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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 L1609539 (A6C1076)

SUMMARY

Level III data validation was performed on the data for 11 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
5237-160328-DC-SED063	L1609539-01	A6C1076-02	Soil
5237-160328-DC-SED065	L1609539-02	A6C1076-04	Soil
5237-160328-DC-SED068	L1609539-03	A6C1076-06	Soil
5237-160328-DC-SED070	L1609539-04	A6C1076-08	Soil
5237-160328-DC-SED072	L1609539-05	A6C1076-10	Soil
5237-160328-DC-SED075	L1609539-06	A6C1076-12	Soil
5237-160328-DC-SED077	L1609539-07	A6C1076-14	Soil
5237-160328-DC-SED077D	L1609539-08	A6C1076-16	Soil
5237-160328-DC-SED082	L1609539-09	A6C1076-18	Soil
5237-160328-DC-SED085	L1609539-10	A6C1076-20	Soil
5237-160328-DC-SED087	L1609539-11	A6C1076-22	Soil

DATA QUALIFIERS (see following sections for detailed explanations)

Sample ID	Analyte	Qualifier	Reason for Qualification
5237-160328-DC-SED063	Soot carbon	UJ	Analyzed beyond holding time
5237-160328-DC-SED065	Soot carbon	J	Analyzed beyond holding time
5237-160328-DC-SED068	Soot carbon	J	Analyzed beyond holding time
5237-160328-DC-SED070	Soot carbon	UJ	Analyzed beyond holding time
5237-160328-DC-SED072	Soot carbon	UJ	Analyzed beyond holding time
5237-160328-DC-SED075	Soot carbon	UJ	Analyzed beyond holding time
5237-160328-DC-SED077	Soot carbon	UJ	Analyzed beyond holding time
5237-160328-DC-SED077D	Soot carbon	UJ	Analyzed beyond holding time

Sample ID	Analyte	Qualifier	Reason for Qualification
5237-160328-DC-SED082	Soot carbon	UJ	Analyzed beyond holding time
5237-160328-DC-SED085	Soot carbon	UJ	Analyzed beyond holding time
5237-160328-DC-SED087	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) analyses met all laboratory QC acceptance criteria.

Matrix Spike (MS)

The MS analyses met all laboratory QC acceptance criteria.

Laboratory Duplicate

The laboratory duplicate analyses met all laboratory QC acceptance criteria.

Field Duplicate

The field duplicate analysis met all QC acceptance criteria.

Reporting Limits

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

Other QC

No other specific issues that affect data quality were identified.

Hahn Data Validation Summary Worksheet

SDG#: L1609539 (A6C1076)	Laboratory: Alpha Analytical	Validator: Jeanne Peterson	Validation Date: 06/06/2016
Site: Siltronic RI - Doane Creek	COC#: NA		Validation Level: ☐ II ☒ III
Matrix: Soil	# of Samples: 11	Tracking docs present: See sample receipt and log-in documentation	
COCs present: Yes	COCs signed: Yes	COCs dated: Yes	Sample Container Integrity: OK

Analyses:
☐ VOCs ☐ SVOCs ☐ PAHs ☐ GRO ☐ DRO ☐ Pests ☐ PCBs ☐ Metals ☒ Gen Chem ☐ Cyanide
☐ Other:

Requested Analyses Not Reported

Client Sample ID	Lab Sample ID	Analysis	Comments
None			

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	L1609539-01 thru -11	Soot C*	4°C	3/28/2016	4/21/2016, 4/22/2016	4/21/2016, 4/22/2016	Yes	No

Comments: Samples collected 3/28. Lloyd Kahn method has a holding time of 14 days.

Cooler temps OK.

Hahn Level III General Chemistry Worksheet

SDG: L1609539	Matrix: Soil	Lab Sample IDs: L1609539-01 thru -11
Method/Batch #s: 91 (soot carbon)/WG886298 (01 thru -09) & WG886401 (10, 11)		

(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**											
None	✓	✓	✓	✓	✓	NA	✓	NA	✓	✓	✓						

Comments: HTs OK for regular, but out for Lloyd Kahn.
WG886298: MB, L1609563-03MS, Dup, SRM
WG886401: MB, -11MS, Dup, SRM

[1]Solid LCS = SRM (Standard Reference Material)