EMS Laboratories
117 W. Bellevue Drive
Pasadena, CA 91105

NARRATIVE

August 5, 2010

Derrick Willis
Tronox LLC-Henderson
560 West Lake Mead
Henderson, NV 89015

SDG/EMS# 137866
Project: 2027.01, Tronox LLC Henderson,
560 West Lake Mead Drive, Henderson, NV
Client COC ID: 02027.01.2128

REFERENCE:	DAS Case No. 0769F	TDD No.: 07-10-0012
	Task No. 0361	P. O. No.: 0063941
	Tronox Project# 2027.01	NGE Tracking# 03
	AUI Task# 6	

EMS REPORT NO.: 137866

When the samples are analyzed in the TEM the recorded data includes the dimensions of the respirable fibers of the regulated asbestos types, namely, chrysotile, Amosite (cummingtonite/grunerite), tremolite, actinolite, crocidolite, and anthophylite. The fibers of importance are those included in the protocol fiber classification. The width of the protocol fibers is <0.4 um and the length is divided into two groups, 5 to 10 um and long fibers >10 um. The 95% Poisson Confidence interval for the observed concentration of fibers is also calculated. Other asbestos fibers and non-asbestos fibers with protocol dimensions are noted in the counting sheet. The problem regarding the loss of particles on polycarbonate filters has been eliminated except for very alkaline particles. There is no evidence that asbestos fibers are lost.

EMS Laboratories Inc.
117 West Bellevue Drive, Pasadena, CA 91105
Phone: 626-568-4065 Fax: 626-796-5282
Email: akolk@emslabs.com

Attn: Derrick Wills
Tronox-LLC-Henderson
PO Box 55
Henderson, NV 89009

Phone: (947) 375-7004

Project: Tronox LLX Henderson, 560 W. Lake Mead Dr., Henderson, NV/2027.001

Customer ID: TRNX26
Customer PO: 2027.001
Received: 5/20/2010 9:50AM
EMS LAB No: 137866
Date Prepared: 7/8/2010 2:14PM
Analysis Date: 7/15/2010 12:10PM

Report Date: August 5, 2010

Date Sampled: 5/17/2010 9:45AM

NIOSH 7402/ISO

DRAFT, MODIFIED ELUTRIATOR METHOD FOR THE DETERMINATION OF ASBESTOS IN SOILS AND BULK MATERIAL METHOD

EMS Laboratory Number:	137866		Mass of Respirable Dust on Fiber:	177	µg
Customer Sample Number:	SSAN5-03-0.00BPC_AMEND		Area of collection filter:	385	mm^2
Minimum Level of Analysis (chrysotile):	CD		Grid openings area:	0.0094	mm^2
Minimum Level of Analysis (amphibole):	ADX		Grid Openings Analyzed:	27	
Magnification used for fiber counting:	9,200	x	Min. Str. Length/Max Str. Diameter:	>5/<0.4	microns
Aspect ratio for fiber definition:	3:1				
			Analyst(s):	Radha Singh	
Dust Generator - Total Dried Sample Weight-72.3			Soil % Moisture	5.2	%
			Air Flow Rate Through ME Opening of Dust Generator:	1370	
Not Used			Air Flow Rate Through IST Opening of Dust Generator:	97	
Used in Tumbler			Estimate Total Air Flow Through Elutriator:	1467	

Analytical Sensitivity: 8.57E+06 Structure /g PM 10 Limit of Detection: 2.57E+07 Structure /g PM 10

Test For Uniformity (Chi-Square results)

Structure Class	Min ID Level Required	Counts Primary Str.	Counts Total Str.	Density St/mm^2	Poisson 95% Conf. Int. Conc. Str/g PM10	Poisson 95% Conf. Int. Lower Limit Str/g PM10	Poisson 95% Conf. Int. Upper Limit Str/g PM10
Asbestos Structures>5um, ≤10um	ADX/CD	61	61	240	5.23E+08	4.0E+08	6.72E+08
Asbestos Structures>5um, ≤10um (Chrys)	CD	51	51	201	4.37E+08	3.3E+08	5.75E+08
Asbestos Structures>5um, ≤10um (Amph)	ADX	10	10	39	8.57E+07	4.1E+08	1.58E+08
Asbestos Structure >10um (Long)	ADX/CD	43	44	173	3.77E+08	2.7E+08	5.06E+08
Asbestos Structure >10um (Chrys)	CD	22	22	87	1.89E+08	1.2E+08	2.85E+08
Asbestos Structure >10um (Amph)	ADX	21	22	87	1.89E+08	1.2E+08	2.85E+08
Total Protocol Asbestos Structures	ADX/CD	104	105	414	9.00E+08	7.4E+08	1.09E+09
Protocol Asbestos Structures (Chrys)	CD	73	73	288	6.26E+08	4.9E+08	7.87E+08
Protocol Asbestos Structures (Amph)	ADX	31	32	126	2.74E+08	1.9E+08	3.87E+08
Total Protocol Non Asbestos Structures	**NAM**	4	4	16	3.43E+07	1.00E+07	8.78E+07

Approved by Technical Director

EMS Laboratories

NIOSH 7402/ISO
117 W. Bellevue Drive
Pasadena, CA 91105
626-568-4065

Client:	Derrick Willis, Tronox LLC-Henderson	**Filter Type:**	PC
Report number :	137866	**Magnification:**	9200
Sample number:	SSAN5-03-0.00BPC_AMEND	**Grid Opening Dimension: mm^2**	0.0094
Project:	2027.001/Tronox LLC Henderson, 560 W. Lake Mead Dr.,	**Grid Loading:**	Moderate

Elutriation Date: 7/8/2010 by Joel Paruli
Preparation Date: 7/9/2010 by Joel Paruli
Analysis Date: 7/15/2010 by Radha Singh

Grid Openings 27
Mass - ug 177
Anlytical sensitivity [redacted]

Asbestos Structures>5um, ≤10um (Chrys)	51
Asbestos Structures>5um, ≤10um (Amph)	10
Asbestos Structure >10um (Chrys)	22
Asbestos Structure >10um (Amph)	21
Protocol Asbestos Structures (Chrys)	73
Protocol Asbestos Structures (Amph)	31

Grid ID	Grid Opening	Structure Type	Structure Number		Dimensions - mm		Dimensions (µm)		Level of ID	Mineral Type	Image Number	Structure Comments
			Primary	Total	Width	Length	Width	Length				
1A	C23	MD11	1		60	150	6.52	16.30	CD	CHRYSOTILE		
1A		MF		1	0.5	110	0.05	11.96	CD	CHRYSOTILE		
1A		MD11	2		100	140	10.87	15.22		AMOSITE		
1A		MF		2	1.5	110	0.16	11.96		AMOSITE		
1A		F	3	3	2.5	68	0.27	7.39		AMOSITE		
1A		F			6.5	120	0.71	13.04	CD	CHRYSOTILE		DOUBLE, Non Protocol
1A	C31	F	4	4	0.5	110	0.05	11.96	CD	CHRYSOTILE		DOUBLE
1A		MD11	5		38	170	4.13	18.48	CD	CHRYSOTILE		DOUBLE
1A		MF		5	0.5	170	0.05	18.48	CD	CHRYSOTILE		DOUBLE
1A		MD11	6		15	80	1.63	8.70	CD	CHRYSOTILE		DOUBLE
1A		MF		6	0.5	80	0.05	8.70	CD	CHRYSOTILE		
1A	F33	MD11	7		60	115	6.52	12.50	CD	CHRYSOTILE		
1A		MF		7	0.2	115	0.02	12.50	CD	CHRYSOTILE		
1A		MD11	8		20	392	2.17	42.61		AMOSITE		
1A		MF		8	1.5	392	0.16	42.61		AMOSITE		
1A		MD11			70	200	7.61	21.74		AMOSITE		Non Protocol
1A		MF			5.5	200	0.60	21.74		AMOSITE		Non Protocol
1A		F	9	9	2	140	0.22	15.22		AMOSITE		DOUBLE
1A	C41	MD11	10		120	155	13.04	16.85		AMOSITE		
1A		MF		10	2	155	0.22	16.85		AMOSITE		
1A		MD11	11		50	160	5.43	17.39		AMOSITE		
1A		MF		11	1.5	160	0.16	17.39		AMOSITE		
1A		F	12	12	0.5	90	0.05	9.78	CD	CHRYSOTILE		
1A		F	13	13	0.5	170	0.05	18.48	CD	CHRYSOTILE		DOUBLE
1A		B			18	140	1.96	15.22				NON ASBESTOS
1A		F	14	14	0.5	92	0.05	10.00	CD	CHRYSOTILE		
1A		F	15	15	1	170	0.11	18.48		AMOSITE		DOUBLE
1A		MD11			55	200	5.98	21.74				NON ASBESTOS, DOUBLE
1A		MF			1.5	200	0.16	21.74				NON ASBESTOS, DOUBLE
1A		MD11	16		10	100	1.09	10.87		AMOSITE		DOUBLE
1A		MF		16	1	100	0.11	10.87		AMOSITE		DOUBLE
1A	E43	MD11			12	55	1.30	5.98				NON ASBESTOS HAS AI
1A		MF			5	55	0.54	5.98				NON ASBESTOS HAS AI
1A		MD11	17		35	190	3.80	20.65		AMOSITE		
1A		MF		17	3.5	190	0.38	20.65		AMOSITE		
1A		MD11	18		18	110	1.96	11.96		AMOSITE		
1A		MF		18	2.5	110	0.27	11.96		AMOSITE		
1A		MD21	19		30	62	3.26	6.74	CD	CHRYSOTILE		
1A		MF		19	0.5	62	0.05	6.74	CD	CHRYSOTILE		
1A		MD11	20		90	185	9.78	20.11		AMOSITE		
1A		MF		20	3.5	185	0.38	20.11		AMOSITE		
1A		MD11	21		30	80	3.26	8.70	CD	CHRYSOTILE		
1A		MF		21	0.5	80	0.05	8.70	CD	CHRYSOTILE		

EMS Laboratories

NIOSH 7402/ISO
117 W. Bellevue Drive
Pasadena, CA 91105
626-568-4065

Report Number:	[redacted]
Sample number:	[redacted]

Analyzed by:	[redacted]
Date of Analysis:	[redacted]

Grid ID	Grid Opening	Structure Type	Structure Number Primary	Structure Number Total			Dimensions (µm) Width	Dimensions (µm) Length	Level of ID	Mineral Type	Image Number	Structure Comments
1B	C31	MD11	22		18	70	1.96	7.61	CD	CHRYSOTILE		
1B		MF		22	0.5	70	0.05	7.61	CD	CHRYSOTILE		
1B		MD11	23		35	78	3.80	8.48	CD	CHRYSOTILE		
1B		MF		23	0.2	78	0.02	8.48	CD	CHRYSOTILE		
1B		MD11	24		25	68	2.72	7.39	CD	CHRYSOTILE		
1B		MF		24	0.5	68	0.05	7.39	CD	CHRYSOTILE		
1B	E31	MD11	25		62	85	6.74	9.24	CD	CHRYSOTILE		
1B		M		25	0.5	62	0.05	6.74	CD	CHRYSOTILE		
1B		F	26	26	0.5	55	0.05	5.98	CD	CHRYSOTILE		
1B		F	27	27	1	70	0.11	7.61	CD	CHRYSOTILE		
1B		MD11	28		15	80	1.63	8.70	CD	CHRYSOTILE		
1B		MF		28	0.5	80	0.05	8.70	CD	CHRYSOTILE		
1B		MD11	29		10	55	1.09	5.98	CD	CHRYSOTILE		
1B		MF		29	1	55	0.11	5.98	CD	CHRYSOTILE		
1B	F36	MD11	30		8	90	0.87	9.78	CD	CHRYSOTILE		
1B		MF		30	0.2	90	0.02	9.78	CD	CHRYSOTILE		
1B		MD11	31		60	230	6.52	25.00	CD	CHRYSOTILE		
1B		MF		31	2.5	230	0.27	25.00	CD	CHRYSOTILE		
1B		B			4	110	0.43	11.96	CD	CHRYSOTILE		Non Protocol
1B		MD11	32		90	150	9.78	16.30	CD	CHRYSOTILE		
1B		MF		32	0.5	55	0.05	5.98	CD	CHRYSOTILE		
1B		F			5.5	62	0.60	6.74				NON ASBESTOS
1B	G41	MD11	33		70	80	7.61	8.70	CD	CHRYSOTILE		
1B		MF		33	0.5	70	0.05	7.61	CD	CHRYSOTILE		
1B		F	34	34	0.5	50	0.05	5.43	CD	CHRYSOTILE		
1B		MD11	35		80	150	8.70	16.30	CD	CHRYSOTILE		
1B		MF		35	0.5	105	0.05	11.41	CD	CHRYSOTILE		
1B		MD11	36		60	90	6.52	9.78	CD	CHRYSOTILE		
1B		MF		36	0.5	70	0.05	7.61	CD	CHRYSOTILE		
1B		MD11	37		80	190	8.70	20.65		AMOSITE		
1B		MF		37	2	190	0.22	20.65		AMOSITE		
1B	E54	MD21			30	150	3.26	16.30				NON ASBESTOS
1B		MF			3	110	0.33	11.96				NON ASBESTOS
1B		MD31	38		60	85	6.52	9.24	CD	CHRYSOTILE		
1B		MF		38	0.5	72	0.05	7.83	CD	CHRYSOTILE		
1B		MD11	39		25	100	2.72	10.87	CD	CHRYSOTILE		
1B		MF		39	1	100	0.11	10.87	CD	CHRYSOTILE		
1B		MD11	40		45	380	4.89	41.30	CD	CHRYSOTILE		DOUBLE
1B		MF		40	1	380	0.11	41.30	CD	CHRYSOTILE		DOUBLE
1B		MD11	41		20	80	2.17	8.70	CD	CHRYSOTILE		
1B		MF		41	0.5	80	0.05	8.70	CD	CHRYSOTILE		
1C	C33	MD11	42		20	50	2.17	5.43	CD	CHRYSOTILE		
1C		MF		42	0.5	50	0.05	5.43	CD	CHRYSOTILE		
1C		MD11	43		35	110	3.80	11.96	CD	CHRYSOTILE		
1C		MF		43	1	60	0.11	6.52	CD	CHRYSOTILE		
1C		MD31	44		70	390	7.61	42.39	CD	CHRYSOTILE		
1C		MB		44	2.5	390	0.27	42.39	CD	CHRYSOTILE		
1C		MD11	45		25	105	2.72	11.41	CD	CHRYSOTILE		
1C		MF		45	0.5	103	0.05	11.20	CD	CHRYSOTILE		
1C		MD11	46		45	110	4.89	11.96	CD	CHRYSOTILE		
1C		MF		46	0.2	65	0.02	7.07	CD	CHRYSOTILE		
1C		F			10	85	1.09	9.24				NON ASBESTOS
1C		B			6	170	0.65	18.48		AMOSITE		DOUBLE, Non Protocol

EMS Laboratories

NIOSH 7402/ISO
117 W. Bellevue Drive
Pasadena, CA 91105
626-568-4065

Report Number:	[redacted]
Sample number:	[redacted]

Analyzed by:	[redacted]
Date of Analysis:	[redacted]

Grid ID	Grid Opening	Structure Type	Structure Number Primary	Structure Number Total			Dimensions (µm) Width	Dimensions (µm) Length	Level of ID	Mineral Type	Image Number	Structure Comments
1C	E41	F	47	47	0.5	110	0.05	11.96	CD	CHRYSOTILE		
1C		MD11	48		40	78	4.35	8.48	CD	CHRYSOTILE		
1C		MF		48	1.5	78	0.16	8.48	CD	CHRYSOTILE		
1C		MD11	49		60	120	6.52	13.04		AMOSITE		DOUBLE
1C		MF		49	2.5	120	0.27	13.04		AMOSITE		DOUBLE
1C		MD11	50		60	80	6.52	8.70	CD	CHRYSOTILE		
1C		MF		50	0.5	65	0.05	7.07	CD	CHRYSOTILE		
1C	B46	MD11	51		60	90	6.52	9.78	CD	CHRYSOTILE		
1C		MF		51	0.5	68	0.05	7.39	CD	CHRYSOTILE		
1C		F	52	52	0.5	58	0.05	6.30	CD	CHRYSOTILE		
1C		MD22	53		200	350	21.74	38.04		AMOSITE		
1C		MF		53	3.5	340	0.38	36.96		AMOSITE		
1C		MF		54	3.5	200	0.38	21.74		AMOSITE		
1C		F	54	55	0.5	68	0.05	7.39	CD	CHRYSOTILE		
1C	E51	MD11			15	80	1.63	8.70		AMOSITE		Non Protocol
1C		MF			5	80	0.54	8.70		AMOSITE		Non Protocol
1C		MD11			100	110	10.87	11.96				NON ASBESTOS
1C		MF			1.5	100	0.16	10.87				NON ASBESTOS
1C		MD21	55		80	130	8.70	14.13	CD	CHRYSOTILE		
1C		MF		56	1	50	0.11	5.43	CD	CHRYSOTILE		
1C		MD11	56		55	110	5.98	11.96		AMOSITE		
1C		MF		57	1.5	110	0.16	11.96		AMOSITE		
1C		MD11	57		30	145	3.26	15.76		AMOSITE		
1C		MF		58	2.5	145	0.27	15.76		AMOSITE		
1C		MD11	58		110	155	11.96	16.85		AMOSITE		
1C		MF		59	2.5	155	0.27	16.85		AMOSITE		
1C		MD11	59		35	80	3.80	8.70	CD	CHRYSOTILE		
1C		MF		60	3	52	0.33	5.65	CD	CHRYSOTILE		
1C	C64	MD11	60		20	85	2.17	9.24	CD	CHRYSOTILE		
1C		MF		61	0.5	85	0.05	9.24	CD	CHRYSOTILE		
1C		MD11			14.5	200	1.58	21.74		AMOSITE		DOUBLE, Non Protocol
1C		MF			6.5	200	0.71	21.74		AMOSITE		DOUBLE, Non Protocol
1C		MD11	61		25	70	2.72	7.61		AMOSITE		
1C		MF		62	2	50	0.22	5.43		AMOSITE		
1C	F61	MD11	62		50	120	5.43	13.04	CD	CHRYSOTILE		
1C		MF		63	1.5	120	0.16	13.04	CD	CHRYSOTILE		
1C		MD11	63		10	85	1.09	9.24	CD	CHRYSOTILE		
1C		MF		64	1	85	0.11	9.24	CD	CHRYSOTILE		
1C		MD11	64		55	110	5.98	11.96		AMOSITE		
1C		MF		65	1	80	0.11	8.70		AMOSITE		
1C		MD11	65		15	100	1.63	10.87	CD	CHRYSOTILE		
1C		MF		66	0.5	70	0.05	7.61	CD	CHRYSOTILE		
1D	C41	MD11	66		20	60	2.17	6.52	CD	CHRYSOTILE		
		MF		67	0.5	60	0.05	6.52	CD	CHRYSOTILE		
		F	67	68	3.5	62	0.38	6.74		AMOSITE		

EMS Laboratories

NIOSH 7402/ISO
117 W. Bellevue Drive
Pasadena, CA 91105
626-568-4065

Report Number:	[redacted]
Sample number:	[redacted]

Analyzed by:	[redacted]
Date of Analysis:	[redacted]

Grid ID	Grid Opening	Structure Type	Structure Number Primary	Structure Number Total			Dimensions (µm) Width	Dimensions (µm) Length	Level of ID	Mineral Type	Image Number	Structure Comments
1D		F	68	69	2.5	165	0.27	17.93		AMOSITE		
1D		B			5	175	0.54	19.02	CD	CHRYSOTILE		Non Protocol
1D	E33	F			4.5	105	0.49	11.41		AMOSITE		Non Protocol
1D		MD11	69		70	110	7.61	11.96	CD	CHRYSOTILE		
1D		MF		70	0.5	75	0.05	8.15	CD	CHRYSOTILE		
1D		MD11	70		45	95	4.89	10.33	CD	CHRYSOTILE		
1D		MF		71	1.5	95	0.16	10.33	CD	CHRYSOTILE		
1D	F26	MD11	71		55	72	5.98	7.83	CD	CHRYSOTILE		
1D		MF		72	1	70	0.11	7.61	CD	CHRYSOTILE		
1D		MD11	72		32	78	3.48	8.48	CD	CHRYSOTILE		
1D		MF		73	0.5	78	0.05	8.48	CD	CHRYSOTILE		
1D		F	73	74	2.5	60	0.27	6.52		AMOSITE		
1D		F	74	75	3	300	0.33	32.61		AMOSITE		DOUBLE
1D	G31	MD11	75		20	65	2.17	7.07	CD	CHRYSOTILE		
1D		MF		76	0.5	60	0.05	6.52	CD	CHRYSOTILE		
1D		MD11	76		60	115	6.52	12.50	CD	CHRYSOTILE		
1D		MF		77	0.5	100	0.05	10.87	CD	CHRYSOTILE		
1D		MD11			48	390	5.22	42.39		AMOSITE		Non Protocol
1D		MF			5	390	0.54	42.39		AMOSITE		Non Protocol
1D		F	77	78	2.5	135	0.27	14.67		AMOSITE		
1D		MD11	78		70	150	7.61	16.30	CD	CHRYSOTILE		
1D		MF		79	1.5	100	0.16	10.87	CD	CHRYSOTILE		
1D		MD11	79		70	80	7.61	8.70		AMOSITE		
1D		MF		80	1.5	80	0.16	8.70		AMOSITE		
1D		F	80	81	1	95	0.11	10.33	CD	CHRYSOTILE		
1D	H44	F			8	70	0.87	7.61				NON ASBESTOS
1D		MD11	81		18	130	1.96	14.13	CD	CHRYSOTILE		
1D		MF		82	1	120	0.11	13.04	CD	CHRYSOTILE		
1D		B			2.5	130	0.27	14.13				NON ASBESTOS
1D	F54	MD11	82		8	60	0.87	6.52	CD	CHRYSOTILE		
1D		MF		83	0.5	60	0.05	6.52	CD	CHRYSOTILE		
1D		MD11	83		50	220	5.43	23.91		AMOSITE		
1D		MF		84	1	220	0.11	23.91		AMOSITE		
1D		F	84	85	0.5	60	0.05	6.52	CD	CHRYSOTILE		
1E	C36	F	85	86	2.5	115	0.27	12.50		AMOSITE		
1E		MD21			25	80	2.72	8.70	CD	CHRYSOTILE		Non Protocol
1E		MB			10	68	1.09	7.39	CD	CHRYSOTILE		Non Protocol

EMS Laboratories

NIOSH 7402/ISO
117 W. Bellevue Drive
Pasadena, CA 91105
626-568-4065

Report Number:	
Sample number:	

Analyzed by:	
Date of Analysis:	

Grid ID	Grid Opening	Structure Type	Structure Number Primary	Structure Number Total			Dimensions (µm) Width	Dimensions (µm) Length	Level of ID	Mineral Type	Image Number	Structure Comments
1E		MD11	86		45	165	4.89	17.93	CD	CHRYSOTILE		
1E		MF		87	1	120	0.11	13.04	CD	CHRYSOTILE		
1E		MD11	87		12	70	1.30	7.61	CD	CHRYSOTILE		
1E		MF		88	0.5	58	0.05	6.30	CD	CHRYSOTILE		
1E	E41	MD11	88		30	110	3.26	11.96	CD	CHRYSOTILE		
1E		MF		89	0.5	90	0.05	9.78	CD	CHRYSOTILE		
1E		MD11	89		40	65	4.35	7.07		AMOSITE		
1E		MF		90	3.5	50	0.38	5.43		AMOSITE		
1E		F			8	80	0.87	8.70				NON ASBESTOS
1E		F			5.5	70	0.60	7.61				NON ASBESTOS
1E		F	90	91	0.5	75	0.05	8.15	CD	CHRYSOTILE		
1E	E26	MD11	91		50	80	5.43	8.70	CD	CHRYSOTILE		
1E		MF		92	0.5	52	0.05	5.65	CD	CHRYSOTILE		
1E		MD11	92		25	80	2.72	8.70	CD	CHRYSOTILE		
1E		MF		93	0.5	60	0.05	6.52	CD	CHRYSOTILE		
1E		MD11	93		20	75	2.17	8.15	CD	CHRYSOTILE		
1E		MF		94	0.2	60	0.02	6.52	CD	CHRYSOTILE		
1E		MD11	94		20	160	2.17	17.39	CD	CHRYSOTILE		
1E		MF		95	0.5	135	0.05	14.67	CD	CHRYSOTILE		
1E		MD11	95		35	80	3.80	8.70	CD	CHRYSOTILE		
1E		MF		96	0.5	80	0.05	8.70	CD	CHRYSOTILE		
1E		MD11	96		30	100	3.26	10.87		AMOSITE		
1E		MF		97	1	80	0.11	8.70		AMOSITE		
1E		F	97	98	1	230	0.11	25.00	CD	CHRYSOTILE		
1E		MD11	98		50	250	5.43	27.17	CD	CHRYSOTILE		DOUBLE
1E		MF		99	0.5	250	0.05	27.17	CD	CHRYSOTILE		DOUBLE
1E	G54	MD11	99		20	60	2.17	6.52		AMOSITE		
1E		MF		100	1.5	60	0.16	6.52		AMOSITE		
1E		MD11	100		80	255	8.70	27.72	CD	CHRYSOTILE		
1E		MF		101	1	255	0.11	27.72	CD	CHRYSOTILE		
1E		MD11	101		58	65	6.30	7.07		AMOSITE		
1E		MF		102	2	65	0.22	7.07		AMOSITE		
1E	F61	F	102	103	0.5	52	0.05	5.65	CD	CHRYSOTILE		
1E		MD11	103		10	80	1.09	8.70	CD	CHRYSOTILE		DOUBLE
1E		MF		104	1	65	0.11	7.07	CD	CHRYSOTILE		
1E		MD11	104		20	70	2.17	7.61	CD	CHRYSOTILE		
1E		MF		105	0.5	50	0.05	5.43	CD	CHRYSOTILE		
1E		F			4.5	50	0.49	5.43				NON ASBESTOS

Elutriator Data

Date: 7/8/10 Client: Northgate

Lab #: 137866

Sample ID: SSAN5-03-0.00BPC Sample weight (g): 72.3

Time air flow started: 800 Tumbler rpm: 30 *

IST Flowmeter (mL/min): ~~100~~ 80 * ME Flowmeter (mL/min): 1370

Filter No.	Start Time	Tested flow rate (mL/min)	Final Filter Wt (mg)	Initial Filter Wt (mg)	Dust Weight (mg)	Time Value (min)	Avg. rate of deposition (ug/min)	Optimal time (min)	
1	1000	175		0.02519		30			*Filter blowup
2	1030		0.04305	0.02501	18.04	15			loss 5%
3	1045		0.03950	0.02523	14.27	10			ok
4	1055		0.05175	0.02522	26.53	25			ok
5	1120		0.03771	0.02530	12.41	15			loss 5%
6	1135		0.03321	0.02470	8.51	15	567		loss 30%
7	1150		0.03050	0.02499	5.51	20			loss 70%
8	210		0.04210	0.02477	17.33	35			loss 5%
Polycarbonate filters									
	Time		mg	mg			Dep. Rate	Estiimate	
1	1144	1147½	4.447	4.387	0.060	3½	17	35	
2	1155	1206	4.629	4.433	0.196	11	18		
3	1220	1229	4.630	4.503	0.127	9			
4	1337	1345	4.608	4.391	0.217	8	27	42	
5	1414	1423	4.684	4.507	0.177	7	~~23~~	~~49~~	prep 7/9/10
6									
7									
8									

* lower RPM to 20 @ 1055

* Raise 1st flow to 97 @ 1247 pm

Elutriator Data

Date: 7/8/10 Client:

Lab #: 1

Sample ID:

Sample weight (g):

Time air flow started:

Tumbler rpm:

IST Flowmeter (mL/min):

ME Flowmeter (mL/min):

Filter No.	Start Time	Tested flow rate (mL/min)	Final Filter Wt (mg)	Initial Filter Wt (mg)	Dust Weight (mg)	Time Value (min)	Avg. rate of deposition (ug/min)	Optimal time (min)	
9	1245		0.04179	0.02515	16.64	35			loss 10%
10	1320		0.04259	0.02500	17.59	25	704		OK
11	1345		0.04222	0.02520	17.02	30			loss 10%
12	1415								
Evaluation Time									
Time							Dep. Rate	Estiimate	

137866 Moisture content

6-11-10

#SSANS-0.3-0.00 BPC

dish wt.	19.27 g		
dish + samp.	119.94	- 19.27 =	100.67 g (initial wt.)
11:30 - 12:30	115.01	- 19.27 =	95.74
9:35 - 10:35	114.36	- 19.27 =	95.09
11:30 - 12:30	114.36	- 19.27 =	95.09 (Final wt.)

$$\%\ \text{moist.} \quad 100 \times \frac{100.67 - 95.09}{95.09} = 5.16\%$$

138029 #SA111-1-1.50 BPC

dish wt.	31.50 g		
dish + samp.	131.43	- 31.50 =	99.93 g (initial wt.)
11:30 - 12:30	126.92	- 31.50 =	95.42
9:35 - 10:35	126.67	- 31.50 =	95.17
11:30 - 12:30	126.66	- 31.50 =	95.16 (Final wt.)

$$\%\ \text{moist.} \quad 100 \times \frac{99.93 - 95.16}{95.16} = 5.01\%$$ BP

138029 #SSAQ4-03-0.66 PBC-FD

dish wt.	35.12 g		
dish + samp.	135.61	- 35.12 =	100.49 g (initial wt.)
11:30 - 12:30 BP	133.62	- 35.12 =	98.50 g
11:30 - 8:30	~~132.~~		
9:35 - 10:35	132.93	- 35.12 =	97.81
11:30 - 12:30	132.89	- 35.12 =	97.77 (Final wt.)

$$\%\ \text{moist.} \quad 100 \times \frac{100.49 - 97.77}{97.77} = 2.78\%$$

138054 #SSAR3-01-0.33 BPC

dish wt.	31.49 g		
dish + samp	131.78	- 31.49 =	100.29 g (initial wt.)
11:30 - 8:30	127.15	- 31.49 =	96.26
9:35 - 10:35	126.97	- 31.49 =	95.48
11:30 - 12:30	126.98	- 31.49 =	95.49

$$\%\ \text{moist} \quad 100 \times \frac{100.29 - 95.49}{95.49} = 5.03\%$$

BP

8C

Copy

Count (Page of) NIOSH 7402/ISO

Prep Time: 1200 - 230

Report number: 137866
Sample number: SSANS-03-0.00 BPC
File name: Northgate
Sample Description: 177 mg

Filter Type: PC 385 mm2
Date Sample was Run: 7-8-10

Magnification: 9,200 X

Preparation date: 7-9-10 By JAP
Analysis date: 7-15-10 By RJ
(A): ADX, ADQ

Grid opening dimension: 0.0094 mm²
Level of Analysis: (C): CD, CDX

Grid loading Moderate Condition of Grid good

8h. 12.10

Grid	Grid Opening	Number of structures Primary	Number of structures Total	Class	Type of Structure	Width mm	Length mm	Comments
A	C23	1			MD II	60	150	EDX Chryso #1
					MF	0.5	110	
		2			MD II	160	140	
					MF	1.5	110	EDS amosite #2
		3			F	2.5	68	EDS amosh #3
		4			F	6.5	120X	doubled EDS #4 amo
	C3-1	5			F	0.5	110X	[illegible] EDS #5
					MD II	38	170X	double, Chryso
		6			MF	0.5	170X	
					MD II	1.5	80	Chryso
		7			MF	0.5	80	
	E3-3	8			MD II	60	115	Chryso.
					MF	0.2	115	
		9			MD II	20	392	amosite EDS #6
					MF	1.5	392	
		10			MD II	70	200	amosite EDS #7
					MF	5.1	200	
		11			F	2	140X	amosite double EDS 8
	C4-1	12			MD II	120	55	amosite EDS 9
					MF	2	155	
		13			MD II	50	160	EDS amosite #10
					MF	1.5	160	
		14			F	0.5	90	Chryso
		15			F	0.5	170X	Chryso double.
					B	1K	1.40	Nanash. Fe
					F	0.5	92	Chryso.
		16			F	1	170X	amosite
					MD II	5	200X	double Nanash. Fe
					MF	1.5	200X	"
		17			MD II	10	140X	Amosite dubl
					MF	1	140X	
	EU-3				MD II	12	55	Nanash. has a1.
					MF	5	55	

TEM Asbestos Structure Count (Page of)

Report number: 137866 SAMPLE NO: SSAN5-03-0.00 BPC X 9,200

Grid	Grid Opening	Number of structures primary	Number of structures Total	Class	Type of Structure	Width Mm	Length Mm	Comments
		18	1		MD II	35	190	EDS amosite III
					MI	3.5	190	
		19	1		MD II	1Y	110	amosite
					MI	2.5	110	
		20	2		MD II	30	62	chryso
					MF	0.5	62	
		21			MD II	90	185	amosite
					MF	3.5	185	
		22	2		MD II	30	80	chryso
					MI	0.5	80	
1B	C3-1	C 1	1		MD II	18	70	Chryso.
					MI	0.5	70	
		2	2		MD II	35	78	Chryso.
					MI	0.2	78	
		3			MD II	25	68	Chryso.
					MI	0.5	68	
	E3-1	E 4	4		MD II	62	85	Chryso.
					MI	0.5	62	
		5			E	0.5	55	Chryso.
		6	6		E	1	70	Chryso.
		7			MD II	15	80	Chryso.
					MI	0.5	80	
		8	8		MD II	10	55	Chryso.
					MI	1	55	
	F3-6	F 9	9		MD II	8	90	Chryso.
					MF	0.2	90	
		10	10		MD II	60	230	Chryso.
					MF	2.5	230	
		11	11		B	4	110	Chryso
		12			MD II	90	150	Chryso
					MF	0.5	55	
					E	5.5	62	Non asb. EDS.
	G4-1	G 13			MD II	70	80	Chryso
					MF	0.5	70	
		14	14		E	0.5	50	Chryso.
		15	15		MD II	80	150	Chryso
					MI	0.5	105	

TEM Asbestos Structure Count (Page of)

Report number: 137566 SAMPLE NO: SSAN5-03-0.00 BPC X 9,200

Grid	Grid Opening	Number of structures primary	Number of structures Total	Class	Type of Structure	Width Mm	Length Mm	Comments
		18	18		MD II	60	90	Chryso
					MF	0.5	70	
		19	19		MD II	60	190	amosite
	E4	[illegible]			MF	2	190	
					MD2-1	30	150	Non ash
					MF	3	110	
		20	20		MD31	60	85	Chryso.
					MF	0.5	72	
		21			MD11	25	100	Chryso
					MF	1	100	
		22			MD11	45	3 broke	duble Chryso
					MF	1	3 broke	"
		23			MD11	20	50	Chryso.
					MF	0.5	50	
1C	C3-3	1	1		MD II	20	50	chryso
					MF	0.5	50	
		2	2		MD11	35	110	Chryso.
		2			MF	1	60	
		3	3		MD31	40	390	chryso
					MF3	2.5	390	
		4	4		MD1	25	105	Chryso
					MF	0.5	105	
		5	5		MD11	41	110	Chryso
					MF	0.2	65	
					F	10	85	Non ash. EDS
		6	6		F3	6	170	amosite duble.
	E4-1	7	7		F	0.5	110	Chryso.
		8	8		MD11	40	75	chryso
					MF	1.5	75	
		9	9		MD II	60	120	amosite duble
					MF	2.5	120	
		10	10		MD II	60	80	Chryso
	B4-6				MF	0.1	65	
		11			MD11	60	90	Chryso.
					MF	0.5	88	

TEM Asbestos Structure Count (Page of)

Report number: 137866 . SAMPLE NO: SSAN5-03-0-00 BPC X 9,200

Grid	Grid Opening	Number of structures primary	Number of structures Total	Class	Type of Structure	Width Mm	Length Mm	Comments
			12		R	0.5-	5r	chryso
			13		MD2	200	350	amosiz
					MF	35-	340	
					MF	3.5	200	
			14		F	0.5-	6r	chryso
	ES-1		15		MD11	1.5-	80	amosiz
					MF	5	80	
					MD11	100	110	Non asb
					MF	1.5	100	
			16		MD21	80	130	chryso
					MF	1	50	
			17		MD11	55-	110	amosiz
					MF	1.5-	110	
			18		MD11	30	141-	amosiz
					MF	2.5-	141-	
			19		MD11	110	15J-	amosiz # 35-47
					MF	2.5-	15J-	
			20		MD1	31-	80	chryso
					MF	3	52	
	C6-4		21		MD11	20	85-	chryso
					MF	0.5-	85	
			22		MD11	14J-	200	amosiz double
					MF	6.5-	200	
			23		MD11	25	70	
					MF	2	50	amosiz
	R6-1		24		MD11	50	120	chryso
					MF	1.5-	120	
			25		MD11	10	85-	Chryso
					MF	1	85	
			26		MD11	55-	110	amosiz
					MF	1	180	
			27		MD11	15-	100-	chryso
					MF	0.5	70	
1D		C4-1	1		MD11	20	60	Chryso
					MF	0.5-	60	
			2		F	3.5-	62	amosiz
			3		F	2.5-	16J-	amosiz

5

TEM Asbestos Structure Count (Page of)

Report number: 137866 SAMPLE NO: SSAN5-03-0.00 BPC X 9,200

Grid	Grid Opening	Number of structures primary	Number of structures Total	Class	Type of Structure	Width Mm	Length Mm	Comments
			4		15	5-	175	chryso
	E3 6		5		IE	4.5-	101-	amos. R
			6		MDII	70	110	
					MI=	05	75	chryso.
			7		MDII	45	95	chryso.
					MI=	1.5-	91	
	IE2-6		8		MDII	55-	72	chryso
					MF	1	70	
			9		MDII	132	77	chryso.
					MI=	0.5-	71	
			10		IE	2.5-	60	amos. R
			11		IE	3	3 WY	double
	43-1		12		MDI	20	65	chryso.
					MI=	0.5-	60	
			13		MDII	60	115	Chryso
					MI=	0.5-	100	
			14		MDII	45	390	amos. R
					MF	5-	390	
			15-		IE	2.5-	135-	amos R
			16		MDII	70	150	chryso
					MF	1.5	100	
			17		MDII	70	80	amos R
					MF=	1.5	80	
			18		IE	1	95-	Chryso
	H4-4		1		IE	8	70	Namam
			19		MDII	15	130	
					MF	1	120	chryso
					B	2.5-	130	Namam
	IE5-4		20		MDII	8	60	chryso
					MF	0.5-	60	
			21		MDII	50	220	amos. R
					MF=	1	220	
			22		IE	1.5-	60	chryso
IE	C3-6		1		IE	2.5-	115-	amos. R
			2		MD21	7.5	80	
					MB	10	65	chryso.

Asbestos Structure Count (Page of)

rt number: 137566 SAMPLE NO: SSAN5-03-0-00 BPC X 9,200

Grid	Grid Opening	Number of structures primary	Number of structures Total	Class	Type of Structure	Width Mm	Length Mm	Comments
		3	3		MDII	45-	165	Chryso
					MF=	1	120	
		4			MDII	12	70	chryso
					MF=	0.5	58	
	E4-1	5-			MDII	30	110	chryso
					MF	0.5-	90	
		6			MDII	40	61-	amosite
					MF=	3.5-	50	
					I=	8	80	Non asb.
					I=	5.5-	70	Non asb
		7-			I=	0.5-	75	chryso
	E2-6	8			MDII	50	80	Chryso.
					MF=	0.5-	52	
		9			MDII	25-	60	chryso.
					MF=	0.5-	60	
		10			MDII	20	75-	chryso
					MF	0.2	60	
		11			MDII	20	160	chryso.
					MF	0.5-	135-	
		12			MDII	35-	80	Chryso
					MF=	80	80	
		13			MDII	30	140	amosite
					MF	1	80	
		14			I=	1	230	Chryso
		15-			MDII	50	250+	double Chryso
					MF=	0.5	250+	
	E6-4	16			MDII	20	60	amosite
					MF=	1.5-	60	
		17-			MDII	80	25.5-	Chryso.
					MF=	1	255	
		18			MDII	58	61-	amosite
					MF=	2	65	
	E6-1	19			MF=	0.5	52	Chryso.
		20			MDII	10	80+	Chryso double
					MF=	1	61-	
		21			MDII	20	70	Chryso
					MF=	0.5-	50	
					F	45-	50	Non asb.

ELECTRON DIFFRACTION ANALYSIS

EMS LAB NO. 137866 SAMPLE NO. SSA13-03-0,00 BPC

CLIENT NORTHGATE GRID C

DATE ANALYZED 7-15-10 PHOTO NO. 3547

Camera Constant (CC) 20.3 K-Factor for Mg 1.4

EDS PEAK AREA RATION

Na ___ Mg 1 Si 10 Ca ___ Fe 10 Other ___

DIFFRACTION DATA - AMPHIBOLES

d_1 9.59 R_1 2.95

d_2 5.15 R_2 5.5

d_1/d_2 1.86 0 ($<R_1R_2$) 75

Zone Axis [101]

Fiber Identification ___

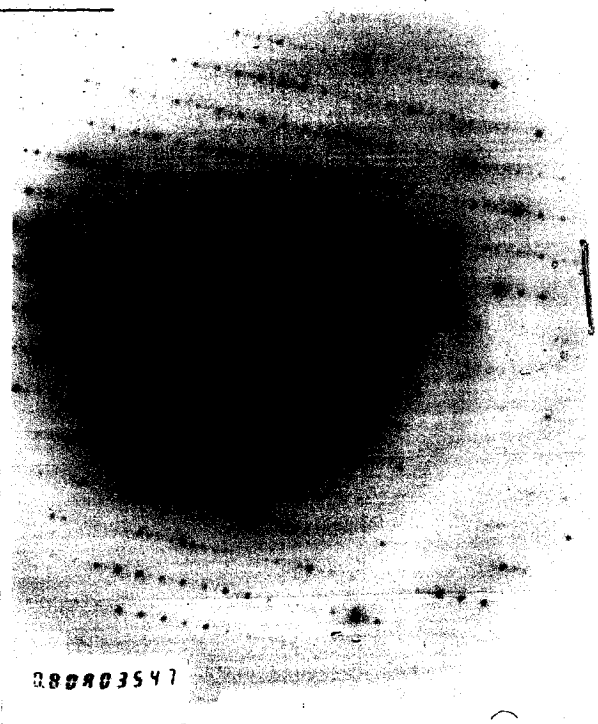
DIFFRACTION DATA - CHRYSOTILE

(002)/ (004) ___/___ R_1 = ___

(020) ___ R_2 = ___

(110) ___ R_3 = ___

Layer Lines ___



02/13/06
ah

TEM CALIBRATION 13A
(1994)

ELECTRON DIFFRACTION ANALYSIS

EMS LAB NO. 137866 SAMPLE NO. SSANS-03-0.00 BK

CLIENT Normgate GRID A

DATE ANALYZED 7-15-10 PHOTO NO. 3546

Camera Constant (CC) 28.3 K-Factor for Mg 1.4

EDS PEAK AREA RATION

Na ____ Mg ____ Si ____ Ca ____ Fe ____ Other ____

DIFFRACTION DATA - AMPHIBOLES

d_1 ____ R_1 ____

d_2 ____ R_2 ____

d_1/d_2 ____ 0 ($<R_1R_2$) ____

Zone Axis ____

Fiber Identification Chrysotile.

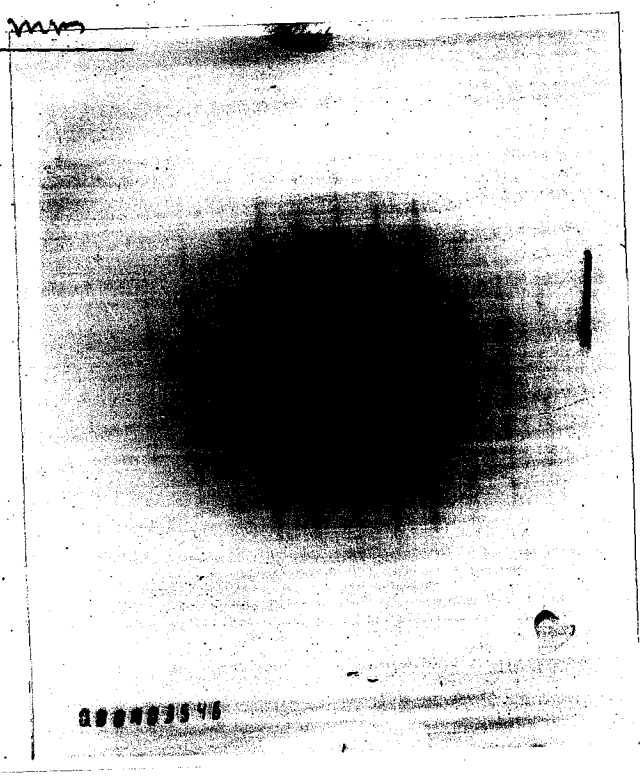
DIFFRACTION DATA - CHRYSOTILE

(002)/ (004) 7.4 Å R_1 = 3.85 mm

(020) 4.5 Å R_2 = 6.3 mm

(110) 4.5 Å R_3 = 6.3 mm

Layer Lines 5 Am.



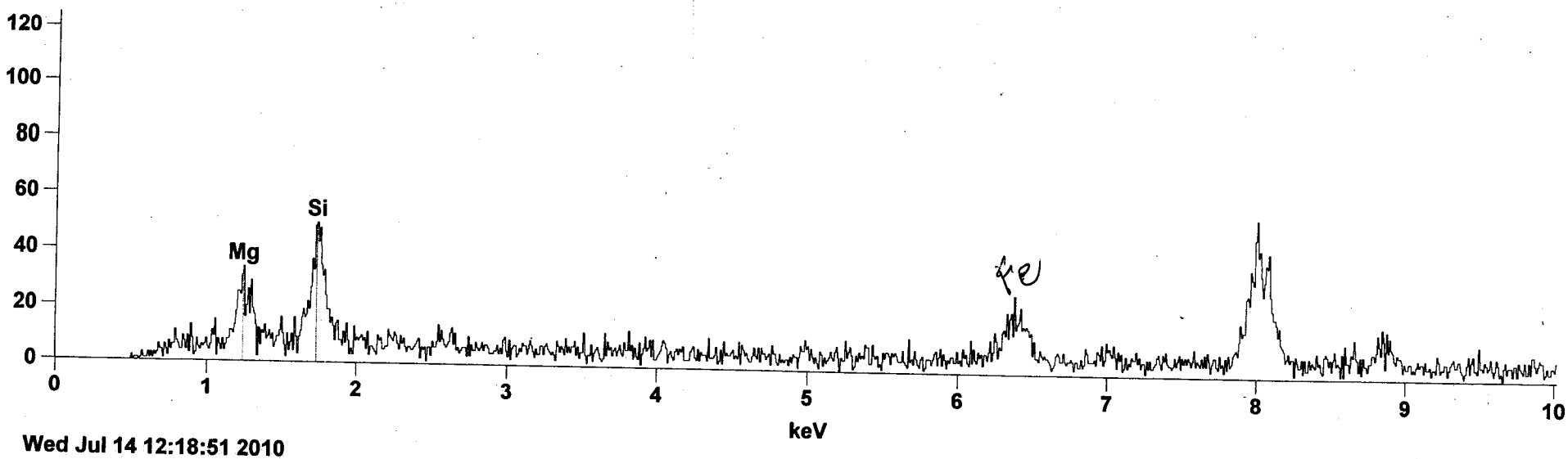
02/13/06
sh

TEM CALIBRATION 13A
(1994)

Project: July2010

Full scale counts: 116

137866-SSAN5-03-000-A GO-C2-3 #01



Wed Jul 14 12:18:51 2010

Gaussian Fit With Standards Chi Squared:1.769

Correction Method: Cliff-Lorimer (MBTS) w/o Absorbance

Live Time:39.1 sec.

Quantitative Results 137866-SSAN5-03-000-A GO-C2-3 #01

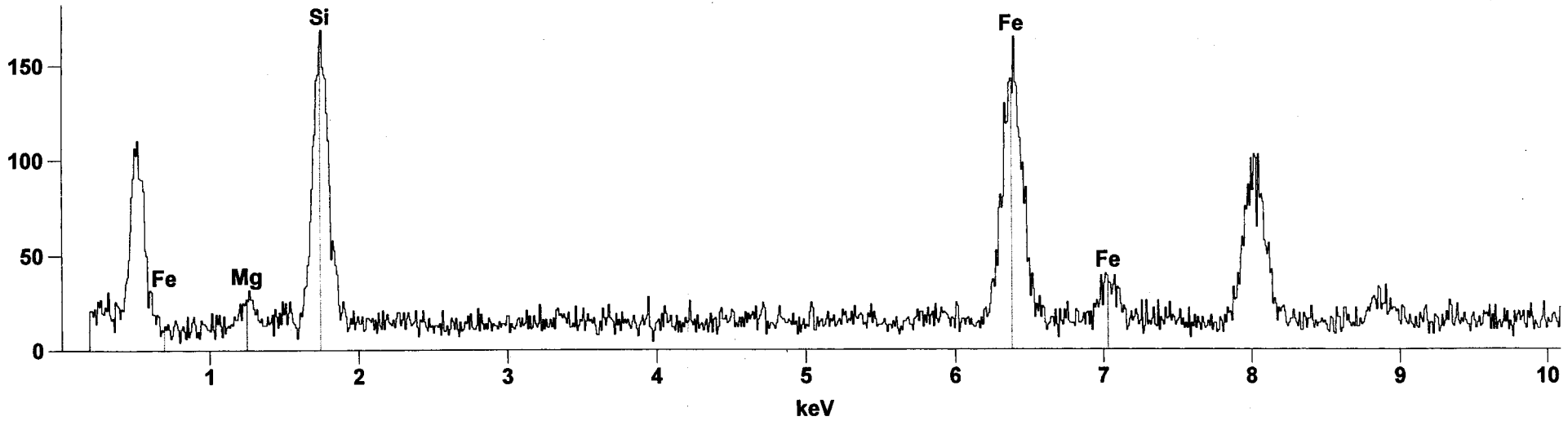
Element	Net Counts	Weight %	Weight % Error	Atom %	Atom % Error
Mg*	271	41.11	+/- 2.88	44.65	+/- 3.13
Si*	492	58.89	+/- 2.99	55.35	+/- 2.81
Total		100.00		100.00	

* -- Standard Unavailable

Project: July2010

Full scale counts: 170

137866-SSAN5-03-0.00BPC-AGO-C2-3#02



Wed Jul 14 14:12:40 2010
Gaussian Fit With Standards Chi Squared:4.989
Correction Method: Cliff-Lorimer (MBTS) w/o Absorbance

Live Time:100.0 sec.

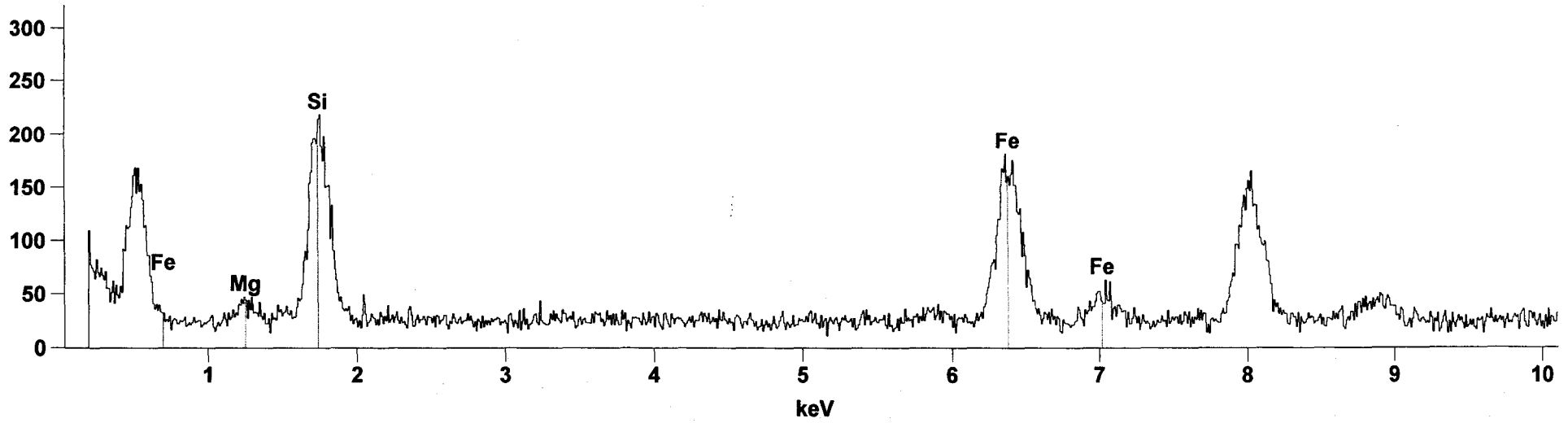
Quantitative Results 137866-SSAN5-03-0.00BPC-AGO-C2-3#02

Element	Net Counts	Weight %	Weight % Error	Atom %	Atom % Error
Mg	144	4.03	---	6.55	+/- 0.91
Si	1823	36.42	---	51.28	+/- 1.32
Fe	2293	59.55	---	42.17	+/- 1.01
Fe*	88	---	---	---	---
Total		100.00		100.00	

* -- Standard Unavailable

Project: July2010

Full scale counts: 298 **137866-SSAN5-03-000BPC-A-GO-C2-3-#03**



Wed Jul 14 14:20:55 2010 **Live Time:46.0 sec.**
Gaussian Fit With Standards Chi Squared:3.019
Correction Method: Cliff-Lorimer (MBTS) w/o Absorbance

Quantitative Results 137866-SSAN5-03-000BPC-A-GO-C2-3-#03

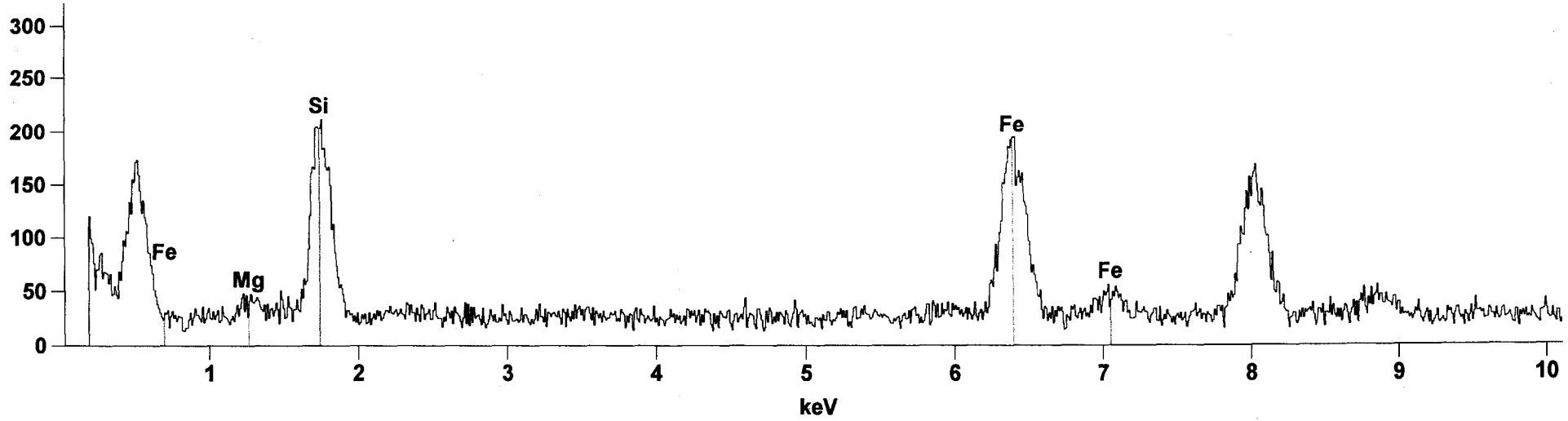
Element	Net Counts	Weight %	Weight % Error	Atom %	Atom % Error
Mg	309	6.20	---	9.62	+/- 0.81
Si	2825	40.49	---	54.38	+/- 1.14
Fe	2861	53.31	---	36.00	+/- 0.81
Fe*	3056	---	---	---	---
Total		100.00		100.00	

* -- Standard Unavailable

Project: July2010

Full scale counts: 298

137866-SSAN5-03-000BPC-A-GO-C2-3-#03



Wed Jul 14 14:23:28 2010 **Live Time:46.6 sec.**

Gaussian Fit With Standards Chi Squared:2.957

Correction Method: Cliff-Lorimer (MBTS) w/o Absorbance

Quantitative Results 137866-SSAN5-03-000BPC-A-GO-C2-3-#03

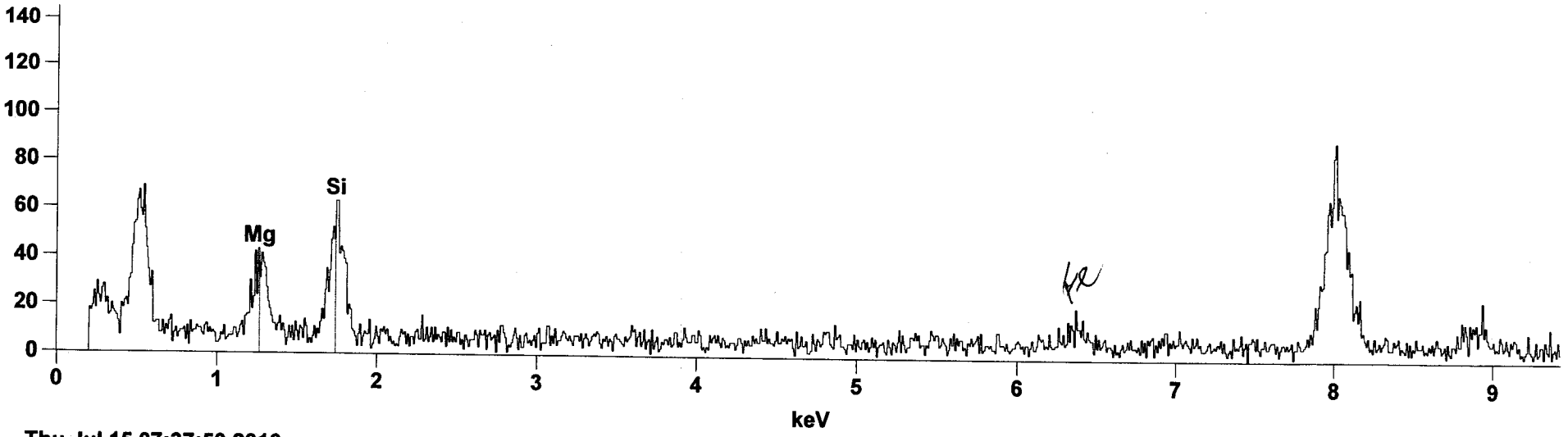
Element	Net Counts	Weight %	Weight % Error	Atom %	Atom % Error
Mg	349	6.19	---	9.78	+/- 0.78
Si	2983	37.80	---	51.69	+/- 1.06
Fe	3400	56.01	---	38.52	+/- 0.78
Fe*	3293	---	---	---	---
Total		100.00		100.00	

* -- Standard Unavailable

Project: July2010

Full scale counts: 134

137866-SSAN5-03-000BPC-A-GO-C3-1-#05)



Thu Jul 15 07:37:50 2010
Gaussian Fit With Standards Chi Squared:1.222
Correction Method: Cliff-Lorimer (MBTS) w/o Absorbance

Live Time:61.2 sec.

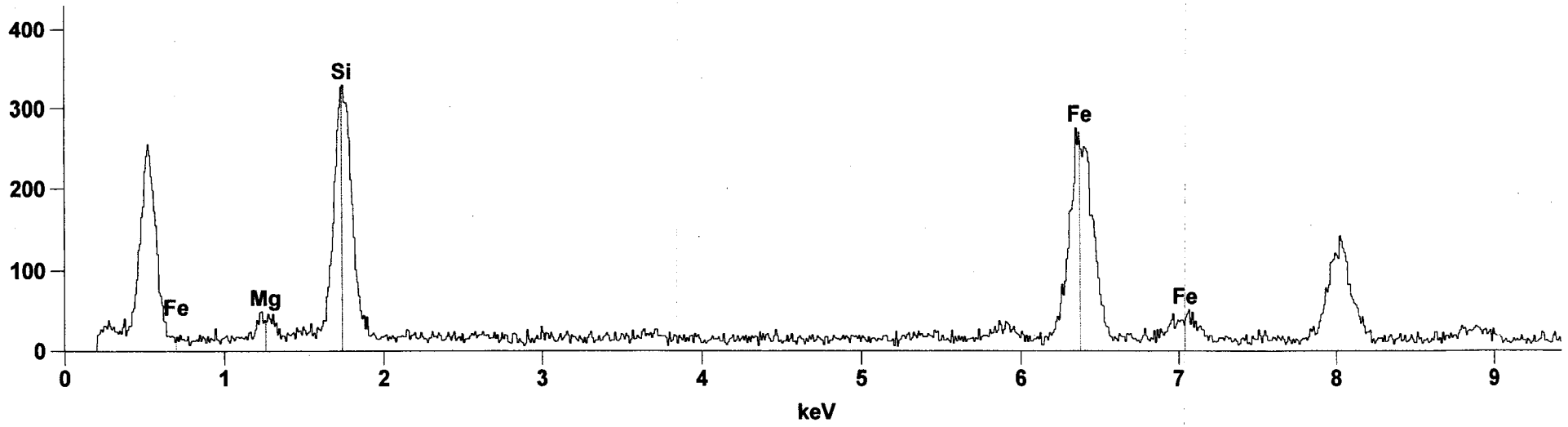
Quantitative Results 137866-SSAN5-03-000BPC-A-GO-C3-1-#05)

Element	Net Counts	Weight %	Weight % Error	Atom %	Atom % Error
Mg	358	46.75	---	50.36	+/- 2.95
Si	571	53.25	---	49.64	+/- 2.26
Total		100.00		100.00	

Project: July2010

Full scale counts: 399

137866-SSAN5-03-000BPC-A-GO-E3-3-#06



Thu Jul 15 07:44:33 2010 **Live Time:33.5 sec.**
Gaussian Fit With Standards Chi Squared:1.450
Correction Method: Cliff-Lorimer (MBTS) w/o Absorbance

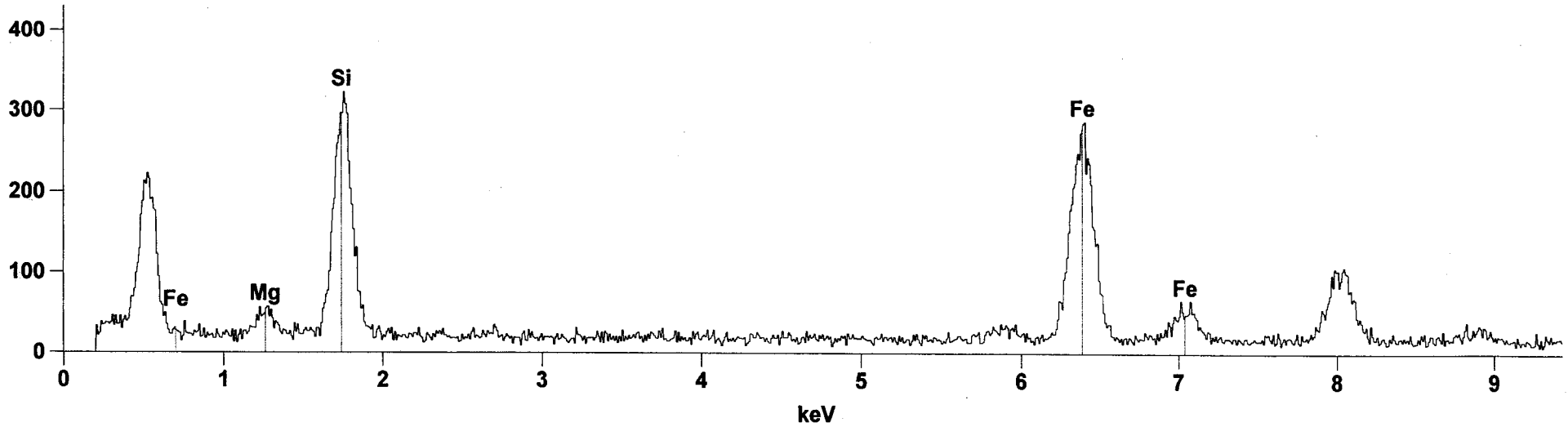
Quantitative Results 137866-SSAN5-03-000BPC-A-GO-E3-3-#06

Element	Net Counts	Weight %	Weight % Error	Atom %	Atom % Error
Mg	369	5.39	---	8.61	+/- 0.56
Si	3568	37.20	---	51.45	+/- 0.91
Fe	4236	57.41	---	39.94	+/- 0.67
Fe*	2648	---	---	---	---
Total		100.00		100.00	

* -- Standard Unavailable

Project: July2010

Full scale counts: 399 **137866-SSAN5-03-000BPC-A-GO-E3-3-#07**



Thu Jul 15 07:48:48 2010
Gaussian Fit With Standards Chi Squared:1.747
Correction Method: Cliff-Lorimer (MBTS) w/o Absorbance

Live Time:28.2 sec.

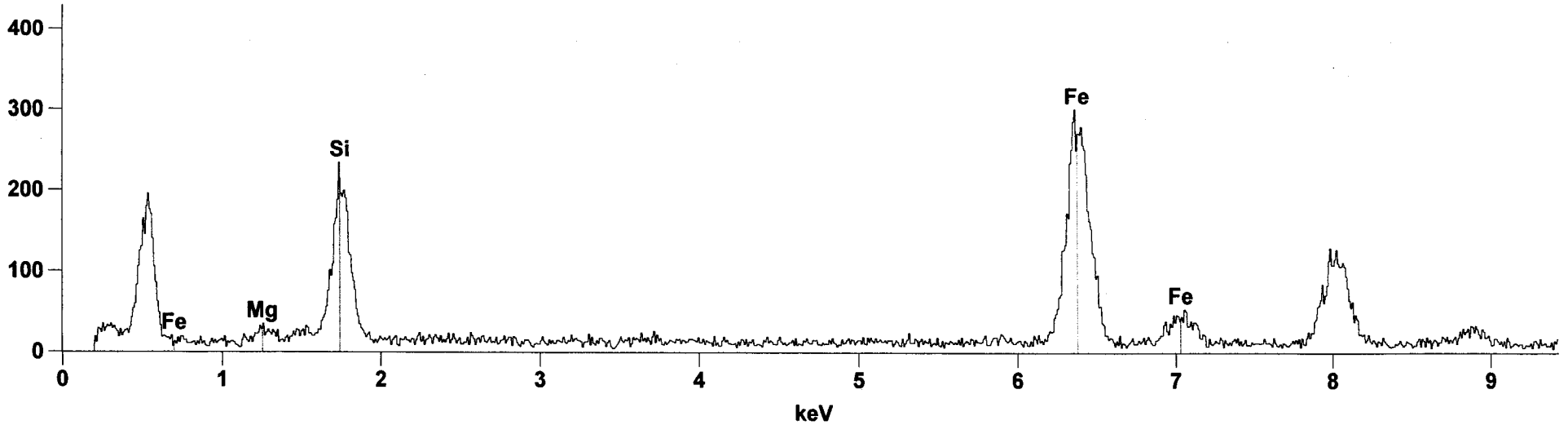
Quantitative Results 137866-SSAN5-03-000BPC-A-GO-E3-3-#07

Element	Net Counts	Weight %	Weight % Error	Atom %	Atom % Error
Mg	453	5.69	---	9.14	+/- 0.58
Si	4032	36.20	---	50.27	+/- 0.86
Fe	4979	58.11	---	40.59	+/- 0.64
Fe*	3110	---	---	---	---
Total		100.00		100.00	

* -- Standard Unavailable

Project: July2010

Full scale counts: 399 **137866-SSAN5-03-000BPC-A-GO-E3-3-#08**



Thu Jul 15 07:50:58 2010 **Live Time:24.2 sec.**
Gaussian Fit With Standards Chi Squared:1.428
Correction Method: Cliff-Lorimer (MBTS) w/o Absorbance

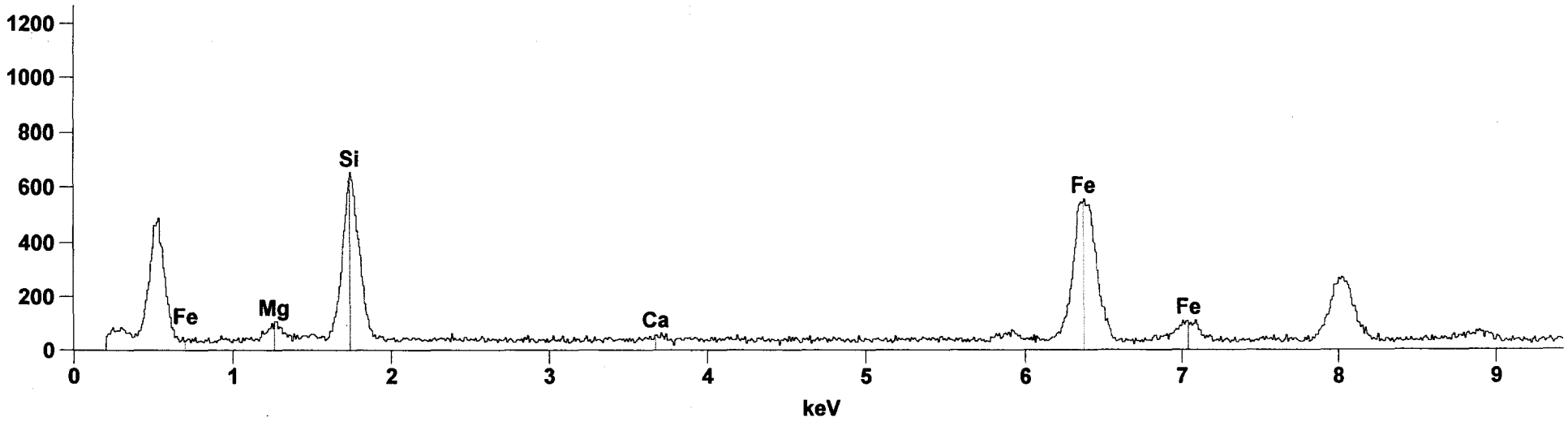
Quantitative Results 137866-SSAN5-03-000BPC-A-GO-E3-3-#08

Element	Net Counts	Weight %	Weight % Error	Atom %	Atom % Error
Mg	149	2.27	---	4.02	+/- 0.54
Si	2490	27.10	---	41.54	+/- 0.90
Fe	4991	70.63	---	54.44	+/- 0.84
Fe*	2178	---	---	---	---
Total		100.00		100.00	

* -- Standard Unavailable

Project: July2010

Full scale counts: 1173 **137866-SSAN5-03-000BPC-A-GO-C4-1-#09**



Thu Jul 15 07:55:43 2010 **Live Time:100.0 sec.**
Gaussian Fit With Standards Chi Squared:9.308
Correction Method: Cliff-Lorimer (MBTS) w/o Absorbance

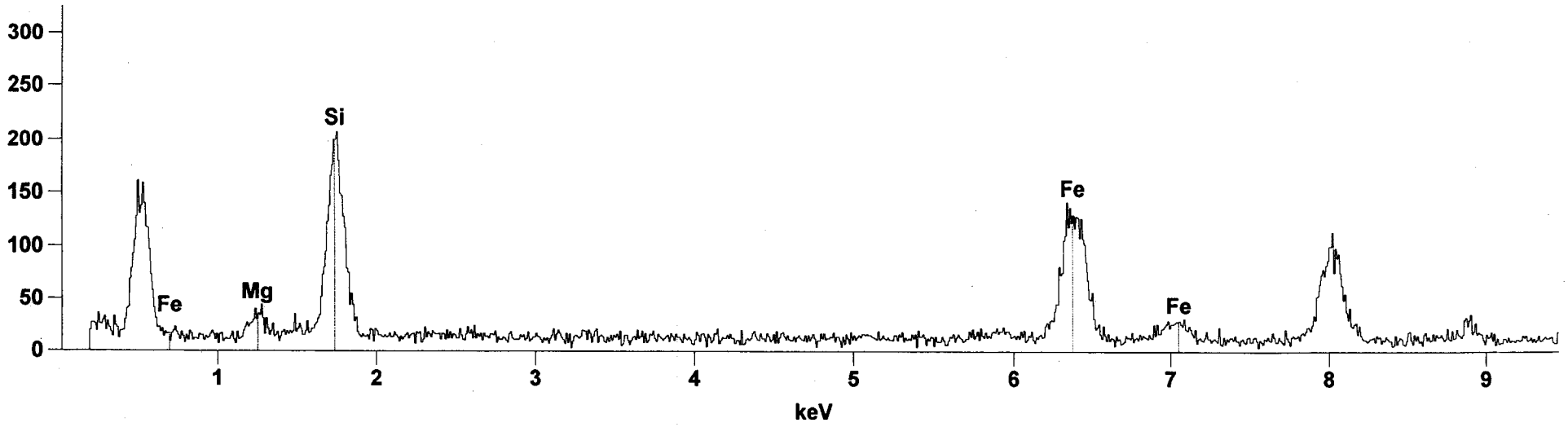
Quantitative Results 137866-SSAN5-03-000BPC-A-GO-C4-1-#09

Element	Net Counts	Weight %	Weight % Error	Atom %	Atom % Error
Mg	665	4.82	---	7.81	+/- 0.42
Si	6940	35.90	---	50.36	+/- 0.66
Fe	8817	59.29	---	41.83	+/- 0.50
Fe*	3989	---	---	---	---
Total		100.00		100.00	

* -- Standard Unavailable

Project: July2010

Full scale counts: 302 **137866-SSAN5-03-000BPC-A-GO-C4-1-#10**



Thu Jul 15 08:08:49 2010 **Live Time:49.8 sec.**
Gaussian Fit With Standards Chi Squared:4.906
Correction Method: Cliff-Lorimer (MBTS) w/o Absorbance

Quantitative Results 137866-SSAN5-03-000BPC-A-GO-C4-1-#10

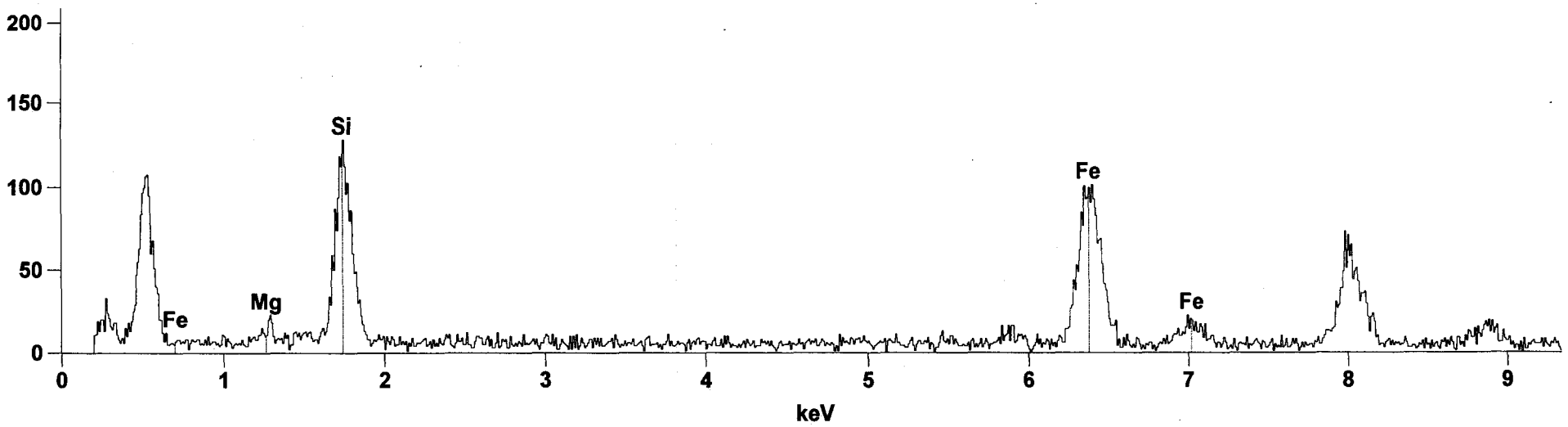
Element	Net Counts	Weight %	Weight % Error	Atom %	Atom % Error
Mg	141	5.41	---	8.42	+/- 1.01
Si	1505	41.28	---	55.52	+/- 1.55
Fe	1495	53.31	---	36.06	+/- 1.06
Fe*	101	---	---	---	---
Total		100.00		100.00	

* -- Standard Unavailable

Project: July2010

Full scale counts: 194

137866-SSAN5-03-000BPC-A-GO-E4-3-#11



Thu Jul 15 08:25:40 2010 **Live Time:35.6 sec.**
Gaussian Fit With Standards Chi Squared:3.633
Correction Method: Cliff-Lorimer (MBTS) w/o Absorbance

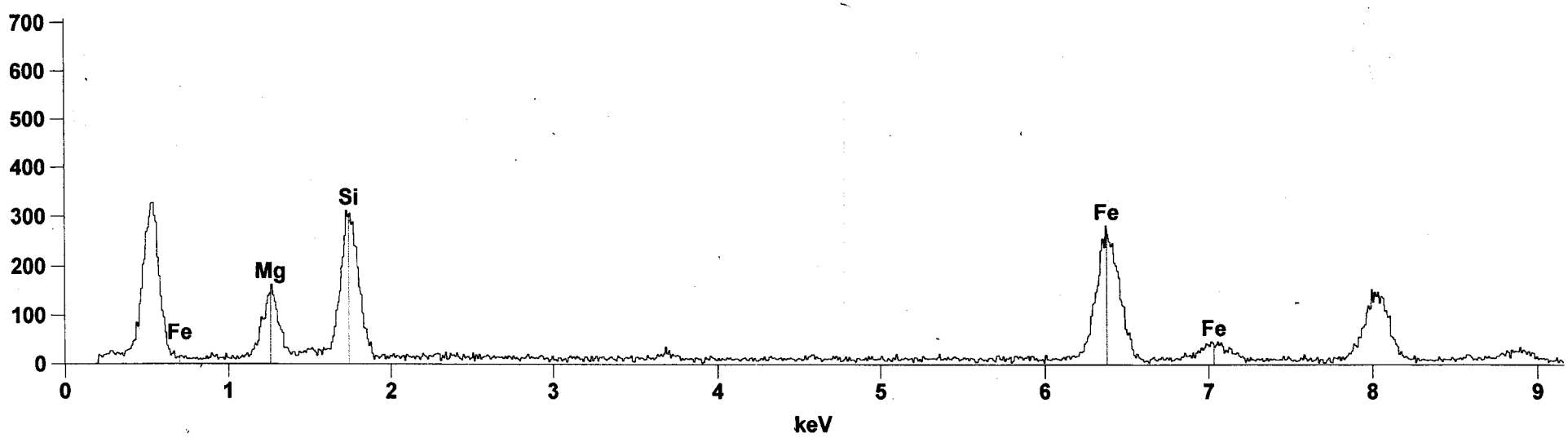
Quantitative Results 137866-SSAN5-03-000BPC-A-GO-E4-3-#11

Element	Net Counts	Weight %	Weight % Error	Atom %	Atom % Error
Mg	82	3.21	---	5.23	+/- 0.89
Si	1340	37.51	---	52.80	+/- 1.54
Fe	1629	59.28	---	41.97	+/- 1.13
Fe*	45	---	---	---	---
Total		100.00		100.00	

* -- Standard Unavailable

Project: July2010

Full scale counts: 655 **137866-SSAN5-03-000BPC-BGO-F3-6-#01**



Thu Jul 15 09:06:30 2010 **Live Time:16.7 sec.**
Gaussian Fit With Standards Chi Squared:12.898
Correction Method: Cliff-Lorimer (MBTS) w/o Absorbance

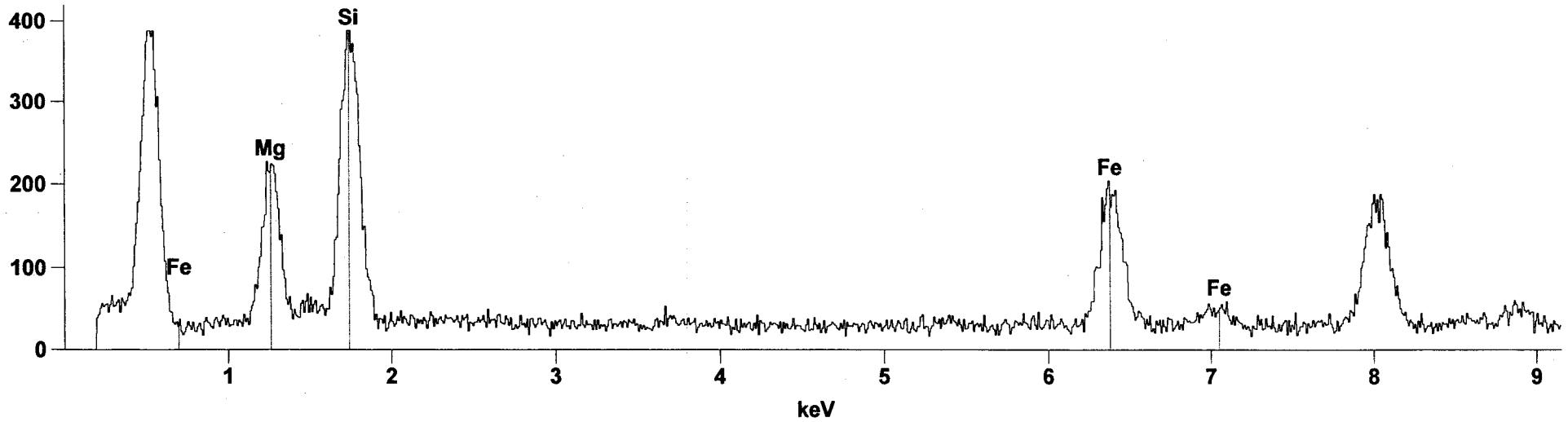
Quantitative Results 137866-SSAN5-03-000BPC-BGO-F3-6-#01

Element	Net Counts	Weight %	Weight % Error	Atom %	Atom % Error
Mg	1321	17.40	---	26.08	+/- 0.81
Si	3304	31.09	---	40.32	+/- 0.74
Fe	4211	51.51	---	33.60	+/- 0.56
Fe*	72	---	---	---	---
Total		100.00		100.00	

* -- Standard Unavailable

Project: July2010

Full scale counts: 388 **137866-SSAN5-03-000BPC-C-GO-C3-3-#1**



Thu Jul 15 09:55:40 2010 **Live Time:38.4 sec.**
Gaussian Fit With Standards Chi Squared:3.302
Correction Method: Cliff-Lorimer (MBTS) w/o Absorbance

Quantitative Results 137866-SSAN5-03-000BPC-C-GO-C3-3-#1

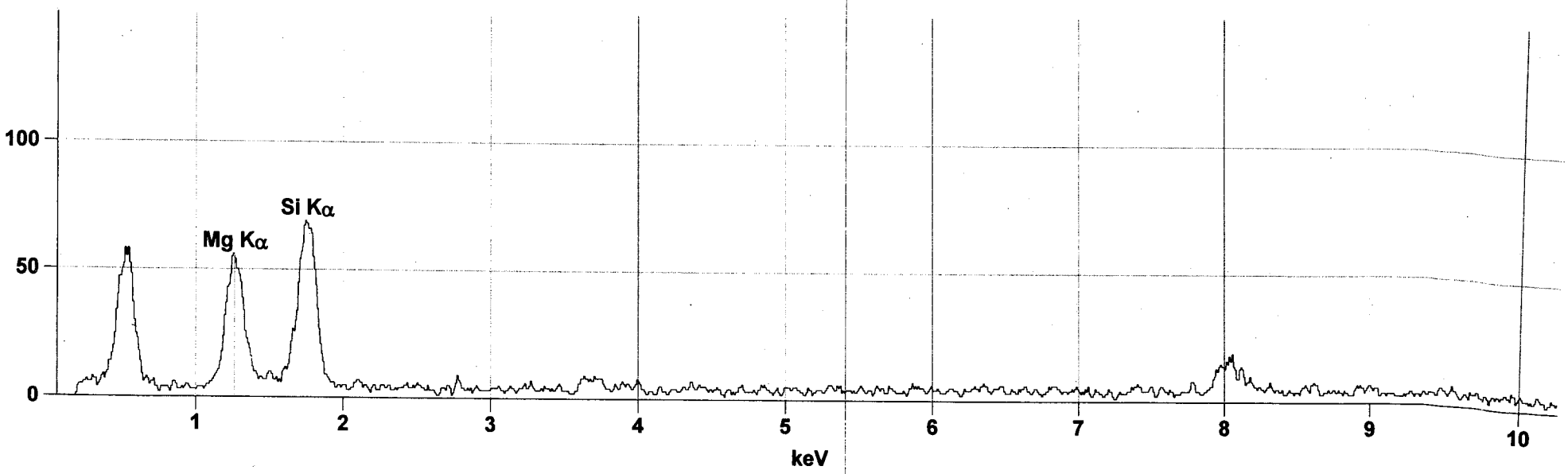
Element	Net Counts	Weight %	Weight % Error	Atom %	Atom % Error
Mg	2559	29.21	---	37.72	+/- 0.84
Si	4968	40.50	---	45.26	+/- 0.70
Fe	2858	30.29	---	17.02	+/- 0.39
Fe*	5509	---	---	---	---
Total		100.00		100.00	

* -- Standard Unavailable

Project: June2010
Company Name: EMS Laboratories

Full scale counts: 140

137820-SSARS 01-000BPC-B-#01



Live Time:17.4 sec.
Detector: Pioneer DET _B

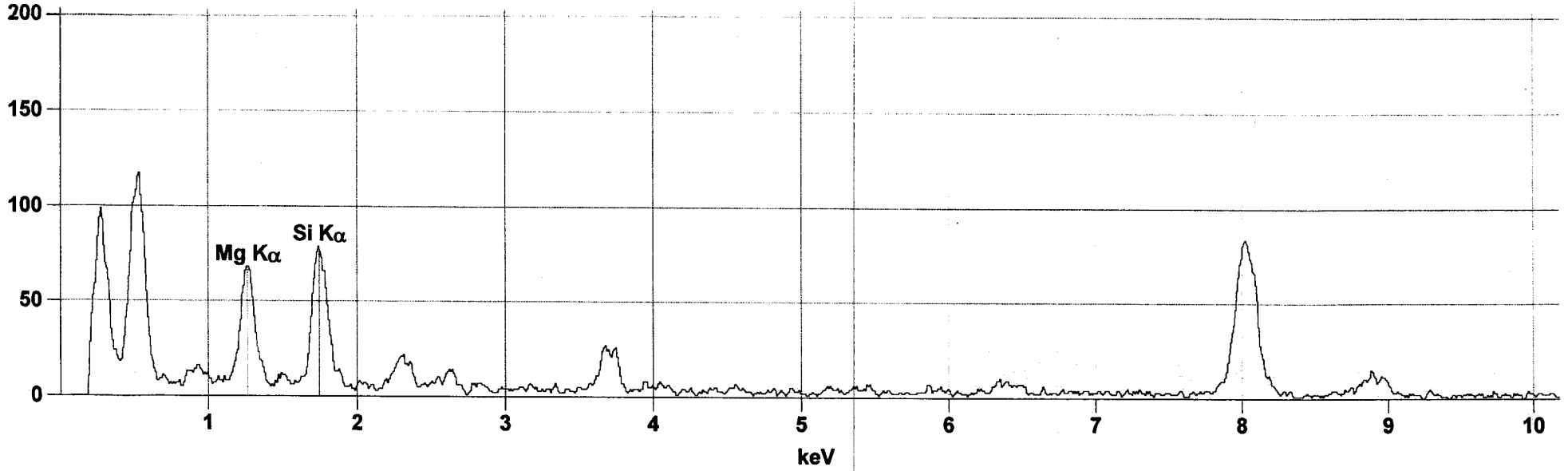
Quantitative Results 137820-SSARS 01-000BPC-B-#01

Element Line	Net Counts	Weight %	Atom %	Atom % Error	Formula
Mg K	736	49.68	53.29	+/- 2.03	Mg
Si K	945	50.32	46.71	+/- 1.53	Si
Total		100.00	100.00		

Project: June2010
Company Name: EMS Laboratories

Full scale counts: 190

137820-SSARS 01-000BPC-D-#01



Live Time:73.6 sec.
Detector: Pioneer DET _B

Quantitative Results 137820-SSARS 01-000BPC-D-#01

Element Line	Net Counts	Weight %	Atom %	Atom % Error	Formula
Mg K	746	50.39	54.00	+/- 2.10	Mg
Si K	931	49.61	46.00	+/- 1.58	Si
Total		100.00	100.00		

Filter Lot Blank

Count (Page of) NIOSH 7402/ISO

Prep Time: NA

Report number: 137022 Filter Blank 1
Sample number: 0005200
File name: Northgate
Sample Description: NA mg

Filter Type: MCE 385 mm2
Date Sample was Run: NA

Magnification: 9,200 X

Preparation date: 6/8/10 By JAP
Analysis date: 6/9/10 By BC

Grid opening dimension: 0.0094 mm²
Level of Analysis: (C): CD, CDX
(A): ADX, ADQ

Grid loading Very Light Condition of Grid Broke

Grid	Grid Opening	Number of structures Primary	Number of structures Total	Class	Type of Structure	Width mm	Length mm	Comments
A	C26							
	E23							
	E24							
	E22							
	E26							
	C32							
	C31							
	C34							
	E31							
	E34							
	F31							
	F34							
	G31							
	G34							
	H31							
	B44							
	C41							
	C44							
	E41							
	E44							
	F41							
	F44							
	G41							
	G44							
	H41							
	H44							
	K41							
	K44							
	C51							
30	C54							
	E51							
	E54							

TEM-10A (2002)

Count (Page 2 of) NIOSH 7402/ISO

Report number : 137822 Filter Blank1
Sample number: 00105200
File name: Northgate
Sample Description: NA mg

Filter Type: MCE 385 mm2 Prep Time: NA
Date Sample was Run: NA

Magnification: 9,200 X

Preparation date: 6/8/2010 By JAP
Analysis date: By

Grid opening dimension:0.0094 mm^2
Level of Analysis: (C): CD, CDX

(A): ADX, ADQ

Grid loading Condition of Grid

Grid	Grid Opening	Number of structures Primary	Number of structures Total	Class	Type of Structure	Width mm	Length mm	Comments
	F51							
	F54							
	G51							
	G54							
	H51							
	H54							
	K51							
	G61							
B	C26							
	E23							
	E26							
	F23							
	F26							
	G23							
	G26							
	B36							
	C33							
	C36							
	E33							
	E36							
	F33							
	F36							
	H33							
	H36							
	K33							
	K36							
	B46							
	C43							
	C46							
	G43							
	G46							
	F43							

TEM -10A (2002)

Count (Page 7 of) NIOSH 7402/ISO

Report number :	137822	Filter Blank1	Filter Type: MCE 385 mm2	Prep Time: NA
Sample number:	00105200		Date Sample was Run: NA	
File name:	Northgate			
Sample Description:	NA	mg	Magnification: 9,200 X	

Preparation date: 6/8/2010 By JAP Grid opening dimension:0.0094 mm^2

Analysis date: By Level of Analysis: (C): CD, CDX

(A): ADX, ADQ

Grid loading Condition of Grid

Grid	Grid Opening	Number of structures Primary	Number of structures Total	Class	Type of Structure	Width mm	Length mm	Comments
	F46							
	G43							
	G46							
	H43							
	H46							
	K43							
	K46							
	C53							
	C56							
	E53							
	E56							
	F53							
	F56							
	G53							
	G56							
	H53							
C	B24							
	C31							
	C34							
	E31							
	E34							
	F31							
	F34							
	G31							
	G34							
	H31							
	H34							
	B41							
	B44							
	C41							
	C44							
	E41							

Count (Page 4 of) NIOSH 7402/ISO

Report number : 137822 Filter Blank1
Sample number: 00105200
File name: Northgate
Sample Description: NA mg

Filter Type: MCE 385 mm2 Prep Time: NA
Date Sample was Run: NA

Magnification: 9,200 X

Preparation date: 6/8/2010 By JAP
Analysis date: By

Grid opening dimension:0.0094 mm^2
Level of Analysis: (C): CD, CDX

(A): ADX, ADQ
Grid loading Condition of Grid

Grid	Grid Opening	Number of structures Primary	Number of structures Total	Class	Type of Structure	Width mm	Length mm	Comments
	E44							
	F41							
	F44							
	G41							
	G44							
	H41							
	H44							
	K41							
	B51							
	B54							
	C51							
	C54							
	E51							
	E54							
	F51							
	F54							
	G54							
	G54							
	H51							
	H54							
	C61							
	C61							
	E64							
	E61							
B	C23							
	C26							
	E23							
	F26							
	F23							
	G23							
	G26							
	H23							

TEM -10A (2002)

0 grid tor nwkrs replaced w/ grid bar

Count (Page 5 of) NIOSH 7402/ISO

Report number :	137822 Filter Blank1	Filter Type: MCE 385 mm2	Prep Time: NA
Sample number:	00105200	Date Sample was Run: NA	
File name:	Northgate		
Sample Description:	NA mg	Magnification: 9,200 X	
Preparation date:	6/8/2010 By JAP	Grid opening dimension:0.0094 mm^2	
Analysis date:	By	Level of Analysis: (C): CD, CDX	
	(A): ADX, ADQ		
Grid loading	Condition of Grid		

Grid	Grid Opening	Number of structures Primary	Number of structures Total	Class	Type of Structure	Width mm	Length mm	Comments
	B3b							
	C3a							
	C3b							
	E3a							
	E3b							
	F3a							
	F3b							
	G3a							
	G3b							
	H3a							
	H3b							
	B4b							
	C4a							
	C4b							
	E4a							
	E4b							
	F4a							
	F4b							
	G4a							
	G4b							
	H4a							
	H4b							
	K4a							
	K4b							
	B5b							
	C5a							
	C5b							
	E5a							
	E5b							
	F5a							
	F5b							
	G5a							

Count (Page 6 of 7) NIOSH 7402/ISO

Report number : 137822 Filter Blank1 Filter Type: MCE 385 mm2 Prep Time: NA
Sample number: 00105200 Date Sample was Run: NA
File name: Northgate
Sample Description: NA mg Magnification: 9,200 X

Preparation date: 6/8/2010 By JAP Grid opening dimension:0.0094 mm^2
Analysis date: By Level of Analysis: (C): CD, CDX
(A): ADX, ADQ

Grid loading Very Right Condition of Grid Good

Grid	Grid Opening	Number of structures Primary	Number of structures Total	Class	Type of Structure	Width mm	Length mm	Comments
E	B 3 1							
	B 3 4							2 of Asbestos < 5u
	C 2 1							
	C 3 4							
	E 3 1							
	E 3 4							
	F 3 1							
	F 3 4							
	G 3 1							
	G 3 4							
	H 3 1							
	H 3 4							
	B 4 1							
	B 4 4							
	C 4 1							
	C 4 4							
	E 4 1							
	E 4 4							
	F 4 1							
	F 4 4							
	G 4 1							
	G 4 4							
	H 4 C							
	H 4 4							
	K 4 1							
	K 4 4							
	B 5 4							
	C 5 1							
	C 5 4							
	E 5 1							
	E 5 4							
	F 5 1							

Count (Page 7 of 7) NIOSH 7402/ISO

Report number : 137822 Filter Blank1
Sample number: 00105200
File name: Northgate
Sample Description: NA mg

Filter Type: MCE 385 mm2 Prep Time: NA
Date Sample was Run: NA

Magnification: 9,200 X

Preparation date: 6/8/2010 By JAP
Analysis date: By

Grid opening dimension:0.0094 mm^2
Level of Analysis: (C): CD, CDX

(A): ADX, ADQ
Grid loading Condition of Grid

Grid	Grid Opening	Number of structures Primary	Number of structures Total	Class	Type of Structure	Width mm	Length mm	Comments
	E54							
	G51							
	C54							
	H51							
	H54							
	K51							
	EG1							
	E64							

TEM -10A (2002)

TEM ASBESTOS ANALYSIS

Client Sand blank
Sample No. 5-12-10

EMS Lab No. _____
Page _____ of _____

RECEIVING

TYPE OF SAMPLE
Air ☐ Water ☐
Soil ☐ Bulk ☐
Other Sand

METHOD OF ANALYSIS
EPA 600/4-83-043 ☑ ISO ☐

LEVEL OF ANALYSIS
Chrysotile _____
Amphibole _____

ASPECT RATIO
3:1 ☐ 5:1 ☐

EPA/600/R-94/134 100.1 ☐ 100.2 ☐

LENGTHS
All Sizes (EPA) ☐
(μm) ≥0.5 ☐
≥1.0 ☐
≥5.0 ☐
≥10.0 ☐
PCM Range* ☐
*(≥0.25 μm width ≥5.0 μm length)

FILTER TYPE / AREA (mm±)
MCE ☐ 385 ☐
PC ☐ 314 ☐
MCN ☐ 1017 ☐
Other _____

PORE SIZE
0.45 μm ☐ 0.8 μm ☐
0.1 μm ☐ 0.22 μm ☐
Other _____

G.O. Area (mm²) 0.0 0.094
No. of G.O. to Analyze 200
67/grid

PREP

DIRECT PREP ☐
INDIRECT PREP ☐

Volume _____ liters
Working Volume _____ ml
Weight 50 grams
Ashed Area _____ %

Prepared By JAP
Date 5/12/10

ANALYSIS

MICROSCOPE
H600A - Serial No. 542-36-01 ☐
H600B - Serial No. 542-05-06 ☑
H600C - Serial No. 542-24-03 ☐

ENERGY DISPERSIVE X-RAY SYSTEM
Kevex - Model No. 3200-0106-0365 ☐
Kevex - Model No. 3600-0206-0146 Quantum System ☑

Grid Address: A
Screen Magnification: 9200 X
Camera Constant: 2x3
Accelerating Voltage: 100KV
Beam Current: 10 μA
K-Factor: 1.4
Analyst Kadh Date 5/13/10

Grid Opening	Structure Number	Structure	Dimensions (mm) Width	Dimensions (mm) Length	Fiber Classification NAM	TM	CM	CD	CQ	CMQ	CDQ	UF	AD	AX	ADX	AQ	ADQ	AZQ	AZZ	EDS Analysis Na	Mg	Si	Ca	Fe	Comments
C23		NAD																							
C26		↓								✓															
E23																									
E26																									
G23																									
G26																									
I23																									
I26																									
K23																									
K26																									
M23																									
M26																									
O23																									
O26																									
C31																									
C34		1=	4.5	75	✓																	Si			
E31		↓																							
E34		NAD																							
F31																									
F34		↓																							

TEM - 1A (1-06)

OBSERVATIONS:

Clean ☐
Debris: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐
Gypsum: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐
Condition of the Grid: ☐ Good ☐ Scrappy ☐ Undissolved Filter ☐ Folded ☐

TEM ASBESTOS ANALYSIS

Client Sand blank
Sample No. 5-12-10

EMS Lab No. _____
Page 2 of _____

RECEIVING

ANALYSIS

Grid Address: A
Screen Magnification: _____ X
Camera Constant: _____
Accelerating Voltage: 100KV
Beam Current: _____ µA
K-Factor: _____

Analyst _____ Date _____

MICROSCOPE

H600A - Serial No. 542-36-01 ☐
H600B - Serial No. 542-05-06 ☒
H600C - Serial No. 542-24-03 ☐

ENERGY DISPERSIVE X-RAY SYSTEM

Kevex - Model No. 3200-0106-0365 ☐
Kevex - Model No. 3600-0206-0146 ☒
Quantum System

Grid Opening	Structure Number	Structure	Dimensions (mm) Width	Dimensions (mm) Length	Fiber Classification NAM	TM	CM	CD	CQ	CMQ	CDQ	UF	AD	AX	ADX	AQ	ADQ	AZQ	AZZ	EDS Analysis Na	Mg	Si	Ca	Fe	Comments
G3-1		NAD																							
G3-4																									
TB1-1																									
B3-4																									
C3-3																									
C3-6																									
E3-3																									
E3-6																									
F3-3																									
F3-6																									
G3-3																									
G3-6																									
TB-3																									
TB-6																									
K3-3		↓																							

TEM - 1B (1-08)

OBSERVATIONS:

Clean ☐
Debris: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐
Gypsum: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐
Condition of the Grid: ☐ Good ☐ Scrappy ☐ Undissolved Filter ☐ Folded ☐

TEM ASBESTOS ANALYSIS

Client Sand blank EMS Lab No. _____
Sample No. 5-1270 Page 3 of _____

RECEIVING

ANALYSIS

Grid Address: A
Screen Magnification: _____ X
Camera Constant: _____
Accelerating Voltage: 100KV
Beam Current: _____ µA
K-Factor: _____
Analyst Rdk Date 5-13-10

MICROSCOPE
H600A - Serial No. 542-36-01 ☐
H600B - Serial No. 542-05-06 ☐
H600C - Serial No. 542-24-03 ☐

ENERGY DISPERSIVE X-RAY SYSTEM
Kevex - Model No. 3200-0106-0365 ☐
Kevex - Model No. 3600-0206-0146 Quantum System ☐

Grid Opening	Structure Number	Structure	Dimensions (mm) Width	Dimensions (mm) Length	Fiber Classification NAM	TM	CM	CD	CQ	CMQ	CDQ	UF	AD	AX	ADX	AQ	ADQ	AZQ	AZZ	EDS Analysis Na	Mg	Si	Ca	Fe	Comments
C4-1		NAM																							
C4-4																									
E4-1																									
E4-4																									
F4-1																									
F4-4																									
G4-1																									
G4-4																									
H4-1																									
H4-4																									
K4-1																									
K4-4																									
E43																									
E 43																									
E43		"																							

TEM - 1B (1-08)

OBSERVATIONS:

Clean ☐
Debris: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐
Gypsum: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐
Condition of the Grid: ☐ Good ☐ Scrappy ☐ Undissolved Filter ☐ Folded ☐

TEM ASBESTOS ANALYSIS

Client Sand blade
Sample No. S-12-10

EMS Lab No. _____
Page 4 of _____

RECEIVING

ANALYSIS

Grid Address: A-
Screen Magnification: _____ X
Camera Constant: _____
Accelerating Voltage: 100KV
Beam Current: _____ µA
K-Factor: _____
Analyst Radle Date 5-13-10

MICROSCOPE

H600A - Serial No. 542-36-01 ☐
H600B - Serial No. 542-05-06 ☐
H600C - Serial No. 542-24-03 ☐

ENERGY DISPERSIVE X-RAY SYSTEM

Kevex - Model No. 3200-0106-0365 ☐
Kevex - Model No. 3600-0206-0146 Quantum System ☐

Grid Opening	Structure Number	Structure	Dimensions (mm) Width	Dimensions (mm) Length	Fiber Classification NAM	TM	CM	CD	CQ	CMQ	CDQ	UF	AD	AX	ADX	AQ	ADQ	AZQ	AZZ	EDS Analysis Na	Mg	Si	Ca	Fe	Comments
G43		NW																							
G46																									
H43																									
H46																									
K43																									
K46																									
E5B																									
E54																									
F51																									
F54																									
G51																									
G54																									
H51		F	6.5	80	✓																	Si			
H54		NW																							
K51																									

TEM - 1B (1-06)

OBSERVATIONS:

Clean ☐
Debris: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐
Gypsum: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐
Condition of the Grid: ☐ Good ☐ Soppy ☐ Undissolved Filter ☐ Folded ☐

TEM ASBESTOS ANALYSIS

Client Sand blk
Sample No. 5-12-10

EMS Lab No. _____
Page 5 of _____

RECEIVING

ANALYSIS

Grid Address: A
Screen Magnification: _____ X
Camera Constant: _____
Accelerating Voltage: 100KV
Beam Current: _____ µA
K-Factor: _____
Analyst Randle Date 5-13-10

MICROSCOPE
H600A - Serial No. 542-36-01 ☐
H600B - Serial No. 542-05-06 ☐
H600C - Serial No. 542-24-03 ☐

ENERGY DISPERSIVE X-RAY SYSTEM
Kevex - Model No. 3200-0106-0365 ☐
Kevex - Model No. 3600-0206-0146 Quantum System ☐

Grid Opening	Structure Number	Structure	Dimensions (mm) Width	Dimensions (mm) Length	Fiber Classification NAM	TM	CM	CD	CQ	CMQ	CDQ	UF	AD	AX	ADX	AQ	ADQ	AZQ	AZZ	EDS Analysis Na	Mg	Si	Ca	Fe	Comments
C53		N10																							
C56																									
E53																									
E56																									
F53																									
F56																									
G53																									
G56																									

TEM - 1B (1-08)

OBSERVATIONS:

Clean ☐
Debris: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐
Gypsum: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐
Condition of the Grid: ☐ Good ☐ Scrappy ☐ Undissolved Filter ☐ Folded ☐

TEM ASBESTOS ANALYSIS

Client Sand blank
Sample No. S-12-10

EMS Lab No. _____
Page 1 of _____

RECEIVING

ANALYSIS

Grid Address: B
Screen Magnification: 9,200 X
Camera Constant: 28.3
Accelerating Voltage: 100KV
Beam Current: 10 µA
K-Factor: 14
Analyst Radh Date 5/18/10

MICROSCOPE
- H600A - Serial No. 542-36-01 ☐
- H600B - Serial No. 542-05-06 ☐
- H600C - Serial No. 542-24-03 ☐

ENERGY DISPERSIVE X-RAY SYSTEM
- Kevex - Model No. 3200-0106-0365 ☐
- Kevex - Model No. 3600-0206-0146 Quantum System ☐

Grid Opening	Structure Number	Structure	Dimensions (mm) Width	Dimensions (mm) Length	Fiber Classification NAM	TM	CM	CD	CQ	CMQ	CDQ	UF	AD	AX	ADX	AQ	ADQ	AZQ	AZZ	EDS Analysis Na	Mg	Si	Ca	Fe	Comments
C23		N/A																							
C26																									
E23																									
E26																									
I23																									
I26																									
K23																									
K26																									
M23																									
C34																									
C3-4																									
E34																									
E3-4																									
F34																									
F3-4																									
F34		↓																							

TEM - 1B (1-08)

OBSERVATIONS:

Clean ☐
Debris: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐
Gypsum: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐

TEM ASBESTOS ANALYSIS

Client Sand blank
Sample No. S-12-10

EMS Lab No. _____
Page 1 of _____

RECEIVING

ANALYSIS

Grid Address: B
Screen Magnification: 9,200 X
Camera Constant: 28.3
Accelerating Voltage: 100KV
Beam Current: 10 µA
K-Factor: 1.4
Analyst Radh Date 5/18/10

MICROSCOPE

H600A - Serial No. 542-36-01 ☐
H600B - Serial No. 542-05-06 ☐
H600C - Serial No. 542-24-03 ☐

ENERGY DISPERSIVE X-RAY SYSTEM

Kevex - Model No. 3200-0106-0365 ☐
Kevex - Model No. 3600-0206-0146 Quantum System ☐

Grid Opening	Structure Number	Structure	Dimensions (mm) Width	Dimensions (mm) Length	Fiber Classification NAM	TM	CM	CD	CQ	CMQ	CDQ	UF	AD	AX	ADX	AQ	ADQ	AZQ	AZZ	EDS Analysis Na	Mg	Si	Ca	Fe	Comments
G3-1		NM																							
G3-4																									
B3-1																									
B3-4																									
G3-3		F	2.5	13.0	V																				Si
G3-6		NM																							
F33																									
F3-6																									
F3-3																									
F3-6																									
G3-3																									
G3-6																									
B3-3																									
B3-6																									
B3-1																									

TEM - 1B (1-08)

OBSERVATIONS:

Clean ☐
Debris: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐
Gypsum: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐

TEM ASBESTOS ANALYSIS

Client Sand blank
Sample No. 5-12-10

EMS Lab No. _____
Page 7 of _____

RECEIVING

ANALYSIS

Grid Address: B
Screen Magnification: 9,200 X
Camera Constant: 28.3
Accelerating Voltage: 100KV
Beam Current: 10 µA
K-Factor: 1.4
Analyst Radh Date 5/18/10

MICROSCOPE

H600A - Serial No. 542-36-01 ☐
H600B - Serial No. 542-05-06 ☐
H600C - Serial No. 542-24-03 ☐

ENERGY DISPERSIVE X-RAY SYSTEM

Kevex - Model No. 3200-0106-0365 ☐
Kevex - Model No. 3600-0206-0146 Quantum System ☐

Grid Opening	Structure Number	Structure	Dimensions (mm) Width	Dimensions (mm) Length	Fiber Classification NAM	TM	CM	CD	CQ	CMQ	CDQ	UF	AD	AX	ADX	AQ	ADQ	AZQ	AZZ	EDS Analysis Na	Mg	Si	Ca	Fe	Comments
C4-1		NAM																							
C4-4																									
E4-1																									
E4-4																									
F4-1																									
F4-4																									
G4-1																									
G4-4																									
H4-1																									
H4-4																									
K4-1																									
K4-4																									
C4B																									
E4-3																									
E4B		4																							

TEM - 1B (1-08)

OBSERVATIONS:

Clean ☐
Debris: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐
Gypsum: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐

TEM ASBESTOS ANALYSIS

Client Sand blank
Sample No. S-12-10

EMS Lab No. _____
Page 1 of _____

RECEIVING

ANALYSIS

Grid Address: B
Screen Magnification: 9,200 X
Camera Constant: 28.3
Accelerating Voltage: 100KV
Beam Current: 10 µA
K-Factor: 1.4
Analyst Radh Date 5/18/10

MICROSCOPE -
H600A - Serial No. 542-36-01 ☐
H600B - Serial No. 542-05-06 ☐
H600C - Serial No. 542-24-03 ☐

ENERGY DISPERSIVE X-RAY SYSTEM
Kevex - Model No. 3200-0106-0365 ☐
Kevex - Model No. 3600-0206-0146 Quantum System ☐

Grid Opening	Structure Number	Structure	Dimensions (mm) Width	Dimensions (mm) Length	Fiber Classification NAM	TM	CM	CD	CQ	CMQ	CDQ	UF	AD	AX	ADX	AQ	ADQ	AZQ	AZZ	EDS Analysis Na	Mg	Si	Ca	Fe	Comments
E4 3		NAD																							
E4 6																									
G4 3																									
G4 6																									
I 4 3																									
I 4 6																									
K4 3																									
K4 6		F	25	130	✓																				S1
C5-1		NAD																							
C5-4																									
E5-1																									
E5 4																									
I5-1																									
I5-4																									
K5-1		D																							

TEM - 1B (1-08)

OBSERVATIONS:

Clean ☐
Debris: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐
Gypsum: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐

TEM ASBESTOS ANALYSIS

Client Sand blank EMS Lab No. _____

Sample No. 5-12-10 Page 5 of _____

RECEIVING

ANALYSIS

Grid Address: B

Screen Magnification: 9,200 X

Camera Constant: 28.3

Accelerating Voltage: 100KV

Beam Current: 10 µA

K-Factor: 1.4

Analyst Radh Date 5/18/10

MICROSCOPE

H600A - Serial No. 542-36-01 ☐

H600B - Serial No. 542-05-06 ☐

H600C - Serial No. 542-24-03 ☐

ENERGY DISPERSIVE X-RAY SYSTEM

Kevex - Model No. 3200-0106-0365 ☐

Kevex - Model No. 3600-0206-0146 ☐ Quantum System

Grid Opening	Structure Number	Structure	Dimensions (mm) Width	Dimensions (mm) Length	Fiber Classification NAM	TM	CM	CD	CQ	CMQ	CDQ	UF	AD	AX	ADX	AQ	ADQ	AZQ	AZZ	EDS Analysis Na	Mg	Si	Ca	Fe	Comments
G5-4		NAD																							
B5-4																									
H5-4																									
K5-1																									
E6-1																									
E6-4																									
K6-1																									
K6-4																									
G6-1																									

TEM - 1B (1-08)

OBSERVATIONS:

Clean ☐

Debris: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐

Gypsum: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐

TEM ASBESTOS ANALYSIS

Client Sand Bank
Sample No. 5-12-10

EMS Lab No. _____
Page 1 of _____

RECEIVING

ANALYSIS

Grid Address: C
Screen Magnification: 9200 X
Camera Constant: 28.3
Accelerating Voltage: 100KV
Beam Current: 10 µA
K-Factor: 1.4
Analyst Rod Date 5/13/10

MICROSCOPE

H600A - Serial No. 542-36-01 ☐
H600B - Serial No. 542-05-06 ☐
H600C - Serial No. 542-24-03 ☐

ENERGY DISPERSIVE X-RAY SYSTEM

Kevex - Model No. 3200-0106-0365 ☐
Kevex - Model No. 3600-0206-0146 Quantum System ☐

Grid Opening	Structure Number	Structure	Dimensions (mm) Width	Dimensions (mm) Length	Fiber Classification NAM	TM	CM	CD	CQ	CMQ	CDQ	UF	AD	AX	ADX	AQ	ADQ	AZQ	AZZ	EDS Analysis Na	Mg	Si	Ca	Fe	Comments
E23																									
E26																									
F23																									
F26																									
G23		F	1.5	52	✓																				5
G26																									
H23																									
H26																									
C34																									
C34																									
B34																									
F34																									
F34		F	3.5	55	✓																				5
E34																									
G37																									

TEM - 1B (1-08)

OBSERVATIONS:

Clean ☐
Debris: ☐ Very Light ☐ Light ☐ Moderate ☒ Heavy ☐ Very Heavy ☐
Gypsum: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐
Condition of the Grid: ☐ Good ☐ Scrappy ☐ Undissolved Filter ☐ Folded ☐

TEM ASBESTOS ANALYSIS

Client Sand bank
Sample No. 5-1240

EMS Lab No. _____
Page 2 of _____

RECEIVING

ANALYSIS

Grid Address: C
Screen Magnification: 9200 X
Camera Constant: 283
Accelerating Voltage: 100KV
Beam Current: 10 µA
K-Factor: 1.4
Analyst Rodh Date 5/13/10

MICROSCOPE

H600A - Serial No. 542-36-01 ☐
H600B - Serial No. 542-05-06 ☐
H600C - Serial No. 542-24-03 ☐

ENERGY DISPERSIVE X-RAY SYSTEM

Kevex - Model No. 3200-0106-0365 ☐
Kevex - Model No. 3600-0206-0146 Quantum System ☐

Grid Opening	Structure Number	Structure	Dimensions (mm) Width	Dimensions (mm) Length	Fiber Classification NAM	TM	CM	CD	CQ	CMQ	CDQ	UF	AD	AX	ADX	AQ	ADQ	AZQ	AZZ	EDS Analysis Na	Mg	Si	Ca	Fe	Comments
G3-4		NSD																							
H3-1																									
H3-4																									
K3-1																									
K3-4																									
C3-3																									
C3-6																									
E3-3																									
E3-6																									
F3-3																									
F3-6																									
K3-3																									
K3-6																									
H3-3																									
H3-6																									

TEM - 1B (1-08)

OBSERVATIONS:

Clean ☐
Debris: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐
Gypsum: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐

TEM ASBESTOS ANALYSIS

Client Sand Bank
Sample No. 5-12-10

EMS Lab No. _____
Page 3 of _____

RECEIVING

ANALYSIS

Grid Address: C
Screen Magnification: 9200 X
Camera Constant: 28.3
Accelerating Voltage: 100KV
Beam Current: 10 µA
K-Factor: 1.4
Analyst Rodh Date 5/13/10

MICROSCOPE
H600A - Serial No. 542-36-01 ☐
H600B - Serial No. 542-05-06 ☐
H600C - Serial No. 542-24-03 ☐

ENERGY DISPERSIVE X-RAY SYSTEM
Kevex - Model No. 3200-0106-0365 ☐
Kevex - Model No. 3600-0206-0146 Quantum System ☐

Grid Opening	Structure Number	Structure	Dimensions (mm) Width	Dimensions (mm) Length	Fiber Classification NAM	TM	CM	CD	CQ	CMQ	CDQ	UF	AD	AX	ADX	AQ	ADQ	AZQ	AZZ	EDS Analysis Na	Mg	Si	Ca	Fe	Comments
K3		NAD																							
K3																									
C4																									
C4																									
E4																									
E4																									
F4																									
F4																									
G4																									
G4																									
H4																									
H4																									
K4																									
K4																									
E3		↓																							

TEM - 1B (1-06)

OBSERVATIONS:

Clean ☐
Debris: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐
Gypsum: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐

TEM ASBESTOS ANALYSIS

Client Sand Bank
Sample No. 5-12-10

EMS Lab No. _____
Page 4 of _____

RECEIVING

ANALYSIS

MICROSCOPE
- H600A - Serial No. 542-36-01 ☐
- H600B - Serial No. 542-05-06 ☐
- H600C - Serial No. 542-24-03 ☐

Grid Address: C
Screen Magnification: 9200 X
Camera Constant: 28.3
Accelerating Voltage: 100KV
Beam Current: 10 µA
K-Factor: 1.4

ENERGY DISPERSIVE X-RAY SYSTEM
- Kevex - Model No. 3200-0106-0365 ☐
- Kevex - Model No. 3600-0206-0146 Quantum System ☐

Analyst Radu Date 5/13/10

Grid Opening	Structure Number	Structure	Dimensions (mm) Width	Dimensions (mm) Length	Fiber Classification NAM	TM	CM	CD	CQ	CMQ	CDQ	UF	AD	AX	ADX	AQ	ADQ	AZQ	AZZ	EDS Analysis Na	Mg	Si	Ca	Fe	Comments
BU6		NOG																							
FU3																									
FU6																									
GU3																									
GU6																									
HU3		F	2	65	V																				Si
IHU6		NOG																							
JU3																									
JU6																									
KU3																									
KU6																									
LU3																									
LU6																									
MU3																									
MU6																									
NU3																									
NU6																									
OU3																									
OU6																									
PU3																									
PU6																									
QU3																									

TEM - 1B (1-06)

OBSERVATIONS:

Clean ☐
Debris: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐
Gypsum: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐

TEM ASBESTOS ANALYSIS

Client Sand Bank
Sample No. 5-12-10

EMS Lab No. _____
Page 5 of _____

RECEIVING

ANALYSIS

Grid Address: C
Screen Magnification: 9200 X
Camera Constant: 28.3
Accelerating Voltage: 100KV
Beam Current: 10 µA
K-Factor: 1.4
Analyst Rod Date 5/13/10

MICROSCOPE
H600A - Serial No. 542-36-01 ☐
H600B - Serial No. 542-05-06 ☐
H600C - Serial No. 542-24-03 ☐

ENERGY DISPERSIVE X-RAY SYSTEM
Kevex - Model No. 3200-0106-0365 ☐
Kevex - Model No. 3600-0206-0146 Quantum System ☐

Grid Opening	Structure Number	Structure	Dimensions (mm) Width	Dimensions (mm) Length	Fiber Classification NAM	TM	CM	CD	CQ	CMQ	CDQ	UF	AD	AX	ADX	AQ	ADQ	AZQ	AZZ	EDS Analysis Na	Mg	Si	Ca	Fe	Comments
W5-4		NAD																							
H5-1																									
H5-4																									
K5-1																									
E5-3																									
E5-6																									
F5-3																									
F5-6																									
W5-3																									
W5-6																									

TEM - 1B (1-08)

OBSERVATIONS:

Clean ☐
Debris: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐
Gypsum: ☐ Very Light ☐ Light ☐ Moderate ☐ Heavy ☐ Very Heavy ☐

: **Count (Page/ of) NIOSH 7402/ISO**

Report number : 137822 Filter Blank2
Sample number: LOT 00105200
File name: Northgate
Sample Description: NA mg

Filter Type: MCE 385 mm2 Prep Time: NA
Date Sample was Run: NA
Magnification: 9,200 X

Preparation date: 6/8/2010 By JAP
Analysis date: 7/9/10 By
Grid opening dimension:0.0094 mm^2
Level of Analysis: (C): CD, CDX

(A): ADX, ADQ
Grid loading Very Right Condition of Grid Good

Grid	Grid Opening	Number of structures Primary	Number of structures Total	Class	Type of Structure	Width mm	Length mm	Comments
A	C23							
	C26							
	E23							
	E26							
	F23							
	F26							
	G23							
	G26							
	H23							
	H26							
	B36							
	C33							
	C36							
	E33							
	E36							
	F33							
	F36							
	G33							
	G36							
	H33							
	H36							
	K33							
	K36							
	E43							
	E46							
	F43							
	F46							
	G43							
	G46							
	H43							
	H46							
	K43							

TEM-10A (2002)

Count (Page 1 of) NIOSH 7402/ISO

Report number :	137822	Filter Blank2	Filter Type: MCE 385 mm2	Prep Time: NA
Sample number:	00105200		Date Sample was Run: NA	
File name:	Northgate			
Sample Description:	NA	mg	Magnification: 9,200 X	

Preparation date: 6/8/2010 By JAP Grid opening dimension:0.0094 mm^2

Analysis date: By Level of Analysis: (C): CD, CDX

(A): ADX, ADQ

Grid loading Condition of Grid

Grid	Grid Opening	Number of structures Primary	Number of structures Total	Class	Type of Structure	Width mm	Length mm	Comments
	K46							
	B56							
	C53							
	C56							
	E53							
	E56							
	F53							
	F56							
B	C23							
	C26							
	E23							
	E26							
	F23							
	E26							
	C31							Borgana
	E34							
	E31							
	F34							
	E31							
	F34							
	B36							
	C33							
	C36							
	E33							
	E36							
	F33							
	F36							
	B44							
	C41							
	C44							
	E41							
	E44							

TEM-10A (2002)

Count (Page 2 of) NIOSH 7402/ISO

Report number :	137822	Filter Blank2	Filter Type: MCE 385 mm2	Prep Time: NA
Sample number:	00105200		Date Sample was Run: NA	
File name:	Northgate			
Sample Description:	NA	mg	Magnification: 9,200 X	
Preparation date:	6/8/2010	By JAP	Grid opening dimension:0.0094 mm^2	
Analysis date:		By	Level of Analysis: (C): CD, CDX	
		(A): ADX, ADQ		
Grid loading		Condition of Grid		

Grid	Grid Opening	Number of structures Primary	Number of structures Total	Class	Type of Structure	Width mm	Length mm	Comments
	F41							
	F44							
	G41							
	G44							
	H41							
	H44							
	B46							
	C43							
	C46							
	E43							
	E46							
	F43							
	F46							
	G43							
	G46							
	F56							
C	E21							
	E24							
	F21							
	B26							
	C23							
	C26							
	E23							
	E26							
	F23							
	F26							
	G23							
	G26							
	H23							
	B23							
	B26							
	C23							

TEM-10A (2002)

Count (Page 4 of) NIOSH 7402/ISO

Report number :	137822	Filter Blank2	Filter Type: MCE 385 mm2	Prep Time: NA
Sample number:	00105200		Date Sample was Run: NA	
File name:	Northgate			
Sample Description:	NA	mg	Magnification: 9,200 X	
Preparation date:	6/8/2010	By JAP	Grid opening dimension:0.0094 mm^2	
Analysis date:		By	Level of Analysis: (C): CD, CDX	
		(A): ADX, ADQ		
Grid loading		Condition of Grid		

Grid	Grid Opening	Number of structures Primary	Number of structures Total	Class	Type of Structure	Width mm	Length mm	Comments
	C36							
	E33							
	E36							
	F33							
	F66							
	G33							
	G36							
	H33							
	H36							
	K33							
	B43							Org
	B46							
	C43							
	C46							
	E43							
	E46							
	F43							
	F46							
	G43							
	G46							
	H43							
	H46							
	K43							
	C52							
	C56							
P	E21							
	E24							
	F21							
	B34							
	C31							
	C34							
	E31							

TEM -10A (2002)

Count (Page of) NIOSH 7402/ISO

Report number : 137822 Filter Blank2
Sample number: 00105200
File name: Northgate
Sample Description: NA mg

Filter Type: MCE 385 mm2 Prep Time: NA
Date Sample was Run: NA

Magnification: 9,200 X

Preparation date: 6/8/2010 By JAP
Analysis date: By

Grid opening dimension:0.0094 mm^2
Level of Analysis: (C): CD, CDX

(A): ADX, ADQ

Grid loading Condition of Grid

Grid	Grid Opening	Number of structures Primary	Number of structures Total	Class	Type of Structure	Width mm	Length mm	Comments
	E34							
	E31							
	E24							
	G31							
	G24							
	H31							
	H34							
	B44							
	E41							
	E44							
	F41							
	F44							
	G41							
	G44							
	H41							
	H44							
	K41							
	K44							
	B54							
	C51							
	C54							
	E51							
	E54							
	F51							
	F54							
	B56							
	C53							
	C56							
	E53							
	E56							
	F53							
	F56							

TEM-10A (2002)

Count (Page 1 of) NIOSH 7402/ISO

Report number : 137822 Filter Blank1
Sample number: 00105200
File name: Northgate
Sample Description: NA mg

Filter Type: MCE 385 mm2 Prep Time: NA
Date Sample was Run: NA

Magnification: 9,200 X

Preparation date: 6/8/2010 By JAP
Analysis date: By

Grid opening dimension:0.0094 mm^2
Level of Analysis: (C): CD, CDX

(A): ADX, ADQ

Grid loading Condition of Grid

Grid	Grid Opening	Number of structures Primary	Number of structures Total	Class	Type of Structure	Width mm	Length mm	Comments
6	G23							
	C21							
	E23							
	E26							
	E23							
	F26							
	G23							
	G26							
	H23							
	H26							
	B33							
	C33							
	C36							
	E33							
	E36							
	F33							
	F36							
	G33							
	B46							
X	C46							
	E43							
	E46							
	F43							
	F46							
	G43							
	G46							
	H43							
	H46							
	K43							
	F56							
	F53							
	F66							

TEM-10A (2002)

Count (Page of) NIOSH 7402/ISO

Report number : 137822 Filter Blank2
Sample number: 00105200
File name: Northgate
Sample Description: NA mg

Filter Type: MCE 385 mm2 Prep Time: NA
Date Sample was Run: NA

Magnification: 9,200 X

Preparation date: 6/8/2010 By JAP
Analysis date: By

Grid opening dimension:0.0094 mm^2
Level of Analysis: (C): CD, CDX

(A): ADX, ADQ

Grid loading Condition of Grid

Grid	Grid Opening	Number of structures Primary	Number of structures Total	Class	Type of Structure	Width mm	Length mm	Comments
	C53							
	G56							
	H53							
	H56							
	K57							
	C64							
	E61							
	E64							
	F61							
	F64							

TEM-10A (2002)

Spot Size Measurements

Scope: #60B

Date: May 2010

Name: RS

Conditions of Measurements

High Voltage: 100 K

Beam Current: 10 μA

Magnification: 19,200

Condenser Aperture Size: #2

Measurements from a photo 8.5

Shortest diameter: 8.5 mm

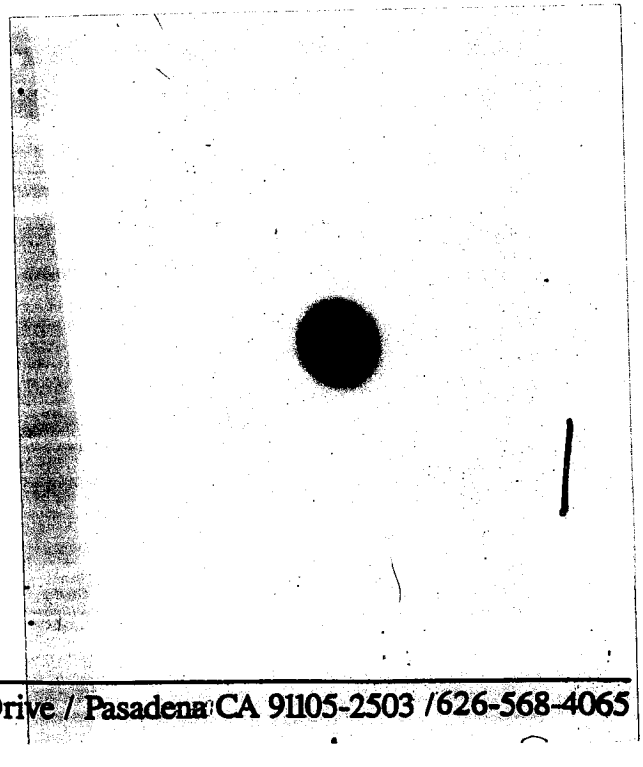
Longest diameter: 9 mm

Average: 8.75 mm

Spot Size Calculation

$$\text{Spot size in } \mu m = \frac{(\text{average spot size in mm}) \times 1000\ \mu m \times 0.4125}{\text{Magnification}} \quad 184$$

Note: 1.65/4 = 0.4125 (see the Hitachi Fax)



TEM CAMERA CONSTANT DETERMINATION

TEM H6oB

Measured and Calculated by RS Date May 2010

Camera Constant (mm A) = D (mm) X 1/2 X d (A)

where D (mm) is the diameter of a gold ring and

d (A) is the d-spacing in Angstroms for a particular reflection

CC (1*) = (24.1 mm) X 1/2 x 2.355 = 28.37

CC (2*) = (27.8 mm) X 1/2 x 2.039 = 28.34

CC (3*) = (39.3 mm) X 1/2 x 1.442 = 28.34

CC (4*) = (45.9 mm) X 1/2 x 1.230 = 28.23

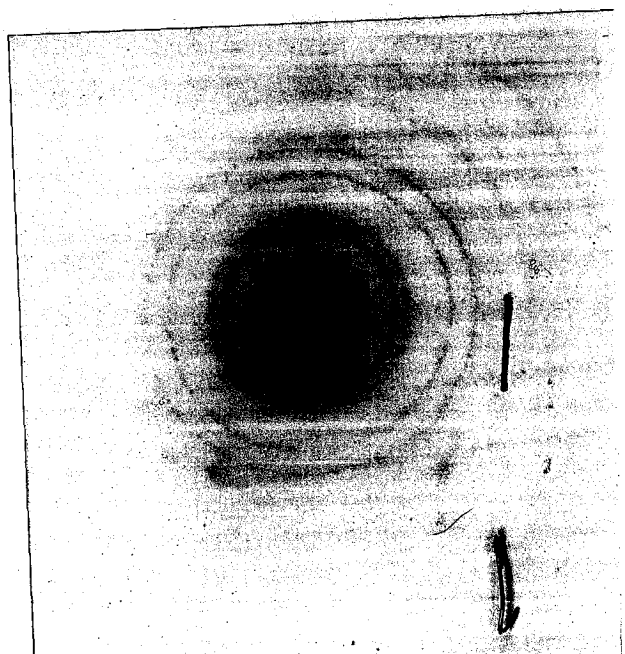
Average Camera Constant = 28.3

* 1 is the first largest diameter ring. 2 the second, etc.

Average Camera Constant = (CC<1> = ...= CC<n>) X 1/n

For gold:

d(A)	nk1
2.355	(111)
2.039	(200)
1.442	(220)
1.230	(311)
1.1774	(222)



08/07/01
csl

DATE: May 2010 A-600/B-600/C-600

WEEKLY CALIBRATION 3mo

MONTHLY CALIBRATION 3mth

AFTER SERVICE CALIBRATION___

BY: R

Measurement	Number of Spacing Flourescent Screen Magnification	Distance (mm)	Number of Spacing Film Magnification
	25,000X	12,000X	
1	3 5/16 = 19,260	5 1/12 =	9,180
2	3 5/16 = 19,260	5 1/2 - 1/12 =	9,270
3	3 1/16 = 19,080	5 1/2 - 1/12 =	9,270
4	3 1/16 = 19,080	5 1/12 =	9,180
5	3 5/16 = 19,260	5 1/12 =	9,180
6		5 1/12 =	9,180
7	ave 19,200		
8		ave	9,200
9			
10			
	AVERAGE:		

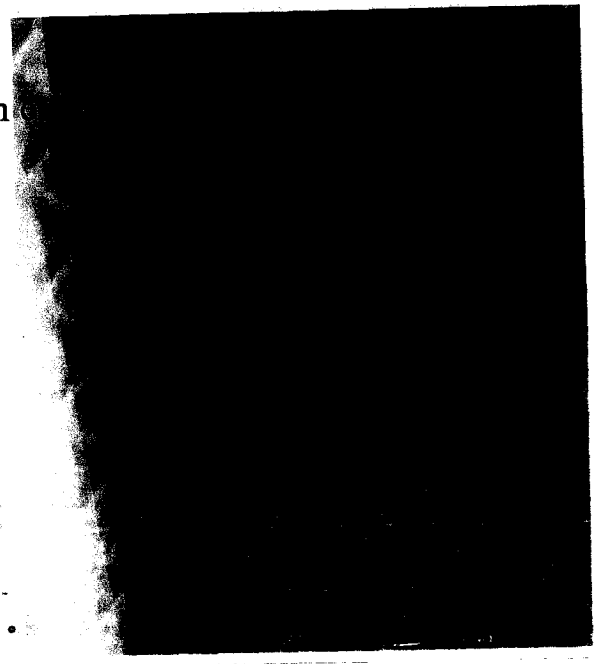
OPERATING VOLTAGE 100 KV

54, 864 lines/inch or 2,160 lines/mm or 0.463µm/line

28, 800 lines/inch or 1,134 lines/mm or 0.882µm/line

15, 240 lines/inch or 600 lines/mm or 1.67µm/line

16.94 µm for one bar and one opening for Ni screen on



EM CALIBRATION 2
992)

K= [Cn/C(Si)] / [In/I(Si)]
C(Si)= 18.74

n	Cn	RUN 1 I(Si)= 22860 In	Kn	RUN 2 I(Si)= 12101 In	Kn	RUN 3 I(Si)= 15953 In	Kn	RUN 4 I(Si)= 16554 In	Kn	RUN 5 I(Si)= 16203 In	Kn	RUN 6 I(Si)= 7464 In	Kn
Na	1.81	1694	1.3034	1095	1.0674	986	1.5627	1133	1.4112	1004	1.5587	395	1.8251
Mg	7.57	6992	1.3207	3738	1.3077	4447	1.4491	4902	1.3641	4714	1.3885	1983	1.5205
Al	6.54	7768	1.027	4152	1.0171	5455	1.0206	5761	1.0028	5708	0.9906	2576	1.0112
Si	18.74	22860	1	12101	1	15953	1	16554	1	16203	1	7464	1
K	0.97	1453	0.8144	827	0.7574	1311	0.6299	1333	0.6428	1195	0.7018	584	0.6615
Ca	8.26	6570	1.5336	3406	1.566	5845	1.203	5222	1.3973	4998	1.4289	2852	1.1535
Ti	3.02	2235	1.6483	1170	1.6668	1821	1.4118	1867	1.4289	1753	1.4895	928	1.2962
Mn	0.14	10	17.078	22	4.1092	12	9.9316	29	4.2645	2	60.523	22	2.5346
Fe	9.51	5898	1.9669	2935	2.0923	4934	1.6408	4856	1.73	4473	1.8383	2351	1.6111
O	43.83			7849	3.6059	7051	5.2917	10526	3.6783	9433	4.0174	3333	5.2377

** NVLAP REQUIREMENTS **
1.0 < K(Na) wrt Si < 4.0
1.0 < K(Mg) & K(Fe) wrt Si < 2.0
1.0 < K(Al) & K(Ca) wrt Si < 1.75

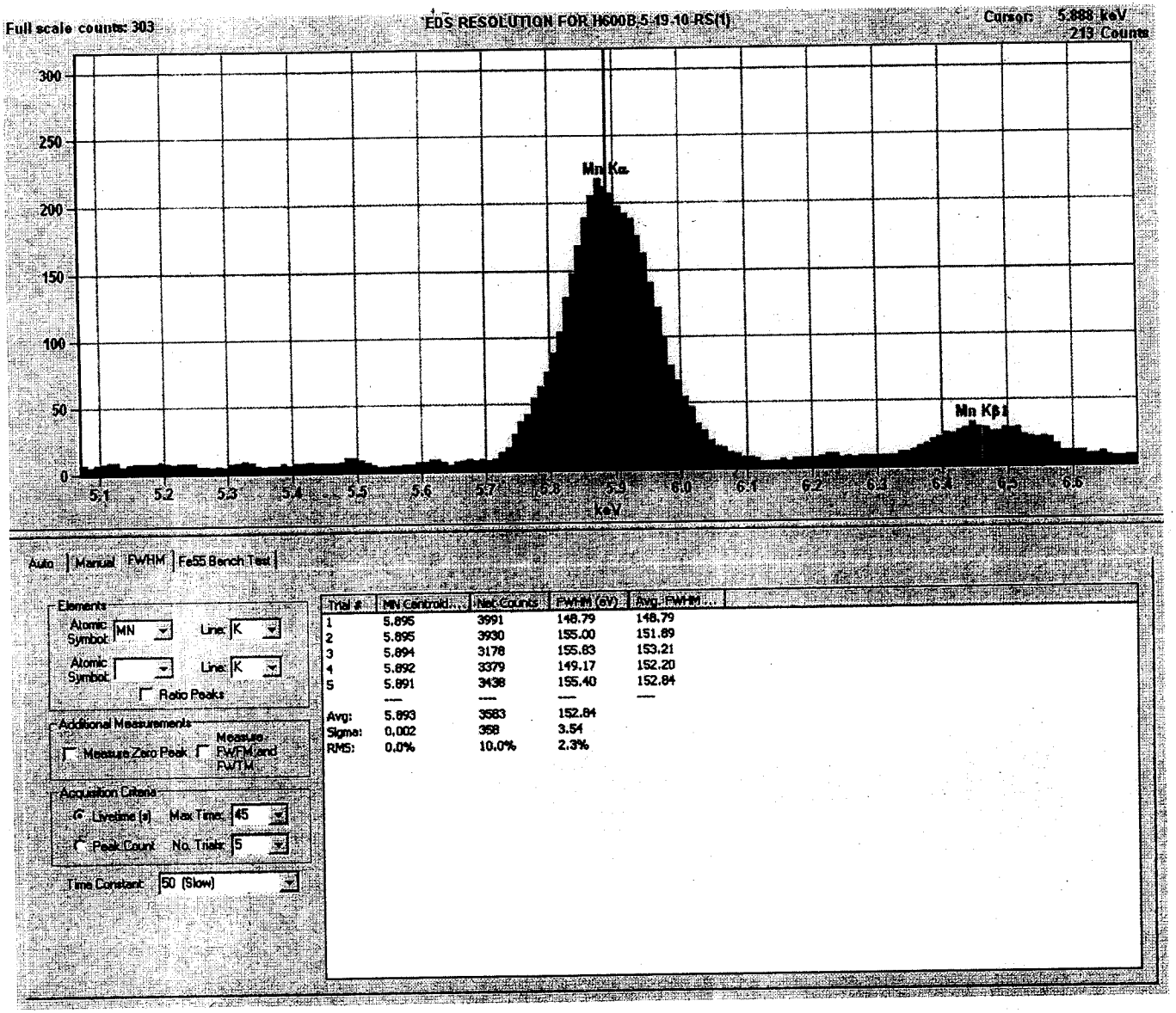
K(Mg)/K(Fe) < 1.5

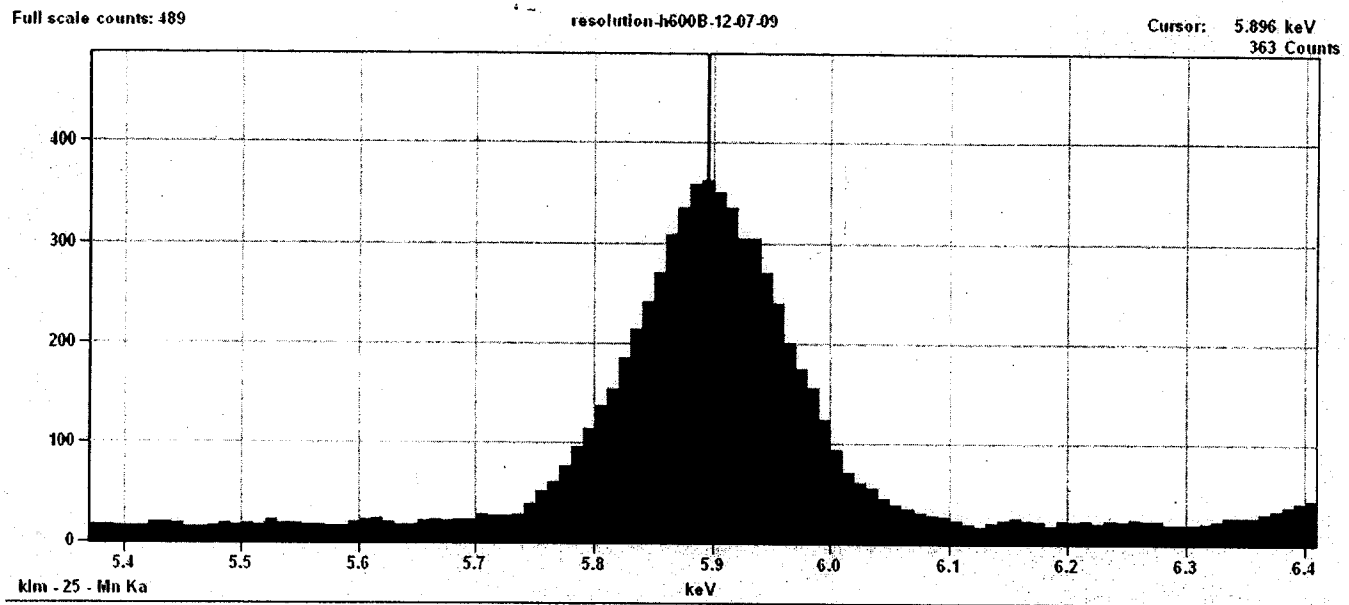
stdev <10% for Mg, Al, Si, Fe
stdev <20% for Na
wrt mean value of k-factor wrt Si

SCOPE B

RUN 7		RUN 8		RUN 9		RUN 10		RUN 11		RUN 12		RUN 13	
I(Si)=	12627	I(Si)=	4491	I(Si)=	15830	I(Si)=	14684	I(Si)=	25368	I(Si)=	25374	I(Si)=	4628
In	Kn	In	Kn	In	Kn	In	Kn	In	Kn	In	Kn	In	Kn
849	1.4365			950	1.6094	982	1.4442	1543	1.5879	1542	1.5893		
3523	1.4478	1332	1.362	4331	1.4765	4325	1.3715	7480	1.37	7479	1.3705	1213	1.5412
4458	0.9885	1569	0.9989	5717	0.9663	5043	1.0162	9260	0.9561	9260	0.9563	1556	1.038
12627	1	4491	1	15830	1	14684	1	25368	1	25374	1	4628	1
1099	0.5947	415	0.5601	1505	0.5444	1185	0.6414	2315	0.5672	2318	0.5666	363	0.6599
4553	1.2224	1818	1.0888	6257	1.1151	4602	1.4064	9813	1.1394	9832	1.1375	1754	1.163
1480	1.3749	563	1.2855	1994	1.2794	1703	1.3895	3188	1.2823	3196	1.2794	510	1.4624
4	23.583	13	2.5808	7	16.894			25	7.5806			6	5.7624
3889	1.6477	1422	1.6027	5899	1.3618	4371	1.7048	8840	1.4563	8884	1.4494	1497	1.5689
6102	4.8398	1894	5.5458	5950	6.2225	9471	3.6262	35609	1.6662	13315	4.4571	2045	5.293

SCOPE B


Full scale counts: 303
EDS RESOLUTION FOR H600B 5-19-10 RS(1)
Cursor: 5.888 keV
213 Counts
300
250
200
150
100
50
0
Mn Kα
Mn Kβ1
5.1
5.2
5.3
5.4
5.5
5.6
5.7
5.8
5.9
6.0
6.1
6.2
6.3
6.4
6.5
6.6
keV
Auto
Manual
FWHM
Fe55 Bench Test
Elements
Atomic Symbol: MN
Line: K
Atomic Symbol:
Line: K
Ratio Peaks
Additional Measurements
Measure Zero Peak
Measure FWFM and FWTM
Acquisition Criteria
Livetime [s]
Max Time: 45
Peak Count
No. Trials: 5
Time Constant: 50 (Slow)
Trial #
MN centroid...
Net Counts
FWHM (eV)
Avg. FWHM...
1 5.895 3991 148.79 148.79
2 5.895 3930 155.00 151.89
3 5.894 3178 155.83 153.21
4 5.892 3379 149.17 152.20
5 5.891 3438 155.40 152.84
--- --- --- ---
Avg: 5.893 3583 152.84
Sigma: 0.002 358 3.54
RMS: 0.0% 10.0% 2.3%



Auto | Manual | FWHM | Fe55 Bench Test

Elements

Atomic Symbol: Mn Line: K

Atomic Symbol: Line: K

Ratio Peaks

Additional Measurements

Measure Zero Peak Measure FWFM and FWTM

Acquisition Criteria

Livetime (s) Max Time: 50

Peak Count No. Trials: 5

Time Constant: 50 (Slow)

Trial #	Mn Centroid ...	Net Counts	FWHM (eV)	Avg. FWHM ...
1	5.896	1277	126.16	126.16
2	5.900	5295	151.73	138.95
3	5.897	6460	146.02	141.30
4	5.898	5560	146.26	142.54
5	5.899	5291	133.62	140.76
	---	---	---	---
Avg:	5.898	4776	140.76	
Sigma:	0.001	2014	10.52	
RMS:	0.0%	42.2%	7.5%	

137866

Laboratory Submittal Form

Date:	Time:	Relinquished by:	
Client:	Northgate	Date of Shipment:	
Address:	1100 Quail Street, Suite 102	Shipped from:	Carrier:
	Newport Beach, CA 92660	Client P.O. No:	2027.01
Telephone:	949-260-9293	Client Project ID:	COC# 02027.01.2128
Contact:			

Results via: ☐ Fax No: ☐ Email address: ☐ Verbal

(Complete written reports will follow all analyses, in addition to any prior verbal, fax, or email results)

Turnaround Time:		Sample Preservatives:	
Number of Samples:	2	Sampler's Name:	
Date & Time of Sample Collection:		Holding Times:	Signature:

Type: ☐ Water ☐ Waste Water ☐ Soil ☐ Filter ☐ Impinger ☐ Sorbent Tube ☐ Other

EMS Only	Client Sample No.	Description/Location	Analysis	Volume/ Weight
137866-5.3-3B	SSAN5-03-0.33BPC		Elutriator	
530 2	SSAN5-03-0.00BPC			
3				
4				
5				
6				
7		SEE ATTACHMENT		
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				

For EMS Only			
Laboratory Number:	137866	Received by:	Time: 9:50
Date of Package Delivery:	5/20/2010	Shipping Bill Retained?	YES
Condition of Package on Receipt:	OK	Condition of Custody Seal:	YES
Number of Samples:	2	Chain of Custody Signature:	
Disposition of Samples:	EMS LABS	Misc. Info:	SF 7/06

137866revised

northgate
environmental management, inc.

1100 Quail Street, Suite 102
Newport Beach, CA 92660 (949) 260-9293

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

COC # 02027.01.2128 Revised 2010-5-25

Total # of Samples: 2 Event Complete?

Required Ship to Lab:		Required Project Information:		Required Invoice Information:	
Lab Name:	EMS Laboratories, Inc.	Site ID #:	TRONOX LLC. HENDERSON	Send Invoice to:	
Address:	117 W Bellevue Dr	Project #	2027.01	Address:	PO Box 55
	Pasadena, CA 91105	Site Address	560 W Lake Mead Drive	City/State:	Henderson, NV 89009 Phone #: (949) 260-9293
Lab PM:	Tony Kolk	City	Henderson State, Zip NV, 89015	PO #	
Phone/Fax:	626-568-4065	Site PM Name	Derrick Willis	Send EDD to	Frank.Hagar@ngem.com
Lab PM email	akolk@emslabs.com	Phone/Fax:	(949)375-7004	CC Hardcopy report to	PDF Electronic Version Only -- FTP Upload
Applicable Lab Quote #:		Site PM Email:	derrick.willis@ngem.com	CC Hardcopy report to	

	Regular		Rush	X	Mark One

ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	Filtered	UNPRES	PnB-Asbestos
	SSAN5-03-0.33BPC	SSAN5-03	SO	C	N	05/17/2010	09:45	3	Hold	H			
	SSAN5-03-0.00BPC	SSAN5-03	SO	C	N	05/17/2010	09:45	3		X			

Additional Comments/Special Instructions:

Modification by Joni Fisher NGEM; modifications shown in bold font

Sample Receipt Conditions			
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Temp in OC	Samples on Ice?	Sample intact?	Trip Blank?

Company:

Tracking #:

PRINT Name of SAMPLER: Francisco Barron

SIGNATURE of SAMPLER: DATE Signed: Time:

northgate
environmental management, inc.

1100 Quail Street, Suite 102
Newport Beach, CA 92660 (949) 260-9293

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

137866

Page: 1 of 1
Cooler # of

COC # 02027.01.2128

Total # of Samples: 2 Event Complete?

Required Ship to Lab:		Required Project Information:		Required Invoice Information:	
Lab Name:	EMS Laboratories, Inc.	Site ID #:	TRONOX LLC. HENDERSON	Send Invoice to:	
Address:	117 W Bellevue Dr	Project #	2027.01	Address:	PO Box 55
	Pasadena, CA 91105	Site Address	560 W Lake Mead Drive	City/State.	Henderson, NV 89009
Lab PM:	Tony Kolk	City	Henderson	State, Zip	NV, 89015
Phone/Fax:	626-568-4065	Site PM Name	Derrick Willis	PO #	
Lab PM email	akolk@emslabs.com	Phone/Fax:	(949)375-7004	Send EDD to	Frank.Hagar@ngem.com
Applicable Lab Quote #:		Site PM Email:	derrick.willis@ngem.com	CC Hardcopy report to	PDF Electronic Version Only – FTP Upload
				CC Hardcopy report to	

										Analysis Requested		Regular			Rush	X	Mark One
ITEM #	SAMPLE ID Samples IDs MUST BE UNIQUE	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP	SAMPLE TYPE	SAMPLE DATE	SAMPLE TIME	#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative	Filtered						
	SSAN5-03-0.33BPC	SSAN5-03	SO	C	N	05/17/2010	09:45	3		UNPRES	N						
	SSAN5-03-0.00BPC	SSAN5-03	SO	C	N	05/17/2010	09:45	3		PhB-Asbestos		X	X				

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	05/17/10	13:48		5/17/10	13:48
	5/17	13:48	EMSLabs	5/20/10	9:50

Sample Receipt Conditions

Temp in OC	Samples on Ice?	Sample intact?	Trip Blank?
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y (N)	(Y) N	Y (N)
	Y/N	Y/N	Y/N

SHIPPED BY: SAMPLER NAME AND SIGNATURE

Company:

Tracking #:

PRINT Name of SAMPLER: Francisco Barron

SIGNATURE of SAMPLER:

DATE Signed 05/17/10

Time: 13:48

SAMPLE LOG-IN SHEET

Lab Name EMS Labs		Page 1 of 1	
Received By (Print name) Meaghan Tuong		Log in Date 5-20-10	
Received By (Signature)			
	Sample Delivery Group No. 5-20-10		

Remarks	EPA SAMPLE #	Corresponding Sample Tag#	Corresponding Assigned Tag#	Remarks Condition of Sample, Shipment etc.
	137866	SSANS-03-0-33BPC	137866-5-3-33	Good
1. Custody Seal(s) Present/ Absent Intact/Broken	137866	SSANS-03-000BPC	137866-5-3-0	Good
2. Custody Seal Nos 580205, 580204				
3. Chain of Cutody Records Present/ Absent				
4. Traffic Reports or Packing List Present/ Absent				
5. Air Bill Air Bill Sticker Present/ Absent				
6. Air Bill No. 7935599 7522				
7. Sample Tags Present/ Absent				
Sample Tag Numbers Listed/Not Listed				
8. Sample Condition Intact/Broken/Leaking Chain of Custody				
9. Does information on custody records, traffic reports and sample tags agree? yes/no				
10. Date Received by Lab 5-20-10				
11. Time Received 9:56				
Sample Transfer				
Fraction / Fraction				
Area / Area				
By / By				
On / On				
Contract Client and Attach Records of Resolution				
Received By / Logbook No.				
Date / Logbook Page No.				

FORM DC-1