**LABORATORY DATA CONSULTANTS, INC.**
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

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

October 28, 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 September 30, 2010. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project # 24058:**

| SDG # | Fraction |
|---|---|
| 041014155, 041014160, 041017714<br>041017735, 041017737, 041017745<br>041017752, 041018257, 041018652<br>041019206 | 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

464 pages

Attachment 1

EDD Stage 2B/4

# LDC #24058 (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 | 041014155 | 09/30/10 | 10/21/10 | 0 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B | 041014160 | 09/30/10 | 10/21/10 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 041017714 | 09/30/10 | 10/21/10 | 0 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 041017714 | 09/30/10 | 10/21/10 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D | 041017735 | 09/30/10 | 10/21/10 | 0 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E | 041017737 | 09/30/10 | 10/21/10 | 0 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E | 041017737 | 09/30/10 | 10/21/10 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F | 041017745 | 09/30/10 | 10/21/10 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F | 041017745 | 09/30/10 | 10/21/10 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| G | 041017752 | 09/30/10 | 10/21/10 | 0 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| H | 041018257 | 09/30/10 | 10/21/10 | 0 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| I | 041018652 | 09/30/10 | 10/21/10 | 0 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| I | 041018652 | 09/30/10 | 10/21/10 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| J | 041019206 | 09/30/10 | 10/21/10 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total | T/LR | | | 0 | 44 | 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 | 44 |

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

24058ST.wpd

LDC #: 24058
SDG #: 041014155, 041014160, 041017714, 041017735, 041017737, 041017745, 041017752, 041018257 041018652, 041019206

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_LDC24058_102810.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:** June 28, 2010

**LDC Report Date:** October 13, 2010

**Matrix:** Soil

**Parameters:** Asbestos

**Validation Level:** Stage 2B

**Laboratory:** EMSL Analytical, Inc.

**Sample Delivery Group (SDG):** 041014155

**Sample Identification**

SSAK5-05-0.00BPC
SSAK5-05-0.00BPC_FD
SSAK5-05-0.33BPC
SSAQ3-02-0.00BPC
SSAQ3-02-0.33BPC
SSAR3-02-0.00BPC
SSAR3-03-0.00BPC
SSAM4-04-0.00BPC

## 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.

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

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## 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 041014155 | 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.

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

Samples SSAK5-05-0.00BPC and SSAK5-05-0.00BPC_FD were identified as field duplicates. No asbestos was detected in any of the samples with the following exceptions:

| Compound | Concentration (Str/g PM10) | | RPD (Limits) | Difference (Limits) | Flags | A or P |
|---|---|---|---|---|---|---|
| | SSAK5-05-0.00BPC | SSAK5-05-0.00BPC_FD | | | | |
| Asbestos Structures > 5 μm, ≤ 10 μm | 17800000 | 8870000U | - | 8930000 (≤38700000) | - | - |
| Asbestos Structures > 5 μm, ≤ 10 μm (Amph) | 17800000 | 8870000U | - | 8930000 (≤38700000) | - | - |
| Asbestos Structures > 10 μm (Long) | 11900000 | 8870000U | - | 3030000 (≤30400000) | - | - |
| Asbestos Structures > 10 μm (Amph) | 8900000 | 8870000U | - | 30000 (≤23000000) | - | - |
| Total Protocol Asbestos Structures | 29700000 | 8870000U | - | 20830000 (≤54600000) | - | - |
| Protocol Asbestos Structures (Amph) | 26700000 | 8870000U | - | 17830000 (≤50700000) | - | - |

## Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
## Asbestos - Data Qualification Summary - SDG 041014155

| SDG | Sample | Analyte | Flag | A or P | Reason (Code) |
|---|---|---|---|---|---|
| 041014155 | SSAK5-05-0.00BPC<br>SSAK5-05-0.00BPC_FD<br>SSAK5-05-0.33BPC<br>SSAQ3-02-0.00BPC<br>SSAQ3-02-0.33BPC<br>SSAR3-02-0.00BPC<br>SSAR3-03-0.00BPC<br>SSAM4-04-0.00BPC | 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 041014155

No Sample Data Qualified in this SDG

## Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
## Asbestos - Field Blank Data Qualification Summary - SDG 041014155

No Sample Data Qualified in this SDG

# Tronox Northgate Henderson
# VALIDATION COMPLETENESS WORKSHEET
## Stage 2B

LDC #: 24058A6
SDG #: 041014155
Laboratory: EMSL Analytical, Inc.

Date: 10-13-10
Page: 1 of 1
Reviewer: CR
2nd Reviewer: W

**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: 6/28/10 |
| II. | Calibration verification | A | |
| III. | Blanks | ~~A~~ A | |
| IV. | Matrix Duplicates | N | Client specified |
| V. | Sample result verification | N | |
| VI. | Overall assessment of data | A | |
| VII. | Field duplicates | SW | (1,2) |
| 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 | SSAK5-05-0.00BPC | 11 | | 21 | | 31 | |
| 2 | SSAK5-05-0.00BPC_FD | 12 | | 22 | | 32 | |
| 3 | SSAK5-05-0.33BPC | 13 | | 23 | | 33 | |
| 4 | SSAQ3-02-0.00BPC | 14 | | 24 | | 34 | |
| 5 | SSAQ3-02-0.33BPC | 15 | | 25 | | 35 | |
| 6 | SSAR3-02-0.00BPC | 16 | | 26 | | 36 | |
| 7 | SSAR3-03-0.00BPC | 17 | | 27 | | 37 | |
| 8 | SSAM4-04-0.00BPC | 18 | | 28 | | 38 | |
| 9 | | 19 | | 29 | | 39 | |
| 10 | | 20 | | 30 | | 40 | |

Notes:

LDC# 24058A6

# VALIDATION FINDINGS WORKSHEET
## Field Duplicates


Reviewer: CR
2nd Reviewer: [signature]

Inorganics, Method See Cover

Y N NA Were field duplicate pairs identified in this SDG?
Y N NA Were target analytes detected in the field duplicate pairs?

| Structure Class | Concentration (Str/g PM10) | | RPD (≤50) | Difference (Str/g PM10) | Limits (Str/g PM10) | Qualifications (Parent Only) |
|---|---|---|---|---|---|---|
| | 1 | 2 | | | | |
| Asbestos Structures > 5 µm, ≤ 10 µm | 17800000 | 8870000U | | 8930000 | (≤38700000) | |
| Asbestos Structures > 5 µm, ≤ 10 µm (Amph) | 17800000 | 8870000U | | 8930000 | (≤38700000) | |
| Asbestos Structures > 10 µm (Long) | 11900000 | 8870000U | | 3030000 | (≤30400000) | |
| Asbestos Structures > 10 µm (Amph) | 8900000 | 8870000U | | 30000 | (≤23000000) | |
| Total Protocol Asbestos Structures | 29700000 | 8870000U | | 20830000 | (≤54600000) | |
| Protocol Asbestos Structures (Amph) | 26700000 | 8870000U | | 17830000 | (≤50700000) | |

V:\FIELD DUPLICATES\FD_inorganic\24058A6.wpd

# Laboratory Data Consultants, Inc.
# Data Validation Report

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

**Collection Date:** June 30, 2010

**LDC Report Date:** October 13, 2010

**Matrix:** Soil

**Parameters:** Asbestos

**Validation Level:** Stage 2B

**Laboratory:** EMSL Analytical, Inc.

**Sample Delivery Group (SDG):** 041014160

**Sample Identification**

SSAK6-05-0.00BPC

## 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

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## 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 041014160 | 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.

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 041014160**

| SDG | Sample | Analyte | Flag | A or P | Reason (Code) |
|---|---|---|---|---|---|
| 041014160 | SSAK6-05-0.00BPC | 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 041014160**

No Sample Data Qualified in this SDG

**Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada**
**Asbestos - Field Blank Data Qualification Summary - SDG 041014160**

No Sample Data Qualified in this SDG

# Tronox Northgate Henderson
# VALIDATION COMPLETENESS WORKSHEET
## Stage 2B

LDC #: 24058B6
SDG #: 041014160
Laboratory: EMSL Analytical, Inc.

Date: 10-13-10
Page: 1 of 1
Reviewer: CR
2nd Reviewer: W

**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: 6/30/10 |
| 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 | SSAK6-05-0.00BPC | 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: _____

# Laboratory Data Consultants, Inc.
# Data Validation Report

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

**Collection Date:** August 6, 2010

**LDC Report Date:** October 28, 2010

**Matrix:** Soil

**Parameters:** Asbestos

**Validation Level:** Stage 2B & 4

**Laboratory:** EMSL Analytical, Inc.

**Sample Delivery Group (SDG):** 041017714

**Sample Identification**

SSAI3-03-0.00BPC
SSAI3-02-0.00BPC
SSAI3-02-0.00BPC_FD
SSAI3-04-0.00BPC
SSAI3-02-SW-E-0.00BPC**
SSAI3-03-SW-E-0.00BPC
SSAI3-04-SW-E-0.00BPC
SSAJ3-02-SW-E-0.00BPC
SSAJ3-05-SW-E-0.00BPC
SSAI3-02-SW-W-0.00BPC
SSAI3-03-SW-W-0.00BPC
SSAI3-04-SW-W-0.00BPC
SSAJ3-02-SW-W-0.00BPC
SSAJ3-05-SW-W-0.00BPC
SSAJ3-07-SW-W-0.00BPC
SSAJ3-07-SW-E-0.00BPC

**Indicates sample underwent Stage 4 review

## Introduction

This data review covers 16 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.

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 041017714 | 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 SSAI3-02-0.00BPC and SSAI3-02-0.00BPC_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 041017714

| SDG | Sample | Analyte | Flag | A or P | Reason (Code) |
|---|---|---|---|---|---|
| 041017714 | SSAI3-03-0.00BPC<br>SSAI3-02-0.00BPC<br>SSAI3-02-0.00BPC_FD<br>SSAI3-04-0.00BPC<br>SSAI3-02-SW-E-0.00BPC**<br>SSAI3-03-SW-E-0.00BPC<br>SSAI3-04-SW-E-0.00BPC<br>SSAJ3-02-SW-E-0.00BPC<br>SSAJ3-05-SW-E-0.00BPC<br>SSAI3-02-SW-W-0.00BPC<br>SSAI3-03-SW-W-0.00BPC<br>SSAI3-04-SW-W-0.00BPC<br>SSAJ3-02-SW-W-0.00BPC<br>SSAJ3-05-SW-W-0.00BPC<br>SSAJ3-07-SW-W-0.00BPC<br>SSAJ3-07-SW-E-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 041017714

No Sample Data Qualified in this SDG

## Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
## Asbestos - Field Blank Data Qualification Summary - SDG 041017714

No Sample Data Qualified in this SDG

# Tronox Northgate Henderson
# VALIDATION COMPLETENESS WORKSHEET
## Stage 2B/4

LDC #: 24058C6
SDG #: 041017714
Laboratory: EMSL Analytical, Inc.

Date: 6-13-10
Page: 1 of 1
Reviewer: CR
2nd Reviewer: LW

**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: 8/6/10 |
| 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 | ND | (2,3) |
| 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: 30 ** Indicates sample underwent Stage 4 validation

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | SSAI3-03-0.00BPC | 11 | SSAI3-03-SW-W-0.00BPC | 21 | | 31 | |
| 2 | SSAI3-02-0.00BPC | 12 | SSAI3-04-SW-W-0.00BPC | 22 | | 32 | |
| 3 | SSAI3-02-0.00BPC_FD | 13 | SSAJ3-02-SW-W-0.00BPC | 23 | | 33 | |
| 4 | SSAI3-04-000BPC | 14 | SSAJ3-05-SW-W-0.00BPC | 24 | | 34 | |
| 5 | SSAI3-02-SW-E-0.00BPC** | 15 | SSAJ3-07-SW-W-0.00BPC | 25 | | 35 | |
| 6 | SSAI3-03-SW-E-0.00BPC | 16 | SSAJ3-07-SW-E-0.00BPC | 26 | | 36 | |
| 7 | SSAI3-04-SW-E-0.00BPC | 17 | | 27 | | 37 | |
| 8 | SSAJ3-02-SW-E-000BPC | 18 | | 28 | | 38 | |
| 9 | SSAJ3-05-SW-E-0.00BPC | 19 | | 29 | | 39 | |
| 10 | SSAI3-02-SW-W-0.00BPC | 20 | | 30 | | 40 | |

Notes:

LDC #: 24058C6
SDG #: —

**VALIDATION FINDINGS CHECKLIST**

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

**Method:** Asbestos (EPA Method See each

| 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 #: 24058C6
SDG #: —

**VALIDATION FINDINGS CHECKLIST**


Reviewer: CR
2nd Reviewer: W

| 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 #: 24056C6

# 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 Asbestos 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 5, 2010

**LDC Report Date:** October 13, 2010

**Matrix:** Soil

**Parameters:** Asbestos

**Validation Level:** Stage 2B

**Laboratory:** EMSL Analytical, Inc.

**Sample Delivery Group (SDG):** 041017735

**Sample Identification**

SSAJ3-02-0.00BPC
SSAJ3-05-0.00BPC
SSAJ3-07-0.00BPC
SSAQ4-09-0.00BPC

## Introduction

This data review covers 4 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

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## 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 041017735 | 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.

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 041017735**

| SDG | Sample | Analyte | Flag | A or P | Reason (Code) |
|---|---|---|---|---|---|
| 041017735 | SSAJ3-02-0.00BPC<br>SSAJ3-05-0.00BPC<br>SSAJ3-07-0.00BPC<br>SSAQ4-09-0.00BPC | 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 041017735**

No Sample Data Qualified in this SDG

**Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada**
**Asbestos - Field Blank Data Qualification Summary - SDG 041017735**

No Sample Data Qualified in this SDG

# Tronox Northgate Henderson
# VALIDATION COMPLETENESS WORKSHEET
## Stage 2B

LDC #: 24058D6
SDG #: 041017735
Laboratory: EMSL Analytical, Inc.

Date: 10-13-10
Page: 1 of 1
Reviewer: AL
2nd Reviewer: [illegible]

**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: 8/5/10 |
| 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 | SSAJ3-02-0.00BPC | 11 | | 21 | | 31 | |
| 2 | SSAJ3-05-0.00BPC | 12 | | 22 | | 32 | |
| 3 | SSAJ3-07-0.00BPC | 13 | | 23 | | 33 | |
| 4 | SSAQ4-09-0.00BPC | 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 9, 2010

**LDC Report Date:** October 13, 2010

**Matrix:** Soil

**Parameters:** Asbestos

**Validation Level:** Stage 2B & 4

**Laboratory:** EMSL Analytical, Inc.

**Sample Delivery Group (SDG):** 041017737

**Sample Identification**

SSAQ3-03-0.00BPC
SSAQ4-06-0.00BPC**
SSAQ4-06-0.00BPC_FD
SSAQ4-07-0.00BPC

**Indicates sample underwent Stage 4 review

## Introduction

This data review covers 4 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.

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 041017737 | 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 SSAQ4-06-0.00BPC** and SSAQ4-06-0.00BPC_FD were identified as field duplicates. No asbestos was detected in any of the samples with the following exceptions:

| Structure Class | Concentration (Str/g PM10) | | RPD (Limits) | Difference (Limits) | Flag | A or P |
|---|---|---|---|---|---|---|
| | SSAQ4-06-0.00BPC** | SSAQ4-06-0.00BPC_FD | | | | |
| Asbestos Structures > 5 μm, ≤ 10 μm | 27000000 | 8740000U | - | 18260000 (≤51200000) | - | - |
| Asbestos Structures > 5 μm, ≤ 10 μm (Amph) | 27000000 | 8740000U | - | 18260000 (≤51200000) | - | - |
| Asbestos Structures > 10 μm (Long) | 18000000 | 8740000U | - | 9260000 (≤39100000) | - | - |
| Asbestos Structures > 10 μm (Amph) | 18000000 | 8740000U | - | 9260000 (≤39100000) | - | - |
| Total Protocol Asbestos Structures | 44900000 | 8760000 | - | 36140000 (≤74100000) | - | - |
| Protocol Asbestos Structures (Chrys) | 8960000U | 8760000 | - | 200000 (≤22600000) | - | - |
| Protocol Asbestos Structures (Amph) | 44900000 | 8740000U | - | 36160000 (≤74100000) | - | - |

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

| SDG | Sample | Analyte | Flag | A or P | Reason (Code) |
|---|---|---|---|---|---|
| 041017737 | SSAQ3-03-0.00BPC<br>SSAQ4-06-0.00BPC**<br>SSAQ4-06-0.00BPC_FD<br>SSAQ4-07-0.00BPC | 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 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

# Tronox Northgate Henderson
# VALIDATION COMPLETENESS WORKSHEET
## Stage 2B/4

LDC #: 24058E6
SDG #: 041017737
Laboratory: EMSL Analytical, Inc.

Date: 10-13-10
Page: 1 of 1
Reviewer: CR
2nd Reviewer: W

**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: 8/9/10 |
| 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 | SW | (2,3) |
| 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 | SSAQ3-03-0.00BPC | 11 | | 21 | | 31 | |
| 2 | SSAQ4-06-0.00BPC** | 12 | | 22 | | 32 | |
| 3 | SSAQ4-06-0.00BPC_FD | 13 | | 23 | | 33 | |
| 4 | SSAQ4-07-0.00BPC | 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 #: 240886
SDG #: —

# VALIDATION FINDINGS CHECKLIST

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

**Method:** Asbestos (EPA Method SEM)

| 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. | ✓ | | | |

| 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# 24058E6

# VALIDATION FINDINGS WORKSHEET
## Field Duplicates


Reviewer: SR
2nd Reviewer: V

Inorganics, Method See Cover

Y N NA Were field duplicate pairs identified in this SDG?
Y N NA Were target analytes detected in the field duplicate pairs?

| Structure Class | Concentration (Str/g PM10) | | RPD (≤50) | Difference (Str/g PM10) | Limits (Str/g PM10) | Qualifications (Parent Only) |
|---|---|---|---|---|---|---|
| | 2 | 3 | | | | |
| Asbestos Structures > 5 µm, ≤ 10 µm | 27000000 | 8740000U | | 18260000 | (≤51200000) | |
| Asbestos Structures > 5 µm, ≤ 10 µm (Amph) | 27000000 | 8740000U | | 18260000 | (≤51200000) | |
| Asbestos Structures > 10 µm (Long) | 18000000 | 8740000U | | 9260000 | (≤39100000) | |
| Asbestos Structures > 10 µm (Amph) | 18000000 | 8740000U | | 9260000 | (≤39100000) | |
| Total Protocol Asbestos Structures | 44900000 | 8760000 | | 36140000 | (≤74100000) | |
| Protocol Asbestos Structures (Chrys) | 8960000U | 8760000 | | 200000 | (≤22600000) | |
| Protocol Asbestos Structures (Amph) | 44900000 | 8740000U | | 36160000 | (≤74100000) | |

V:\FIELD DUPLICATES\FD_inorganic\24058E6.wpd

LDC #: 24058E6

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

Concentration = $\frac{Count(Area)}{(WE)(Grid\ open)(Grid\ Analyzed)}$

Recalculation: $\frac{15(385mm^2)}{(0.000107g)(0.0132mm^2)(91)} = 4.49 \times 10^7$ str/g

| # | Sample ID | Analyte | Reported Concentration (Str/g PM10) | Calculated Concentration (Str/g PM10) | Acceptable (Y/N) |
|---|---|---|---|---|---|
| | 2 | Asbestos Structures (5 um, ≤ 10 um) | $2.70 \times 10^7$ | $2.7 \times 10^7$ | Y |
| | | ↓ (> 10 um Long) | $1.8 \times 10^7$ | $1.8 \times 10^7$ | ↓ |
| | | Total Asbestos | $4.49 \times 10^7$ | $4.49 \times 10^7$ | ↓ |

Note:

# Laboratory Data Consultants, Inc.
# Data Validation Report

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

**Collection Date:** August 3, 2010

**LDC Report Date:** October 13, 2010

**Matrix:** Soil

**Parameters:** Asbestos

**Validation Level:** Stage 2B & 4

**Laboratory:** EMSL Analytical, Inc.

**Sample Delivery Group (SDG):** 041017745

**Sample Identification**

SSAM4-01-0.67BPC**
SSAM4-03-0.00BPC

**Indicates sample underwent Stage 4 review

## Introduction

This data review covers 2 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.

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 041017745 | 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 041017745**

| SDG | Sample | Analyte | Flag | A or P | Reason (Code) |
|---|---|---|---|---|---|
| 041017745 | SSAM4-01-0.67BPC**<br>SSAM4-03-0.00BPC | 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 041017745**

No Sample Data Qualified in this SDG

**Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada**
**Asbestos - Field Blank Data Qualification Summary - SDG 041017745**

No Sample Data Qualified in this SDG

**Tronox Northgate Henderson**

LDC #: 24058F6 **VALIDATION COMPLETENESS WORKSHEET** Date: 10-13-10

SDG #: 041017745 Stage 2B/4 Page: 1 of 1

Laboratory: EMSL Analytical, Inc. Reviewer: CR

2nd Reviewer: CR

**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: 8/3/10 |
| 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 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: ** Indicates sample underwent Stage 4 validation

SO.1

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | SSAM4-01-0.67BPC** | 11 | | 21 | | 31 | |
| 2 | SSAM4-03-0.00BPC | 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 #: 24058F6
SDG #: —

# VALIDATION FINDINGS CHECKLIST


Reviewer: eR
2nd Reviewer: W

**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 #: 24058F6
SDG #: —

VALIDATION FINDINGS CHECKLIST


Reviewer: CR
2nd Reviewer: W

| 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 #: 24058F6

# 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 4, 2010

**LDC Report Date:** October 13, 2010

**Matrix:** Soil

**Parameters:** Asbestos

**Validation Level:** Stage 4

**Laboratory:** EMSL Analytical, Inc.

**Sample Delivery Group (SDG):** 041017752

**Sample Identification**

SSAO6-03-0.67BPC
SSAM5-01-0.67BPC

## Introduction

This data review covers 2 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.

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 | SSAO6-03-0.67BPC<br>SSAM5-01-0.67BPC | 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

# Tronox Northgate Henderson
# VALIDATION COMPLETENESS WORKSHEET
## Stage 4

LDC #: 24058G6
SDG #: 041017752
Laboratory: EMSL Analytical, Inc.

Date: 10-13-10
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

**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 | SSAO6-03-0.67BPC | 11 | | 21 | | 31 | |
| 2 | SSAM5-01-0.67BPC | 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 #: 240886
SDG #: —

# VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
Reviewer: SR
2nd Reviewer: W

**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 #: 24058G6
SDG #: —

**VALIDATION FINDINGS CHECKLIST**


Reviewer: GR
2nd Reviewer: MV

| 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 #: 24058G6

# 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 11, 2010

**LDC Report Date:** October 13, 2010

**Matrix:** Soil

**Parameters:** Asbestos

**Validation Level:** Stage 2B

**Laboratory:** EMSL Analytical, Inc.

**Sample Delivery Group (SDG):** 041018257

**Sample Identification**

SSAR8-02-0.00BPC
SSAR8-03-0.00BPC
SSAR8-02-0.00BPC_FD

## Introduction

This data review covers 3 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

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## 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 041018257 | 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.

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

Samples SSAR8-03-0.00BPC and SSAR8-02-0.00BPC_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 041018257

| SDG | Sample | Analyte | Flag | A or P | Reason (Code) |
|---|---|---|---|---|---|
| 041018257 | SSAR8-02-0.00BPC<br>SSAR8-03-0.00BPC<br>SSAR8-02-0.00BPC_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 041018257

No Sample Data Qualified in this SDG

## Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada
## Asbestos - Field Blank Data Qualification Summary - SDG 041018257

No Sample Data Qualified in this SDG

**Tronox Northgate Henderson**

LDC #: 24058H6 **VALIDATION COMPLETENESS WORKSHEET** Date: 10-3-16

SDG #: 041018257 Stage 2B Page: 1 of 1

Laboratory: EMSL Analytical, Inc. Reviewer: CR

2nd Reviewer: W

**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: 8/11/10 |
| 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 | ND | (2,3) |
| 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 | SSAR8-02-0.00BPC | 11 | | 21 | | 31 | |
| 2 | SSAR8-03-0.00BPC | 12 | | 22 | | 32 | |
| 3 | SSAR8-02-0.00BPC_FD | 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 16, 2010

**LDC Report Date:** October 13, 2010

**Matrix:** Soil

**Parameters:** Asbestos

**Validation Level:** Stage 2B & 4

**Laboratory:** EMSL Analytical, Inc.

**Sample Delivery Group (SDG):** 041018652

**Sample Identification**

SSAS8-04-0.00BPC
SSAS8-05-0.00BPC**
SSAS8-06-0.00BPC

**Indicates sample underwent Stage 4 review

## Introduction

This data review covers 3 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.

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 041018652 | 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 041018652

| SDG | Sample | Analyte | Flag | A or P | Reason (Code) |
|---|---|---|---|---|---|
| 041018652 | SSAS8-04-0.00BPC<br>SSAS8-05-0.00BPC**<br>SSAS8-06-0.00BPC | 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 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

# Tronox Northgate Henderson
# VALIDATION COMPLETENESS WORKSHEET
## Stage 2B/4

LDC #: 24058I6
SDG #: 041018652
Laboratory: EMSL Analytical, Inc.

Date: 10-13-10
Page: 1 of 1
Reviewer: JR
2nd Reviewer: MM

**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: 8/16/10 |
| 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: Soil ** Indicates sample underwent Stage 4 validation

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | SSAS8-04-0.00BPC | 11 | | 21 | | 31 | |
| 2 | SSAS8-05-0.00BPC** | 12 | | 22 | | 32 | |
| 3 | SSAS8-06-0.00BPC | 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: _____

LDC #: 24058I6
SDG #: —

# VALIDATION FINDINGS CHECKLIST


Reviewer: CR
2nd Reviewer: LC

**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 #: 24058I6
SDG #: —

**VALIDATION FINDINGS CHECKLIST**


Reviewer: ER
2nd Reviewer: W

| 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 #: 24058I6

# 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 19, 2010

**LDC Report Date:** October 13, 2010

**Matrix:** Soil

**Parameters:** Asbestos

**Validation Level:** Stage 2B

**Laboratory:** EMSL Analytical, Inc.

**Sample Delivery Group (SDG):** 041019206

**Sample Identification**

SSAQ5-03-0.00BPC

## 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

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## 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 041019206 | 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.

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 041019206**

| SDG | Sample | Analyte | Flag | A or P | Reason (Code) |
|---|---|---|---|---|---|
| 041019206 | SSAQ5-03-0.00BPC | 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 041019206**

No Sample Data Qualified in this SDG

**Tronox LLC Facility, PCS Additional Sampling, Henderson, Nevada**
**Asbestos - Field Blank Data Qualification Summary - SDG 041019206**

No Sample Data Qualified in this SDG

# Tronox Northgate Henderson
# VALIDATION COMPLETENESS WORKSHEET
Stage 2B

LDC #: 24058J6
SDG #: 041019206
Laboratory: EMSL Analytical, Inc.

Date: 10-13-10
Page: 1 of 1
Reviewer: SR
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: 8/19/10 |
| 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: SO1

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | SSAQ5-03-0.00BPC | 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: _____