2/1/2018
Cobalt	7.8	1.1		mg/Kg-dry	10	2/1/2018
Iron	29000	330		mg/Kg-dry	100	2/1/2018
Lead	370	0.55		mg/Kg-dry	10	2/1/2018
Manganese	1600	11		mg/Kg-dry	100	2/1/2018
Nickel	25	1.1		mg/Kg-dry	10	2/1/2018
Mercury	SW7471B		Prep Date: 1/31/2018		Analyst: LB	
Mercury	0.15	0.020		mg/Kg-dry	1	1/31/2018
Percent Moisture	D2974		Prep Date: 1/31/2018		Analyst: RW	
Percent Moisture	24.7	0.2	*	wt%	1	2/1/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Report Date: February 02, 2018

ANALYTICAL RESULTS

Print Date: February 02, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-14-013118

Work Order: 18010697 Revision 0

Tag Number:

Project: 103S328404002, East Side Neighborhood, Chicago, Collection Date: 1/31/2018 12:20:00 PM

Lab ID: 18010697-016A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)				Prep Date: 1/31/2018	Analyst: JG
Arsenic	18	1.2		mg/Kg-dry	10	2/1/2018
Cadmium	3.1	0.59		mg/Kg-dry	10	2/1/2018
Chromium	43	1.2		mg/Kg-dry	10	2/1/2018
Cobalt	6.3	1.2		mg/Kg-dry	10	2/1/2018
Iron	30000	350		mg/Kg-dry	100	2/1/2018
Lead	460	0.59		mg/Kg-dry	10	2/1/2018
Manganese	2200	12		mg/Kg-dry	100	2/1/2018
Nickel	21	1.2		mg/Kg-dry	10	2/1/2018
Mercury	SW7471B				Prep Date: 1/31/2018	Analyst: LB
Mercury	0.22	0.023		mg/Kg-dry	1	1/31/2018
Percent Moisture	D2974				Prep Date: 1/31/2018	Analyst: RW
Percent Moisture	25.7	0.2	*	wt%	1	2/1/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

STAT Analysis Corporation

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766

Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Report Date: February 02, 2018

ANALYTICAL RESULTS

Print Date: February 02, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-13-013118

Work Order: 18010697 Revision 0

Tag Number:

Project: 103S328404002, East Side Neighborhood, Chicago, Collection Date: 1/31/2018 12:25:00 PM

Lab ID: 18010697-017A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)		Prep Date: 1/31/2018		Analyst: JG	
Arsenic	17	1.3		mg/Kg-dry	10	2/1/2018
Cadmium	2.9	0.66		mg/Kg-dry	10	2/1/2018
Chromium	72	1.3		mg/Kg-dry	10	2/1/2018
Cobalt	8.1	1.3		mg/Kg-dry	10	2/1/2018
Iron	34000	390		mg/Kg-dry	100	2/1/2018
Lead	720	0.66		mg/Kg-dry	10	2/1/2018
Manganese	4300	13		mg/Kg-dry	100	2/1/2018
Nickel	28	1.3		mg/Kg-dry	10	2/1/2018
Mercury	SW7471B		Prep Date: 1/31/2018		Analyst: LB	
Mercury	0.21	0.029		mg/Kg-dry	1	1/31/2018
Percent Moisture	D2974		Prep Date: 1/31/2018		Analyst: RW	
Percent Moisture	31.0	0.2	*	wt%	1	2/1/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Report Date: February 02, 2018

ANALYTICAL RESULTS

Print Date: February 02, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-17-013118

Work Order: 18010697 Revision 0

Tag Number:

Project: 103S328404002, East Side Neighborhood, Chicago, Collection Date: 1/31/2018 12:35:00 PM

Lab ID: 18010697-018A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)		Prep Date: 1/31/2018		Analyst: JG	
Arsenic	9.9	1.2		mg/Kg-dry	10	2/1/2018
Cadmium	2.3	0.61		mg/Kg-dry	10	2/1/2018
Chromium	110	1.2		mg/Kg-dry	10	2/1/2018
Cobalt	8.3	1.2		mg/Kg-dry	10	2/1/2018
Iron	30000	370		mg/Kg-dry	100	2/1/2018
Lead	230	0.61		mg/Kg-dry	10	2/1/2018
Manganese	4800	12		mg/Kg-dry	100	2/1/2018
Nickel	27	1.2		mg/Kg-dry	10	2/1/2018
Mercury	SW7471B		Prep Date: 1/31/2018		Analyst: LB	
Mercury	0.22	0.027		mg/Kg-dry	1	1/31/2018
Percent Moisture	D2974		Prep Date: 1/31/2018		Analyst: RW	
Percent Moisture	29.2	0.2	*	wt%	1	2/1/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

STAT Analysis Corporation

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Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Report Date: February 02, 2018

ANALYTICAL RESULTS

Print Date: February 02, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-19-013118

Work Order: 18010697 Revision 0

Tag Number:

Project: 103S328404002, East Side Neighborhood, Chicago, Collection Date: 1/31/2018 12:45:00 PM

Lab ID: 18010697-019A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)		Prep Date: 1/31/2018		Analyst: JG	
Arsenic	7.3	1.2		mg/Kg-dry	10	2/1/2018
Cadmium	0.92	0.61		mg/Kg-dry	10	2/1/2018
Chromium	57	1.2		mg/Kg-dry	10	2/1/2018
Cobalt	6.5	1.2		mg/Kg-dry	10	2/1/2018
Iron	23000	370		mg/Kg-dry	100	2/1/2018
Lead	110	0.61		mg/Kg-dry	10	2/1/2018
Manganese	2200	12		mg/Kg-dry	100	2/1/2018
Nickel	22	1.2		mg/Kg-dry	10	2/1/2018
Mercury	SW7471B		Prep Date: 1/31/2018		Analyst: LB	
Mercury	0.41	0.022		mg/Kg-dry	1	1/31/2018
Percent Moisture	D2974		Prep Date: 1/31/2018		Analyst: RW	
Percent Moisture	28.2	0.2	*	wt%	1	2/1/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

STAT Analysis Corporation

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Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Report Date: February 02, 2018

ANALYTICAL RESULTS

Print Date: February 02, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-Rinstate

Work Order: 18010697 Revision 0

Tag Number:

Project: 103S328404002, East Side Neighborhood, Chicago, Collection Date: 1/31/2018 12:50:00 PM

Lab ID: 18010697-020A

Matrix: Aqueous

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
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Metals by ICP/MS**SW6020A (SW3005A)**

Prep Date: 1/31/2018 Analyst: JG

Arsenic	ND	0.0040		mg/L	2	2/1/2018
Cadmium	ND	0.0020		mg/L	2	2/1/2018
Chromium	ND	0.0040		mg/L	2	2/1/2018
Cobalt	ND	0.0040		mg/L	2	2/1/2018
Iron	ND	0.10		mg/L	2	2/1/2018
Lead	ND	0.0020		mg/L	2	2/1/2018
Manganese	ND	0.0040		mg/L	2	2/1/2018
Nickel	ND	0.0040		mg/L	2	2/1/2018

Mercury**SW7470A**

Prep Date: 1/31/2018 Analyst: LB

Mercury	ND	0.00020		mg/L	1	2/1/2018
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Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

CHAIN OF CUSTODY RECORD

Company: TECHNATECH
 Project Number: 103S328404002 Client Tracking No.:
 Project Name: EAST SIDE NEIGHBORHOOD
 Project Location: CHICAGO, IL
 Sampler(s): KACHOCTHOM, ENC BLAKE
 Report To: STACEY DUNN Phone: 214-201-7419
 QC Level: 1 2 3 4 X e-mail: STACEY.DUNN@TECHNATECH.COM

Client Sample Number/Description:	Date Taken	Time Taken	Matrix	Comp	Grab	Preserv	No. of Containers	Lab No.:	am/pm
ES-SS-10-013118	1/31/18	9:20	SS	X	A		1	001	
ES-SS-20-013118	1/31/18	9:40	SS	X	A		1	002	
ES-SS-30-013118	1/31/18	9:55	SS	X	A		1	003	
ES-SS-30-013118-D	1/31/18	9:55	SS	X	A		1	004	
ES-SS-29-013118	1/31/18	10:08	SS	X	A		1	005	
ES-SS-38-013118	1/21/18	10:25	SS	X	A		1	006	
ES-SS-18-013118	1/31/18	10:35	SS	X	A		1	007	
ES-SS-18-013118-D	1/31/18	10:35	SS	X	A		1	008	
ES-SS-05-013118	1/21/18	10:45	SS	X	A		1	009	
ES-SS-04-013118	1/21/18	10:55	SS	X	A		1	010	
ES-SS-04-013118-D	1/31/18	10:55	SS	X	A		1	011	
ES-SS-24-013118	1/31/18	11:10	SS	X	A		1	012	
ES-SS-23-013118	1/31/18	11:25	SS	X	A		1	013	
ES-SS-25-013118	1/31/18	12:00	SS	X	A		1	014	
ES-SS-26-013118	1/31/18	12:10	SS	X	A		1	015	
ES-SS-14-013118	1/31/18	12:20	SS	X	A		1	016	
ES-SS-13-013118	1/31/18	12:35	SS	X	A		1	017	
ES-SS-17-013118	1/31/18	12:35	SS	X	A		1	018	
ES-SS-19-013118	1/31/18	12:45	SS	X	A		1	019	
ES-RINSATE	1/31/18	12:50	W	X	B		2	020	

Quote No.:
 P.O. No.:
 Turn Around Time (Days):
 1 2 3 4 5-7 10
 Results Needed: PRELIM
 Additional Information: MS/MSD

Laboratory Work Order No.:
18810697
 Received on Ice: Yes No
 Temperature: On Ice

ICP-MS and -AES METALS									
MERCURY									

Comments: Privileged and Confidential - Prepared Pursuant to Attorney Direction
PRELIMINARY RESULTS BY FRIDAY 2/2
 Preservation Code: A = None B = HNO₃ C = NaOH
 D = H₂SO₄ E = HCl F = 5035/EnCore G = Other

Relinquished by: (Signature)	Date/Time
<u>[Signature]</u>	1/31/18 14:45
Received by: (Signature)	Date/Time
<u>[Signature]</u>	1/31/18 15:20
Relinquished by: (Signature)	Date/Time
Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Date/Time
Received by: (Signature)	Date/Time

Sample Receipt Checklist

Client Name TETRA CHICAGO

Date and Time Received: 1/31/2018 3:20:00 PM

Work Order Number 18010697

Received by: JNW

Checklist completed by: [Signature] 1/31/18
Signature Date

Reviewed by: MK 1/31/18
Initials Date

Matrix: Carrier name Client Delivered

Shipping container/cooler in good condition? Yes No Not Present

Custody seals intact on shipping container/cooler? Yes No Not Present

Custody seals intact on sample bottles? Yes No Not Present

Chain of custody present? Yes No

Chain of custody signed when relinquished and received? Yes No

Chain of custody agrees with sample labels/containers? Yes No

Samples in proper container/bottle? Yes No

Sample containers intact? Yes No

Sufficient sample volume for indicated test? Yes No

All samples received within holding time? Yes No

Container or Temp Blank temperature in compliance? Yes No Temperature On Ice °C

Water - VOA vials have zero headspace? No VOA vials submitted Yes No

Water - Samples pH checked? Yes No Checked by: J.W.

Water - Samples properly preserved? Yes No pH Adjusted? No

Any No response must be detailed in the comments section below.

Comments: _____

Client / Person contacted: _____ Date contacted: _____ Contacted by: _____

Response: _____

Craig Chawla

From: Durley, Stacey [stacey.durley@tetrattech.com]
Sent: Monday, January 29, 2018 2:40 PM
To: Craig Chawla
Subject: Request for Analysis
Importance: High

Matrix	Analytical Group	Concentration Level	Analytical Methods	Sample Volume and Containers	Preservation Requirements	Maximum Holding Time ^a (Preparation/Analysis)	Number of Samples
Soil,	Select metals: manganese, lead, arsenic, cadmium, chromium, cobalt, iron, nickel	ICP-AES, ICP-MS	SW-846 6010C, 6020A	One 8-ounce glass jar	Store at 4 degrees C	NA/180 days	35
	mercury	NA	SW-846 6010C, 6020A, 7471B	One 8-ounce glass jar	Store at 4 degrees C	NA/28 days	35
Water (rinsate blank)	Select metals: manganese, lead, arsenic, cadmium, chromium, cobalt, iron, nickel	ICP-AES, ICP-MS	SW-846 6010C	One 1,000-milliliter plastic bottle	Nitric acid to pH<2; Cool to 4 degrees C	NA/180 days	5
Water (rinsate blank)	mercury	NA	SW-846 6010C, 6020A, 7470A	One 1,000-mL glass or polyethylene bottle	To pH < 2 with nitric acid; store at 4 degrees C	NA/28 days	5

Wednesday 1/31 in Chicago. The table above shows the sample analysis, media and analysis. Would you be able to handle this week? We are hoping to get preliminary results by Friday 2/2 by COB. Let me know if this would work and the cost. Thank you! Stacey

Stacey Durley | Program Manager
 Direct: 312.201.7419 | Main: 312.201.7700 | Fax: 312.938.0118
Stacey.Durley@tetrattech.com

Tetra Tech Inc.
 1 South Wacker Drive, 37th Floor | Chicago, IL 60606 | www.tetrattech.com

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CLIENT: Tetra Tech EM Inc.
Work Order: 18010697
Project: 103S328404002, East Side Neighborhood, Chicago, IL

ANALYTICAL QC SUMMARY REPORT

Metals
BatchID: 106612

PREP BATCH SUMMARY

Sample ID	Matrix	pH	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
IMBS4 1/31/18			1.2	0	0	50	41.667	1/31/2018	1/31/2018
ILCSS4 1/31/18			1.2	0	0	50	41.667	1/31/2018	1/31/2018
18010697-001A	Soil		1.131	0	0	50	44.209	1/31/2018	1/31/2018
18010697-002A	Soil		1.152	0	0	50	43.403	1/31/2018	1/31/2018
18010697-003A	Soil		1.128	0	0	50	44.326	1/31/2018	1/31/2018
18010697-004A	Soil		1.12	0	0	50	44.643	1/31/2018	1/31/2018
18010697-005A	Soil		1.163	0	0	50	42.992	1/31/2018	1/31/2018
18010697-006A	Soil		1.138	0	0	50	43.937	1/31/2018	1/31/2018
18010697-007A	Soil		1.194	0	0	50	41.876	1/31/2018	1/31/2018
18010697-008A	Soil		1.19	0	0	50	42.017	1/31/2018	1/31/2018
18010697-009A	Soil		1.173	0	0	50	42.626	1/31/2018	1/31/2018
18010697-010A	Soil		1.123	0	0	50	44.524	1/31/2018	1/31/2018
18010697-011A	Soil		1.175	0	0	50	42.553	1/31/2018	1/31/2018
18010697-012A	Soil		1.134	0	0	50	44.092	1/31/2018	1/31/2018
18010697-013A	Soil		1.105	0	0	50	45.249	1/31/2018	1/31/2018
18010697-014A	Soil		1.162	0	0	50	43.029	1/31/2018	1/31/2018
18010697-015A	Soil		1.198	0	0	50	41.736	1/31/2018	1/31/2018
18010697-016A	Soil		1.142	0	0	50	43.783	1/31/2018	1/31/2018
18010697-016AMS	Soil		1.143	0	0	50	43.745	1/31/2018	1/31/2018
18010697-016AMSD	Soil		1.148	0	0	50	43.554	1/31/2018	1/31/2018
18010697-017A	Soil		1.103	0	0	50	45.331	1/31/2018	1/31/2018
18010697-018A	Soil		1.158	0	0	50	43.178	1/31/2018	1/31/2018
18010697-019A	Soil		1.143	0	0	50	43.745	1/31/2018	1/31/2018

QC SUMMARY

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:				
IMBS4 1/31/18	ZZZZZ	MBLK	mg/Kg	SW6020A	1/31/2018	2/1/2018	ICPMS_180201A	3905301				
Analyte		Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic		ND	0.42									
Cadmium		ND	0.21									
Chromium		ND	0.42									
Cobalt		ND	0.42									
Iron		4.738	12									J
Lead		ND	0.21									
Manganese		ND	0.42									
Nickel		ND	0.42									

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:				
ILCSS4 1/31/18	ZZZZZ	LCS	mg/Kg	SW6020A	1/31/2018	2/1/2018	ICPMS_180201A	3905305				
Analyte		Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic		21.09	0.42	20.83	0	101	80	120	0	0		
Cadmium		21.12	0.21	20.83	0	101	80	120	0	0		
Chromium		21.52	0.42	20.83	0	103	80	120	0	0		
Cobalt		21.97	0.42	20.83	0	105	80	120	0	0		
Iron		92	12	83.33	4.738	105	80	120	0	0		
Lead		21.91	0.21	20.83	0	105	80	120	0	0		
Manganese		21.62	0.42	20.83	0	104	80	120	0	0		
Nickel		21.4	0.42	20.83	0	103	80	120	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits E - Value above quantitation range
 * - Non Accredited Parameter H/HT - Holding Time Exceeded

CLIENT: Tetra Tech EM Inc.
Work Order: 18010697
Project: 103S328404002, East Side Neighborhood, Chicago, IL

ANALYTICAL QC SUMMARY REPORT

Metals
BatchID: 106612

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
18010697-016AMS	ES-SS-14-013118	MS	mg/Kg-dry	SW6020A	1/31/2018	2/1/2018	ICPMS_180201A	3905307			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Iron	29830	350	117.8	29900	-62.2	75	125	0	0		S
Manganese	2628	12	29.44	2232	1350	75	125	0	0		S

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
18010697-016AMS	ES-SS-14-013118	MS	mg/Kg-dry	SW6020A	1/31/2018	2/1/2018	ICPMS_180201A	3905565			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic	46.65	1.2	29.44	17.74	98.2	75	125	0	0		
Cadmium	31.83	0.59	29.44	3.087	97.6	75	125	0	0		
Chromium	76.07	1.2	29.44	42.83	113	75	125	0	0		
Cobalt	35.72	1.2	29.44	6.258	100	75	125	0	0		
Lead	519.2	0.59	29.44	458.2	207	75	125	0	0		S
Nickel	49.62	1.2	29.44	21.11	96.9	75	125	0	0		

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
18010697-016AMSD	ES-SS-14-013118	MSD	mg/Kg-dry	SW6020A	1/31/2018	2/1/2018	ICPMS_180201A	3905308			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Iron	34530	350	117.2	29900	3950	75	125	29830	14.6	20	S
Manganese	2699	12	29.31	2232	1590	75	125	2628	2.65	20	S

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
18010697-016AMSD	ES-SS-14-013118	MSD	mg/Kg-dry	SW6020A	1/31/2018	2/1/2018	ICPMS_180201A	3905566			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic	48.13	1.2	29.31	17.74	104	75	125	46.65	3.12	20	
Cadmium	32.68	0.59	29.31	3.087	101	75	125	31.83	2.64	20	
Chromium	74.39	1.2	29.31	42.83	108	75	125	76.07	2.23	20	
Cobalt	36.87	1.2	29.31	6.258	104	75	125	35.72	3.17	20	
Lead	569	0.59	29.31	458.2	378	75	125	519.2	9.16	20	S
Nickel	52.17	1.2	29.31	21.11	106	75	125	49.62	5.00	20	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits E - Value above quantitation range
 * - Non Accredited Parameter H/HT - Holding Time Exceeded

CLIENT: Tetra Tech EM Inc.
Work Order: 18010697
Project: 103S328404002, East Side Neighborhood, Chicago, IL

ANALYTICAL QC SUMMARY REPORT

Metals
BatchID: 106624

PREP BATCH SUMMARY

Sample ID	Matrix	pH	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
IMBW3 1/31/18			50	0	0	50	1.000	1/31/2018	1/31/2018
ILCSW3 1/31/18			50	0	0	50	1.000	1/31/2018	1/31/2018
18010697-020A	Aqueous		50	0	0	50	1.000	1/31/2018	1/31/2018
18010711-001C	Aqueous		50	0	0	50	1.000	1/31/2018	1/31/2018
18010711-002C	Aqueous		30	0	0	50	1.667	1/31/2018	1/31/2018
18010711-003C	Aqueous		50	0	0	50	1.000	1/31/2018	1/31/2018
18010711-004C	Aqueous		50	0	0	50	1.000	1/31/2018	1/31/2018
18010711-005C	Aqueous		50	0	0	50	1.000	1/31/2018	1/31/2018
18010711-006C	Aqueous		50	0	0	50	1.000	1/31/2018	1/31/2018
18010711-003CMS	Aqueous		50	0	0	50	1.000	1/31/2018	1/31/2018
18010711-003CMSD	Aqueous		50	0	0	50	1.000	1/31/2018	1/31/2018
18010664-001C	Aqueous		50	0	0	50	1.000	1/31/2018	1/31/2018
18010664-002C	Aqueous		50	0	0	50	1.000	1/31/2018	1/31/2018

QC SUMMARY

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
IMBW3 1/31/18	ZZZZZ	MBLK	mg/L	SW6020A	1/31/2018	2/1/2018	ICPMS_180201A	3905342			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic	0.00096	0.0040									J
Cadmium	ND	0.0020									
Chromium	0.00073	0.0040									J
Cobalt	ND	0.0040									
Iron	ND	0.10									
Lead	0.00061	0.0020									J
Manganese	0.00098	0.0040									J
Nickel	ND	0.0040									

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
ILCSW3 1/31/18	ZZZZZ	LCS	mg/L	SW6020A	1/31/2018	2/1/2018	ICPMS_180201A	3905343			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic	0.5056	0.0040	0.5	0.00096	101	80	120	0	0		
Cadmium	0.5035	0.0020	0.5	0	101	80	120	0	0		
Chromium	0.4838	0.0040	0.5	0.00073	96.6	80	120	0	0		
Cobalt	0.4979	0.0040	0.5	0	99.6	80	120	0	0		
Iron	2.09	0.10	2	0	104	80	120	0	0		
Lead	0.5106	0.0020	0.5	0.00061	102	80	120	0	0		
Manganese	0.4926	0.0040	0.5	0.00098	98.3	80	120	0	0		
Nickel	0.5028	0.0040	0.5	0	101	80	120	0	0		

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
18010711-003CMS	ZZZZZ	MS	mg/L	SW6020A	1/31/2018	2/1/2018	ICPMS_180201A	3905346			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic	0.5225	0.0040	0.5	0.01948	101	75	125	0	0		
Cadmium	0.4946	0.0020	0.5	0	98.9	75	125	0	0		
Chromium	0.4703	0.0040	0.5	0.00123	93.8	75	125	0	0		
Cobalt	0.4658	0.0040	0.5	0.0027	92.6	75	125	0	0		
Iron	6.953	0.10	2	4.991	98.1	75	125	0	0		
Lead	0.5204	0.0020	0.5	0	104	75	125	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits E - Value above quantitation range
 * - Non Accredited Parameter H/HT - Holding Time Exceeded

CLIENT: Tetra Tech EM Inc.

ANALYTICAL QC SUMMARY REPORT

Work Order: 18010697

Metals

Project: 103S328404002, East Side Neighborhood, Chicago, IL

BatchID: 106624

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
18010711-003CMS	ZZZZZ	MS	mg/L	SW6020A	1/31/2018	2/1/2018	ICPMS_180201A	3905346			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Manganese	0.6701	0.0040	0.5	0.2115	91.7	75	125	0	0		
Nickel	0.4872	0.0040	0.5	0.02444	92.6	75	125	0	0		

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
18010711-003CMSD	ZZZZZ	MSD	mg/L	SW6020A	1/31/2018	2/1/2018	ICPMS_180201A	3905347			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic	0.519	0.0040	0.5	0.01948	99.9	75	125	0.5225	0.672	20	
Cadmium	0.4952	0.0020	0.5	0	99	75	125	0.4946	0.121	20	
Chromium	0.4728	0.0040	0.5	0.00123	94.3	75	125	0.4703	0.530	20	
Cobalt	0.4732	0.0040	0.5	0.0027	94.1	75	125	0.4658	1.58	20	
Iron	7.046	0.10	2	4.991	103	75	125	6.953	1.33	20	
Lead	0.5188	0.0020	0.5	0	104	75	125	0.5204	0.308	20	
Manganese	0.6778	0.0040	0.5	0.2115	93.3	75	125	0.6701	1.14	20	
Nickel	0.4939	0.0040	0.5	0.02444	93.9	75	125	0.4872	1.37	20	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
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 * - Non Accredited Parameter H/HT - Holding Time Exceeded

CLIENT: Tetra Tech EM Inc.
Work Order: 18010697
Project: 103S328404002, East Side Neighborhood, Chicago, IL

ANALYTICAL QC SUMMARY REPORT

Metals
BatchID: 106601

PREP BATCH SUMMARY

Sample ID	Matrix	pH	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
HGMBW1 1/31/18			30	0	0	30	1.000	1/31/2018	1/31/2018
HGLCSW1 1/31/18			30	0	0	30	1.000	1/31/2018	1/31/2018
HGMBTA1 1/30/18			30	0	0	30	1.000	1/31/2018	1/31/2018
18010637-001B	Soil		30	0	0	30	1.000	1/31/2018	1/31/2018
18010652-001B	Soil		30	0	0	30	1.000	1/31/2018	1/31/2018
18010652-001BMS	Soil		30	0	0	30	1.000	1/31/2018	1/31/2018
18010652-001BMSD	Soil		30	0	0	30	1.000	1/31/2018	1/31/2018
HGMBTA2 1/30/18			30	0	0	30	1.000	1/31/2018	1/31/2018
18010654-001A	Soil		30	0	0	30	1.000	1/31/2018	1/31/2018
18010654-001AMS	Soil		30	0	0	30	1.000	1/31/2018	1/31/2018
18010161-003B	Soil		30	0	0	30	1.000	1/31/2018	1/31/2018
18010161-005B	Soil		30	0	0	30	1.000	1/31/2018	1/31/2018
18010697-020A	Aqueous		30	0	0	30	1.000	1/31/2018	1/31/2018
18010656-001C	Aqueous		30	0	0	30	1.000	1/31/2018	1/31/2018
18010656-002C	Aqueous		30	0	0	30	1.000	1/31/2018	1/31/2018
18010656-003C	Aqueous		30	0	0	30	1.000	1/31/2018	1/31/2018
18010664-001C	Aqueous		30	0	0	30	1.000	1/31/2018	1/31/2018
18010664-002C	Aqueous		30	0	0	30	1.000	1/31/2018	1/31/2018
18010711-001C	Aqueous		30	0	0	30	1.000	1/31/2018	1/31/2018
18010711-002C	Aqueous		10	0	0	30	3.000	1/31/2018	1/31/2018
18010711-003C	Aqueous		30	0	0	30	1.000	1/31/2018	1/31/2018
18010711-004C	Aqueous		30	0	0	30	1.000	1/31/2018	1/31/2018
18010711-005C	Aqueous		30	0	0	30	1.000	1/31/2018	1/31/2018
18010711-006C	Aqueous		30	0	0	30	1.000	1/31/2018	1/31/2018
HGMBTC 1/31/18			30	0	0	30	1.000	2/1/2018	2/1/2018
18010708-001A	Aqueous		30	0	0	30	1.000	2/1/2018	2/1/2018

QC SUMMARY

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:				
18010652-001BMS	ZZZZZ	MS	mg/L	SW1311/7470A	1/31/2018	1/31/2018	CETAC 2_180131B	3903976				
Analyte		Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury		0.0027	0.00020	0.0025	0.00001	108	75	125	0	0		

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:				
18010652-001BMSD	ZZZZZ	MSD	mg/L	SW1311/7470A	1/31/2018	1/31/2018	CETAC 2_180131B	3903977				
Analyte		Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury		0.0027	0.00020	0.0025	0.00001	108	75	125	0.0027	0	20	

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:				
HGMBW1 1/31/18	ZZZZZ	MBLK	mg/L	SW7470A	1/31/2018	1/31/2018	CETAC 2_180131B	3903971				
Analyte		Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury		ND	0.00020									

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:				
HGLCSW1 1/31/18	ZZZZZ	LCS	mg/L	SW7470A	1/31/2018	1/31/2018	CETAC 2_180131B	3903972				
Analyte		Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury		0.0027	0.00020	0.0025	0	108	85	115	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits E - Value above quantitation range
 * - Non Accredited Parameter H/HT - Holding Time Exceeded

CLIENT: Tetra Tech EM Inc.
Work Order: 18010697
Project: 103S328404002, East Side Neighborhood, Chicago, IL

ANALYTICAL QC SUMMARY REPORT

Metals
BatchID: 106628

PREP BATCH SUMMARY

Sample ID	Matrix	pH	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
HGMBS1 1/31/18			0.3	0	0	30	100.000	1/31/2018	1/31/2018
HGLCSS1 1/31/18			0.3	0	0	30	100.000	1/31/2018	1/31/2018
18010697-001A	Soil		0.353	0	0	30	84.986	1/31/2018	1/31/2018
18010697-002A	Soil		0.39	0	0	30	76.923	1/31/2018	1/31/2018
18010697-003A	Soil		0.379	0	0	30	79.156	1/31/2018	1/31/2018
18010697-004A	Soil		0.308	0	0	30	97.403	1/31/2018	1/31/2018
18010697-005A	Soil		0.34	0	0	30	88.235	1/31/2018	1/31/2018
18010697-006A	Soil		0.392	0	0	30	76.531	1/31/2018	1/31/2018
18010697-007A	Soil		0.335	0	0	30	89.552	1/31/2018	1/31/2018
18010697-008A	Soil		0.352	0	0	30	85.227	1/31/2018	1/31/2018
18010697-009A	Soil		0.312	0	0	30	96.154	1/31/2018	1/31/2018
18010697-010A	Soil		0.337	0	0	30	89.021	1/31/2018	1/31/2018
18010697-011A	Soil		0.31	0	0	30	96.774	1/31/2018	1/31/2018
18010697-012A	Soil		0.306	0	0	30	98.039	1/31/2018	1/31/2018
18010697-013A	Soil		0.372	0	0	30	80.645	1/31/2018	1/31/2018
18010697-014A	Soil		0.352	0	0	30	85.227	1/31/2018	1/31/2018
18010697-015A	Soil		0.397	0	0	30	75.567	1/31/2018	1/31/2018
18010697-016A	Soil		0.348	0	0	30	86.207	1/31/2018	1/31/2018
18010697-016AMS	Soil		0.346	0	0	30	86.705	1/31/2018	1/31/2018
18010697-016AMSD	Soil		0.346	0	0	30	86.705	1/31/2018	1/31/2018
18010697-017A	Soil		0.307	0	0	30	97.720	1/31/2018	1/31/2018
18010697-018A	Soil		0.308	0	0	30	97.403	1/31/2018	1/31/2018
18010697-019A	Soil		0.377	0	0	30	79.576	1/31/2018	1/31/2018

QC SUMMARY

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
HGMBS1 1/31/18	ZZZZZ	MBLK	mg/Kg	SW7471B	1/31/2018	1/31/2018	CETAC 2_180131C	3904638			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	ND	0.020									

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
HGLCSS1 1/31/18	ZZZZZ	LCS	mg/Kg	SW7471B	1/31/2018	1/31/2018	CETAC 2_180131C	3904639			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.26	0.020	0.25	0	104	80	120	0	0		

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
18010697-016AMS	ES-SS-14-013118	MS	mg/Kg-dry	SW7471B	1/31/2018	1/31/2018	CETAC 2_180131C	3904658			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.4785	0.023	0.2917	0.2204	88.4	75	125	0	0		

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
18010697-016AMSD	ES-SS-14-013118	MSD	mg/Kg-dry	SW7471B	1/31/2018	1/31/2018	CETAC 2_180131C	3904659			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.4785	0.023	0.2917	0.2204	88.4	75	125	0.4785	0	20	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits E - Value above quantitation range
 * - Non Accredited Parameter H/HT - Holding Time Exceeded

CLIENT: Tetra Tech EM Inc.
Work Order: 18010697
Project: 103S328404002, East Side Neighborhood, Chicago, IL

ANALYTICAL QC SUMMARY REPORT

Wet Chemistry
BatchID: R140339

ANALYTICAL RUN SUMMARY

SeqNo	Sample ID	Type	Test Code	Batch	DF	Date Analyzed
3905006	PMMBK6 1/31/18	MBLK	PMOIST	R140339	1	02/01/2018
3905007	PMLCS-S6 1/31/18	LCS	PMOIST	R140339	1	02/01/2018
3905008	PMLCS-W6 1/31/18	LCS	PMOIST	R140339	1	02/01/2018
3905009	18010697-016A	SAMP	PMOIST	R140339	1	02/01/2018
3905010	18010697-016A DUP	DUP	PMOIST	R140339	1	02/01/2018
3905011	18010697-001A	SAMP	PMOIST	R140339	1	02/01/2018
3905012	18010697-002A	SAMP	PMOIST	R140339	1	02/01/2018
3905013	18010697-003A	SAMP	PMOIST	R140339	1	02/01/2018
3905014	18010697-004A	SAMP	PMOIST	R140339	1	02/01/2018
3905015	18010697-005A	SAMP	PMOIST	R140339	1	02/01/2018
3905016	18010697-006A	SAMP	PMOIST	R140339	1	02/01/2018
3905017	18010697-007A	SAMP	PMOIST	R140339	1	02/01/2018
3905018	18010697-008A	SAMP	PMOIST	R140339	1	02/01/2018
3905019	18010697-009A	SAMP	PMOIST	R140339	1	02/01/2018
3905020	18010697-010A	SAMP	PMOIST	R140339	1	02/01/2018
3905021	18010697-011A	SAMP	PMOIST	R140339	1	02/01/2018
3905022	18010697-012A	SAMP	PMOIST	R140339	1	02/01/2018
3905023	18010697-013A	SAMP	PMOIST	R140339	1	02/01/2018
3905024	18010697-014A	SAMP	PMOIST	R140339	1	02/01/2018
3905025	18010697-015A	SAMP	PMOIST	R140339	1	02/01/2018
3905026	18010697-017A	SAMP	PMOIST	R140339	1	02/01/2018
3905027	18010697-018A	SAMP	PMOIST	R140339	1	02/01/2018
3905028	18010697-019A	SAMP	PMOIST	R140339	1	02/01/2018

QC SUMMARY

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:				
PMMBK6 1/31/18	ZZZZZ	MBLK	wt%	D2974	1/31/2018	2/1/2018	BALANCE_180131F	3905006				
Analyte		Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Percent Moisture		ND	0.200									*
PMLCS-S6 1/31/18	ZZZZZ	LCS	wt%	D2974	1/31/2018	2/1/2018	BALANCE_180131F	3905007				
Analyte		Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Percent Moisture		4.53	0.200	5	0	90.6	80	120	0	0		*
PMLCS-W6 1/31/18	ZZZZZ	LCS	wt%	D2974	1/31/2018	2/1/2018	BALANCE_180131F	3905008				
Analyte		Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Percent Moisture		99.77	0.200	99.8	0	100	80	120	0	0		*
18010697-016A DUP	ES-SS-14-013118	DUP	wt%	D2974	1/31/2018	2/1/2018	BALANCE_180131F	3905010				
Analyte		Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Percent Moisture		25.7	0.200	0	0	0	0	0	25.7	0	20	*

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
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 * - Non Accredited Parameter H/HT - Holding Time Exceeded

STAT Analysis Corporation

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766

Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

March 09, 2018

Tetra Tech EM Inc.
1 South Wacker Drive
Chicago, IL 60606

Telephone: (312) 201-7700

Fax: (312) 938-0118

Analytical Report for STAT Work Order: 18030148 Revision 0

RE: 103S328404002, East Side Neighborhood, Chicago, IL

Dear Stacey Durley:


STAT Analysis received 8 samples for the referenced project on 3/7/2018 1:50:00 PM. The analytical results are presented in the following report.

All analyses were performed in accordance with the requirements of 35 IAC Part 186 / NELAP standards. Analyses were performed in accordance with methods as referenced on the analytical report. Those analytical results expressed on a dry weight basis are also noted on the analytical report.

All analyses were performed within established holding time criteria, and all Quality Control criteria met EPA or laboratory specifications except when noted in the Case Narrative or Analytical Report. If required, an estimate of uncertainty for the analyses can be provided. A listing of accredited methods/parameters can also be provided.

Thank you for the opportunity to serve you and I look forward to working with you in the future. If you have any questions regarding the enclosed materials, please contact me at (312) 733-0551.

Sincerely,



Craig Chawla
Project Manager

The information contained in this report and any attachments is confidential information intended only for the use of the individual or entities named above. The results of this report relate only to the samples tested. If you have received this report in error, please notify us immediately by phone. This report shall not be reproduced, except in its entirety, unless written approval has been obtained from the laboratory. This analytical report shall become property of the Customer upon payment in full. Otherwise, STAT will be under no obligation to support, defend or discuss the analytical report.

Client: Tetra Tech EM Inc.**Project:** 103S328404002, East Side Neighborhood, Chicago, IL**Work Order:** 18030148 Revision 0**Work Order Sample Summary**

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
18030148-001A	ES-SS-46-030718		3/7/2018 9:10:00 AM	3/7/2018
18030148-002A	ES-SS-43-030718		3/7/2018 10:30:00 AM	3/7/2018
18030148-003A	ES-SS-36-030718		3/7/2018 11:15:00 AM	3/7/2018
18030148-004A	ES-SS-51-030718		3/7/2018 11:40:00 AM	3/7/2018
18030148-005A	ES-SS-49-030718		3/7/2018 12:10:00 PM	3/7/2018
18030148-006A	ES-SS-49-030718-D		3/7/2018 12:10:00 PM	3/7/2018
18030148-007A	ES-SS-33-030718		3/7/2018 12:30:00 PM	3/7/2018
18030148-008A	ES-Rinsate-030718		3/7/2018 1:45:00 PM	3/7/2018

STAT Analysis Corporation

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766

Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Date Reported: March 09, 2018

ANALYTICAL RESULTS

Date Printed: March 09, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-46-030718

Work Order: 18030148 Revision 0

Collection Date: 3/7/2018 9:10:00 AM

Project: 103S328404002, East Side Neighborhood, Chicago,

Matrix: Soil

Lab ID: 18030148-001

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)				Prep Date: 3/7/2018	Analyst: JG
Arsenic	8.4	1.1		mg/Kg-dry	10	3/7/2018
Cadmium	1.2	0.54		mg/Kg-dry	10	3/7/2018
Chromium	60	1.1		mg/Kg-dry	10	3/7/2018
Cobalt	7.7	1.1		mg/Kg-dry	10	3/7/2018
Iron	27000	32		mg/Kg-dry	10	3/7/2018
Lead	190	0.54		mg/Kg-dry	10	3/7/2018
Manganese	6000	1.1		mg/Kg-dry	10	3/7/2018
Nickel	20	1.1		mg/Kg-dry	10	3/7/2018
Mercury	SW7471B				Prep Date: 3/7/2018	Analyst: LB
Mercury	0.060	0.018		mg/Kg-dry	1	3/9/2018
Percent Moisture	D2974				Prep Date: 3/7/2018	Analyst: RW
Percent Moisture	15.9	0.2	*	wt%	1	3/8/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

STAT Analysis Corporation

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766

Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Date Reported: March 09, 2018

ANALYTICAL RESULTS

Date Printed: March 09, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-43-030718

Work Order: 18030148 Revision 0

Collection Date: 3/7/2018 10:30:00 AM

Project: 103S328404002, East Side Neighborhood, Chicago,

Matrix: Soil

Lab ID: 18030148-002

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)			Prep Date: 3/7/2018		Analyst: JG
Arsenic	14	1.2		mg/Kg-dry	10	3/7/2018
Cadmium	2.6	0.59		mg/Kg-dry	10	3/7/2018
Chromium	45	1.2		mg/Kg-dry	10	3/7/2018
Cobalt	6.9	1.2		mg/Kg-dry	10	3/7/2018
Iron	31000	35		mg/Kg-dry	10	3/7/2018
Lead	520	0.59		mg/Kg-dry	10	3/7/2018
Manganese	2000	1.2		mg/Kg-dry	10	3/7/2018
Nickel	25	1.2		mg/Kg-dry	10	3/7/2018
Mercury	SW7471B			Prep Date: 3/7/2018		Analyst: LB
Mercury	0.50	0.024		mg/Kg-dry	1	3/9/2018
Percent Moisture	D2974			Prep Date: 3/7/2018		Analyst: RW
Percent Moisture	25.6	0.2	*	wt%	1	3/8/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Date Reported: March 09, 2018

ANALYTICAL RESULTS

Date Printed: March 09, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-36-030718

Work Order: 18030148 Revision 0

Collection Date: 3/7/2018 11:15:00 AM

Project: 103S328404002, East Side Neighborhood, Chicago,

Matrix: Soil

Lab ID: 18030148-003

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)				Prep Date: 3/7/2018	Analyst: JG
Arsenic	13	1.2		mg/Kg-dry	10	3/7/2018
Cadmium	2.5	0.58		mg/Kg-dry	10	3/7/2018
Chromium	50	1.2		mg/Kg-dry	10	3/7/2018
Cobalt	7.6	1.2		mg/Kg-dry	10	3/7/2018
Iron	33000	34		mg/Kg-dry	10	3/7/2018
Lead	420	0.58		mg/Kg-dry	10	3/7/2018
Manganese	1700	1.2		mg/Kg-dry	10	3/7/2018
Nickel	28	1.2		mg/Kg-dry	10	3/7/2018
Mercury	SW7471B				Prep Date: 3/7/2018	Analyst: LB
Mercury	0.17	0.025		mg/Kg-dry	1	3/9/2018
Percent Moisture	D2974				Prep Date: 3/7/2018	Analyst: RW
Percent Moisture	24.0	0.2	*	wt%	1	3/8/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Date Reported: March 09, 2018

ANALYTICAL RESULTS

Date Printed: March 09, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-51-030718

Work Order: 18030148 Revision 0

Collection Date: 3/7/2018 11:40:00 AM

Project: 103S328404002, East Side Neighborhood, Chicago,

Matrix: Soil

Lab ID: 18030148-004

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)			Prep Date: 3/7/2018		Analyst: JG
Arsenic	11	1.1		mg/Kg-dry	10	3/7/2018
Cadmium	2.6	0.53		mg/Kg-dry	10	3/7/2018
Chromium	45	1.1		mg/Kg-dry	10	3/7/2018
Cobalt	5.5	1.1		mg/Kg-dry	10	3/7/2018
Iron	29000	32		mg/Kg-dry	10	3/9/2018
Lead	980	0.53		mg/Kg-dry	10	3/7/2018
Manganese	1700	1.1		mg/Kg-dry	10	3/7/2018
Nickel	26	1.1		mg/Kg-dry	10	3/7/2018
Mercury	SW7471B			Prep Date: 3/7/2018		Analyst: LB
Mercury	0.32	0.020		mg/Kg-dry	1	3/9/2018
Percent Moisture	D2974			Prep Date: 3/7/2018		Analyst: RW
Percent Moisture	20.9	0.2	*	wt%	1	3/8/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

STAT Analysis Corporation

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Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Date Reported: March 09, 2018

ANALYTICAL RESULTS

Date Printed: March 09, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-49-030718

Work Order: 18030148 Revision 0

Collection Date: 3/7/2018 12:10:00 PM

Project: 103S328404002, East Side Neighborhood, Chicago,

Matrix: Soil

Lab ID: 18030148-005

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)				Prep Date: 3/7/2018	Analyst: JG
Arsenic	26	1.2		mg/Kg-dry	10	3/7/2018
Cadmium	2.5	0.59		mg/Kg-dry	10	3/7/2018
Chromium	47	1.2		mg/Kg-dry	10	3/7/2018
Cobalt	7.4	1.2		mg/Kg-dry	10	3/7/2018
Iron	38000	36		mg/Kg-dry	10	3/7/2018
Lead	230	0.59		mg/Kg-dry	10	3/7/2018
Manganese	1400	1.2		mg/Kg-dry	10	3/7/2018
Nickel	23	1.2		mg/Kg-dry	10	3/7/2018
Mercury	SW7471B				Prep Date: 3/7/2018	Analyst: LB
Mercury	0.34	0.023		mg/Kg-dry	1	3/9/2018
Percent Moisture	D2974				Prep Date: 3/7/2018	Analyst: RW
Percent Moisture	24.2	0.2	*	wt%	1	3/8/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Date Reported: March 09, 2018

ANALYTICAL RESULTS

Date Printed: March 09, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-49-030718-D

Work Order: 18030148 Revision 0

Collection Date: 3/7/2018 12:10:00 PM

Project: 103S328404002, East Side Neighborhood, Chicago,

Matrix: Soil

Lab ID: 18030148-006

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)			Prep Date: 3/7/2018		Analyst: JG
Arsenic	25	1.2		mg/Kg-dry	10	3/7/2018
Cadmium	2.5	0.60		mg/Kg-dry	10	3/7/2018
Chromium	46	1.2		mg/Kg-dry	10	3/7/2018
Cobalt	7.5	1.2		mg/Kg-dry	10	3/7/2018
Iron	39000	36		mg/Kg-dry	10	3/7/2018
Lead	260	0.60		mg/Kg-dry	10	3/7/2018
Manganese	1300	1.2		mg/Kg-dry	10	3/7/2018
Nickel	25	1.2		mg/Kg-dry	10	3/7/2018
Mercury	SW7471B			Prep Date: 3/7/2018		Analyst: LB
Mercury	0.36	0.023		mg/Kg-dry	1	3/9/2018
Percent Moisture	D2974			Prep Date: 3/7/2018		Analyst: RW
Percent Moisture	24.6	0.2	*	wt%	1	3/8/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

STAT Analysis Corporation

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Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Date Reported: March 09, 2018

ANALYTICAL RESULTS

Date Printed: March 09, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-33-030718

Work Order: 18030148 Revision 0

Collection Date: 3/7/2018 12:30:00 PM

Project: 103S328404002, East Side Neighborhood, Chicago,

Matrix: Soil

Lab ID: 18030148-007

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)				Prep Date: 3/7/2018	Analyst: JG
Arsenic	180	1.3		mg/Kg-dry	10	3/7/2018
Cadmium	4.7	0.65		mg/Kg-dry	10	3/7/2018
Chromium	55	1.3		mg/Kg-dry	10	3/7/2018
Cobalt	8.5	1.3		mg/Kg-dry	10	3/7/2018
Iron	70000	39		mg/Kg-dry	10	3/7/2018
Lead	570	0.65		mg/Kg-dry	10	3/7/2018
Manganese	2200	1.3		mg/Kg-dry	10	3/7/2018
Nickel	29	1.3		mg/Kg-dry	10	3/7/2018
Mercury	SW7471B				Prep Date: 3/7/2018	Analyst: LB
Mercury	0.29	0.026		mg/Kg-dry	1	3/9/2018
Percent Moisture	D2974				Prep Date: 3/7/2018	Analyst: RW
Percent Moisture	33.7	0.2	*	wt%	1	3/8/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

STAT Analysis Corporation

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Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Date Reported: March 09, 2018

ANALYTICAL RESULTS

Date Printed: March 09, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-Rinsate-030718

Work Order: 18030148 Revision 0

Collection Date: 3/7/2018 1:45:00 PM

Project: 103S328404002, East Side Neighborhood, Chicago,

Matrix: Aqueous

Lab ID: 18030148-008

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3005A)				Prep Date: 3/7/2018	Analyst: JG
Arsenic	ND	0.0040		mg/L	2	3/8/2018
Cadmium	ND	0.0020		mg/L	2	3/8/2018
Chromium	ND	0.0040		mg/L	2	3/8/2018
Cobalt	ND	0.0040		mg/L	2	3/8/2018
Iron	ND	0.10		mg/L	2	3/8/2018
Lead	ND	0.0020		mg/L	2	3/8/2018
Manganese	ND	0.0040		mg/L	2	3/8/2018
Nickel	ND	0.0040		mg/L	2	3/8/2018
Mercury	SW7470A				Prep Date: 3/7/2018	Analyst: LB
Mercury	ND	0.00020		mg/L	1	3/7/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

Company: THATCH
 Project Number: 103SS328404002 Client Tracking No.:
 Project Name: EAST SIDE NEIGHBORHOOD
 Project Location: CHICAGO, IL
 Sampler(s): RACHEL HOWLE + ERIC BLAKE
 Report To: STACEY DAWLEY Phone: 312-201-7499
 QC Level: 1 2 3 4 X
 e-mail: STACEY.DAWLEY@THATCH.COM

Client Sample Number/Description:	Date Taken	Time Taken	Matrix	Comp.	Grab	Preserv.	No. of Containers
ES-SS-416-030718	3/7/18	9:10	SS	X	A	X	2
ES-SS-43-030718	3/7/18	10:30	SS	X	A	X	1
ES-SS-50-030718	3/7/18	11:15	SS	X	A	X	1
ES-SS-51-030718	3/7/18	11:40	SS	X	A	X	1
ES-SS-49-030718	3/7/18	12:10	SS	X	A	X	1
ES-SS-49-030718-D	3/7/18	12:10	SS	X	A	X	1
ES-SS-33-030718	3/7/18	12:30	SS	X	A	X	1
ES-RINATE-030718	3/7/18	13:45	W	X	B	X	2

Relinquished by: (Signature) RHOWLE Date/Time: 3/7/18 13:50
 Received by: (Signature) Stacey Dawley Date/Time: 3/7/18 13:50
 Relinquished by: (Signature) _____ Date/Time: _____
 Received by: (Signature) _____ Date/Time: _____
 Relinquished by: (Signature) _____ Date/Time: _____
 Received by: (Signature) _____ Date/Time: _____

Comments: Privileged: CONFIDENTIAL - PREPARED PURSUANT TO ATTORNEY DIRECTION

ICP-MS: ICP-AES METALS
 ICP-MS: HS

Quote No.:
 P.O. No.:
 Turn Around Time (Days):
 1 2 3 4 5-7 10
 Results Needed: PRELIM
3/9/18 am/pm
 Additional Information:
 Lab No.:
001
002
007
004
005
006
007
008
MS/MS D

Laboratory Work Order No.:
18050148
 Received on Ice: Yes No
 Temperature: On Ice

Preservation Code: A = None B = HNO₃ C = NaOH
 D = H₂SO₄ E = HCl F = 5035/EnCore G = Other

Sample Receipt Checklist

Client Name TETRA CHICAGO

Date and Time Received: 3/7/2018 1:50:00 PM

Work Order Number 18030148

Received by: CRG

Checklist completed by: Chris Lamb 3/7/18
Signature Date

Reviewed by: MK 3/7/18
Initials Date

Matrix: Carrier name Client Delivered

- Shipping container/cooler in good condition? Yes No Not Present
- Custody seals intact on shipping container/cooler? Yes No Not Present
- Custody seals intact on sample bottles? Yes No Not Present
- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels/containers? Yes No
- Samples in proper container/bottle? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No
- All samples received within holding time? Yes No
- Container or Temp Blank temperature in compliance? Yes No Temperature On Ice °C
- Water - VOA vials have zero headspace? No VOA vials submitted Yes No
- Water - Samples pH checked? Yes No Checked by: CRG
- Water - Samples properly preserved? Yes No pH Adjusted? No

Any No response must be detailed in the comments section below.

Comments: _____

Client / Person contacted: _____ Date contacted: _____ Contacted by: _____

Response: _____

CLIENT: Tetra Tech EM Inc.
Work Order: 18030148
Project: 103S328404002, East Side Neighborhood, Chicago, IL

ANALYTICAL QC SUMMARY REPORT

Metals
BatchID: 107305

PREP BATCH SUMMARY

Sample ID	Matrix	pH	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
IMBS4 3/7/18			1.2	0	0	50	41.667	3/7/2018	3/7/2018
ILCSS4 3/7/18			1.2	0	0	50	41.667	3/7/2018	3/7/2018
18030148-001A	Soil		1.114	0	0	50	44.883	3/7/2018	3/7/2018
18030148-002A	Soil		1.137	0	0	50	43.975	3/7/2018	3/7/2018
18030148-003A	Soil		1.138	0	0	50	43.937	3/7/2018	3/7/2018
18030148-004A	Soil		1.196	0	0	50	41.806	3/7/2018	3/7/2018
18030148-004AMS	Soil		1.195	0	0	50	41.841	3/7/2018	3/7/2018
18030148-004AMSD	Soil		1.199	0	0	50	41.701	3/7/2018	3/7/2018
18030148-005A	Soil		1.12	0	0	50	44.643	3/7/2018	3/7/2018
18030148-006A	Soil		1.106	0	0	50	45.208	3/7/2018	3/7/2018
18030148-007A	Soil		1.167	0	0	50	42.845	3/7/2018	3/7/2018

QC SUMMARY

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
IMBS4 3/7/18	ZZZZZ	MBLK	mg/Kg	SW6020A	3/7/2018	3/7/2018	ICPMS-3_180307A	3932851			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic	ND	0.42									
Cadmium	ND	0.21									
Chromium	ND	0.42									
Cobalt	ND	0.42									
Iron	ND	12									
Lead	ND	0.21									
Manganese	ND	0.42									
Nickel	ND	0.42									

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
ILCSS4 3/7/18	ZZZZZ	LCS	mg/Kg	SW6020A	3/7/2018	3/7/2018	ICPMS-3_180307A	3932852			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic	20	0.42	20.83	0	96	80	120	0	0		
Cadmium	19.75	0.21	20.83	0	94.8	80	120	0	0		
Chromium	18.79	0.42	20.83	0	90.2	80	120	0	0		
Cobalt	19.4	0.42	20.83	0	93.1	80	120	0	0		
Lead	19.82	0.21	20.83	0	95.1	80	120	0	0		
Manganese	19.74	0.42	20.83	0	94.7	80	120	0	0		
Nickel	20.11	0.42	20.83	0	96.5	80	120	0	0		

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
ILCSS4 3/7/18	ZZZZZ	LCS	mg/Kg	SW6020A	3/7/2018	3/9/2018	ICPMS_180309A	3934473			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Iron	93.25	12	83.33	0	112	80	120	0	0		
------	-------	----	-------	---	-----	----	-----	---	---	--	--

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
18030148-004AMS	ES-SS-51-030718	MS	mg/Kg-dry	SW6020A	3/7/2018	3/7/2018	ICPMS-3_180307A	3932856			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic	35.76	1.1	26.45	10.58	95.2	75	125	0	0		
Cadmium	28.46	0.53	26.45	2.609	97.8	75	125	0	0		
Chromium	67.39	1.1	26.45	44.68	85.8	75	125	0	0		
Cobalt	31.3	1.1	26.45	5.502	97.5	75	125	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits E - Value above quantitation range
 * - Non Accredited Parameter H/HT - Holding Time Exceeded

CLIENT: Tetra Tech EM Inc.
Work Order: 18030148
Project: 103S328404002, East Side Neighborhood, Chicago, IL

ANALYTICAL QC SUMMARY REPORT

Metals
BatchID: 107305

Sample ID: 18030148-004AMS	Customer ID: ES-SS-51-030718	SampType: MS	Units: mg/Kg-dry	TestNo: SW6020A	Prep Date: 3/7/2018	Analysis Date: 3/7/2018	Run ID: ICPMS-3_180307A	SeqNo: 3932856				
Analyte		Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Lead		673.3	0.53	26.45	975.1	-1140	75	125	0	0		S
Manganese		1666	1.1	26.45	1736	-265	75	125	0	0		S
Nickel		50.59	1.1	26.45	25.85	93.5	75	125	0	0		

Sample ID: 18030148-004AMS	Customer ID: ES-SS-51-030718	SampType: MS	Units: mg/Kg-dry	TestNo: SW6020A	Prep Date: 3/7/2018	Analysis Date: 3/9/2018	Run ID: ICPMS_180309A	SeqNo: 3934477				
Analyte		Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Iron		25620	32	105.8	29460	-3630	75	125	0	0		S
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Sample ID: 18030148-004AMSD	Customer ID: ES-SS-51-030718	SampType: MSD	Units: mg/Kg-dry	TestNo: SW6020A	Prep Date: 3/7/2018	Analysis Date: 3/7/2018	Run ID: ICPMS-3_180307A	SeqNo: 3932859				
Analyte		Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic		35.49	1.0	26.36	10.58	94.5	75	125	35.76	0.774	20	
Cadmium		28.14	0.53	26.36	2.609	96.9	75	125	28.46	1.13	20	
Chromium		61.52	1.0	26.36	44.68	63.9	75	125	67.39	9.11	20	S
Cobalt		31.33	1.0	26.36	5.502	98	75	125	31.3	0.0750	20	
Lead		572.6	0.53	26.36	975.1	-1530	75	125	673.3	16.2	20	S
Manganese		1561	1.0	26.36	1736	-665	75	125	1666	6.52	20	S
Nickel		48.62	1.0	26.36	25.85	86.4	75	125	50.59	3.97	20	

Sample ID: 18030148-004AMSD	Customer ID: ES-SS-51-030718	SampType: MSD	Units: mg/Kg-dry	TestNo: SW6020A	Prep Date: 3/7/2018	Analysis Date: 3/9/2018	Run ID: ICPMS_180309A	SeqNo: 3934478				
Analyte		Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Iron		27110	32	105.4	29460	-2220	75	125	25620	5.67	20	S
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Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits E - Value above quantitation range
 * - Non Accredited Parameter H/HT - Holding Time Exceeded

CLIENT: Tetra Tech EM Inc.
Work Order: 18030148
Project: 103S328404002, East Side Neighborhood, Chicago, IL

ANALYTICAL QC SUMMARY REPORT

Metals
BatchID: 107320

PREP BATCH SUMMARY

Sample ID	Matrix	pH	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
IMBW2 3/7/18			50	0	0	50	1.000	3/7/2018	3/7/2018
ILCSW2 3/7/18			50	0	0	50	1.000	3/7/2018	3/7/2018
18030060-001C	Aqueous		50	0	0	50	1.000	3/7/2018	3/7/2018
18030013-003A	Aqueous		50	0	0	50	1.000	3/7/2018	3/7/2018
18030132-001A	Aqueous		50	0	0	50	1.000	3/7/2018	3/7/2018
18030132-001AMS	Aqueous		50	0	0	50	1.000	3/7/2018	3/7/2018
18030132-001AMSD	Aqueous		50	0	0	50	1.000	3/7/2018	3/7/2018
18030132-002A	Aqueous		50	0	0	50	1.000	3/7/2018	3/7/2018
18030132-003B	Aqueous		50	0	0	50	1.000	3/7/2018	3/7/2018
18030148-008A	Aqueous		50	0	0	50	1.000	3/7/2018	3/7/2018
IMBSPLP 3/6/18			50	0	0	50	1.000	3/7/2018	3/7/2018
18020121-007B	Soil		50	0	0	50	1.000	3/7/2018	3/7/2018
18020121-008B	Soil		50	0	0	50	1.000	3/7/2018	3/7/2018
18020121-011B	Soil		50	0	0	50	1.000	3/7/2018	3/7/2018
18020121-011BMS	Soil		50	0	0	50	1.000	3/7/2018	3/7/2018
18020121-013A	Soil		50	0	0	50	1.000	3/7/2018	3/7/2018
18020121-014A	Soil		50	0	0	50	1.000	3/7/2018	3/7/2018
18020121-015A	Soil		50	0	0	50	1.000	3/7/2018	3/7/2018
18020121-016A	Soil		50	0	0	50	1.000	3/7/2018	3/7/2018
18020121-009B	Soil		50	0	0	50	1.000	3/7/2018	3/7/2018
18020121-019B	Soil		50	0	0	50	1.000	3/7/2018	3/7/2018

QC SUMMARY

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
IMBSPLP 3/6/18	ZZZZZ	MBLK	mg/L	SW1312/6020A	3/7/2018	3/8/2018	ICPMS-3_180307A	3932918			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic	ND	0.0040									
Cadmium	ND	0.0020									
Chromium	0.001482	0.0040									J
Cobalt	ND	0.0040									
Iron	0.02675	0.10									J
Lead	0.0003295	0.0020									J
Manganese	0.0008818	0.0040									J
Nickel	ND	0.0080									

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
18020121-011BMS	ZZZZZ	MS	mg/L	SW1312/6020A	3/7/2018	3/8/2018	ICPMS-3_180307A	3932920			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Lead	0.6207	0.0020	0.5	0.001728	124	75	125	0	0		
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Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
IMBW2 3/7/18	ZZZZZ	MBLK	mg/L	SW6020A	3/7/2018	3/7/2018	ICPMS-3_180307A	3932902			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic	0.0006949	0.0040									J
Cadmium	ND	0.0020									
Chromium	ND	0.0040									
Cobalt	ND	0.0040									

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits E - Value above quantitation range
 * - Non Accredited Parameter H/HT - Holding Time Exceeded

CLIENT: Tetra Tech EM Inc.
Work Order: 18030148
Project: 103S328404002, East Side Neighborhood, Chicago, IL

ANALYTICAL QC SUMMARY REPORT

Metals
BatchID: 107320

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
IMBW2 3/7/18	ZZZZZ	MBLK	mg/L	SW6020A	3/7/2018	3/7/2018	ICPMS-3_180307A	3932902			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Iron	0.02149	0.10									J
Lead	0.0009041	0.0020									J
Manganese	ND	0.0040									
Nickel	ND	0.0040									

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
ILCSW2 3/7/18	ZZZZZ	LCS	mg/L	SW6020A	3/7/2018	3/7/2018	ICPMS-3_180307A	3932903			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	0.4863	0.0040	0.5	0.0006949	97.1	80	120	0	0		
Cadmium	0.4926	0.0020	0.5	0	98.5	80	120	0	0		
Chromium	0.5131	0.0040	0.5	0	103	80	120	0	0		
Cobalt	0.5305	0.0040	0.5	0	106	80	120	0	0		
Iron	2.073	0.10	2	0.02149	103	80	120	0	0		
Lead	0.4982	0.0020	0.5	0.0009041	99.5	80	120	0	0		
Manganese	0.5322	0.0040	0.5	0	106	80	120	0	0		
Nickel	0.4841	0.0040	0.5	0	96.8	80	120	0	0		

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
18030132-001AMS	ZZZZZ	MS	mg/L	SW6020A	3/7/2018	3/8/2018	ICPMS-3_180307A	3932910			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	0.5082	0.0040	0.5	0.001781	101	75	125	0	0		
Chromium	0.5324	0.0040	0.5	0.0008318	106	75	125	0	0		
Cobalt	0.5389	0.0040	0.5	0.0002426	108	75	125	0	0		
Lead	0.5265	0.0020	0.5	0.0004898	105	75	125	0	0		
Manganese	0.5775	0.0040	0.5	0.01929	112	75	125	0	0		
Nickel	0.485	0.0040	0.5	0.002608	96.5	75	125	0	0		

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
18030132-001AMS	ZZZZZ	MS	mg/L	SW6020A	3/7/2018	3/8/2018	ICPMS_180308A	3933607			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Cadmium	0.4947	0.0020	0.5	0	98.9	75	125	0	0		
Iron	2.304	0.10	2	0.2385	103	75	125	0	0		

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
18030132-001AMSD	ZZZZZ	MSD	mg/L	SW6020A	3/7/2018	3/8/2018	ICPMS-3_180307A	3932913			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	0.493	0.0040	0.5	0.001781	98.2	75	125	0.5082	3.03	20	
Chromium	0.5077	0.0040	0.5	0.0008318	101	75	125	0.5324	4.74	20	
Cobalt	0.5118	0.0040	0.5	0.0002426	102	75	125	0.5389	5.14	20	
Lead	0.5184	0.0020	0.5	0.0004898	104	75	125	0.5265	1.56	20	
Manganese	0.5569	0.0040	0.5	0.01929	108	75	125	0.5775	3.62	20	
Nickel	0.4567	0.0040	0.5	0.002608	90.8	75	125	0.485	6.01	20	

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
18030132-001AMSD	ZZZZZ	MSD	mg/L	SW6020A	3/7/2018	3/8/2018	ICPMS_180308A	3933610			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Cadmium	0.499	0.0020	0.5	0	99.8	75	125	0.4947	0.865	20	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits E - Value above quantitation range
 * - Non Accredited Parameter H/HT - Holding Time Exceeded

CLIENT: Tetra Tech EM Inc.
Work Order: 18030148
Project: 103S328404002, East Side Neighborhood, Chicago, IL

ANALYTICAL QC SUMMARY REPORT

Metals
BatchID: 107320

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:				
18030132-001AMSD	ZZZZZ	MSD	mg/L	SW6020A	3/7/2018	3/8/2018	ICPMS_180308A	3933610				
Analyte		Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Iron		2.328	0.10	2	0.2385	104	75	125	2.304	1.04	20	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits E - Value above quantitation range
 * - Non Accredited Parameter H/HT - Holding Time Exceeded

CLIENT: Tetra Tech EM Inc.
Work Order: 18030148
Project: 103S328404002, East Side Neighborhood, Chicago, IL

ANALYTICAL QC SUMMARY REPORT

Metals
BatchID: 107319

PREP BATCH SUMMARY

Sample ID	Matrix	pH	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
HGMB3 3/7/18			0.3	0	0	30	100.000	3/7/2018	3/7/2018
HGLCSS3 3/7/18			0.3	0	0	30	100.000	3/7/2018	3/7/2018
18030148-001A	Soil		0.391	0	0	30	76.726	3/7/2018	3/7/2018
18030148-002A	Soil		0.336	0	0	30	89.286	3/7/2018	3/7/2018
18030148-003A	Soil		0.319	0	0	30	94.044	3/7/2018	3/7/2018
18030148-004A	Soil		0.385	0	0	30	77.922	3/7/2018	3/7/2018
18030148-004AMS	Soil		0.389	0	0	30	77.121	3/7/2018	3/7/2018
18030148-004AMSD	Soil		0.382	0	0	30	78.534	3/7/2018	3/7/2018
18030148-005A	Soil		0.351	0	0	30	85.470	3/7/2018	3/7/2018
18030148-006A	Soil		0.349	0	0	30	85.960	3/7/2018	3/7/2018
18030148-007A	Soil		0.343	0	0	30	87.464	3/7/2018	3/7/2018
18020490-009B	Soil		0.351	0	0	30	85.470	3/7/2018	3/7/2018
18020490-013B	Soil		0.308	0	0	30	97.403	3/7/2018	3/7/2018
18020490-024B	Soil		0.319	0	0	30	94.044	3/7/2018	3/7/2018
18020490-029B	Soil		0.324	0	0	30	92.593	3/7/2018	3/7/2018
18020490-039B	Soil		0.336	0	0	30	89.286	3/7/2018	3/7/2018
18020490-048B	Soil		0.327	0	0	30	91.743	3/7/2018	3/7/2018
18020490-058B	Soil		0.38	0	0	30	78.947	3/7/2018	3/7/2018

QC SUMMARY

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
HGMB3 3/7/18	ZZZZZ	MBLK	mg/Kg	SW7471B	3/7/2018	3/9/2018	CETAC 2_180309B	3934348			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	ND	0.020									

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
HGLCSS3 3/7/18	ZZZZZ	LCS	mg/Kg	SW7471B	3/7/2018	3/9/2018	CETAC 2_180309B	3934377			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.27	0.020	0.25	0	108	80	120	0	0		

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
18030148-004AMS	ES-SS-51-030718	MS	mg/Kg-dry	SW7471B	3/7/2018	3/9/2018	CETAC 2_180309B	3934355			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.5362	0.019	0.2437	0.3152	90.7	75	125	0	0		

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
18030148-004AMSD	ES-SS-51-030718	MSD	mg/Kg-dry	SW7471B	3/7/2018	3/9/2018	CETAC 2_180309B	3934380			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.5262	0.020	0.2482	0.3152	85	75	125	0.5362	1.89	20	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits E - Value above quantitation range
 * - Non Accredited Parameter H/HT - Holding Time Exceeded

CLIENT: Tetra Tech EM Inc.
Work Order: 18030148
Project: 103S328404002, East Side Neighborhood, Chicago, IL

ANALYTICAL QC SUMMARY REPORT

Metals
BatchID: 107311

PREP BATCH SUMMARY

Sample ID	Matrix	pH	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
HGMBW1 3/7/18			30	0	0	30	1.000	3/7/2018	3/7/2018
HGLCSW1 3/7/18			30	0	0	30	1.000	3/7/2018	3/7/2018
HGMBTA1 3/6/18			30	0	0	30	1.000	3/7/2018	3/7/2018
18030109-001A	Soil		30	0	0	30	1.000	3/7/2018	3/7/2018
18030130-001A	Soil		30	0	0	30	1.000	3/7/2018	3/7/2018
18030044-001A	Soil		30	0	0	30	1.000	3/7/2018	3/7/2018
18030045-001A	Soil		30	0	0	30	1.000	3/7/2018	3/7/2018
18030045-001AMS	Soil		30	0	0	30	1.000	3/7/2018	3/7/2018
18030045-001AMSD	Soil		30	0	0	30	1.000	3/7/2018	3/7/2018
18030092-001A	Solid		30	0	0	30	1.000	3/7/2018	3/7/2018
18030093-001A	Solid		30	0	0	30	1.000	3/7/2018	3/7/2018
18030148-008A	Aqueous		30	0	0	30	1.000	3/7/2018	3/7/2018
18030048-002A	Soil		30	0	0	30	1.000	3/7/2018	3/7/2018
18030066-001B	Soil		30	0	0	30	1.000	3/7/2018	3/7/2018
18030076-001A	Soil		30	0	0	30	1.000	3/7/2018	3/7/2018
18030085-001A	Soil		30	0	0	30	1.000	3/7/2018	3/7/2018

QC SUMMARY

Sample ID: 18030045-001AMS	Customer ID: ZZZZZ	SampType: MS	Units: mg/L	TestNo: SW1311/7470A	Prep Date: 3/7/2018	Analysis Date: 3/7/2018	Run ID: CETAC 2_180307C	SeqNo: 3932580			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.0021 0.00020 0.0025 0 84 75 125 0 0

Sample ID: 18030045-001AMSD	Customer ID: ZZZZZ	SampType: MSD	Units: mg/L	TestNo: SW1311/7470A	Prep Date: 3/7/2018	Analysis Date: 3/7/2018	Run ID: CETAC 2_180307C	SeqNo: 3932581			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.002 0.00020 0.0025 0 80 75 125 0.0021 4.88 20

Sample ID: HGMBW1 3/7/18	Customer ID: ZZZZZ	SampType: MBLK	Units: mg/L	TestNo: SW7470A	Prep Date: 3/7/2018	Analysis Date: 3/7/2018	Run ID: CETAC 2_180307B	SeqNo: 3932456			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury ND 0.00020

Sample ID: HGLCSW1 3/7/18	Customer ID: ZZZZZ	SampType: LCS	Units: mg/L	TestNo: SW7470A	Prep Date: 3/7/2018	Analysis Date: 3/7/2018	Run ID: CETAC 2_180307B	SeqNo: 3932460			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.0027 0.00020 0.0025 0 108 85 115 0 0

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits E - Value above quantitation range
 * - Non Accredited Parameter H/HT - Holding Time Exceeded

CLIENT: Tetra Tech EM Inc.
Work Order: 18030148
Project: 103S328404002, East Side Neighborhood, Chicago, IL

ANALYTICAL QC SUMMARY REPORT

Wet Chemistry
BatchID: R141385

ANALYTICAL RUN SUMMARY

SeqNo	Sample ID	Type	Test Code	Batch	DF	Date Analyzed
3932977	PMMBK2 3/7/18	MBLK	PMOIST	R141385	1	03/08/2018
3932978	PMLCS-S2 3/7/18	LCS	PMOIST	R141385	1	03/08/2018
3932979	PMLCS-W2 3/7/18	LCS	PMOIST	R141385	1	03/08/2018
3932980	18030148-004A	SAMP	PMOIST	R141385	1	03/08/2018
3932981	18030148-004A DUP	DUP	PMOIST	R141385	1	03/08/2018
3932982	18030148-001A	SAMP	PMOIST	R141385	1	03/08/2018
3932983	18030148-002A	SAMP	PMOIST	R141385	1	03/08/2018
3932984	18030148-003A	SAMP	PMOIST	R141385	1	03/08/2018
3932985	18030148-005A	SAMP	PMOIST	R141385	1	03/08/2018
3932986	18030148-006A	SAMP	PMOIST	R141385	1	03/08/2018
3932987	18030148-007A	SAMP	PMOIST	R141385	1	03/08/2018
3932988	18030150-001B	SAMP	PMOIST	R141385	1	03/08/2018

QC SUMMARY

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:				
PMMBK2 3/7/18	ZZZZZ	MBLK	wt%	D2974	3/7/2018	3/8/2018	BALANCE_180307B	3932977				
Analyte		Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Percent Moisture		ND	0.200									*

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:				
PMLCS-S2 3/7/18	ZZZZZ	LCS	wt%	D2974	3/7/2018	3/8/2018	BALANCE_180307B	3932978				
Analyte		Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Percent Moisture		4.49	0.200	5	0	89.8	80	120	0	0		*

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:				
PMLCS-W2 3/7/18	ZZZZZ	LCS	wt%	D2974	3/7/2018	3/8/2018	BALANCE_180307B	3932979				
Analyte		Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Percent Moisture		99.8	0.200	99.8	0	100	80	120	0	0		*

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:				
18030148-004A DUP	ES-SS-51-030718	DUP	wt%	D2974	3/7/2018	3/8/2018	BALANCE_180307B	3932981				
Analyte		Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Percent Moisture		21.01	0.200	0	0	0	0	0	20.91	0.477	20	*

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits E - Value above quantitation range
 * - Non Accredited Parameter H/HT - Holding Time Exceeded

STAT Analysis Corporation

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766

Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

March 12, 2018

Tetra Tech EM Inc.
1 South Wacker Drive
Chicago, IL 60606

Telephone: (312) 201-7700
Fax: (312) 938-0118

Analytical Report for STAT Work Order: 18030169 Revision 0

RE: 103S328404002, East Side Neighborhood, Chicago, IL

Dear Stacey Durley:

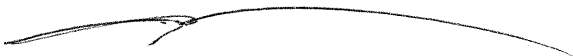
STAT Analysis received 7 samples for the referenced project on 3/8/2018 12:55:00 PM. The analytical results are presented in the following report.

All analyses were performed in accordance with the requirements of 35 IAC Part 186 / NELAP standards. Analyses were performed in accordance with methods as referenced on the analytical report. Those analytical results expressed on a dry weight basis are also noted on the analytical report.

All analyses were performed within established holding time criteria, and all Quality Control criteria met EPA or laboratory specifications except when noted in the Case Narrative or Analytical Report. If required, an estimate of uncertainty for the analyses can be provided. A listing of accredited methods/parameters can also be provided.

Thank you for the opportunity to serve you and I look forward to working with you in the future. If you have any questions regarding the enclosed materials, please contact me at (312) 733-0551.

Sincerely,



Craig Chawla
Project Manager

The information contained in this report and any attachments is confidential information intended only for the use of the individual or entities named above. The results of this report relate only to the samples tested. If you have received this report in error, please notify us immediately by phone. This report shall not be reproduced, except in its entirety, unless written approval has been obtained from the laboratory. This analytical report shall become property of the Customer upon payment in full. Otherwise, STAT will be under no obligation to support, defend or discuss the analytical report.

Client: Tetra Tech EM Inc.**Project:** 103S328404002, East Side Neighborhood, Chicago, IL **Work Order Sample Summary****Work Order:** 18030169 Revision 0

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
18030169-001A	ES-SS-31-030818		3/8/2018 9:30:00 AM	3/8/2018
18030169-002A	ES-SS-39-030818		3/8/2018 10:30:00 AM	3/8/2018
18030169-003A	ES-SS-41-030818		3/8/2018 11:15:00 AM	3/8/2018
18030169-004A	ES-SS-45-030818		3/8/2018 11:30:00 AM	3/8/2018
18030169-005A	ES-SS-48-030818		3/8/2018 11:45:00 AM	3/8/2018
18030169-006A	ES-Rinsate-030818		3/8/2018 11:55:00 AM	3/8/2018
18030169-007A	ES-SS-48-030818-D		3/8/2018 11:45:00 AM	3/8/2018

STAT Analysis Corporation

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Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Date Reported: March 12, 2018

ANALYTICAL RESULTS

Date Printed: March 12, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-31-030818

Work Order: 18030169 Revision 0

Collection Date: 3/8/2018 9:30:00 AM

Project: 103S328404002, East Side Neighborhood, Chicago

Matrix: Soil

Lab ID: 18030169-001

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)			Prep Date: 3/8/2018		Analyst: JG
Arsenic	5.9	1.1		mg/Kg-dry	10	3/9/2018
Cadmium	1.1	0.54		mg/Kg-dry	10	3/9/2018
Chromium	25	1.1		mg/Kg-dry	10	3/9/2018
Cobalt	3.7	1.1		mg/Kg-dry	10	3/9/2018
Iron	13000	320		mg/Kg-dry	100	3/8/2018
Lead	130	0.54		mg/Kg-dry	10	3/9/2018
Manganese	420	1.1		mg/Kg-dry	10	3/9/2018
Nickel	12	1.1		mg/Kg-dry	10	3/9/2018
Mercury	SW7471B			Prep Date: 3/8/2018		Analyst: LB
Mercury	0.10	0.023		mg/Kg-dry	1	3/9/2018
Percent Moisture	D2974			Prep Date: 3/8/2018		Analyst: RW
Percent Moisture	20.0	0.2	*	wt%	1	3/9/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Date Reported: March 12, 2018

ANALYTICAL RESULTS

Date Printed: March 12, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-39-030818

Work Order: 18030169 Revision 0

Collection Date: 3/8/2018 10:30:00 AM

Project: 103S328404002, East Side Neighborhood, Chicago

Matrix: Soil

Lab ID: 18030169-002

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)				Prep Date: 3/8/2018	Analyst: JG
Arsenic	4.1	1.1		mg/Kg-dry	10	3/9/2018
Cadmium	0.72	0.53		mg/Kg-dry	10	3/9/2018
Chromium	19	1.1		mg/Kg-dry	10	3/9/2018
Cobalt	3.1	1.1		mg/Kg-dry	10	3/9/2018
Iron	12000	320		mg/Kg-dry	100	3/8/2018
Lead	170	0.53		mg/Kg-dry	10	3/9/2018
Manganese	840	1.1		mg/Kg-dry	10	3/9/2018
Nickel	10	1.1		mg/Kg-dry	10	3/9/2018
Mercury	SW7471B				Prep Date: 3/8/2018	Analyst: LB
Mercury	0.089	0.020		mg/Kg-dry	1	3/9/2018
Percent Moisture	D2974				Prep Date: 3/8/2018	Analyst: RW
Percent Moisture	15.1	0.2	*	wt%	1	3/9/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Date Reported: March 12, 2018

ANALYTICAL RESULTS

Date Printed: March 12, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-41-030818

Work Order: 18030169 Revision 0

Collection Date: 3/8/2018 11:15:00 AM

Project: 103S328404002, East Side Neighborhood, Chicago

Matrix: Soil

Lab ID: 18030169-003

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)				Prep Date: 3/8/2018	Analyst: JG
Arsenic	12	1.2		mg/Kg-dry	10	3/9/2018
Cadmium	1.8	0.62		mg/Kg-dry	10	3/9/2018
Chromium	31	1.2		mg/Kg-dry	10	3/9/2018
Cobalt	6.9	1.2		mg/Kg-dry	10	3/9/2018
Iron	21000	370		mg/Kg-dry	100	3/8/2018
Lead	290	0.62		mg/Kg-dry	10	3/9/2018
Manganese	1200	1.2		mg/Kg-dry	10	3/9/2018
Nickel	18	1.2		mg/Kg-dry	10	3/9/2018
Mercury	SW7471B				Prep Date: 3/8/2018	Analyst: LB
Mercury	0.15	0.025		mg/Kg-dry	1	3/9/2018
Percent Moisture	D2974				Prep Date: 3/8/2018	Analyst: RW
Percent Moisture	27.5	0.2	*	wt%	1	3/9/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Date Reported: March 12, 2018

ANALYTICAL RESULTS

Date Printed: March 12, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-45-030818

Work Order: 18030169 Revision 0

Collection Date: 3/8/2018 11:30:00 AM

Project: 103S328404002, East Side Neighborhood, Chicago

Matrix: Soil

Lab ID: 18030169-004

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)				Prep Date: 3/8/2018	Analyst: JG
Arsenic	4.9	1.1		mg/Kg-dry	10	3/9/2018
Cadmium	1.8	0.55		mg/Kg-dry	10	3/9/2018
Chromium	65	1.1		mg/Kg-dry	10	3/9/2018
Cobalt	8.5	1.1		mg/Kg-dry	10	3/9/2018
Iron	19000	320		mg/Kg-dry	100	3/8/2018
Lead	120	0.55		mg/Kg-dry	10	3/9/2018
Manganese	6000	11		mg/Kg-dry	100	3/8/2018
Nickel	28	1.1		mg/Kg-dry	10	3/9/2018
Mercury	SW7471B				Prep Date: 3/8/2018	Analyst: LB
Mercury	0.20	0.021		mg/Kg-dry	1	3/9/2018
Percent Moisture	D2974				Prep Date: 3/8/2018	Analyst: RW
Percent Moisture	19.9	0.2	*	wt%	1	3/9/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Date Reported: March 12, 2018

ANALYTICAL RESULTS

Date Printed: March 12, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-48-030818

Work Order: 18030169 Revision 0

Collection Date: 3/8/2018 11:45:00 AM

Project: 103S328404002, East Side Neighborhood, Chicago

Matrix: Soil

Lab ID: 18030169-005

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)			Prep Date: 3/8/2018		Analyst: JG
Arsenic	7.1	1.1		mg/Kg-dry	10	3/9/2018
Cadmium	2.2	0.56		mg/Kg-dry	10	3/9/2018
Chromium	68	1.1		mg/Kg-dry	10	3/9/2018
Cobalt	7.1	1.1		mg/Kg-dry	10	3/9/2018
Iron	23000	330		mg/Kg-dry	100	3/8/2018
Lead	360	0.56		mg/Kg-dry	10	3/9/2018
Manganese	4700	11		mg/Kg-dry	100	3/8/2018
Nickel	25	1.1		mg/Kg-dry	10	3/9/2018
Mercury	SW7471B			Prep Date: 3/8/2018		Analyst: LB
Mercury	0.14	0.020		mg/Kg-dry	1	3/9/2018
Percent Moisture	D2974			Prep Date: 3/8/2018		Analyst: RW
Percent Moisture	22.0	0.2	*	wt%	1	3/9/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

STAT Analysis Corporation

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Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

Date Reported: March 12, 2018

ANALYTICAL RESULTS

Date Printed: March 12, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-Rinsate-030818

Work Order: 18030169 Revision 0

Collection Date: 3/8/2018 11:55:00 AM

Project: 103S328404002, East Side Neighborhood, Chicago

Matrix: Aqueous

Lab ID: 18030169-006

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3005A)		Prep Date: 3/8/2018		Analyst: JG	
Arsenic	ND	0.0040		mg/L	2	3/8/2018
Cadmium	ND	0.0020		mg/L	2	3/8/2018
Chromium	ND	0.0040		mg/L	2	3/8/2018
Cobalt	ND	0.0040		mg/L	2	3/8/2018
Iron	ND	0.10		mg/L	2	3/8/2018
Lead	ND	0.0020		mg/L	2	3/8/2018
Manganese	ND	0.0040		mg/L	2	3/8/2018
Nickel	ND	0.0040		mg/L	2	3/8/2018
Mercury	SW7470A		Prep Date: 3/8/2018		Analyst: LB	
Mercury	ND	0.00020		mg/L	1	3/9/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

STAT Analysis Corporation

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Date Reported: March 12, 2018

ANALYTICAL RESULTS

Date Printed: March 12, 2018

Client: Tetra Tech EM Inc.

Client Sample ID: ES-SS-48-030818-D

Work Order: 18030169 Revision 0

Collection Date: 3/8/2018 11:45:00 AM

Project: 103S328404002, East Side Neighborhood, Chicago

Matrix: Soil

Lab ID: 18030169-007

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020A (SW3050B)				Prep Date: 3/8/2018	Analyst: JG
Arsenic	7.2	1.0		mg/Kg-dry	10	3/9/2018
Cadmium	2.1	0.52		mg/Kg-dry	10	3/9/2018
Chromium	65	1.0		mg/Kg-dry	10	3/9/2018
Cobalt	7.1	1.0		mg/Kg-dry	10	3/9/2018
Iron	22000	31		mg/Kg-dry	10	3/9/2018
Lead	340	0.52		mg/Kg-dry	10	3/9/2018
Manganese	4500	10		mg/Kg-dry	100	3/8/2018
Nickel	36	1.0		mg/Kg-dry	10	3/9/2018
Mercury	SW7471B				Prep Date: 3/8/2018	Analyst: LB
Mercury	0.12	0.023		mg/Kg-dry	1	3/9/2018
Percent Moisture	D2974				Prep Date: 3/8/2018	Analyst: RW
Percent Moisture	19.0	0.2	*	wt%	1	3/9/2018

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

CHAIN OF CUSTODY RECORD

Company: Tetra Tech
 Project Number: 103S328404002 Client Tracking No.:
 Project Name: EAST SIDE NEIGHBORHOOD
 Project Location: CHICAGO, IL
 Sampler(s): ROCKWELL HALL + ERIC BLAKE
 Report To: STACEY DWYER Phone: 312-201-7419
 Fax:

Quote No.:
 P.O. No.:
 Turn Around Time (Days):
 1 2 3 4 5-7 10
 Results Needed: PRELIM
 3 / 12 / 18 am/pm
 Additional Information: Lab No.:
 001
 002
 005
 004
 005
 006
 007

QC Level	1	2	3	4	Date Taken	Time Taken	Matrix	Comp.	Grab	Preserv.	No. of Containers	ICP-MS - AFS METALS	Other
				X	3/8/18	9:30	SS		X	A	1	X	
					3/8/18	10:30	SS		X	A	1	X	
					3/8/18	11:15	SS		X	A	1	X	
					3/8/18	11:30	SS		X	A	1	X	
					3/8/18	11:45	SS		X	A	1	X	
					3/8/18	11:55	W		X	B	2	X	
					3/8/18	11:45	SS		X	A	1	X	

Relinquished by: (Signature) R. P. [Signature] Date/Time: 3/8/18 12:55
 Received by: (Signature) [Signature] Date/Time: 3/8/18 12:55
 Relinquished by: (Signature) _____ Date/Time: _____
 Received by: (Signature) _____ Date/Time: _____
 Relinquished by: (Signature) _____ Date/Time: _____
 Received by: (Signature) _____ Date/Time: _____

Comments: Privileged: CONFIDENTIAL - PREPARED PURSUANT TO ATTORNEY DIRECTOR PRELIM RESULTS BY MONDAY MARCH 12th

Laboratory Work Order No.: 18030109
 Received on Ice: Yes No
 Temperature: 21.2 °C

Sample Receipt Checklist

Client Name **TETRA CHICAGO**

Date and Time Received: **3/8/2018 12:55:00 PM**

Work Order Number **18030169**

Received by: **CRG**

Checklist completed by: *Chantel Sub* *3/8/18*
Signature Date

Reviewed by: *MK* *3/8/18*
Initials Date

Matrix: Carrier name Client Delivered

- Shipping container/cooler in good condition? Yes No Not Present
- Custody seals intact on shipping container/cooler? Yes No Not Present
- Custody seals intact on sample bottles? Yes No Not Present
- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels/containers? Yes No
- Samples in proper container/bottle? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No
- All samples received within holding time? Yes No
- Container or Temp Blank temperature in compliance? Yes No Temperature On Ice °C
- Water - VOA vials have zero headspace? No VOA vials submitted Yes No
- Water - Samples pH checked? Yes No Checked by: *CRG*
- Water - Samples properly preserved? Yes No pH Adjusted? *No*

Any No response must be detailed in the comments section below.

Comments: _____

Client / Person contacted: _____ Date contacted: _____ Contacted by: _____

Response: _____

CLIENT: Tetra Tech EM Inc.
Work Order: 18030169
Project: 103S328404002, East Side Neighborhood, Chicago, IL

ANALYTICAL QC SUMMARY REPORT

Metals
BatchID: 107334

PREP BATCH SUMMARY

Sample ID	Matrix	pH	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
IMBS1 3/8/18			1.2	0	0	50	41.667	3/8/2018	3/8/2018
ILCSS1 3/8/18			1.2	0	0	50	41.667	3/8/2018	3/8/2018
18030111-001A	Paint Chips		0.0693	0	0	50	721.501	3/8/2018	3/8/2018
18030111-002A	Paint Chips		0.0978	0	0	50	511.247	3/8/2018	3/8/2018
18030111-003A	Paint Chips		0.0648	0	0	50	771.605	3/8/2018	3/8/2018
18030058-001B	Soil		1.119	0	0	50	44.683	3/8/2018	3/8/2018
18030065-001B	Soil		1.107	0	0	50	45.167	3/8/2018	3/8/2018
18030066-001B	Soil		1.118	0	0	50	44.723	3/8/2018	3/8/2018
18030067-001A	Soil		1.154	0	0	50	43.328	3/8/2018	3/8/2018
18030067-004A	Soil		1.113	0	0	50	44.924	3/8/2018	3/8/2018
18030067-006B	Soil		1.176	0	0	50	42.517	3/8/2018	3/8/2018
18030178-001B	Soil		1.141	0	0	50	43.821	3/8/2018	3/8/2018
18030169-001A	Soil		1.152	0	0	50	43.403	3/8/2018	3/8/2018
18030169-002A	Soil		1.102	0	0	50	45.372	3/8/2018	3/8/2018
18030169-003A	Soil		1.112	0	0	50	44.964	3/8/2018	3/8/2018
18030169-004A	Soil		1.14	0	0	50	43.860	3/8/2018	3/8/2018
18030169-005A	Soil		1.137	0	0	50	43.975	3/8/2018	3/8/2018
18030169-007A	Soil		1.176	0	0	50	42.517	3/8/2018	3/8/2018
18030067-004AMS	Soil		1.115	0	0	50	44.843	3/8/2018	3/8/2018
18030067-004AMSD	Soil		1.118	0	0	50	44.723	3/8/2018	3/8/2018

QC SUMMARY

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
IMBS1 3/8/18	ZZZZZ	MBLK	mg/Kg	SW6020A	3/8/2018	3/8/2018	ICPMS_180308A	3933873			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic	ND	0.42									
Cadmium	ND	0.21									
Chromium	ND	0.42									
Cobalt	ND	0.42									
Iron	ND	12									
Lead	ND	0.21									
Manganese	ND	0.42									
Nickel	ND	0.42									

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
ILCSS1 3/8/18	ZZZZZ	LCS	mg/Kg	SW6020A	3/8/2018	3/8/2018	ICPMS_180308A	3933874			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic	19.12	0.42	20.83	0	91.8	80	120	0	0		
Cadmium	19.68	0.21	20.83	0	94.4	80	120	0	0		
Chromium	20.35	0.42	20.83	0	97.7	80	120	0	0		
Cobalt	20.39	0.42	20.83	0	97.9	80	120	0	0		
Iron	83.17	12	83.33	0	99.8	80	120	0	0		
Lead	20.72	0.21	20.83	0	99.4	80	120	0	0		
Manganese	20.06	0.42	20.83	0	96.3	80	120	0	0		
Nickel	20.12	0.42	20.83	0	96.6	80	120	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits E - Value above quantitation range
 * - Non Accredited Parameter H/HT - Holding Time Exceeded

CLIENT: Tetra Tech EM Inc.

ANALYTICAL QC SUMMARY REPORT

Work Order: 18030169

Metals

Project: 103S328404002, East Side Neighborhood, Chicago, IL

BatchID: 107334

Sample ID: 18030067-004AMS	Customer ID: ZZZZZ	SampType: MS	Units: mg/Kg-dry	TestNo: SW6020A	Prep Date: 3/8/2018	Analysis Date: 3/8/2018	Run ID: ICPMS_180308A	SeqNo: 3933890
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Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	37.24	1.1	26.25	11.49	98.1	75	125	0	0		
Cadmium	25.34	0.53	26.25	0.1878	95.8	75	125	0	0		
Chromium	41.74	1.1	26.25	14.11	105	75	125	0	0		
Cobalt	40.64	1.1	26.25	14.73	98.7	75	125	0	0		
Iron	18130	32	105	18190	-56.1	75	125	0	0		SE
Lead	40.02	0.53	26.25	12.36	105	75	125	0	0		
Manganese	478.6	1.1	26.25	486.9	-31.7	75	125	0	0		S
Nickel	50.38	1.1	26.25	26.5	91	75	125	0	0		

Sample ID: 18030067-004AMSD	Customer ID: ZZZZZ	SampType: MSD	Units: mg/Kg-dry	TestNo: SW6020A	Prep Date: 3/8/2018	Analysis Date: 3/9/2018	Run ID: ICPMS_180308A	SeqNo: 3933891
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Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	37.16	1.0	26.18	11.49	98	75	125	37.24	0.212	20	
Cadmium	25.42	0.52	26.18	0.1878	96.4	75	125	25.34	0.310	20	
Chromium	41.27	1.0	26.18	14.11	104	75	125	41.74	1.15	20	
Cobalt	40.36	1.0	26.18	14.73	97.8	75	125	40.64	0.696	20	
Iron	18080	31	104.7	18190	-108	75	125	18130	0.298	20	SE
Lead	40.27	0.52	26.18	12.36	107	75	125	40.02	0.633	20	
Manganese	472.8	1.0	26.18	486.9	-53.9	75	125	478.6	1.22	20	S
Nickel	50.35	1.0	26.18	26.5	91.1	75	125	50.38	0.0709	20	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits E - Value above quantitation range
 * - Non Accredited Parameter H/HT - Holding Time Exceeded

CLIENT: Tetra Tech EM Inc.
Work Order: 18030169
Project: 103S328404002, East Side Neighborhood, Chicago, IL

ANALYTICAL QC SUMMARY REPORT

Metals
BatchID: 107342

PREP BATCH SUMMARY

Sample ID	Matrix	pH	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
IMBW3 3/8/18			50	0	0	50	1.000	3/8/2018	3/8/2018
ILCSW3 3/8/18			50	0	0	50	1.000	3/8/2018	3/8/2018
18030169-006A	Aqueous		50	0	0	50	1.000	3/8/2018	3/8/2018
18030064-001F	Aqueous		50	0	0	50	1.000	3/8/2018	3/8/2018
18030064-002F	Aqueous		50	0	0	50	1.000	3/8/2018	3/8/2018
18030064-003F	Aqueous		50	0	0	50	1.000	3/8/2018	3/8/2018
18030064-004F	Aqueous		50	0	0	50	1.000	3/8/2018	3/8/2018
18030064-004FMS	Aqueous		50	0	0	50	1.000	3/8/2018	3/8/2018
18030064-004FMSD	Aqueous		50	0	0	50	1.000	3/8/2018	3/8/2018
18030064-001E	Aqueous		50	0	0	50	1.000	3/8/2018	3/8/2018
18030064-002E	Aqueous		50	0	0	50	1.000	3/8/2018	3/8/2018
18030064-003E	Aqueous		50	0	0	50	1.000	3/8/2018	3/8/2018
18030064-004E	Aqueous		50	0	0	50	1.000	3/8/2018	3/8/2018
IMBTC 3/7/18			50	0	0	50	1.000	3/8/2018	3/8/2018
18030048-001A	Aqueous		50	0	0	50	1.000	3/8/2018	3/8/2018
18030095-001A	Product		20	0	0	50	2.500	3/8/2018	3/8/2018

QC SUMMARY

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
IMBW3 3/8/18	ZZZZZ	MBLK	mg/L	SW6020A	3/8/2018	3/8/2018	ICPMS_180308A	3933864

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	ND	0.0040									
Cadmium	ND	0.0020									
Chromium	ND	0.0040									
Cobalt	ND	0.0040									
Iron	ND	0.10									
Lead	ND	0.0020									
Manganese	ND	0.0040									
Nickel	ND	0.0040									

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
ILCSW3 3/8/18	ZZZZZ	LCS	mg/L	SW6020A	3/8/2018	3/8/2018	ICPMS_180308A	3933865

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	0.5106	0.0040	0.5	0	102	80	120	0	0		
Cadmium	0.5164	0.0020	0.5	0	103	80	120	0	0		
Chromium	0.5102	0.0040	0.5	0	102	80	120	0	0		
Cobalt	0.5198	0.0040	0.5	0	104	80	120	0	0		
Iron	2.092	0.10	2	0	105	80	120	0	0		
Lead	0.5245	0.0020	0.5	0	105	80	120	0	0		
Manganese	0.507	0.0040	0.5	0	101	80	120	0	0		
Nickel	0.5031	0.0040	0.5	0	101	80	120	0	0		

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:
18030064-004FMS	ZZZZZ	MS	mg/L	SW6020A	3/8/2018	3/8/2018	ICPMS_180308A	3933871

Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	0.4899	0.0040	0.5	0.006	96.8	75	125	0	0		
Cadmium	0.4491	0.0020	0.5	0	89.8	75	125	0	0		
Chromium	0.4809	0.0040	0.5	0	96.2	75	125	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits E - Value above quantitation range
 * - Non Accredited Parameter H/HT - Holding Time Exceeded

CLIENT: Tetra Tech EM Inc.
Work Order: 18030169
Project: 103S328404002, East Side Neighborhood, Chicago, IL

ANALYTICAL QC SUMMARY REPORT

Metals
BatchID: 107342

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
18030064-004FMS	ZZZZZ	MS	mg/L	SW6020A	3/8/2018	3/8/2018	ICPMS_180308A	3933871			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Cobalt	0.4841	0.0040	0.5	0.00732	95.4	75	125	0	0		
Iron	4.634	0.10	2	2.803	91.6	75	125	0	0		
Lead	0.538	0.0020	0.5	0.01546	105	75	125	0	0		
Manganese	1.226	0.0040	0.5	0.794	86.4	75	125	0	0		
Nickel	0.4901	0.0040	0.5	0.03729	90.6	75	125	0	0		

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
18030064-004FMSD	ZZZZZ	MSD	mg/L	SW6020A	3/8/2018	3/8/2018	ICPMS_180308A	3933872			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Arsenic	0.5071	0.0040	0.5	0.006	100	75	125	0.4899	3.45	20	
Cadmium	0.4632	0.0020	0.5	0	92.6	75	125	0.4491	3.09	20	
Chromium	0.4914	0.0040	0.5	0	98.3	75	125	0.4809	2.16	20	
Cobalt	0.5013	0.0040	0.5	0.00732	98.8	75	125	0.4841	3.49	20	
Iron	4.82	0.10	2	2.803	101	75	125	4.634	3.93	20	
Lead	0.5359	0.0020	0.5	0.01546	104	75	125	0.538	0.391	20	
Manganese	1.236	0.0040	0.5	0.794	88.4	75	125	1.226	0.812	20	
Nickel	0.5077	0.0040	0.5	0.03729	94.1	75	125	0.4901	3.53	20	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits E - Value above quantitation range
 * - Non Accredited Parameter H/HT - Holding Time Exceeded

CLIENT: Tetra Tech EM Inc.
Work Order: 18030169
Project: 103S328404002, East Side Neighborhood, Chicago, IL

ANALYTICAL QC SUMMARY REPORT

Metals
BatchID: 107358

PREP BATCH SUMMARY

Sample ID	Matrix	pH	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
HGMBS1 3/8/18			0.3	0	0	30	100.000	3/8/2018	3/8/2018
HGLCSS1 3/8/18			0.3	0	0	30	100.000	3/8/2018	3/8/2018
18030169-001A	Soil		0.324	0	0	30	92.593	3/8/2018	3/8/2018
18030169-002A	Soil		0.351	0	0	30	85.470	3/8/2018	3/8/2018
18030169-003A	Soil		0.326	0	0	30	92.025	3/8/2018	3/8/2018
18030169-003AMS	Soil		0.327	0	0	30	91.743	3/8/2018	3/8/2018
18030169-003AMSD	Soil		0.326	0	0	30	92.025	3/8/2018	3/8/2018
18030169-004A	Soil		0.363	0	0	30	82.645	3/8/2018	3/8/2018
18030169-005A	Soil		0.386	0	0	30	77.720	3/8/2018	3/8/2018
18030169-007A	Soil		0.327	0	0	30	91.743	3/8/2018	3/8/2018
18030178-001B	Soil		0.351	0	0	30	85.470	3/8/2018	3/8/2018
18030194-001B	Soil		0.368	0	0	30	81.522	3/9/2018	3/9/2018
18030224-001B	Soil		0.372	0	0	30	80.645	3/9/2018	3/9/2018
18030127-001B	Soil		0.352	0	0	30	85.227	3/9/2018	3/9/2018
18030127-002B	Soil		0.334	0	0	30	89.820	3/9/2018	3/9/2018
18030127-003B	Soil		0.388	0	0	30	77.320	3/9/2018	3/9/2018
18030127-004B	Soil		0.393	0	0	30	76.336	3/9/2018	3/9/2018
18030127-005B	Soil		0.34	0	0	30	88.235	3/9/2018	3/9/2018
18030127-006B	Soil		0.35	0	0	30	85.714	3/9/2018	3/9/2018
18030127-007B	Soil		0.352	0	0	30	85.227	3/9/2018	3/9/2018
18030186-004B	Soil		0.304	0	0	30	98.684	3/9/2018	3/9/2018
18030186-005B	Soil		0.336	0	0	30	89.286	3/9/2018	3/9/2018
18030156-001B	Soil		0.303	0	0	30	99.010	3/9/2018	3/9/2018
18030156-002B	Soil		0.334	0	0	30	89.820	3/9/2018	3/9/2018

QC SUMMARY

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:				
HGMBS1 3/8/18	ZZZZZ	MBLK	mg/Kg	SW7471B	3/8/2018	3/9/2018	CETAC 2_180309C	3934449				
Analyte		Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury		0.007	0.020									J

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:				
HGLCSS1 3/8/18	ZZZZZ	LCS	mg/Kg	SW7471B	3/8/2018	3/9/2018	CETAC 2_180309C	3934436				
Analyte		Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury		0.23	0.020	0.25	0.007	89.2	80	120	0	0		

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:				
18030169-003AMS	ES-SS-41-030818	MS	mg/Kg-dry	SW7471B	3/8/2018	3/9/2018	CETAC 2_180309C	3934441				
Analyte		Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury		0.3923	0.025	0.3164	0.1523	75.9	75	125	0	0		

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:				
18030169-003AMSD	ES-SS-41-030818	MSD	mg/Kg-dry	SW7471B	3/8/2018	3/9/2018	CETAC 2_180309C	3934442				
Analyte		Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury		0.4316	0.025	0.3173	0.1523	88	75	125	0.3923	9.54	20	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits E - Value above quantitation range
 * - Non Accredited Parameter H/HT - Holding Time Exceeded

CLIENT: Tetra Tech EM Inc.
Work Order: 18030169
Project: 103S328404002, East Side Neighborhood, Chicago, IL

ANALYTICAL QC SUMMARY REPORT

Metals
BatchID: 107359

PREP BATCH SUMMARY

Sample ID	Matrix	pH	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
HGMBW1 3/8/18			30	0	0	30	1.000	3/8/2018	3/8/2018
HGLCSW1 3/8/18			30	0	0	30	1.000	3/8/2018	3/8/2018
18030169-006A	Aqueous		30	0	0	30	1.000	3/8/2018	3/8/2018
18030169-006AMS	Aqueous		30	0	0	30	1.000	3/8/2018	3/8/2018
18030169-006AMSD	Aqueous		30	0	0	30	1.000	3/8/2018	3/8/2018
HGMBTA1 3/7/18			30	0	0	30	1.000	3/8/2018	3/8/2018
18030126-001AMS	Oil		15	0	0	30	2.000	3/8/2018	3/8/2018
18030126-001A	Oil		15	0	0	30	2.000	3/8/2018	3/8/2018
HGMBTC 3/7/18			30	0	0	30	1.000	3/8/2018	3/8/2018
18030048-001A	Aqueous		0.1	0	0	30	300.000	3/8/2018	3/8/2018
18030095-001A	Product		30	0	0	30	1.000	3/8/2018	3/8/2018
HGMBTA1 3/8/18			30	0	0	30	1.000	3/9/2018	3/9/2018
18030174-001A	Soil		30	0	0	30	1.000	3/9/2018	3/9/2018
18030174-001AMS	Soil		30	0	0	30	1.000	3/9/2018	3/9/2018
18020661-022B	Soil		30	0	0	30	1.000	3/9/2018	3/9/2018
18020661-034B	Soil		30	0	0	30	1.000	3/9/2018	3/9/2018

QC SUMMARY

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
HGMBW1 3/8/18	ZZZZZ	MBLK	mg/L	SW7470A	3/8/2018	3/9/2018	CETAC 2_180309D	3934517			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury ND 0.00020

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
HGLCSW1 3/8/18	ZZZZZ	LCS	mg/L	SW7470A	3/8/2018	3/9/2018	CETAC 2_180309D	3934518			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.0024 0.00020 0.0025 0 96 85 115 0 0

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
18030169-006AMS	ES-Rinsate-03081	MS	mg/L	SW7470A	3/8/2018	3/9/2018	CETAC 2_180309D	3934520			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.002 0.00020 0.0025 0 80 75 125 0 0

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
18030169-006AMSD	ES-Rinsate-03081	MSD	mg/L	SW7470A	3/8/2018	3/9/2018	CETAC 2_180309D	3934521			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Mercury 0.002 0.00020 0.0025 0 80 75 125 0.002 0 20

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits E - Value above quantitation range
 * - Non Accredited Parameter H/HT - Holding Time Exceeded

CLIENT: Tetra Tech EM Inc.
Work Order: 18030169
Project: 103S328404002, East Side Neighborhood, Chicago, IL

ANALYTICAL QC SUMMARY REPORT

Wet Chemistry
BatchID: R141432

ANALYTICAL RUN SUMMARY

SeqNo	Sample ID	Type	Test Code	Batch	DF	Date Analyzed
3934128	PMMBK2 3/8/18	MBLK	PMOIST	R141432	1	03/09/2018
3934129	PMLCS-S2 3/8/18	LCS	PMOIST	R141432	1	03/09/2018
3934130	PMLCS-W2 3/8/18	LCS	PMOIST	R141432	1	03/09/2018
3934131	18030159-008B	SAMP	PMOIST	R141432	1	03/09/2018
3934132	18030159-008B DUP	DUP	PMOIST	R141432	1	03/09/2018
3934133	18030159-001B	SAMP	PMOIST	R141432	1	03/09/2018
3934134	18030159-002B	SAMP	PMOIST	R141432	1	03/09/2018
3934135	18030159-003B	SAMP	PMOIST	R141432	1	03/09/2018
3934136	18030159-004B	SAMP	PMOIST	R141432	1	03/09/2018
3934137	18030159-005B	SAMP	PMOIST	R141432	1	03/09/2018
3934138	18030159-006B	SAMP	PMOIST	R141432	1	03/09/2018
3934139	18030159-007B	SAMP	PMOIST	R141432	1	03/09/2018
3934140	18030159-009B	SAMP	PMOIST	R141432	1	03/09/2018
3934141	18030169-001A	SAMP	PMOIST	R141432	1	03/09/2018
3934142	18030169-002A	SAMP	PMOIST	R141432	1	03/09/2018
3934143	18030169-003A	SAMP	PMOIST	R141432	1	03/09/2018
3934144	18030169-004A	SAMP	PMOIST	R141432	1	03/09/2018
3934145	18030169-005A	SAMP	PMOIST	R141432	1	03/09/2018
3934146	18030169-007A	SAMP	PMOIST	R141432	1	03/09/2018
3934147	18030173-021B	SAMP	PMOIST	R141432	1	03/09/2018
3934303	18030174-001A	SAMP	PSOLID	R141432	1	03/09/2018

QC SUMMARY

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
PMMBK2 3/8/18	ZZZZZ	MBLK	wt%	D2974	3/8/2018	3/9/2018	BALANCE_180308B	3934128			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Percent Moisture	ND	0.200									*

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
PMLCS-S2 3/8/18	ZZZZZ	LCS	wt%	D2974	3/8/2018	3/9/2018	BALANCE_180308B	3934129			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Percent Moisture	5.03	0.200	5	0	101	80	120	0	0		*

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
PMLCS-W2 3/8/18	ZZZZZ	LCS	wt%	D2974	3/8/2018	3/9/2018	BALANCE_180308B	3934130			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Percent Moisture	99.77	0.200	99.8	0	100	80	120	0	0		*

Sample ID:	Customer ID:	SampType:	Units:	TestNo:	Prep Date:	Analysis Date:	Run ID:	SeqNo:			
18030159-008B DUP	ZZZZZ	DUP	wt%	D2974	3/8/2018	3/9/2018	BALANCE_180308B	3934132			
Analyte	Result	PQL	SPK value	SPK Ref Val	% REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Percent Moisture	15.3	0.200	0	0	0	0	0	15.34	0.261	20	*

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits E - Value above quantitation range
 * - Non Accredited Parameter H/HT - Holding Time Exceeded