

**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 AYR5 (A6D0056)

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## SUMMARY

Level III data validation was performed on the data for five 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
5237-160401-DC-EMB038	AYR5A	A6D0056-02	Soil
5237-160401-DC-EMB039	AYR5B	A6D0056-04	Soil
5237-160401-DC-EMB046	AYR5C	A6D0056-06	Soil
5237-160401-NDP-EMB002	AYR5D	A6D0056-08	Soil
5237-160401-NDP-EMB003	AYR5E	A6D0056-10	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

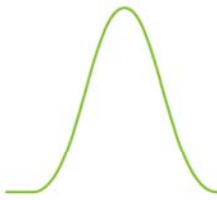
The samples were preserved by the laboratory upon receipt and analyzed within the prescribed holding times.

### Calibration

All initial and continuing calibration acceptance criteria were met. It should be noted that the 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 blank.



**Laboratory Control Sample (LCS)**

The LCS analysis met laboratory acceptance criteria.

**Matrix Spike (MS)**

The MS analysis met laboratory acceptance criteria.

**Laboratory Duplicate**

The laboratory duplicate analysis 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#: AYR5_A6D0056	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: 5	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 4/1.  
Cooler temps OK. Samples preserved upon receipt.

## Hahn Level III General Chemistry Worksheet

SDG: AYR5_A6D0056	Matrix: Soil	Lab Sample IDs: AYR5A thru AYR5E
Method/Batch #s: SM 4500-S2D (sulfide)/040516 #1		

*(80-120%) (75-125%) ≤20%*

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

Comments: HTs OK. Distilled 4/5; analyzed 4/6.

MB, LCS, AYO7A MS, Dup  
 90-100% = 0.45 to 0.55 for CCVs