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

December 15, 2010

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

Dear Ms. Arnold,

Enclosed are the final validation reports for the fraction listed below. These SDGs were received on November 10, 2010. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 24494:

SDG #	Fraction
041017737, 041017752, 041018652 041019197, 041022519, 041022527 041023466, 041025160	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,

ETRauto

Erlinda T. Rauto
Operations Manager/Senior Chemist

DL 11/10/10 Tracker 12/02/10 Attachment 1

Stage 2B/4

LDC #24494 (Tronox LLC-Northgate, Henderson NV / Tronox PCS, Additonal Sampling)

LDC	SDG#	DATE REC'D	(3) DATE DUE	Asb. (540-R-97-028)																															
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	W	S	W	S
A	041017737	11/10/10	12/17/10	0	2																														
B	041017752	11/10/10	12/17/10	0	1																														
C	041018652	11/10/10	12/17/10	0	1																														
D	041019197	11/10/10	12/17/10	0	3																														
E	041022519	11/10/10	12/17/10	0	1																														
E	041022519	11/10/10	12/17/10	0	1																														
F	041022527	11/10/10	12/17/10	0	4																														
F	041022527	11/10/10	12/17/10	0	1																														
G	041023466	11/10/10	12/17/10	0	3																														
H	041025160	11/10/10	12/17/10	0	6																														
H	041025160	11/10/10	12/17/10	0	1																														
Total	T/LR			0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24

Shaded cells indicate Stage 4 validation (all other cells are Stage 2B validation). These sample counts do not include MS/MSD, and DUPs

LDC #: 24494
SDG #: 041017737, 041017752, 041018652, 041019197
041022519, 041022527, 041023466, 041025160

Reviewer: JE
2nd Reviewer: BC

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_LDC24494_121510.doc
IV. EDD Delivery				
Was the final EDD sent to the client?	X			

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
Collection Date:	August 4, 2010
LDC Report Date:	December 9, 2010
Matrix:	Soil
Parameters:	Asbestos
Validation Level:	Stage 2B
Laboratory:	EMSL Analytical, Inc.
Sample Delivery Group (SDG):	041017737

Sample Identification

SSAQ4-06-0.33BPC
SSAQ4-07-0.33BPC

Introduction

This data review covers 2 soil samples listed on the cover sheet. The analyses were per Draft Modified Elutriator Method adopted from 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.

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 041017737	All analytes reported below the PQL.	J (all detects)	A

Raw data were not reviewed for this SDG.

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 Additional Sampling, Henderson, Nevada
Asbestos - Data Qualification Summary - SDG 041017737

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
041017737	SSAQ4-06-0.33BPC SSAQ4-07-0.33BPC	All analytes reported below the PQL.	J (all detects)	A	Sample result verification (sp)

Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
Asbestos - Laboratory Blank Data Qualification Summary - SDG 041017737

No Sample Data Qualified in this SDG

Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
Asbestos - Field Blank Data Qualification Summary - SDG 041017737

No Sample Data Qualified in this SDG

LDC #: 24494A13 (6 13)

Tronox Northgate Henderson
VALIDATION COMPLETENESS WORKSHEET
Stage 2B

Date: 12-7-10
Page: 1 of 1
Reviewer: CR
2nd Reviewer: L

SDG #: 041017737
Laboratory: EMSL Analytical, Inc.

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: 8/4/10
II.	Calibration verification	A	
III.	Blanks	A	
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
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: Soil

1	SSAQ4-06-0.33BPC	11		21		31	
2	SSAQ4-07-0.33BPC	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 Additional Sampling, Henderson, Nevada
Collection Date:	August 4, 2010
LDC Report Date:	December 9, 2010
Matrix:	Soil
Parameters:	Asbestos
Validation Level:	Stage 4
Laboratory:	EMSL Analytical, Inc.
Sample Delivery Group (SDG):	041017752

Sample Identification

SSAM5-01-1.00BPC

Introduction

This data review covers one soil sample listed on the cover sheet. The analyses were per Draft Modified Elutriator Method adopted from 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.

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 sample result verifications were acceptable.

All analytes reported below the PQL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 041017752	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 Additional Sampling, Henderson, Nevada
Asbestos - Data Qualification Summary - SDG 041017752

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
041017752	SSAM5-01-1.00BPC	All analytes reported below the PQL.	J (all detects)	A	Sample result verification (sp)

Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
Asbestos - Laboratory Blank Data Qualification Summary - SDG 041017752

No Sample Data Qualified in this SDG

Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
Asbestos - Field Blank Data Qualification Summary - SDG 041017752

No Sample Data Qualified in this SDG

LDC #: 24494B13 (&13)

SDG #: 041017752

Laboratory: EMSL Analytical, Inc.

Tronox Northgate Henderson
VALIDATION COMPLETENESS WORKSHEET
Stage 4

Date: 12-7-10

Page: 1 of 1

Reviewer: SZ

2nd Reviewer: VC

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: 8/4/10
II.	Calibration verification	A	
III.	Blanks	A	
IV.	Matrix Duplicates	N	Client specified
V.	Sample result verification	A	
VI.	Overall assessment of data	A	
VII.	Field duplicates	N	
VIII	Field blanks	N	

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

Validated Samples: Soil

1	SSAM5-01-1.00BPC	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: _____

LDC #: 24494B6
SDG #: —

VALIDATION FINDINGS CHECKLIST

Page: 1 of 3
Reviewer: CR
2nd Reviewer: VC

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?	✓			
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.			✓	

LDC #: 24494B6

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: CR
2nd reviewer: ✓

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 _____ reported with a positive detect were recalculated and verified using the following equation:

Concentration =

Recalculation:

Non Detect

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

Note: _____

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
Collection Date:	August 16, 2010
LDC Report Date:	December 9, 2010
Matrix:	Soil
Parameters:	Asbestos
Validation Level:	Stage 2B
Laboratory:	EMSL Analytical, Inc.
Sample Delivery Group (SDG):	041018652

Sample Identification

SSAS8-04-0.33BPC

Introduction

This data review covers one soil sample listed on the cover sheet. The analyses were per Draft Modified Elutriator Method adopted from 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.

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 041018652	All analytes reported below the PQL.	J (all detects)	A

Raw data were not reviewed for this SDG.

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 Additional Sampling, Henderson, Nevada
Asbestos - Data Qualification Summary - SDG 041018652

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
041018652	SSAS8-04-0.33BPC	All analytes reported below the PQL.	J (all detects)	A	Sample result verification (sp)

Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
Asbestos - Laboratory Blank Data Qualification Summary - SDG 041018652

No Sample Data Qualified in this SDG

Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
Asbestos - Field Blank Data Qualification Summary - SDG 041018652

No Sample Data Qualified in this SDG

LDC #: 24494C13 (6 13)

Tronox Northgate Henderson
VALIDATION COMPLETENESS WORKSHEET
Stage 2B

Date: 9-7-10
Page: 1 of 1
Reviewer: CE
2nd Reviewer: VC

SDG #: 041018652
Laboratory: EMSL Analytical, Inc.

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: ~~8/8/10~~ 8/16/10
II.	Calibration verification	A	
III.	Blanks	A	
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
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: Soil

1	SSAS8-04-0.33BPC	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 Additional Sampling, Henderson, Nevada

Collection Date: August 18, 2010

LDC Report Date: December 9, 2010

Matrix: Soil

Parameters: Asbestos

Validation Level: Stage 2B

Laboratory: EMSL Analytical, Inc.

Sample Delivery Group (SDG): 041019197

Sample Identification

SSAS8-03-0.00BPC
SSAS8-03-0.33BPC
SSAS8-02-0.00BPC

Introduction

This data review covers 3 soil samples listed on the cover sheet. The analyses were per Draft Modified Elutriator Method adopted from 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.

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

The following are definitions of the data qualifiers:

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JB The analytical result may be biased high and partially attributable to blank contamination. This qualifier is applicable to radiochemistry analysis only.

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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 041019197	All analytes reported below the PQL.	J (all detects)	A

Raw data were not reviewed for this SDG.

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 Additional Sampling, Henderson, Nevada
Asbestos - Data Qualification Summary - SDG 041019197

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
041019197	SSAS8-03-0.00BPC SSAS8-03-0.33BPC SSAS8-02-0.00BPC	All analytes reported below the PQL.	J (all detects)	A	Sample result verification (sp)

Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
Asbestos - Laboratory Blank Data Qualification Summary - SDG 041019197

No Sample Data Qualified in this SDG

Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
Asbestos - Field Blank Data Qualification Summary - SDG 041019197

No Sample Data Qualified in this SDG

LDC #: 24494D13 (6/13)

Tronox Northgate Henderson
VALIDATION COMPLETENESS WORKSHEET
Stage 2B

Date: 12-7-10
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

SDG #: 041019197
Laboratory: EMSL Analytical, Inc.

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: 8/18/10
II.	Calibration verification	A	
III.	Blanks	A	
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
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: Soil

1	SSAS8-03-0.00BPC	11		21		31	
2	SSAS8-03-0.33BPC	12		22		32	
3	SSAS8-02-0.00BPC	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 Additional Sampling, Henderson, Nevada
Collection Date:	September 29, 2010
LDC Report Date:	December 9, 2010
Matrix:	Soil
Parameters:	Asbestos
Validation Level:	Stage 2B & 4
Laboratory:	EMSL Analytical, Inc.
Sample Delivery Group (SDG):	041022519

Sample Identification

SA72-0.67_01_BPC
SA72-1_01_BPC**

**Indicates sample underwent Stage 4 review

Introduction

This data review covers 2 soil samples listed on the cover sheet. The analyses were per Draft Modified Elutriator Method adopted from 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.

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.

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 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 041022519	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 Additional Sampling, Henderson, Nevada
Asbestos - Data Qualification Summary - SDG 041022519

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
041022519	SA72-0.67_01_BPC SA72-1_01_BPC**	All analytes reported below the PQL.	J (all detects)	A	Sample result verification (sp)

Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
Asbestos - Laboratory Blank Data Qualification Summary - SDG 041022519

No Sample Data Qualified in this SDG

Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
Asbestos - Field Blank Data Qualification Summary - SDG 041022519

No Sample Data Qualified in this SDG

LDC #: 24494E13 (6\13)

Tronox Northgate Henderson
VALIDATION COMPLETENESS WORKSHEET
Stage 2B/4

SDG #: 041022519
Laboratory: EMSL Analytical, Inc.

Date: 12-7-10
Page: 1 of 1
Reviewer: CR
2nd Reviewer: V

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: 9/29/10
II.	Calibration verification	A	
III.	Blanks	A	
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
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: ** Indicates sample underwent Stage 4 validation

Soil

1	SA72-0.67_01_BPC	11		21		31	
2	SA72-1_01_BPC**	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:

LDC #: 24494E6
SDG #: —

VALIDATION FINDINGS CHECKLIST

Page: 1 of 3
Reviewer: SZ
2nd Reviewer: V

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?	✓			
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.		✓		

LDC #: 24494E6
SDG #: —

VALIDATION FINDINGS CHECKLIST

Reviewer: AC
2nd Reviewer: V

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 ≤50%.			✓	
VIII. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 244486

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: CR
2nd reviewer:

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 Total reported with a positive detect were recalculated and verified using the following equation:

Concentration = Count(Area of Filter) / Wt(Grid open area)(Grid open analyzed)

Recalculation: $\frac{7(385mm^2)}{(0.000147g)(0.0126mm^2)(2)} = 2.08 \times 10^7$

#	Sample ID	Analyte	Reported Concentration (S/cc DMO)	Calculated Concentration (S/cc DMO)	Acceptable (Y/N)
	2	Asbestos, g > 10um Total	2.08×10^7	2.08×10^7	Y
			↓	↓	↓

Note:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
Collection Date:	September 28, 2010
LDC Report Date:	December 9, 2010
Matrix:	Soil
Parameters:	Asbestos
Validation Level:	Stage 2B & 4
Laboratory:	EMSL Analytical, Inc.
Sample Delivery Group (SDG):	041022527

Sample Identification

SSAM6-06-0.00_01_BPC
SSAM6-05-0.00_01_BPC
SSAM5-05-0.00_01_BPC
SSAQ3-02-0.66_01_BPC**
SSAQ3-02-0.66_01_BPC_FD

**Indicates sample underwent Stage 4 review

Introduction

This data review covers 5 soil samples listed on the cover sheet. The analyses were per Draft Modified Elutriator Method adopted from 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.

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.

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 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 041022527	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

Samples SSAQ3-02-0.66_01_BPC** and SSAQ3-02-0.66_01_BPC_FD were identified as field duplicates. No asbestos was detected in any of the samples.

Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
Asbestos - Data Qualification Summary - SDG 041022527

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
041022527	SSAM6-06-0.00_01_BPC SSAM6-05-0.00_01_BPC SSAM5-05-0.00_01_BPC SSAQ3-02-0.66_01_BPC** SSAQ3-02-0.66_01_BPC_FD	All analytes reported below the PQL.	J (all detects)	A	Sample result verification (sp)

Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
Asbestos - Laboratory Blank Data Qualification Summary - SDG 041022527

No Sample Data Qualified in this SDG

Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
Asbestos - Field Blank Data Qualification Summary - SDG 041022527

No Sample Data Qualified in this SDG

LDC #: 24494F13 (6 13)

Tronox Northgate Henderson
VALIDATION COMPLETENESS WORKSHEET
Stage 2B/4

Date: 12-7-10
Page: 1 of 1
Reviewer: CR
2nd Reviewer: ~

SDG #: 041022527
Laboratory: EMSL Analytical, Inc.

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: 9/28/10
II.	Calibration verification	A	
III.	Blanks	A	
IV.	Matrix Duplicates	N	Clients decised
V.	Sample result verification	A	Not reviewed for Stage 2B validation.
VI.	Overall assessment of data	A	
VII.	Field duplicates	ND	(4,5)
VIII.	Field blanks	N	

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

Validated Samples: ** Indicates sample underwent Stage 4 validation

Soil

1	SSAM6-06-0.00_01_BPC	11	PBS	21		31	
2	SSAM6-05-0.00_01_BPC	12		22		32	
3	SSAM5-05-0.00_01_BPC	13		23		33	
4	SSAQ3-02-0.66_01_BPC**	14		24		34	
5	SSAQ3-02-0.66_01_BPC_10	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 24494F6
SDG #: —

VALIDATION FINDINGS CHECKLIST

Page: 1 of 3
Reviewer: SR
2nd Reviewer: V

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?	✓			
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.			✓	

LDC #: 24494F6
SDG #: —

VALIDATION FINDINGS CHECKLIST

Reviewer: GE
2nd Reviewer: VK

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 ≤50%.		✓		
VIII. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 24494F6

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: CR
2nd reviewer: V

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 _____ reported with a positive detect were recalculated and verified using the following equation:

Concentration = Recalculation:

Non Detect

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

Note: _____

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
Collection Date:	October 8, 2010
LDC Report Date:	December 9, 2010
Matrix:	Soil
Parameters:	Asbestos
Validation Level:	Stage 2B
Laboratory:	EMSL Analytical, Inc.
Sample Delivery Group (SDG):	041023466

Sample Identification

SSAQ4-06-0.66_01_BPC
SA72-1.50_01_BPC
SA72-2.00_01_BPC

Introduction

This data review covers 3 soil samples listed on the cover sheet. The analyses were per Draft Modified Elutriator Method adopted from 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.

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 041023466	All analytes reported below the PQL.	J (all detects)	A

Raw data were not reviewed for this SDG.

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 Additional Sampling, Henderson, Nevada
Asbestos - Data Qualification Summary - SDG 041023466

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
041023466	SSAQ4-06-0.66_01_BPC SA72-1.50_01_BPC SA72-2.00_01_BPC	All analytes reported below the PQL.	J (all detects)	A	Sample result verification (sp)

Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
Asbestos - Laboratory Blank Data Qualification Summary - SDG 041023466

No Sample Data Qualified in this SDG

Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
Asbestos - Field Blank Data Qualification Summary - SDG 041023466

No Sample Data Qualified in this SDG

LDC #: 24494G13 (613)

Tronox Northgate Henderson
VALIDATION COMPLETENESS WORKSHEET
Stage 2B

Date: 2-7-10
Page: 1 of 1
Reviewer: CR
2nd Reviewer:

SDG #: 041023466
Laboratory: EMSL Analytical, Inc.

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: 10/8/10
II.	Calibration verification	A	
III.	Blanks	A	
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
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: SO.1

1	SSAQ4-06-0.66_01_BPC	11		21		31	
2	SA72-1.50_01_BPC	12		22		32	
3	SA72-2.00_01_BPC	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 Additional Sampling, Henderson, Nevada
Collection Date:	October 28 through October 29, 2010
LDC Report Date:	December 9, 2010
Matrix:	Soil
Parameters:	Asbestos
Validation Level:	Stage 2B & 4
Laboratory:	EMSL Analytical, Inc.
Sample Delivery Group (SDG):	041025160

Sample Identification

SSAM5-02-1.00_01_BPC
SSAM5-01-1.5_01_BPC
SSAQ4-07-0.67_01_BPC**
SSAQ4-07-0.67_01_BPC_FD
SSAQ4-07-1.00_01_BPC
SSAN5-03-2.00_01_BPC
SSAN5-03-2.50_01_BPC

**Indicates sample underwent Stage 4 review

Introduction

This data review covers 7 soil samples listed on the cover sheet. The analyses were per Draft Modified Elutriator Method adopted from 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.

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.

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 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 041025160	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

Samples SSAQ4-07-0.67_01_BPC** and SSAQ4-07-0.67_01_BPC_FD were identified as field duplicates. No asbestos was detected in any of the samples.

Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
Asbestos - Data Qualification Summary - SDG 041025160

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
041025160	SSAM5-02-1.00_01_BPC SSAM5-01-1.5_01_BPC SSAQ4-07-0.67_01_BPC** SSAQ4-07-0.67_01_BPC_FD SSAQ4-07-1.00_01_BPC SSAN5-03-2.00_01_BPC SSAN5-03-2.50_01_BPC	All analytes reported below the PQL.	J (all detects)	A	Sample result verification (sp)

Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
Asbestos - Laboratory Blank Data Qualification Summary - SDG 041025160

No Sample Data Qualified in this SDG

Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
Asbestos - Field Blank Data Qualification Summary - SDG 041025160

No Sample Data Qualified in this SDG

LDC #: 24494H13 (of 13)

Tronox Northgate Henderson
VALIDATION COMPLETENESS WORKSHEET
Stage 2B/4

Date: 2-7-10
Page: 1 of 1
Reviewer: CR
2nd Reviewer: [signature]

SDG #: 041025160
Laboratory: EMSL Analytical, Inc.

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: 10/28-29/10
II.	Calibration verification	A	
III.	Blanks	A	
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	(3,4)
VIII	Field blanks	N	

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

Validated Samples: ** Indicates sample underwent Stage 4 validation

Soil

1	SSAM5-02-1.00_01_BPC	11		21		31	
2	SSAM5-01-1.5_01_BPC	12		22		32	
3	SSAQ4-07-0.67_01_BPC**	13		23		33	
4	SSAQ4-07-0.67_01_BPC_FD	14		24		34	
5	SSAQ4-07-1.00_01_BPC	15		25		35	
6	SSAN5-03-2.00_01_BPC	16		26		36	
7	SSAN5-03-~~2.5~~ 2.50_01_BPC	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: _____

LDC #: 24494H6
SDG #: —

VALIDATION FINDINGS CHECKLIST

Page: 1 of 3
Reviewer: SR
2nd Reviewer: VC

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?	✓			
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.			✓	

LDC #: 24494H6
SDG #: —

VALIDATION FINDINGS CHECKLIST

Reviewer: CE
2nd Reviewer: √

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 ≤50%.		✓		
VIII. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 24494H6

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: CR
2nd reviewer: [illegible]

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 _____ reported with a positive detect were recalculated and verified using the following equation:

Concentration =

Recalculation:

Non Detect

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

Note: _____