

Date: July 13, 2016

To: Rob Ede
Hahn and Associates Inc.

From: Jeanne Peterson
Sr. Data Validator, AQA

Subject: Data Validation
Siltronic RI - Doane Creek
Alpha Analytical SDG L1609560 (A6C1124)

SUMMARY

Level III data validation was performed on the data for eight soil samples prepared and analyzed with approved procedures using laboratory method 91 (soot carbon). The samples were submitted to Alpha Analytical for analysis. Data were reported for all requested analytes.

The analytical data were evaluated in accordance with the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (October 1999) and the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (February 1994) (NFG).

In general, the data are valid as reported. No sample data were rejected. Other qualifiers were applied to the data as specified in the Data Qualifiers section below.

See attached data validation spreadsheets for supporting documentation on the data review and validation.



SAMPLES

The samples included in this validation are listed below.

| Sample ID | Alpha Analytical Laboratory ID | APEX Laboratory ID | Matrix |
|-----------------------|--------------------------------|--------------------|--------|
| 5237-160329-DC-EMB010 | L1609560-01 | A6C1124-02 | Soil |
| 5237-160329-DC-EMB005 | L1609560-02 | A6C1124-04 | Soil |
| 5237-160329-DC-EMB004 | L1609560-03 | A6C1124-06 | Soil |
| 5237-160329-DC-EMB001 | L1609560-04 | A6C1124-08 | Soil |
| 5237-160329-DC-EMB013 | L1609560-05 | A6C1124-10 | Soil |
| 5237-160329-DC-EMB014 | L1609560-06 | A6C1124-12 | Soil |
| 5237-160329-DC-EMB017 | L1609560-07 | A6C1124-14 | Soil |
| 5237-160329-DC-EMB020 | L1609560-08 | A6C1124-16 | Soil |

DATA QUALIFIERS (see following sections for detailed explanations)

| Sample ID | Analyte | Qualifier | Reason for Qualification |
|-----------------------|-------------|-----------|------------------------------|
| 5237-160329-DC-EMB010 | Soot carbon | J | Analyzed beyond holding time |
| 5237-160329-DC-EMB005 | Soot carbon | UJ | Analyzed beyond holding time |
| 5237-160329-DC-EMB004 | Soot carbon | UJ | Analyzed beyond holding time |
| 5237-160329-DC-EMB001 | Soot carbon | J | Analyzed beyond holding time |
| 5237-160329-DC-EMB013 | Soot carbon | UJ | Analyzed beyond holding time |
| 5237-160329-DC-EMB014 | Soot carbon | UJ | Analyzed beyond holding time |
| 5237-160329-DC-EMB017 | Soot carbon | UJ | Analyzed beyond holding time |
| 5237-160329-DC-EMB020 | Soot carbon | UJ | Analyzed beyond holding time |



DISCUSSION

Sample Shipping/Receiving

All COC, analysis request, and sample receipt documentation was complete and correct.

Holding Times and Preservation

The samples were preserved and analyzed within the prescribed holding times with the following exceptions.

The samples were analyzed beyond, but within 2X, the specified holding time for soot carbon using the Lloyd Kahn method. The associated sample results that were detects were **qualified J**, and the associated sample results that were non-detects were **qualified UJ**.

Calibration

All initial and continuing calibration acceptance criteria were met with the following exceptions.

Initial calibration (ICAL) and initial and continuing calibration verification (ICV/CCV) summaries were not included in the data package. The ICAL standard concentrations were plotted against the percent soot carbon obtained for each standard, and the ICV/CCV concentrations were obtained from this curve. The calculated percent recoveries (%Rs) were within QC acceptance limits.

Blanks

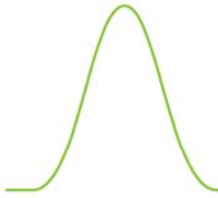
The target analyte was not detected in the method blanks or calibration blanks. Initial and continuing calibration blank (ICB/CCB) summaries were not included in the data package. The ICAL standard concentrations were plotted against the percent soot carbon obtained for each standard, and the ICB/CCB concentrations were obtained from this curve. The calculated percent recoveries (%Rs) were < the reporting limit (RL).

Laboratory Control Sample (LCS)

The standard reference material (SRM) (i.e., solid LCS) analysis met all laboratory QC acceptance criteria.

Matrix Spike (MS)

The MS analysis met all laboratory QC acceptance criteria.



Laboratory Duplicate

The laboratory duplicate analysis met all laboratory QC acceptance criteria.

Field Duplicate

A field duplicate was not collected with the samples in this data package.

Reporting Limits

All reporting limits were properly reported. The samples were not diluted.

Other QC

It should be noted that the sample and QC summary forms were not included in the Level IV data package. The summary forms were included in the Level II data package only.

No other specific issues that affect data quality were identified.

Hahn Data Validation Summary Worksheet

| | | | |
|---|------------------------------|--|---|
| SDG#: L1609560 (A6C1124) | Laboratory: Alpha Analytical | Validator: Jeanne Peterson | Validation Date: 06/06/2016 |
| Site: Siltronic RI - Doane Creek | COC#: NA | | Validation Level: <input type="checkbox"/> II <input checked="" type="checkbox"/> III |
| Matrix: Soil | # of Samples: 8 | Tracking docs present: See sample receipt and log-in documentation | |
| COCs present: Yes | COCs signed: Yes | COCs dated: Yes | Sample Container Integrity: OK |
| Analyses: <input type="checkbox"/> VOCs <input type="checkbox"/> SVOCs <input type="checkbox"/> PAHs <input type="checkbox"/> GRO <input type="checkbox"/> DRO <input type="checkbox"/> Pests <input type="checkbox"/> PCBs <input type="checkbox"/> Metals <input checked="" type="checkbox"/> Gen Chem <input type="checkbox"/> Cyanide <input type="checkbox"/> Other: | | | |

| Requested Analyses Not Reported | | | |
|---------------------------------|---------------|----------|----------|
| Client Sample ID | Lab Sample ID | Analysis | Comments |
| None | | | |
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| Hold Time/Preservation Outliers | | | | | | | | |
|---------------------------------|----------------------|----------|-------|-----------------|------------------|---------------|-----------------|-----------------|
| Client Sample ID | Lab Sample ID | Analysis | Pres. | Collection Date | Preparation Date | Analysis Date | Analysis <3X HT | Analysis ≥3X HT |
| All | L1609560-01 thru -08 | Soot C* | 4°C | 3/29/2016 | 4/19/2016 | 4/20/2016 | Yes | No |
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Comments: Samples collected 3/29. Lloyd Kahn method has a holding time of 14 days.
 Cooler temps OK.
 Analytical report separate from raw data.

Hahn Level III General Chemistry Worksheet

| | | |
|--|--------------|--------------------------------------|
| SDG: L1609560 | Matrix: Soil | Lab Sample IDs: L1609560-01 thru -08 |
| Method/Batch #s: 91 (soot carbon)/WG885897 | | |

(75-125%) (75-125%) ≤25%

| Analyte (outliers) | (80-120%) Calibration | | | | | | Method Blank | 5X MB | LCS ¹ %R | MS %R | Lab Dup RPD | | | | | | | |
|-----------------------|-----------------------|-----|-----|-----|-----|-------|-----------------|-------|------------------------|----------|-------------------|--|--|--|--|--|--|--|
| | r ≥0.995 | ICV | CCV | ICB | CCB | 5X CB | | | | | | | | | | | | |
| Soot C | ✓ | ✓ | ✓ | ✓ | ✓ | NA | ✓ | NA | ✓ | ✓ | ✓ | | | | | | | |
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Comments: HTs OK for regular, but out for Lloyd Kahn.
 WG885897: MB, -01MS, Dup, SRM