



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service
Agency for Toxic Substances
and Disease Registry
Region III
1650 Arch Street, 3HS00
Philadelphia, PA 19103

MEMORANDUM

Date: February 6, 2007

From: Lora S. Werner
Senior Regional Representative
ATSDR Region III

Subject: ATSDR Record of Activity/Health Consultation Update
W.R. Grace Ellwood City
Ellwood City, Lawrence County, PA

To: Deborah Carlson Lindsey, EPA OSC

Attached is a copy of the Agency for Toxic Substances and Disease Registry (ATSDR) Record of Activity (AROA)/Health Consultation Update report for the W.R. Grace Ellwood City site located in Ellwood City, PA dated November 28, 2006. ATSDR reviewed environmental sampling provided by the US Environmental Protection Agency (EPA) and prepared this health consultation to determine if the site poses a public health hazard to residents living near the site.

The primary intent of this health consultation is to inform you of any actions we have recommended in order to prevent or mitigate exposures to the contaminants of concern at the site. Please inform us if you discover significant errors or omissions in the document that could change its conclusions and recommendations. I can be reached at telephone number (215) 814-3141, email address lkw9@cdc.gov, or for written responses at the address listed below.

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Attachment

cc: ATSDR Records Center (Memo only)

Statement of Issues

ATSDR was asked by US EPA Region III to provide a public health opinion regarding recent soil sample data for a former WR Grace vermiculite site. ATSDR had recommended previously that this sampling be undertaken to evaluate potential future and current exposure to asbestos at the site.

Background

Zonolite / W.R. Grace^a, operated an exfoliation facility at 12th Street and Factory Avenue in Ellwood City, Lawrence County, Pennsylvania, from 1954–1969. This plant received vermiculite from the W.R. Grace mine in Libby, Montana. The vermiculite was contaminated with naturally occurring asbestos fibers. Libby vermiculite was found to contain several types of asbestos fibers, including the amphibole asbestos varieties tremolite and the related fibrous asbestiform minerals winchite, richterite, and ferro-edenite [1].

In September of 2005, the Agency for Toxic Substances and Disease Registry (ATSDR) published a health consultation as part of Phase I of the National Asbestos Exposure Review (NAER) project [2]. ATSDR also mailed fact sheets to nearby residents and businesses and published a press release describing its findings to alert the community. Subsequently, ATSDR was contacted by former residents who described a playground that was located near the plant during its operation. According to the residents, children may have had contact with vermiculite waste materials that were piled near the playground. Since this facility received vermiculite from Libby, Montana, it was possible that some of the waste vermiculite material was contaminated with amphibole asbestos. ATSDR was previously unaware of the playground or the exposure to children when it published the 2005 health consultation.

As a result of the new information, ATSDR held a public availability session on the evening of March 14, 2006. Approximately 50 to 60 persons attended this session, of which 34 community members signed in for the session. Seven of the community members identified themselves as former workers at the plant, and seven community members reported having played in the playground near the site. ATSDR presented information about the site. Pennsylvania Department of Health (PADOH) presented results of its review of cancer incidence for ZIP codes surrounding the New Castle and Ellwood City plants. As a result of the public availability session, ATSDR and EPA's contractor also met with some former workers and community members on March 15, 2006. The purpose of this meeting was to discuss possible areas/locations where waste could be located. ATSDR published a health consultation in October, 2006 to document these new findings. In the new health consultation, ATSDR recommended [3]:

^a W.R. Grace acquired the plant in 1963 when they acquired the assets of the Zonolite Company.

- Continue to provide health education materials about asbestos exposure, health effects, and health protective actions people can take if they were exposed to asbestos.
- Arrange for education and professional development on asbestos-related topics for area health care providers.
- Perform sampling to further characterize the extent of contamination at the site and the one neighboring residential yard. If warranted, remediation, removal, or institutional controls should be implemented to prevent future exposure to Libby asbestos.
- If specific reports of waste vermiculite material being removed from the site for residential use are received, they should be investigated by EPA or the local environmental agency.

EPA has subsequently collected surface soil and soil boring samples at 26 locations on the former WR Grace site in August 2006 (Figure 1, Table1). These samples were analyzed using polarized light microscopy (Table 2).

Figure 1 EPA Sample Locations August 2006

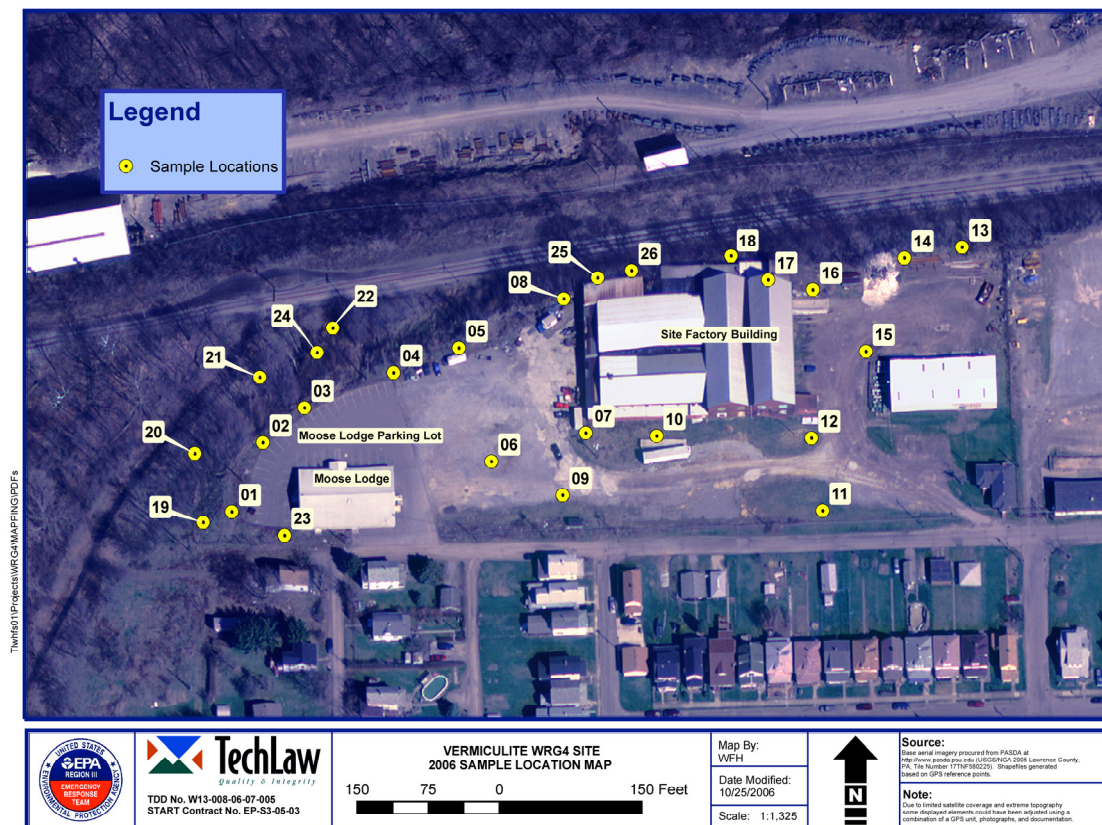


Table 1 EPA Soil Sample Locations and Depths

<i>Sample ID</i>	<i>Type of Sample/Purpose</i>	<i>Soil Depth</i>
01SS01	Surface sample at Location 01/contamination delineation	0-12 in.
01SB01	Subsurface sample at Location 01/contamination delineation	9-11 ft.
02SS01	Surface sample at Location 02/contamination delineation	0-12 in.
02SB01	Subsurface sample at Location 02/contamination delineation.	7-11 ft.
03SS01	Surface sample at Location 03/contamination delineation	0-12 in.
03SB01	Subsurface sample at Location 03/contamination delineation	3-5 ft.
03SB02	Subsurface sample at Location 03/contamination delineation	9 ft.
04SS01	Surface sample at Location 04/contamination delineation	0-12 in.
04SB01	Subsurface sample at Location 04/contamination delineation	5-7 ft.
05SS01	Surface sample at Location 05/contamination delineation	0-12 in.
05SB01	Subsurface sample at Location 05/contamination delineation	4-6 ft.
05SB02	Subsurface sample at Location 05/contamination delineation	17-18 ft.
06SS01	Surface sample at Location 06/contamination delineation	0-12 in.
06SB01	Subsurface sample at Location 06/contamination delineation	3-5 ft.
06SB02	Subsurface sample at Location 06/contamination delineation	10-11 ft.
07SS01	Surface sample at Location 07/contamination delineation	0-12 in
07SB01	Subsurface sample at Location 07/contamination delineation	2-3'
08SS01	Surface sample at Location 08/contamination delineation	0-12 in.
08SB01	Subsurface sample at Location 08/contamination delineation	5-7 ft.
09SS01	Surface sample at Location 09/contamination delineation	0-12 in.
10SS01	Surface sample at Location 10/contamination delineation	0-12 in.
10SB01	Subsurface sample at Location 10/contamination delineation	11-12 ft.
11SS01	Surface sample at Location 11/contamination delineation	0-12 in.
12SS01	Surface sample at Location 12/contamination delineation	0-12 in.
13SS01	Surface sample at Location 13/contamination delineation	0-12 in.
14SS01	Surface sample at Location 14/contamination delineation	0-12 in
14SB01	Subsurface sample at Location 14/contamination delineation	11-12 ft.
15SS01	Surface sample at Location 15/contamination delineation	0-12 in.
16SS01	Surface sample at Location 16/contamination delineation	0-12 in.
17SS01	Surface sample at Location 17/contamination delineation	0-12 in.
17SB01	Subsurface sample at Location 17/contamination delineation	3-4 ft.
50SB01	Field duplicate of 17SB01	3-4 ft.
18SS01	Surface sample at Location 18/contamination delineation	0-12 in.
19SS01	Surface sample at Location 19/contamination delineation	0-12 in.
19SB01	Subsurface sample at Location 19/contamination delineation	1.5-2 ft.
20SS01	Surface sample at Location 20/contamination delineation	0-12 in.
51SS01	Field duplicate of 20SS01	0-12 in.
21SS01	Surface sample at Location 21/contamination delineation	0-12 in.
52SS01	Field duplicate of 21SS01	0-12 in.
22SS01	Surface sample at Location 22/contamination delineation	0-12 in.
23SS01	Surface sample at Location 23/contamination delineation	0-12 in.

<i>Sample ID</i>	<i>Type of Sample/Purpose</i>	<i>Soil Depth</i>
23SB01	Subsurface sample at Location 23/contamination delineation	2.5-3.5 ft.
53SB01	Field duplicate of 23SB01	2.5-3.5 ft.
24SS01	Surface sample at Location 24/contamination delineation	0-12 in.
25SS01	Surface sample at Location 25/contamination delineation	0-12 in.
25SB01	Subsurface sample at Location 25/contamination delineation	2-3 ft.
26SS01	Surface sample at Location 26/contamination delineation	0-12 in.
26SB01	Subsurface sample at Location 26/contamination delineation	2-3.2 ft.

Table 2 Results (PLM %Asbestos)

Sample	SS01	SB01	SB02
01	< 0.25	0.25	
02	< 0.25	< 0.25	
03	N.D.	0.50	N.D.
04	< 0.25	1.75	
05	0.62	1.25	N.D.
06	N.D.	0.25	N.D.
07	N.D.	< 0.25	
08	0.50	N.D.	
09	N.D.		
10	N.D.	N.D.	
11	N.D.		
12	N.D.		
13	N.D.		
14	N.D.	N.D.	
15	N.D.		
16	N.D.		
17	N.D.	N.D.	
18	N.D.		
19	< 0.25	N.D.	
20	< 0.25		
21	< 0.25		
22	< 0.25		
23	N.D.	< 0.25	
24	N.D.		
25	0.50	1.25	
26	1.00	< 0.25	
50 (duplicate of sample 17 SB01)		N.D.	
51 (duplicate of 20 SS01)	< 0.25		
52 (duplicate of 21 SS01)	< 0.25		
53 (duplicate 23 SB01)		0.50	

Discussion

In the 2005 health consultation, ATSDR recommended that where warranted, appropriate remediation, removal or institutional controls should be implemented to prevent exposure. We note the following issues involving asbestos levels in soils:

1. There are no established regulatory or health based standards to guide the determination of acceptable asbestos concentrations in surface soil or subsurface soils.
2. It is extremely difficult to predict airborne concentrations based on asbestos concentrations in the soil.
3. In looking at Phase Light Microscopy results, it is important to note that 1% is not a health-based level, but instead represents the practical detection limit in the 1970s when OSHA regulations were created. Studies have shown that disturbing soil containing <1% amphibole asbestos, however, can suspend fibers at levels of health concern [4].

As discussed in the 2005 health consultation, past aerial photography and site conditions indicated that occult asbestos contaminated exfoliation waste rock could be present on the site, and that if disturbed, could result in exposure to airborne asbestos. The current sample results confirm the presence of asbestos contaminated vermiculite waste rock at this site. Although the majority of this site is covered with asphalt, gravel or vegetation, we note that this does not constitute a long term control for the site. The vegetation is currently overgrown since the site is not occupied. Furthermore, there are areas where asbestos was detected where community members could have access, such as along the ATV trail and along the berm surrounding the north and east of the facility. As Libby asbestos generally does not break down in the environment at an appreciable rate, management of the buried waste material should be handled in a manner that provides some level of assurance that the material will never be disturbed through activities such construction or redevelopment. As noted in the recent 2006 health consultation, ATSDR staff members observed vermiculite waste materials on the slope between the property and the nearest residential home [3]. Therefore, assessment of the residential property to the South of sample location 19, 01 and 23 should also be done.

Conclusions

- This site could pose a public health hazard if buried/covered asbestos contaminated waste rock were aggressively disturbed and asbestos fibers were released to the air.

Recommendations

- Removal/containment of asbestos containing material on-site
- Assessment of adjacent residential property for asbestos containing material

References

1. US Geological Survey. Bulletin 2192. Reconnaissance study of the geology of US vermiculite deposits—are asbestos minerals common constituents? Denver: US Department of the Interior. May 7, 2002, accessed on July 31, 2002, at: <http://geology.cr.usgs.gov/pub/bulletins/b2192/>
2. Agency for Toxic Substances and Disease Registry. Health Consultation: Former W.R. Grace/Zonolite Facility, Ellwood City. Atlanta: U.S. Department of Health and Human Services; September 2005.
3. Agency for Toxic Substances and Disease Registry. Health Consultation: Former W.R. Grace/Zonolite Facility, Ellwood City - Investigation of Nearby Play Area. Atlanta: U.S. Department of Health and Human Services; October 2006.
4. Weis CP (EPA). Memorandum to P. Peronard of U.S. Environmental Protection Agency, Amphibole mineral fibers in source materials in residential and commercial areas of Libby pose an imminent and substantial endangerment to public health. Denver: U.S. Environmental Protection Agency; December 20, 2001.