479266

Holme Roberts & Owen LLP

September 5, 2000

HRO

BY HAND DELIVERY

Kenneth W. Lund
(303)866-0409
lundk@hro.com

Kelcey Land
U. S. Environmental Protection Agency
Technical Enforcement Program, 8ENF-T
999 18th Street, Suite 500
Denver, Colorado 80202-2466

Re: Response to Fifth Request for Information; Libby, Montana

Dear Ms. Land:

Enclosed please find W.R. Grace's response to Question 4 of EPA's Fifth Request for Information Regarding the Libby Asbestos site.

If you have further questions, please do not hesitate to call.

Very truly yours,

Thomas W. Kamm for

Kenneth W. Lund

KWL:bmh

Enclosures

cc: David M. Cleary

Attorneys at Law

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Salt Lake City
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London

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W.R. GRACE & CO. - CONN.
RESPONSE TO QUESTION 4 OF THE FIFTH REQUEST
FOR INFORMATION REGARDING THE LIBBY ASBESTOS SITE

GENERAL OBJECTIONS

W.R. Grace & Co.-Conn. ("Grace") makes the following General Objections:

1. Grace objects to the Request, and to each paragraph therein, on the grounds that it is overly broad and unduly burdensome. Grace further objects to the unprecedented and unduly burdensome demand to provide responses to the majority of the Request in less than two days.

2. Grace objects to the Request, and to each paragraph therein, to the extent it calls for information or documents that are protected under the attorney-client privilege or the attorney work product doctrine.

3. Grace objects to the Request, and to each paragraph therein, to the extent it seeks to impose on Grace an obligation or obligations outside the purview of EPA's authority under 42 U.S.C. § 9604(e) or not in furtherance of EPA's authority under 42 U.S.C. § 9604(e).

OBJECTIONS TO THE INSTRUCTIONS AND DEFINITIONS

Without waiving or limiting its General Objections, Grace makes the following objections to the Instructions and Definitions, and to all requests for information that purport to use these Instructions and Definitions:

1. Grace objects to Definition No. 1, and to all questions that purport to utilize this definition, insofar as they apply to "contractors, trustees, partners, predecessors, successors, assigns and agents" on the grounds that the definition is overly broad and that to respond to any request using this definition would be unduly burdensome and prohibitively time consuming. Grace also objects to this definition to the extent that it seeks information or documents, which are not in Grace's custody or control.

2. Grace objects to Definition No. 3, and to all questions that purport to utilize this definition, on the grounds that the definition of "Site" is vague, ambiguous, overly broad and unduly burdensome. In particular, Definition No. 3 provides that the term Site includes "the road leading to the Mine . . . and any other current and/or former W.R. Grace facilities located in or near the town of Libby, Montana " and "all associated facilities" but fails to draw a distinct boundary or location of what comprises the Site. For purposes of answering this information request, Grace hereby interprets the term Site to include only the former vermiculite mine, the road leading to the mine starting at the locked gate, the Screen Facility, and the Export Plant.

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QUESTIONS

Question 4:

Please provide all environmental data and/or assessments obtained or collected by Grace relating to the Site since November, 1999, including, but not limited to, data resulting from analysis of split samples provided to Grace by EPA or the State of Montana.

Response Question 4:

Grace incorporates here by reference its General Objections and its Objections To the Instructions and Definitions. Grace further objects to Question 4 as vague, ambiguous, and overly broad to the extent that it requests information regarding "environmental data and/or assessments." The term "assessment" is not defined and is subject to differing opinions as to its ordinary meaning. Grace further objects to Question 4 to the extent it calls for information protected under the attorney-client privilege or the attorney work product doctrine. Without waiving these objections, Grace responds as follows:

Since the removal action began, Grace has performed daily personnel and area monitoring. These data are made available to EPA on a daily basis and are submitted to EPA on a weekly basis pursuant to the Work Plan. EPA is already in possession of these data. As new data is generated as part of the Work Plan, they are being made available and submitted according to Sections 2.4.8 and 2.4.5 of the Work Plan, respectively. Grace is submitting analyses of air and core samples taken from the Site in January of 2000, the only such data either not already in EPA's possession, soon to be submitted to EPA (in the case of data generated since the last weekly report), or protected under the attorney-client privilege or the attorney work product doctrine.

CERTIFICATION

I, David M. Cleary, hereby certify:

1. I am the person authorized by W. R. Grace & Co.-Conn., to respond to the Environmental Protection Agency's (EPA's) request for information concerning the Libby Asbestos Site in Libby, Montana.

2. Though counsel, I have made a reasonable review of documents and information relevant to the request.

3. I hereby certify that the attached response to EPA's request is complete to the best of my knowledge.

David M. Cleary
Senior Environmental Counsel
W. R. Grace & Co.

RJ Lee *Group*, Inc.

350 Hochberg Road
Monroeville, PA 15146
Tel: (724) 325-1776
Fax: (724) 733-1799

The Materials Characterization Specialists

April 13, 2000

Mr. James Stout
Radian International, LLC
707 17th Street
Suite 3400
Denver, CO 80202

RE: Parker Property/Export Plant Air Samples
RJ Lee Group Job No. LSC003405

Dear Mr. Stout

Enclosed are the results of analyses performed on the nine filter cassettes received for this project. A portion of each filter was prepared and analyzed by phase contrast microscopy according to NIOSH 7400, issue #2. A second portion of each filter was prepared and analyzed by transmission electron microscopy according to NIOSH 7402.

Table 1 summarizes the sample information for each filter cassette. The sampled air volumes were taken from the cassette labels. The first five samples are from the Parker property.

Table 1 Summary of Sample Information

Location	Field ID	RJ Lee Group #	Volume, l
Warehouse	28133	107240HT	4320
Planer	28135	107241HT	4320
Spencer	28137	107242HT	4140
Garage	28139	107243HT	4320
Woodshed	28141	107244HT	4320
Export Plant	28401	107245HT	4320
Export Plant	28403	107246HT	3960
Export Plant	28405	107247HT	3960
Export Plant	28407	107248HT	4140

Table 2 summarizes the analytical results for these samples. The concentrations shown in this table were calculated using the observed fiber counts. The supporting analytical data are summarized in Appendix A (NIOSH 7400) and Appendix B (NIOSH 7402).

No asbestos fibers were observed in the samples from the Parker property. Several asbestos fibers were observed on the samples from the Export plant; all concentrations were below 0.0005 f/ml.

RJ Lee Group, Inc. is accredited by the American Industrial Hygiene Association for airborne fiber analysis (PCM, laboratory 100364). The National Voluntary Laboratory Accreditation Program (NVLAP) also accredits RJ Lee Group for airborne fiber analysis (TEM, laboratory 101208-00).

This report relates only to the samples that were tested. The report shall not be reproduced except in full without written approval of RJ Lee Group. This report cannot be used to claim product endorsement by AIHA, NVLAP, or any agency of the US Government.

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions, and no responsibility or liability is

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EPA NURSERY SMAPLES							W.R. Grace Splits	
				Actinolite				
Sample No.	Method	Date	Vol	0.5 to 5u	5 to 10u	>10u	PCM	TEM
28132	10312	1/6/2000	4320	2.83	BDL	BDL	0.0006	0
28134	10312	1/6/2000	4320	1.13	2.83	BDL	0.0011	0
28136	10312	1/6/2000	4140	BDL	BDL	BDL	0.0004	0
28138	10312	1/6/2000	4320	2.83	BDL	BDL	0.0009	0
28140	10312	1/6/2000	4320	2.83	2.83	2.83	0.0003	0
EPA Export Samples							W.R. Grace Spits	
28401	10312	1/8/2000	3960	BDL	BDL	BDL	0.0006	0
28403	10312	1/8/2000	3960	1.23	6.17	6.17	0.0148	1
28405	10312	1/8/2000	3960	6.17	9.26	3.09	0.0076	0.5
28407	10312	1/8/2000	3960	BDL	3.09	9.26	0.003	3

assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the unused portions of the samples covered by this report, RJ Lee Group will store the samples for a period of ninety (90) days before discarding. A shipping and handling fee will be assessed for the return of any samples.

If you have any questions, please feel free to call me.

Sincerely,

Drew R. Van Orden

Drew R. Van Orden, PE
Manager, Quality Assurance

DRVO/djh
Enclosure

Table 2 Summary of PCM and TEM Analyses

Sample Identification			PCM Analysis			TEM Analysis				PCME, f/cc
Location	Field ID	RJ Lee Group	Fibers	Fields	Concentration, f/cc	Asbestos	Nonasbestos	Sensitivity, f/cc	Concentration, f/cc	
Warehouse	28133	107240HT	5	100	0.0006	0	2	0.0002	0	0
Planer	28135	107241HT	9.5	100	0.0011	0	0	0.0002	0	0
Spencer	28137	107242HT	3.5	100	0.0004	0	2	0.0003	0	0
Garage	28139	107243HT	7.5	100	0.0009	0	1	0.0002	0	0
Woodshed	28141	107244HT	2.5	100	0.0003	0	4	0.0002	0	0
Export Plant	28401	107245HT	5.5	100	0.0006	0	7.5	0.0002	0	0
Export Plant	28403	107246HT	102.5	86	0.0148	1	41.5	0.0003	0.0003	0.0003
Export Plant	28405	107247HT	61.5	100	0.0076	0.5	29	0.0003	0.0001	0.0001
Export Plant	28407	107248HT	25	100	0.0030	3	18	0.0003	0.0008	0.0004

TEM grid open area 0.00900876 mm^2

Appendix A

Phase Contrast Microscopy

TEST REPORT

PCM Air Analysis Results
Project LSC003405

Sample Number	Client Sample Number	Analyzed Area, mm^2	Volume, l	Fibers	Fields	Density, f/mm^2	Concentration, f/cc	95% Upper Confidence Level	Limit of Quantification	Analyst	Analysis Date
107240HT	28133	0.785	4320	5	100	<7.0064	<0.0006	0.0011	0.0006	BJW	3/28/00
107241HT	28135	0.785	4320	9.5	100	12.0958	0.0011	0.0018	0.0006	BJW	3/28/00
107242HT	28137	0.785	4140	3.5	100	<7.0064	<0.0007	0.0012	0.0007	BJW	3/28/00
107243HT	28139	0.785	4320	7.5	100	9.5493	0.0009	0.0014	0.0006	BJW	3/28/00
107244HT	28141	0.785	4320	2.5	100	<7.0064	<0.0006	0.0011	0.0006	BJW	3/28/00
107245HT	28401	0.785	4320	5.5	100	7.0064	0.0006	0.0011	0.0006	BJW	3/28/00
107246HT	28403	0.675	3960	102.5	86	151.7520	0.0148	0.0202	0.0008	BJW	3/28/00
107247HT	28405	0.785	3960	61.5	100	78.3040	0.0076	0.0106	0.0007	BJW	3/28/00
107248HT	28407	0.785	4140	25	100	31.8309	0.0030	0.0043	0.0007	BJW	3/28/00

Samples Received on: Tuesday, March 28, 2000
Analytical Results based on volumes provided by Radian
Prepared, counted, and calculated in accordance with NIOSH 7400, issue 2.
"<" indicates the results are below the method analytical sensitivity.

Authorized Signature Barbara J. Woodside
Barbara J. Woodside, Microscopist
Wednesday, March 29, 2000

RJ Lee Group, Inc.
Headquarters
350 Hochberg Road
Monroeville, PA 15146
Phone (724) 325-1776
Fax (724) 733-1799

Fiber Counting By Phase Contrast Microscopy (PCM)

	A	B	C	D	E		
1	1.0	0.0	0.0	0.0	0.0	Date:	03/26/00
2	0.0	0.0	0.0	0.0	0.0	Analyst:	BJW
3	0.0	0.0	0.0	0.0	0.0	Initials:	BJW
4	0.0	0.0	0.0	0.0	0.0	Job:	LSC003405
5	1.0	0.0	0.0	0.0	0.0	Client/Dept/Area:	BJLG
6	0.0	0.0	0.0	0.0	0.0	Sample Number:	7240
7	0.0	0.0	0.0	0.0	0.0	Client Sample No.:	28133
8	0.0	0.0	0.0	0.0	0.0	Sample Cost:	0.00
9	0.0	0.0	0.0	0.0	0.0	Volume (liters):	4320.0
10	0.5	0.0	0.0	0.0	0.0	Blank per 100 flds:	0.00
11	0.0	0.0	1.0	0.0	0.0	Total fibers:	5.0
12	0.0	0.0	0.0	0.0	0.0	Number of fields:	100
13	0.0	0.0	0.0	0.0	0.0		
14	0.0	0.0	0.0	1.0	0.0	Field area:	0.007854
15	0.0	0.0	0.0	0.0	0.0	Filter area:	385
16	0.0	0.0	0.0	0.0	0.0	Fibers/sq. mm:	<7.00*
17	0.0	0.0	0.0	0.0	0.0	Fibers/filter:	<2695.0*
18	0.0	0.0	0.0	0.5	0.0	Fibers/cc:	<0.0006*
19	0.0	0.0	0.0	0.0	0.0	Confidence Interval:	0.0001-0.0011
20	0.0	0.0	0.0	0.0	0.0	Remarks: None	

* Below Analytical Sensitivity of 7.00 fibers/sq. mm
Prepared, counted, and calculated in accordance with the NIOSH 7400 method.

RJ Lee Group, Inc. 350 Hochberg Road Phone (412) 325-1776
Headquarters Monroeville, PA 15146 Telefax (412) 733-1799

Location: SSN: - - Sample Time: (min)

Fiber Counting By Phase Contrast Microscopy (PCM)

	A	B	C	D	E		
1	0.0	0.0	0.0	0.0	0.0	Date:	03/26/00
2	0.0	0.0	0.0	0.0	0.0	Analyst:	BJW
3	0.0	0.0	0.0	0.0	0.0	Initials:	BJW
4	0.0	0.0	0.0	0.0	0.0	Job:	LS0003405
5	0.0	0.0	0.0	0.0	1.0	Client/Dept/Area:	RJLG
6	0.0	0.0	0.0	0.0	0.0	Sample Number:	7311
7	0.0	0.0	0.0	0.0	0.0	Client Sample No.:	28135
8	0.0	0.0	0.0	0.5	0.0	Sample Cost:	0.00
9	0.0	0.5	0.0	0.0	0.0	Volume (liters):	4320.0
10	0.0	0.0	0.5	0.0	1.0	Blank per 100 flds:	0.00
11	0.0	0.0	0.0	0.0	0.0	Total fibers:	9.5
12	0.0	0.0	0.0	0.0	0.0	Number of fields:	100
13	0.0	0.0	0.0	0.0	0.0		
14	0.0	0.0	0.0	0.0	0.0	Field area:	0.007851
15	0.0	0.0	1.0	0.0	0.0	Filter area:	385
16	0.0	0.0	0.0	0.0	1.0	Fibers/sq. mm:	12.10
17	0.0	0.0	0.0	0.0	0.0	Fibers/filter:	4656.9
18	1.0	0.0	0.0	0.0	0.5	Fibers/cc:	0.0011
19	0.0	1.0	0.0	0.0	0.0	Confidence Interval:	0.0004-0.0018
20	0.0	1.0	0.5	0.0	0.0	Remarks: None	

Prepared, counted, and calculated in accordance with the NIOSH 7400 method.

RJ Lee Group, Inc. Headquarters
350 Hochberg Road
Monroeville, PA 15146
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Telefax (412) 733-1799

Location: SSN: - - Sample Time: (min)

Fiber Counting By Phase Contrast Microscopy (PCM)

	A	B	C	D	E		
1	0.0	0.0	0.0	0.0	0.0	Date:	03/26/00
2	0.0	0.5	0.0	0.0	0.0	Analyst:	BJW
3	0.0	0.0	0.0	0.0	0.0	Initials:	BJW
4	0.0	0.0	0.0	1.0	0.0	Job:	LSC003405
5	0.0	0.0	0.0	0.0	0.0	Client/Dept/Area:	RJLG
6	0.0	0.0	0.0	0.0	0.0	Sample Number:	7[illegible]2
7	0.0	0.0	0.0	0.0	0.0	Client Sample No.:	28137
8	0.0	0.5	0.0	0.0	0.0	Sample Cost:	0.00
9	0.0	0.0	0.0	0.0	0.0	Volume (liters):	4140.0
10	0.0	0.0	0.0	0.5	0.0	Blank per 100 flds:	0.00
11	0.0	0.0	0.0	0.0	0.0	Total fibers:	3.5
12	0.0	0.0	0.0	0.0	0.0	Number of fields:	100
13	0.0	0.0	0.0	0.0	0.0		
14	0.0	0.0	0.0	0.0	0.0	Field area:	0.007[illegible]4
15	0.0	0.0	0.0	0.0	0.0	Filter area:	385
16	0.0	0.0	0.0	0.0	0.0	Fibers/sq. mm:	<7.00*
17	0.0	0.0	1.0	0.0	0.0	Fibers/filter:	<2695.0*
18	0.0	0.0	0.0	0.0	0.0	Fibers/cc:	<0.00[illegible]7*
19	0.0	0.0	0.0	0.0	0.0	Confidence Interval:	0.0001-0.0012
20	0.0	0.0	0.0	0.0	0.0	Remarks: None	

* Below Analytical Sensitivity of 7.00 fibers/sq. mm
Prepared, counted, and calculated in accordance with the NIOSH 7400 method.

RJ Lee Group, Inc. 350 Hochberg Road Phone (412) 325-1776
Headquarters Monroeville,PA 15146 Telefax (412) 733-1799

Location: SSN: - - Sample Time: (min)

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	A	B	C	D	E		
1	0.0	0.0	0.0	0.0	0.0	Date:	03/26/00
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3	0.0	0.0	0.0	0.0	0.0	Initials:	BJW
4	0.0	0.0	0.0	0.0	0.0	Job:	LSC003405
5	0.0	0.0	0.0	0.0	0.0	Client/Dept/Area:	RJLG
6	0.0	0.0	0.0	0.0	0.0	Sample Number:	7243
7	0.0	0.0	0.0	0.0	1.0	Client Sample No.:	28139
8	0.0	0.0	0.0	0.0	0.0	Sample Cost:	0.00
9	0.0	0.0	0.0	0.0	1.0	Volume (liters):	4320.0
10	0.0	0.0	0.0	0.0	0.0	Blank per 100 flds:	0.00
11	0.0	0.0	0.0	0.0	0.0	Total fibers:	7.5
12	0.0	0.0	1.0	1.0	0.0	Number of fields:	100
13	0.0	0.0	0.0	0.0	0.0		
14	0.0	0.0	0.0	0.0	0.0	Field area:	0.007854
15	0.0	0.0	0.0	0.0	0.0	Filter area:	385
16	0.0	0.0	1.0	0.0	0.0	Fibers/sq. mm:	9.55
17	0.0	0.0	0.0	0.0	0.0	Fibers/filter:	3676.5
18	0.0	0.0	0.0	0.0	0.0	Fibers/cc:	0.0009
19	0.0	0.5	1.0	0.0	0.0	Confidence Interval:	0.0003-0.0011
20	0.0	0.0	0.0	1.0	0.0	Remarks: None	

Prepared, counted, and calculated in accordance with the NIOSH 7400 method.

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Location: SSN: - - Sample Time: (min)

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	A	B	C	D	E		
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2	0.0	0.0	0.0	0.0	0.0	Analyst:	BJW
3	0.0	0.0	0.0	0.0	0.0	Initials:	BJW
4	0.0	0.0	0.0	0.0	0.0	Job:	LSC003405
5	0.0	0.0	0.0	0.0	0.0	Client/Dept/Area:	RJLG
6	0.0	0.0	0.0	0.0	0.0	Sample Number:	7244
7	0.0	0.0	0.0	0.0	0.0	Client Sample No.:	28141
8	0.0	0.0	0.0	0.0	0.0	Sample Cost:	0.00
9	0.0	1.0	0.0	0.0	0.0	Volume (liters):	4320.0
10	0.0	0.0	0.0	0.0	0.0	Blank per 100 flds:	0.00
11	0.0	0.0	0.0	0.0	0.0	Total fibers:	2.5
12	0.0	0.0	0.0	0.0	0.0	Number of fields:	100
13	0.0	0.0	0.0	0.0	0.0		
14	0.0	0.0	0.0	0.0	0.0	Field area:	0.007854
15	0.0	0.0	0.0	0.0	0.0	Filter area:	385
16	1.0	0.0	0.0	0.0	0.0	Fibers/sq. mm:	<7.00*
17	0.0	0.0	0.0	0.0	0.0	Fibers/filter:	<2695.0*
18	0.0	0.0	0.0	0.0	0.0	Fibers/cc:	<0.0006*
19	0.5	0.0	0.0	0.0	0.0	Confidence Interval:	0.0001-0.0011
20	0.0	0.0	0.0	0.0	0.0	Remarks: None	

* Below Analytical Sensitivity of 7.00 fibers/sq. mm
Prepared, counted, and calculated in accordance with the NIOSH 7400 method.

RJ Lee Group, Inc. 350 Hochberg Road Phone (412) 325-1776
Headquarters Monroeville, PA 15146 Telefax (412) 733-1799

Location: SSN: - - Sample Time: (min)

Fiber Counting By Phase Contrast Microscopy (PCM)

	A	B	C	D	E		
1	0.0	0.0	0.0	0.0	0.0	Date:	03/26/00
2	0.0	0.0	1.0	0.0	0.0	Analyst:	BJW
3	0.0	0.0	0.0	0.0	0.0	Initials:	BJW
4	0.0	0.0	0.0	0.0	0.0	Job:	LS0003405
5	0.0	0.0	0.0	0.0	0.0	Client/Dept/Area:	RJLG
6	0.0	0.0	1.0	0.0	0.0	Sample Number:	7245
7	0.0	0.0	0.0	0.0	0.0	Client Sample No.:	28401
8	0.0	0.0	0.0	0.0	0.0	Sample Cost:	0.00
9	0.0	0.0	0.0	0.0	0.0	Volume (liters):	4320.0
10	0.0	0.0	0.0	0.0	0.0	Blank per 100 flds:	0.00
11	0.5	0.0	0.0	0.0	0.0	Total fibers:	5.5
12	0.0	0.0	0.0	0.5	0.0	Number of fields:	100
13	0.0	0.0	0.0	0.0	0.0		
14	0.0	0.0	0.0	0.0	0.0	Field area:	0.007854
15	0.0	0.0	0.0	0.0	0.0	Filter area:	385
16	0.0	0.0	1.0	0.0	0.0	Fibers/sq. mm:	7.00
17	0.0	0.0	0.0	0.0	0.0	Fibers/filter:	2696.1
18	0.0	0.5	0.0	0.0	0.0	Fibers/cc:	0.0006
19	0.0	0.0	0.0	0.0	0.0	Confidence Interval:	0.0001-0.0011
20	0.0	0.0	0.0	1.0	0.0	Remarks: None	

Prepared, counted, and calculated in accordance with the NIOSH 7400 method.

RJ Lee Group, Inc. Headquarters
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Phone (412) 325-1776
Telefax (412) 733-1799

Location: SSN: - - Sample Time: (min)

Fiber Counting By Phase Contrast Microscopy (PCM)

	A	B	C	D	E		
1	1.0	1.0	2.5	2.0	0.5	Date:	03/26/00
2	1.0	1.0	0.0	1.0	1.0	Analyst:	BJW
3	0.0	3.0	1.5	1.0	1.0	Initials:	BJW
4	1.5	1.0	0.5	1.0	3.0	Job:	LSC003405
5	2.0	1.5	0.0	1.5	0.0	Client/Dept/Area:	RJLG
6	2.5	0.0	1.5	0.5	3.0	Sample Number:	7116
7	1.0	0.0	1.0	0.0		Client Sample No.:	28403
8	1.0	1.0	1.0	0.5		Sample Cost:	0.00
9	2.0	2.0	0.0	1.5		Volume (liters):	3960.0
10	2.5	2.5	1.0	1.0		Blank per 100 flds:	0.00
11	2.5	2.0	0.5	2.0		Total fibers:	102.5
12	1.0	1.0	2.5	2.0		Number of fields:	86
13	1.0	1.0	0.5	0.0			
14	0.0	0.5	0.5	0.0		Field area:	0.007854
15	1.5	2.0	1.5	0.5		Filter area:	385
16	3.0	1.0	0.5	1.5		Fibers/sq. mm:	151.75
17	2.0	1.0	1.0	1.0		Fibers/filter:	58424.5
18	1.5	1.0	1.0	1.0		Fibers/cc:	0.0148
19	1.5	1.0	2.0	0.0		Confidence Interval:	0.0093-0.0202
20	2.0	1.5	1.5	0.0		Remarks: None	

Prepared, counted, and calculated in accordance with the NIOSH 7400 method.

RJ Lee Group, Inc. Headquarters
350 Hochberg Road
Monroeville, PA 15146
Phone (412) 325-1776
Telefax (412) 733-1799

Location: SSN: - - Sample Time: (min)

Fiber Counting By Phase Contrast Microscopy (PCM)

	A	B	C	D	E		
1	2.0	0.0	0.0	1.0	0.0	Date:	03/26/00
2	0.0	1.5	0.0	0.5	0.0	Analyst:	BJW
3	0.0	0.0	0.0	1.0	0.0	Initials:	BJW
4	1.0	0.0	0.0	0.5	0.0	Job:	LS0003405
5	0.0	0.5	1.0	1.0	0.0	Client/Dept/Area:	RJLG
6	0.0	1.0	0.0	0.0	1.0	Sample Number:	7247
7	0.5	1.0	0.5	0.0	0.0	Client Sample No.:	28405
8	0.5	1.5	1.0	0.0	0.5	Sample Cost:	0.00
9	0.5	2.0	2.0	0.0	0.0	Volume (liters):	3960.0
10	1.0	1.0	0.0	0.5	0.0	Blank per 100 flds:	0.00
11	0.0	0.0	0.0	0.0	1.0	Total fibers:	61.5
12	4.0	0.0	0.5	3.0	0.0	Number of fields:	100
13	1.0	3.0	0.0	0.5	2.0		
14	1.0	0.0	1.5	0.0	1.0	Field area:	0.007854
15	0.0	1.5	1.0	0.5	1.0	Filter area:	385
16	0.0	0.5	0.0	0.0	0.0	Fibers/sq. mm:	78.30
17	0.5	0.0	1.0	0.0	1.0	Fibers/filter:	30147.1
18	1.5	0.0	2.0	0.0	1.0	Fibers/cc:	0.0076
19	0.5	0.5	0.0	0.0	0.0	Confidence Interval:	0.0046-0.0106
20	1.0	3.0	1.0	0.0	1.0	Remarks: None	

Prepared, counted, and calculated in accordance with the NIOSH 7400 method.

RJ Lee Group, Inc.
Headquarters
350 Hochberg Road
Monroeville, PA 15146
Phone (412) 325-1776
Telefax (412) 733-1799

Location: SSN: - - Sample Time: (min)

Fiber Counting By Phase Contrast Microscopy (PCM)

	A	B	C	D	E		
1	0.0	0.0	1.0	1.0	0.0	Date:	03/26/00
2	0.0	0.0	0.0	0.0	0.0	Analyst:	BJW
3	0.0	0.0	1.0	0.0	0.0	Initials:	BJW
4	0.0	1.5	1.0	0.0	0.0	Job:	LSC003405
5	0.0	0.5	0.0	0.0	0.5	Client/Dept/Area:	RJLG
6	1.0	0.0	0.5	0.0	1.0	Sample Number:	7248
7	0.0	0.0	1.0	0.0	0.0	Client Sample No.:	28407
8	0.0	0.5	0.0	0.0	0.0	Sample Cost:	0.00
9	0.0	0.5	1.0	0.0	0.0	Volume (liters):	4140.0
10	0.5	0.5	0.0	0.0	0.0	Blank per 100 flds:	0.00
11	0.0	1.0	0.0	1.0	0.0	Total fibers:	25.0
12	0.0	0.0	0.0	0.0	0.0	Number of fields:	100
13	0.0	0.0	0.0	0.0	0.0		
14	0.0	1.0	0.0	1.0	0.0	Field area:	0.007854
15	0.0	0.5	0.0	0.0	0.0	Filter area:	385
16	0.5	0.0	0.0	0.0	0.0	Fibers/sq. mm:	31.83
17	1.0	1.0	0.0	0.0	0.0	Fibers/filter:	12254.9
18	0.0	0.0	2.0	0.0	0.0	Fibers/cc:	0.0030
19	1.0	0.0	0.0	1.0	0.0	Confidence Interval:	0.0016-0.0013
20	0.0	0.0	0.0	0.0	1.0	Remarks: None	

Prepared, counted, and calculated in accordance with the NIOSH 7400 method.

RJ Lee Group, Inc. 350 Hochberg Road Phone (412) 325-1776
Headquarters Monroeville,PA 15146 Telefax (412) 733-1799

Location: SSN: - - Sample Time: (min)

Appendix B

Transmission Electron Microscopy

Test Report

Asbestos Concentrations and Fiber Ratios
NIOSH 7402 Analysis

Project LSC003405

RJ Lee Group Sample Number	Client Sample Number	Filter Area (sq mm)	Volume ‡ (Liters)	Area Analyzed (sq mm)	Asbestos Fibers (fs) Chr	Asbestos Fibers (fs) Amp	Analytical Sensitivity (f/cc)	Asbestos Concentration (f/cc)	Total Fibers (Fs)	Fiber Ratio (fs/Fs)	Analysis Date
0107240HT	28133	385	4320.00	0.3604	0.0	0.0	0.0002	<0.0002*	2.0	0	3/28/0
0107241HT	28135	385	4320.00	0.3604	0.0	0.0	0.0002	<0.0002*	0.0	0.00	3/28/0
0107242HT	28137	385	4140.00	0.3604	0.0	0.0	0.0003	<0.0003*	2.0	0	3/29/0
0107243HT	28139	385	4320.00	0.3604	0.0	0.0	0.0002	<0.0002*	1.0	0	3/29/0
0107244HT	28141	385	4320.00	0.3604	0.0	0.0	0.0002	<0.0002*	4.0	0	3/29/0
0107245HT	28401	385	4320.00	0.3604	0.0	0.0	0.0002	<0.0002*	7.5	0	3/29/0
0107246HT	28403	385	3960.00	0.3604	0.0	1.0	0.0003	0.0003	42.5	0.02	3/29/0
0107247HT	28405	385	3960.00	0.3604	0.5	0.0	0.0003	0.0001	29.5	0.02	3/29/0
0107248HT	28407	385	4140.00	0.3604	0.0	3.0	0.0003	0.0008	23.0	0.13	3/29/0

‡ Volumes provided by W R Grace for Project Libby, MT - Parker Property were used to calculate analytical results and sensitivities.
†Analytical sensitivity is the calculated concentration based on one structure in the area analyzed.
Chr - Chrysotile, Amp - Amphibole
* Results Less Than Analytical Sensitivity.

Authorized Signature: Kimberly A. Allison, Manager-TEM Analysis
Date: Friday, March 31, 2000

Samples received on: Tuesday, March 28, 2000

RJ Lee Group, Inc.
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RJ Lee *Group*, Inc

Count Sheet

Client Name	W R Grace		
Project Number	LSC003405	**RJL QA Number**	HQ17809
RJL Sample #	0107240HT	**Grid Openings**	40
Client Sample #	28133	**Total Asbestos**	0
Microscope	1200 EX	**Total Non-Asbestos**	2
Accelerating Volt	120 Kv	**Filter**	CE 385 mm^2
Magnification	1000 X	**Volume**	4320.0 Liters
Analyst	TWS	**Grid Opening Area**	0.009 mm^2
EDS Disk	1753	**Dilution Factor**	1

Field	Fiber	Length µm	Width µm	Structure Type	Morph	EDS	Photo	SAED	Amphibole Type	Comment
1	0			NSD						
2	0			NSD						
3	0			NSD						
4	0			NSD						
5	0			NSD						
6	0			NSD						
7	0			NSD						
8	0			NSD						
9	0			NSD						
10	0			NSD						
11	0			NSD						
12	0			NSD						
13	0			NSD						
14	0			NSD						
15	0			NSD						
16	0			NSD						
17	0			NSD						
18	0			NSD						
19	0			NSD						
20	0			NSD						
21	0			NSD						
22	0			NSD						
23	0			NSD						
24	0			NSD						
25	1	9.50	1.00	Nonasbestos						
26	0			NSD						
27	0			NSD						
28	0			NSD						
29	0			NSD						
30	1	11.00	1.00	Nonasbestos						
31	0			NSD						
32	0			NSD						
33	0			NSD						
34	0			NSD						
35	0			NSD						
36	0			NSD						
37	0			NSD						
38	0			NSD						
39	0			NSD						
40	0			NSD						

NSD - No Structures Detected

RJ Lee *Group* , Inc

Count Sheet

Client Name	W R Grace		
Project Number	LSC003405	RJL QA Number	HQ17809
RJL Sample #	0107241HT	Grid Openings	40
Client Sample #	28135	Total Asbestos	0
Microscope	1200 EX	Total Non-Asbestos	0
Accelerating Volt	120 Kv	Filter	CE 385 mm^2
Magnification	1000 X	Volume	4320.0 Liters
Analyst	TWS	Grid Opening Area	0.009 mm^2
EDS Disk	1753	Dilution Factor	1

Field	Fiber	Length µm	Width µm	Structure Type	Morph	EDS	Photo	SAED	Amphibole Type	Comment
1	0			NSD						
2	0			NSD						
3	0			NSD						
4	0			NSD						
5	0			NSD						
6	0			NSD						
7	0			NSD						
8	0			NSD						
9	0			NSD						
10	0			NSD						
11	0			NSD						
12	0			NSD						
13	0			NSD						
14	0			NSD						
15	0			NSD						
16	0			NSD						
17	0			NSD						
18	0			NSD						
19	0			NSD						
20	0			NSD						
21	0			NSD						
22	0			NSD						
23	0			NSD						
24	0			NSD						
25	0			NSD						
26	0			NSD						
27	0			NSD						
28	0			NSD						
29	0			NSD						
30	0			NSD						
31	0			NSD						
32	0			NSD						
33	0			NSD						
34	0			NSD						
35	0			NSD						
36	0			NSD						
37	0			NSD						
38	0			NSD						
39	0			NSD						
40	0			NSD						

NSD - No Structures Detected

RJ Lee Group, Inc
Count Sheet

Client Name	W R Grace		
Project Number	LSC003405	RJL QA Number	HQ17809
RJL Sample #	0107242HT	Grid Openings	40
Client Sample #	28137	Total Asbestos	0
Microscope	1200 EX	Total Non-Asbestos	2
Accelerating Volt	120 Kv	Filter	CE 385 mm^2
Magnification	1000 X	Volume	4140.0 Liters
Analyst	TWS	Grid Opening Area	0.009 mm^2
EDS Disk	1753	Dilution Factor	1

Field	Fiber	Length µm	Width µm	Structure Type	Morph	EDS	Photo	SAED	Amphibole Type	Comment
1	0			NSD						
2	0			NSD						
3	0			NSD						
4	0			NSD						
5	0			NSD						
6	0			NSD						
7	0			NSD						
8	0			NSD						
9	0			NSD						
10	0			NSD						
11	0			NSD						
12	0			NSD						
13	0			NSD						
14	0			NSD						
15	0			NSD						
16	0			NSD						
17	0			NSD						
18	0			NSD						
19	0			NSD						
20	0			NSD						
21	1	9.00	1.00	Nonasbestos						
22	0			NSD						
23	0			NSD						
24	0			NSD						
25	0			NSD						
26	0			NSD						
27	0			NSD						
28	0			NSD						
29	0			NSD						
30	0			NSD						
31	0			NSD						
32	0			NSD						
33	1	6.00	0.70	Nonasbestos						
34	0			NSD						
35	0			NSD						
36	0			NSD						
37	0			NSD						
38	0			NSD						
39	0			NSD						
40	0			NSD						

NSD - No Structures Detected

RJ Lee *Group*, Inc

Count Sheet

Client Name	W R Grace		
Project Number	LSC003405	**RJL QA Number**	HQ17809
RJL Sample #	0107243HT	**Grid Openings**	40
Client Sample #	28139	**Total Asbestos**	0
Microscope	1200 BX	**Total Non-Asbestos**	1
Accelerating Volt	120 Kv	**Filter**	CE 385 mm^2
Magnification	:000 X	**Volume**	4320.0 Liters
Analyst	TWS	**Grid Opening Area**	0.009 mm^2
EDS Disk	1753	**Dilution Factor**	1

Field	Fiber	Length µm	Width µm	Structure Type	Morph	EDS	Photo	SAED	Amphibole Type	Comment
1	0			NSD						
2	0			NSD						
3	0			NSD						
4	0			NSD						
5	0			NSD						
6	0			NSD						
7	0			NSD						
8	0			NSD						
9	0			NSD						
10	0			NSD						
11	0			NSD						
12	0			NSD						
13	0			NSD						
14	0			NSD						
15	0			NSD						
16	0			NSD						
17	0			NSD						
18	0			NSD						
19	0			NSD						
20	0			NSD						
21	0			NSD						
22	0			NSD						
23	0			NSD						
24	0			NSD						
25	0			NSD						
26	0			NSD						
27	0			NSD						
28	0			NSD						
29	0			NSD						
30	0			NSD						
31	0			NSD						
32	0			NSD						
33	1	6.25	1.90	Nonasbestos		X				
34	0			NSD						
35	0			NSD						
36	0			NSD						
37	0			NSD						
38	0			NSD						
39	0			NSD						
40	0			NSD						

NSD - No Structures Detected

RJ Lee Group, Inc

Count Sheet

Client Name	W R Grace		
Project Number	LSC003405	RJL QA Number	HQ17809
RJL Sample #	0107244HT	Grid Openings	40
Client Sample #	28141	Total Asbestos	0
Microscope	1200 EX	Total Non-Asbestos	4
Accelerating Volt	120 Kv	Filter	CE 385 mm^2
Magnification	1000 X	Volume	4320.0 Liters
Analyst	TWS	Grid Opening Area	0.009 mm^2
EDS Disk	1753	Dilution Factor	1

Field	Fiber	Length µm	Width µm	Structure Type	Morph	EDS	Photo	SAED	Amphibole Type	Comment
1	1	7.50	1.20	Nonasbestos						
2	0			NSD						
3	0			NSD						
4	0			NSD						
5	0			NSD						
6	0			NSD						
7	0			NSD						
8	0			NSD						
9	0			NSD						
10	0			NSD						
11	0			NSD						
12	0			NSD						
13	0			NSD						
14	0			NSD						
15	0			NSD						
16	0			NSD						
17	0			NSD						
18	0			NSD						
19	0			NSD						
20	0			NSD						
21	0			NSD						
22	1	15.00	1.75	Nonasbestos						
23	0			NSD						
24	0			NSD						
25	0			NSD						
26	0			NSD						
27	0			NSD						
28	0			NSD						
29	0			NSD						
30	0			NSD						
31	0			NSD						
32	1	12.50	1.20	Nonasbestos						
33	0			NSD						
34	0			NSD						
35	0			NSD						
36	0			NSD						
37	0			NSD						
38	1	8.50	1.00	Nonasbestos						
39	0			NSD						
40	0			NSD						

NSD - No Structures Detected

RJ Lee Group, Inc

Count Sheet

Client Name	W R Grace		
Project Number	LSC003405	RJL QA Number	HQ17809
RJL Sample #	0107245HT	Grid Openings	40
Client Sample #	28401	Total Asbestos	0
Microscope	1200 EX	Total Non-Asbestos	7.5
Accelerating Volt	120 Kv	Filter	CE 385 mm^2
Magnification	1000 X	Volume	4320.0 Liters
Analyst	DHG	Grid Opening Area	0.009 mm^2
EDS Disk	1753	Dilution Factor	1

Field	Fiber	Length µm	Width µm	Structure Type	Morph	EDS	Photo	SAED	Amphibole Type	Comment
1	0			NSD						
2	0			NSD						
3	0			NSD						
4	0			NSD						
5	0			NSD						
6	1	8.70	1.20	Nonasbestos						
7	0			NSD						
8	0			NSD						
9	0			NSD						
10	1	7.00	1.25	Nonasbestos						
11	0			NSD						
12	0			NSD						
13	0			NSD						
14	0			NSD						
15	0			NSD						
16	0			NSD						
17	0			NSD						
18	1	5.50	0.75	Nonasbestos						
18	1	7.20	1.20	Nonasbestos						
19	0			NSD						
20	0			NSD						
21	0			NSD						
22	0			NSD						
23	0			NSD						
24	0			NSD						
25	0			NSD						
26	0			NSD						
27	0			NSD						
28	1	6.50	0.30	Nonasbestos						
29	1	14.50	1.25	Nonasbestos						
30	0			NSD						
31	0.5	22.50	0.80	Nonasbestos						
32	0			NSD						
33	0			NSD						
34	0			NSD						
35	0			NSD						
36	0			NSD						
37	1	8.30	1.00	Nonasbestos						
38	0			NSD						
39	0			NSD						
40	0			NSD						

NSD - No Structures Detected

RJ Lee Group, Inc
Count Sheet

Client Name	W R Grace		
Project Number	LSC003405	RJL QA Number	HQ17809
RJL Sample #	0107246HT	Grid Openings	40
Client Sample #	28403	Total Asbestos	1
Microscope	1200 EX	Total Non-Asbestos	41.5
Accelerating Volt	120 Kv	Filter	CE 385 mm^2
Magnification	1000 X	Volume	3960.0 Liters
Analyst	DHG/RBG	Grid Opening Area	0.009 mm^2
EDS Disk	1753	Dilution Factor	1

Field	Fiber	Length µm	Width µm	Structure Type	Morph	EDS	Photo	SAED	Amphibole Type	Comment
1	0.5	8.50	0.40	Nonasbestos						
2	1	9.50		Nonasbestos						
2	0.5	17.00	1.00	Nonasbestos						
3	1	20.00	2.00	Nonasbestos						
4	0			NSD						
5	0			NSD						
6	0			NSD						
7	1	8.50	1.30	Nonasbestos						
7	1	8.00	1.60	Nonasbestos						
7	1	26.20	1.25	Nonasbestos						
8	1	7.00	0.70	Nonasbestos		42		38482		
8	0.5	35.00	1.00	Nonasbestos						
9	0			NSD						
10	1	13.00	0.30	Nonasbestos						
10	1	15.00	1.00	Nonasbestos						
10	1	32.00	1.25	Nonasbestos						
11	0.5	23.50	1.00	Nonasbestos						
12	0.5	13.50	0.70	Nonasbestos						
13	0			NSD						
14	1	14.50	1.25	Nonasbestos						
15	0.5	22.50	1.50	Nonasbestos						
16	1	7.00	1.20	Nonasbestos						
17	0.5	11.00	0.90	Nonasbestos						
18	1	15.00	0.80	Nonasbestos						
19	1	12.00	1.10	Nonasbestos						
20	1	27.50	1.30	Nonasbestos						
21	0.5	10.50	1.50	Nonasbestos						
22	1	10.50	1.20	Nonasbestos		X		X		
23	1	13.00	1.60	Nonasbestos						
23	1	10.50	0.60	Amphibole		43		38486		
23	1	16.00	0.50	Nonasbestos						
23	1	22.50	1.00	Nonasbestos						
23	1	23.00	0.50	Nonasbestos	M	X		X		
24	1	10.00	1.00	Nonasbestos						
24	1	8.50	0.50	Nonasbestos						
25	0			NSD						
26	1	30.00	0.50	Nonasbestos						
27	0			NSD						
28	1	30.00	3.50	Nonasbestos						
29	0.5	13.00	0.50	Nonasbestos						
30	1	16.00	0.60	Nonasbestos						
31	0			NSD						
32	0			NSD						
33	0			NSD						

NSD - No Structures Detected

RJ Lee *Group*, Inc.

Count Sheet

Client Name	W R Grace		
Project Number	LSC003405	**RJL QA Number**	HQ17809
RJL Sample #	0107246HT	**Grid Openings**	40
Client Sample #	28403	**Total Asbestos**	1
Microscope	1200 EX	**Total Non-Asbestos**	41.5
Accelerating Volt	120 Kv	**Filter**	CE 385 mm^2
Magnification	1000 X	**Volume**	3960.0 Liters
Analyst	DHG/RBG	**Grid Opening Area**	0.009 mm^2
EDS Disk	1753	**Dilution Factor**	1

Field	Fiber	Length µm	Width µm	Structure Type	Morph	EDS	Photo	SAED	Amphibole Type	Comment
34	1	37.50	0.80	Nonasbestos						
35	1	6.50	0.50	Nonasbestos						
35	1	35.50	0.30	Nonasbestos						
35	1	12.50	0.80	Nonasbestos						
36	1	27.00	1.20	Nonasbestos						
36	1	18.50	1.00	Nonasbestos						
36	1	23.50	0.70	Nonasbestos						
37	1	18.50	1.60	Nonasbestos		44		38488		
38	1	17.50	1.00	Nonasbestos						
38	1	9.00	0.35	Nonasbestos		45		38489		
39	1	16.00	1.50	Nonasbestos						
39	1	17.50	3.50	Nonasbestos						
40	1	8.00	2.00	Nonasbestos		X				

RJ Lee Group, Inc

Count Sheet

Client Name	W R Grace		
Project Number	LSC003405	**RJL QA Number**	HQ17809
RJL Sample #	0107247HT	**Grid Openings**	40
Client Sample #	28405	**Total Asbestos**	0.5
Microscope	1200 EX	**Total Non-Asbestos**	29
Accelerating Volt	120 Kv	**Filter**	CE 385 mm^2
Magnification	1000 X	**Volume**	3960.0 Liters
Analyst	RDG	**Grid Opening Area**	0.009 mm^2
EDS Disk	1753	**Dilution Factor**	1

Field	Fiber	Length µm	Width µm	Structure Type	Morph	EDS	Photo	SAED	Amphibole Type	Comment
1	0			NSD						
2	1	8.50	0.80	Nonasbestos						
2	1	7.50	1.00	Nonasbestos						
3	1	17.50	4.00	Nonasbestos						
3	0.5	20.00	0.50	Nonasbestos						
4	0			NSD						
5	0.5	15.00	0.75	Nonasbestos						
5	1	11.00	1.50	Nonasbestos						
5	1	12.50	2.50	Nonasbestos						
6	0			NSD						
7	1	10.00	0.50	Nonasbestos						
8	0			NSD						
9	1	5.50	1.00	Nonasbestos		X				
10	0.5	8.50	0.40	Nonasbestos						
10	1	9.00	1.00	Nonasbestos						
11	1	22.50	0.80	Nonasbestos		46		38491		
12	1	12.50	0.35	Nonasbestos						
13	0			NSD						
14	1	10.00	1.00	Nonasbestos						
15	0			NSD						
16	0.5	20.00	0.50	Nonasbestos						
17	0			NSD						
18	1	13.00	0.65	Nonasbestos	M	X		X		
19	0.5	35.00	2.50	Nonasbestos						
20	0			NSD						
21	0			NSD						
22	1	7.50	1.25	Nonasbestos						
22	1	22.50	2.00	Nonasbestos						
23	0			NSD						
24	0.5	9.80	0.40	Nonasbestos		X		X		
24	1	8.50	0.40	Nonasbestos		X		X		
24	1	17.50	2.00	Nonasbestos						
25	1	11.00	0.80	Nonasbestos						
25	1	25.00	0.75	Nonasbestos						
26	0.5	8.00	0.65	Nonasbestos						
27	1	11.50	1.00	Nonasbestos						
27	1	17.50	2.00	Nonasbestos		X				
28	0			NSD						
29	1	9.00	2.00	Nonasbestos		X				
30	0			NSD						
31	0			NSD						
32	1	7.00	0.70	Nonasbestos						
33	0.5	22.50	0.30	Chrysotile				38492		
33	0.5	17.50	0.50	Nonasbestos						

NSD - No Structures Detected

RJ Lee *Group*, Inc

Count Sheet

Client Name	W R Grace		
Project Number	LSC003405	**RJL QA Number**	HQ17809
RJL Sample #	0107247HT	**Grid Openings**	40
Client Sample #	28405	**Total Asbestos**	0.5
Microscope	1200 EX	**Total Non-Asbestos**	29
Accelerating Volt	120 Kv	**Filter**	CE 385 mm^2
Magnification	1000 X	**Volume**	3960.0 Liters
Analyst	RBG	**Grid Opening Area**	0.009 mm^2
EDS Disk	1753	**Dilution Factor**	1

Field	Fiber	Length µm	Width µm	Structure Type	Morph	EDS	Photo	SAED	Amphibole Type	Comment
34	0			NSD						
35	0.5	10.00	1.20	Nonasbestos						
35	1	7.50	1.30	Nonasbestos						
36	1	17.50	0.60	Nonasbestos						
37	0			NSD						
38	0.5	10.00	1.50	Nonasbestos						
39	0			NSD						
40	0			NSD						

NSD - No Structures Detected

RJ Lee Group, Inc
Count Sheet

Client Name	W R Grace		
Project Number	LSC003405	RJL QA Number	HQ17809
RJL Sample #	0107248HT	Grid Openings	40
Client Sample #	28407	Total Asbestos	3
Microscope	1200 EX	Total Non-Asbestos	20
Accelerating Volt	120 Kv	Filter	CE 385 mm^2
Magnification	1000 X	Volume	4140.0 Liters
Analyst	TWS	Grid Opening Area	0.009 mm^2
EDS Disk	1753	Dilution Factor	1

Field	Fiber	Length µm	Width µm	Structure Type	Morph	HDS	Photo	SAED	Amphibole Type	Comment
1	0			NSD						
2	0			NSD						
3	0.5	29.00	3.50	Nonasbestos						
4	0			NSD						
5	1	53.00	5.00	Nonasbestos						
6	0			NSD						
7	1	7.00	0.50	Amphibole		47		38493		
7	0.5	9.50	0.80	Nonasbestos						
7	1	6.25	1.50	Nonasbestos						
8	0			NSD						
9	0			NSD						
10	0			NSD						
11	1	19.00	1.80	Nonasbestos		X				
12	0			NSD						
13	0			NSD						
14	1	6.00	0.40	Nonasbestos						
14	1	8.00	0.50	Nonasbestos						
15	0			NSD						
16	0			NSD						
17	0			NSD						
18	1	14.00	2.50	Nonasbestos						
19	0			NSD						
20	1	8.50	0.80	Nonasbestos						
21	1	10.00	2.00	Nonasbestos						
22	1	5.10	1.20	Nonasbestos						
23	1	7.50	2.00	Nonasbestos						
24	0			NSD						
25	0			NSD						
26	1	9.50	0.50	Amphibole		X		X		
27	1	20.00	2.50	Nonasbestos						
28	1	5.25	0.60	Nonasbestos						
28	1	6.25	0.30	Amphibole		X		X		
29	1	8.00	1.00	Nonasbestos						
29	1	6.50	0.40	Nonasbestos						
30	0			NSD						
31	1	9.50	1.00	Nonasbestos						
32	0			NSD						
33	0.5	7.00	0.60	Nonasbestos						
34	1	10.50	1.00	Nonasbestos						
35	0			NSD						
36	1	6.00	0.50	Nonasbestos						
37	0			NSD						
38	0.5	41.00	2.00	Nonasbestos						
39	1	12.00	0.50	Nonasbestos						

NSD - No Structures Detected

RJ Lee Group, Inc.

Count Sheet

Client Name	W R Grace		
Project Number	LSC003405	**RJL QA Number**	HQ17809
RJL Sample #	0107248HT	**Grid Openings**	40
Client Sample #	28407	**Total Asbestos**	3
Microscope	1200 EX	**Total Non-Asbestos**	20
Accelerating Volt	120 Kv	**Filter**	CE 385 mm^2
Magnification	1000 X	**Volume**	4140.0 Liters
Analyst	TWS	**Grid Opening Area**	0.009 mm^2
EDS Disk	1753	**Dilution Factor**	1

Field	Fiber	Length µm	Width µm	Structure Type	Morph	EDS	Photo	SAED	Amphibole Type	Comment
40	0			NSD						

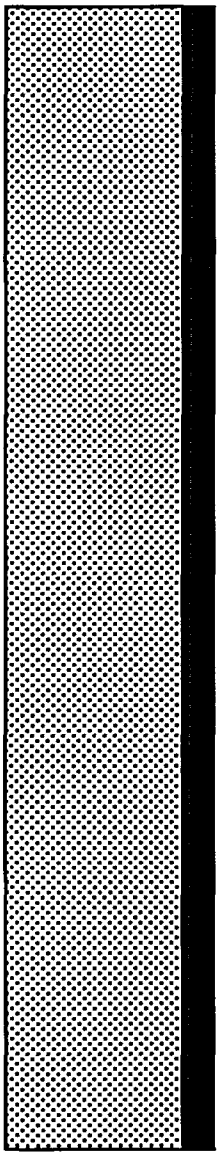
NSD - No Structures Detected

RJ Lee Group Project No LSH002397 – W.R. Grace & Company – Boring Log

RJLG Sample ID: 3025474, 3025475, 3025476, 3025477
Field Sample ID: E-02-09 A 6", 10 B 12",11 C 18", 12 D 24"
Location: Soil Sample Right Center Field Ball Field 5' South of #1

Depth in Inches

0



6

12

18

24

Core observations for 3025474 – 6 inches of sandy brown soil (10 YR 5/3). Root matter observed.

Core observations for 3025475 – 6 inches of sandy brown soil (10 YR 5/3).

Core observations for 3025476 - 6 inches of sandy grayish brown soil (10 YR 5/2).

Core observations for 3025477 - 6 inches of sandy grayish brown soil (10 YR 5/2).

LEGEND

SAND
MIXED SOIL
GRAVEL
WOOD

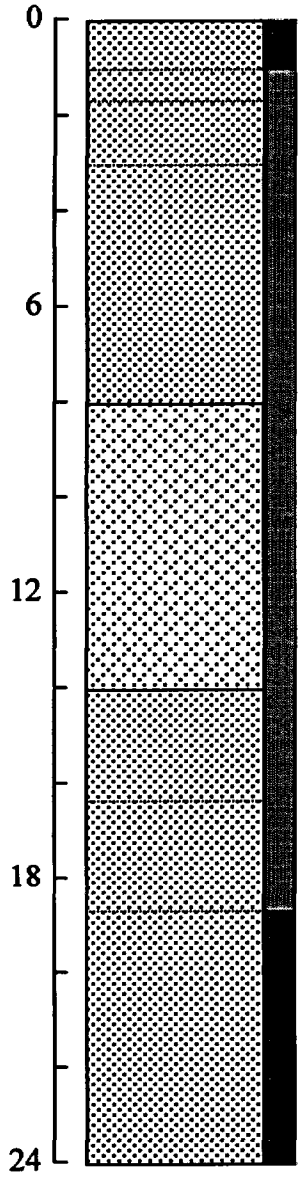
OTHER
NO SAMPLE
POSITIVE VERMICULITE ID
NEGATIVE VERMICULITE ID

Office of Enforcement
SEP 06 2000
Compliance & Env. Justice

RJ Lee Group Project No LSH002397 – W.R. Grace & Company – Boring Log

RJLG Sample ID: 3025462, 3025463, 3025464, 3025465
Field Sample ID: E-01-09 A 6", 10 B 12",11 C 18", 12 D 24"
Location: Soil Sample SW Corner of Planer Building

Depth in Inches



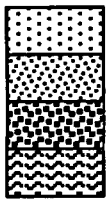
Core observations for 3025462 – top 1 inch is a dark grayish brown soil with no vermiculite (10YR 4/2). From 1 – 1.75 inch carbonaceous material (wood mulch) is present. 1.75 – 3 is mixed soil and vermiculite. 3 – 6 inches is greenish sand with mixed amphibole and vermiculite. Asbestiform amphibole identified.

Core observations for 3025463 – top 2 inches is a vermiculite mix. From 2 – 2.5 is a sandy soil. 2.5 to 6 inches is a sand/vermiculite/amphibole mix. Asbestiform amphibole identified.

Core observations for 3025464 – top 2 inches is a sand/vermiculite/amphibole mix. Asbestiform amphibole identified. 2 to 4.5 inches is a mixed sand and gravel. Bottom 1.5 inches is a fine sandy grayish brown soil (10 YR 5/2 with trace vermiculite.

Core observations for 3025465 - top 1.5 inches is a fine sandy grayish brown soil (10 YR 5/2) with trace vermiculite. Bottom 4.5 inches is a fine sandy grayish brown soil (10 YR 5/2).

LEGEND



SAND
MIXED SOIL
GRAVEL
WOOD

OTHER
NO SAMPLE
POSITIVE VERMICULITE ID
NEGATIVE VERMICULITE ID

RJ Lee Group Project No LSH002397 – W.R. Grace & Company – Boring Log

RJLG Sample ID: 3025470, 3025471, 3025472, 3025473
Field Sample ID: E-02-05 A 6", 06 B 12",07 C 18", 08 D 24"
Location: Soil Sample Right Center Field Ball Field 10' East of #1

Depth in Inches

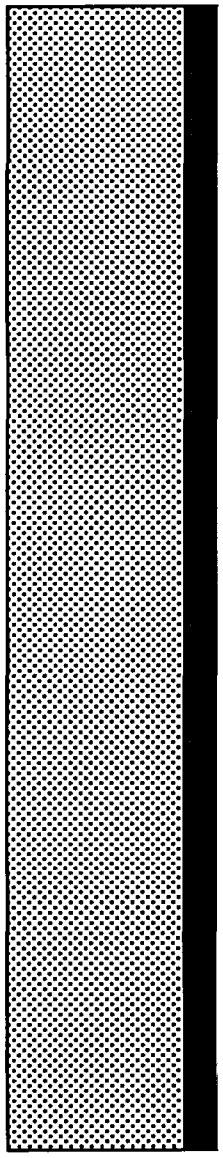
0

6

12

18

24



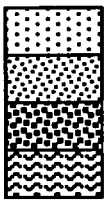
Core observations for 3025470 - 6 inches of fine grained sandy brown soil (10YR 5/3). Root matter observed. No vermiculite observed.

Core observations for 3025471 – 6 inches of fine grained sandy brown soil (10YR 5/3). Root matter observed. No vermiculite observed.

Core observations for 3025472 - 6 inches of fine grained sandy grayish brown soil (10YR 5/2). Root matter observed. No vermiculite observed.

Core observations for 3025473 - 6 inches of fine grained sandy grayish brown soil (10YR 5/2). Root matter observed. No vermiculite observed.

LEGEND



SAND
MIXED SOIL
GRAVEL
WOOD

OTHER
NO SAMPLE
POSITIVE VERMICULITE ID
NEGATIVE VERMICULITE ID

RJ Lee Group Project No LSH002397 – W.R. Grace & Company – Boring Log

RJLG Sample ID: 3025466, 3025467, 3025468, 3025469
Field Sample ID: E-02-01 A 6", 02 B 12", 03 C 18", 04 D 24"
Location: Soil Sample Right Center Field Ball Field

Depth in Inches

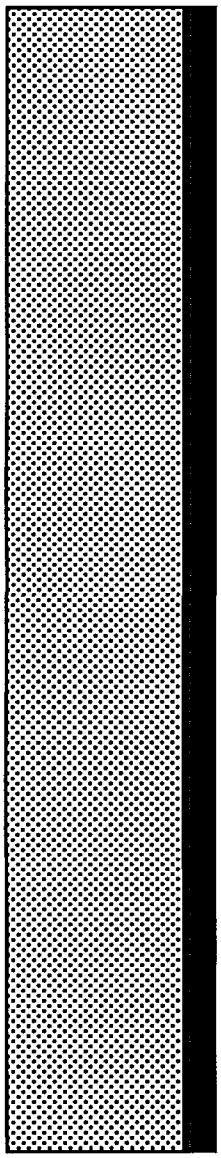
0

6

12

18

24



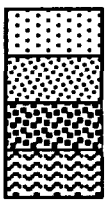
Core observations for 3025466 – 6 inches of fine grained sandy brown soil (10YR 5/3). Root matter observed. No vermiculite observed.

Core observations for 3025467 – 6 inches of fine grained sandy brown soil (10YR 5/3). Root matter observed. No vermiculite observed.

Core observations for 3025468 - 6 inches of fine grained sandy brown soil (10YR 5/3).

Core observations for 3025469 - 6 inches of fine grained sandy brown soil (10YR 5/3).

LEGEND



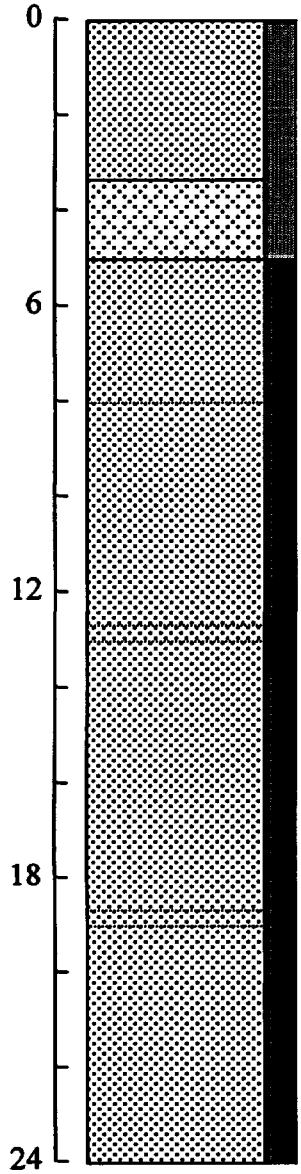
SAND
MIXED SOIL
GRAVEL
WOOD

OTHER
NO SAMPLE
POSITIVE VERMICULITE ID
NEGATIVE VERMICULITE ID

RJ Lee Group Project No LSH002397 – W.R. Grace & Company – Boring Log

RJLG Sample ID: 3025502, 3025503, 3025504, 3025505
Field Sample ID: E-05-01 A 6", 02 B 12",03 C 18", 04 D 24"
Location: Soil Sample North Center Pole Barn

Depth in Inches



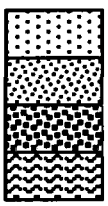
Core observations for 3025502 –3.5 inches of dark brown sandy soil (10YR 3/3) with mixed gravel and vermiculite. Vermiculite band at 3.5 to 5. Very dark brown soil (10YR 2/2) from 5 to 6 inches with no vermiculite observed. Asbestiform amphibole identified.

Core observations for 3025503 – 2 inches of very dark brown soil (10YR 2/2) with minor vermiculite and amphibole. Burnt carbonaceous material (wood) observed. 4 inches of sandy brown soil (10YR 5/3) with no vermiculite.

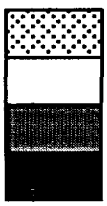
Core observations for 3025504 - 6 inches of sandy brown soil (10YR 5/3) with no vermiculite. Burnt carbonaceous material (wood) observed with thin 0.2 inch band at 1 inch depth.

Core observations for 3025505 - 6 inches of sandy brown soil (10YR 5/3) with no vermiculite. Brown carbonaceous material (wood) observed with thin 0.2 inch band at 1 inch depth.

LEGEND



SAND
MIXED SOIL
GRAVEL
WOOD

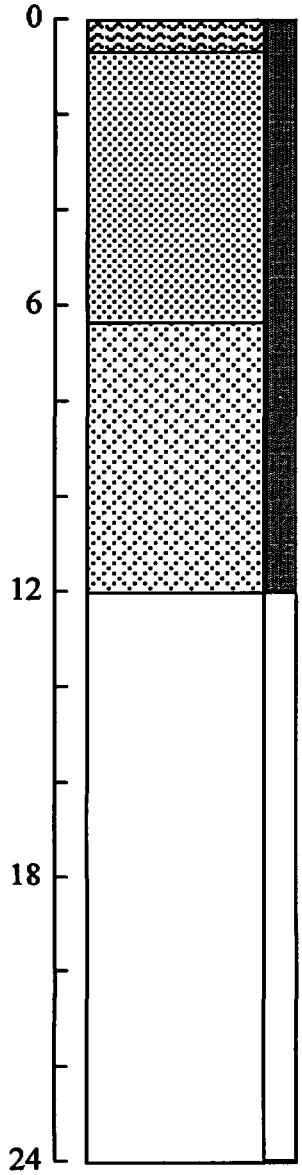


OTHER
NO SAMPLE
POSITIVE VERMICULITE ID
NEGATIVE VERMICULITE ID

RJ Lee Group Project No LSH002397 – W.R. Grace & Company – Boring Log

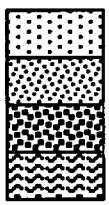
RJLG Sample ID: 3025458, 3025459
Field Sample ID: E-01-05 A 6", 06 B 12"
Location: Soil Sample SW Corner Planer Building

Depth in Inches

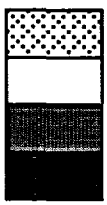


Core observations for 3025458 – Top 0.5 inch mixed wood chips, 0.5 to 2.5 inches is a dark gray (greenish) mixed soil (10 YR 4/1) with gravel and vermiculite. Asbestiform amphibole identified. 2.5 to 6 inches is a brown soil (10 YR 4/3) with trace vermiculite and amphibole.
Core observations for 3025459 – Top 0.5 inch is a brown soil (10 YR 4/3) with trace vermiculite and amphibole. 0.5 to 6 inches dominantly fine grained vermiculite (exfoliated) with minor amphibole. Asbestiform amphibole identified.
No sample -
No sample -

LEGEND



SAND
MIXED SOIL
GRAVEL
WOOD



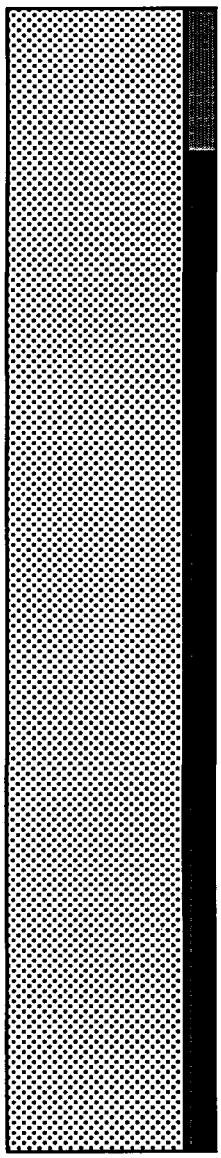
OTHER
NO SAMPLE
POSITIVE VERMICULITE ID
NEGATIVE VERMICULITE ID

RJ Lee Group Project No LSH002397 – W.R. Grace & Company – Boring Log

RJLG Sample ID: 3025478, 3025479, 3025480, 3025481
Field Sample ID: E-03-01 A 6", 02 B 12",03 C 18", 04 D 24"
Location: Soil Sample Center Field Ball Field

Depth in Inches

0
6
12
18
24



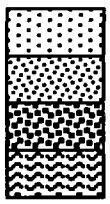
Core observations for 3025478 – 6 inches of fine sandy brown soil (10 YR 5/3). Trace vermiculite (top 3 inches) and burnt carbonaceous material (wood) observed. Root matter observed.

Core observations for 3025479 – 6 inches of fine sandy brown soil (10 YR 5/3). Trace burnt carbonaceous material (wood) observed in top two inches.

Core observations for 3025480 - 6 inches of fine sandy brown soil (10 YR 5/3). Center inch region (3-4 inch depth) contains red banded soils.

Core observations for 3025481 - 6 inches of fine sandy brown soil (10 YR 5/3).

LEGEND



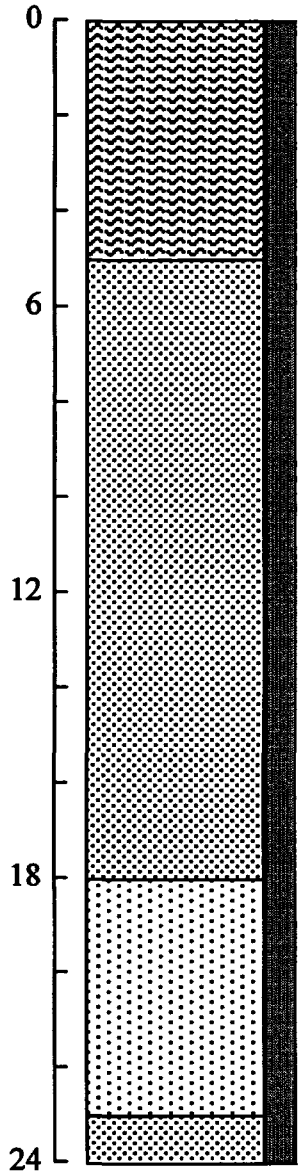
SAND
MIXED SOIL
GRAVEL
WOOD

OTHER
NO SAMPLE
POSITIVE VERMICULITE ID
NEGATIVE VERMICULITE ID

RJ Lee Group Project No LSH002397 – W.R. Grace & Company – Boring Log

RJLG Sample ID: 3025454, 3025455, 3025456, 3025457
Field Sample ID: E-01-01 A 6", 02 B 12",03 C 18", 04 D 24"
Location: Soil Sample SW Corner Planer Building

Depth in Inches



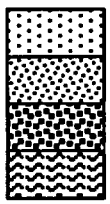
Core observations for 3025454 – top 5 inches is dominantly wood chips with minor vermiculite. Bottom 1 inch is a dark grayish brown sandy soil (10YR 4/2). Trace vermiculite and amphibole. Asbestiform amphibole identified.

Core observations for 3025455 – 6 inches is a dark grayish brown sandy soil (10YR 4/2). Trace vermiculite and amphibole. Asbestiform amphibole identified.

Core observations for 3025456 - 6 inches of dark grayish brown sandy soil (10YR 4/2). Trace vermiculite and amphibole. Asbestiform amphibole identified.

Core observations for 3025457 – 5 inches of coarse to medium grained (greenish) sand with vermiculite. 1 inch (reddish) brown soil (7.5YR 4/3) with intermixed vermiculite and burnt carbonaceous material (wood).

LEGEND

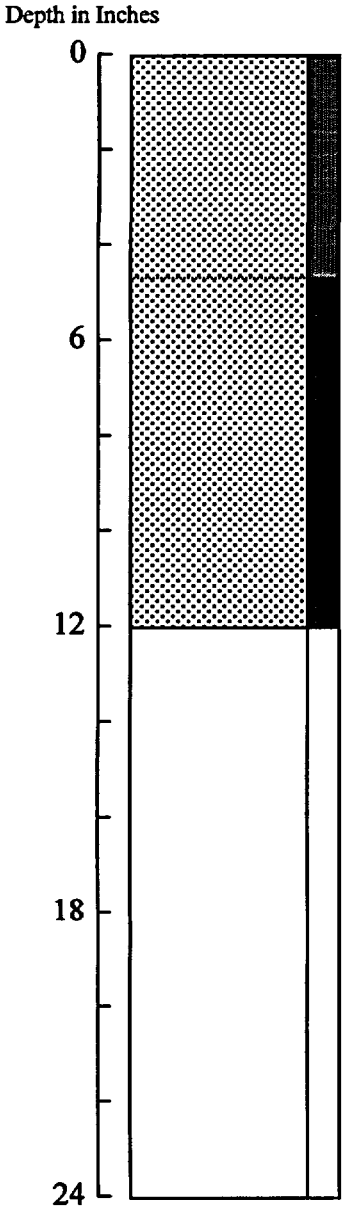


SAND
MIXED SOIL
GRAVEL
WOOD

OTHER
NO SAMPLE
POSITIVE VERMICULITE ID
NEGATIVE VERMICULITE ID

RJ Lee Group Project No LSH002397 – W.R. Grace & Company – Boring Log

RJLG Sample ID: 3025486, 3025487
Field Sample ID: E-03-09 A 6", 10 B 12"
Location: Soil Sample Center Field 10' East of #1



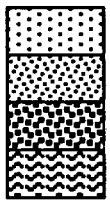
Core observations for 3025486 – 4.5 inches of sandy brown medium grained soil (10YR 5/3). Trace vermiculite and amphibole observed. Asbestiform amphibole identified. Minor burnt carbonaceous material (wood). Bottom 1.5 inches sandy brown medium grained soil (10YR 5/3) with no vermiculite observed.

Core observations for 3025487 – Bottom 6 inches sandy brown medium grained soil (10YR 5/3) with no vermiculite observed.

No sample -

No sample -

LEGEND



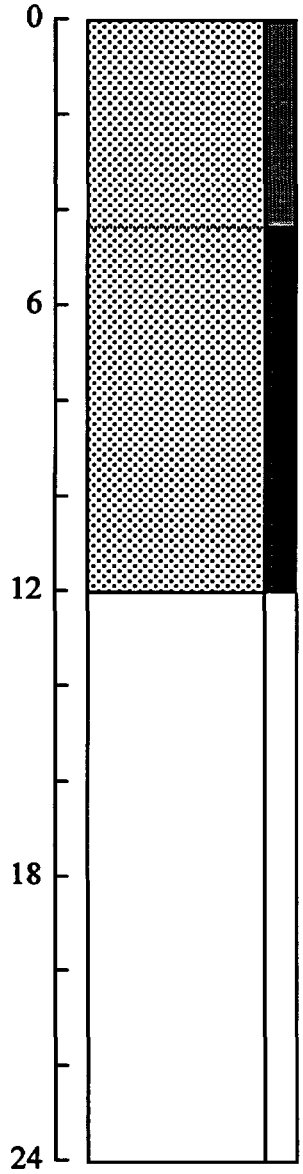
SAND
MIXED SOIL
GRAVEL
WOOD

OTHER
NO SAMPLE
POSITIVE VERMICULITE ID
NEGATIVE VERMICULITE ID

RJ Lee Group Project No LSH002397 – W.R. Grace & Company – Boring Log

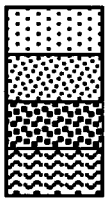
RJLG Sample ID: 3025494, 3025495
Field Sample ID: E-04-05 A 6", 06 B 12"
Location: Soil Sample Left Field East Ball Field 10' West of #1

Depth in Inches

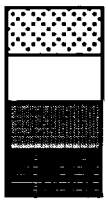


0 – 6	Core observations for 3025494 – top 4.5 inches is a brown soil (10YR 4/3) with moderate vermiculite. Asbestiform amphibole observed. Bottom 1.5 inches is a sandy brown soil (10 YR 5/3). Minor burnt carbonaceous material (wood). No vermiculite observed.
6 – 12	Core observations for 3025495 - 6 inches of sandy brown soil (10 YR 5/3). No vermiculite observed.
12 – 18	No sample -
18 – 24	No sample -

LEGEND



SAND
MIXED SOIL
GRAVEL
WOOD



OTHER
NO SAMPLE
POSITIVE VERMICULITE ID
NEGATIVE VERMICULITE ID

RJ Lee Group Project No LSH002397 – W.R. Grace & Company – Boring Log

RJLG Sample ID: 3025482, 3025483, 3025484, 3025485
Field Sample ID: E-03-05 A 6", 06- B 12",07 C 18", 08 D 24"
Location: Soil Sample Center Field 10' east of #1

Depth in Inches

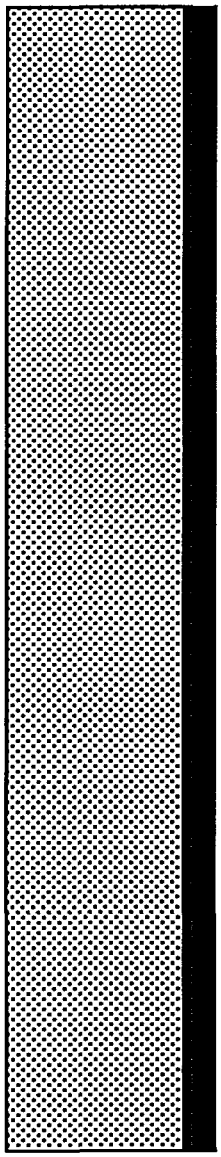
0

6

12

18

24



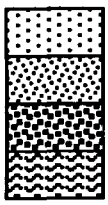
Core observations for 3025482 – fine sandy brown soil (10YR 5/3) intermixed with graphitic grains. Root matter observed. No vermiculite or amphibole observed.

Core observations for 3025483 - fine sandy brown soil (10YR 5/3). Root matter observed. No vermiculite or amphibole observed.

Core observations for 3025484 - fine sandy grayish brown soil (10YR 5/2). Root matter observed. No vermiculite or amphibole observed.

Core observations for 3025485 - fine sandy grayish brown soil (10YR 5/2). Root matter observed. No vermiculite or amphibole observed.

LEGEND



SAND
MIXED SOIL
GRAVEL
WOOD

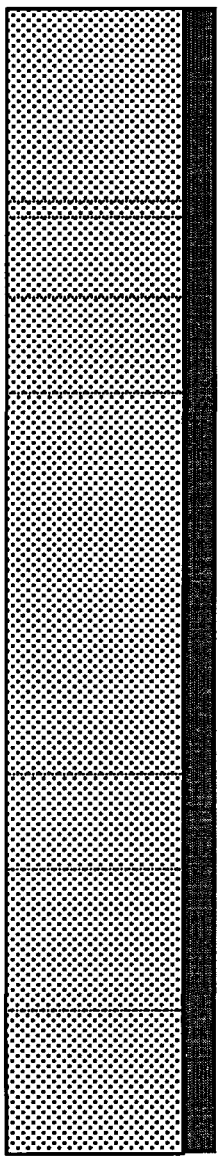
OTHER
NO SAMPLE
POSITIVE VERMICULITE ID
NEGATIVE VERMICULITE ID

RJ Lee Group Project No LSH002397 – W.R. Grace & Company – Boring Log

RJLG Sample ID: 3025490, 3025491, 3025492, 3025493
Field Sample ID: E-04-01 A 6",B 12",C 18",D 24"
Location: Left Field, East Ball Field

Depth in Inches

0
6
12
18
24



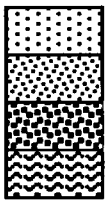
Core observations for 3025490 – top 4 inches is a sandy brown soil with moderate vermiculite. Bottom 2 inches is a medium grained very dark grayish brown soil, soil color: 10YR 3/2, root matter present, moderate vermiculite observed throughout, Band of higher concentration vermiculite at 4 inch mark.

Core observations for 3025491 – top 2 inches is a medium grained brown soil with red bands (10YR 4/3), root matter present with minor vermiculite present, bottom 4 inches is a brown soil with mixed gravel with color ID 10YR 5/3, moderate vermiculite observed

Core observations for 3025492 – Top 0.5 inch is a reddish brown soil, 0.5 to 4 inches is a brown soil with color ID 10YR 5/3, no vermiculite observed, bottom 2 inches are medium grained with mixed gravel, dark grayish brown soil (10YR 4/2), root matter and moderate vermiculite. Asbestiform amphibole identified.

Core observations for 3025493 – top 3 inches is a sandy yellowish brown soil (10YR 5/4) with no vermiculite observed. Bottom 3 inches is medium grained with mixed gravel and dark grayish brown soil (10YR 4/2). Minor burnt carbonaceous material (wood). Asbestiform amphibole identified.

LEGEND



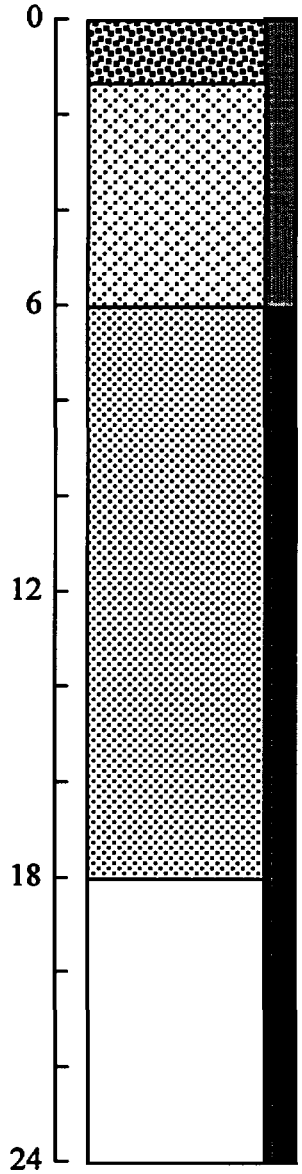
SAND
MIXED SOIL
GRAVEL
WOOD

OTHER
NO SAMPLE
POSITIVE VERMICULITE ID
NEGATIVE VERMICULITE ID

RJ Lee Group Project No LSH002397 – W.R. Grace & Company – Boring Log

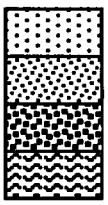
RJLG Sample ID: 3025506, 3025507, 3025508
Field Sample ID: E-05-05 A 6",06 B 12",07 C 18"
Location: Soil Sample North Center Pole Barn, 5' East of #1

Depth in Inches



0 – 6	Core observations for 3025506 – top 1.5 inch is a brown soil and gravel mix, bottom 4.5 inches is dominantly vermiculite with minor amphibole and sand. Asbestiform amphibole identified.
6 – 12	Core observations for 3025507 – reddish brown medium grained sandy soil (5YR 4/4). Minor burnt carbonaceous material (wood) content with no observable vermiculite.
12 – 18	Core observations for 3025508 - reddish brown medium grained sandy soil (5YR 4/4). Minor burnt carbonaceous material (wood) content with no observable vermiculite.
18 – 24	No sample

LEGEND



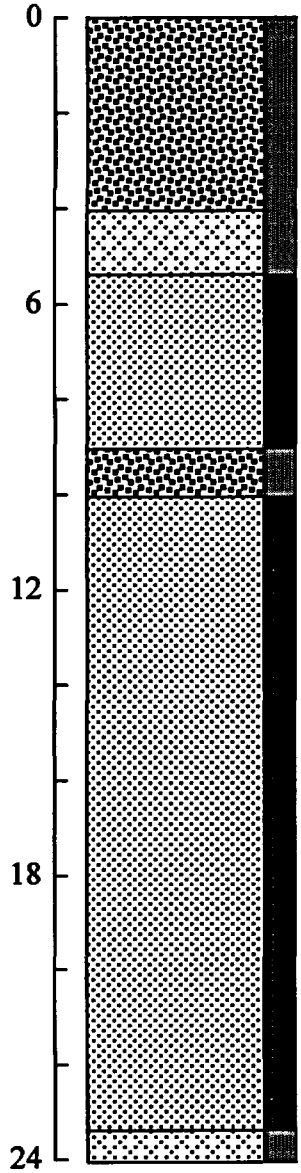
SAND
MIXED SOIL
GRAVEL
WOOD

OTHER
NO SAMPLE
POSITIVE VERMICULITE ID
NEGATIVE VERMICULITE ID

RJ Lee Group Project No LSH002397 – W.R. Grace & Company – Boring Log

RJLG Sample ID: 3025510, 3025511, 3025512, 3025513
Field Sample ID: E-05-09 A 6", 10 B 12",11 C 18", 12 D 24"
Location: Soil Sample North Center Pole Barn 5' West of #1

Depth in Inches



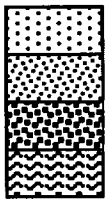
Core observations for 3025510 – top 4 inches is a gravel/soil mixture, the middle 1.5 inches is dominantly vermiculite. Trace asbestiform amphibole observed at bottom 1 inch region. Bottom 0.5 inch is a brown sandy soil (10 YR 4/3)

Core observations for 3025511 – Top 3 inches is a brown sandy soil (Munsell color ID:10 YR 4/3). Middle inch is an intermixed gravel with vermiculite. Bottom 2 inches is a brown sandy soil (10 YR 4/3).

Core observations for 302551- 6 inches of a brown sandy soil (reddish regions) (10 YR 4/3). Burnt carbonaceous material (wood) observed.

Core observations for 3025513 – 5.5 inches of mixed (reddish) sandy brown soils (10 YR 4/3). Burnt carbonaceous material (wood) observed. Bottom 0.5 inch is vermiculite with mixed gravel – unable to determine if layer is carryover from an upper region.

LEGEND



SAND
MIXED SOIL
MIXEDGRAVEL
WOOD

OTHER
NO SAMPLE
POSITIVE VERMICULITE ID
NEGATIVE VERMICULITE ID