

MEMORANDUM

To: Shannon Harbour (NDEP)

From: Ranajit Sahu (BEC)

cc: Brian Rakvica (NDEP)
Jim Najima (NDEP)
Teri Copeland
Paul Black (Neptune and Co.)

Date: January 9, 2008

Subject: Asbestos Data Review for 2007 Tronox Parcels A/B Investigation, BMI Industrial Complex, Clark County, Nevada

Results of the initial Phase 2 soil investigation performed for the Tronox Parcels “A” and “B” (portions of APN Nos. 178-01-401-001, 178-12-101-002, 178-12-201-006, and 178-12-601-005) indicated the presence of both chrysotile and amphibole long (protocol) asbestos fibers. The asbestos analytical results from the initial round of sampling at the Site are presented below.

Sample ID	Long Protocol Asbestos Fibers	Mean Concentration	95% UCL Concentration	Analytical Sensitivity	Excavated?
Initial Sampling Event (Pre-Remedation)					
<u>Amphibole</u>					
TSB-AJ-01	0	< 2.998 E+6	< 1.106 E+7	2.998 E+6	
TSB-AJ-01-FD	0	< 2.961 E+6	< 1.093 E+7	2.961 E+6	
TSB-AJ-02	0	< 2.901 E+6	< 1.071 E+7	2.901 E+6	
TSB-AJ-03	1	2.957 E+6	1.647 E+7	2.901 E+6	Yes
TSB-AR-01	0	< 2.991 E+6	< 1.104 E+7	2.991 E+6	
TSB-AR-02	0	< 2.976 E+6	< 1.098 E+7	2.976 E+6	
TSB-AR-03	0	< 2.998 E+6	< 1.106 E+7	2.998 E+6	
TSB-AR-04	0	< 2.985 E+6	< 1.101 E+7	2.985 E+6	
TSB-AR-05	0	< 2.976 E+6	< 1.098 E+7	2.976 E+6	
TSB-AR-06	1	2.992 E+6	1.667 E+7	2.992 E+6	Yes
TSB-AR-07	0	< 2.976 E+6	< 1.098 E+7	2.976 E+6	
TSB-AR-08	4	1.188 E+7	1.655 E+7	2.976 E+6	Yes
TSB-AR-09	1	2.991 E+6	1.666 E+7	2.991 E+6	Yes
TSB-AR-10	1	2.975 E+6	1.657 E+7	2.991 E+6	Yes
TSB-AR-11	0	< 2.975 E+6	< 1.098 E+7	2.975 E+6	Yes
TSB-AR-12	1	2.998 E+6	1.670 E+7	2.998 E+6	Yes
TSB-AR-13	1	2.986 E+6	1.663 E+7	2.998 E+6	Yes
TSB-AR-14	2	5.920 E+6	2.137 E+7	2.986 E+6	Yes
TSB-BJ-01	0	< 3.205 E+6	< 1.183 E+7	2.960 E+6	Yes
TSB-BJ-02	0	< 2.959 E+6	< 1.092 E+7	3.205 E+6	Yes

Sample ID	Long Protocol Asbestos Fibers	Mean Concentration	95% UCL Concentration	Analytical Sensitivity	Excavated?
Initial Sampling Event (Pre-Remedation)					
TSB-BJ-02 FD	1	2.988 E+6	1.664 E+7	2.959 E+6	Yes
TSB-BJ-03	0	< 2.963 E+6	< 1.093 E+7	2.988 E+6	
TSB-BJ-04	0	< 2.986 E+6	< 1.102 E+7	2.963 E+6	
TSB-BJ-05	0	< 2.745 E+6	< 1.013 E+7	2.986 E+6	
TSB-BJ-06	0	< 2.978 E+6	< 1.099 E+7	2.745 E+6	
TSB-BR-01	0	< 2.762 E+6	< 1.019 E+7	2.978 E+6	
TSB-BR-02	0	< 2.991 E+6	< 1.104 E+7	2.762 E+6	
TSB-BR-03	0	< 2.988 E+6	< 1.103 E+7	2.991 E+6	
TSB-BR-04	0	< 2.958 E+6	< 1.092 E+7	2.988 E+6	
TSB-BR-05	1	2.991 E+6	1.666 E+7	2.958 E+6	Yes
TSB-BR-06	0	< 2.987 E+6	< 1.102 E+7	2.958 E+6	
Chrysotile					
TSB-AJ-01	0	< 2.998 E+6	< 1.106 E+7	2.998 E+6	
TSB-AJ-01-FD	0	< 2.961 E+6	< 1.093 E+7	2.961 E+6	
TSB-AJ-02	0	< 2.901 E+6	< 1.071 E+7	2.901 E+6	
TSB-AJ-03	2	5.913 E+6	2.135 E+7	2.901 E+6	Yes
TSB-AR-01	0	< 2.991 E+6	< 1.104 E+7	2.991 E+6	
TSB-AR-02	1	2.976 E+6	1.658 E+7	2.976 E+6	
TSB-AR-03	0	< 2.998 E+6	< 1.106 E+7	2.998 E+6	
TSB-AR-04	0	< 2.985 E+6	< 1.101 E+7	2.985 E+6	
TSB-AR-05	3	8.929 E+6	2.607 E+7	2.976 E+6	
TSB-AR-06	0	< 2.992 E+6	< 1.104 E+7	2.992 E+6	Yes
TSB-AR-07	0	< 2.976 E+6	< 1.098 E+7	2.976 E+6	
TSB-AR-08	6	1.783 E+7	2.145 E+7	2.976 E+6	Yes
TSB-AR-09	0	< 2.991 E+6	< 1.104 E+7	2.991 E+6	Yes
TSB-AR-10	0	< 2.975 E+6	< 1.098 E+7	2.975 E+6	Yes
TSB-AR-11	8	2.380 E+7	4.688 E+7	2.975 E+6	Yes
TSB-AR-12	0	< 2.998 E+6	< 1.106 E+7	2.998 E+6	Yes
TSB-AR-13	1	2.986 E+6	1.663 E+7	2.998 E+6	Yes
TSB-AR-14	2	5.920 E+6	2.137 E+7	2.960 E+6	Yes
TSB-BJ-01	19	6.090 E+7	9.512 E+7	2.960 E+6	Yes
TSB-BJ-02	5	1.480 E+7	3.447 E+7	2.959 E+6	Yes
TSB-BJ-02 FD	9	2.689 E+7	5.104 E+7	2.959 E+6	Yes
TSB-BJ-03	0	< 2.963 E+6	< 1.093 E+7	2.988 E+6	
TSB-BJ-04	0	< 2.986 E+6	< 1.102 E+7	2.963 E+6	
TSB-BJ-05	3	8.236 E+6	2.405 E+7	2.745 E+6	
TSB-BJ-06	0	< 2.978 E+6	< 1.099 E+7	2.745 E+6	
TSB-BR-01	0	< 2.762 E+6	< 1.019 E+7	2.978 E+6	
TSB-BR-02	0	< 2.991 E+6	< 1.104 E+7	2.762 E+6	
TSB-BR-03	0	< 2.988 E+6	< 1.103 E+7	2.991 E+6	
TSB-BR-04	2	5.917 E+6	2.136 E+7	2.988 E+6	
TSB-BR-05	3	8.974 E+6	2.621 E+7	2.958 E+6	Yes
TSB-BR-06	0	< 2.987 E+6	< 1.102 E+7	2.958 E+6	

Following this initial round of sampling, surface soil (4 to 6 inches) from several areas of the property, around sample locations TSB-AJ-03, TSB-AR-06, TSB-AR-08, TSB-AR-09, TSB-AR-10, TSB-AR-12, TSB-AR-13, TSB-AR-14, TSB-BJ-02, TSB-BR-05 was scraped and removed (see Figure 1). Post-scape samples were collected and analyzed for asbestos from 10 locations within these areas. Based on this, the original surface sample data for asbestos from these locations were removed from further evaluation and the re-sampled asbestos results were used instead. The asbestos analytical results from this second round of sampling at the Site are presented below.

Sample ID	Long Protocol Asbestos Fibers	Mean Concentration	95% UCL Concentration	Analytical Sensitivity	Excavated?
First Post-Scape Sampling Event					
Amphibole					
TSB-AJ-03-PS	0	< 1.797 E+6	< 6.632 E+6	1.797 E+6	
TSB-AR-06-PS	0	< 2.979 E+6	< 1.099 E+7	2.979 E+6	
TSB-AR-08-PS	0	< 2.493 E+6	< 1.106 E+7	2.493 E+6	
TSB-AR-09-PS	0	< 2.980 E+6	< 1.100 E+7	2.849 E+6	
TSB-AR-10-PS	0	< 2.849 E+6	< 1.051 E+7	2.849 E+6	
TSB-AR-12-PS	0	< 2.991 E+6	< 1.104 E+7	2.849 E+6	
TSB-AR-13-PS	0	< 2.993 E+6	< 1.105 E+7	2.993 E+6	
TSB-AR-14-PS	0	< 2.921 E+6	< 1.078 E+7	2.921 E+6	
TSB-BJ-02-PS	0	< 2.998 E+6	< 1.106 E+7	2.998 E+6	
TSB-BR-05-PS	1	2.998 E+6	< 1.670 E+7	2.998 E+6	Yes
Chrysotile					
TSB-AJ-03-PS	0	< 1.797 E+6	< 6.632 E+6	1.797 E+6	
TSB-AR-06-PS	0	< 2.979 E+6	< 1.099 E+7	2.979 E+6	
TSB-AR-08-PS	0	< 2.493 E+6	< 1.106 E+7	2.493 E+6	
TSB-AR-09-PS	0	< 2.980 E+6	< 1.100 E+7	2.849 E+6	
TSB-AR-10-PS	0	< 2.849 E+6	< 1.051 E+7	2.849 E+6	
TSB-AR-12-PS	0	< 2.991 E+6	< 1.104 E+7	2.849 E+6	
TSB-AR-13-PS	0	< 2.993 E+6	< 1.105 E+7	2.993 E+6	
TSB-AR-14-PS	0	< 2.921 E+6	< 1.078 E+7	2.921 E+6	
TSB-BJ-02-PS	0	< 2.998 E+6	< 1.106 E+7	2.998 E+6	
TSB-BR-05-PS	0	< 2.998 E+6	< 1.106 E+7	2.998 E+6	Yes

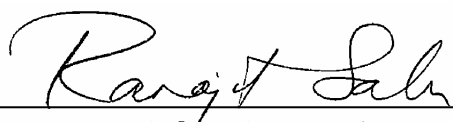
A single long amphibole asbestos fiber was detected in sample TSB-BR-05-PS during this second round of sampling. Therefore, further scraping around this location was performed. In addition, sample locations TSB-AR-11 and TSB-BJ-01 contained 8 and 19 long chrysotile asbestos fibers, respectively. Therefore, further scraping around these locations was also performed. Final samples were collected from locations TSB-BR-05, TSB-AR-11, and TSB-BJ-01 following the second and third scrapings. Figure 1 shows all areas of surface soil

that were scraped and removed. The asbestos analytical results from this final round of sampling at the Site are presented below.

Sample ID	Long Protocol Asbestos Fibers	Mean Concentration	95% UCL Concentration	Analytical Sensitivity	Excavated?
Second and Third Post-Scrape Sampling Event					
Amphibole					
TSB-BR-05-PS2	0	< 2.993 E+6	< 1.104 E+7	2.993 E+6	
TSB-AR-11-PS	0	< 2.991 E+6	< 1.104 E+7	2.991 E+6	
TSB-BJ-01-PS	0	< 2.243 E+6	< 8.277 E+6	2.243 E+6	
Chrysotile					
TSB-BR-05-PS2	0	< 2.993 E+6	< 1.104 E+7	2.993 E+6	
TSB-AR-11-PS	0	< 2.991 E+6	< 1.104 E+7	2.991 E+6	
TSB-BJ-01-PS	0	< 2.243 E+6	< 8.277 E+6	2.243 E+6	

All the asbestos laboratory reports, both pre- and post-scrape samples, are included in Attachment A. Asbestos risk calculations based on the final post-scrape asbestos analytical results are presented in Table 1. The results of the asbestos risk calculations indicate that exposures to asbestos in soil at the property should not result in adverse health effects to all future on-site receptors. Based on the results of these final sampling events, all asbestos impacted soil at the Site has been remediated.

I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state and local statutes, regulations and ordinances. I hereby certify that all laboratory analytical data was generated by a laboratory certified by the NDEP for each constituent and media presented herein.



Dr. Ranajit Sahu, C.E.M. (No. EM-1699, Exp. 10/07/2009)
BRC Project Manager

January 9, 2007

Date

FIGURES



- Asbestos Sample Location
- Remediated Areas*

February 2007 Aerial from AirPhotoUSA.

BEC / Tronox Parcels A/B Data Review
BMI Common Areas, Henderson, Nevada

FIGURE 1

ASBESTOS REMEDATION AREAS



*These areas have had a minimum of 4" of soil removed for remediation purposes.

Prepared by: MKJ	Date: 01/07/08	JOB No. 0069073 FILE: GIS/BEC/TRONOX/FIGURE_1.MXD
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TABLES

TABLE 1
ASBESTOS SCREENING-LEVEL RISK ASSESSMENT RESULTS
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA
(Page 1 of 1)

Baseline Risk Estimates (Based on Measured Asbestos Fibers-Post-Scrape)

Scenario	Estimated Airborne Chrysotile Concentrations ⁽¹⁾ (s/cm ³)	Estimated Airborne Amphibole Concentrations ⁽¹⁾ (s/cm ³)	Adjusted Chrysotile URF ⁽²⁾ (s/cm ³) ⁻¹	Adjusted Amphibole URF ⁽²⁾ (s/cm ³) ⁻¹	Estimated Chrysotile ⁽³⁾ Risk	Estimated Amphibole ⁽³⁾ Risk
LONG FIBERS						
Construction Worker-Best Estimate (No Dust Mit./1 Yr Exp.)	7.9 E-4	0.0 E+0	1.9 E-4	2.1 E-2	1 E-7	0 E+0
Construction Worker-Upper Bound (No Dust Mit./1 Yr Exp.)	1.4 E-3	2.6 E-4	1.9 E-4	2.1 E-2	3 E-7	5 E-6
Construction Worker-Best Estimate (with Dust Mit./0.5 Yr Exp.)	3.4 E-4	0.0 E+0	9.7 E-5	1.1 E-2	3 E-8	0 E+0
Construction Worker-Upper Bound (with Dust Mit./0.5 Yr Exp.)	6.0 E-4	1.1 E-4	9.7 E-5	1.1 E-2	6 E-8	1 E-6
Future Maintenance Worker-Best Estimate	6.3 E-7	0.0 E+0	4.2 E-3	4.6 E-1	3 E-9	0 E+0
Future Maintenance Worker-Upper Bound	1.1 E-6	2.1 E-7	4.2 E-3	4.6 E-1	5 E-9	1 E-7
Current/Future On-Site Trespasser-Best Estimate	6.3 E-7	0.0 E+0	1.1 E-4	1.2 E-2	7 E-11	0 E+0
Current/Future On-Site Trespasser-Upper Bound	1.1 E-6	2.1 E-7	1.1 E-4	1.2 E-2	1 E-10	3 E-9

Notes:

⁽¹⁾ Calculated based on estimated dust estimates and asbestos fiber concentrations.

⁽²⁾ Calculated using equation information from Table 8-2 of 2003 Methodology (Berman and Crump 2003).

⁽³⁾ Estimated airborne concentrations × URF.

Best Estimate - Based on the pooled analytical sensitivity multiplied by the number of asbestos fibers found.

Upper Bound - Based on the 95% UCL of the Poisson distribution.

ATTACHMENT A

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date 11/13/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination
of Asbestos in Soils and Bulk Material Method
(dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started
Date Completed
Analyst

10/15/2007
11/13/2007
Baojia Ke

Lab Sample#
Field Subsample#
Field Preparation Technique
Sample Drying
Sample Splitting
Other

040721499-0024
TSB-AJ-01
N/A
Yes
No
N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)
Magnification
Grid Opening Area (sq mm)
Number of Grid Openings Scanned
Asbestos Structure Size and Type Categories of Interest

385 (IST)
19,000 X
0.013
65
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category

>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)
<3/8" Not Used (g)
<3/8" In Tumbler(g)

9.98
368.7
51.99

Air Flow Rate Through ME opening of Dust Generator (ml/min)
Air Flow Rate Through IST opening of Dust Generator (ml/min)
Estimated Total Air Flow Rate Through Elutriator (ml/min)

1430
72
1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)

0.000152

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	< 2.998E+06	< 1.106E+07
Long Chrysotile Protocol Structures	< 2.998E+06	< 1.106E+07
Total Amphibole Protocol Structures	< 2.998E+06	< 1.106E+07
Long Amphibole Protocol Structures	< 2.998E+06	< 1.106E+07
Long Asbestos Protocol Structures	< 2.998E+06	< 1.106E+07
Total Asbestos Protocol Structures	< 2.998E+06	< 1.106E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.998E+06	1.106E+07

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107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date 11/14/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started 10/16/2007
Date Completed 11/13/2007
Analyst Baojia Ke

Lab Sample# 040721499-0025
Field Subsample# TSB-AJ-01-FD
Field Preparation Technique N/A
Sample Drying Yes
Sample Splitting No
Other N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm) 385 (IST)
Magnification 19,000 X
Grid Opening Area (sq mm) 0.013
Number of Grid Openings Scanned 73
Asbestos Structure Size and Type Categories of Interest
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category
>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g) 32.35
<3/8" Not Used (g) 355.18
<3/8" In Tumbler(g) 50.8

Air Flow Rate Through ME opening of Dust Generator (ml/min) 1430
Air Flow Rate Through IST opening of Dust Generator (ml/min) 72
Estimated Total Air Flow Rate Through Elutriator (ml/min) 1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g) 0.000137

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	< 2.961E+06	< 1.093E+07
Long Chrysotile Protocol Structures	< 2.961E+06	< 1.093E+07
Total Amphibole Protocol Structures	< 2.961E+06	< 1.093E+07
Long Amphibole Protocol Structures	< 2.961E+06	< 1.093E+07
Long Asbestos Protocol Structures	< 2.961E+06	< 1.093E+07
Total Asbestos Protocol Structures	< 2.961E+06	< 1.093E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.961E+06	1.093E+07

EMSL Analytical Inc.
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EMSL Order ID 040721449

Date Started 10/17/2007
Date Completed 11/14/2007
Analyst Baojia Ke

Lab Sample# 040721499-0026
Field Subsample# TSB-AJ-02
Field Preparation Technique N/A
Sample Drying Yes
Sample Splitting No
Other N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm) 385 (IST)
Magnification 19,000 X
Grid Opening Area (sq mm) 0.013
Number of Grid Openings Scanned 88
Asbestos Structure Size and Type Categories of Interest Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category >5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g) 32.35
<3/8" Not Used (g) 355.18
<3/8" In Tumbler(g) 50.8

Air Flow Rate Through ME opening of Dust Generator (ml/min) 1430
Air Flow Rate Through IST opening of Dust Generator (ml/min) 72
Estimated Total Air Flow Rate Through Elutriator (ml/min) 1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g) 0.000116

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	2	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	2	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	5.802E+06	2.095E+07
Long Chrysotile Protocol Structures	< 2.901E+06	< 1.071E+07
Total Amphibole Protocol Structures	< 2.901E+06	< 1.071E+07
Long Amphibole Protocol Structures	< 2.901E+06	< 1.071E+07
Long Asbestos Protocol Structures	< 2.901E+06	< 1.071E+07
Total Asbestos Protocol Structures	5.802E+06	2.095E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.901E+06	1.071E+07

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EMSL Order ID 040721449

Date Started
Date Completed
Analyst

9/29/2007
11/1/2007
Baojia Ke

Lab Sample#
Field Subsample#
Field Preparation Technique
Sample Drying
Sample Splitting
Other

040721499-0014
TSB-AJ-03
N/A
Yes
No
N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)
Magnification
Grid Opening Area (sq mm)
Number of Grid Openings Scanned
Asbestos Structure Size and Type Categories of Interest

385 (IST)
19,000 X
0.013
63
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category

>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)
<3/8" Not Used (g)
<3/8" In Tumbler(g)

16.86
387.51
48.37

Air Flow Rate Through ME opening of Dust Generator (ml/min)
Air Flow Rate Through IST opening of Dust Generator (ml/min)
Estimated Total Air Flow Rate Through Elutriator (ml/min)

1430
72
1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)

0.000159

Asbestos Analysis Results

No.of Chrysotile Asbestos Structures
No.of Amphibole Asbestos Structures
Amphibole Mineral Type(s)

Amosite

Total Asbestos Structures

Total

3
2
5

Protocol Structures

Long(>10um)

2
1
3

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

Total Chrysotile Protocol Structures
Long Chrysotile Protocol Structures
Total Amphibole Protocol Structures
Long Amphibole Protocol Structures
Long Asbestos Protocol Structures
Total Asbestos Protocol Structures

Estimated Analytical Sensitivity: (s/gPM10)

Concentrations

Mean

95%UCL

8.870E+06
5.913E+06
5.913E+06
2.957E+06
8.870E+06
1.478E+07
2.957E+06

2.590E+07
2.135E+07
2.135E+07
1.647E+07
3.444E+07
2.590E+07
1.091E+07

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107 Haddon Avenue
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Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date 12/1/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT 006 90 73.00
Methods Draft Modified Elutriator Method for the Determination
of Asbestos in Soils and Bulk Material Method
(dated May 23, 2000, Revision 1)
EMSL Order ID 040729231

Date Started
Date Completed
Analyst

11/29/2007
12/1/2007
Baojia Ke

Lab Sample#
Field Subsample#
Field Preparation Technique
Sample Drying
Sample Splitting
Other

040729231-0003
TSB-AJ-03-PS
N/A
Yes
No
N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)
Magnification
Grid Opening Area (sq mm)
Number of Grid Openings Scanned
Asbestos Structure Size and Type Categories of Interest

385 (IST)
19,000 X
0.013
77
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category

>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)
<3/8" Not Used (g)
<3/8" In Tumbler(g)

84.23
1379.84
49.6

Air Flow Rate Through ME opening of Dust Generator (ml/min)
Air Flow Rate Through IST opening of Dust Generator (ml/min)
Estimated Total Air Flow Rate Through Elutriator (ml/min)

1430
72
1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)

0.000214

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	< 1.797E+06	< 6.632E+06
Long Chrysotile Protocol Structures	< 1.797E+06	< 6.632E+06
Total Amphibole Protocol Structures	< 1.797E+06	< 6.632E+06
Long Amphibole Protocol Structures	< 1.797E+06	< 6.632E+06
Long Asbestos Protocol Structures	< 1.797E+06	< 6.632E+06
Total Asbestos Protocol Structures	< 1.797E+06	< 6.632E+06
Estimated Analytical Sensitivity: (s/gPM10)	1.797E+06	6.632E+06

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Report Date 11/16/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started 10/25/2007
Date Completed 11/15/2007
Analyst Baojia Ke

Lab Sample# 040721499-0030
Field Subsample# TSB-AR-01
Field Preparation Technique N/A
Sample Drying Yes
Sample Splitting No
Other N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm) 385 (IST)
Magnification 19,000 X
Grid Opening Area (sq mm) 0.013
Number of Grid Openings Scanned 60
Asbestos Structure Size and Type Categories of Interest Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category >5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g) 17.9
<3/8" Not Used (g) 361.31
<3/8" In Tumbler(g) 43.76

Air Flow Rate Through ME opening of Dust Generator (ml/min) 1430
Air Flow Rate Through IST opening of Dust Generator (ml/min) 72
Estimated Total Air Flow Rate Through Elutriator (ml/min) 1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g) 0.000165

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	1	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	1	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	2.991E+06	1.666E+07
Long Chrysotile Protocol Structures	< 2.991E+06	< 1.104E+07
Total Amphibole Protocol Structures	< 2.991E+06	< 1.104E+07
Long Amphibole Protocol Structures	< 2.991E+06	< 1.104E+07
Long Asbestos Protocol Structures	< 2.991E+06	< 1.104E+07
Total Asbestos Protocol Structures	2.991E+06	1.666E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.991E+06	1.104E+07

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Report Date 11/15/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started 10/19/2007
Date Completed 11/14/2007
Analyst Baojia Ke

Lab Sample# 040721499-0028
Field Subsample# TSB-AR-02
Field Preparation Technique N/A
Sample Drying Yes
Sample Splitting No
Other N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm) 385 (IST)
Magnification 19,000 X
Grid Opening Area (sq mm) 0.013
Number of Grid Openings Scanned 107
Asbestos Structure Size and Type Categories of Interest
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category
>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g) 35.41
<3/8" Not Used (g) 360.7
<3/8" In Tumbler(g) 46.79

Air Flow Rate Through ME opening of Dust Generator (ml/min) 1430
Air Flow Rate Through IST opening of Dust Generator (ml/min) 72
Estimated Total Air Flow Rate Through Elutriator (ml/min) 1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g) 0.000093

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	1	1
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	1	1

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	2.976E+06	1.658E+07
Long Chrysotile Protocol Structures	2.976E+06	1.658E+07
Total Amphibole Protocol Structures	< 2.976E+06	< 1.098E+07
Long Amphibole Protocol Structures	< 2.976E+06	< 1.098E+07
Long Asbestos Protocol Structures	2.976E+06	1.658E+07
Total Asbestos Protocol Structures	2.976E+06	1.658E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.976E+06	1.098E+07

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Report Date 11/15/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started 10/18/2007
Date Completed 11/14/2007
Analyst Baojia Ke

Lab Sample# 040721499-0027
Field Subsample# TSB-AR-03
Field Preparation Technique N/A
Sample Drying Yes
Sample Splitting No
Other N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm) 385 (IST)
Magnification 19,000 X
Grid Opening Area (sq mm) 0.013
Number of Grid Openings Scanned 76
Asbestos Structure Size and Type Categories of Interest
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category
>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g) 24.76
<3/8" Not Used (g) 384.44
<3/8" In Tumbler(g) 54.99

Air Flow Rate Through ME opening of Dust Generator (ml/min) 1430
Air Flow Rate Through IST opening of Dust Generator (ml/min) 72
Estimated Total Air Flow Rate Through Elutriator (ml/min) 1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g) 0.000130

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	< 2.998E+06	< 1.106E+07
Long Chrysotile Protocol Structures	< 2.998E+06	< 1.106E+07
Total Amphibole Protocol Structures	< 2.998E+06	< 1.106E+07
Long Amphibole Protocol Structures	< 2.998E+06	< 1.106E+07
Long Asbestos Protocol Structures	< 2.998E+06	< 1.106E+07
Total Asbestos Protocol Structures	< 2.998E+06	< 1.106E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.998E+06	1.106E+07

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Report Date 11/16/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination
of Asbestos in Soils and Bulk Material Method
(dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started 10/22/2007
Date Completed 11/15/2007
Analyst Baojia Ke

Lab Sample# 040721499-0029
Field Subsample# TSB-AR-04
Field Preparation Technique N/A
Sample Drying Yes
Sample Splitting No
Other N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm) 385 (IST)
Magnification 19,000 X
Grid Opening Area (sq mm) 0.013
Number of Grid Openings Scanned 82
Asbestos Structure Size and Type Categories of Interest
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category
>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g) 77.98
<3/8" Not Used (g) 306.24
<3/8" In Tumbler(g) 43.65

Air Flow Rate Through ME opening of Dust Generator (ml/min) 1430
Air Flow Rate Through IST opening of Dust Generator (ml/min) 72
Estimated Total Air Flow Rate Through Elutriator (ml/min) 1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g) 0.000121

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	< 2.985E+06	< 1.101E+07
Long Chrysotile Protocol Structures	< 2.985E+06	< 1.101E+07
Total Amphibole Protocol Structures	< 2.985E+06	< 1.101E+07
Long Amphibole Protocol Structures	< 2.985E+06	< 1.101E+07
Long Asbestos Protocol Structures	< 2.985E+06	< 1.101E+07
Total Asbestos Protocol Structures	< 2.985E+06	< 1.101E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.985E+06	1.101E+07

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Report Date 11/16/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started 10/25/2007
Date Completed 11/16/2007
Analyst Baojia Ke

Lab Sample# 040721499-0031
Field Subsample# TSB-AR-05
Field Preparation Technique N/A
Sample Drying Yes
Sample Splitting No
Other N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm) 385 (IST)
Magnification 19,000 X
Grid Opening Area (sq mm) 0.013
Number of Grid Openings Scanned 50
Asbestos Structure Size and Type Categories of Interest
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category
>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g) 17.9
<3/8" Not Used (g) 361.31
<3/8" In Tumbler(g) 43.76

Air Flow Rate Through ME opening of Dust Generator (ml/min) 1430
Air Flow Rate Through IST opening of Dust Generator (ml/min) 72
Estimated Total Air Flow Rate Through Elutriator (ml/min) 1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g) 0.000199

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	4	3
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	4	3

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	1.191E+07	3.048E+07
Long Chrysotile Protocol Structures	8.929E+06	2.607E+07
Total Amphibole Protocol Structures	< 2.976E+06	< 1.098E+07
Long Amphibole Protocol Structures	< 2.976E+06	< 1.098E+07
Long Asbestos Protocol Structures	8.929E+06	2.607E+07
Total Asbestos Protocol Structures	1.191E+07	3.048E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.976E+06	1.098E+07

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Report Date 11/13/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started
Date Completed
Analyst

10/11/2007
11/12/2007
Baojia Ke

Lab Sample#
Field Subsample#
Field Preparation Technique
Sample Drying
Sample Splitting
Other

040721499-0022
TSB-AR-06
N/A
Yes
No
N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)
Magnification
Grid Opening Area (sq mm)
Number of Grid Openings Scanned
Asbestos Structure Size and Type Categories of Interest

385 (IST)
19,000 X
0.013
101
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category

>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)
<3/8" Not Used (g)
<3/8" In Tumbler(g)

17.12
374.04
49.04

Air Flow Rate Through ME opening of Dust Generator (ml/min)
Air Flow Rate Through IST opening of Dust Generator (ml/min)
Estimated Total Air Flow Rate Through Elutriator (ml/min)

1430
72
1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)

0.000098

Asbestos Analysis Results

No. of Chrysotile Asbestos Structures
No. of Amphibole Asbestos Structures
Amphibole Mineral Type(s)

Total

0
2
2

Protocol Structures

Long(>10um)

0
1
1

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

Total Chrysotile Protocol Structures
Long Chrysotile Protocol Structures
Total Amphibole Protocol Structures
Long Amphibole Protocol Structures
Long Asbestos Protocol Structures
Total Asbestos Protocol Structures

Concentrations

Mean

95%UCL

< 2.992E+06	< 1.104E+07
< 2.992E+06	< 1.104E+07
5.984E+06	2.160E+07
2.992E+06	1.667E+07
2.992E+06	1.667E+07
5.984E+06	2.160E+07
2.992E+06	1.104E+07

Estimated Analytical Sensitivity: (s/gPM10)

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Report Date 12/5/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT 006 90 73.00
Methods Draft Modified Elutriator Method for the Determination
of Asbestos in Soils and Bulk Material Method
(dated May 23, 2000, Revision 1)
EMSL Order ID 040729231

Date Started 12/3/2007
Date Completed 12/4/2007
Analyst Debbie Little

Lab Sample# 040729231-0010
Field Subsample# TSB-AR-06-PS
Field Preparation Technique N/A
Sample Drying Yes
Sample Splitting No
Other N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm) 385 (IST)
Magnification 19,000 X
Grid Opening Area (sq mm) 0.012
Number of Grid Openings Scanned 89
Asbestos Structure Size and Type Categories of Interest
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category >5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g) 103.16
<3/8" Not Used (g) 1109.47
<3/8" In Tumbler(g) 60.2

Air Flow Rate Through ME opening of Dust Generator (ml/min) 1430
Air Flow Rate Through IST opening of Dust Generator (ml/min) 72
Estimated Total Air Flow Rate Through Elutriator (ml/min) 1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g) 0.000121

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	< 2.979E+06	< 1.099E+07
Long Chrysotile Protocol Structures	< 2.979E+06	< 1.099E+07
Total Amphibole Protocol Structures	< 2.979E+06	< 1.099E+07
Long Amphibole Protocol Structures	< 2.979E+06	< 1.099E+07
Long Asbestos Protocol Structures	< 2.979E+06	< 1.099E+07
Total Asbestos Protocol Structures	< 2.979E+06	< 1.099E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.979E+06	1.099E+07

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Report Date 11/13/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started 10/12/2007
Date Completed 11/12/2007
Analyst Baojia Ke

Lab Sample# 040721499-0023
Field Subsample# TSB-AR-07
Field Preparation Technique N/A
Sample Drying Yes
Sample Splitting No
Other N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm) 385 (IST)
Magnification 19,000 X
Grid Opening Area (sq mm) 0.013
Number of Grid Openings Scanned 93
Asbestos Structure Size and Type Categories of Interest
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category
>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g) 35.14
<3/8" Not Used (g) 364.26
<3/8" In Tumbler(g) 59.9

Air Flow Rate Through ME opening of Dust Generator (ml/min) 1430
Air Flow Rate Through IST opening of Dust Generator (ml/min) 72
Estimated Total Air Flow Rate Through Elutriator (ml/min) 1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g) 0.000107

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	1	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	1	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	2.976E+06	1.658E+07
Long Chrysotile Protocol Structures	< 2.976E+06	< 1.098E+07
Total Amphibole Protocol Structures	< 2.976E+06	< 1.098E+07
Long Amphibole Protocol Structures	< 2.976E+06	< 1.098E+07
Long Asbestos Protocol Structures	< 2.976E+06	< 1.098E+07
Total Asbestos Protocol Structures	2.976E+06	1.658E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.976E+06	1.098E+07

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Report Date 11/7/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started
Date Completed
Analyst

9/27/2007
11/6/2007
Baojia Ke

Lab Sample#
Field Subsample#
Field Preparation Technique
Sample Drying
Sample Splitting
Other

040721499-0015
TSB-AR-08
N/A
Yes
No
N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)
Magnification
Grid Opening Area (sq mm)
Number of Grid Openings Scanned
Asbestos Structure Size and Type Categories of Interest

385 (IST)
19,000 X
0.013
89
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category

>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)
<3/8" Not Used (g)
<3/8" In Tumbler(g)

22.83
387.24
43.46

Air Flow Rate Through ME opening of Dust Generator (ml/min)
Air Flow Rate Through IST opening of Dust Generator (ml/min)
Estimated Total Air Flow Rate Through Elutriator (ml/min)

1430
72
1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)

0.000112

Asbestos Analysis Results

No. of Chrysotile Asbestos Structures
No. of Amphibole Asbestos Structures
Amphibole Mineral Type(s)

Amosite/Actinolite

Total Asbestos Structures

Total

11
4

15

Protocol Structures

Long(>10um)

6
4

10

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

Total Chrysotile Protocol Structures
Long Chrysotile Protocol Structures
Total Amphibole Protocol Structures
Long Amphibole Protocol Structures
Long Asbestos Protocol Structures
Total Asbestos Protocol Structures

Estimated Analytical Sensitivity: (s/gPM10)

Concentrations

Mean

95%UCL

3.268E+07
1.783E+07
1.188E+07
1.188E+07
2.971E+07
4.457E+07

2.603E+07
2.145E+07
2.145E+07
1.655E+07
3.461E+07
2.603E+07

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Report Date 12/1/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT 006 90 73.00
Methods Draft Modified Elutriator Method for the Determination
of Asbestos in Soils and Bulk Material Method
(dated May 23, 2000, Revision 1)
EMSL Order ID 040729231

Date Started
Date Completed
Analyst

11/30/2007
12/1/2007
Baojia Ke

Lab Sample#
Field Subsample#
Field Preparation Technique
Sample Drying
Sample Splitting
Other

040729231-0004
TSB-AR-08-PS
N/A
Yes
No
N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)
Magnification
Grid Opening Area (sq mm)
Number of Grid Openings Scanned
Asbestos Structure Size and Type Categories of Interest

385 (IST)
19,000 X
0.013
99
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category

>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)
<3/8" Not Used (g)
<3/8" In Tumbler(g)

160.59
1257.68
55.2

Air Flow Rate Through ME opening of Dust Generator (ml/min)
Air Flow Rate Through IST opening of Dust Generator (ml/min)
Estimated Total Air Flow Rate Through Elutriator (ml/min)

1430
72
1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)

0.000120

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	< 2.493E+06	< 9.199E+06
Long Chrysotile Protocol Structures	< 2.493E+06	< 9.199E+06
Total Amphibole Protocol Structures	< 2.493E+06	< 9.199E+06
Long Amphibole Protocol Structures	< 2.493E+06	< 9.199E+06
Long Asbestos Protocol Structures	< 2.493E+06	< 9.199E+06
Total Asbestos Protocol Structures	< 2.493E+06	< 9.199E+06
Estimated Analytical Sensitivity: (s/gPM10)	2.493E+06	9.199E+06

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Report Date 11/12/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started
Date Completed
Analyst

10/10/2007
11/11/2007
Baojia Ke

Lab Sample#
Field Subsample#
Field Preparation Technique
Sample Drying
Sample Splitting
Other

040721499-0021
TSB-AR-09
N/A
Yes
No
N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)
Magnification
Grid Opening Area (sq mm)
Number of Grid Openings Scanned
Asbestos Structure Size and Type Categories of Interest

385 (IST)
19,000 X
0.013
75
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category

>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)
<3/8" Not Used (g)
<3/8" In Tumbler(g)

12.55
358.15
50.48

Air Flow Rate Through ME opening of Dust Generator (ml/min)
Air Flow Rate Through IST opening of Dust Generator (ml/min)
Estimated Total Air Flow Rate Through Elutriator (ml/min)

1430
72
1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)

0.000132

Asbestos Analysis Results

No. of Chrysotile Asbestos Structures
No. of Amphibole Asbestos Structures
Amphibole Mineral Type(s)

Actinolite

Total Asbestos Structures

Total

0
1
1

Protocol Structures

Long(>10um)

0
1
1

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

Total Chrysotile Protocol Structures
Long Chrysotile Protocol Structures
Total Amphibole Protocol Structures
Long Amphibole Protocol Structures
Long Asbestos Protocol Structures
Total Asbestos Protocol Structures

Estimated Analytical Sensitivity: (s/gPM10)

Concentrations

Mean

95%UCL

< 2.991E+06	< 1.104E+07
< 2.991E+06	< 1.104E+07
2.991E+06	1.666E+07
2.991E+06	1.666E+07
2.991E+06	1.666E+07
2.991E+06	1.666E+07
2.991E+06	1.104E+07

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Report Date 12/5/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT 006 90 73.00
Methods Draft Modified Elutriator Method for the Determination
of Asbestos in Soils and Bulk Material Method
(dated May 23, 2000, Revision 1)
EMSL Order ID 040729231

Date Started 12/2/2007
Date Completed 12/3/2007
Analyst Debbie Little

Lab Sample# 040729231-0009
Field Subsample# TSB-AR-09-PS
Field Preparation Technique N/A
Sample Drying Yes
Sample Splitting No
Other N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm) 385 (IST)
Magnification 19,000 X
Grid Opening Area (sq mm) 0.012
Number of Grid Openings Scanned 97
Asbestos Structure Size and Type Categories of Interest
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category
>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g) 115.66
<3/8" Not Used (g) 1120.46
<3/8" In Tumbler(g) 57.48

Air Flow Rate Through ME opening of Dust Generator (ml/min) 1430
Air Flow Rate Through IST opening of Dust Generator (ml/min) 72
Estimated Total Air Flow Rate Through Elutriator (ml/min) 1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g) 0.000111

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	< 2.980E+06	< 1.100E+07
Long Chrysotile Protocol Structures	< 2.980E+06	< 1.100E+07
Total Amphibole Protocol Structures	< 2.980E+06	< 1.100E+07
Long Amphibole Protocol Structures	< 2.980E+06	< 1.100E+07
Long Asbestos Protocol Structures	< 2.980E+06	< 1.100E+07
Total Asbestos Protocol Structures	< 2.980E+06	< 1.100E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.980E+06	1.100E+07

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Report Date 11/9/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started
Date Completed
Analyst

10/5/2007
11/8/2007
Baojia Ke

Lab Sample#
Field Subsample#
Field Preparation Technique
Sample Drying
Sample Splitting
Other

040721499-0019
TSB-AR-10
N/A
Yes
No
N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)
Magnification
Grid Opening Area (sq mm)
Number of Grid Openings Scanned
Asbestos Structure Size and Type Categories of Interest

385 (IST)
19,000 X
0.013
76
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category

>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)
<3/8" Not Used (g)
<3/8" In Tumbler(g)

35.39
360
51.71

Air Flow Rate Through ME opening of Dust Generator (ml/min)
Air Flow Rate Through IST opening of Dust Generator (ml/min)
Estimated Total Air Flow Rate Through Elutriator (ml/min)

1430
72
1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)

0.000131

Asbestos Analysis Results

No. of Chrysotile Asbestos Structures
No. of Amphibole Asbestos Structures
Amphibole Mineral Type(s)

Total

0
1
1

Amosite

Protocol Structures

Long(>10um)

0
1
1

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

Total Chrysotile Protocol Structures
Long Chrysotile Protocol Structures
Total Amphibole Protocol Structures
Long Amphibole Protocol Structures
Long Asbestos Protocol Structures
Total Asbestos Protocol Structures

Concentrations

Mean

95%UCL

< 2.975E+06	< 1.098E+07
< 2.975E+06	< 1.098E+07
2.975E+06	1.657E+07
2.975E+06	1.657E+07
2.975E+06	1.657E+07
2.975E+06	1.657E+07
2.975E+06	1.098E+07

Estimated Analytical Sensitivity: (s/gPM10)

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Report Date 12/5/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT 006 90 73.00
Methods Draft Modified Elutriator Method for the Determination
of Asbestos in Soils and Bulk Material Method
(dated May 23, 2000, Revision 1)
EMSL Order ID 040729231

Date Started
Date Completed
Analyst

11/30/2007
12/4/2007
Baojia Ke

Lab Sample#
Field Subsample#
Field Preparation Technique
Sample Drying
Sample Splitting
Other

040729231-0005
TSB-AR-10-PS
N/A
Yes
No
N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)
Magnification
Grid Opening Area (sq mm)
Number of Grid Openings Scanned
Asbestos Structure Size and Type Categories of Interest

385 (IST)
19,000 X
0.013
105
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category

>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)
<3/8" Not Used (g)
<3/8" In Tumbler(g)

142.9
1129.19
54.99

Air Flow Rate Through ME opening of Dust Generator (ml/min)
Air Flow Rate Through IST opening of Dust Generator (ml/min)
Estimated Total Air Flow Rate Through Elutriator (ml/min)

1430
72
1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)

0.000099

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	< 2.849E+06	< 1.051E+07
Long Chrysotile Protocol Structures	< 2.849E+06	< 1.051E+07
Total Amphibole Protocol Structures	< 2.849E+06	< 1.051E+07
Long Amphibole Protocol Structures	< 2.849E+06	< 1.051E+07
Long Asbestos Protocol Structures	< 2.849E+06	< 1.051E+07
Total Asbestos Protocol Structures	< 2.849E+06	< 1.051E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.849E+06	1.051E+07

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Report Date 10/17/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started
Date Completed
Analyst

10/1/2007
10/16/2007
Baojia Ke

Lab Sample#
Field Subsample#
Field Preparation Technique
Sample Drying
Sample Splitting
Other

040721499-0016
TSB-AR-11
N/A
Yes
No
N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)
Magnification
Grid Opening Area (sq mm)
Number of Grid Openings Scanned
Asbestos Structure Size and Type Categories of Interest

385 (IST)
19,000 X
0.013
76
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category

>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)
<3/8" Not Used (g)
<3/8" In Tumbler(g)

26.95
371.2
48.52

Air Flow Rate Through ME opening of Dust Generator (ml/min)
Air Flow Rate Through IST opening of Dust Generator (ml/min)
Estimated Total Air Flow Rate Through Elutriator (ml/min)

1430
72
1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)

0.000131

Asbestos Analysis Results

No. of Chrysotile Asbestos Structures
No. of Amphibole Asbestos Structures
Amphibole Mineral Type(s)

Total

13
0

Protocol Structures

Long(>10um)

8
0

Total Asbestos Structures

13

8

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

Total Chrysotile Protocol Structures
Long Chrysotile Protocol Structures
Total Amphibole Protocol Structures
Long Amphibole Protocol Structures
Long Asbestos Protocol Structures
Total Asbestos Protocol Structures

	Mean	95%UCL
--	------	--------

Total Chrysotile Protocol Structures	3.867E+07	6.613E+07
Long Chrysotile Protocol Structures	2.380E+07	4.688E+07
Total Amphibole Protocol Structures	< 2.975E+06	< 1.098E+07
Long Amphibole Protocol Structures	< 2.975E+06	< 1.098E+07
Long Asbestos Protocol Structures	2.380E+07	4.688E+07
Total Asbestos Protocol Structures	3.867E+07	6.613E+07

Estimated Analytical Sensitivity: (s/gPM10)

Estimated Analytical Sensitivity: (s/gPM10)	2.975E+06	1.098E+07
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Report Date 1/9/2008
Project Name BEC PARCELS A and B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination
of Asbestos in Soils and Bulk Material Method
(dated May 23, 2000, Revision 1)
EMSL Order ID 040800079

Date Started 1/5/2008
Date Completed 1/8/2008
Analyst Baojia Ke

Lab Sample# 040800079-0002
Field Subsample# TSB-AR-11-PS
Field Preparation Technique N/A
Sample Drying Yes
Sample Splitting No
Other N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm) 385 (IST)
Magnification 19,000 X
Grid Opening Area (sq mm) 0.013
Number of Grid Openings Scanned 100
Asbestos Structure Size and Type Categories of Interest
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category
>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g) 52.74
<3/8" Not Used (g) 745.31
<3/8" In Tumbler(g) 60.15

Air Flow Rate Through ME opening of Dust Generator (ml/min) 1430
Air Flow Rate Through IST opening of Dust Generator (ml/min) 72
Estimated Total Air Flow Rate Through Elutriator (ml/min) 1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g) 0.000099

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	< 2.991E+06	< 1.104E+07
Long Chrysotile Protocol Structures	< 2.991E+06	< 1.104E+07
Total Amphibole Protocol Structures	< 2.991E+06	< 1.104E+07
Long Amphibole Protocol Structures	< 2.991E+06	< 1.104E+07
Long Asbestos Protocol Structures	< 2.991E+06	< 1.104E+07
Total Asbestos Protocol Structures	< 2.991E+06	< 1.104E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.991E+06	1.104E+07

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Report Date 11/12/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started
Date Completed
Analyst

10/9/2007
11/9/2007
Baojia Ke

Lab Sample#
Field Subsample#
Field Preparation Technique
Sample Drying
Sample Splitting
Other

040721499-0020
TSB-AR-12
N/A
Yes
No
N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)
Magnification
Grid Opening Area (sq mm)
Number of Grid Openings Scanned
Asbestos Structure Size and Type Categories of Interest

385 (IST)
19,000 X
0.013
95
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category

>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)
<3/8" Not Used (g)
<3/8" In Tumbler(g)

18.25
366.3
48.9

Air Flow Rate Through ME opening of Dust Generator (ml/min)
Air Flow Rate Through IST opening of Dust Generator (ml/min)
Estimated Total Air Flow Rate Through Elutriator (ml/min)

1430
72
1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)

0.000104

Asbestos Analysis Results

No. of Chrysotile Asbestos Structures
No. of Amphibole Asbestos Structures
Amphibole Mineral Type(s)

Total

0
2
2

Actinolite

Total Asbestos Structures

Protocol Structures

Long(>10um)

0
1
1

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

Total Chrysotile Protocol Structures
Long Chrysotile Protocol Structures
Total Amphibole Protocol Structures
Long Amphibole Protocol Structures
Long Asbestos Protocol Structures
Total Asbestos Protocol Structures

Concentrations

Mean

95%UCL

< 2.998E+06	< 1.106E+07
< 2.998E+06	< 1.106E+07
5.995E+06	2.158E+07
2.998E+06	1.670E+07
2.998E+06	1.670E+07
5.995E+06	2.164E+07
2.998E+06	1.106E+07

Estimated Analytical Sensitivity: (s/gPM10)

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Report Date 12/5/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT 006 90 73.00
Methods Draft Modified Elutriator Method for the Determination
of Asbestos in Soils and Bulk Material Method
(dated May 23, 2000, Revision 1)
EMSL Order ID 040729231

Date Started 12/1/2007
Date Completed 12/4/2007
Analyst Baojia Ke

Lab Sample# 040729231-0008
Field Subsample# TSB-AR-12-PS
Field Preparation Technique N/A
Sample Drying Yes
Sample Splitting No
Other N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm) 385 (IST)
Magnification 19,000 X
Grid Opening Area (sq mm) 0.013
Number of Grid Openings Scanned 90
Asbestos Structure Size and Type Categories of Interest
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category
>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g) 109.34
<3/8" Not Used (g) 1373.23
<3/8" In Tumbler(g) 54.52

Air Flow Rate Through ME opening of Dust Generator (ml/min) 1430
Air Flow Rate Through IST opening of Dust Generator (ml/min) 72
Estimated Total Air Flow Rate Through Elutriator (ml/min) 1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g) 0.000110

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	< 2.991E+06	< 1.104E+07
Long Chrysotile Protocol Structures	< 2.991E+06	< 1.104E+07
Total Amphibole Protocol Structures	< 2.991E+06	< 1.104E+07
Long Amphibole Protocol Structures	< 2.991E+06	< 1.104E+07
Long Asbestos Protocol Structures	< 2.991E+06	< 1.104E+07
Total Asbestos Protocol Structures	< 2.991E+06	< 1.104E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.991E+06	1.104E+07

EMSL Analytical Inc.
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Report Date 11/9/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started
Date Completed
Analyst

10/4/2007
11/8/2007
Baojia Ke

Lab Sample#
Field Subsample#
Field Preparation Technique
Sample Drying
Sample Splitting
Other

040721499-0018
TSB-AR-13
N/A
Yes
No
N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)
Magnification
Grid Opening Area (sq mm)
Number of Grid Openings Scanned
Asbestos Structure Size and Type Categories of Interest

385 (IST)
19,000 X
0.013
87
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category

>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)
<3/8" Not Used (g)
<3/8" In Tumbler(g)

14.07
372.61
42.1

Air Flow Rate Through ME opening of Dust Generator (ml/min)
Air Flow Rate Through IST opening of Dust Generator (ml/min)
Estimated Total Air Flow Rate Through Elutriator (ml/min)

1430
72
1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)

0.000114

Asbestos Analysis Results

No. of Chrysotile Asbestos Structures
No. of Amphibole Asbestos Structures
Amphibole Mineral Type(s)

Total

1
1

Amosite

Total Asbestos Structures

2

Protocol Structures

Long(>10um)

1
1

2

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

Total Chrysotile Protocol Structures
Long Chrysotile Protocol Structures
Total Amphibole Protocol Structures
Long Amphibole Protocol Structures
Long Asbestos Protocol Structures
Total Asbestos Protocol Structures

Concentrations

Mean

95%UCL

2.986E+06	1.663E+07
2.986E+06	1.663E+07
2.986E+06	1.663E+07
2.986E+06	1.663E+07
5.972E+06	2.156E+07
5.972E+06	2.156E+07
2.986E+06	1.102E+07

Estimated Analytical Sensitivity: (s/gPM10)

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date 11/30/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT 006 90 73.00
Methods Draft Modified Elutriator Method for the Determination
of Asbestos in Soils and Bulk Material Method
(dated May 23, 2000, Revision 1)
EMSL Order ID 040729231

Date Started 11/28/2007
Date Completed 11/29/2007
Analyst Baojia Ke

Lab Sample# 040729231-0007
Field Subsample# TSB-AR-13-PS
Field Preparation Technique N/A
Sample Drying Yes
Sample Splitting No
Other N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm) 385 (IST)
Magnification 19,000 X
Grid Opening Area (sq mm) 0.013
Number of Grid Openings Scanned 102
Asbestos Structure Size and Type Categories of Interest Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category >5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g) 95.3
<3/8" Not Used (g) 1203.01
<3/8" In Tumbler(g) 60.93

Air Flow Rate Through ME opening of Dust Generator (ml/min) 1430
Air Flow Rate Through IST opening of Dust Generator (ml/min) 72
Estimated Total Air Flow Rate Through Elutriator (ml/min) 1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g) 0.000097

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	< 2.993E+06	< 1.105E+07
Long Chrysotile Protocol Structures	< 2.993E+06	< 1.105E+07
Total Amphibole Protocol Structures	< 2.993E+06	< 1.105E+07
Long Amphibole Protocol Structures	< 2.993E+06	< 1.105E+07
Long Asbestos Protocol Structures	< 2.993E+06	< 1.105E+07
Total Asbestos Protocol Structures	< 2.993E+06	< 1.105E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.993E+06	1.105E+07

EMSL Analytical Inc.
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Report Date 11/8/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started
Date Completed
Analyst

10/3/2007
11/7/2007
Baojia Ke

Lab Sample#
Field Subsample#
Field Preparation Technique
Sample Drying
Sample Splitting
Other

040721499-0017
TSB-AR-14
N/A
Yes
No
N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)
Magnification
Grid Opening Area (sq mm)
Number of Grid Openings Scanned
Asbestos Structure Size and Type Categories of Interest

385 (IST)
19,000 X
0.013
69
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category

>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)
<3/8" Not Used (g)
<3/8" In Tumbler(g)

24.27
344.33
41.99

Air Flow Rate Through ME opening of Dust Generator (ml/min)
Air Flow Rate Through IST opening of Dust Generator (ml/min)
Estimated Total Air Flow Rate Through Elutriator (ml/min)

1430
72
1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)

0.000145

Asbestos Analysis Results

No. of Chrysotile Asbestos Structures
No. of Amphibole Asbestos Structures
Amphibole Mineral Type(s)

Total

7
2

Amosite

Total Asbestos Structures

9

Protocol Structures

Long(>10um)

2
2

4

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

Total Chrysotile Protocol Structures
Long Chrysotile Protocol Structures
Total Amphibole Protocol Structures
Long Amphibole Protocol Structures
Long Asbestos Protocol Structures
Total Asbestos Protocol Structures

	Mean	95%UCL
--	------	--------

Total Chrysotile Protocol Structures	2.072E+07	4.268E+07
Long Chrysotile Protocol Structures	5.920E+06	2.137E+07
Total Amphibole Protocol Structures	5.920E+06	2.137E+07
Long Amphibole Protocol Structures	5.920E+06	2.137E+07
Long Asbestos Protocol Structures	1.184E+07	3.031E+07
Total Asbestos Protocol Structures	2.664E+07	5.056E+07

Estimated Analytical Sensitivity: (s/gPM10)

Estimated Analytical Sensitivity: (s/gPM10)	2.960E+06	1.092E+07
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EMSL Analytical Inc.
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Report Date 11/30/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT 006 90 73.00
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040729231

Date Started 11/27/2007
Date Completed 11/29/2007
Analyst Baojia Ke

Lab Sample# 040729231-0006
Field Subsample# TSB-AR-14-PS
Field Preparation Technique N/A
Sample Drying Yes
Sample Splitting No
Other N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm) 385 (IST)
Magnification 19,000 X
Grid Opening Area (sq mm) 0.013
Number of Grid Openings Scanned 78
Asbestos Structure Size and Type Categories of Interest
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category
>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g) 86.95
<3/8" Not Used (g) 1208.19
<3/8" In Tumbler(g) 56.63

Air Flow Rate Through ME opening of Dust Generator (ml/min) 1430
Air Flow Rate Through IST opening of Dust Generator (ml/min) 72
Estimated Total Air Flow Rate Through Elutriator (ml/min) 1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g) 0.000130

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	< 2.921E+06	< 1.078E+07
Long Chrysotile Protocol Structures	< 2.921E+06	< 1.078E+07
Total Amphibole Protocol Structures	< 2.921E+06	< 1.078E+07
Long Amphibole Protocol Structures	< 2.921E+06	< 1.078E+07
Long Asbestos Protocol Structures	< 2.921E+06	< 1.078E+07
Total Asbestos Protocol Structures	< 2.921E+06	< 1.078E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.921E+06	1.078E+07

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Report Date 11/6/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started
Date Completed
Analyst

9/21/2007
11/5/2007
Baojia Ke

Lab Sample#
Field Subsample#
Field Preparation Technique
Sample Drying
Sample Splitting
Other

040721499-0012
TSB-BJ-01
N/A
Yes
No
N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)
Magnification
Grid Opening Area (sq mm)
Number of Grid Openings Scanned
Asbestos Structure Size and Type Categories of Interest

385 (IST)
19,000 X
0.013
84
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category

>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)
<3/8" Not Used (g)
<3/8" In Tumbler(g)

37.95
356.43
46.79

Air Flow Rate Through ME opening of Dust Generator (ml/min)
Air Flow Rate Through IST opening of Dust Generator (ml/min)
Estimated Total Air Flow Rate Through Elutriator (ml/min)

1430
72
1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)

0.000110

Asbestos Analysis Results

No. of Chrysotile Asbestos Structures
No. of Amphibole Asbestos Structures
Amphibole Mineral Type(s)

Total

31
0

Protocol Structures

Long(>10um)

19
0

Total Asbestos Structures

31

19

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

Total Chrysotile Protocol Structures
Long Chrysotile Protocol Structures
Total Amphibole Protocol Structures
Long Amphibole Protocol Structures
Long Asbestos Protocol Structures
Total Asbestos Protocol Structures

Concentrations

Mean

95%UCL

9.936E+07
6.090E+07
< 3.205E+06
< 3.205E+06
6.090E+07
9.936E+07
3.205E+06

1.410E+08
9.512E+07
< 1.183E+07
< 1.183E+07
9.512E+07
1.410E+08
1.183E+07

Estimated Analytical Sensitivity: (s/gPM10)

EMSL Analytical Inc.
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Report Date 1/7/2008
Project Name BEC PARCELS A and B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination
of Asbestos in Soils and Bulk Material Method
(dated May 23, 2000, Revision 1)
EMSL Order ID 040800079

Date Started 1/3/2008
Date Completed 1/7/2008
Analyst Baojia Ke

Lab Sample# 040800079-0001
Field Subsample# TSB-BJ-01-PS
Field Preparation Technique N/A
Sample Drying Yes
Sample Splitting No
Other N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm) 385 (IST)
Magnification 19,000 X
Grid Opening Area (sq mm) 0.013
Number of Grid Openings Scanned 81
Asbestos Structure Size and Type Categories of Interest
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category
>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g) 24.37
<3/8" Not Used (g) 647.47
<3/8" In Tumbler(g) 54.59

Air Flow Rate Through ME opening of Dust Generator (ml/min) 1430
Air Flow Rate Through IST opening of Dust Generator (ml/min) 72
Estimated Total Air Flow Rate Through Elutriator (ml/min) 1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g) 0.000163

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	< 2.243E+06	< 8.277E+06
Long Chrysotile Protocol Structures	< 2.243E+06	< 8.277E+06
Total Amphibole Protocol Structures	< 2.243E+06	< 8.277E+06
Long Amphibole Protocol Structures	< 2.243E+06	< 8.277E+06
Long Asbestos Protocol Structures	< 2.243E+06	< 8.277E+06
Total Asbestos Protocol Structures	< 2.243E+06	< 8.277E+06
Estimated Analytical Sensitivity: (s/gPM10)	2.243E+06	8.277E+06

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Report Date 11/6/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started
Date Completed
Analyst

9/18/2007
10/26/2007
Baojia Ke

Lab Sample#
Field Subsample#
Field Preparation Technique
Sample Drying
Sample Splitting
Other

040721499-0010
TSB-BJ-02
N/A
Yes
No
N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)
Magnification
Grid Opening Area (sq mm)
Number of Grid Openings Scanned
Asbestos Structure Size and Type Categories of Interest

385 (IST)
19,000 X
0.013
72
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category

>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)
<3/8" Not Used (g)
<3/8" In Tumbler(g)

17.82
346.66
47.17

Air Flow Rate Through ME opening of Dust Generator (ml/min)
Air Flow Rate Through IST opening of Dust Generator (ml/min)
Estimated Total Air Flow Rate Through Elutriator (ml/min)

1430
72
1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)

0.000139

Asbestos Analysis Results

No. of Chrysotile Asbestos Structures
No. of Amphibole Asbestos Structures
Amphibole Mineral Type(s)

Total

7
0
7

Protocol Structures

Long(>10um)

5
0
5

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

Total Chrysotile Protocol Structures
Long Chrysotile Protocol Structures
Total Amphibole Protocol Structures
Long Amphibole Protocol Structures
Long Asbestos Protocol Structures
Total Asbestos Protocol Structures

Concentrations

Mean

95%UCL

2.071E+07	4.267E+07
1.480E+07	3.447E+07
< 2.959E+06	< 1.092E+07
< 2.959E+06	< 1.092E+07
1.480E+07	3.447E+07
2.071E+07	4.267E+07
2.959E+06	1.092E+07

Estimated Analytical Sensitivity: (s/gPM10)

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Report Date 11/6/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started
Date Completed
Analyst

9/19/2007
11/1/2007
Baojia Ke

Lab Sample#
Field Subsample#
Field Preparation Technique
Sample Drying
Sample Splitting
Other

040721499-0011
TSB-BJ-02 FD
N/A
Yes
No
N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)
Magnification
Grid Opening Area (sq mm)
Number of Grid Openings Scanned
Asbestos Structure Size and Type Categories of Interest

385 (IST)
19,000 X
0.013
84
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category

>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)
<3/8" Not Used (g)
<3/8" In Tumbler(g)

49.12
308.28
47.62

Air Flow Rate Through ME opening of Dust Generator (ml/min)
Air Flow Rate Through IST opening of Dust Generator (ml/min)
Estimated Total Air Flow Rate Through Elutriator (ml/min)

1430
72
1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)

0.000118

Asbestos Analysis Results

No. of Chrysotile Asbestos Structures
No. of Amphibole Asbestos Structures
Amphibole Mineral Type(s)

Amosite/Tremolite

Total Asbestos Structures

Total

16
3
19

Protocol Structures

Long(>10um)

9
1
10

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

Total Chrysotile Protocol Structures
Long Chrysotile Protocol Structures
Total Amphibole Protocol Structures
Long Amphibole Protocol Structures
Long Asbestos Protocol Structures
Total Asbestos Protocol Structures

Estimated Analytical Sensitivity: (s/gPM10)

Concentrations

Mean

95%UCL

4.781E+07
2.689E+07
8.963E+06
2.988E+06
2.988E+07
5.677E+07
2.988E+06

7.764E+07
5.104E+07
2.617E+07
1.664E+07
5.495E+07
8.867E+07
1.103E+07

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Report Date 11/30/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT 006 90 73.00
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040729231

Date Started 11/28/2007
Date Completed 11/30/2007
Analyst Baojia Ke

Lab Sample# 040729231-0002
Field Subsample# TSB-BJ-02-PS
Field Preparation Technique N/A
Sample Drying Yes
Sample Splitting No
Other N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm) 385 (IST)
Magnification 19,000 X
Grid Opening Area (sq mm) 0.013
Number of Grid Openings Scanned 83
Asbestos Structure Size and Type Categories of Interest Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category >5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g) 156.68
<3/8" Not Used (g) 1098.11
<3/8" In Tumbler(g) 47.82

Air Flow Rate Through ME opening of Dust Generator (ml/min) 1430
Air Flow Rate Through IST opening of Dust Generator (ml/min) 72
Estimated Total Air Flow Rate Through Elutriator (ml/min) 1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g) 0.000119

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	< 2.998E+06	< 1.106E+07
Long Chrysotile Protocol Structures	< 2.998E+06	< 1.106E+07
Total Amphibole Protocol Structures	< 2.998E+06	< 1.106E+07
Long Amphibole Protocol Structures	< 2.998E+06	< 1.106E+07
Long Asbestos Protocol Structures	< 2.998E+06	< 1.106E+07
Total Asbestos Protocol Structures	< 2.998E+06	< 1.106E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.998E+06	1.106E+07

EMSL Analytical Inc.
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Report Date 10/16/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started 9/12/2007
Date Completed 10/15/2007
Analyst Baojia Ke

Lab Sample# 040721499-0003
Field Subsample# TSB-BJ-03
Field Preparation Technique N/A
Sample Drying Yes
Sample Splitting No
Other N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm) 385 (IST)
Magnification 19,000 X
Grid Opening Area (sq mm) 0.013
Number of Grid Openings Scanned 68
Asbestos Structure Size and Type Categories of Interest
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category
>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g) 72.23
<3/8" Not Used (g) 341.02
<3/8" In Tumbler(g) 50.79

Air Flow Rate Through ME opening of Dust Generator (ml/min) 1430
Air Flow Rate Through IST opening of Dust Generator (ml/min) 72
Estimated Total Air Flow Rate Through Elutriator (ml/min) 1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g) 0.000147

	<u>Total</u>	<u>Protocol Structures</u> <u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	1	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	1	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	<u>Concentrations</u>	
	<u>Mean</u>	<u>95%UCL</u>
Total Chrysotile Protocol Structures	2.963E+06	1.650E+07
Long Chrysotile Protocol Structures	< 2.963E+06	< 1.093E+07
Total Amphibole Protocol Structures	< 2.963E+06	< 1.093E+07
Long Amphibole Protocol Structures	< 2.963E+06	< 1.093E+07
Long Asbestos Protocol Structures	< 2.963E+06	< 1.093E+07
Total Asbestos Protocol Structures	2.963E+06	1.650E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.963E+06	1.093E+07

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Contacts: Stephen Siegel, CIH
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Report Date 10/18/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started 9/13/2007
Date Completed 10/17/2007
Analyst Baojia Ke

Lab Sample# 040721499-0016
Field Subsample# TSB-BJ-04
Field Preparation Technique N/A
Sample Drying Yes
Sample Splitting No
Other N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm) 385 (IST)
Magnification 19,000 X
Grid Opening Area (sq mm) 0.013
Number of Grid Openings Scanned 91
Asbestos Structure Size and Type Categories of Interest
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category
>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g) 19.89
<3/8" Not Used (g) 338.56
<3/8" In Tumbler(g) 48.1

Air Flow Rate Through ME opening of Dust Generator (ml/min) 1430
Air Flow Rate Through IST opening of Dust Generator (ml/min) 72
Estimated Total Air Flow Rate Through Elutriator (ml/min) 1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g) 0.000109

	<u>Total</u>	<u>Protocol Structures</u> <u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	1	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	1	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	<u>Concentrations</u>	
	<u>Mean</u>	<u>95%UCL</u>
Total Chrysotile Protocol Structures	2.986E+06	1.663E+07
Long Chrysotile Protocol Structures	< 2.986E+06	< 1.102E+07
Total Amphibole Protocol Structures	< 2.986E+06	< 1.102E+07
Long Amphibole Protocol Structures	< 2.986E+06	< 1.102E+07
Long Asbestos Protocol Structures	< 2.986E+06	< 1.102E+07
Total Asbestos Protocol Structures	2.986E+06	1.663E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.986E+06	1.102E+07

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Report Date 10/3/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started 9/5/2007
Date Completed 10/2/2007
Analyst Brad Ross

Lab Sample# 040721499-0001
Field Subsample# TSB-BJ-05
Field Preparation Technique N/A
Sample Drying Yes
Sample Splitting No
Other N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm) 385 (IST)
Magnification 19,000 X
Grid Opening Area (sq mm) 0.013
Number of Grid Openings Scanned 87
Asbestos Structure Size and Type Categories of Interest
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category
>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g) 15.32
<3/8" Not Used (g) 344.18
<3/8" In Tumbler(g) 68.86

Air Flow Rate Through ME opening of Dust Generator (ml/min) 1430
Air Flow Rate Through IST opening of Dust Generator (ml/min) 72
Estimated Total Air Flow Rate Through Elutriator (ml/min) 1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g) 0.000124

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	6	3
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	6	3

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	1.647E+07	3.591E+07
Long Chrysotile Protocol Structures	8.236E+06	2.405E+07
Total Amphibole Protocol Structures	< 2.745E+06	< 1.013E+07
Long Amphibole Protocol Structures	< 2.745E+06	< 1.013E+07
Long Asbestos Protocol Structures	8.236E+06	2.405E+07
Total Asbestos Protocol Structures	1.647E+07	3.591E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.745E+06	1.013E+07

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Report Date 11/6/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination
of Asbestos in Soils and Bulk Material Method
(dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started 9/24/2007
Date Completed 11/5/2007
Analyst Baojia Ke

Lab Sample# 040721499-0013
Field Subsample# TSB-BJ-06
Field Preparation Technique N/A
Sample Drying Yes
Sample Splitting No
Other N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm) 385 (IST)
Magnification 19,000 X
Grid Opening Area (sq mm) 0.013
Number of Grid Openings Scanned 65
Asbestos Structure Size and Type Categories of Interest
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category
>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g) 23.77
<3/8" Not Used (g) 349.48
<3/8" In Tumbler(g) 46.63

Air Flow Rate Through ME opening of Dust Generator (ml/min) 1430
Air Flow Rate Through IST opening of Dust Generator (ml/min) 72
Estimated Total Air Flow Rate Through Elutriator (ml/min) 1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g) 0.000153

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	< 2.978E+06	< 1.099E+07
Long Chrysotile Protocol Structures	< 2.978E+06	< 1.099E+07
Total Amphibole Protocol Structures	< 2.978E+06	< 1.099E+07
Long Amphibole Protocol Structures	< 2.978E+06	< 1.099E+07
Long Asbestos Protocol Structures	< 2.978E+06	< 1.099E+07
Total Asbestos Protocol Structures	< 2.978E+06	< 1.099E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.978E+06	1.099E+07

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Report Date 10/2/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started 9/6/2007
Date Completed 10/1/2007
Analyst Brad Ross

Lab Sample# 040721499-0002
Field Subsample# TSB-BR-01
Field Preparation Technique N/A
Sample Drying Yes
Sample Splitting No
Other N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm) 385 (IST)
Magnification 19,000 X
Grid Opening Area (sq mm) 0.013
Number of Grid Openings Scanned 71
Asbestos Structure Size and Type Categories of Interest
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category
>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g) 35.19
<3/8" Not Used (g) 364.51
<3/8" In Tumbler(g) 53.8

Air Flow Rate Through ME opening of Dust Generator (ml/min) 1430
Air Flow Rate Through IST opening of Dust Generator (ml/min) 72
Estimated Total Air Flow Rate Through Elutriator (ml/min) 1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g) 0.000151

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	< 2.762E+06	< 1.019E+07
Long Chrysotile Protocol Structures	< 2.762E+06	< 1.019E+07
Total Amphibole Protocol Structures	< 2.762E+06	< 1.019E+07
Long Amphibole Protocol Structures	< 2.762E+06	< 1.019E+07
Long Asbestos Protocol Structures	< 2.762E+06	< 1.019E+07
Total Asbestos Protocol Structures	< 2.762E+06	< 1.019E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.762E+06	1.019E+07

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Report Date 10/2/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started 9/10/2007
Date Completed 10/1/2007
Analyst Brad Ross

Lab Sample# 040721499-0005
Field Subsample# TSB-BR-02
Field Preparation Technique N/A
Sample Drying Yes
Sample Splitting No
Other N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm) 385 (IST)
Magnification 19,000 X
Grid Opening Area (sq mm) 0.013
Number of Grid Openings Scanned 66
Asbestos Structure Size and Type Categories of Interest Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category >5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g) 9.07
<3/8" Not Used (g) 355.25
<3/8" In Tumbler(g) 48.93

Air Flow Rate Through ME opening of Dust Generator (ml/min) 1430
Air Flow Rate Through IST opening of Dust Generator (ml/min) 72
Estimated Total Air Flow Rate Through Elutriator (ml/min) 1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g) 0.000150

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	< 2.991E+06	< 1.104E+07
Long Chrysotile Protocol Structures	< 2.991E+06	< 1.104E+07
Total Amphibole Protocol Structures	< 2.991E+06	< 1.104E+07
Long Amphibole Protocol Structures	< 2.991E+06	< 1.104E+07
Long Asbestos Protocol Structures	< 2.991E+06	< 1.104E+07
Total Asbestos Protocol Structures	< 2.991E+06	< 1.104E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.991E+06	1.104E+07

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Report Date 10/4/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started 9/7/2007
Date Completed 10/3/2007
Analyst Brad Ross

Lab Sample# 040721499-0006
Field Subsample# TSB-BR-03
Field Preparation Technique N/A
Sample Drying Yes
Sample Splitting No
Other N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm) 385 (IST)
Magnification 19,000 X
Grid Opening Area (sq mm) 0.013
Number of Grid Openings Scanned 84
Asbestos Structure Size and Type Categories of Interest
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category
>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g) 14.33
<3/8" Not Used (g) 351.18
<3/8" In Tumbler(g) 51.32

Air Flow Rate Through ME opening of Dust Generator (ml/min) 1430
Air Flow Rate Through IST opening of Dust Generator (ml/min) 72
Estimated Total Air Flow Rate Through Elutriator (ml/min) 1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g) 0.000118

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	< 2.988E+06	< 1.103E+07
Long Chrysotile Protocol Structures	< 2.988E+06	< 1.103E+07
Total Amphibole Protocol Structures	< 2.988E+06	< 1.103E+07
Long Amphibole Protocol Structures	< 2.988E+06	< 1.103E+07
Long Asbestos Protocol Structures	< 2.988E+06	< 1.103E+07
Total Asbestos Protocol Structures	< 2.988E+06	< 1.103E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.988E+06	1.103E+07

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Report Date 10/17/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination
of Asbestos in Soils and Bulk Material Method
(dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started
Date Completed
Analyst

9/11/2007
10/16/2007
Baojia Ke

Lab Sample#
Field Subsample#
Field Preparation Technique
Sample Drying
Sample Splitting
Other

040721499-0007
TSB-BR-04
N/A
Yes
No
N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)
Magnification
Grid Opening Area (sq mm)
Number of Grid Openings Scanned
Asbestos Structure Size and Type Categories of Interest

385 (IST)
19,000 X
0.013
71
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category

>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)
<3/8" Not Used (g)
<3/8" In Tumbler(g)

20.82
366.57
51.02

Air Flow Rate Through ME opening of Dust Generator (ml/min)
Air Flow Rate Through IST opening of Dust Generator (ml/min)
Estimated Total Air Flow Rate Through Elutriator (ml/min)

1430
72
1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)

0.000141

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	4	2
No.of Amphibole Asbestos Structures	1	0
Amphibole Mineral Type(s)		
Actinolite		
Total Asbestos Structures	5	2

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	1.183E+07	3.029E+07
Long Chrysotile Protocol Structures	5.917E+06	2.136E+07
Total Amphibole Protocol Structures	2.958E+06	1.648E+07
Long Amphibole Protocol Structures	< 2.958E+06	< 1.092E+07
Long Asbestos Protocol Structures	5.917E+06	2.136E+07
Total Asbestos Protocol Structures	1.479E+07	3.446E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.958E+06	1.092E+07

EMSL Analytical Inc.
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Report Date 11/6/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started
Date Completed
Analyst

9/14/2007
10/19/2007
Baojia Ke

Lab Sample#
Field Subsample#
Field Preparation Technique
Sample Drying
Sample Splitting
Other

040721499-0008
TSB-BR-05
N/A
Yes
No
N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)
Magnification
Grid Opening Area (sq mm)
Number of Grid Openings Scanned
Asbestos Structure Size and Type Categories of Interest

385 (IST)
19,000 X
0.013
99
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category

>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)
<3/8" Not Used (g)
<3/8" In Tumbler(g)

18.6
349.97
48.09

Air Flow Rate Through ME opening of Dust Generator (ml/min)
Air Flow Rate Through IST opening of Dust Generator (ml/min)
Estimated Total Air Flow Rate Through Elutriator (ml/min)

1430
72
1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)

0.000100

Asbestos Analysis Results

No. of Chrysotile Asbestos Structures
No. of Amphibole Asbestos Structures
Amphibole Mineral Type(s)

Actinolite

Total Asbestos Structures

Total

7
1
8

Protocol Structures

Long(>10um)

3
1
4

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

Total Chrysotile Protocol Structures
Long Chrysotile Protocol Structures
Total Amphibole Protocol Structures
Long Amphibole Protocol Structures
Long Asbestos Protocol Structures
Total Asbestos Protocol Structures

Estimated Analytical Sensitivity: (s/gPM10)

Concentrations

Mean

95%UCL

2.094E+07	4.314E+07
8.974E+06	2.621E+07
2.991E+06	1.666E+07
2.991E+06	1.666E+07
1.197E+07	3.063E+07
2.393E+07	4.715E+07
2.991E+06	1.104E+07

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Report Date 11/30/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT 006 90 73.00
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040729231

Date Started
Date Completed
Analyst

11/28/2007
11/30/2007
Baojia Ke

Lab Sample#
Field Subsample#
Field Preparation Technique
Sample Drying
Sample Splitting
Other

040729231-0001
TSB-BR-05-PS
N/A
Yes
No
N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)
Magnification
Grid Opening Area (sq mm)
Number of Grid Openings Scanned
Asbestos Structure Size and Type Categories of Interest

385 (IST)
19,000 X
0.013
95
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category

>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)
<3/8" Not Used (g)
<3/8" In Tumbler(g)

78.44
1183.23
51.96

Air Flow Rate Through ME opening of Dust Generator (ml/min)
Air Flow Rate Through IST opening of Dust Generator (ml/min)
Estimated Total Air Flow Rate Through Elutriator (ml/min)

1430
72
1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)

0.000104

Asbestos Analysis Results

No. of Chrysotile Asbestos Structures
No. of Amphibole Asbestos Structures
Amphibole Mineral Type(s)

Tremolite

Total Asbestos Structures

Total

0
1
1

Protocol Structures

Long(>10um)

0
1
1

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

Total Chrysotile Protocol Structures
Long Chrysotile Protocol Structures
Total Amphibole Protocol Structures
Long Amphibole Protocol Structures
Long Asbestos Protocol Structures
Total Asbestos Protocol Structures

Estimated Analytical Sensitivity: (s/gPM10)

Concentrations

Mean

95%UCL

< 2.998E+06
< 2.998E+06
2.998E+06
2.998E+06
2.998E+06
2.998E+06
2.998E+06
2.998E+06

< 1.106E+07
< 1.106E+07
1.670E+07
1.670E+07
1.670E+07
1.670E+07
1.670E+07
1.106E+07

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Report Date 12/11/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT 006 90 73.00
Methods Draft Modified Elutriator Method for the Determination
of Asbestos in Soils and Bulk Material Method
(dated May 23, 2000, Revision 1)
EMSL Order ID 040730135

Date Started 12/7/2007
Date Completed 12/10/2007
Analyst Debbie Little

Lab Sample# 040730135-0001
Field Subsample# TSB-BR-05-PS 2
Field Preparation Technique N/A
Sample Drying Yes
Sample Splitting No
Other N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm) 385 (IST)
Magnification 19,000 X
Grid Opening Area (sq mm) 0.012
Number of Grid Openings Scanned 134
Asbestos Structure Size and Type Categories of Interest
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category
>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g) 47.08
<3/8" Not Used (g) 1064.31
<3/8" In Tumbler(g) 54.07

Air Flow Rate Through ME opening of Dust Generator (ml/min) 1430
Air Flow Rate Through IST opening of Dust Generator (ml/min) 72
Estimated Total Air Flow Rate Through Elutriator (ml/min) 1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g) 0.000080

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	< 2.993E+06	< 1.104E+07
Long Chrysotile Protocol Structures	< 2.993E+06	< 1.104E+07
Total Amphibole Protocol Structures	< 2.993E+06	< 1.104E+07
Long Amphibole Protocol Structures	< 2.993E+06	< 1.104E+07
Long Asbestos Protocol Structures	< 2.993E+06	< 1.104E+07
Total Asbestos Protocol Structures	< 2.993E+06	< 1.104E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.993E+06	1.104E+07

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Report Date 11/6/2007
Project Name BEC PARCELS A AND B SAMPLING EVENT
Methods Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID 040721449

Date Started
Date Completed
Analyst

9/17/2007
10/25/2007
Baojia Ke

Lab Sample#
Field Subsample#
Field Preparation Technique
Sample Drying
Sample Splitting
Other

040721499-0009
TSB-BR-06
N/A
Yes
No
N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)
Magnification
Grid Opening Area (sq mm)
Number of Grid Openings Scanned
Asbestos Structure Size and Type Categories of Interest

385 (IST)
19,000 X
0.013
67
Protocol Fiber
>5um Length
<0.5um Diameter
Amphiboles/Chrysotile

Long Fiber
>10um Length
<0.5um Diameter
Amphiboles/Chrysotile

Minimum Acceptable Structure Identification Category

>5um Length
<0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)
<3/8" Not Used (g)
<3/8" In Tumbler(g)

9.72
362.72
59.88

Air Flow Rate Through ME opening of Dust Generator (ml/min)
Air Flow Rate Through IST opening of Dust Generator (ml/min)
Estimated Total Air Flow Rate Through Elutriator (ml/min)

1430
72
1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)

0.000148

	Protocol Structures	
	<u>Total</u>	<u>Long(>10um)</u>
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	2	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	2	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	95%UCL
Total Chrysotile Protocol Structures	5.973E+06	2.156E+07
Long Chrysotile Protocol Structures	< 2.987E+06	< 1.102E+07
Total Amphibole Protocol Structures	< 2.987E+06	< 1.102E+07
Long Amphibole Protocol Structures	< 2.987E+06	< 1.102E+07
Long Asbestos Protocol Structures	< 2.987E+06	< 1.102E+07
Total Asbestos Protocol Structures	5.973E+06	2.156E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.987E+06	1.102E+07