



LABORATORY DATA CONSULTANTS, INC.

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Northgate Environmental Management, Inc.
1100 Quail Street Ste. 102
Newport Beach, CA 92660
ATTN: Ms. Cindy Arnold

June 25, 2010

SUBJECT: Tronox LLC Facility, PCS, Henderson, Nevada,
Data Validation

Dear Ms. Arnold,

Enclosed are the final validation reports for the fraction listed below. These SDGs were received on June 15, 2010. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 23368:

<u>SDG #</u>	<u>Fraction</u>
091003271, 091003273, 091003275 091003350	Asbestos

The data validation was performed under Stage 2B/4 guidelines. The analyses were validated using the following documents, as applicable to each method:

- Standard Operating Procedures (SOP) 40, Data Review/Validation, BRC 2009
- Quality Assurance Project Plan Tronox LLC Facility, Henderson Nevada, June 2009
- NDEP Guidance, May 2006
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004

Please feel free to contact us if you have any questions.

Sincerely,

Erlinda T. Rauto
Operations Manager/Senior Chemist

Stage 2B/4		EDD		LDC #23368 (Tronox LLC-Northgate, Henderson NV / Tronox PCS)																											
LDC	SDG#	DATE REC'D	(3) DATE DUE	Asb. (540-R-97-028)																											
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S								
Matrix: Water/Soil				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	091003271	06/15/10	07/07/10	0	7																										
A	091003271	06/15/10	07/07/10	0	1																										
B	091003273	06/15/10	07/07/10	0	5																										
C	091003275	06/15/10	07/07/10	0	1																										
D	091003350	06/15/10	07/07/10	0	1																										
D	091003350	06/15/10	07/07/10	0	5																										
Total	T/LR			0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	

EDD CHECKLIST

LDC #: 23368
 SDG #: 091003271, 091003273, 091003275, 091003350

Page: 1 of 1
 Reviewer: BC
 2nd Reviewer: JE

Tronox Northgate Henderson Worksheet

EDD Area	Yes	No	NA	Findings/Comments
I. Completeness				
Is there an EDD for the associated Tronox validation report?	X			
II. EDD Qualifier Population				
Were all qualifiers from the validation report populated into the EDD?	X			
III. EDD Lab Anomalies				
Were EDD anomalies identified?	X			
If yes, were they corrected or documented for the client?	X			See EDD_discrepancy_form_LDC23368_060250.doc
IV. EDD Delivery				
Was the final EDD sent to the client?	X			

**Tronox LLC Facility, PCS, Henderson, Nevada
Data Validation Reports
LDC #23368**

Asbestos

LDC

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: Tronox LLC Facility, PCS, Henderson, Nevada
Collection Date: April 8, 2010
LDC Report Date: June 23, 2010
Matrix: Soil
Parameters: Asbestos
Validation Level: Stage 2B & 4
Laboratory: EMSL Analytical, Inc.

Sample Delivery Group (SDG): 091003271

Sample Identification

SA111-0.33BPC
RSAR4-0.33BPC
SSAR4-01-0.00BPC
SA191-0.33BPC
SSAR5-01-0.00BPC**
SSAN3-02-0.00BPC
SA136-0.33BPC
RSAS8-0.33BPC

**Indicates sample underwent Stage 4 review

Introduction

This data review covers 8 soil samples listed on the cover sheet. The analyses were per EPA Method 540-R-97-028 for Asbestos.

This review follows the Standard Operating Procedures (SOP) 40, Data Review/Validation (BRC 2009), the Quality Assurance Project Plan Tronox LLC Facility, Henderson, Nevada (June 2009), NDEP guidance (May 2006), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

Samples indicated by a double asterisk on the front cover underwent a Stage 4 review. A Stage 2B review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Stage 2B criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- J+ Data are qualified as estimated, with a high bias likely to occur. False positives or false negatives are unlikely to have been reported.
- J- Data are qualified as estimated, with a low bias likely to occur. False positives or false negatives are unlikely to have been reported.
- J Data are qualified as estimated; it is not possible to assess the direction of the potential bias. False positives or false negatives are unlikely to have been reported.
- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- R Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- B The analytical result may be a false positive totally attributable to blank contamination. This qualifier is applicable to radiochemistry analysis only.
- JB The analytical result may be biased high and partially attributable to blank contamination. This qualifier is applicable to radiochemistry analysis only.
- JK The analytical result is an estimated maximum possible concentration (EMPC).
- X The analytical result is not used for reporting because a more accurate and precise result is reported in its place.
- J-TDS The analytical result is estimated based on failure of the Total Dissolved Solids (TDS) correctness check performed in accordance with the Standard Method 1030E.
- J-CAB The analytical result is estimated based on failure of the cation-anion balance correctness check performed in accordance with Standard Method 1030E.
- J-TDS & CAB The analytical result is unreliable based on the failure of the cation-anion balance and TDS correctness check performed in accordance with standard Method 1030E.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

No holding time requirement is specified for asbestos.

No cooler temperature requirement is specified for asbestos.

II. Calibration

A NIST standard reference material containing Chrysotile, Amosite, and Crocidolite asbestos was analyzed. The calibration identified the proper constituents.

III. Blanks

The blank analyses showed no asbestos contamination.

No field blanks were identified in this SDG.

IV. Duplicates

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

V. Sample Result Verification

All sample result verifications were acceptable for samples on which a Stage 4 review was performed.

All analytes reported below the PQL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 091003271	All analytes reported below the PQL.	J (all detects)	A

The results listed on the final report were verified against the raw data worksheets. The results were transcribed correctly to the final report.

VI. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

VII. Field Duplicates

No field duplicates were identified in this SDG.

**Tronox LLC Facility, PCS, Henderson, Nevada
Asbestos - Data Qualification Summary - SDG 091003271**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
091003271	SA111-0.33BPC RSAR4-0.33BPC SSAR4-01-0.00BPC SA191-0.33BPC SSAR5-01-0.00BPC** SSAN3-02-0.00BPC SA136-0.33BPC RSAS8-0.33BPC	All analytes reported below the PQL.	J (all detects)	A	Sample result verification (sp)

**Tronox LLC Facility, PCS, Henderson, Nevada
Asbestos - Laboratory Blank Data Qualification Summary - SDG 091003271**

No Sample Data Qualified in this SDG

**Tronox LLC Facility, PCS, Henderson, Nevada
Asbestos - Field Blank Data Qualification Summary - SDG 091003271**

No Sample Data Qualified in this SDG

Tronox Northgate Henderson

VALIDATION COMPLETENESS WORKSHEET

LDC #: 23368A6

SDG #: 091003271

Laboratory: EMSL Analytical, Inc.

Stage 2B/4

Date: 6/22/10

Page: 1 of 1

Reviewer: *WJ*

2nd Reviewer: *MG*

METHOD: Asbestos (Draft Modified Elutriator Method adopted from EPA Method 540-R-97-028)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4/8/10
II.	Calibration verification	A	
III.	Blanks	A	filter Blank + EB.
IV.	Matrix Duplicates	N	client specified
V.	Sample result verification	A	Not reviewed for Stage 2B validation.
VI.	Overall assessment of data	A	
VII.	Field duplicates	N	
VIII.	Field blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate
 N = Not provided/applicable R = Rinsate TB = Trip blank
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples: *Soi* ** Indicates sample underwent Stage 4 validation

1	SA111-0.33BPC	11		21		31	
2	RSAR4-0.33BPC	12		22		32	
3	SSAR4-01-0.00BPC	13		23		33	
4	SA191-0.33BPC	14		24		34	
5	SSAR5-01-0.00BPC**	15		25		35	
6	SSAN3-02-0.00BPC	16		26		36	
7	SA136-0.33BPC	17		27		37	
8	RSAS8-0.33BPC	18		28		38	
9		19		29		39	
10		20		30		40	

Notes: _____

Tronox Northgate Henderson Worksheet

Method: Asbestos (EPA Method See cover)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
II. Calibration				
Were balance checks performed as required?	X		✓	
Was the flow rate for the IST opening calibrated to 72 ml/min?	/			
Was the leak check performed?	/			
Was chrysotile beam dose sensitivity acceptable?	/			
Was camera constant calibration acceptable?	/			
Was crocidolite spectrum Na sensitivity acceptable?	/			
Was Mg-Si K-alpha peak resolvability acceptable?	/			
Were K factors acceptable?	/			
Was detector resolution at the Mn K-alpha peak acceptable?	/			
III. Blanks				
Was a method blank associated with every sample in this SDG?	/			
Were 4% of unused filter lot blanks analyzed prior to sampling and < 0.2 fiber/mm ² ?	/			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		/		
IV. Matrix Duplicates				
Was a duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated DUP.		/		
Was the duplicate relative percent differences (RPD) ≤ 50%?			/	
V. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were samples prepared in accordance with the Modified Elutriator Method for the Determination of Asbestos in Soil and Bulk Material, Revision 1, Berman and Kolk, May 2000?	/			
Were the EDXA and SAED photos provided?	/			
Was the analytical sensitivity greater than 3.00E+06?	/			
Were asbestos fibers recorded ≥5.0 microns in length, 3:1 aspect ratio, and a modified 0.4 micron min. width?	/			
Was analysis stopped upon recording 25 asbestos fibers ≥10 microns in length after current grid opening was completed.	/			

_DC #: 23368A6
 SDG #: See com

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2
 Reviewer: [Signature]
 2nd Reviewer: gmj

Validation Area	Yes	No	NA	Findings/Comments
VI. Overall assessment of data				
Overall assessment of data was found to be acceptable.	/			
VII. Field duplicates				
Field duplicate pairs were identified in this SDG.		/		
Target analytes were detected in the field duplicates and RPD \leq 50%.			/	
VIII. Field blanks				
Field blanks were identified in this SDG.		/		
Target analytes were detected in the field blanks.			/	

LDC #: 13368A6
 SDG #: 0910327

VALIDATION FINDINGS WORKSHEET
 Sample Calculation Verification

Page: 1 of 1
 Reviewer: MM
 2nd reviewer: amg

METHOD: Inorganics, Method cell cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments?
Y N N/A Are all detection limits below the CRQL?

Compound (analyte) results for 5 reported with a positive detect were recalculated and verified using the following equation:

Concentration =

Recalculation:

$$\text{Total Asbestos Conc} = \frac{13 \times 385}{0.00128 \times 0.013 \times 78} = 2.86 \times 10^7$$

#	Sample ID	Analyte	Reported Concentration ()	Calculated Concentration ()	Acceptable (Y/N)
1	5	Asbestos structures > 5um equm			
		Density (str/mm ²)	8.88	8.88	Y
		conc. (str/g PM10)	2.67E+07	2.67E+07	Y
		Asbestos Structures > 10um			
		Density (str/mm ²)	3.94	3.94	Y
		conc. (str/g PM10)	1.19E+07	1.19E+07	Y
		Total Protocol Asbestos structure			
		Density (str/mm ²)	12.82	12.82	Y
		conc. (str/g PM10)	3.86E+07	3.86E+07	Y

Note: _____

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: Tronox LLC Facility, PCS, Henderson, Nevada
Collection Date: April 9, 2010
LDC Report Date: June 23, 2010
Matrix: Soil
Parameters: Asbestos
Validation Level: Stage 2B
Laboratory: EMSL Analytical, Inc.

Sample Delivery Group (SDG): 091003273

Sample Identification

SSAQ4-02-0.00BPC
SSAN3-01-0.00BPC
SA50-0.33BPC
SSAO4-03-0.00BPC
SSAO4-03-0.33BPC

Introduction

This data review covers 5 soil samples listed on the cover sheet. The analyses were per EPA Method 540-R-97-028 for Asbestos.

This review follows the Standard Operating Procedures (SOP) 40, Data Review/Validation (BRC 2009), the Quality Assurance Project Plan Tronox LLC Facility, Henderson, Nevada (June 2009), NDEP guidance (May 2006), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- J+ Data are qualified as estimated, with a high bias likely to occur. False positives or false negatives are unlikely to have been reported.
- J- Data are qualified as estimated, with a low bias likely to occur. False positives or false negatives are unlikely to have been reported.
- J Data are qualified as estimated; it is not possible to assess the direction of the potential bias. False positives or false negatives are unlikely to have been reported.
- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- R Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- B The analytical result may be a false positive totally attributable to blank contamination. This qualifier is applicable to radiochemistry analysis only.
- JB The analytical result may be biased high and partially attributable to blank contamination. This qualifier is applicable to radiochemistry analysis only.
- JK The analytical result is an estimated maximum possible concentration (EMPC).
- X The analytical result is not used for reporting because a more accurate and precise result is reported in its place.
- J-TDS The analytical result is estimated based on failure of the Total Dissolved Solids (TDS) correctness check performed in accordance with the Standard Method 1030E.
- J-CAB The analytical result is estimated based on failure of the cation-anion balance correctness check performed in accordance with Standard Method 1030E.
- J-TDS & CAB The analytical result is unreliable based on the failure of the cation-anion balance and TDS correctness check performed in accordance with standard Method 1030E.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

No holding time requirement is specified for asbestos.

No cooler temperature requirement is specified for asbestos.

II. Calibration

A NIST standard reference material containing Chrysotile, Amosite, and Crocidolite asbestos was analyzed. The calibration identified the proper constituents.

III. Blanks

The blank analyses showed no asbestos contamination.

No field blanks were identified in this SDG.

IV. Duplicates

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

V. Sample Result Verification

All analytes reported below the PQL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 091003273	All analytes reported below the PQL.	J (all detects)	A

The results listed on the final report were verified against the raw data worksheets. The results were transcribed correctly to the final report.

VI. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

VII. Field Duplicates

No field duplicates were identified in this SDG.

**Tronox LLC Facility, PCS, Henderson, Nevada
Asbestos - Data Qualification Summary - SDG 091003273**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
091003273	SSAQ4-02-0.00BPC SSAN3-01-0.00BPC SA50-0.33BPC SSAO4-03-0.00BPC SSAO4-03-0.33BPC	All analytes reported below the PQL.	J (all detects)	A	Sample result verification (sp)

**Tronox LLC Facility, PCS, Henderson, Nevada
Asbestos - Laboratory Blank Data Qualification Summary - SDG 091003273**

No Sample Data Qualified in this SDG

**Tronox LLC Facility, PCS, Henderson, Nevada
Asbestos - Field Blank Data Qualification Summary - SDG 091003273**

No Sample Data Qualified in this SDG

Tronox Northgate Henderson

VALIDATION COMPLETENESS WORKSHEET

LDC #: 23368B6

SDG #: 091003273

Laboratory: EMSL Analytical, Inc.

Stage 2B

Date: 6/23/10

Page: 1 of 1

Reviewer: *[Signature]*

2nd Reviewer: *[Signature]*

METHOD: Asbestos (Draft Modified Elutriator Method adopted from EPA Method 540-R-97-028)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4/9/10
II.	Calibration verification	A	
III.	Blanks	A	filter blank + EB
IV.	Matrix Duplicates	NA	client specified
V.	Sample result verification	N	
VI.	Overall assessment of data	A	
VII.	Field duplicates	N	
VIII.	Field blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate
 N = Not provided/applicable R = Rinsate TB = Trip blank
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples: *Soil*

1	SSAQ4-02-0.00BPC	11		21		31	
2	SSAN3-01-0.00BPC	12		22		32	
3	SA50-0.33BPC	13		23		33	
4	⁹ SSAQ4-03-0.00BPC	14		24		34	
5	SSA04-03-0.33BPC	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: _____

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: Tronox LLC Facility, PCS, Henderson, Nevada

Collection Date: April 6, 2010

LDC Report Date: June 23, 2010

Matrix: Soil

Parameters: Asbestos

Validation Level: Stage 2B

Laboratory: EMSL Analytical, Inc.

Sample Delivery Group (SDG): 091003275

Sample Identification

SA03-0.33BPC

Introduction

This data review covers one soil sample listed on the cover sheet. The analyses were per EPA Method 540-R-97-028 for Asbestos.

This review follows the Standard Operating Procedures (SOP) 40, Data Review/Validation (BRC 2009), the Quality Assurance Project Plan Tronox LLC Facility, Henderson, Nevada (June 2009), NDEP guidance (May 2006), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- J+ Data are qualified as estimated, with a high bias likely to occur. False positives or false negatives are unlikely to have been reported.
- J- Data are qualified as estimated, with a low bias likely to occur. False positives or false negatives are unlikely to have been reported.
- J Data are qualified as estimated; it is not possible to assess the direction of the potential bias. False positives or false negatives are unlikely to have been reported.
- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- R Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- B The analytical result may be a false positive totally attributable to blank contamination. This qualifier is applicable to radiochemistry analysis only.
- JB The analytical result may be biased high and partially attributable to blank contamination. This qualifier is applicable to radiochemistry analysis only.
- JK The analytical result is an estimated maximum possible concentration (EMPC).
- X The analytical result is not used for reporting because a more accurate and precise result is reported in its place.
- J-TDS The analytical result is estimated based on failure of the Total Dissolved Solids (TDS) correctness check performed in accordance with the Standard Method 1030E.
- J-CAB The analytical result is estimated based on failure of the cation-anion balance correctness check performed in accordance with Standard Method 1030E.
- J-TDS & CAB The analytical result is unreliable based on the failure of the cation-anion balance and TDS correctness check performed in accordance with standard Method 1030E.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

No holding time requirement is specified for asbestos.

No cooler temperature requirement is specified for asbestos.

II. Calibration

A NIST standard reference material containing Chrysotile, Amosite, and Crocidolite asbestos was analyzed. The calibration identified the proper constituents.

III. Blanks

The blank analyses showed no asbestos contamination.

No field blanks were identified in this SDG.

IV. Duplicates

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

V. Sample Result Verification

All analytes reported below the PQL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 091003275	All analytes reported below the PQL.	J (all detects)	A

The results listed on the final report were verified against the raw data worksheets. The results were transcribed correctly to the final report.

VI. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

VII. Field Duplicates

No field duplicates were identified in this SDG.

**Tronox LLC Facility, PCS, Henderson, Nevada
Asbestos - Data Qualification Summary - SDG 091003275**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
091003275	SA03-0.33BPC	All analytes reported below the PQL.	J (all detects)	A	Sample result verification (sp)

**Tronox LLC Facility, PCS, Henderson, Nevada
Asbestos - Laboratory Blank Data Qualification Summary - SDG 091003275**

No Sample Data Qualified in this SDG

**Tronox LLC Facility, PCS, Henderson, Nevada
Asbestos - Field Blank Data Qualification Summary - SDG 091003275**

No Sample Data Qualified in this SDG

Tronox Northgate Henderson

VALIDATION COMPLETENESS WORKSHEET

Stage 2B

LDC #: 23368C6

SDG #: 091003275

Laboratory: EMSL Analytical, Inc.

Date: 6/23/10

Page: 1 of 1

Reviewer: W

2nd Reviewer: gmk

METHOD: Asbestos (Draft Modified Elutriator Method adopted from EPA Method 540-R-97-028)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4/6/10
II.	Calibration verification	A	
III.	Blanks	A	filter blank + BB
IV.	Matrix Duplicates	N	Client specified
V.	Sample result verification	N	
VI.	Overall assessment of data	A	
VII.	Field duplicates	N	
VIII.	Field blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate
 N = Not provided/applicable R = Rinsate TB = Trip blank
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

Set

1	SA03-0.33BPC	11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: _____

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: Tronox LLC Facility, PCS, Henderson, Nevada
Collection Date: April 12 through April 13, 2010
LDC Report Date: June 23, 2010
Matrix: Soil
Parameters: Asbestos
Validation Level: Stage 2B & 4
Laboratory: EMSL Analytical, Inc.

Sample Delivery Group (SDG): 091003350

Sample Identification

SSAO6-04-0.00BPC**
SSAO6-05-0.00BPC
SA151-0.33BPC
SSAN6-05-0.00BPC
SSAO7-01-0.00BPC
SSAN5-01-0.00BPC

**Indicates sample underwent Stage 4 review

Introduction

This data review covers 6 soil samples listed on the cover sheet. The analyses were per EPA Method 540-R-97-028 for Asbestos.

This review follows the Standard Operating Procedures (SOP) 40, Data Review/Validation (BRC 2009), the Quality Assurance Project Plan Tronox LLC Facility, Henderson, Nevada (June 2009), NDEP guidance (May 2006), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

Samples indicated by a double asterisk on the front cover underwent a Stage 4 review. A Stage 2B review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Stage 2B criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- J+ Data are qualified as estimated, with a high bias likely to occur. False positives or false negatives are unlikely to have been reported.
- J- Data are qualified as estimated, with a low bias likely to occur. False positives or false negatives are unlikely to have been reported.
- J Data are qualified as estimated; it is not possible to assess the direction of the potential bias. False positives or false negatives are unlikely to have been reported.
- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- R Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- B The analytical result may be a false positive totally attributable to blank contamination. This qualifier is applicable to radiochemistry analysis only.
- JB The analytical result may be biased high and partially attributable to blank contamination. This qualifier is applicable to radiochemistry analysis only.
- JK The analytical result is an estimated maximum possible concentration (EMPC).
- X The analytical result is not used for reporting because a more accurate and precise result is reported in its place.
- J-TDS The analytical result is estimated based on failure of the Total Dissolved Solids (TDS) correctness check performed in accordance with the Standard Method 1030E.
- J-CAB The analytical result is estimated based on failure of the cation-anion balance correctness check performed in accordance with Standard Method 1030E.
- J-TDS & CAB The analytical result is unreliable based on the failure of the cation-anion balance and TDS correctness check performed in accordance with standard Method 1030E.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

No holding time requirement is specified for asbestos.

No cooler temperature requirement is specified for asbestos.

II. Calibration

A NIST standard reference material containing Chrysotile, Amosite, and Crocidolite asbestos was analyzed. The calibration identified the proper constituents.

III. Blanks

The blank analyses showed no asbestos contamination.

No field blanks were identified in this SDG.

IV. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

V. Sample Result Verification

All sample result verifications were acceptable for samples on which a Stage 4 review was performed.

All analytes reported below the PQL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 091003350	All analytes reported below the PQL.	J (all detects)	A

The results listed on the final report were verified against the raw data worksheets. The results were transcribed correctly to the final report.

VI. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

VII. Field Duplicates

No field duplicates were identified in this SDG.

**Tronox LLC Facility, PCS, Henderson, Nevada
Asbestos - Data Qualification Summary - SDG 091003350**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
091003350	SSAO6-04-0.00BPC** SSAO6-05-0.00BPC SA151-0.33BPC SSAN6-05-0.00BPC SSAO7-01-0.00BPC SSAN5-01-0.00BPC	All analytes reported below the PQL.	J (all detects)	A	Sample result verification (sp)

**Tronox LLC Facility, PCS, Henderson, Nevada
Asbestos - Laboratory Blank Data Qualification Summary - SDG 091003350**

No Sample Data Qualified in this SDG

**Tronox LLC Facility, PCS, Henderson, Nevada
Asbestos - Field Blank Data Qualification Summary - SDG 091003350**

No Sample Data Qualified in this SDG

Tronox Northgate Henderson

VALIDATION COMPLETENESS WORKSHEET

Stage 2B **14**

LDC #: 23368D6
 SDG #: 091003350
 Laboratory: EMSL Analytical, Inc.

Date: 6/23/11
 Page: 1 of 1
 Reviewer: *[Signature]*
 2nd Reviewer: *[Signature]*

METHOD: Asbestos (Draft Modified Elutriator Method adopted from EPA Method 540-R-97-028)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4/12/10 - 4/13/10
II.	Calibration verification	A	
III.	Blanks	A	filter blank + 2B
IV.	Matrix Duplicates	A	
V.	Sample result verification	NA	not reviewed for stage 2B
VI.	Overall assessment of data	A	
VII.	Field duplicates	N	
VIII.	Field blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate
 N = Not provided/applicable R = Rinsate TB = Trip blank
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples: *Soil* **Stage 4**

1	SSAO6-04-0.00BPC **	11		21		31	
2	SSAO6-05-0.00BPC	12		22		32	
3	SA151-0.33BPC	13		23		33	
4	SSAN6-05-0.00BPC	14		24		34	
5	SSAO7-01-0.00BPC	15		25		35	
6	SSAN5-01-0.00BPC	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: _____

DC #: 2326800
 DG #: See over

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
 Reviewer: [Signature]
 2nd Reviewer: [Signature]

Tronox Northgate Henderson Worksheet

Method: Asbestos (EPA Method See cover)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
II. Calibration				
Were balance checks performed as required?			/	
Was the flow rate for the IST opening calibrated to 72 ml/min?	/			
Was the leak check performed?	/			
Was chrysotile beam dose sensitivity acceptable?	/			
Was camera constant calibration acceptable?	/			
Was crocidolite spectrum Na sensitivity acceptable?	/			
Was Mg-Si K-alpha peak resolvability acceptable?	/			
Were K factors acceptable?	/			
Was detector resolution at the Mn K-alpha peak acceptable?	/			
III. Blanks				
Was a method blank associated with every sample in this SDG?	/			
Were 4% of unused filter lot blanks analyzed prior to sampling and < 0.2 fiber/mm ² ?	/			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	/			
IV. Matrix Duplicates				
Was a duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated DUP.		/		
Was the duplicate relative percent differences (RPD) ≤ 50%?			/	
V. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
Were samples prepared in accordance with the Modified Elutriator Method for the Determination of Asbestos in Soil and Bulk Material, Revision 1, Berman and Kolk, May 2000?	/			
Were the EDXA and SAED photos provided?	/		/	LY
Was the analytical sensitivity greater than 3.00E+06?	/			
Were asbestos fibers recorded ≥5.0 microns in length, 3:1 aspect ratio, and a modified 0.4 micron min. width?			/	LY
Was analysis stopped upon recording 25 asbestos fibers ≥10 microns in length after current grid opening was completed.			/	↓

DC #: 1336806
 SDG #: see cover

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2
 Reviewer: [Signature]
 2nd Reviewer: [Signature]

Validation Area	Yes	No	NA	Findings/Comments
VI. Overall assessment of data				
Overall assessment of data was found to be acceptable.	/			
VII. Field duplicates				
Field duplicate pairs were identified in this SDG.		/		
Target analytes were detected in the field duplicates and RPD \leq 50%.			/	
VIII. Field blanks				
Field blanks were identified in this SDG.		/		
Target analytes were detected in the field blanks.			/	

LDC #: 2336866
SDG #: see cover

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: [Signature]
2nd reviewer: amg

METHOD: Inorganics, Method see cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y N N/A Have results been reported and calculated correctly?
- Y N N/A Are results within the calibrated range of the instruments?
- Y N N/A Are all detection limits below the CRQL?

Compound (analyte) results for 1 (Cd) reported with a positive detect were recalculated and verified using the following equation:

Concentration = _____ Recalculation: _____

#	Sample ID	Analyte	Reported Concentration ()	Calculated Concentration ()	Acceptable (Y/N)

Note: _____
