Promontory Village 4

Asbestos Detection and Mitigation

Interim Report

Prepared November 2004 for

Christopherson Homes

November 15, 2004
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Promontory Village 4 Asbestos Detection and Mitigation Report

In order to establish that all required and recommended procedures for asbestos detection and mitigation measures called for by El Dorado County were followed, Christopherson Homes worked with two reputable environmental testing and inspection consultants. First with the Youngdahl Consulting Group, to gain a historic perspective on asbestos findings in the area, and more recently, with Network Environmental Systems to conduct air quality screenings in and around the building site.

In accordance with a request from Christopherson Homes, Youngdahl Consulting Group, Inc., provided an historical summary overview of the Promontory Village 4 project site with respect to naturally occurring asbestos (NOA) and its detection, regulation, and mitigation in the Promontory subdivision. The following provides a brief historical summary of events. References indicated are listed at the end of this document.

Youngdahl Consulting Group, Inc. is a full-service geotechnical engineering, materials testing, and special inspection firm working throughout northern and central California. Its staff's diverse expertise enables the company to offer a range of geotechnical engineering and environmental services, from conceptual project development through construction.

The Youngdahl report begins at the Crown Valley subdivision, which lies adjacent to and north of the Promontory Village 4 and was graded in late 1998 and through most of 1999. The issues of Naturally Occurring Asbestos (NOA) were just starting to be debated in public and technical forums after the April 1998 Sacramento Bee article chronicled Serpentine (ultramafic) rocks and associated NOA instances being disturbed in western El Dorado County. Because these rocks occurred in serpentinite rock and along ancient fault lines, geologists were advised by a State Task Force, which included California Division of Mines & Geology (CDMG) staff, to look along fault lines for potential occurrences of NOA and refer to existing geologic maps for likely asbestos bearing rock occurrences until a specialized updated map and study could be completed.

Visual observations conducted by registered geologists during the Crown Valley subdivision grading did not reveal any signs of either asbestos-bearing rocks or NOA. No NOA testing was performed at that time because the operational consensus by both regulators and consultants was that they didn't see or suspect conditions conducive to NOA.

The El Dorado County Ordinance (Reference 6) was still in development and the CDMG Open-File Report (Reference 5) was still in development and had not yet been published for public use.

In March 2003, a study at the nearby Promontory School Site showed a 0.25% level of NOA in one of twenty soil samples. Other samples taken at the site showed only traces of NOA, and many showed none at all.

The Promontory GES Report (reference 5) covers only building sites in the Promontory, as do similar reports for Crown Valley (references 1 & 2). Even though developers tailor their submittals for regulatory review specific to their own proposed development, consultants are under obligation to do background reviews that cover the vicinity around a site with respect to the area being proposed for development.

By the time The Promontory Village 4 (Christopherson Homes) initiated mass earthwork, a map and report prepared by CDMG (Reference 13) was published and out for public use, so Youngdahl Consulting Group was bound by due diligence and the new El Dorado County Ordinance (Reference 14) to review the Open-File Report and see if any areas in Promontory warranted further review and investigations as "areas more likely to contain natural occurrences of asbestos". Again, no such areas were designated by the CDMG publication. Action prescribed by the new county ordinance included visual observation by trained and registered geologists and enhanced use of dust suppression during grading activities with water trucks.

During the grading of the site, a localized pocket of white, slightly fibrous material mixed with talc was observed at the base of the cut slope on a lot in Promontory Village 4. The "Prescriptive Standard -- Fugitive Dust Prevention and Control and Contingent Asbestos Hazard Dust Mitigation Plan" was immediately implemented by notification of the earthwork contractor and the application of sufficient water to keep the material in a damp state or crusted state. A sample was collected and sent to Forensic Analytical Laboratories in Hayward, California for analysis. That sample contained 12 percent actinolite asbestos. An Asbestos Dust Mitigation Plan (ADMP) was prepared and sent to El Dorado County for review and approval.

Youngdahl Consulting Group, Inc. has provided continuous observations and sampling by trained staff and registered geologists since the first appearance of NOA at Promontory Village 4. NOA that has been detected on The Promontory Village 4 has, to date, been in hydrothermal alteration veins at deep bedrock contact boundaries and soils overlying these veins along the eastern north-south trending ridge in the development.

The Youngdahl report concludes that the detection protocols and mitigation measures called for by the El Dorado County reviewed and approved Asbestos Dust Mitigation Plan (ADMP) are considered adequate and in line with regulatory requirements.

On July 7, 2004, Network Environmental Systems, Inc., (*NES*) was retained by Christopherson Homes-Sacramento Division, to perform screening level air sampling for asbestos content during earthwork (grading, digging, etc.) activities at the Promontory Village Number 4 development, located in El Dorado Hills. Screening level air sampling was performed to evaluate the success of engineering controls, which were employed by Doug Veerkamp, General Engineering Contractor, to mitigate asbestos fiber emissions exiting the site to nearby residential receptors.

Daily air sampling for airborne asbestos was performed upwind and downwind of earthwork activities. All work was in conformance with the Air Sampling Plan prepared for and accepted by the El Dorado Air Quality Management District. Project work was performed under the direction of *NES'* David B. Durst, Director of Industrial Hygiene Services, Certified Asbestos Consultant (DOSH Certification No. 03-3470), from 8 July

to present. Network Environmental Systems performed air sampling and analysis as shown on the following chart:

TEM Site			TEM Upwind		
Date	High s/cc	Weekly Average s/cc	Date	High s/cc	Weekly Average s/cc
07/09/04	0.0127	0.0082	07/09/04	0.0040	0.0040
7/12-7/16	0.0182	0.0069	7/12-7/16	0.0163	0.0065
7/19-7/23	0.0142	0.0138	7/19-7/23	0.0289	0.0187
7/24-7/25	0.0050	0.0017	**7/24-7/25**	0.0050	0.0017
7/26-7/30	0.0209	0.0019	7/26-7/30	0.0260	0.0062
8/2-8/6	0.0160	0.0044	8/2-8/6	0.0058	0.0024
8/9-8/13	0.0162	0.0087	8/9-8/13	0.0195	0.0082
8/16-8/20	0.0176	0.0091	8/16-8/20	0.0092	0.0055
8/23-8/27	0.0204	0.0069	8/23-8/27	0.0056	0.0025
8/30-9/3	0.0132	0.0072	8/30-9/3	0.0192	0.0108
9/7-9/10	0.0114	0.0068	9/7-9/10	0.0224	0.0157
9/13-9/17	0.0062	0.0033	9/13-9/17	0.0140	0.0073
9/20-9/24	0.0037	0.0015	9/20-9/24	0.0112	0.0065
9/27-10/1	0.0059	0.0019	9/27-10/1	0.0271	0.0145
10/4-10/8	0.0065	0.0026	10/4-10/8	0.0210	0.0099

Transmission Electron Microscopy (TEM) air sample results revealed primarily Actinolite with some limited detection of Chrysotile asbestos structures.

TEM analysis of downwind air samples indicated 98.9% of the air samples were less than 0.02 structures per cubic center meter of air (s/cc). TEM analysis indicated 95.1% of the upwind air samples were less than 0.02 s/cc. Refer to the Ambient Air Downwind and Upwind TEM figure for a comparison of TEM results by week.

Phase Contrast Microscopy (PCM) air samples collected downwind indicated 91% of the air samples were less than 0.01 fibers per cubic centimeter of air (f/cc). PCM air samples collected upwind indicated 71% of the samples were less than 0.01 f/cc. Refer to the Ambient Air Downwind and Upwind PCM figure for a comparison of PCM results by week.

Direct reading total dust measurements were performed at the site daily when earthwork operations were in progress. The dust levels measurements were used to measure off-site emission levels and as a trigger for Youngdahl Consulting Group to direct dust mitigation efforts in accordance with the Asbestos Dust Mitigation Plan (ADMP). Samples collected on the east side of the property, downwind revealed that 99.99% total dust level readings were below the 0.5 mg/m^3 specified by the Air Plan and 87.2% of the readings were below 0.05 mg/m^3 specified in the revised DTSC Guidance Document for school sites. Samples collected on the west side of the property, upwind revealed total dust level readings where 99.98% of the readings were below 0.5 mg/m^3 and 83% were below 0.05 mg/m^3.. Refer to the Ambient Air Total Dust Downwind and Upwind figure on the following chart for a comparison of results by week.

PCM Site			PCM Upwind		
Date	**High f/cc**	**Weekly Average f/cc**	**Date**	**High f/cc**	**Weekly Average f/cc**
07/09/04	0.0100	0.0070	07/09/04	0.0060	0.0060
7/12-7/16	0.0070	0.0042	7/12-7/16	0.0190	0.0091
7/19-7/23	0.0090	0.0054	7/19-7/23	0.0230	0.0083
7/26-7/30	0.0110	0.0044	7/26-7/30	0.0400	0.0065
8/2-8/6	0.0130	0.0037	8/2-8/6	0.0070	0.0040
8/9-8/13	0.0120	0.0066	8/9-8/13	0.0130	0.0060
8/16-8/20	0.0220	0.0100	8/16-8/20	0.0110	0.0070
8/23-8/27	0.0120	0.0070	8/23-8/27	0.0120	0.0060
8/30-9/3	0.0200	0.0080	8/30-9/3	0.0260	0.0160
9/7-9/10	0.0090	0.0070	9/7-9/10	0.0300	0.0230
9/13-9/17	0.0140	0.0060	9/13-9/17	0.0260	0.0140
9/20-9/24	0.0040	0.0023	9/20-9/24	0.0100	0.0080
9/27-10/1	0.0070	0.0029	9/27-10/1	0.0200	0.0120
10/4-10/8	0.0080	0.0030	10/4-10/8	0.0180	0.0089

The U.S. Environmental Protection Agency and Department of Toxic Substance Control have established the following:

> EPA Building Clearance of 0.02 structures of asbestos per cubic centimeter of air (s/cc) by TEM analysis per USEPA Criteria.
>
> Worksite cleanliness of 0.01 fibers per cubic centimeter (f/cc) of air by Phase Contrast Microscopy (PCM) analysis per USEPA Criteria.
>
> Fenceline trigger levels of 0.05 milligrams per cubic meter (mg/m^3) of air total dust.

In conclusion, asbestos dust mitigation efforts at the Promontory Village Number 4 project site were successful in reducing off site eastern fence line asbestos emissions consistently below the on site asbestos migration levels.

Network Environmental Systems, Inc. (*NES*) is a nationally recognized leader in health, safety and environmental consulting and training. The company provides industrial hygiene consulting services involving indoor air quality, water damage and mold, asbestos, occupational exposure to known or potential hazards, OSHA compliance and other occupational safety and health concerns.

Christopherson Homes has been building new home communities in Northern California for more than 20 years. With over 3,500 homes built in more than 30 communities Christopherson has provided quality housing in neighborhoods situated throughout Napa, Sonoma, Solano and Sacramento counties. For additional information on the builder visit www.christophersonhomes.com.

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REFERENCES FOR YOUNGDAHL CONSULTING GROUP REPORT

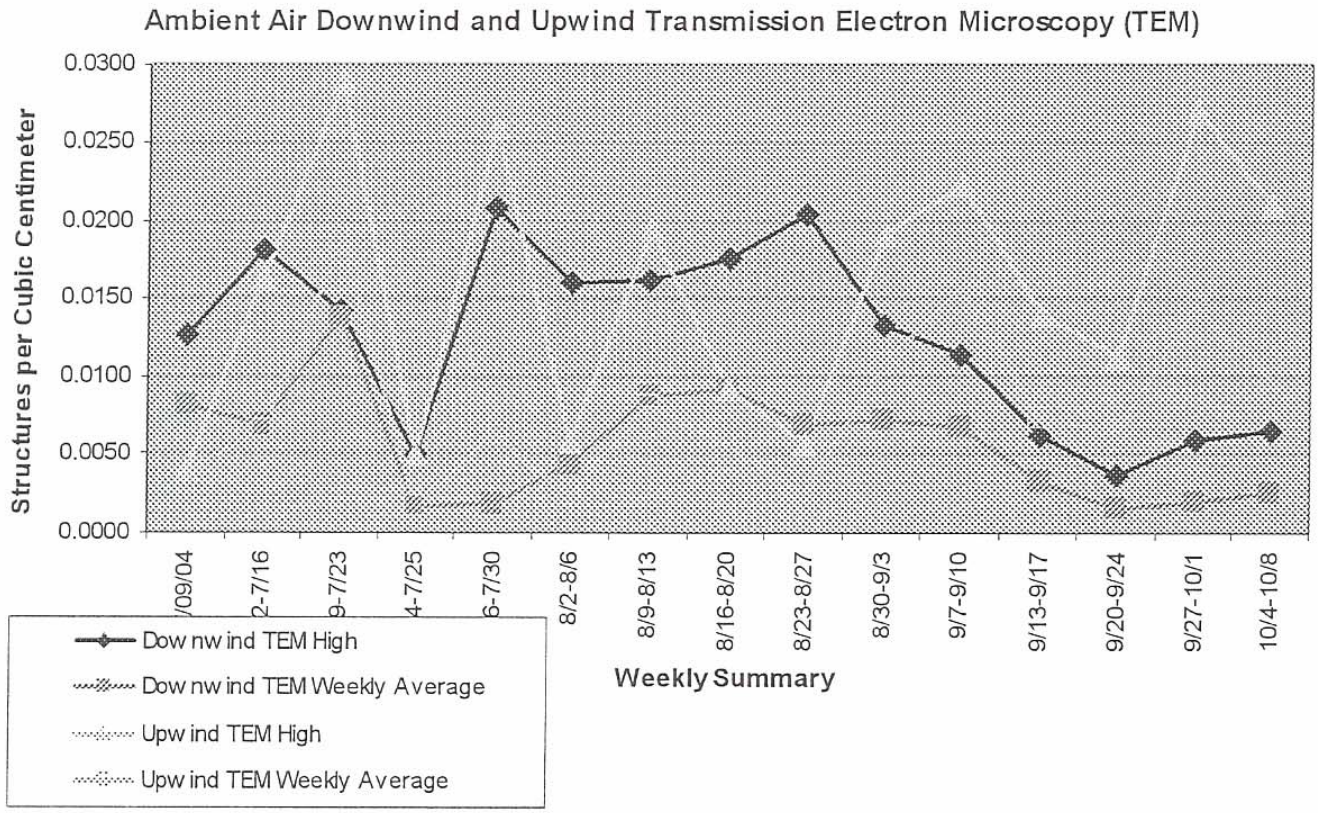
1. Geotechnical Engineering Study on Crown Valley, prepared by Youngdahl & Associates, Inc., dated 18 May 1989 (Project No. 89132.E).
2. Geotechnical Engineering Study - Update, Crown Valley, prepared by Youngdahl & Associates, Inc., dated 22 July 1999 (Project No. 89132.9).
3. Report of Observations, Consultation, and Compaction Testing Services During Earthwork, Crown Valley - Phase 1, prepared by Youngdahl & Associates, Inc., dated 15 January 1999 (Project No. 89132.1).
4. Report of Observations, Consultation, and Compaction Testing Services During Earthwork, Crown Valley - Phase 2, prepared by Youngdahl & Associates, Inc., dated 5 October 1999 (Project No. 89132.2).
5. Geotechnical Engineering Study for the Promontory Village 4, prepared by Youngdahl Consulting Group, Inc., dated 1 November 2000, (Project No. 00345.3).
6. Rough Grading Plans for Promontory Village 4, TM #98-1356, 27 Sheets, prepared by C.T.A. - REY, Inc., Preliminary Set, dated March 2003.
7. Review of Rough Grading Plans for the Promontory Village 4 (TM #98-1356), prepared by Youngdahl Consulting Group, Inc., dated 19 June 2003 (Project No. 03170).

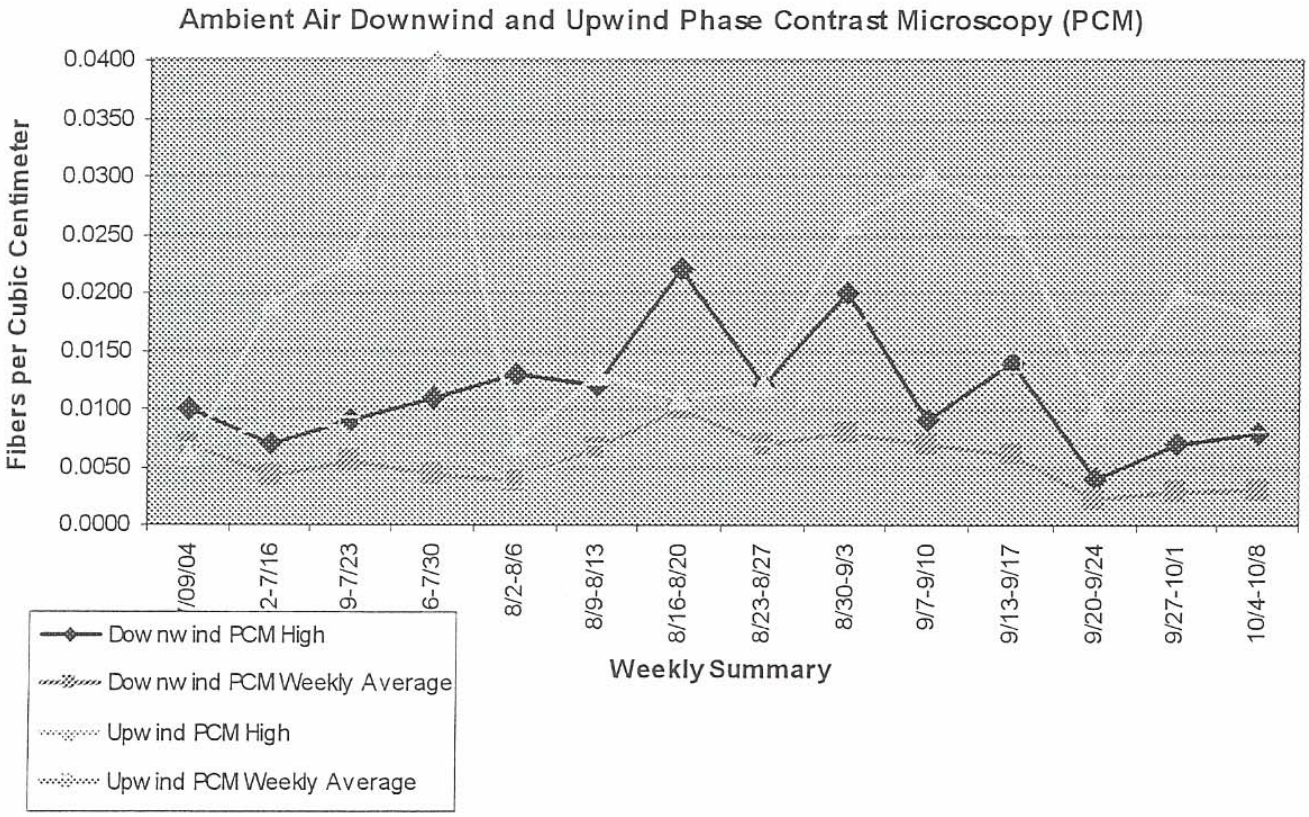
8. Asbestos Dust Mitigation Plan, Promontory Village 4 Lot 33, El Dorado Hills, El Dorado County, California, prepared by Youngdahl Consulting Group, Inc., dated 15 October 2003 (Project No. 03170).
9. Asbestos Dust Mitigation Plan, The Promontory Village 4 Lots 15, 16, 17: Southwest Corner of Medici and Capri Drive, El Dorado Hills, El Dorado County, California, prepared by Youngdahl Consulting Group, Inc., dated 2 July 2004 (Project No. 03170).
10. Addendum #1 to Asbestos Dust Mitigation Plan: Lot 19 and Trevi Drive Utilities, prepared by Youngdahl Consulting Group, Inc., dated 19 July 2004 (Project No. 03170).
11. Addendum #2 to Asbestos Dust Mitigation Plan: Lots 122 - 127 and 83 - 86, El Dorado Hills, El Dorado County, prepared by Youngdahl Consulting Group, Inc., dated 11 August 2004 (Project No. 03170).
12. Report of Consultation, Observation, and Compaction Testing Services During Underground Utility Backfill Operation, prepared by Youngdahl consulting Group, Inc., dated 27 September 2004. (Project No. 03170).
13. Churchill, R.K. and others, (2000): "Areas More Likely To Contain Natural Occurrences of Asbestos in Western El Dorado County, California", California Department of Conservation, Division of Mines and Geology, Open-File Report 2000-002.
14. Ordinance 4548, El Dorado County (2000): "Naturally Occurring Asbestos & Dust Protection", Title 8, Chapter 8.44, Effective February 3, 2000.

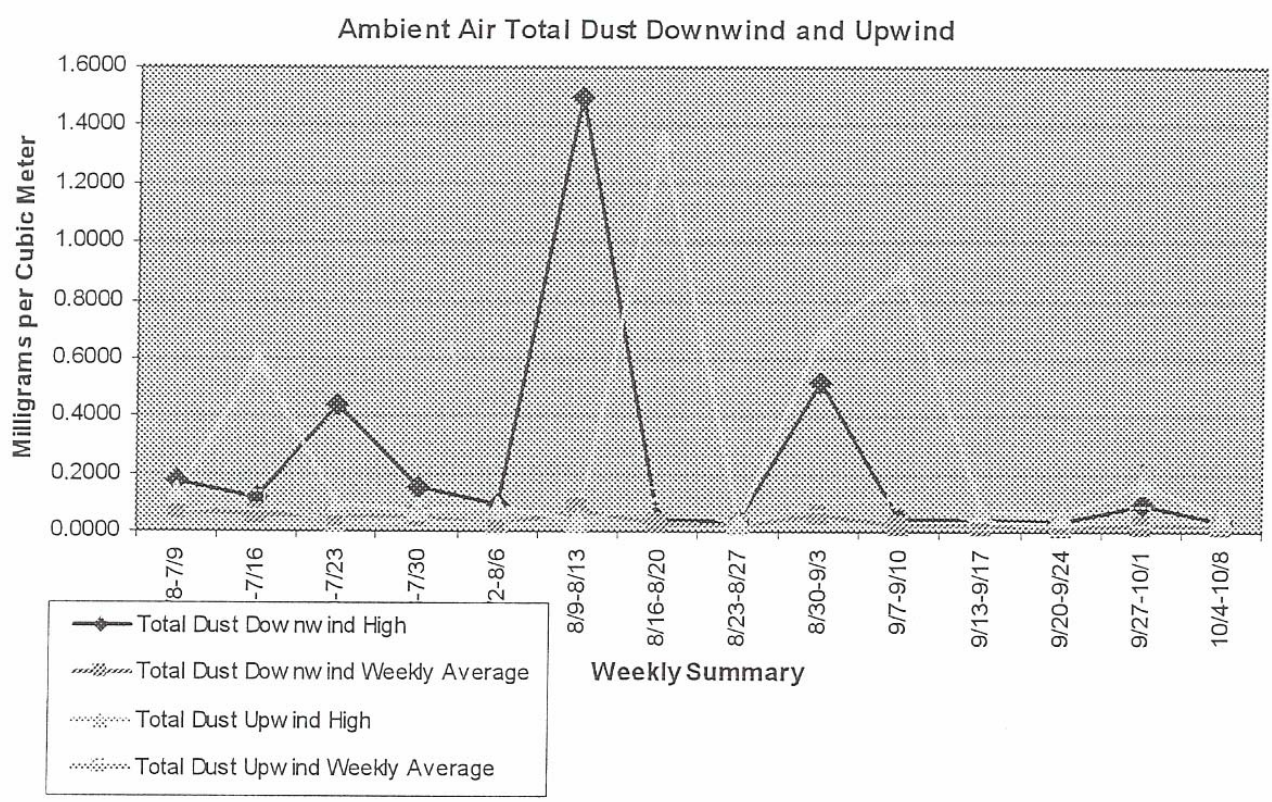
The following matrix shows the weekly data for TEM, PCM and total dust sampled on a weekly basis beginning July 8, 2004 as depicted by the graphs above.

Total Dust Site / Total Dust Upwind

Date	High mg/m^3	Weekly Average mg/m^3	Date	High mg/m^3	Weekly Average mg/m^3
7/8-7/9	0.1730	0.0730	7/8-7/9	0.1320	0.0660
7/12-7/16	0.1150	0.0590	7/12-7/16	0.5900	0.1047
7/19-7/23	0.4400	0.0520	7/19-7/23	0.0930	0.0290
7/26-7/30	0.1550	0.0490	7/26-7/30	0.0750	0.0370
8/2-8/6	0.0980	0.0200	8/2-8/6	0.0810	0.0200
8/9-8/13	1.5000	0.0710	8/9-8/13	0.0470	0.0320
8/16-8/20	0.0450	0.0300	8/16-8/20	1.3500	0.1140
8/23-8/27	0.0350	0.0220	8/23-8/27	0.0350	0.0230
8/30-9/3	0.5210	0.0610	8/30-9/3	0.6810	0.1030
9/7-9/10	0.0420	0.0220	9/7-9/10	0.9020	0.1200
9/13-9/17	0.0430	0.0250	9/13-9/17	0.0730	0.0350
9/20-9/24	0.0350	0.0120	9/20-9/24	0.0600	0.0210
9/27-10/1	0.0920	0.0230	9/27-10/1	0.1710	0.0490
10/4-10/8	0.0340	0.0200	10/4-10/8	0.0510	0.0320


Ambient Air Downwind and Upwind Transmission Electron Microscopy (TEM)
Structures per Cubic Centimeter
0.0300
0.0250
0.0200
0.0150
0.0100
0.0050
0.0000
/09/04
2-7/16
9-7/23
4-7/25
6-7/30
8/2-8/6
8/9-8/13
8/16-8/20
8/23-8/27
8/30-9/3
9/7-9/10
9/13-9/17
9/20-9/24
9/27-10/1
10/4-10/8
Weekly Summary
Dow nw ind TEM High
Dow nw ind TEM Weekly Average
Upw ind TEM High
Upw ind TEM Weekly Average


Ambient Air Downwind and Upwind Phase Contrast Microscopy (PCM)
Fibers per Cubic Centimeter
0.0400
0.0350
0.0300
0.0250
0.0200
0.0150
0.0100
0.0050
0.0000
/09/04
2-7/16
9-7/23
6-7/30
8/2-8/6
8/9-8/13
8/16-8/20
8/23-8/27
8/30-9/3
9/7-9/10
9/13-9/17
9/20-9/24
9/27-10/1
10/4-10/8
Weekly Summary
Dow nw ind PCM High
Dow nw ind PCM Weekly Average
Upw ind PCM High
Upw ind PCM Weekly Average


Ambient Air Total Dust Downwind and Upwind
Milligrams per Cubic Meter
1.6000
1.4000
1.2000
1.0000
0.8000
0.6000
0.4000
0.2000
0.0000
8-7/9
-7/16
-7/23
-7/30
2-8/6
8/9-8/13
8/16-8/20
8/23-8/27
8/30-9/3
9/7-9/10
9/13-9/17
9/20-9/24
9/27-10/1
10/4-10/8
Weekly Summary
Total Dust Downwind High
Total Dust Downwind Weekly Average
Total Dust Upwind High
Total Dust Upwind Weekly Average