



EMSL Analytical, Inc.

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Edward Surbrugg
Tetra Tech
303 Irene Street
Helena, MT 59601
Phone: 406-442-5588

Customer ID: MAXI57
Customer PO: NA
Received: 6/2/2014 9:20
Date Sampled: 5/24/2014
EMSL Order: 041415219
Report Date: 06/12/14

Project: NDOT NOA / 103553259

ISO 10312
International Standard for the Determination of Asbestos Fibers - Direct Transfer TEM - Modified for PCMe Analysis

Customer Sample Number: BC-AA-01-00002 Air volume: 14400 Liters
EMSL Sample Number: 041415219-0001 Grid Opening Area: 0.0132 mm²
Minimum Level of analysis (chrysotile): CD Grid Openings Analyzed: 51
Minimum Level of analysis (amphibole): ADX
Magnification used for fiber counting: 10,000
Aspect ratio for fiber definition: 3:1
Min Length/Max Width to be counted (µm): >=5 / 3
Area of collection filter (mm²): 385 Analysis Date: 6/3/2014
Result of Chi² Test: 50.00 Random Analyst: F. Craig

Analytical Sensitivity: 0.000040 Structure/cc Limit of Detection: 0.000119 Structure/cc

Structure Class	Min ID Level	Primary Str.	Total Str.	Density Str/mm ²	Concentration (Str/cc)	Poisson 95 % Confidence Interval	
						LCL (Str/cc)	UCL (Str/cc)
PCMe Structures (Chrys)	CD	0	-	0.00	0.000000	0.000000 -	0.000119
PCMe Structures (Amph)	ADX	0	-	0.00	0.000000	0.000000 -	0.000119
PCMe Structures (NRA)	ADX	0	-	0.00	0.000000	0.000000 -	0.000119
Total PCMe Structures (Regulated)	CD/ADX	0	-	0.00	0.000000	0.000000 -	0.000119
Total PCMe Structures (All)	CD/ADX	0	-	0.00	0.000000	0.000000 -	0.000119
PCMe Fibers and Bundles (Chrys)	CD	-	0	0.00	0.000000	0.000000 -	0.000119
PCMe Fibers and Bundles (Amph)	ADX	-	1	1.49	0.000040	0.000000 -	0.000188
PCMe Fibers and Bundles (NRA)	ADX	-	0	0.00	0.000000	0.000000 -	0.000119
Total PCMe Fibers and Bundles (Regulated)	CD/ADX	-	1	1.49	0.000040	0.000000 -	0.000188
Total PCMe Fibers and Bundles (All)	CD/ADX	-	1	1.49	0.000040	0.000000 -	0.000188
Non Asbestos Mineral Structures	NAM	0	0	-	-	-	-

Asbestiform Minerals Present: Actinolite

Explanation of Results

NRA = Non-Regulated Amphibole. A suspected mineral fiber that is a member of the Amphibole group, but is currently not regulated by the Federal government as asbestos.

PCMe structure = A Fibrous structure of aspect ratio > 3:1, longer than 5 µm, and which has a diameter between 0.2 and 3.0 microns

PCMe Fiber or Bundle = A Fiber or Bundle of aspect ratio > 3:1, longer than 5 µm, and which has a diameter between 0.2 and 3.0 microns

Concentration (Regulated) = include all federally regulated asbestos types. Currently Chrysotile, Amosite, Actinolite, Tremolite, Anthophyllite and Crocidolite

Concentration (all) = include all federally regulated asbestos types (Chrysotile, Amosite, Actinolite, Tremolite, Anthophyllite and Crocidolite) and all Non-regulated Amphiboles

Min ID Level = the minimum level of analysis that must have been met to be included in the reportable structure count. If any fibrous structure did not meet the minimum ID level, it would not be included in the concentration.

NAM = Non Asbestos Mineral. A mineral fiber that has been rejected from being either Amphibole or Chrysotile

Comment: Samples collected on 0.8 µm cassettes.

Robyn Denton
Approved Signatory

Tetra Tech BCBP PCMe Report Template Version: 1

Concentrations and 95% Confidence Intervals based on a Poissonian distribution. Structure counts above 31 may be better expressed with a Gaussian distribution. EMSL maintains liability limited to the cost of analysis. This report relates only to the samples reported above and may not be reproduced except in full without written approval of EMSL. EMSL is not responsible for sample collection activities or analytical limitations. Interpretation and use of results are the responsibility of the client.



ISO 10312

International Standard for the Determination of Asbestos Fibers-Direct Transfer Transmission Electron
Microscopy
Bench Sheet Data

Client:	Tetra Tech			Scope:	JEOL 100 CX II (04-01)
EMSL Sample ID:	041415219-0001	GO area (mm ²):	0.0132	Mag:	10,000
Customer Sample:	BC-AA-01-00002	Grid Box :	0414-TetraTech-01: G	Analyst(s):	F. Craig
Chi ² Test for Uniformity:	50-Random	Pore Size (micron):	0.8	Analysis Date:	06/03/2014
Project ID:	NDOT NOA / 103553259			Particulate Loading:	20%

Grid ID	Grid Opening	Structure Type	Structure Number		Dimensions (µm)		Level of ID	Mineral Type	Image Number	Structure Comments
			Primary	Total	Length	Width				
G1	F2	None Detected								
G1	F4	None Detected								
G1	F6	None Detected								
G1	F8	None Detected								
G1	E9	None Detected								
G1	E7	None Detected								
G1	E5	None Detected								
G1	E3	None Detected								
G1	E1	None Detected								
G1	D2	None Detected								
G1	D4	None Detected								
G1	D6	None Detected								
G1	D8	None Detected								
G1	D10	None Detected								
G1	C9	None Detected								
G1	C7	None Detected								
G1	C5	None Detected								
G1	C3	None Detected								
G1	C1	None Detected								
G1	B2	None Detected								
G1	B4	None Detected								
G1	B6	None Detected								
G1	B8	None Detected								
G1	B10	None Detected								
G1	A7	MD11	1		18.5	9.5	ADX	Actinolite		
G1	A7	MF		1	13.1	0.6	ADX	Actinolite	010204D	
G1	A5	None Detected								
G1	A3	None Detected								
G1	A1	None Detected								
G2	A3	None Detected								
G2	A5	None Detected								
G2	A7	None Detected								
G2	A9	None Detected								
G2	B10	None Detected								
G2	B8	None Detected								
G2	B6	None Detected								
G2	B4	None Detected								
G2	B2	None Detected								



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Project ID:	NDOT NOA / 103553259			Particulate Loading:	20%

Grid ID	Grid Opening	Structure Type	Structure Number		Dimensions (µm)		Level of ID	Mineral Type	Image Number	Structure Comments
			Primary	Total	Length	Width				
G2	C1	None Detected								
G2	C3	None Detected								
G2	C5	None Detected								
G2	C7	None Detected								
G2	C9	None Detected								
G2	D10	None Detected								
G2	D8	None Detected								
G2	D6	None Detected								
G2	D4	None Detected								
G2	D2	None Detected								
G2	E1	None Detected								
G2	E3	None Detected								
G2	E5	None Detected								
G2	E7	None Detected								



ISO 10312

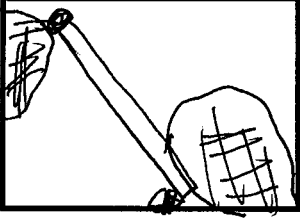
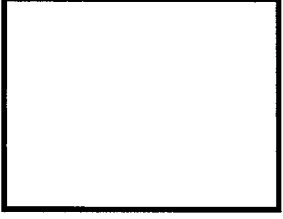
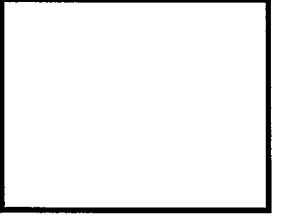
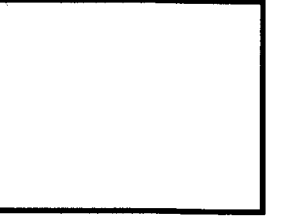

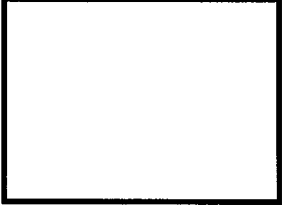


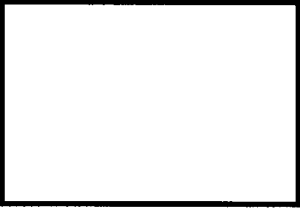

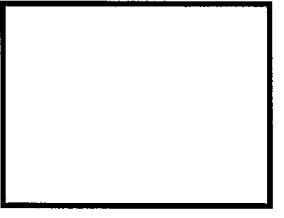
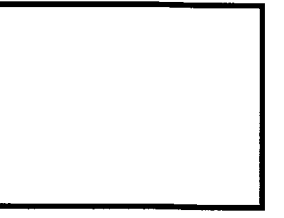

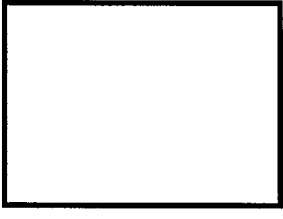
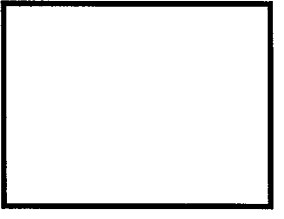
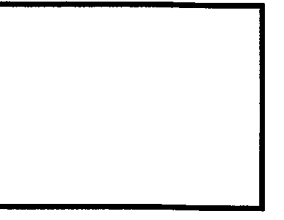
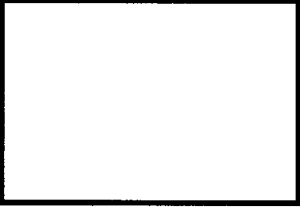



International Standard for the Determination of Asbestos Fibers-Direct
Transfer Transmission Electron Microscopy
Structure Sketch Sheet for Direct Data Entry

EMSL Order ID: 041415219-0001

Client: Tetra Tech

Client Sample: BC-AA-01-00002

Page 1 of 1

Primary Structure # 	Primary Structure # 	Primary Structure # 	Primary Structure # 
Primary Structure # 	Primary Structure # 	Primary Structure # 	Primary Structure # 
Primary Structure # 	Primary Structure # 	Primary Structure # 	Primary Structure # 
Primary Structure # 	Primary Structure # 	Primary Structure # 	Primary Structure # 
Structure # 	Structure # 	Structure # 	Structure # 

Analyst: Fz

Date: 6/3/14

Scope: 04 01



AMPHIBOLE SAED INDEXING FORM

EMSL Order Number:	041415219	Date:	Jun 04, 2014
Indexing of Image Number:	010204	Scope #:	04 - 01
Reference / Sample No:	0002-04-01	By:	F Craig
Preliminary ID:	ACTINOLITE		
Using Camera Constant of:	2.956e-003	1/A Pixels	
Determined from Reference:	AuCal-060314_10202		

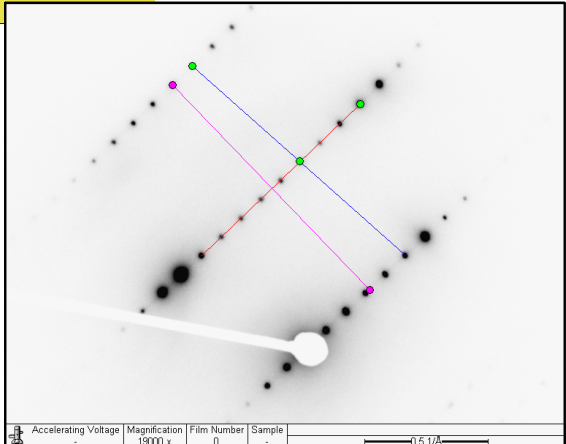
Measured Inter-Row Spacing:	192.74	Pixels
Mean Distance between spots on Center row (d2):	37.45	Pixels
Mean Distance between spots on slant vector (d1):	193.29	Pixels

	Calculated	Ref	-5%	+5%
Inter-row Spacing (Angstroms):	1.758	1.759	1.670	1.846
d2 or hk0 (Camera K/zero row dist.):	9.047	9.040	8.588	9.492
d1 or hk1 (Camera K/slant vector dist.):	1.753	1.750	1.662	1.838
Ratio of hk0/hk1:	5.161	5.166	4.908	5.424
Angle of Slant Vector (Measured):	84.0	84.430	80.209	88.652

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **Crystal Type** By: **F Craig**

Miller Indice hk0: (**0 2 0**)
 Miller Indice hkl: (**-1 1 3**)
 With a Zone Axis of: [**3 0 1**]

Preliminary Identification was: CORRECT
 INCORRECT

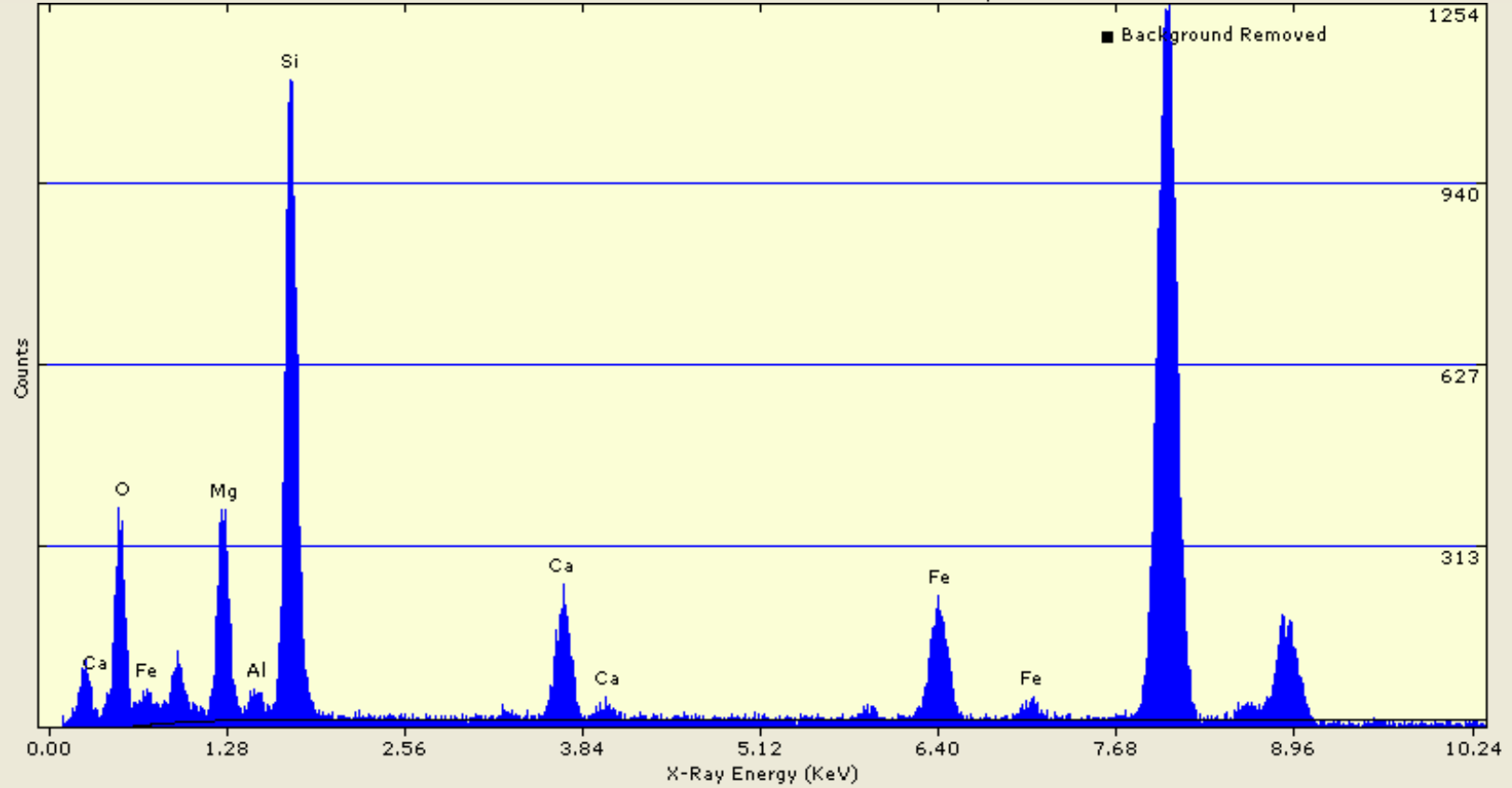


Accelerating Voltage: 15000 x Magnification: 0 Film Number: 0 Sample: 0.517A

Percent accuracy to date: 100 %

Realtime: 154.6
 Livetime: 160.2

041415219-0001 BC-AA-01-00002 G1 A7 1 Act: Spectrum8



Quantitative Results for Spectrum8

Analysis: Thin Film Method: Standardless

Acquired 03-Jun-2014, 100.0 KeV @10 eV/channel

Element	Weight %	Std. Dev.	Atomic %	Oxide %	Cations	k-Ratio	Intensities	FWHM (eV)	ROI (net)	
Oxygen	45.32	0.99	61.16	0.00	0.0000	0.0000	0.0	86.2	2812.40	
Magnesium	10.78	0.11	9.58	17.88	(MgO)	3.6018	0.1796	2866.7	95.9	2950.39
Aluminum	1.15	0.01	0.92	2.17	(Al2O3)	0.3462	0.0197	337.6	98.8	461.55
Silicon	28.43	0.30	21.85	60.82	(SiO2)	8.2179	0.4391	8833.5	101.8	9263.29
Calcium	6.30	0.07	3.40	8.82	(CaO)	1.2770	0.0563	2033.4	122.5	2092.62
Iron	8.01	0.09	3.10	10.31	(FeO)	1.1646	0.0636	2052.2	146.4	2453.94
Total	100.00			100.00		14.6076				



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Project: NDOT NOA / 103553259

ISO 10312 International Standard for the Determination of Asbestos Fibers - Direct Transfer TEM - Modified for PCMe Analysis

Customer Sample Number:	BC-AA-03-00002	Air volume:	14400	Liters
EMSL Sample Number:	041415219-0002	Grid Opening Area:	0.0132	mm ²
Minimum Level of analysis (chrysotile):	CD	Grid Openings Analyzed:	51	
Minimum Level of analysis (amphibole):	ADX			
Magnification used for fiber counting:	10,000			
Aspect ratio for fiber definition:	3:1			
Min Length/Max Width to be counted (µm):	>=5 / 3	Analysis Date:	6/4/2014	
Area of collection filter (mm ²):	385	Analyst:	F. Craig	
Result of Chi ² Test:	49.00	Random		

Analytical Sensitivity:	0.000040	Structure/cc	Limit of Detection:	0.000119	Structure/cc
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Structure Class	Min ID Level	Primary Str.	Total Str.	Density Str/mm ²	Concentration (Str/cc)	Poisson 95 % Confidence Interval	
						LCL (Str/cc)	UCL (Str/cc)
PCMe Structures (Chrys)	CD	0	-	0.00	0.000000	0.000000 -	0.000119
PCMe Structures (Amph)	ADX	1	-	1.49	0.000040	0.000000 -	0.000188
PCMe Structures (NRA)	ADX	0	-	0.00	0.000000	0.000000 -	0.000119
Total PCMe Structures (Regulated)	CD/ADX	1	-	1.49	0.000040	0.000000 -	0.000188
Total PCMe Structures (All)	CD/ADX	1	-	1.49	0.000040	0.000000 -	0.000188
PCMe Fibers and Bundles (Chrys)	CD	-	0	0.00	0.000000	0.000000 -	0.000119
PCMe Fibers and Bundles (Amph)	ADX	-	2	2.97	0.000079	0.000000 -	0.000250
PCMe Fibers and Bundles (NRA)	ADX	-	0	0.00	0.000000	0.000000 -	0.000119
Total PCMe Fibers and Bundles (Regulated)	CD/ADX	-	2	2.97	0.000079	0.000000 -	0.000250
Total PCMe Fibers and Bundles (All)	CD/ADX	-	2	2.97	0.000079	0.000000 -	0.000250
Non Asbestos Mineral Structures	NAM	0	0	-	-	- -	-

Asbestiform Minerals Present: Actinolite, Tremolite

Explanation of Results

NRA = Non-Regulated Amphibole. A suspected mineral fiber that is a member of the Amphibole group, but is currently not regulated by the Federal government as asbestos.

PCMe structure = A Fibrous structure of aspect ratio > 3:1, longer than 5 µm, and which has a diameter between 0.2 and 3.0 microns

PCMe Fiber or Bundle = A Fiber or Bundle of aspect ratio > 3:1, longer than 5 µm, and which has a diameter between 0.2 and 3.0 microns

Concentration (Regulated) = include all federally regulated asbestos types. Currently Chrysotile, Amosite, Actinolite, Tremolite, Anthophyllite and Crocidolite

Concentration (all) = include all federally regulated asbestos types (Chrysotile, Amosite, Actinolite, Tremolite, Anthophyllite and Crocidolite) and all Non-regulated Amphiboles

Min ID Level = the minimum level of analysis that must have been met to be included in the reportable structure count. If any fibrous structure did not meet the minimum ID level, it would not be included in the concentration.

NAM = Non Asbestos Mineral. A mineral fiber that has been rejected from being either Amphibole or Chrysotile

Comment: Samples collected on 0.8 µm cassettes.

Robyn Denton
 Approved Signatory

Tetra Tech BCBP PCMe Report Template Version: 1

Concentrations and 95% Confidence Intervals based on a Poissonian distribution. Structure counts above 31 may be better expressed with a Gaussian distribution. EMSL maintains liability limited to the cost of analysis. This report relates only to the samples reported above and may not be reproduced except in full without written approval of EMSL. EMSL is not responsible for sample collection activities or analytical limitations. Interpretation and use of results are the responsibility of the client.



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EMSL Sample ID:	041415219-0002	GO area (mm ²):	0.0132	Mag:	10,000
Customer Sample:	BC-AA-03-00002	Grid Box :	0414-TetraTech-01: G	Analyst(s):	F. Craig
Chi ² Test for Uniformity:	49-Random	Pore Size (micron):	0.8	Analysis Date:	06/04/2014
Project ID:	NDOT NOA / 103553259			Particulate Loading:	20%

Grid ID	Grid Opening	Structure Type	Structure Number		Dimensions (µm)		Level of ID	Mineral Type	Image Number	Structure Comments
			Primary	Total	Length	Width				
G6	B10	None Detected								
G6	B8	None Detected								
G6	B6	None Detected								
G6	B2	None Detected								
G6	C1	None Detected								
G6	C5	None Detected								
G6	C7	None Detected								
G6	C9	None Detected								
G6	D10	None Detected								
G6	D8	None Detected								
G6	D4	None Detected								
G6	D2	None Detected								
G6	F10	None Detected								
G6	F8	None Detected								
G6	F6	MD11	1		6.7	1.44	ADX	Tremolite		
G6	F6	MF		1	6.7	0.5	ADX	Tremolite	010207D	
G6	F4	None Detected								
G6	F2	None Detected								
G6	G1	None Detected								
G6	G7	None Detected								
G6	G9	None Detected								
G6	H10	None Detected								
G6	H8	None Detected								
G6	H4	None Detected								
G6	H2	None Detected								
G6	I1	None Detected								
G6	I3	None Detected								
G6	I5	None Detected								
G6	I9	None Detected								
G8	B10	None Detected								
G8	B8	None Detected								
G8	B6	None Detected								
G8	C1	None Detected								
G8	C5	None Detected								
G8	C7	None Detected								
G8	C9	None Detected								
G8	D10	None Detected								
G8	D8	None Detected								



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Grid ID	Grid Opening	Structure Type	Structure Number		Dimensions (µm)		Level of ID	Mineral Type	Image Number	Structure Comments
			Primary	Total	Length	Width				
G8	D6	None Detected								
G8	D2	None Detected								
G8	E1	None Detected								
G8	E5	None Detected								
G8	E7	None Detected								
G8	E9	None Detected								
G8	F10	None Detected								
G8	G5	None Detected								
G8	G9	None Detected								
G8	H10	None Detected								
G8	H8	MD11	2		12.4	5.7	ADX	Actinolite		
G8	H8	MB		2	12.4	2.38	ADX	Actinolite	010211D	
G8	H6	None Detected								
G8	H2	None Detected								
G8	I1	None Detected								



ISO 10312

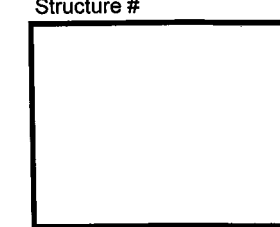
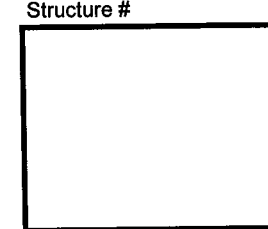
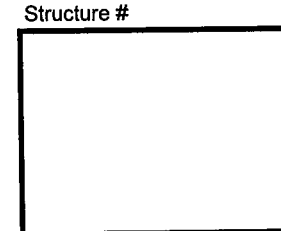
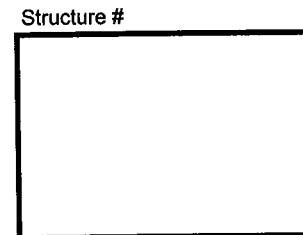
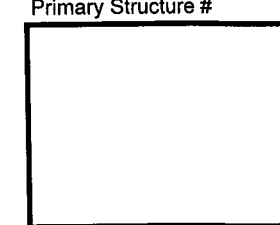
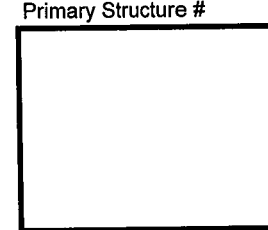
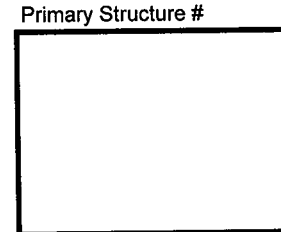
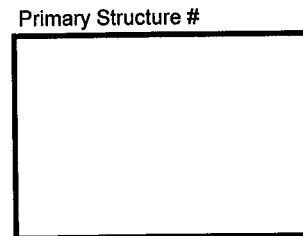
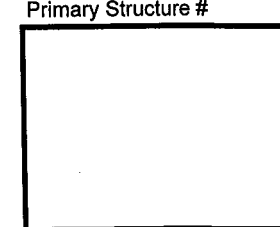
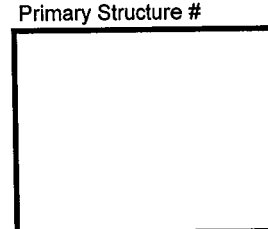
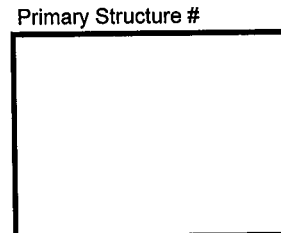
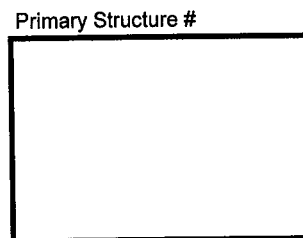
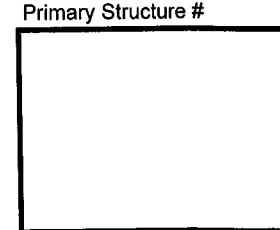
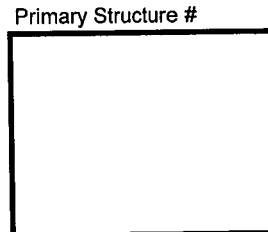
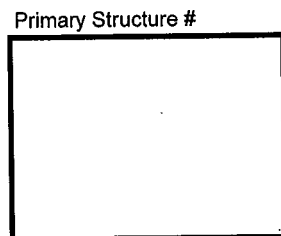
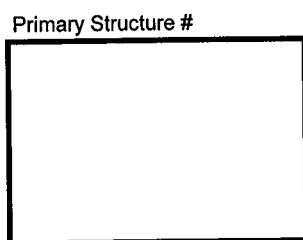
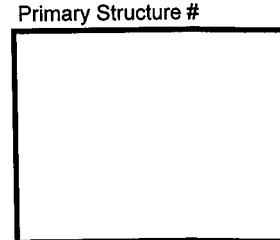
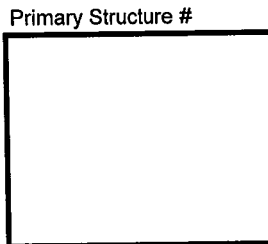
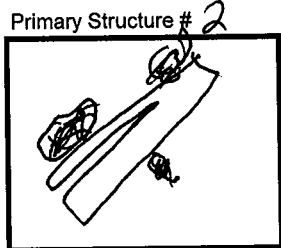
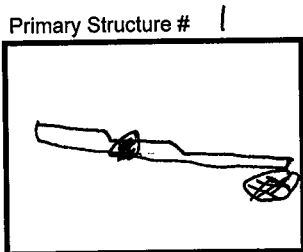
International Standard for the Determination of Asbestos Fibers-Direct
Transfer Transmission Electron Microscopy
Structure Sketch Sheet for Direct Data Entry

EMSL Order ID: 041415219-0002

Client: Tetra Tech

Client Sample: BC-AA-03-00002

Page 1 of 1



Analyst: Fe

Date: 6/4/14

Scope: 0901



AMPHIBOLE SAED INDEXING FORM

EMSL Order Number:	041415219	Date:	Jun 04, 2014
Indexing of Image Number:	010207	Scope #:	04 - 01
Reference / Sample No:	0002-04-01	By:	F Craig
Preliminary ID:	TREMOLITE		
Using Camera Constant of:	2.956e-003	1/A Pixels	
Determined from Reference:	AuCal-060314_10202		

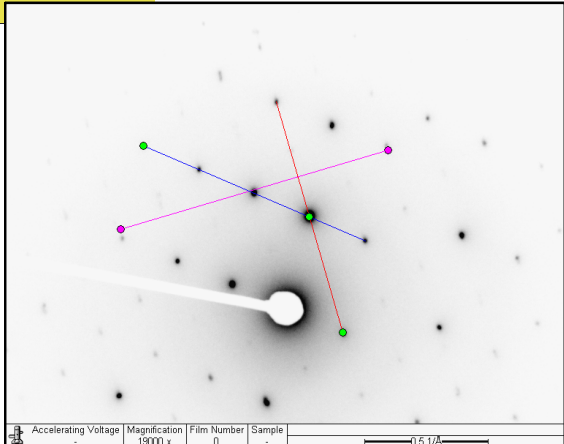
Measured Inter-Row Spacing:	63.91	Pixels
Mean Distance between spots on Center row (d2):	166.5	Pixels
Mean Distance between spots on slant vector (d1):	85.67	Pixels

	Calculated	Ref	-5%	+5%
Inter-row Spacing (Angstroms):	5.270	5.278	5.014	5.542
d2 or hk0 (Camera K/zero row dist.):	2.023	2.001	1.901	2.101
d1 or hk1 (Camera K/slant vector dist.):	3.955	3.880	3.686	4.074
Ratio of hk0/hk1:	0.512	0.516	0.490	0.542
Angle of Slant Vector (Measured):	50.5	50.530	48.003	53.057

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **Tremolite** By: **F Craig**

Miller Indice hk0: (**-3 7 0**)
 Miller Indice hkl: (**-1 3 1**)
 With a Zone Axis of: [**7 3 -2**]

Preliminary Identification was: CORRECT
 INCORRECT



Accelerating Voltage: 15000 x Magnification: 0 Film Number: 0 Sample: 0.517A

Percent accuracy to date: 100 %



AMPHIBOLE SAED INDEXING FORM

EMSL Order Number:	041415219	Date:	Jun 04, 2014
Indexing of Image Number:	010211	Scope #:	04 - 01
Reference / Sample No:	0002-04-01	By:	F Craig
Preliminary ID:	ACTINOLITE		
Using Camera Constant of:	2.956e-003	1/A Pixels	
Determined from Reference:	AuCal-060314_10202		

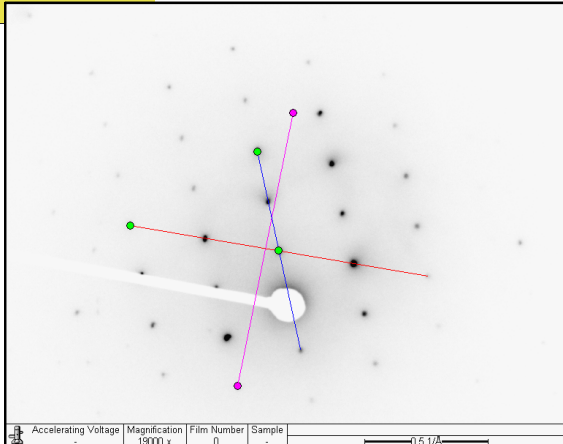
Measured Inter-Row Spacing:	64.28	Pixels
Mean Distance between spots on Center row (d2):	103.55	Pixels
Mean Distance between spots on slant vector (d1):	69.53	Pixels

	Calculated	Ref	-5%	+5%
Inter-row Spacing (Angstroms):	5.271	5.278	5.014	5.542
d2 or hk0 (Camera K/zero row dist.):	3.272	3.270	3.107	3.434
d1 or hk1 (Camera K/slant vector dist.):	4.873	4.876	4.632	5.120
Ratio of hk0/hk1:	.671	0.671	0.637	0.705
Angle of Slant Vector (Measured):	67.6	67.620	63.954	70.686

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **Actinolite** By: **F Craig**

Miller Indice hk0: (**2 -4 0**)
 Miller Indice hkl: (**1 -1 -1**)
 With a Zone Axis of: [**2 1 1**]

Preliminary Identification was: CORRECT
 INCORRECT

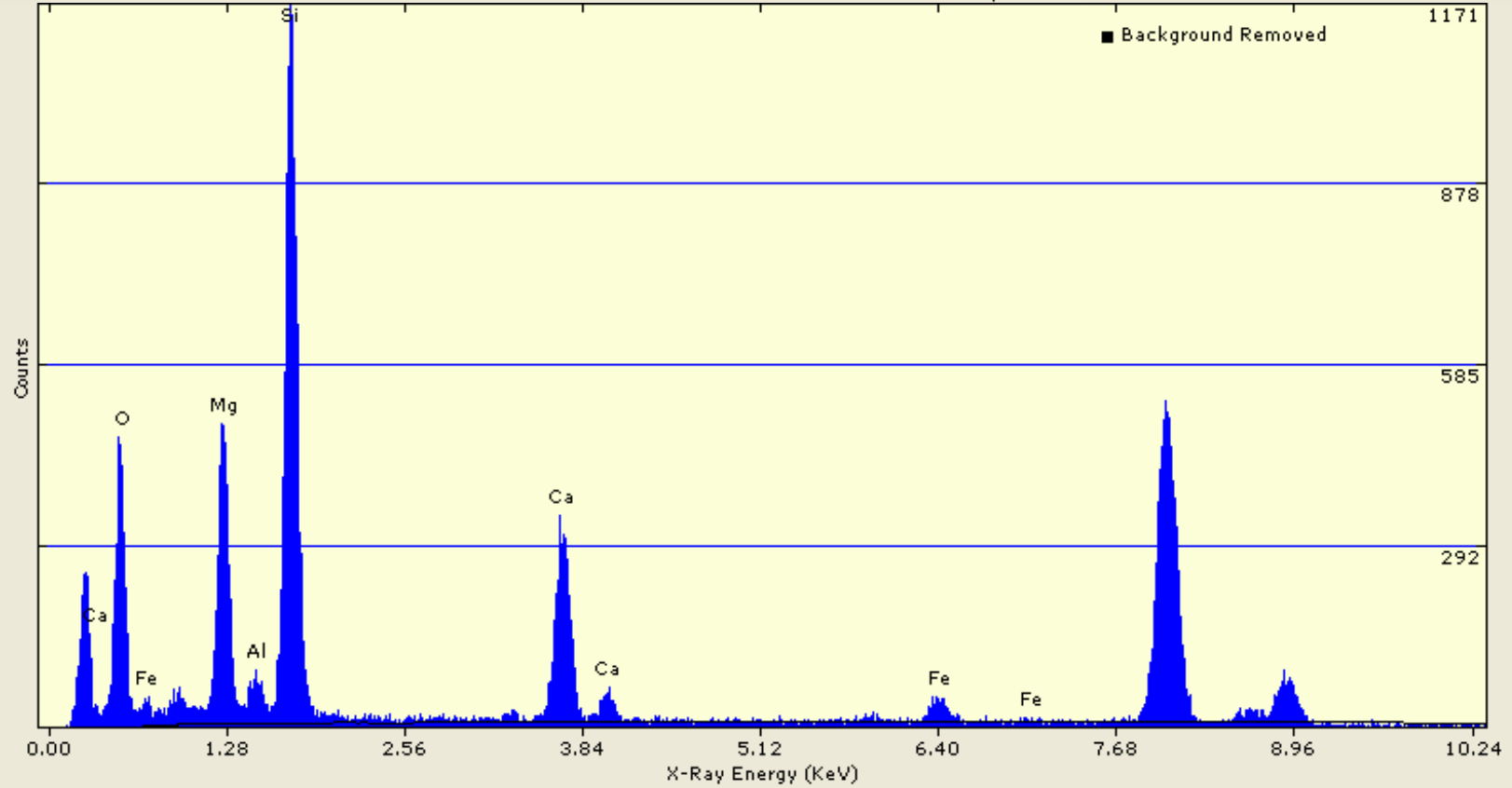


Accelerating Voltage: 18000 x Magnification: 0 Film Number: 0 Sample: 0.517A

Percent accuracy to date: 100 %

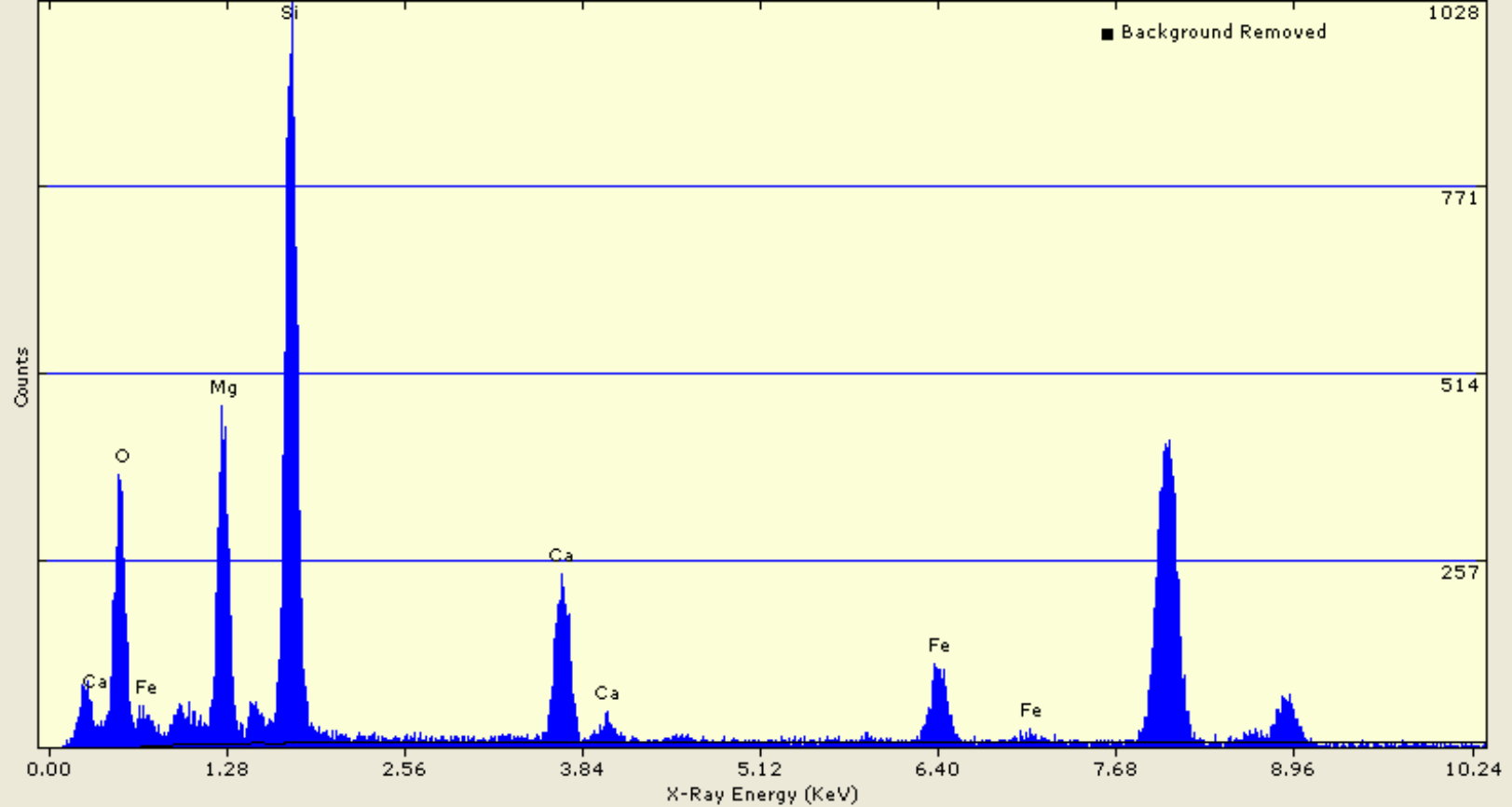
Realtime: 176.2
 Livetime: 171.3

041415219-0002 BC-AA-03-00002 G6 F6 1 Trem::Spectrum5



Realtime: 98.1
 Livetime: 93.5

041415219-0002 BC-AA-03-00002 G8 H8 2 Act.: Spectrum27



Quantitative Results for Spectrum27
 Analysis: Thin Film Method: Standardless
 Acquired 04-Jun-2014, 100.0 KeV @10 eV/channel

Element	Weight %	Std. Dev.	Atomic %	Oxide %	Cations	k-Ratio	Intensities	FWHM (eV)	ROI (net)
Oxygen	45.68	0.51	60.67	0.00	0.0000	0.0000	0.0	86.2	2805.39
Magnesium	14.01	0.16	12.24	23.22 (MgO)	4.6420	0.2190	3353.7	95.9	3498.99
Silicon	28.19	0.32	21.33	60.32 (SiO2)	8.0869	0.4123	7890.5	101.8	8305.52
Calcium	7.65	0.09	4.06	10.70 (CaO)	1.5375	0.0641	2222.2	122.4	2304.01
Iron	4.47	0.05	1.70	5.75 (FeO)	0.6453	0.0319	1032.1	146.4	1209.60
Total	100.00			100.00		14.9117			



EMSL Analytical, Inc.

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 Cinnaminson, NJ 08077
 856-303-2500
www.EMSL.com

Edward Surbrugg
 Tetra Tech
 303 Irene Street
 Helena, MT 59601
 Phone: 406-442-5588

Customer ID: MAXI57
 Customer PO: NA
 Received: 6/2/2014 9:20
 Date Sampled: 5/24/2014
 EMSL Order: 041415219
 Report Date: 06/12/14

Project: NDOT NOA / 103553259

ISO 10312 International Standard for the Determination of Asbestos Fibers - Direct Transfer TEM - Modified for PCMe Analysis

Customer Sample Number:	BC-AA-04-00002	Air volume:	14400	Liters
EMSL Sample Number:	041415219-0003	Grid Opening Area:	0.0132	mm ²
Minimum Level of analysis (chrysotile):	CD	Grid Openings Analyzed:	51	
Minimum Level of analysis (amphibole):	ADX			
Magnification used for fiber counting:	10,000			
Aspect ratio for fiber definition:	3:1			
Min Length/Max Width to be counted (µm):	>=5 / 3	Analysis Date:	6/3/2014	
Area of collection filter (mm ²):	385	Analyst:	P. Harrison	
Result of Chi ² Test:	38.67	Random		

Analytical Sensitivity:	0.000040	Structure/cc	Limit of Detection:	0.000119	Structure/cc
--------------------------------	-----------------	---------------------	----------------------------	-----------------	---------------------

Structure Class	Min ID Level	Primary Str.	Total Str.	Density Str/mm ²	Concentration (Str/cc)	Poisson 95 % Confidence Interval	
						LCL (Str/cc)	UCL (Str/cc)
PCMe Structures (Chrys)	CD	0	-	0.00	0.000000	0.000000 -	0.000119
PCMe Structures (Amph)	ADX	18	-	26.74	0.000715	0.000424 -	0.001130
PCMe Structures (NRA)	ADX	0	-	0.00	0.000000	0.000000 -	0.000119
Total PCMe Structures (Regulated)	CD/ADX	18	-	26.74	0.000715	0.000424 -	0.001130
Total PCMe Structures (All)	CD/ADX	18	-	26.74	0.000715	0.000424 -	0.001130
PCMe Fibers and Bundles (Chrys)	CD	-	0	0.00	0.000000	0.000000 -	0.000119
PCMe Fibers and Bundles (Amph)	ADX	-	18	26.74	0.000715	0.000424 -	0.001130
PCMe Fibers and Bundles (NRA)	ADX	-	0	0.00	0.000000	0.000000 -	0.000119
Total PCMe Fibers and Bundles (Regulated)	CD/ADX	-	18	26.74	0.000715	0.000424 -	0.001130
Total PCMe Fibers and Bundles (All)	CD/ADX	-	18	26.74	0.000715	0.000424 -	0.001130
Non Asbestos Mineral Structures	NAM	0	0	-	-	- -	-

Asbestiform Minerals Present: Actinolite

Explanation of Results

NRA = Non-Regulated Amphibole. A suspected mineral fiber that is a member of the Amphibole group, but is currently not regulated by the Federal government as asbestos.

PCMe structure = A Fibrous structure of aspect ratio > 3:1, longer than 5 µm, and which has a diameter between 0.2 and 3.0 microns

PCMe Fiber or Bundle = A Fiber or Bundle of aspect ratio > 3:1, longer than 5 µm, and which has a diameter between 0.2 and 3.0 microns

Concentration (Regulated) = include all federally regulated asbestos types. Currently Chrysotile, Amosite, Actinolite, Tremolite, Anthophyllite and Crocidolite

Concentration (all) = include all federally regulated asbestos types (Chrysotile, Amosite, Actinolite, Tremolite, Anthophyllite and Crocidolite) and all Non-regulated Amphiboles

Min ID Level = the minimum level of analysis that must have been met to be included in the reportable structure count. If any fibrous structure did not meet the minimum ID level, it would not be included in the concentration.

NAM = Non Asbestos Mineral. A mineral fiber that has been rejected from being either Amphibole or Chrysotile

Comment: Samples collected on 0.8 µm cassettes.

Robyn Denton
 Approved Signatory

Tetra Tech BCBP PCMe Report Template Version: 1

Concentrations and 95% Confidence Intervals based on a Poissonian distribution. Structure counts above 31 may be better expressed with a Gaussian distribution. EMSL maintains liability limited to the cost of analysis. This report relates only to the samples reported above and may not be reproduced except in full without written approval of EMSL. EMSL is not responsible for sample collection activities or analytical limitations. Interpretation and use of results are the responsibility of the client.



ISO 10312

International Standard for the Determination of Asbestos Fibers-Direct Transfer Transmission Electron Microscopy

Bench Sheet Data

Client:	Tetra Tech			Scope:	6/3/2014
EMSL Sample ID:	041415219-0003	GO area (mm ²):	0.0132	Mag:	10,000
Customer Sample:	BC-AA-04-00002	Grid Box :	0414-TetraTech-01: H, I	Analyst(s):	P. Harrison
Chi ² Test for Uniformity:	38.66666666666666-Random	Pore Size (micron):	0.8	Analysis Date:	06/03/2014 & 06/04/2014
Project ID:	NDOT NOA / 103553259			Particulate Loading:	25%

Grid ID	Grid Opening	Structure Type	Structure Number		Dimensions (µm)		Level of ID	Mineral Type	Image Number	Structure Comments
			Primary	Total	Length	Width				
H1	J1	F	1	1	6.4	0.2	ADX	Actinolite	4363	
H1	J3	None Detected								
H1	J7	None Detected								
H1	I8	MD11	2		10.8	1.3	ADX	Actinolite		
H1	I8	MF		2	10.4	0.25	ADX	Actinolite		
H1	I6	F	3	3	6.4	0.25	ADX	Actinolite		
H1	I4	None Detected								
H1	I2	None Detected								
H1	H1	None Detected								
H1	H3	None Detected								
H1	H5	None Detected								
H1	H7	None Detected								
H1	H9	None Detected								
H1	G8	None Detected								
H1	G6	None Detected								
H1	G4	F	4	4	7.8	1	ADX	Actinolite		
H1	F3	F	5	5	5.5	0.3	ADX	Actinolite		
H1	F5	None Detected								
H1	F7	F	6	6	8.4	0.4	ADX	Actinolite		
H1	F9	None Detected								
H1	E8	MD11	7		12	2.2	ADX	Actinolite		
H1	E8	MF		7	10.6	0.5	ADX	Actinolite		
H1	E6	F	8	8	18.5	1.7	ADX	Actinolite		
H1	E4	None Detected								
H1	E2	F	9	9	6.7	0.4	ADX	Actinolite		
H1	D1	None Detected								
H1	D3	None Detected								
H1	C2	None Detected								
H1	C6	None Detected								
H1	C8	MD11	10		12.5	1.5	ADX	Actinolite		
H1	C8	MF		10	7	0.4	ADX	Actinolite		
H1	B7	None Detected								
H1	B1	F	11	11	8.4	1	ADX	Actinolite		
H1	A2	None Detected								
H1	A4	F	12	12	9.4	0.3	ADX	Actinolite		
H1	A6	None Detected								
H1	A8	None Detected								
I1	A8	F	13	13	8.8	0.6	ADX	Actinolite		



ISO 10312

International Standard for the Determination of Asbestos Fibers-Direct Transfer Transmission Electron Microscopy

Bench Sheet Data

Client:	Tetra Tech			Scope:	6/3/2014
EMSL Sample ID:	041415219-0003	GO area (mm ²):	0.0132	Mag:	10,000
Customer Sample:	BC-AA-04-00002	Grid Box :	0414-TetraTech-01: H, I	Analyst(s):	P. Harrison
Chi ² Test for Uniformity:	38.66666666666666-Random	Pore Size (micron):	0.8	Analysis Date:	06/03/2014 & 06/04/2014
Project ID:	NDOT NOA / 103553259			Particulate Loading:	25%

Grid ID	Grid Opening	Structure Type	Structure Number		Dimensions (µm)		Level of ID	Mineral Type	Image Number	Structure Comments
			Primary	Total	Length	Width				
I1	A6	None Detected								
I1	A4	None Detected								
I1	A2	F	14	14	14	0.8	ADX	Actinolite		
I1	B3	None Detected								
I1	B9	None Detected								
I1	C8	None Detected								
I1	C6	F	15	15	5.8	0.8	ADX	Actinolite		
I1	C4	None Detected								
I1	C2	F	16	16	5.8	0.7	ADX	Actinolite		
I1	D3	None Detected								
I1	D7	None Detected								
I1	D9	None Detected								
I1	E8	None Detected								
I1	E6	None Detected								
I1	E4	None Detected								
I1	E2	F	17	17	5.8	0.7	ADX	Actinolite		
I1	E2	F	18	18	6.5	0.7	ADX	Actinolite		



ISO 10312

International Standard for the Determination of Asbestos Fibers-Direct
Transfer Transmission Electron Microscopy
Structure Sketch Sheet for Direct Data Entry

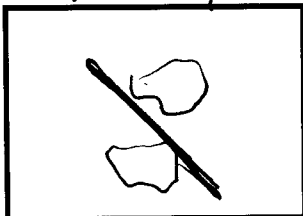
EMSL Order ID: 041415219-0003

Client: Tetra Tech

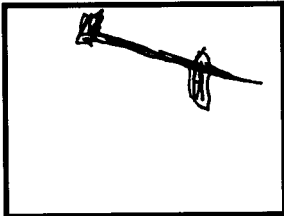
Client Sample: BC-AA-04-00002

Page 1 of

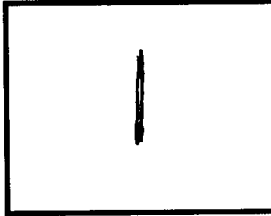
Primary Structure # 1



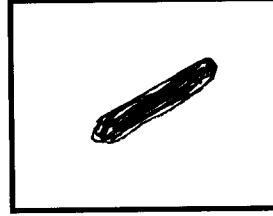
Primary Structure # 2



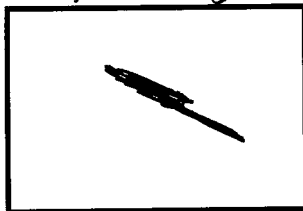
Primary Structure # 3



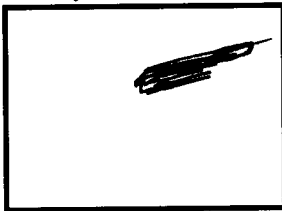
Primary Structure # 4



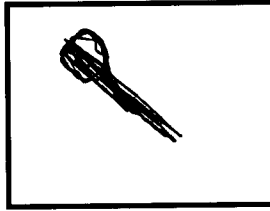
Primary Structure # 5



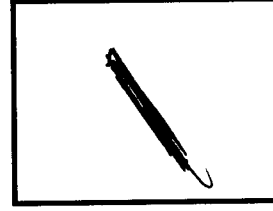
Primary Structure # 6



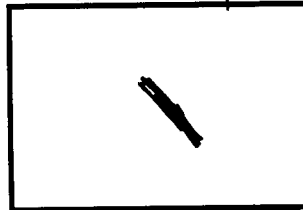
Primary Structure # 7



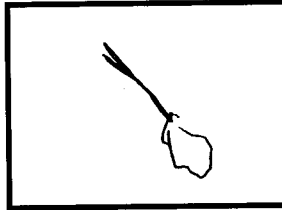
Primary Structure # 8



Primary Structure # 9



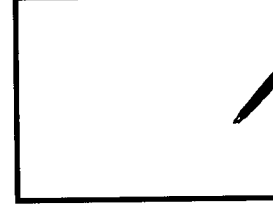
Primary Structure # 10



Primary Structure # 11



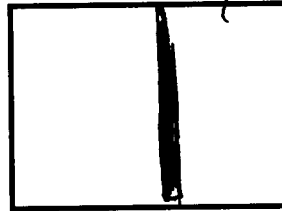
Primary Structure # 12



Primary Structure # 13



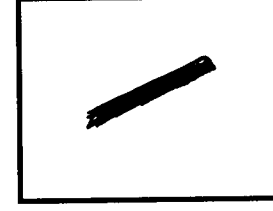
Primary Structure # 14



Primary Structure # 15



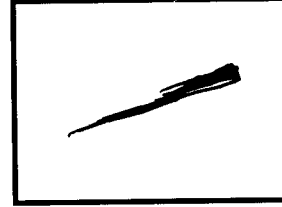
Primary Structure # 16



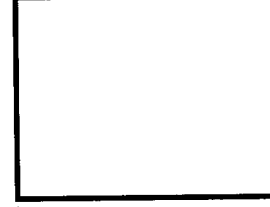
Structure # 17



Structure # 18



Structure #



Structure #



Analyst: [Signature]

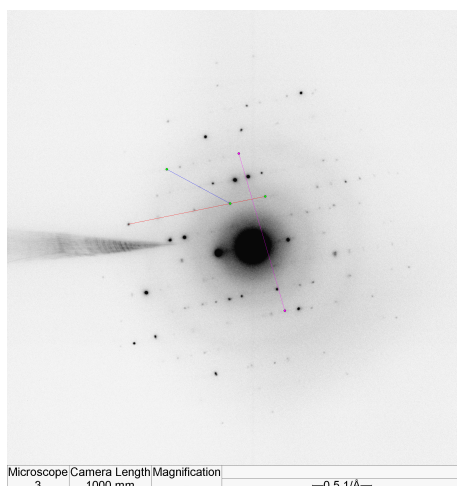
Date: 6/3/14

Scope: 04-03

AMPHIBOLE SAED INDEXING FORM

EMSL Order Number:	<u>041415219</u>	Date:	<u>Jun 03, 2014</u>
Image Number:	<u>04363</u>		
Reference / Sample Number:	<u>0003</u>		
Preliminary ID:	<u>ACTINOLITE</u>		
Camera Constant:	<u>1.856e-003</u>	1/A Pixels	
Calibration Reference:	<u>060214-04-03-04363_C</u>		

	Measured	Reference	-5%	+5%
Inter-row Spacing: <input type="checkbox"/> <input type="checkbox"/>	5.119	5.278	5.014	5.542
d2 or hk0 (Camera K/zero row dist.):	3.433	3.385	3.216	3.554
d1 or hkl (Camera K/slant vector dist.):	3.349	3.403	3.233	3.573
Ratio of hk0/hkl:	1.025	0.995	0.945	1.045
Vector Angle:	39.89	39.92	37.92	41.92



From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **ACTINOLITE**

With a Zone Axis of: [**5-14**]

Preliminary Identification was:

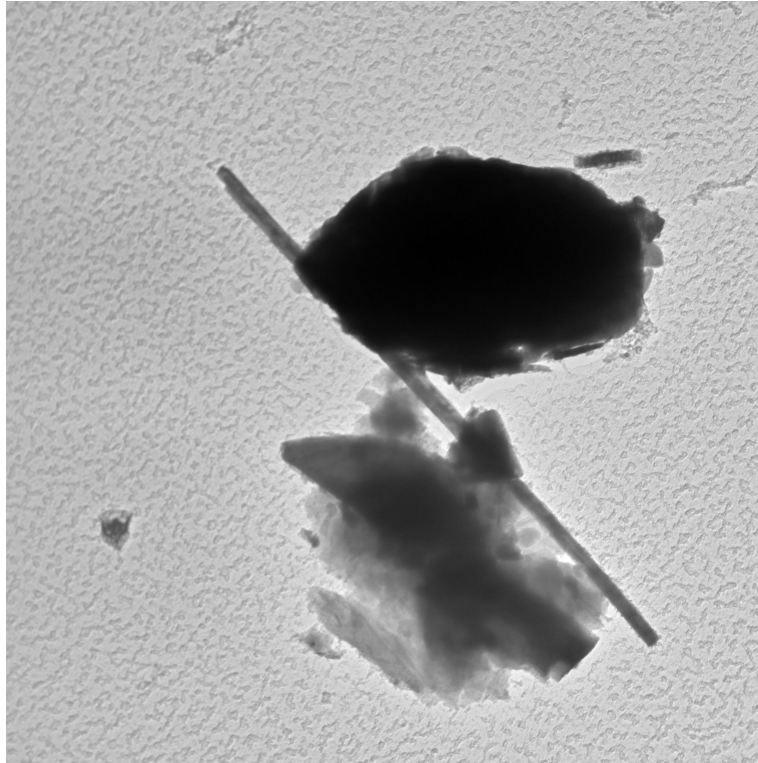
X	CORRECT
	INCORRECT



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Photomicrograph Report



Microscope Camera Length	Magnification	
3	20000 x	——— 2 μ m ———

Micrograph Information

Sample ID:	0003
Order ID:	041415219
Image Number:	04364
Mineral Type:	ACTINOLITE
Date:	6/3/2014
Magnification:	20000
Microscope:	3



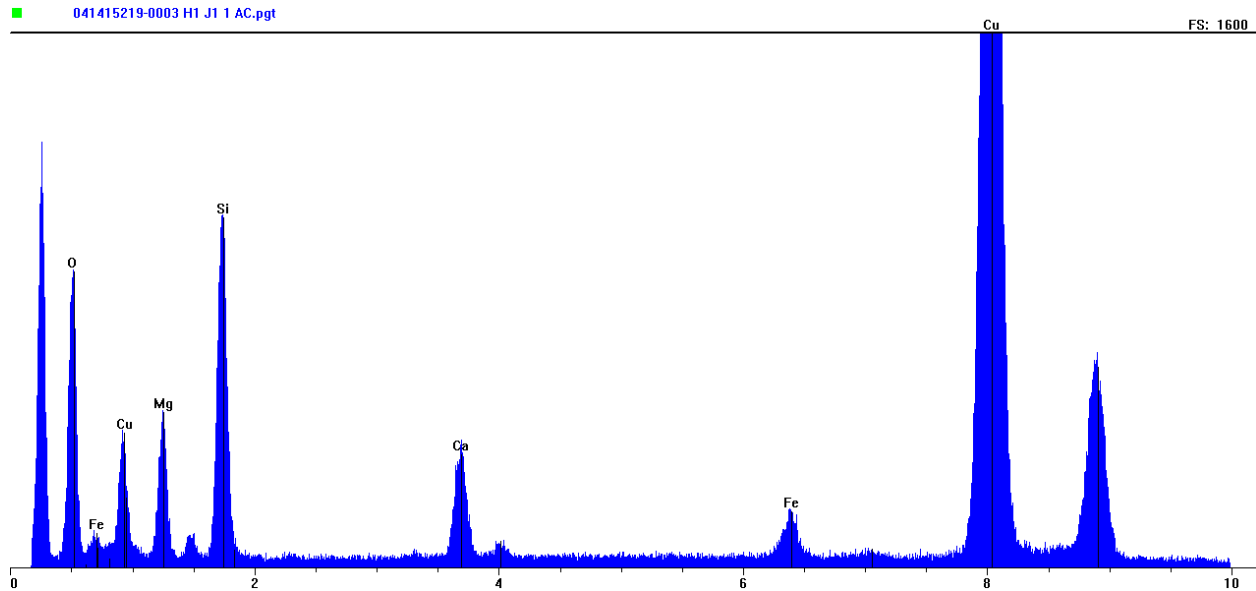
Energy Dispersive X-Ray Analysis

Quantitative Spectra & Data

EMSL ANALYTICAL, INC.

File: L:\EDS Spe...Spectra\Scope 04-03\2014\041415219-0003 H1 J1 1 AC.pgt
 Collected: June 03, 2014 07:50:48

Live Time: 342.87 Count Rate: 884 Dead Time: 9.63 %
 Beam Voltage: 20.00 Beam Current: 2.00 Takeoff Angle: 31.00
 Thickness limit: 29967.85



Element	Line	keV	CL Ratio	Wt%	At%	At Prop	Compound	Cmpd Wt%
Mg	KA1	1.254	1.4000	14.30	12.65	4.9	MgO	23.71
Si	KA1	1.740	1.0000	26.09	19.98	7.7	SiO2	55.81
Ca	KA1	3.691	1.0500	10.52	5.65	2.2	CaO	14.72
Fe	KA1	6.403	0.9900	4.48	1.72	0.7	FeO	5.76
Cu	KA1	8.046	0.0000	0.00	0.00	0.0		
O	KA1	0.523	0.0000	44.62	59.99	23.0		
Total			0.0000	100.00	100.00	38.3	Total	100.00

Element	Line	Gross (cps)	BKG (cps)	Net (cps)	P:B Ratio
Mg	KA1	19.9	2.3	17.6	7.7
Si	KA1	47.2	2.2	45.0	20.3
Ca	KA1	19.9	2.6	17.3	6.6
Fe	KA1	11.2	3.4	7.8	2.3
Cu	KA1	331.4	4.4	327.0	74.8
O	KA1	33.1	1.7	31.4	18.7



EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077
856-303-2500
www.EMSL.com

Edward Surbrugg
Tetra Tech
303 Irene Street
Helena, MT 59601
Phone: 406-442-5588

Customer ID: MAXI57
Customer PO: NA
Received: 6/2/2014 9:20
Date Sampled: 5/24/2014
EMSL Order: 041415219
Report Date: 06/12/14

Project: NDOT NOA / 103553259

ISO 10312 International Standard for the Determination of Asbestos Fibers - Direct Transfer TEM - Modified for PCMe Analysis

Customer Sample Number:	BC-AA-02-00002	Air volume:	14400	Liters
EMSL Sample Number:	041415219-0004	Grid Opening Area:	0.0132	mm ²
Minimum Level of analysis (chrysotile):	CD	Grid Openings Analyzed:	51	
Minimum Level of analysis (amphibole):	ADX			
Magnification used for fiber counting:	10,000			
Aspect ratio for fiber definition:	3:1			
Min Length/Max Width to be counted (µm):	>=5 / 3			
Area of collection filter (mm ²):	385	Analysis Date:	6/3/2014	
Result of Chi ² Test:	50.00	Random	Analyst:	P. Harrison

Analytical Sensitivity:	0.000040	Structure/cc	Limit of Detection:	0.000119	Structure/cc
--------------------------------	-----------------	---------------------	----------------------------	-----------------	---------------------

Structure Class	Min ID Level	Primary Str.	Total Str.	Density Str/mm ²	Concentration (Str/cc)	Poisson 95 % Confidence Interval	
						LCL (Str/cc)	UCL (Str/cc)
PCMe Structures (Chrys)	CD	0	-	0.00	0.000000	0.000000 -	0.000119
PCMe Structures (Amph)	ADX	1	-	1.49	0.000040	0.000000 -	0.000188
PCMe Structures (NRA)	ADX	0	-	0.00	0.000000	0.000000 -	0.000119
Total PCMe Structures (Regulated)	CD/ADX	1	-	1.49	0.000040	0.000000 -	0.000188
Total PCMe Structures (All)	CD/ADX	1	-	1.49	0.000040	0.000000 -	0.000188
PCMe Fibers and Bundles (Chrys)	CD	-	0	0.00	0.000000	0.000000 -	0.000119
PCMe Fibers and Bundles (Amph)	ADX	-	1	1.49	0.000040	0.000000 -	0.000188
PCMe Fibers and Bundles (NRA)	ADX	-	0	0.00	0.000000	0.000000 -	0.000119
Total PCMe Fibers and Bundles (Regulated)	CD/ADX	-	1	1.49	0.000040	0.000000 -	0.000188
Total PCMe Fibers and Bundles (All)	CD/ADX	-	1	1.49	0.000040	0.000000 -	0.000188
Non Asbestos Mineral Structures	NAM	0	0	-	-	-	-

Asbestiform Minerals Present: Actinolite

Explanation of Results

NRA = Non-Regulated Amphibole. A suspected mineral fiber that is a member of the Amphibole group, but is currently not regulated by the Federal government as asbestos.

PCMe structure = A Fibrous structure of aspect ratio > 3:1, longer than 5 µm, and which has a diameter between 0.2 and 3.0 microns

PCMe Fiber or Bundle = A Fiber or Bundle of aspect ratio > 3:1, longer than 5 µm, and which has a diameter between 0.2 and 3.0 microns

Concentration (Regulated) = include all federally regulated asbestos types. Currently Chrysotile, Amosite, Actinolite, Tremolite, Anthophyllite and Crocidolite

Concentration (all) = include all federally regulated asbestos types (Chrysotile, Amosite, Actinolite, Tremolite, Anthophyllite and Crocidolite) and all Non-regulated Amphiboles

Min ID Level = the minimum level of analysis that must have been met to be included in the reportable structure count. If any fibrous structure did not meet the minimum ID level, it would not be included in the concentration.

NAM = Non Asbestos Mineral. A mineral fiber that has been rejected from being either Amphibole or Chrysotile

Comment: Samples collected on 0.8 µm cassettes.

Robyn Denton
Approved Signatory

Tetra Tech BCBP PCMe Report Template Version: 1

Concentrations and 95% Confidence Intervals based on a Poissonian distribution. Structure counts above 31 may be better expressed with a Gaussian distribution. EMSL maintains liability limited to the cost of analysis. This report relates only to the samples reported above and may not be reproduced except in full without written approval of EMSL. EMSL is not responsible for sample collection activities or analytical limitations. Interpretation and use of results are the responsibility of the client.



ISO 10312

International Standard for the Determination of Asbestos Fibers-Direct Transfer Transmission Electron Microscopy

Bench Sheet Data

Client:	Tetra Tech			Scope:	JEOL-1200-EX (04-03)
EMSL Sample ID:	041415219-0004	GO area (mm ²):	0.0132	Mag:	10,000
Customer Sample:	BC-AA-02-00002	Grid Box :	0414-TetraTech-01: H, I	Analyst(s):	P. Harrison
Chi ² Test for Uniformity:	50-Random	Pore Size (micron):	0.8	Analysis Date:	06/03/2014 & 06/04/2014
Project ID:	NDOT NOA / 103553259			Particulate Loading:	15%

Grid ID	Grid Opening	Structure Type	Structure Number		Dimensions (µm)		Level of ID	Mineral Type	Image Number	Structure Comments
			Primary	Total	Length	Width				
H5	J2	None Detected								
H5	J4	None Detected								
H5	J6	None Detected								
H5	J8	None Detected								
H5	I9	None Detected								
H5	I7	None Detected								
H5	I5	None Detected								
H5	I3	None Detected								
H5	I1	None Detected								
H5	H2	None Detected								
H5	H4	None Detected								
H5	H6	None Detected								
H5	H8	None Detected								
H5	G9	None Detected								
H5	G7	None Detected								
H5	G5	None Detected								
H5	G3	None Detected								
H5	G1	None Detected								
H5	F2	None Detected								
H5	F4	None Detected								
H5	F6	None Detected								
H5	F8	None Detected								
H5	E9	None Detected								
H5	E5	None Detected								
H5	E3	None Detected								
H5	E1	None Detected								
H5	D2	None Detected								
H5	D4	None Detected								
H5	D8	None Detected								
I6	J10	None Detected								
I6	J8	None Detected								
I6	J6	None Detected								
I6	J4	None Detected								
I6	J2	None Detected								
I6	I3	None Detected								
I6	I5	None Detected								
I6	I7	None Detected								
I6	I9	None Detected								



ISO 10312

International Standard for the Determination of Asbestos Fibers-Direct Transfer Transmission Electron Microscopy

Bench Sheet Data

Client:	Tetra Tech			Scope:	JEOL-1200-EX (04-03)
EMSL Sample ID:	041415219-0004	GO area (mm ²):	0.0132	Mag:	10,000
Customer Sample:	BC-AA-02-00002	Grid Box :	0414-TetraTech-01: H, I	Analyst(s):	P. Harrison
Chi ² Test for Uniformity:	50-Random	Pore Size (micron):	0.8	Analysis Date:	06/03/2014 & 06/04/2014
Project ID:	NDOT NOA / 103553259			Particulate Loading:	15%

Grid ID	Grid Opening	Structure Type	Structure Number		Dimensions (µm)		Level of ID	Mineral Type	Image Number	Structure Comments
			Primary	Total	Length	Width				
I6	H10	None Detected								
I6	H8	None Detected								
I6	H4	None Detected								
I6	H2	None Detected								
I6	G1	None Detected								
I6	G3	None Detected								
I6	G5	None Detected								
I6	G7	None Detected								
I6	G9	F	1	1	6.1	1	ADX	Actinolite	4366	
I6	F10	None Detected								
I6	F8	None Detected								
I6	F4	None Detected								
I6	F2	None Detected								



ISO 10312

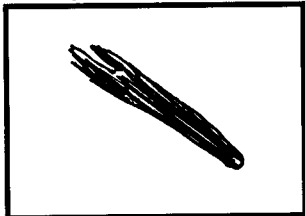
International Standard for the Determination of Asbestos Fibers-Direct
Transfer Transmission Electron Microscopy
Structure Sketch Sheet for Direct Data Entry

EMSL Order ID: 041415219-0004

Client: Tetra Tech

Client Sample: BC-AA-02-00002

Page 1 of 1

Primary Structure # <u>1</u> 	Primary Structure #	Primary Structure #	Primary Structure #
Primary Structure #	Primary Structure #	Primary Structure #	Primary Structure #
Primary Structure #	Primary Structure #	Primary Structure #	Primary Structure #
Primary Structure #	Primary Structure #	Primary Structure #	Primary Structure #
Structure #	Structure #	Structure #	Structure #

Analyst: [Signature]

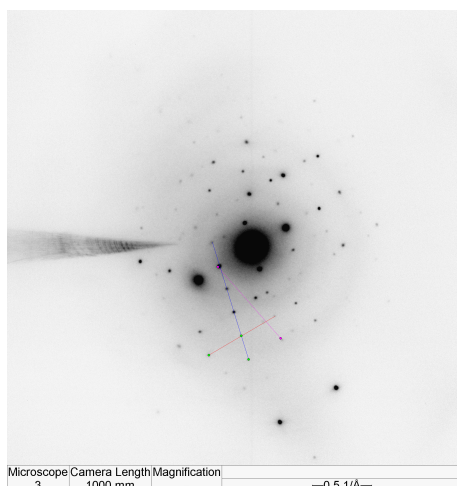
Date: 6/24/14

Scope: 04-03

AMPHIBOLE SAED INDEXING FORM

EMSL Order Number:	041415219	Date:	Jun 04, 2014
Image Number:	04366		
Reference / Sample Number:	0004		
Preliminary ID:	ACTINOLITE		
Camera Constant:	1.856e-003	1/A Pixels	
Calibration Reference:	060214-04-03-04363_C		

	Measured	Reference	-5%	+5%
Inter-row Spacing: <input type="checkbox"/> <input type="checkbox"/>	5.043	5.278	5.014	5.542
d2 or hk0 (Camera K/zero row dist.):	3.117	3.117	2.961	3.273
d1 or hkl (Camera K/slant vector dist.):	4.883	4.882	4.638	5.126
Ratio of hk0/hkl:	0.638	0.638	0.606	0.670
Vector Angle:	76.8	77.350	73.482	81.218



From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **ACTINOLITE**

With a Zone Axis of: [**1-34**]

Preliminary Identification was:

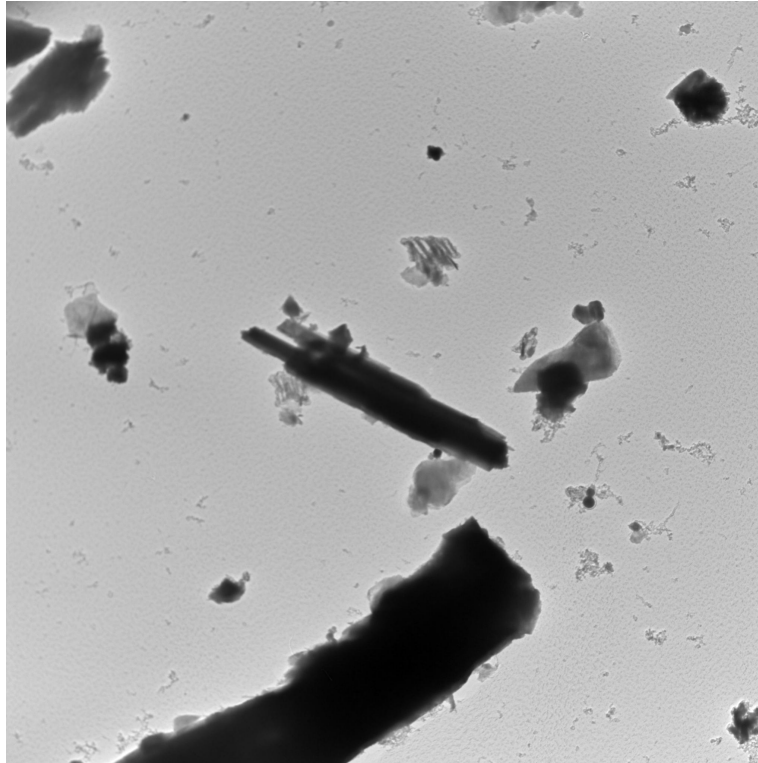
X	CORRECT
	INCORRECT



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Photomicrograph Report



Microscope	Camera Length	Magnification	—2 μ m—
3	-	10000 x	

Micrograph Information

Sample ID:	0004
Order ID:	041415219
Image Number:	04367
Mineral Type:	ACTINOLITE
Date:	6/4/2014
Magnification:	10000
Microscope:	3



Energy Dispersive X-Ray Analysis

Quantitative Spectra & Data

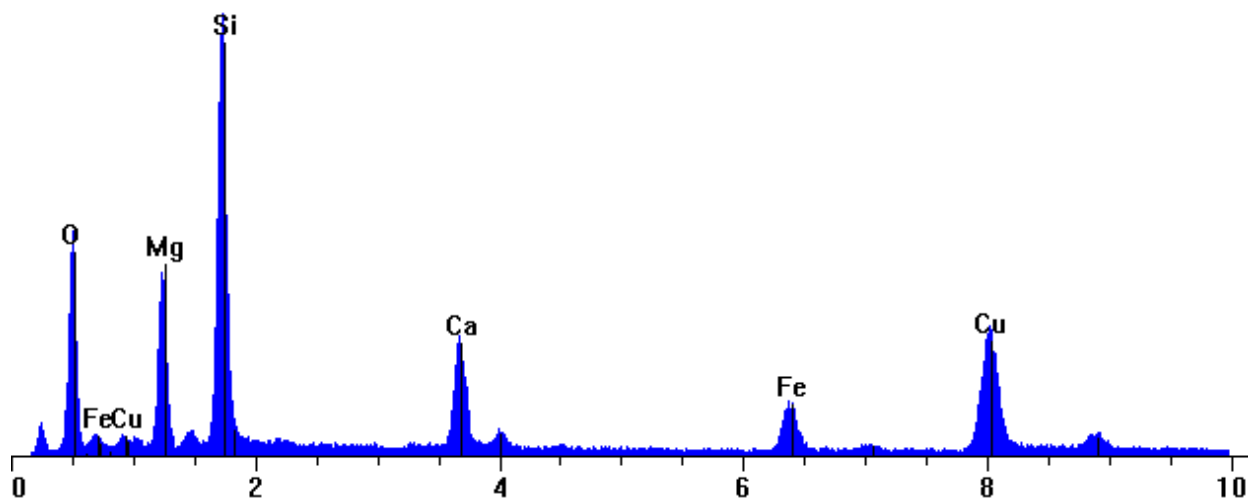
EMSL ANALYTICAL, INC.

File: L:\EDS Spe...Spectra\Scope 04-03\2014\041415219-0004 I6 G9 1 AC.pgt
 Collected: June 04, 2014 08:02:04

Live Time: 17.46 Count Rate: 11854 Dead Time: 62.80 %
 Beam Voltage: 20.00 Beam Current: 2.00 Takeoff Angle: 31.00
 Thickness limit: 26892.62

■ 041415219-0004 I6 G9 1 AC.pgt

FS: 2500



Element	Line	keV	CL Ratio	Wt%	At%	At Prop	Compound	Cmpd Wt%
Mg	KA1	1.254	1.4000	16.73	15.71	7.2	MgO	27.74
Si	KA1	1.740	1.0000	31.69	25.76	11.9	SiO	49.74
Ca	KA1	3.691	1.0500	10.96	6.24	2.9	CaO	15.33
Fe	KA1	6.403	0.9900	5.59	2.29	1.1	FeO	7.19
Cu	KA1	8.046	0.0000	0.00	0.00	0.0		
O	KA1	0.523	0.0000	35.03	50.00	23.0		
Total			0.0000	100.00	100.00	46.0	Total	100.00

Element	Line	Gross (cps)	BKG (cps)	Net (cps)	P:B Ratio
Mg	KA1	755.4	62.7	692.7	11.1
Si	KA1	1916.5	79.7	1836.9	23.1
Ca	KA1	679.3	74.5	604.9	8.1
Fe	KA1	378.7	51.3	327.4	6.4
Cu	KA1	1043.7	69.6	974.1	14.0
O	KA1	752.5	31.4	721.0	23.0



EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

041415219

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 786-5974

Company: TETRA TECH		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different If Bill to is Different note instructions in Comments**	
Street: 7 West 10th AVENUE, STE 612		Third Party Billing requires written authorization from third party	
City: HELENA	State/Province: MT	Zip/Postal Code: 59601	Country: USA
Report To (Name): Ed SURBRUGG		Telephone #: 406-441-3294	
Email Address: Edward.Surbrugg@tetratech.com		Fax #: 406-442-7182	Purchase Order:
Project Name/Number: NDOT IDA 103553259		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email <input type="checkbox"/> Mail	
U.S. State Samples Taken:		Connecticut Samples: <input type="checkbox"/> Commercial <input type="checkbox"/> Residential	

Turnaround Time (TAT) Options* - Please Check

3 Hour 6 Hour 24 Hour 48 Hour 72 Hour 96 Hour 1 Week 2 Week

*For TEM Air 3 hr through 6 hr, please call ahead to schedule. *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.

PCM - Air <input type="checkbox"/> Check if samples are from NY <input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> w/ OSHA 8hr. TWA PLM - Bulk (reporting limit) <input type="checkbox"/> PLM EPA 600/R-93/116 (<1%) <input type="checkbox"/> PLM EPA NOB (<1%) Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) <input type="checkbox"/> NYS 198.1 (friable in NY) <input type="checkbox"/> NYS 198.6 NOB (non-friable-NY) <input type="checkbox"/> NIOSH 9002 (<1%)	TEM - Air <input type="checkbox"/> 4-4.5hr TAT (AHERA only) <input type="checkbox"/> AHERA 40 CFR, Part 763 <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> EPA Level II <input checked="" type="checkbox"/> ISO 10312 <i>Sensitivity to 0.00004</i> TEM - Bulk <input type="checkbox"/> TEM EPA NOB <input type="checkbox"/> NYS NOB 198.4 (non-friable-NY) <input type="checkbox"/> Chatfield SOP <input type="checkbox"/> TEM Mass Analysis-EPA 600 sec. 2.5 TEM - Water: EPA 100.2 Fibers >10µm <input type="checkbox"/> Waste <input type="checkbox"/> Drinking All Fiber Sizes <input type="checkbox"/> Waste <input type="checkbox"/> Drinking	TEM - Dust <input type="checkbox"/> Microvac - ASTM D 5755 <input type="checkbox"/> Wipe - ASTM D6480 <input type="checkbox"/> Carpet Sonication (EPA 600/J-93/167) Soil/Rock/Vermiculite <input type="checkbox"/> PLM CARB 435 - A (0.25% sensitivity) <input type="checkbox"/> PLM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - C (0.01% sensitivity) <input type="checkbox"/> TEM Qual. via Filtration Technique <input type="checkbox"/> TEM Qual. via Drop-Mount Technique Other: <input type="checkbox"/>
--	---	--

Check For Positive Stop - Clearly Identify Homogenous Group Filter Pore Size (Air Samples): 0.8µm 0.45µm

Samplers Name: **BECKI DAND**

Samplers Signature: *[Signature]*

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
BC-AA-01-00002	BC-AA-01	14,400 L	5-24-14 0905
BC-AA-03-00002	BC-AA-03	14,400 L	5-24-14 0923
BC-AA-04-00002	BC-AA-04	14,400 L	5-24-14 0958
BC-AA-02-00002	BC-AA-02	14,400 L	5-24-14 1020

Client Sample # (s):	-	Total # of Samples:	4
Relinquished (Client): <i>[Signature]</i>	Date: 5-30-14	Time:	1000
Received (Lab): <i>[Signature]</i>	Date: 6-2-2014	Time:	9:20 AM
Comments/Special Instructions:			