

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
Analytical Resources, Incorporated Job No AYR6 (A6D0013)

SUMMARY

Level III data validation was performed on the data for six soil samples prepared and analyzed with approved procedures using method SM 4500-S2 D (sulfide). The samples were submitted to Analytical Resources, Incorporated (ARI) 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. No 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	ARI Laboratory ID	APEX Laboratory ID	Matrix
5237-160331-NDP-SED003	AYR6A	A6D0013-02	Soil
5237-160331-NDP-SED002	AYR6B	A6D0013-04	Soil
5237-160331-NDP-SED001	AYR6C	A6D0013-06	Soil
5237-160331-NDP-SED005	AYR6D	A6D0013-08	Soil
5237-160331-NDP-SED004	AYR6E	A6D0013-10	Soil
5237-160331-NDP-EMB001	AYR6F	A6D0013-12	Soil

DATA QUALIFIERS (see following sections for detailed explanations)

No qualifiers were applied to the sample results in this data package.

DISCUSSION

Sample Shipping/Receiving

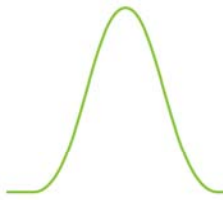
All COC, analysis request, and sample receipt documentation was complete and correct.

Holding Times and Preservation

The samples were preserved by the laboratory upon receipt and analyzed within the prescribed holding times.

Calibration

All initial and continuing calibration acceptance criteria were met. It should be noted that the Sulfide Benchsheets were not included in the data package. The Sulfide Benchsheet associated with all samples *except* sample 5237-160331-NDP-EMB001 was found in the data package for Job No AYR5. It should also be noted that the results found on the Sulfide Benchsheet and the results found in the raw data differed slightly. The differences were not significant.



Blanks

The target analyte was not detected in the method blanks.

Laboratory Control Sample (LCS)

The LCS analyses met laboratory acceptance criteria.

Matrix Spike (MS)

The MS analysis met laboratory acceptance criteria. The MS associated with QC batch 040516 #1 was reported in the data package for AYR5 and met all QC acceptance criteria.

Laboratory Duplicate

The laboratory duplicate analysis met all QC acceptance criteria. The laboratory duplicate analysis associated with QC batch 040516 #1 was reported in the data package for AYR5 and met all 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

No other specific issues that affect data quality were identified.

Hahn Data Validation Summary Worksheet

SDG#: AYR6_A6D0013	Laboratory: ARI	Validator: Jeanne Peterson	Validation Date: 06/06/2016
Site: Siltronic - Doane Creek	COC#: NA		Validation Level: <input type="checkbox"/> II <input checked="" type="checkbox"/> III
Matrix: Soil	# of Samples: 6	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			

Hold Time/Preservation Outliers								
Client Sample ID	Lab Sample ID	Analysis	Pres.	Collection Date	Preparation Date	Analysis Date	Analysis <3X HT	Analysis ≥3X HT
None								

Comments: Samples collected 3/31.
Cooler temps OK. Samples preserved upon receipt.

Hahn Level III General Chemistry Worksheet

SDG: AYR6_A6D0013	Matrix: Soil	Lab Sample IDs: AYR6A thru AYR6F
Method/Batch #s: SM 4500-S2D (sulfide)/040516 #1 (A-E), 040616 #1 (F)		

(80-120%) (75-125%) ≤20%

Analyte (outliers)	<i>(90-110%) Calibration</i>						Method Blank	5X MB	LCS %R	MS %R	Lab Dup RPD						
	r ≥0.995	ICV	CCV	ICB	CCB	5X CB											
None																	

Comments: HTs OK. Sulfide Benchsheets missing from data package; refer to data package for AYR5 for batch 040516 #1 benchsheet. Batch 040516 #1 distilled 4/5; analyzed 4/6. Batch 040616 #1 distilled 4/6; analyzed 4/6.

MB, LCS, AYR6F MS, Dup; See AYR5 for QC for batch 040516 #1.
 90-100% = 0.45 to 0.55 for CCVs