FINAL
REMOVAL ASSESSMENT REPORT
ACTIVITY-BASED AIR AND BULK MATERIAL SAMPLING EVENTS

VERMICULITE EXFOLIATION SITE
GAO 144
ATLANTA, DEKALB COUNTY, GEORGIA

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 4
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1.0 INTRODUCTION

Under Superfund Technical Assessment and Response Team (START) Contract Number (No.) EP-W-05-054, Technical Direction Document No. TTEMI-05-003-0077, the U.S. Environmental Protection Agency (EPA) tasked Tetra Tech EM Inc. (Tetra Tech) to prepare a removal assessment report (RAR) for activity-based air sampling (ABS) and bulk material sampling events that were conducted on March 24, 25, and 30, 2010, April 15, 2010, and December 6, 2010 at the Vermiculite Exfoliation Site GAO 144 (GAO 144) located in Atlanta, DeKalb County, Georgia. The purpose of this RAR is to describe the field activities conducted and the sampling methods that were followed; present the types, numbers, and locations of the samples that were collected during the sampling events; and present the laboratory analytical data for the samples that were analyzed. The sampling events were led and conducted by Tetra Tech under the direction of the EPA Region 4 Emergency Response and Removal Branch.

All activities and procedures discussed and described in this RAR were conducted in accordance with the Tetra Tech *Draft Sampling and Analysis Plan* (SAP), approved as final by the EPA On-Scene Coordinator (OSC) on March 9, 2010 (Reference [Ref.] 1). Tetra Tech conducted site activities in general accordance with that SAP and the applicable EPA and other guidance documents cited in the SAP to ensure that the project data quality objectives (DQO) were met. These guidance documents specifically apply to various aspects of field events, including sampling locations, sample types, sampling procedures, general sample analysis, field quality assurance and quality control (QA/QC), and related topics (Refs. 2 through 8). The SAP was intended as a general, flexible guidance document that would not inhibit significant refinement in the approach that was anticipated for the field events resulting from unexpected site conditions, personal observations, and professional opinions of field personnel. This refinement process led to deviations in actual field or other project-related activities from the specifications presented in the SAP and the guidance documents cited in the SAP. Most of these deviations are described in this RAR and reflect the careful oversight conducted and observations and recommendations made by field personnel during the field events at the GAO 144 site. Refer to the logbook notes and field sheets presented in Appendix C for a detailed record of the activities and procedures conducted at the GAO 144 site during the field event.

The primary objective of the ABS and bulk material sampling field events conducted at the GAO 144 site was to evaluate potential human exposures from disturbance of materials potentially contaminated with asbestos by conducting specific activities at the site. Sampling at the site occurring during or in association with the various disturbance-type activities conducted during ABS air sampling rounds

included collection of air samples and bulk material samples (consisting of debris and soil). Additional bulk material samples not directly associated with specific disturbance-type activities were also collected during the sampling event; these samples included samples of debris and soil, sediment, and vermiculite attic insulation (VAI). Though presented as possibilities in the SAP, aggressive air indoor air sampling and microvacuum dust sampling were not conducted during field sampling events at the GAO 144 site due to site conditions. Air sampling activities at the GAO 144 site included collection of background air samples to quantify any background levels of asbestos in the air during the ABS air sampling activities. Lot blanks and field blanks were also collected from the filter media used to collect the air samples. In addition, weather was monitored to establish site-specific meteorological parameters such as wind direction and wind speed. The air and bulk material samples collected were submitted for analysis of asbestos. Many of the bulk material samples were also analyzed for water (moisture) content and particle size distribution.

The sampling and analysis described and the data presented in this RAR were intended to assist in evaluating the presence or absence of asbestos at the site. If asbestos was found to be present, a subsequent objective of the sampling effort was to determine whether the asbestos identified is of the type that originated from the W.R. Grace vermiculite mine in Libby, Montana. A final objective for this work was to support an evaluation of the need for further investigation under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This evaluation will involve a risk assessment conducted separately under EPA's guidance and direction, using the analytical data generated from this field investigation and the subsequent laboratory analysis.

The remainder of this RAR for the ABS air sampling and additional bulk material sampling events conducted at the GAO 144 site is organized as follows:

- Section 2.0 describes the site, its background, including the site history, and the general site setting.
- Section 3.0 summarizes the field activities, including the sampling conducted during ABS air sampling and additional bulk material sampling events.
- Section 4.0 discusses the laboratory analysis of the samples collected.
- Section 5.0 summarizes validation of the sample data generated by the laboratories.
- Section 6.0 presents the validated laboratory analytical results for the samples collected.
- Section 7.0 discusses reconciliation of the data to project-specific DQOs.

- Section 8.0 presents the references cited in this RAR.
- Appendix A contains figures showing the site location, site layout, and the sample locations.
- Appendix B provides tables presenting the samples, sample locations and descriptions, air sampling durations, total air volumes sampled, and the validated laboratory sample results.
- Appendix C provides the logbook notes and field sheets.
- Appendix D presents the photographic log.
- Appendix E contains a table of witnesses for the field events.
- Appendix F provides the sample chains-of-custody (COC) forms and the spreadsheets prepared for uploading the sample collection data into a Scribe database.
- Appendix G presents the Scribe database on compact disc (CD).
- Attachment 1 provides the data validation reports on CD.
- Attachment 2 provides the meteorological monitoring data on CD.
- Attachment 3 provides the laboratory data packages on CD.
- Attachment 4 provides historical aerial photographs on CD.

2.0 SITE BACKGROUND

2.1 SITE HISTORY

The GAO 144 site is located at 1167 Zonolite Place NE, in Atlanta, DeKalb County, Georgia, 30306. The geographic coordinates for the site are latitude 33.8053 degrees north and longitude 84.3422 degrees west (Ref. 11). The site occupies about 16 acres, some or all of which were the former location of a vermiculite exfoliation (expansion) plant (Refs. 9, 10). Appendix A, Figure 1 shows the site location, and Figure 2 presents the general site layout. Records of the Property Appraisal Department of DeKalb County, Georgia show parcels No. 2 (12.52 acres) and 56 (2.42 acres), which include the land where the plant was thought to be formerly located; and parcel No. 44, which may also have been a part of the former plant property. Parcel No. 2 is reportedly owned by DeKalb County, and parcels No. 56 and 44 appear to be privately owned (Ref. 22).

According to W.R. Grace, all equipment and buildings associated with the vermiculite exfoliation plant – except for an office building – were reportedly removed and demolished in 1970. Historical aerial photographs going back to 1955 (five years after the plant was reportedly built), however, indicate that demolition of structures thought to have been a part of the plant was conducted in phases beginning sometime between 1960 and 1968 and ending sometime between 1988 and 1993 (see Attachment 4). The former office building was occupied by the Atlanta Soto Zen Center during the time of the sampling events conducted at the GAO 144 site; this building is located on the eastern portion of the former plant property (on parcel No. 56) and includes some paved areas for parking. Another nearby structure, severely dilapidated and which may have served as the former vermiculite exfoliation facility's bath house, also still exists at the site. Two additional structures (located on parcel No. 44) observed at the GAO 144 site during the field sampling events appear to have existed, according to historical aerial photographs, since at least 1955. These structures therefore appear to have been present during the operational period of the former vermiculite exfoliation facility, but their association with the facility is unknown. At the time of the sampling events at the GAO 144 site, parcel No. 44 was occupied by Habersham Gardens Landscape Services and Garden Center. Finally, sometime between 1988 and 1993 a building was built on parcel No. 56, east of the vermiculite facility's former office building (Ref. 9, 10, 22).

West of the vermiculite facility's former office building (Atlanta Soto Zen Center) is a partially open area with some vegetation and trees. This area (located within parcel No. 2) is where it is believed the vermiculite expansion buildings and processing and storage facilities were located, based on historical photographs (see Attachment 4). Uneven mounds, concrete debris, and a sloped area that appears somewhat elevated above the surrounding terrain are located in this area; it has been reported that vermiculite siding, roofing, and waste rock material from the former exfoliation operations still exist at the GAO 144 site. Further west is a heavily forested area. A railroad spur is believed to have bordered the former vermiculite expansion facility along its northern perimeter (Ref. 10, 22).

DeKalb County, which reportedly owns part of the area occupied by the former vermiculite expansion facility (parcel No. 2), is in negotiation with citizens in the local community to establish a park in this area, with walking trails extending through the wooded areas and along the south fork of Peachtree Creek.

According to W.R. Grace, the expansion plant operated from 1950 until 1970. The former vermiculite expansion plant was first constructed at the site by Southern Zonolite Company in 1950; this company reportedly owned this property at that time. In 1957, Zonolite Company merged with the Southern

Zonolite Company. In 1963, W. R. Grace and Company acquired the assets of the Zonolite Company, and continued to operate the expansion plant until 1970. According to W.R. Grace, the parcel was deeded to R. W. Sterrett in 1983. According to various sources, between 480 and 1,225 tons of vermiculite concentrate from the W.R. Grace vermiculite mine in Libby, Montana were shipped to the GAO 144 site.

Sampling at the site has been conducted in the past, including on December 5, 2000. Based on information gathered regarding the GAO 144 site, EPA concluded that further investigation was required at the site. This determination led to the sampling and analysis work discussed in this RAR.

2.2 SETTING

The GAO 144 site is located about four miles northeast of downtown Atlanta, Georgia, in a developed urban area of mixed light-industrial, commercial, and residential use. The GAO 144 site is bordered to the south by Dalon Road, a landscape services and garden business, and the south fork of Peachtree Creek. To the west of the GAO 144 site is the creek and several residences. The GAO 144 site is bordered to the north by railroad tracks and a complex containing numerous commercial and light industrial businesses. The eastern portion of the GAO 144 site is occupied by the Atlanta Soto Zen Center (and possibly other businesses occupying the more recently built structure); beyond the Zen Center lie additional light industrial and commercial businesses. Residential communities are located to the south beyond the south fork of Peachtree Creek, to the west, and to the north beyond the railroad tracks. The nearest school, Briar Vista Elementary School, is located about 2,000 feet northeast of the GAO 144 site. Emory University is located about a mile southeast of the GAO 144 site. The GAO 144 site was, during the field events, unfenced and there was evidence of both foot and bicycle traffic on the site property, particularly in the undeveloped, sparsely-vegetated and wooded areas (Ref. 11). Appendix A, Figures 1 and 2 show the site location and general site layout.

3.0 SUMMARY OF SAMPLING ACTIVITIES

On March 24, 25 and 30, 2010, April 15, 2010, and December 6, 2010, Tetra Tech, EPA, and W.R. Grace-contracted personnel conducted ABS and additional bulk material sampling at the GAO 144 site. This section summarizes the field activities that were conducted during these field events. Although the general approach to conducting the sampling events was outlined in the SAP (Ref. 1), sampling approaches, locations, and the number of samples collected were refined and modified in response to site conditions at the time of the field events. As stated earlier, most deviations are described in this RAR if

actual field or other project-related activities deviated from specifications presented in the SAP (or in the guidance documents cited therein).

Field participants in the sampling activities conducted at the GAO 144 site included personnel from EPA Region 4 (including personnel from the Region 4 Science and Ecosystem Support Division [SESD]), Tetra Tech START, and representatives of W.R. Grace or its contractor. Field participants and their responsibilities were as follows:

• Leonardo Ceron, EPA Region 4	OSC, Task Monitor
• Terry Stilman, EPA Region 4	OSC, Task Monitor
• Tim Frederick, EPA Region 4	Toxicologist/Life Scientist
• John Schendel, Tetra Tech START	Project Manager
• Randy Mayer, Tetra Tech START	Field Team Leader
• Eric Turner, Tetra Tech START	Field Team Member
• Satara Thomas, Tetra Tech START	Field Team Member
• Courtney Roden, Tetra Tech START	Field Team Member
• Greg Noah, EPA Region 4 SESD	Field Team Member
• Mike Crowe, EPA Region 4 SESD	Field Team Member
• Bill Miller, Contractor for Remedium Group, Inc.	W.R. Grace Representative
• Chris Keiser, URS Corporation	W.R. Grace Contractor

The representatives for W.R. Grace (Bill Miller and Chris Keiser) were present only during the December 6, 2010 additional bulk material split sampling event. A table of witnesses that provides contact information for these and other individuals is presented in Appendix E. Logbook notes and field data sheets resulting from the field events at the GAO 144 site are contained in Appendix C, and a photographic log is presented in Appendix D.

Tetra Tech processed all samples collected during the field events using the EPA Scribe software, which generated a project database. The project Scribe database was used to generate COC forms used for shipping the samples to the laboratory. Appendix F presents the spreadsheets prepared for uploading the sample collection information into the Scribe database and also provides copies of the COCs generated from the Scribe database.

Data from the laboratory analysis of the samples may also be uploaded into the project Scribe database. The database will be stored at the Tetra Tech office in Duluth, Georgia until data entry is completed; once completed, the database will be submitted to EPA. The project Scribe database is presented in Appendix G. Currently, the database contains only sample collection information and not data from the analysis of the samples.

Some of the deviations from specifications presented in the SAP (Ref. 1) relate to sampling procedures, flow-rate measurement, and sample locations. The deviations described here apply to all major aspects of the sampling events that were conducted at the GAO 144 site.

The SAP specifies that the inlets of the air filter cassettes should be positioned downward during sampling. This requirement was generally achieved because the weight of each cassette deflected its inlet downward as it hung on the end of the sample tubing. In addition, the SAP specifies that for stationary air sampling locations the air filter cassettes should be positioned perpendicular to the wind direction. This requirement was also generally achieved for the same reason as given above, assuming that the wind generally blew parallel to the ground surface. However, the exact position of each air filter cassette inlet was not confirmed to be precisely downward-facing. It is more likely that each cassette's inlet was pointing generally downward but at an angle.

In addition, the SAP specifies that the air flow rates of all air sampling trains (filter cassette, tubing, and air pump) used to collect air samples at the GAO 144 site should be measured using a rotameter or Bios DryCal DC-Lite primary flow meter before and after samples were collected. Air flow rates of all air sampling trains used during the field sampling event at the GAO 144 site were measured using rotameters provided by Tetra Tech, instead of using the Bios DryCal DC-Lite primary flow meter. One rotameter capable of measuring a high flow rate range was used to measure the flow rates of the sampling trains prepared for high flow rate air sampling, and another rotameter with a lower flow rate range was used to measure the flow rates of the sampling trains prepared for low flow rate air sampling. The Bios DryCal DC-Lite flow meter was not used because measuring flow rates in the dusty field environment could damage the flow meter. Also the Bios DryCal DC-Lite is a more time-consuming instrument of measurement than a typical rotameter. Furthermore, while air flow rates of all air sampling trains were measured before sampling began, their post-sampling period flow rates were typically not measured after sample collection had ended. Instead, flow rates for most if not all air sampling trains were typically measured while they were still collecting air at their sampling locations, just before the sampling period

ended. These near-end-of-sampling flow rate measurements were used in place of literal post-sampling flow rates.

The SAP also specifies that the background air sample location should be positioned upwind of the GAO 144 site and 30 degrees away from the prevailing wind line. It further specifies that the upwind perimeter air sample locations associated with the ABS air sampling rounds be positioned upwind of their respective activities, 30 degrees away from the prevailing wind line, and on the opposite side of the prevailing wind line as the background air sample location. The locations for the background air samples were chosen based on many variables, and were therefore not necessarily upwind of all portions of the GAO 144 site or of the ABS sampling activities that were conducted on those days (see Section 3.3 below for more details). The locations for the upwind perimeter air samples associated with each ABS air sampling round were chosen to be upwind of their associated ABS activity areas, based on local weather forecast information and observations made at the site at the time of sampling. Tetra Tech's decision on where to place a sample, however, was determined less by strict adherence to the specified requirements than limitations posed by topography and the presence of structures and trees that influenced local wind flow. The wind direction and speed varied over time during the two days of ABS air sampling conducted at the GAO 144 site due to changes in weather conditions and the influence on wind patterns caused by obstacles on and in the vicinity of the site. If the wind direction changed during an ABS sampling round, it may have caused upwind and downwind stationary air sampling locations to switch (or share) roles, effectively making the designations "upwind" and "downwind" ambiguous for the samples collected.

Further details regarding the sampling during the GAO 144 site field events are presented in the following subsections.

3.1 METEOROLOGICAL MONITORING

Tetra Tech supplied a portable meteorological station for use during ABS activities at the GAO 144 site to measure wind speed, wind direction, temperature, and other meteorological parameters in real time. Aside from its use to help evaluate site conditions and guide activities while the sampling event was taking place, the meteorological station's data were stored for later retrieval and use in evaluating the laboratory data from the analysis of the samples. The meteorological station was used at the site during the ABS-related field events on March 24 and 25, 2010. While the meteorological station appeared to function during these field events, a malfunction occurred that interrupted continuous monitoring of weather conditions at the GAO 144 site during the ABS air sampling activities on March 24, 2010.

Therefore, some meteorological data may not be available for the entire duration of that day's ABS air sampling events.

Despite the missing meteorological station data, the field team used personal observations of wind direction and relative wind speed while field activities were underway to support selecting (1) staging locations for personnel and the decontamination station, (2) the background air sampling locations, and (3) the upwind and downwind perimeter air sampling locations associated with each ABS event. While some of these observations were recorded in the logbook notes and field sheets (Appendix C), no attempt was made to hand-record detailed, personal observations of the weather, primarily because the meteorological station's data were relied upon to be the official record of weather conditions during the ABS field events, and the malfunction that prevented retrieval of some of the meteorological station data was not discovered until after the field event had ended. The data recorded on March 24 and 25, 2010 by the on-site meteorological station are presented in Attachment 2.

3.2 FIELD QUALITY CONTROL SAMPLING

The SAP (Ref. 1) specifies the types and quantities of the field quality control samples that were planned for the sampling events at the GAO 144 site. These quality control samples included lot blanks and field blanks associated with the air samples and field duplicate samples. The lot blanks were unused air sample cassettes that were stored offsite at the Tetra Tech office during the field events; these blanks were used to determine whether the sample-collection media were affecting the analytical results of the air samples. The field blanks were unused air sample cassettes that were taken to the GAO 144 site and stored in the same containers from which air sample cassettes were withdrawn for use during sampling; these blanks were used to determine whether the sample-collection media were being contaminated through field handling (not including collecting air samples) and shipping and thus affecting the analytical results of the air samples. Two lot blanks and two field blanks associated with the air samples were collected during the sampling events at the GAO 144 site; each blank consisted of an unused 25-millimeter (mm) diameter, 0.8-micrometer (μm) mixed cellulose ester membrane (MCE) air filter cassette. All lot and field blanks were submitted to the laboratory for analysis. The lot and field blank sample information is provided in Appendix B, Table 1, and the laboratory analytical results for these samples are presented in Appendix B, Table 2. The analytical results will be discussed later in this RAR.

The SAP (Ref. 1) specifies that field duplicate samples were to be collected for each type of sample matrix at a frequency of one per sampling event or for every 20 samples, whichever is more frequent.

Field duplicate samples are intended to measure precision for both the field sampling procedures and the laboratory analyses. The sample matrices for the sampling events conducted at the GAO 144 site from March 2010 to December 2010 included:

- Background air samples
- Backpack (participant breathing zone) high flow rate air samples associated with an ABS round (ABS backpack high flow rate air samples)
- ABS backpack low flow rate air samples
- Perimeter upwind high flow rate air samples associated with an ABS sampling round (ABS perimeter upwind high flow rate air samples)
- ABS perimeter upwind low flow rate air samples
- ABS perimeter downwind high flow rate air samples
- ABS perimeter downwind low flow rate air samples
- ABS bulk material samples
- Additional bulk material samples

Field duplicate samples were collected only for the following matrices: background air samples (on both days that ABS air sampling was conducted), ABS backpack high flow rate air samples, ABS backpack low flow rate air samples, ABS perimeter upwind high flow rate air samples, and ABS perimeter upwind low flow rate air samples. Further information and the laboratory analytical results for the field duplicate samples collected during the GAO 144 site sampling events are presented in tables in Appendix B that are referenced in subsequent sections of this report.

3.3 BACKGROUND AIR SAMPLING

Background air samples were collected on the first two days (March 24 and 25, 2010) of the sampling events at the GAO 144 site, when ABS air sampling activities were conducted. Background air sample, G144-BKA-01 and its field duplicate sample, G144-BKA-01-DUP, were collected on March 24, 2010 (see Appendix A, Figure 3). Background air sample G144-BKA-24, and its field duplicate sample, G144-BKA-24-DUP were collected on March 25, 2010 (see Appendix A, Figure 4). The information for the background air samples is provided in Appendix B, Table 3, and the laboratory analytical results for these samples are presented in Appendix B, Table 4. The analytical results will be discussed later in this RAR.

The SAP (Ref. 1) specifies that background air samples should be collected concurrent with all site activities each day of the sampling event at the GAO 144 site, and this requirement was followed for those days when ABS air sampling activities were conducted (March 24 and 25, 2010). On the days

when only additional bulk material sampling was conducted (March 30, 2010; April 15, 2010; and December 6, 2010), background air sampling was not conducted.

The SAP also specifies that the background air samples should be collected off site or at the site perimeter and upwind at a distance sufficient to prevent real-time influence by the ABS air sampling activities conducted at the site. Appendix A, Figures 3 and 4 shows that the background air samples were collected at locations along the northern perimeter of the GAO 144 site. The choices for background air sampling locations were limited by the presence of buildings, trees, and topographic features that might perturb wind direction and speed. The locations for the background air samples were chosen in an attempt to record the prevailing wind conditions of the general area around the site and to limit the influence of local obstructions on the collected wind data. As a result of these considerations, the background air sampling locations were not necessarily upwind of all portions of the GAO 144 site. In addition, the wind direction and speed varied over time during each day of the two-day ABS air sampling field event (March 24 and 25, 2010) due to changes in weather conditions and the influence on wind patterns caused by obstacles on and in the vicinity of the site. These changes in wind direction effectively made the designation "upwind" ambiguous for the background air samples collected – relative to both the site and to the locations of the ABS air sampling activities. In fact, the background air sampling locations may at times have even been downwind of and influenced by the ABS air sampling activities occurring on those days.

The SAP specifies that the sampling duration for the background air samples be a minimum of 480 minutes (8 hours). Background air sampling durations (ranging from 275 to 384 minutes) were less than the required minimum for both days that air sampling was conducted, primarily because the two ABS air sampling rounds conducted each day spanned a period of less than 6 hours. Once those rounds were completed for the day, the background air sampling was also ceased, causing the background air sampling durations to be shorter than the required minimum.

3.4 AGGRESSIVE AIR AND BULK MATERIAL SAMPLING

As stated in Section 2.1, the former office building of the vermiculite exfoliation facility still exists at the GAO 144 site. This building was occupied by the Atlanta Soto Zen Center during the sampling events. Another structure, severely dilapidated and which may have served as the former vermiculite exfoliation facility's bath house, also still exists at the site. Two additional structures (located on parcel No. 44) observed at the GAO 144 site during the field sampling events appear to have existed during the operational period of the former vermiculite exfoliation facility, but their association with the facility is

unknown. No aggressive indoor air sampling activities were conducted at the GAO 144 site. Bulk material sampling was conducted, however, within, beneath, and immediately around the perimeter of the former office building (Atlanta Soto Zen Center) during the field effort. Additional bulk material samples were also collected from parcel No. 44. These samples and their laboratory analytical results are discussed in subsequent sections (Sections 3.6 and 6.6) of this RAR.

3.5 ACTIVITY-BASED AIR AND BULK MATERIAL SAMPLING

As stated in the SAP (Ref. 1), ABS air sampling was conducted at the GAO 144 site to simulate human exposure to asbestos during typical site activities. Four rounds of ABS air sampling were conducted at the GAO 144 site, two rounds on March 24, 2010 and two on 25, 2010. Three of the four rounds involved raking as the activity and one round (Round 2) involved a combination of both raking and sweeping (see Appendix A, Figures 3 and 4).

Air samples were prepared and arranged in the following way for each of the ABS air sampling rounds that were conducted. A collocated set consisting of one high flow rate air sample and one low flow rate air sample was collected from the breathing zone of the participants who raked (or raked and swept) within the activity area of each ABS round. The breathing zone can be visualized as a hemisphere approximately 6 to 9 inches around an individual's face. The air pumps for these samples were held in a backpack on the participant's back, and therefore these samples constituted the ABS backpack high flow rate and low flow rate air sample set. To meet the requirements of the SAP and to avoid overheating (participants were required to wear a protective suit and a full-face respirator that could contribute to heat-related injury), each participant raked or swept for only a portion of each approximately 120-minute round. When a participant's shift ended, the backpack with the ABS backpack high flow rate and low flow rate air sample set was transferred to another participant who took the next shift.

An array of four ABS perimeter high flow rate and low flow rate air sample sets was also set up at locations surrounding the area chosen for the activity for each ABS air sampling round (see Appendix A, Figures 3 and 4). One ABS perimeter high flow rate and low flow rate air sample set was positioned to be upwind of the activity area, and three ABS perimeter high flow rate and low flow rate air sample sets were positioned downwind of the activity area. As was stated in Section 3.0, variability and changes in wind direction and speed that occurred during the air sampling at the GAO 144 site may have caused upwind and downwind stationary air sampling locations to switch (or share) roles, effectively making the designations "upwind" and "downwind" ambiguous for the samples collected.

Several deviations from specifications presented in the SAP (Ref. 1) were noted during the four ABS air sampling rounds conducted at the GAO 144 site. These deviations are provided below:

- The SAP specifies that each ABS air sampling activity be conducted using at least three participants, to expose trends and introduce variability in the way the activity is conducted. This requirement was not met for any of the four ABS air sampling rounds conducted at the GAO 144 site. Instead, only two participants were used during each of the ABS air sampling rounds.
- The SAP specifies that ABS air sampling should be conducted in accordance with EPA Environmental Response Team (ERT) Standard Operating Procedure (SOP) No. 2084 (Ref. 4). Deviations from specifications presented in SOP No. 2084 that were noted during the ABS air sampling at the GAO 144 site are provided below:
    - SOP No. 2084 specifies that, for a raking activity, once several piles of debris have been created from raking, the piles should be picked up and placed into a trash can. Debris piles were not picked up during the raking activities conducted during ABS air sampling at the GAO 144 site. Instead, the debris piles were left on the ground along the edges of the activity area. Whenever raked material was encountered piled up along an edge as a result of earlier raking, that material was raked back across the designated area to the opposite side.
    - The ERT SOP No. 2084 does not provide a procedure for sweeping. Sweeping was conducted in combination with raking during ABS air sampling Round 2. The SAP provided a sweeping procedure as a supplement to the ERT SOP. This procedure specified sweeping in a snaking "S" pattern. Instead of sweeping in an "S" pattern, the sweeping was conducted in the same way as for the raking activity. Further details and step-by-step descriptions of the procedures used for conducting the combined raking and sweeping during ABS air sampling Round 2, as well as for conducting the raking during the other ABS air sampling rounds, are included in the logbook notes and field sheets presented in Appendix C.
- The SAP specifies that microvacuum dust samples may be collected after each ABS air sampling round instead of bulk material samples. Because bulk material samples were collected in association with each of the four ABS air sampling rounds, microvacuum dust samples were not collected.

Sections 3.5.1 through 3.5.4 discuss further details regarding the ABS air sampling Rounds 1 through 4 at the GAO 144 site.

3.5.1 Activity-Based Round 1: Raking

On March 24, 2010, ABS air sampling Round 1 was conducted and involved participants raking – using a leaf rake – a portion of a sparsely vegetated, somewhat elevated and sloped "plateau" area of the GAO 144 site (see Appendix A, Figure 3). This area was chosen to conduct an ABS round because it is located

in what may have been the western portion of the former vermiculite expansion facility, based on historical photographs (see Attachment 4). Furthermore, this area, being elevated relative to the rest of the site, was suspected to still have vermiculite exfoliation-related material present that may have been left after the facility ceased operations and was demolished.

ABS air sampling Round 1 was conducted for 120 minutes. One set of collocated ABS backpack high flow rate and low flow rate air samples, along with their field duplicates, were collected using two participants. Four sets (not including field duplicate samples) of collocated ABS perimeter high flow rate and low flow rate air samples were placed around the activity area, with one set designated as upwind and three sets designated as downwind (see Appendix A, Figure 3). At the end of ABS air sampling Round 1, a five-point composite bulk material sample (G144-AB1-B-22) was collected from within the activity area. The sample information for the ABS backpack high flow rate and low flow rate air sample sets, the ABS perimeter high flow rate and low flow rate air sample sets, and the bulk material sample associated with this ABS air sampling round is provided in Appendix B, Table 5. The laboratory analytical results for the air samples are presented in Appendix B, Table 6, and the laboratory analytical results for the bulk material sample are presented in Appendix B, Table 7. The analytical results will be discussed later in this RAR.

3.5.2 Activity-Based Round 2: Raking and Sweeping

On March 24, 2010, ABS air sampling Round 2 was conducted and involved a combination of raking and sweeping – using a leaf rake and a push broom – of an area adjacent to the west side of the former office building of the vermiculite exfoliation facility (then occupied by the Atlanta Soto Zen Center) (see Appendix A, Figure 3). This combination of activities involved sweeping a section of the area that was covered primarily in asphalt (used as a driveway for the Atlanta Soto Zen Center) and raking a sparse, grass-covered area adjacent to that driveway. This area was chosen to conduct an ABS round because it is located in what was the eastern portion of the former vermiculite expansion facility, and because of the existence of the facility's former office building.

ABS air sampling Round 2 was conducted for 120 minutes. One set of collocated ABS backpack high flow rate and low flow rate air samples were collected using two participants. Four sets of collocated ABS perimeter high flow rate and low flow rate air samples were placed around the activity area, with two sets designated as upwind and two sets designated as downwind (see Appendix A, Figure 3). At the end of ABS air sampling Round 2, a six-point composite bulk material sample (G144-AB2-B-23) was

collected from within the activity area. The sample information for the ABS backpack high flow rate and low flow rate air sample set, the ABS perimeter high flow rate and low flow rate air sample sets, and the bulk material sample associated with this ABS air sampling round is provided in Appendix B, Table 8. The laboratory analytical results for the air samples are presented in Appendix B, Table 9, and the laboratory analytical results for the bulk material sample are presented in Appendix B, Table 7. The analytical results will be discussed later in this RAR.

3.5.3 Activity-Based Round 3: Raking

On March 25, 2010, ABS air sampling Round 3 was conducted and involved participants raking – using a leaf rake – in a mostly wooded area at the convergence of several pedestrian trails in the central portion of parcel No. 2 (see Appendix A, Figure 4). This area was chosen to conduct an ABS round because it is located within what is thought to have been the western end of the former vermiculite expansion facility (based on historical photographs, see Attachment 4) and because of the potential for pedestrian and bicycle traffic.

ABS air sampling Round 3 was conducted for 120 minutes. One set of collocated ABS backpack high flow rate and low flow rate air samples were collected using two participants. Four sets of collocated ABS perimeter high flow rate and low flow rate air samples were placed around the activity area, with one set designated as upwind and three sets designated as downwind (see Appendix A, Figure 4). At the end of ABS air sampling Round 3, a five-point composite bulk material sample (G144-AB3-B-45) was collected from within the activity area. The sample information for the ABS backpack high flow rate and low flow rate air sample set, the ABS perimeter high flow rate and low flow rate air sample sets, and the bulk material sample associated with this ABS air sampling round is provided in Appendix B, Table 10. The laboratory analytical results for the air samples are presented in Appendix B, Table 11, and the laboratory analytical results for the bulk material sample are presented in Appendix B, Table 7. The analytical results will be discussed later in this RAR.

3.5.4 Activity-Based Round 4: Raking

On March 25, 2010, ABS air sampling Round 4 was conducted and involved participants raking – using a leaf rake – in a sparse, grass-covered area located along the northern perimeter of the GAO 144 site (see Appendix A, Figure 4). This area was chosen to conduct an ABS round because it is where a rail spur is believed to have been formerly located (based on historical photographs, see Attachment 4) and it is also

adjacent to (and possibly partially within) the footprint of the former vermiculite exfoliation facility buildings. The activity area may also be down gradient from the elevated, sloped plateau area within which ABS air sampling Round 1 was conducted.

ABS air sampling Round 4 was conducted for 120 minutes, though some sampling durations were shorter than 120 minutes because a heavy sprinkling of rain occurring near the end of the activity period forced the activity to end somewhat early. One set of collocated ABS backpack high flow rate and low flow rate air samples were collected using two participants. Four sets of collocated ABS perimeter high flow rate and low flow rate air samples were placed around the activity area, with two sets designated as upwind and two sets designated as downwind (see Appendix A, Figure 4). At the end of ABS air sampling Round 4, a five-point composite bulk material sample (G144-AB4-B-46) was collected from within the activity area. The sample information for the ABS backpack high flow rate and low flow rate air sample set, the ABS perimeter high flow rate and low flow rate air sample sets, and the bulk material sample associated with this ABS air sampling round is provided in Appendix B, Table 12. The laboratory analytical results for the air samples are presented in Appendix B, Table 13, and the laboratory analytical results for the bulk material sample are presented in Appendix B, Table 7. The analytical results will be discussed later in this RAR.

3.6 ADDITIONAL BULK MATERIAL SAMPLING

Samples of bulk material not associated with a particular ABS air sampling round are designated as "additional" bulk material samples. As with any bulk material sample, additional bulk material samples may consist of debris, soil, VAI, starting or finished product associated with historical or current site operations, or a combination of these matrices. Additional bulk material samples were collected during sampling events occurring on March 25, 2010, March 30, 2010, April 15, 2010, and December 6, 2010; these samples included samples of debris and soil, sediment, and VAI. These bulk material sampling events are summarized in the following paragraphs. The sample information for the additional bulk material samples is provided in Appendix B, Table 14.

March 25, 2010. Two additional bulk material samples were collected from the GAO 144 site (see Appendix A, Figure 5). Sample G144-BS-47 was a composite sample of VAI collected from the attic of the former office building of the vermiculite exfoliation facility (then occupied by the Atlanta Soto Zen Center), and sample G144-BS-48 was a composite soil sample collected at and near the perimeter of the former office building.

March 30, 2010. Eight additional bulk material grab samples were collected from various locations at the GAO 144 site (see Appendix A, Figure 6). Samples G144-BS-49 (0 to 12 inches below ground surface [bgs]) and G144-BS-50 (12 to 24 inches bgs) were both collected from the same location on a mound of mixed debris and soil located on the western edge of the elevated, sloped plateau area. Samples G144-BS-51 (0 to 12 inches bgs) and G144-BS-52 (12 to 15 inches bgs) were both collected from the same location within the elevated, sloped plateau area. Samples G144-BS-53 (0 to 12 inches bgs) and G144-BS-54 (12 to 24 inches bgs) were both collected from the same location on an approximately 5-feet-high mound of debris and soil located in woods south of the elevated, sloped plateau area. Sediment sample G144-BS-55 (0 to 4 inches bgs) was collected from the bank of a small unnamed drainage that flows through the GAO 144 site, near the drainage's confluence with South Fork Peachtree Creek. Sample G144-BS-56 (0 to 1.5 inches bgs) consisted of soil and debris collected from the crawl space underneath the former office building of the vermiculite exfoliation facility.

April 15, 2010. Two additional bulk material samples were collected from parcel No. 44 (then occupied by Habersham Gardens Landscape Services and Garden Center) (see Appendix A, Figure 7). Sample G144-BS-57 was a composite sample of soil and debris collected from undisturbed locations near the northern perimeter of parcel No. 44. Sample G144-BS-58 was a composite sample of soil, gravel, and debris collected from more actively-used locations near the southern perimeter and center of parcel No. 44.

December 6, 2010. In advance of this sampling event, EPA and START personnel conducted a site visit on November 12, 2010 to inspect the elevated, sloped plateau area and nearby mounds, with the purpose of digging into the plateau and other areas on the site to visually determine the presence or absence of vermiculite. EPA personnel dug test holes in several locations on and near the plateau. In test holes dug in or at the margin of the plateau area, EPA visually observed and identified vermiculite at depths ranging from less than 6 inches bgs to somewhat deeper than 12 inches bgs. As a result of these findings, EPA directed that Tetra Tech collect additional bulk material samples from the plateau. This sampling, which occurred on December 6, 2010, was done with representatives of W.R. Grace and its contractor, and samples were collected to split between W.R. Grace and Tetra Tech.

Sixteen additional bulk material grab samples were collected from specific depth intervals at five locations on the elevated, sloped plateau area at the GAO 144 site (see Appendix A, Figure 8). Of these, six samples consisted of small chips that appeared to be vermiculite, which were collected by isolating

and collecting chip fragments whenever they were observed during the collection of the other ten bulk material samples. While the ten bulk material samples were split between W.R. Grace and Tetra Tech, the chip samples were not split and were kept by Tetra tech for submission to the EPA-procured laboratory. Samples G144-BS-59 (3 to 8 inches bgs), G144-BS-59CH (chip sample, 3 to 8 inches bgs), and G144-BS-60 (8 to 17 inches bgs) were collected from the same location in the southern portion of the elevated, sloped plateau area. Samples G144-BS-61 (3 to 7 inches bgs), G144-BS-62 (7 to 16 inches bgs), and G144-BS-62CH (chip sample, 7 to 16 inches bgs) were collected from the same location in the western portion of the elevated, sloped plateau area; these samples were collected very near the location for samples G144-BS-49 and G144-BS-50. Samples G144-BS-63 (3 to 7 inches bgs), G144-BS-63CH (chip sample, 3 to 7 inches bgs), G144-BS-64 (7 to 13 inches bgs), and G144-BS-64CH (chip sample, 7 to 13 inches bgs) were collected from the same location in the central portion of the elevated, sloped plateau area. Samples G144-BS-65 (3 to 6 inches bgs), G144-BS-66 (6 to 16 inches bgs), and G144-BS-66CH (chip sample, 6 to 16 inches bgs) were collected from the same location in the eastern portion of the elevated, sloped plateau area. Samples G144-BS-67 (3 to 5 inches bgs), G144-BS-67CH (chip sample, 3 inches bgs), and G144-BS-68 (5 to 12 inches bgs) were collected from the same location near the northern extent of the elevated, sloped plateau area.

3.7 DISPOSAL OF INVESTIGATION-DERIVED WASTE

Various types of investigation-derived waste (IDW) were generated during the field sampling event at the GAO 144 site. The IDW was secured on site because it was not known at the time of the field event whether asbestos was present at the site. The IDW generated during the field event at the GAO 144 site and the means for securing it were as follows:

- Disposable materials such as latex and nitrile gloves, boot covers, protective suits, duct tape, plastic bags, spent breathing air cartridges, and paper towels; these materials were placed inside a plastic-bag-lined 55-gallon steel drum.
- Rinse water generated during decontamination; this water was also placed inside the plastic-bag-lined 55-gallon steel drum.
- Backpacks used during ABS sampling events; broom head used during ABS air sampling Round 2. These items were not intended for reuse because of the potential for their exposure to asbestos and the expectation that they could not be adequately decontaminated for reuse; these items were placed inside the plastic-bag-lined 55-gallon steel drum.

The IDW was intended to be secured in this way and left on site until the laboratory analytical results for the air and bulk material samples were received. If the analytical results for the air and bulk material

samples indicated that asbestos existed at the site, the IDW might then require analysis and disposal according to applicable regulations. If, following analysis of the IDW, the analytical results revealed contamination at levels that required special handling, these wastes would then require disposal by a licensed transport and disposal firm. Up to three months were to be allowed to complete the IDW analytical profiling and procure a transport and disposal firm. In addition, the SAP (Ref. 1) specifies that, if in the best professional judgment of the Tetra Tech field team leader and the EPA OSC, the IDW could be rendered nonhazardous, the IDW would be double-bagged and deposited in an industrial waste container.

Although the analytical results for the air and bulk material samples collected at the GAO 144 site have been received, indicating that detectable concentrations of asbestos were found in some samples, EPA has not yet made a determination regarding the final disposition of the IDW.

4.0 SAMPLE ANALYSIS

The samples collected during the sampling events at the GAO 144 site were submitted for analysis to two laboratories: International Asbestos Testing Laboratory, Inc, (IATL) located in Mt. Laurel, New Jersey, and Batta Environmental Associates Inc. (Batta) located in Newark, Delaware. The laboratory analytical parameters, methods required for use in analyzing these samples, and other analytical specifications were presented in the documents: *Request for Analytical Services,* EPA Region 4 Superfund Division, June 18, 2009 (Ref. 12); *Request for Analytical Services,* EPA Region 4 Superfund Division, November 2, 2009 (Ref. 13); and *Request for Analytical Services,* EPA Region 4 Superfund Division, May 26, 2010 (Ref. 14). If there were any variations in or additional technical instruction relating to the analytical methods used to analyze the samples collected at the GAO 144 site, those variations were specified in and communicated through the EPA laboratory assignments (Ref. 12, 13, 14). It is assumed that any additional variations were subsequently documented through EPA Region 4 communication records and the final laboratory reports. The laboratory analytical methods cited in the *Requests for Analytical Services* are:

- California Environmental Protection Agency, Air Resources Board (CARB) Method 435 (Ref. 7)
- American Society for Testing and Materials (ASTM) Method D4643-00 (Ref. 15)
- ASTM International Method D422-63 (2007) (Ref. 16)
- EPA Method EPA/600/R-04/004 (Ref. 8)
- ASTM Method D5755-95 (Ref. 6)
- International Organization for Standardization (ISO) Method ISO 10312: 1995 (Ref. 17)
- ISO Method ISO 13794: 1999 (Ref. 18)

The laboratory analytical data packages were not submitted directly to Tetra Tech, but were instead submitted to the data validation contractor. Only after the data validation process was completed were the data provided to Tetra Tech for incorporation into this RAR. The laboratory data packages are presented in Attachment 3. The laboratory reported the analytical results for each air sample in the form of a National Asbestos Data Entry Spreadsheet (NADES), which is an electronic Microsoft Excel file that presents data in several tabs within the electronic file.

5.0 DATA VALIDATION

Initial acceptance of the laboratory analytical data was determined through data validation conducted by the Quality Assurance Technical Support Program contractor, the Shaw Group, Inc. (Shaw). Data validation was conducted according to the following procedures:

- Shaw Environmental, Inc., the Data Auditing Group, Quality Assurance Technical Support Program, Asbestos Data Validation Design (Ref. 19)
- Quality Assurance Technical Support Program, Standard Operating Procedure for the Verification and Validation of Polarized Light Microscopy (PLM) Data Deliverables, SOP QATS-70-090-00 (Ref. 20)
- Quality Assurance Technical Support Program, Standard Operating Procedure for the Verification and Validation of Transmission Electron Microscopy (TEM) Data Deliverables, SOP QATS-70-091-00 (Ref. 21)

Shaw prepared data validation reports that present qualifications to the data and the reasons for the qualifications. These reports are presented in Attachment 1. The data validation reports include scanned versions of the laboratory analytical result sheets with hand-written data qualifiers applied as a result of the data validation process. All of the data presented in this RAR (either in the text, the data tables in Appendix B, or in other portions – with the exception of Attachment 3) include these data qualifiers.

6.0 PRESENTATION OF ANALYTICAL RESULTS

This section presents and discusses the meteorological monitoring data gathered during the field event as well as the laboratory analytical data for the air and bulk material samples collected during the field events conducted at the GAO 144 site on March 24, 25 and 30, 2010; April 15, 2010; and December 6, 2010. Analytical data tables of validated laboratory data are presented in Appendix B, Tables 2, 4, 6, 7, 9, 11, 13 15, and 16. The air sample data presented in these tables were taken from the data tab within the sample's NADES Excel file titled "NADES Report." Furthermore, only the "Phase Contrast Microscopy

(PCM) Equivalent Structures (PCME)" portion of the "NADES Report" data tab was transcribed into the Appendix B data tables for this RAR, and these are the only air sample data discussed in this report.

6.1 METEOROLOGICAL MONITORING DATA

As discussed in section 3.1, Tetra Tech supplied a portable meteorological station for use during ABS activities at the GAO 144 site to measure wind speed, wind direction, temperature, and other meteorological parameters in real time. The meteorological station's data were stored for later retrieval and use in evaluating the laboratory data from the analysis of the samples. The meteorological station was used at the site during the ABS-related field events on March 24 and 25, 2010. While the meteorological station appeared to function during these field events, a malfunction occurred that interrupted continuous monitoring of weather conditions at the GAO 144 site during the ABS air sampling activities on March 24, 2010. Therefore, some meteorological data may not be available for the entire duration of that day's ABS air sampling events. The data recorded on March 24 and 25, 2010 by the on-site meteorological station are presented in Attachment 2. In addition, personal observations of the weather, including wind direction and relative wind speed, made by field personnel while field activities were underway were recorded in the logbook notes and field sheets (Appendix C). A summary of weather conditions and data for the time periods over which the ABS air sampling activities occurred on those two days will not be presented here; collected weather data relevant to specific sets of air samples, however, will be discussed in the appropriate sections of this RAR wherein the data for those samples are presented.

6.2 FIELD QUALITY CONTROL SAMPLE RESULTS

As discussed in Section 3.2, two lot blanks (G144-LOT-08-59 and G144-LOT-08-60) and two field blanks (G144-FB-08-61 and G144-FB-08-62) associated with the air samples were collected and submitted to the laboratory for analysis (see Appendix B, Table 1). The laboratory analytical results for these samples are presented in Appendix B, Table 2. The table shows that no structures were detected in any of the lot blanks and field blanks for all PCME structures listed.

Field duplicate samples were collected only for background air samples, ABS backpack high flow rate air samples, ABS backpack low flow rate air samples, ABS perimeter upwind high flow rate air samples and ABS perimeter upwind low flow rate air samples. A background air sample field duplicate pair (G144-BKA-01 and G144-BKA-01-DUP) was collected on March 24, 2010 (see Appendix B, Table 3).

Appendix B, Table 4 presents the analytical results for these field duplicate samples. The table shows that no PCME structures were detected in either of the background samples. Another background air sample field duplicate pair (G144-BKA-24 and G144-BKA-24-DUP) was collected on March 25, 2010 (see Appendix B, Table 3). Appendix B, Table 4 presents the analytical results for these field duplicate samples. The table shows that the analytical results for the two samples differ. The results for sample G144-BKA-24 show positive PCME results for total asbestos (1.0E-04 structures per cubic centimeter [s/cc]), total amphibole (1.0E-04 s/cc) and Libby amphibole (1.0E-04 s/cc), while the results for sample G144-BKA-24-DUP show nondetects for all PCME structures listed.

A field duplicate sample for each of the two samples in one set of ABS backpack high flow rate and low flow rate air samples was collected during ABS air sampling Round 1 on March 24, 2010. Appendix B, Table 5 lists the two field duplicate sample pairs: G144-AB1-AH-10 with G144-AB1-AH-10-DUP and G144-AB1-AL-11 with G144-AB1-AL-11-DUP. Thus, two sets of collocated high flow rate and low flow rate air samples were collected at the same time and location. The laboratory analytical protocol for collocated high flow rate and low flow rate air sample sets directs the laboratory to: (1) first attempt to analyze the high flow rate (high volume) air sample using direct analysis, and, if that sample is overloaded, then (2) proceed to analyze the low flow rate (low volume) air sample by direct analysis. If both the high volume and the low volume air samples in a given collocated set are overloaded, then the laboratory is to subject the high volume air sample to indirect analysis (with EPA Region 4 approval). In accordance with this analytical protocol, only one sample in each of the two collocated high flow rate and low flow rate air sample sets was analyzed by the laboratory. In this case, both of the ABS backpack high flow rate air samples (G144-AB1-AH-10 and its field duplicate G144-AB1-AH-10-DUP) were analyzed by direct analysis, and neither of the ABS backpack low flow rate air samples was analyzed. Appendix B, Table 6 presents the analytical results for the ABS backpack high flow rate air field duplicate sample pair (G144-AB1-AH-10 and G144-AB1-AH-10-DUP); the table shows that the analytical results for the two samples differ. The results for sample G144-AB1-AH-10 show positive PCME results for total asbestos (8.9E-04 s/cc), total amphibole (8.9E-04 s/cc) and Libby amphibole (8.9E-04 s/cc), while the results for sample G144-AB1-AH-10-DUP show nondetects for all PCME structures listed.

A field duplicate sample for each of the two samples in one set of ABS perimeter upwind high flow rate and low flow rate air samples was collected during ABS air sampling Round 1 on March 24, 2010. Appendix B, Table 5 lists the two field duplicate sample pairs: G144-AB1-PH-02 with G144-AB1-PH-02-DUP and G144-AB1-PL-03 with G144-AB1-PL-03-DUP. Thus, two sets of collocated high flow rate and low flow rate air samples were collected at the same time and location. As stated above, in

accordance with the analytical protocol used for these samples, only one sample in each of the two collocated high flow rate and low flow rate air sample sets was analyzed by the laboratory. In this case both of the ABS perimeter upwind high flow rate air samples (G144-AB1-PH-02 and its field duplicate G144-AB1-PH-02-DUP) were analyzed by direct analysis, and neither of the ABS perimeter upwind low flow rate air samples was analyzed. Appendix B, Table 6 presents the analytical results for the ABS perimeter upwind high flow rate air field duplicate sample pair (G144-AB1-PH-02 and G144-AB1-PH-02-DUP); the table shows that the analytical results for the two samples agree, with nondetects for all PCME structures listed.

6.3 BACKGROUND AIR SAMPLE RESULTS

Appendix B, Table 4 presents the analytical results for the background air samples: G144-BKA-01 and its field duplicate sample G144-BKA-01-DUP, collected on March 24, 2010; and G144-BKA-24 and its field duplicate sample G144-BKA-24-DUP, collected on March 25, 2010 (see Appendix A, Figures 3 and 4; and Appendix B, Table 3).

The SAP (Ref. 1) specifies that, to the degree possible, the location selected for the background air samples should be free of known asbestos contamination. The background air asbestos level should reflect the concentration of asbestos in the air for the environmental setting in the vicinity of the site and will be used to help evaluate whether a release from the site occurred during the field event. The background air asbestos level does not necessarily represent historical, pre-release conditions or conditions in the absence of influence from potential sources at the site. A background air asbestos level may or may not be less than the analytical detection limit, and if it is greater than the detection limit (and therefore detectable), it will account for variability in local asbestos air concentrations (Ref. 4).

The analytical results for the field duplicate background air sample pair (G144-BKA-01 and G144-BKA-01-DUP) collected at the GAO 144 site on March 24, 2010 — showing nondetects for all PCME structures listed – indicate that the background air sampling location was free of detectable asbestos contamination while the pumps were operating for these background air samples. In contrast, the results for the field duplicate background air sample pair collected on March 25, 2010 showed positive PCME results for total asbestos (1.0E-04 s/cc), total amphibole (1.0E-04 s/cc), and Libby amphibole (1.0E-04 s/cc) in sample G144-BKA-24, and nondetects for all PCME structures listed for sample G144-BKA-24-DUP. These data indicate that the background air sampling location on March 25, 2010 was not free of detectable asbestos contamination while the pumps were operating for these background air samples.

As discussed in detail in Section 3.3, limitations in appropriate background air sampling locations and variations in wind direction and speed over time during each day of the two-day ABS air sampling field event (March 24 and 25, 2010) effectively made the designation "upwind" ambiguous for the background air samples collected – relative to both the site and to the locations of the ABS air sampling activities. Winds were generally light on March 24, 2010, with a maximum measured wind speed of 8 miles per hour (mph), and some periods of no measurable wind (see Attachment 2). Winds were variable in direction, coming from almost all points of the compass. Winds started out from the north-northeast and northwest, shifting to coming generally from southwest to east-southeast, shifting again to coming generally from northeast to east-northeast, and finally shifting to coming generally from south-southwest to south.

Winds were also generally light on March 25, 2010, with a maximum measured wind speed of 7 mph, and some periods of no measurable wind (see Attachment 2). Winds were variable in direction, starting out from the northeast to east-northeast, shifting to coming generally from northeast to south-southeast, shifting again to coming generally from west to north-northwest, shifting to again coming generally from northeast to south-southeast, and finally shifting to coming generally from south-southwest to east-southeast.

Given the meteorological data summarized above, it is surprising that the March 24, 2010 background air samples, which may have been at times downwind of both the GAO 144 site and the ABS air sampling Rounds 1 and 2 while they were being conducted, were nondetect for all PCME structures listed. In contrast, the March 25, 2010 background air samples, which may have been at times downwind of the GAO 144 site, but were not apparently downwind of ABS air sampling Rounds 3 and 4 while they were being conducted, showed positive PCME results for asbestos in one of the samples. As will be discussed in Sections 6.5.1 through 6.5.4, some of the air samples collected during ABS air sampling Rounds 1 and 2 contained detectable concentrations of PCME structures, but all of the air samples collected during ABS air sampling Rounds 3 and 4 were nondetect for all PCME structures listed.

6.4 AGGRESSIVE AIR AND BULK MATERIAL SAMPLE RESULTS

As stated in Section 3.4, no aggressive indoor air sampling activities were conducted at the GAO 144 site. Bulk material sampling was conducted, however, within, beneath, and immediately around the perimeter of the former office building (Atlanta Soto Zen Center) during the field effort. Additional bulk material

samples were also collected from parcel No. 44. The laboratory analytical results for these samples are discussed in Section 6.6 of this RAR.

6.5 ACTIVITY-BASED AIR AND BULK MATERIAL SAMPLE RESULTS

Sections 6.5.1 through 6.5.4 present the laboratory analytical data for the air and bulk material samples collected during the four ABS air sampling rounds at the GAO 144 site on March 24 and 25, 2010.

6.5.1 Activity-Based Round 1: Raking

Two sets of collocated high flow rate and low flow rate ABS backpack air samples (including one set of field duplicate samples) and five sets of high flow rate and low flow rate ABS perimeter air samples (including one set of field duplicate samples) were collected during ABS air sampling Round 1 (see Appendix A, Figure 3 and Appendix B, Table 5). Appendix B, Table 6 presents the laboratory analytical results for these air samples. In addition, a five-point composite bulk material sample (G144-AB1-B-22) was collected after ABS air sampling Round 1 was over, from within the activity area. The laboratory analytical results for the bulk material sample are presented in Appendix B, Table 7.

As indicated in Section 6.2, the laboratory protocol for analyzing collocated high flow rate (high volume) and low flow rate (low volume) air sample sets causes the analytical results for only one of the two samples in the high and low volume set to be reported. As a result, Appendix B, Table 6 presents results for only seven of the 14 ABS backpack and ABS perimeter air samples that were collected during ABS air sampling Round 1; all seven analyzed samples were high volume samples analyzed by direct analysis.

The results for the two ABS backpack air samples that were analyzed (G144-AB1-AH-10 and G144-AB1-AH-10-DUP) show that the samples results differ. The results for sample G144-AB1-AH-10 show positive PCME results for total asbestos (8.9E-04 s/cc), total amphibole (8.9E-04 s/cc) and Libby amphibole (8.9E-04 s/cc), while results for sample G144-AB1-AH-10-DUP show nondetects for all PCME structures listed (see Appendix B, Table 6).

Of the five ABS perimeter upwind and downwind air samples that were analyzed, the results for the two air samples designated as upwind (G144-AB1-PH-02 and G144-AB1-PH-02-DUP) and for one of the air samples designated as downwind (G144-AB1-PH-06), show nondetects for all PCME structures listed (see Appendix B, Table 6). The remaining two ABS perimeter air samples that were analyzed (both

designated as downwind) showed positive PCME results. The results for sample G144-AB1-PH-04 show positive PCME results for total asbestos (1.0E-03 s/cc), total amphibole (1.0E-03 s/cc), and Libby amphibole (1.0E-03 s/cc). The results for sample G144-AB1-PH-08 show positive PCME results for total asbestos (9.4E-04 s/cc), total amphibole (9.4E-04 s/cc), and Libby amphibole (9.4E-04 s/cc) (see Appendix B, Table 6). The measured wind direction was variable during ABS air sampling Round 1, and was recorded as coming from multiple directions, including from the northwest, south and southwest (see Attachment 2). As stated in Section 3.0, these changes in wind direction and speed may have caused upwind and downwind stationary ABS perimeter air sampling locations to switch (or share) roles, effectively making the designations "upwind" and "downwind" ambiguous for the samples collected. These changes also make interpretation of the analytical results for these samples difficult.

The results for bulk material sample G144-AB1-B-22 (Appendix B, Table 7) indicate that a trace of asbestos was detected. The results for the fraction of the sample greater than 75 micrometers (μm) indicate that a trace of asbestos identified as actinolite was detected, although the identification of the analyte was qualified as estimated. In addition, the results for the fraction of the sample greater than 75 μm also indicate that a trace of non-asbestos fibrous material identified as cellulose was detected. The positive asbestos results for this sample are somewhat consistent with the positive asbestos results for the air samples collected during ABS air sampling Round 1, except that the positive results for the air samples did not show detections for actinolite.

6.5.2 Activity-Based Round 2: Raking and Sweeping

One set of collocated high flow rate and low flow rate ABS backpack air samples and four sets of collocated high flow rate and low flow rate ABS perimeter air samples were collected during ABS air sampling Round 2 (see Appendix A, Figure 3 and Appendix B, Table 8). Appendix B, Table 9 presents the laboratory analytical results for these air samples. In addition, a six-point composite bulk material sample (G144-AB2-B-23) was collected after ABS air sampling Round 2 was over, from within the activity area. The laboratory analytical results for the bulk material sample are presented in Appendix B, Table 7.

As indicated in Section 6.2, the laboratory protocol for analyzing collocated high flow rate (high volume) and low flow rate (low volume) air sample sets causes the analytical results for only one of the two samples in the high and low volume set to be reported. As a result, Appendix B, Table 9 presents results

for only five of the ten ABS backpack and ABS perimeter air samples that were collected during ABS air sampling Round 2; all five samples were analyzed by direct analysis.

The results for the ABS backpack low volume air sample that was analyzed (G144-AB2-AL-21) show nondetects for all PCME structures listed (see Appendix B, Table 9).

Of the four ABS perimeter upwind and downwind air samples that were analyzed, the results for the two high volume air samples designated as downwind (G144-AB2-PH-16 and G144-AB2-PH-18) show nondetects for all PCME structures listed (see Appendix B, Table 9). The remaining two ABS perimeter air samples that were analyzed (both designated as upwind) showed positive PCME results. The results for low volume sample G144-AB2-PL-13 show positive PCME results for total asbestos (9.9E-04 s/cc), total amphibole (9.9E-04 s/cc), and actinolite (9.9E-04 s/cc). The results for high volume sample G144-AB2-PH-14 show positive PCME results for total asbestos (9.4E-04 s/cc), total amphibole (9.4E-04 s/cc), and Libby amphibole (9.4E-04 s/cc) (see Appendix B, Table 9). The measured wind direction was variable during ABS air sampling Round 2, and was recorded as coming from multiple directions, including from the east-northeast, southwest, west, south-southwest, south, southeast, west-southwest, and south-southeast (see Attachment 2). As stated in Section 3.0, these changes in wind direction and speed may have caused upwind and downwind stationary ABS perimeter air sampling locations to switch (or share) roles, effectively making the designations "upwind" and "downwind" ambiguous for the samples collected. These changes also make interpretation of the analytical results for these samples difficult. In particular, the positive PCME results for the two ABS perimeter air samples designated as upwind and the nondetect PCME results for the two ABS perimeter air samples designated as downwind highlight these difficulties, and support the observation that the wind patterns were more complex than the designations suggest.

The results for bulk material sample G144-AB2-B-23 (Appendix B, Table 7) indicate that asbestos was not detected. The results for the fraction of the sample greater than 75 μm, however, indicate that a trace of non-asbestos fibrous material identified as cellulose was detected. The nondetect asbestos results for this sample are in contrast to the positive asbestos results for the air samples collected during ABS air sampling Round 2.

6.5.3 Activity-Based Round 3: Raking

One set of collocated high flow rate and low flow rate ABS backpack air samples and four sets of collocated high flow rate and low flow rate ABS perimeter air samples were collected during ABS air sampling Round 3 (see Appendix A, Figure 4 and Appendix B, Table 10). Appendix B, Table 11 presents the laboratory analytical results for these air samples. In addition, a five-point composite bulk material sample (G144-AB3-B-45) was collected after ABS air sampling Round 3 was over, from within the activity area. The laboratory analytical results for the bulk material sample are presented in Appendix B, Table 7.

As indicated in Section 6.2, the laboratory protocol for analyzing collocated high flow rate (high volume) and low flow rate (low volume) air sample sets causes the analytical results for only one of the two samples in the high and low volume set to be reported. As a result, Appendix B, Table 11 presents results for only five of the ten ABS backpack and ABS perimeter air samples that were collected during ABS air sampling Round 3; all five analyzed samples were high volume samples analyzed by direct analysis.

The results for the ABS backpack air sample that was analyzed (G144-AB3-AH-33) show nondetects for all PCME structures listed (see Appendix B, Table 11).

The results for all four ABS perimeter upwind and downwind air samples that were analyzed (G144-AB3-PH-25, G144-AB3-PH-27, G144-AB3-PH-29, and G144-AB3-PH-31) show nondetects for all PCME structures listed (see Appendix B, Table 11). Personal observations made at the beginning of this ABS air sampling round indicated that the wind was coming from the west to southwest (see Appendix C). The measured wind direction during ABS air sampling Round 3 was recorded as coming initially from the northeast, then generally from east-northeast, and toward the end coming generally from the south-southeast and east-southeast (see Attachment 2). As stated in Section 3.0, these changes in wind direction and speed may have caused upwind and downwind stationary ABS perimeter air sampling locations to switch (or share) roles, effectively making the designations "upwind" and "downwind" ambiguous for the samples collected. These changes also make interpretation of the analytical results for these samples difficult, although in the case of ABS air sampling Round 3 – having nondetects for all air samples – no interpretation relative to wind direction is required.

The results for bulk material sample G144-AB3-B-45 (Appendix B, Table 7) indicate that a trace of asbestos was detected. The results for the fraction of the sample greater than 75 μm indicate that a trace

of asbestos identified as chrysotile was detected. In addition, the results for the fraction of the sample greater than 75 μm also indicate that a trace of non-asbestos fibrous material identified as cellulose was detected. The positive asbestos results for this sample are in contrast with the results for the air samples collected during ABS air sampling Round 3, which show nondetects for all PCME structures listed.

6.5.4 Activity-Based Round 4: Raking

One set of collocated high flow rate and low flow rate ABS backpack air samples and four sets of collocated high flow rate and low flow rate ABS perimeter air samples were collected during ABS air sampling Round 4 (see Appendix A, Figure 4 and Appendix B, Table 12). Appendix B, Table 13 presents the laboratory analytical results for these air samples. In addition, a five-point composite bulk material sample (G144-AB4-B-46) was collected after ABS air sampling Round 4 was over, from within the activity area. The laboratory analytical results for the bulk material sample are presented in Appendix B, Table 7.

As indicated in Section 6.2, the laboratory protocol for analyzing collocated high flow rate (high volume) and low flow rate (low volume) air sample sets causes the analytical results for only one of the two samples in the high and low volume set to be reported. As a result, Appendix B, Table 13 presents results for only five of the ten ABS backpack and ABS perimeter air samples that were collected during ABS air sampling Round 4; all five analyzed samples were high volume samples analyzed by direct analysis.

The results for the ABS backpack air sample that was analyzed (G144-AB4-AH-43) show nondetects for all PCME structures listed (see Appendix B, Table 13).

The results for all four ABS perimeter upwind and downwind air samples that were analyzed (G144-AB4-PH-35, G144-AB4-PH-37, G144-AB4-PH-39, and G144-AB4-PH-41) show nondetects for all PCME structures listed (see Appendix B, Table 13). The measured wind direction during ABS air sampling Round 4 was variable, and was recorded as coming from points within an arc of northeast to east to south-southeast to south-southwest (see Attachment 2). As stated in Section 3.0, these changes in wind direction and speed may have caused upwind and downwind stationary ABS perimeter air sampling locations to switch (or share) roles, effectively making the designations "upwind" and "downwind" ambiguous for the samples collected. These changes also make interpretation of the analytical results for these samples difficult, although in the case of ABS air sampling Round 4 – having nondetects for all air samples – no interpretation relative to wind direction is required.

The results for bulk material sample G144-AB4-B-46 (Appendix B, Table 7) indicate that asbestos was not detected. However, the absence of asbestos in the fraction of the sample greater than 75 µm was not confirmed, and therefore this nondetect result was qualified as estimated for identification of the absence of asbestos. In addition, the results for the fraction of the sample greater than 75 µm also indicate that a trace of non-asbestos fibrous material identified as cellulose was detected, although the identification of the analyte was qualified as estimated. The nondetect asbestos results for this sample are consistent with the results for the air samples collected during ABS air sampling Round 4, which show nondetects for all PCME structures listed.

6.6 ADDITIONAL BULK MATERIAL SAMPLE RESULTS

As stated in Section 3.6, additional bulk material samples were collected during sampling events occurring on March 25, 2010, March 30, 2010, April 15, 2010, and December 6, 2010; these samples included samples of debris and soil, sediment, and VAI (see Appendix A, Figures 5, 6, 7, and 8; and Appendix B, Table 14). The laboratory analytical results for the bulk material samples collected are presented in Appendix B, Tables 7, 15, and 16; these results are summarized in the following paragraphs.

March 25, 2010. The results for the composite VAI (attic insulation) sample G144-BS-47 (presented in Appendix B, Table 15) show that asbestos was not detected in all sample fractions analyzed by polarized light microscopy (PLM). In addition, the results for the vermiculite mineral sinks fraction of the sample analyzed by transmission electron microscopy (TEM) also show that no asbestos was detected. The results for the fraction of the sample classified as vermiculite mineral suspension that was analyzed by TEM, however, indicate that a trace (less than 0.25 percent) of asbestos identified as actinolite was detected. In addition, traces (less than 0.25 percent) of non-asbestos fibrous material identified as SiAlMg M+ were detected through TEM analysis in both the vermiculite mineral sinks and vermiculite mineral suspension fractions of the sample. SiAlMg M+ was also identified as the type of non-fibrous material detected through TEM analysis in both the vermiculite mineral sinks and vermiculite mineral suspension fractions. This VAI sample was collected from the attic of the former office building for the vermiculite exfoliation facility (then occupied by the Atlanta Soto Zen Center).

Composite soil sample G144-BS-48 was collected at and near the perimeter of the former office building. The results for sample G144-BS-48 (Appendix B, Table 7) show that a trace of asbestos was detected. The results for the fraction of the sample greater than 75 µm indicate that a trace of asbestos identified as

actinolite was detected, although the identification of the analyte was qualified as estimated. In addition, the results for the fraction of the sample greater than 75 µm also indicate that a trace of non-asbestos fibrous material identified as cellulose was detected.

March 30, 2010. Grab samples G144-BS-49 (0 to 12 inches bgs) and G144-BS-50 (12 to 24 inches bgs) were both collected from the same location on a mound of mixed debris and soil located on the western edge of the elevated, sloped plateau area. The results for sample G144-BS-49 (Appendix B, Table 7) indicate that asbestos was not detected. The results for sample G144-BS-50 (Appendix B, Table 7) show a trace of asbestos was detected. The results for the fraction of the sample greater than 75 µm indicate that a trace of asbestos identified as actinolite was detected, although the identification of the analyte was qualified as estimated. In addition, the results also indicate that traces of non-asbestos fibrous material identified as cellulose were detected in both fractions of the sample (greater than 75 µm and less than 75 µm).

Grab samples G144-BS-51 (0 to 12 inches bgs) and G144-BS-52 (12 to 15 inches bgs) were both collected from the same location within the elevated, sloped plateau area. The results for sample G144-BS-51 (Appendix B, Table 7) show that asbestos was detected. The results for the fraction of the sample greater than 75 µm indicate that 0.5 percent of asbestos identified as actinolite was detected, although the identification of the analyte was qualified as estimated. In addition, the results for the fraction of the sample less than 75 µm indicate that a trace of asbestos identified as actinolite was detected, although the identification of the analyte was qualified as estimated. Finally, the results for the fraction of the sample greater than 75 µm also indicate that a trace of non-asbestos fibrous material identified as cellulose was detected. The results for sample G144-BS-52 (Appendix B, Table 7) show that asbestos was detected. The results for the fraction of the sample greater than 75 µm indicate that 0.25 percent of asbestos identified as actinolite was detected, although the identification of the analyte was qualified as estimated. In addition, the results for the fraction of the sample less than 75 µm indicate that 0.75 percent of asbestos identified as actinolite was detected, although the identification of the analyte was qualified as estimated. Finally, the results for the fraction of the sample greater than 75 µm also indicate that a trace of non-asbestos fibrous material identified as cellulose was detected.

Grab samples G144-BS-53 (0 to 12 inches bgs) and G144-BS-54 (12 to 24 inches bgs) were both collected from the same location on an approximately 5-feet-high mound of debris and soil located in woods south of the elevated, sloped plateau area. The results for sample G144-BS-53 (Appendix B, Table 7) show that a trace of asbestos was detected. The results for the fraction of the sample greater than

75 μm indicate that a trace of asbestos identified as actinolite was detected, although the identification of the analyte was qualified as estimated. In addition, the results for the fraction of the sample greater than 75 μm also indicate that a trace of non-asbestos fibrous material identified as cellulose was detected. The results for sample G144-BS-54 (Appendix B, Table 7) show that a trace of asbestos was detected. The results for the fraction of the sample greater than 75 μm indicate that a trace of asbestos identified as chrysotile was detected. In addition, the results for the fraction of the sample greater than 75 μm also indicate that a trace of non-asbestos fibrous material identified as cellulose was detected.

Sediment grab sample G144-BS-55 (0 to 4 inches bgs) was collected from the bank of a small unnamed drainage that flows through the GAO 144 site, near the drainage's confluence with South Fork Peachtree Creek. The results for sample G144-BS-55 (Appendix B, Table 7) show that asbestos was not detected. However, the results for the fraction of the sample greater than 75 μm indicate that a trace of non-asbestos fibrous material identified as cellulose was detected.

Grab sample G144-BS-56 (0 to 1.5 inches bgs) consisted of soil and debris collected from the crawl space underneath the former office building for the vermiculite exfoliation facility. The results for sample G144-BS-56 (Appendix B, Table 7) show that asbestos was not detected. However, the results for the fraction of the sample greater than 75 μm indicate that a trace of non-asbestos fibrous material identified as cellulose was detected.

April 15, 2010. Sample G144-BS-57 was a composite sample of soil and debris collected from undisturbed locations near the northern perimeter of parcel No. 44. The results for sample G144-BS-57 (Appendix B, Table 7) show that asbestos was not detected. However, the results for the fraction of the sample greater than 75 μm indicate that a trace of non-asbestos fibrous material identified as cellulose was detected. The results for sample G144-BS-58 (a composite sample of soil, gravel, and debris collected from more actively-used locations near the southern perimeter and center of parcel No. 44) show that asbestos was not detected (Appendix B, Table 7). However, the results for the fraction of the sample greater than 75 μm indicate that a trace of non-asbestos fibrous material identified as cellulose was detected.

December 6, 2010. Grab samples G144-BS-59 (3 to 8 inches bgs), G144-BS-59CH (chip sample, 3 to 8 inches bgs), and G144-BS-60 (8 to 17 inches bgs) were collected from the same location in the southern portion of the elevated, sloped plateau area. The results for sample G144-BS-59 (Appendix B, Table 16) show that asbestos was not detected. However, the results for the analysis conducted by visual estimates

indicate that 2 percent of non-asbestos fibrous material identified as cellulose was detected. The results for sample G144-BS-59CH (Appendix B, Table 16) show that asbestos was detected. The results for the analysis conducted by point counting indicate that 0.5 percent of asbestos identified as tremolite was detected. In addition, the results for the analysis conducted by visual estimates indicate that less than 1 percent of asbestos identified as tremolite was detected. The results for the analysis conducted by visual estimates also indicate that 2 percent of non-asbestos fibrous material identified as cellulose was detected. Finally, the results for sample G144-BS-60 (Appendix B, Table 16) show that asbestos was not detected. However, the results for the analysis conducted by visual estimates indicate that 3 percent of non-asbestos fibrous material identified as cellulose was detected.

Samples G144-BS-61 (3 to 7 inches bgs), G144-BS-62 (7 to 16 inches bgs), and G144-BS-62CH (chip sample, 7 to 16 inches bgs) were collected from the same location in the western portion of the elevated, sloped plateau area. The results for sample G144-BS-61 (Appendix B, Table 16) show that asbestos was detected. The results for the analysis conducted by point counting indicate that 0.5 percent of asbestos identified as tremolite was detected. In addition, the results for the analysis conducted by visual estimates indicate that 2 percent of asbestos identified as tremolite was detected. The results for the analysis conducted by visual estimates also indicate that 2 percent of non-asbestos fibrous material identified as cellulose was detected. The results for sample G144-BS-62 (Appendix B, Table 16) show that asbestos was detected. The results for the analysis conducted by point counting indicate that a trace of asbestos identified as tremolite was detected. In addition, the results for the analysis conducted by visual estimates indicate that 2 percent of asbestos identified as tremolite was detected. The results for the analysis conducted by visual estimates also indicate that 2 percent of non-asbestos fibrous material identified as cellulose was detected. The results for sample G144-BS-62CH (Appendix B, Table 16) show that asbestos was detected. The results for the analysis conducted by point counting indicate that 0.75 percent of asbestos identified as tremolite was detected. In addition, the results for the analysis conducted by visual estimates indicate that 2 percent of asbestos identified as tremolite was detected. The results for the analysis conducted by visual estimates also indicate that 2 percent of non-asbestos fibrous material identified as cellulose was detected. The positive asbestos results for these three samples are somewhat consistent with the positive asbestos results for one (G144-BS-50) of the two bulk material samples (G144-BS-49 and G144-BS-50) collected nearby on March 30, 2010, except that the positive result for sample G144-BS-50 did not show a detection for tremolite.

Samples G144-BS-63 (3 to 7 inches bgs), G144-BS-63CH (chip sample, 3 to 7 inches bgs), G144-BS-64 (7 to 13 inches bgs), and G144-BS-64CH (chip sample, 7 to 13 inches bgs) were collected from the same

location in the central portion of the elevated, sloped plateau area. The results for sample G144-BS-63 (Appendix B, Table 16) show that asbestos was not detected. However, the results for the analysis conducted by visual estimates indicate that 2 percent of non-asbestos fibrous material identified as cellulose was detected. The results for sample G144-BS-63CH (Appendix B, Table 16) show that asbestos was detected. The results for the analysis conducted by point counting indicate that a trace of asbestos identified as tremolite was detected. In addition, the results for the analysis conducted by visual estimates indicate that less than 1 percent of asbestos identified as tremolite was detected. The results for the analysis conducted by visual estimates also indicate that 2 percent of non-asbestos fibrous material identified as cellulose was detected. The results for sample G144-BS-64 (Appendix B, Table 16) show that asbestos was detected. The results for the analysis conducted by point counting indicate that 0.75 percent of asbestos identified as tremolite was detected, and a trace of asbestos identified as chrysotile was detected. In addition, the results for the analysis conducted by visual estimates indicate that less than 1 percent of asbestos identified as tremolite was detected. The results for the analysis conducted by visual estimates also indicate that 2 percent of non-asbestos fibrous material identified as cellulose was detected. Finally, the results for sample G144-BS-64CH (Appendix B, Table 16) show that asbestos was detected. The results for the analysis conducted by point counting indicate that a trace of asbestos identified as tremolite was detected. In addition, the results for the analysis conducted by visual estimates indicate that less than 1 percent of asbestos identified as tremolite was detected. The results for the analysis conducted by visual estimates also indicate that less than 1 percent of non-asbestos fibrous material identified as cellulose was detected.

Samples G144-BS-65 (3 to 6 inches bgs), G144-BS-66 (6 to 16 inches bgs), and G144-BS-66CH (chip sample, 6 to 16 inches bgs) were collected from the same location in the eastern portion of the elevated, sloped plateau area. The results for sample G144-BS-65 (Appendix B, Table 16) show that asbestos was detected. The results for the analysis conducted by point counting indicate that 0.5 percent of asbestos identified as tremolite was detected. In addition, the results for the analysis conducted by visual estimates indicate that less than 1 percent of asbestos identified as tremolite was detected. The results for the analysis conducted by visual estimates also indicate that 2 percent of non-asbestos fibrous material identified as cellulose was detected. The results for sample G144-BS-66 (Appendix B, Table 16) show that asbestos was detected. The results for the analysis conducted by point counting indicate that a trace of asbestos identified as tremolite was detected. In addition, the results for the analysis conducted by visual estimates indicate that less than 1 percent of asbestos identified as tremolite was detected. The results for the analysis conducted by visual estimates also indicate that 2 percent of non-asbestos fibrous material identified as cellulose was detected. Finally, the results for sample G144-BS-66CH (Appendix

B, Table 16) show that asbestos was detected. The results for the analysis conducted by point counting indicate that a trace of asbestos identified as tremolite was detected. In addition, the results for the analysis conducted by visual estimates indicate that less than 1 percent of asbestos identified as tremolite was detected. The results for the analysis conducted by visual estimates also indicate that 2 percent of non-asbestos fibrous material identified as cellulose was detected.

Samples G144-BS-67 (3 to 5 inches bgs), G144-BS-67CH (chip sample, 3 inches bgs), and G144-BS-68 (5 to 12 inches bgs) were collected from the same location near the northern extent of the elevated, sloped plateau area. The results for sample G144-BS-67 (Appendix B, Table 16) show that asbestos was detected. The results for the analysis conducted by point counting indicate that 0.75 percent of asbestos identified as tremolite was detected. In addition, the results for the analysis conducted by visual estimates indicate that less than 1 percent of asbestos identified as tremolite was detected. The results for the analysis conducted by visual estimates also indicate that 2 percent of non-asbestos fibrous material identified as cellulose was detected. The results for sample G144-BS-67CH (Appendix B, Table 16) show that asbestos was detected. The results for the analysis conducted by point counting indicate that a trace of asbestos identified as tremolite was detected. In addition, the results for the analysis conducted by visual estimates indicate that less than 1 percent of asbestos identified as tremolite was detected. The results for the analysis conducted by visual estimates also indicate that 2 percent of non-asbestos fibrous material identified as cellulose was detected. Finally, the results for sample G144-BS-68 (Appendix B, Table 16) show that asbestos was not detected. However, the results for the analysis conducted by visual estimates indicate that 2 percent of non-asbestos fibrous material identified as cellulose was detected.

7.0 RECONCILIATION OF THE DATA TO PROJECT-SPECIFIC DATA QUALITY OBJECTIVES

Field duplicate samples were not collected for ABS perimeter downwind high flow rate and low flow rate air samples and both ABS and additional bulk material samples. In addition, microvacuum dust samples were also not collected at the GAO 144 site during the sampling events. Aside from these and the other deviations and discrepancies (relative to the SAP [Ref. 1] and other guidance documents cited therein) discussed in this RAR, the sampling at the GAO 144 site and the laboratory analyses of the samples generally achieved the goals set forth for the investigation. The data validation conducted on the laboratory data packages did not result in rejection of any of the laboratory data. The EPA OSC is responsible for determining the impact of any data qualifications and limitations on data usability; the

ultimate acceptance of the data is at EPA's discretion. Additional information on the project DQOs is provided in the site-specific quality assurance project plan (QAPP) presented in the SAP (Ref. 1).

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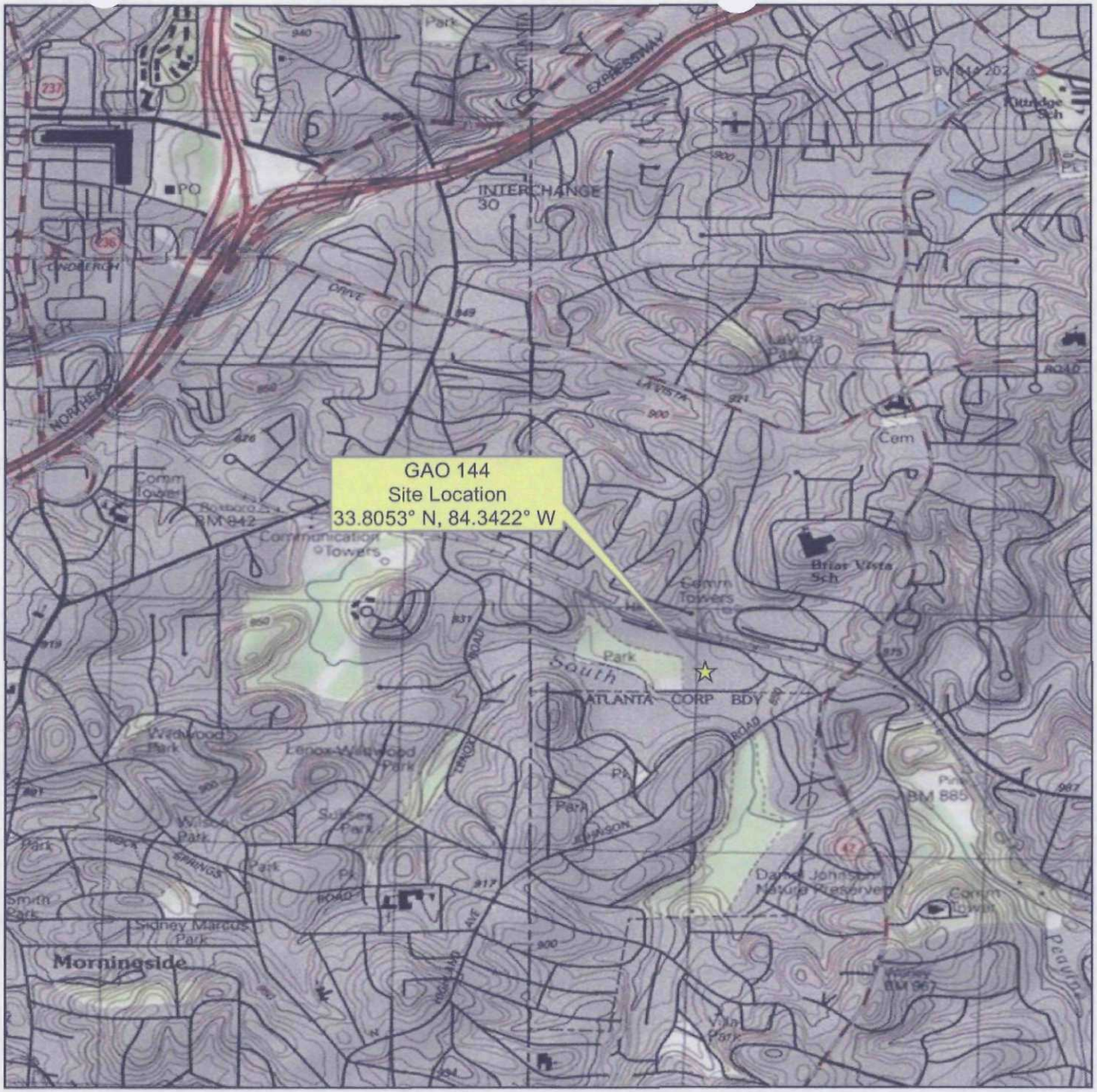
APPENDIX A

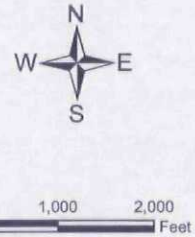
FIGURES

(Eight Pages)

FIGURE

1 SITE LOCATION
2 SITE LAYOUT
3 SAMPLE LOCATIONS FOR ACTIVITY-BASED AIR SAMPLING ROUNDS 1 & 2, MARCH 24, 2010.
4 SAMPLE LOCATIONS FOR ACTIVITY-BASED AIR SAMPLING ROUNDS 3 & 4, MARCH 25, 2010.
5 ADDITIONAL BULK MATERIAL SAMPLING, MARCH 25, 2010
6 ADDITIONAL BULK MATERIAL SAMPLING, MARCH 30, 2010
7 ADDITIONAL BULK MATERIAL SAMPLING, APRIL 15, 2010
8 ADDITIONAL BULK MATERIAL SAMPLING, DECEMBER 6, 2010





MAP SOURCE:
USGS, NORTHEAST ATLANTA
TOPOGRAPHIC QUADRANGLES, 1999

United States Environmental Protection Agency

VERMICULITE EXFOLIATION SITE
GAO 144
ATLANTA,
DEKALB COUNTY,
GEORGIA
TDD No.TTEMI-05-003-0077

FIGURE 1
SITE LOCATION

TETRA TECH

2011-3-22 -935_Workspace\TTEMI-05-003-0077_Vermiculite_Exp_GAO_144\MXD\ATLANTA GA VERMICULITE SITE LOC MAP 3-22-11.mxd TTEMI-KY dale.vanbeach

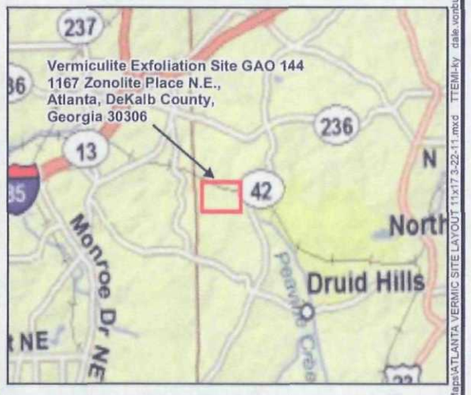
Legend

- Approximate location of former railroad spur (eastern extent is unknown)
- Approximate location of unnamed drainage
- Approximate location of footpaths
- Approximate location of former vermiculite exfoliation facility buildings

0 75 150 Feet

N W E S

Aerial Photograph:
ImageConnect, 'DigitalGlobe', 2008



United States
Environmental Protection Agency

VERMICULITE EXFOLIATION SITE
GAO 144
ATLANTA,
DEKALB COUNTY,
GEORGIA
TDD No.TTEMI-05-003-0077

FIGURE 2
SITE LAYOUT

TETRA TECH

2011-3-22 \GIS Workspace\TTEMI-05-003-0077 Vermiculite Exfo GAO 144\GIS\MXDs\Site Layout Maps\ATLANTA VERMIC SITE LAYOUT 11x17 3-22-11.mxd TTEMI-ky dale.vonbusch

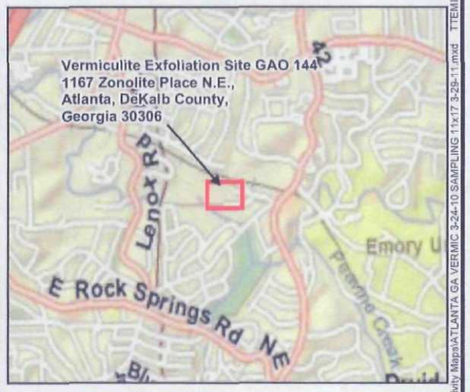
Legend

- Station Identification
- Sample Designation
- Meteorological Station
- Activity Area
- Air Sample
- Approximate location of unnamed drainage
- Approximate location of footpaths
- Approximate location of former railroad spur (eastern extent is unknown)

0 37.5 75 Feet

N W E S

Aerial Photograph:
ImageConnect, 'DigitalGlobe', 2008



United States
Environmental Protection Agency

VERMICULITE EXFOLIATION SITE
GAO 144
ATLANTA,
DEKALB COUNTY,
GEORGIA
TDD No.TTEMI-05-003-0077

FIGURE 3
SAMPLE LOCATIONS FOR ACTIVITY-BASED AIR SAMPLING ROUNDS 1 & 2
MARCH 24, 2010

TETRA TECH

2011-3-29 IGIS_Workspace\TTEMI-05-003-0077_Vermiculite_Exfo_GAO_144\GIS\MXDs\Sampling Activity Maps\ATLANTA_GA_VERMIC 3-24-10 SAMPLING 11x17 3-29-11.mxd TTEMI-KY dale.vonbusch

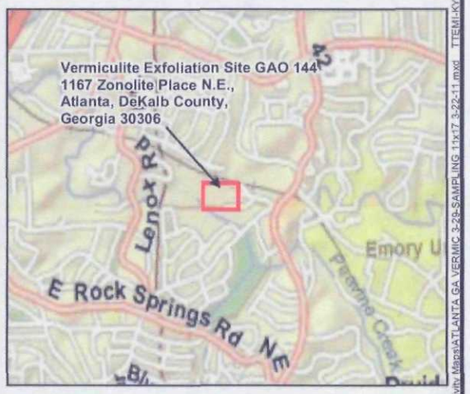
Legend

- Station Identification
- Sample Designation
- Meteorological Station
- Activity Area
- Air Sample
- Approximate location of unnamed drainage
- Approximate location of footpaths
- Approximate location of former railroad spur (eastern extent is unknown)

0 37.5 75 Feet

N W E S

Aerial Photograph:
ImageConnect, 'DigitalGlobe', 2008



United States
Environmental Protection Agency

VERMICULITE EXFOLIATION SITE
GAO 144
ATLANTA,
DEKALB COUNTY,
GEORGIA
TDD No.TTEMI-05-003-0077

FIGURE 4
SAMPLE LOCATIONS
FOR ACTIVITY-BASED AIR
SAMPLING ROUNDS 3 & 4
MARCH 25, 2010

TETRA TECH

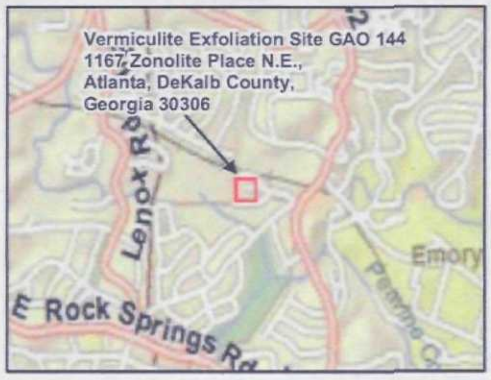
Legend

- Station Identification
- Sample Designation
- Bulk Sample Point
- Approximate location of former railroad spur (eastern extent is unknown)

N W E S

0 30 60
Feet

Aerial Photograph:
ImageConnect, 'DigitalGlobe', 2007



United States
Environmental Protection Agency

VERMICULITE EXFOLIATION SITE
GAO 144
ATLANTA,
DEKALB COUNTY,
GEORGIA
TDD No.TTEMI-05-003-0077

FIGURE 5
ADDITIONAL BULK MATERIAL SAMPLING
MARCH 25, 2010

TETRA TECH

2011-3-29 IGIS_Workspace\TTEMI-05-003-0077_Vermiculite_Exfo_GAO_144\GIS\MXDs\Sampling Activity Maps\ATLANTA GA VERMIC 3-25-10 ADDTL BULK SAMPLING Bs11 PORT 3-29-11.mxd TTEMI KY dale.vonbusch

Legend

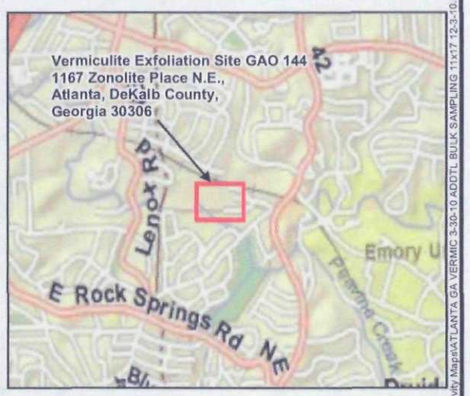
- Station Identification
- Sample Designation
- Bulk Sample Point
- Approximate location of unnamed drainage
- Approximate location of footpaths
- Approximate location of former railroad spur (eastern extent is unknown)

BGS Below ground surface

0 50 100 Feet

N W E S

Aerial Photograph:
ImageConnect, 'DigitalGlobe', 2008



United States
Environmental Protection Agency

VERMICULITE EXFOLIATION SITE
GAO 144
ATLANTA,
DEKALB COUNTY,
GEORGIA
TDD No.TTEMI-05-003-0077

FIGURE 6
ADDITIONAL BULK MATERIAL SAMPLING
MARCH 30, 2010

TETRA TECH

2010-12-3 \GIS\Workspace\TTEMI-05-003-0077_Vermiculite_Exfo_GAO_144\GIS\MXDs\Sampling Activity Maps\ATLANTA GA VERMIC 3-30-10 ADDTL BULK SAMPLING 11x17 12-3-10.mxd TTEMI-KY dale.vorbusch

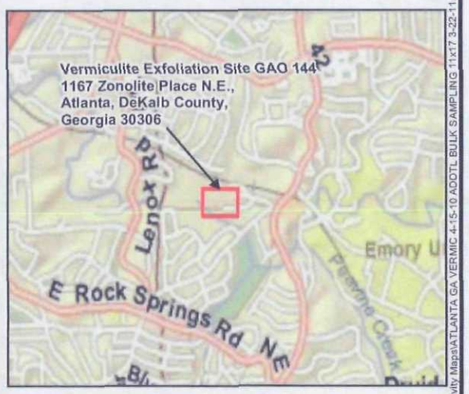
Legend

- Station Identification
- Sample Designation
- Bulk Sample Point
- Approximate location of unnamed drainage
- Approximate location of footpaths
- Approximate location of former railroad spur (eastern extent is unknown)

0 50 100 Feet

N W E S

Aerial Photograph:
ImageConnect, 'DigitalGlobe', 2007



United States
Environmental Protection Agency

VERMICULITE EXFOLIATION SITE
GAO 144
ATLANTA,
DEKALB COUNTY,
GEORGIA
TDD No.TTEMI-05-003-0077

FIGURE 7
ADDITIONAL BULK MATERIAL SAMPLING
APRIL 15, 2010

TETRA TECH

2011-3-22 \GIS_Workspace\TTEMI-05-003-0077_Vermiculite_Exfo_GAO_144\GIS\MXDs\Sampling Activity Maps\ATLANTA GA VERMIC 4-15-10 ADOTL BULK SAMPLING 11x17 3-22-11.mxd TTEMI-KY dale.vonbusch

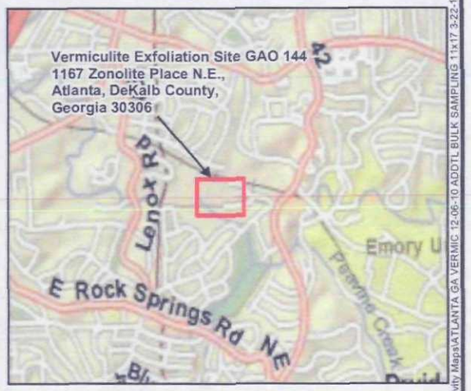
Legend

- Station Identification
- Sample Designation
- Bulk Sample Point
- Approximate location of unnamed drainage
- Approximate location of footpaths
- Approximate location of former railroad spur (eastern extent is unknown)
- BGS Below ground surface

0 50 100 Feet

N W E S

Aerial Photograph:
ImageConnect, 'DigitalGlobe', 2008



United States
Environmental Protection Agency

VERMICULITE EXFOLIATION SITE
GAO 144
ATLANTA,
DEKALB COUNTY,
GEORGIA
TDD No.TTEMI-05-003-0077

FIGURE 8
ADDITIONAL BULK MATERIAL SAMPLING
DECEMBER 6, 2010

TETRA TECH

2011-3-22 \GIS Workspace\TTEMI-05-003-0077- Vermiculite Exfo GAO 144\GIS\MXDs\Sampling Activity Maps\ATLANTA GA VERMIC 12-06-10 ADDTL BULK SAMPLING 11x17 3-22-11.mxd TTEMI-KY dale.vonbuch

APPENDIX B

TABLES

(16 Pages)

TABLE

1 LOT AND FIELD BLANK SAMPLES
2 ANALYTICAL RESULTS FOR LOT BLANK AND FIELD BLANK SAMPLES
3 BACKGROUND AIR SAMPLES
4 ANALYTICAL RESULTS FOR BACKGROUND AIR SAMPLES
5 ACTIVITY-BASED AIR SAMPLES: ROUND 1, RAKING
6 ANALYTICAL RESULTS FOR ACTIVITY-BASED AIR SAMPLES: ROUND 1, RAKING
7 ANALYTICAL RESULTS FOR BULK MATERIAL SAMPLES
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9 ANALYTICAL RESULTS FOR ACTIVITY-BASED AIR SAMPLES: ROUND 2, RAKING AND SWEEPING
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14 ADDITIONAL BULK MATERIAL SAMPLES
15 ANALYTICAL RESULTS FOR VERMICULITE ATTIC INSULATION, ADDITIONAL BULK MATERIAL SAMPLE
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TABLE 1
LOT AND FIELD BLANK SAMPLES

Collection Date	Station Identification	Sample Designation	Sample Number	Sample Location and Description	Sampling Duration (minutes)	Air Volume Sampled (liters)
March 25, 2010	**G144LOT36**	**G144-LOT-08-59**	**00015**	**Lot Blank**	**NA**	**NA**
March 25, 2010	**G144LOT37**	**G144-LOT-08-60**	**00016**	**Lot Blank**	**NA**	**NA**
March 25, 2010	**G144FB38**	**G144-FB-08-61**	**00017**	**Field Blank**	**NA**	**NA**
March 25, 2010	**G144FB39**	**G144-FB-08-62**	**00018**	**Field Blank**	**NA**	**NA**

Notes:

BOLD = Samples in BOLD type indicate those samples that were analyzed by the laboratory.
FB = Field blank
FB-08 = Field blank for 0.8-µm MCE membrane filter cassettes
G144 = Vermiculite exfoliation site GAO 144
LOT = Lot blank
LOT-08 = Lot blank for 0.8-µm MCE membrane filter cassettes
MCE = Mixed cellulose ester
µm = Micrometer
NA = Not applicable

TABLE 2
ANALYTICAL RESULTS FOR LOT BLANK AND FIELD BLANK SAMPLES

Sample Number:	00015				00016				00017				00018			
Sample Designation:	G144-LOT-08-59				G144-LOT-08-60				G144-FB-08-61				G144-FB-08-62			
Station Identification:	G144LOT36				G144LOT37				G144FB38				G144FB39			
Sample Description:	Lot Blank				Lot Blank				Field Blank				Field Blank			
Sample Collection Date:	3/25/2010				3/25/2010				3/25/2010				3/25/2010			
Air Volume Sampled (liters):	NA				NA				NA				NA			
Sample Preparation:	Direct				Direct				Direct				Direct			
Sensitivity:	Blank				Blank				Blank				Blank			
PCM Equivalent Structures (PCME)		**90% Confidence Interval**		**Data Qual**		**90% Confidence Interval**		**Data Qual**	**Air Conc (s/cc)**	**90% Confidence Interval**		**Data Qual**	**Air Conc (s/cc)**	**90% Confidence Interval**		**Data Qual**
Total Asbestos	Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank	
Total Chrysotile (CH)	Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank	
Total Amphibole	Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank	
actinolite (AC)	Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank	
amosite (AM)	Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank	
anthophyllite (AN)	Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank	
crocidolite (CR)	Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank	
tremolite (TR)	Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank	
Libby amphibole (LA)	Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank	
other amphibole (OA)	Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank	
other mineral class (OM)	Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank	
Solid Soln: Amosite	Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank	
Solid Soln: Trem-Act	Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank		Blank	Blank	- Blank	

Notes:

% = Percent
blank = No structures were detected in the blank.
Conc = Concentration
FB = Field blank
FB-08 = Field blank for 0.8-µm MCE membrane filter cassettes
G144 = Vermiculite exfoliation site GAO 144
LOT = Lot blank
LOT-08 = Lot blank for 0.8-µm MCE membrane filter cassettes
MCE = Mixed cellulose ester
NA = Not applicable
PCM = Phase Contrast Microscopy
Qual = Qualifier
s/cc = Structures per cubic centimeter
Soln = Solution

TABLE 3
BACKGROUND AIR SAMPLES

Collection Date	Station Identification	Sample Designation	Sample Number	Sample Location and Description	Sampling Duration (minutes)	Air Volume Sampled (liters)
March 24, 2010	**G144BKA01**	**G144-BKA-01**	**00019**	**Background air sample. Air pump malfunctions resulted in a shorter sample duration.**	**301**	**2,958.83**
March 24, 2010	**G144BKA01**	**G144-BKA-01-DUP**	**00020**	**Background air sample, field duplicate sample of 00019.**	**384**	**3,684.48**
March 25, 2010	**G144BKA14**	**G144-BKA-24**	**00045**	**Background air sample.**	**275**	**2,695.00**
March 25, 2010	**G144BKA14**	**G144-BKA-24-DUP**	**00046**	**Background air sample, field duplicate sample of 00045.**	**275**	**2717.00**

Notes:

BOLD = Samples in BOLD type indicate those samples that were analyzed by the laboratory.
BKA = Background air sample
DUP = Field duplicate sample
G144 = Vermiculite exfoliation site GAO 144

TABLE 4
ANALYTICAL RESULTS FOR BACKGROUND AIR SAMPLES

Sample Number:	00019			00020			00045			00046		
Sample Designation:	G144-BKA-01			G144-BKA-01-DUP			G144-BKA-24			G144-BKA-24-DUP		
Station Identification:	G144BKA01			G144BKA01			G144BKA14			G144BKA14		
Sample Description:	Background air			Background air, field duplicate of 00019			Background air			Background air, field duplicate of 00045		
Sample Collection Date:	3/24/2010			3/24/2010			3/25/2010			3/25/2010		
Air Volume Sampled (liters):	2,958.83			3,684.48			2,695.00			2,717.00		
Sample Preparation:	Direct			Direct			Direct			Direct		
Sensitivity (s/cc):	9.9E-05			9.9E-05			1.0E-04			9.9E-05		
PCM Equivalent Structures (PCME)	**Air Conc (s/cc)**	**90% Confidence Interval**	**Data Qual**	**Air Conc (s/cc)**	**90% Confidence Interval**	**Data Qual**	**Air Conc (s/cc)**	**90% Confidence Interval**	**Data Qual**	**Air Conc (s/cc)**	**90% Confidence Interval**	**Data Qual**
Total Asbestos	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U	**1.0E-04**	**5.1E-06 - 4.7E-04**		0.0E+00	0.0E+00 - 3.0E-04	U
Total Chrysotile (CH)	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U
Total Amphibole	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U	**1.0E-04**	**5.1E-06 - 4.7E-04**		0.0E+00	0.0E+00 - 3.0E-04	U
actinolite (AC)	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U
amosite (AM)	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U
anthophyllite (AN)	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U
crocidolite (CR)	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U
tremolite (TR)	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U
Libby amphibole (LA)	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U	**1.0E-04**	**5.1E-06 - 4.7E-04**		0.0E+00	0.0E+00 - 3.0E-04	U
other amphibole (OA)	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U
other mineral class (OM)	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U
Solid Soln: Amosite	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U
Solid Soln: Trem-Act	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U	0.0E+00	0.0E+00 - 3.0E-04	U

Notes:

x.x E±*yy* = *x.x* multiplied times 10 raised to the *yy* power
% = Percent
BOLD = Results for "Air Conc (s/cc)" represented in BOLD type indicate positive values
BKA = Background air sample
Conc = Concentration
DUP = Field duplicate sample
G144 = Vermiculite exfoliation site GAO 144
PCM = Phase Contrast Microscopy
Qual = Qualifier
s/cc = Structures per cubic centimeter
Soln = Solution
U = The analyte was analyzed for, but was not detected above the level of the reported sensitivity.

TABLE 5
ACTIVITY-BASED AIR SAMPLES: ROUND 1, RAKING

Collection Date	Station Identification	Sample Designation	Sample Number	Sample Location and Description	Sampling Duration (minutes)	Air Volume Sampled (liters)
March 24, 2010	**G144AB106**	**G144-AB1-AH-10**	**00031**	**ABS: Backpack High Volume Sample.**	**120**	**1,176.00**
March 24, 2010	**G144AB106**	**G144-AB1-AH-10-DUP**	**00032**	**ABS: Backpack High Volume Sample, field duplicate sample of 00031. Near the end of the sampling period, the filter may have been damaged due to a sudden but brief interruption of air flow.**	**120**	**1,192.80**
March 24, 2010	G144AB106	G144-AB1-AL-11	00033	ABS: Backpack Low Volume Sample.	120	358.20
March 24, 2010	G144AB106	G144-AB1-AL-11-DUP	00034	ABS: Backpack Low Volume Sample, field duplicate sample of 00033.	120	357.00
March 24, 2010	**G144AB102**	**G144-AB1-PH-02**	**00021**	**ABS: Perimeter Upwind, High Volume Sample.**	**119**	**1,172.75**
March 24, 2010	**G144AB102**	**G144-AB1-PH-02-DUP**	**00022**	**ABS: Perimeter Upwind, High Volume Sample, field duplicate sample of 00021.**	**120**	**1,182.60**
March 24, 2010	G144AB102	G144-AB1-PL-03	00023	ABS: Perimeter Upwind, Low Volume Sample.	120	352.80
March 24, 2010	G144AB102	G144-AB1-PL-03-DUP	00024	ABS: Perimeter Upwind, Low Volume Sample, field duplicate sample of 00023.	120	354.00
March 24, 2010	**G144AB103**	**G144-AB1-PH-04**	**00025**	**ABS: Perimeter Downwind, High Volume Sample.**	**120**	**1,185.60**
March 24, 2010	G144AB103	G144-AB1-PL-05	00026	ABS: Perimeter Downwind, Low Volume Sample.	120	358.20
March 24, 2010	**G144AB104**	**G144-AB1-PH-06**	**00027**	**ABS: Perimeter Downwind, High Volume Sample.**	**120**	**1,170.00**
March 24, 2010	G144AB104	G144-AB1-PL-07	00028	ABS: Perimeter Downwind, Low Volume Sample.	120	348.60
March 24, 2010	**G144AB105**	**G144-AB1-PH-08**	**00029**	**ABS: Perimeter Downwind, High Volume Sample. Both minimum and maximum volumes are provided since the true volume, which is uncertain, lies between.**	**Minimum: 113; Maximum: 118**	**Minimum: 1,107.40; Maximum: 1,156.40**
March 24, 2010	G144AB105	G144-AB1-PL-09	00030	ABS: Perimeter Downwind, Low Volume Sample.	120	357.60

BULK MATERIAL SAMPLES FOR ACTIVITY-BASED: ROUND 1, RAKING

Collection Date	Station Identification	Sample Designation	Sample Number	Sample Location and Description	Sampling Duration (minutes)	Air Volume Sampled (liters)
March 24, 2010	**G144AB112**	**G144-AB1-B-22**	**00001**	**5-point composite of soil and surface debris within the area of Activity-Based Round 1. All aliquots were collected from a depth interval of about 0-2 inches below ground surface.**	**NA**	**NA**

Notes:

Adjacent rows that share the same highlighted color (yellow or green) indicate collocated air sample sets. A sample set consists of a high-volume air sample and a low-volume air sample (sometimes with a collocated field duplicate sample for one or both).

BOLD = Samples in BOLD type indicate those samples that were analyzed by the laboratory.
AB1 = Activity-based air sampling Round No. 1
ABS = Activity-based air sampling
AH = High flow rate air sample
AL = Low flow rate air sample
B = Bulk material sample
DUP = Field duplicate sample
G144 = Vermiculite exfoliation site GAO 144
NA = Not applicable
PH = High flow rate perimeter air sample
PL = Low flow rate perimeter air sample

TABLE 6
ANALYTICAL RESULTS FOR ACTIVITY-BASED AIR SAMPLES: ROUND 1, RAKING

Sample Number:	00031			00032			00021			00022		
Sample Designation:	G144-AB1-AH-10			G144-AB1-AH-10-DUP			G144-AB1-PH-02			G144-AB1-PH-02-DUP		
Station Identification:	G144AB106			G144AB106			G144AB102			G144AB102		
Sample Description:	Backpack - High Volume			Backpack - High Volume; field duplicate sample of 00031			Perimeter Upwind - High Volume			Perimeter Upwind - High Volume; field duplicate sample of 00021		
Sample Collection Date:	3/24/2010			3/24/2010			3/24/2010			3/24/2010		
Air Volume Sampled (liters):	1,176.00			1,192.80			1,172.75			1,182.60		
Sample Preparation:	Direct			Direct			Direct			Direct		
Sensitivity (s/cc):	8.9E-04			9.8E-04			9.9E-04			9.9E-04		
PCM Equivalent Structures (PCME)	Air Conc (s/cc)	90% Confidence Interval	Data Qual	Air Conc (s/cc)	90% Confidence Interval	Data Qual	Air Conc (s/cc)	90% Confidence Interval	Data Qual	Air Conc (s/cc)	90% Confidence Interval	Data Qual
Total Asbestos	**8.9E-04**	**4.5E-05 - 4.2E-03**		0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U
Total Chrysotile (CH)	0.0E+00	0.0E+00 - 2.7E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U
Total Amphibole	**8.9E-04**	**4.5E-05 - 4.2E-03**		0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U
actinolite (AC)	0.0E+00	0.0E+00 - 2.7E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U
amosite (AM)	0.0E+00	0.0E+00 - 2.7E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U
anthophyllite (AN)	0.0E+00	0.0E+00 - 2.7E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U
crocidolite (CR)	0.0E+00	0.0E+00 - 2.7E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U
tremolite (TR)	0.0E+00	0.0E+00 - 2.7E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U
Libby amphibole (LA)	**8.9E-04**	**4.5E-05 - 4.2E-03**		0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U
other amphibole (OA)	0.0E+00	0.0E+00 - 2.7E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U
other mineral class (OM)	0.0E+00	0.0E+00 - 2.7E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U
Solid Soln: Amosite	0.0E+00	0.0E+00 - 2.7E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U
Solid Soln: Trem-Act	0.0E+00	0.0E+00 - 2.7E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U

Sample Number:	00025			00027			00029		
Sample Designation:	G144-AB1-PH-04			G144-AB1-PH-06			G144-AB1-PH-08		
Station Identification:	G144AB103			G144AB104			G144AB105		
Sample Description:	Perimeter Downwind - High Volume			Perimeter Downwind - High Volume			Perimeter Downwind - High Volume		
Sample Collection Date:	3/24/2010			3/24/2010			3/24/2010		
Air Volume Sampled (liters):	1,185.60			1,170.00			1,107.40		
Sample Preparation:	Direct			Direct			Direct		
Sensitivity (s/cc):	1.0E-03			1.0E-03			9.4E-04		
PCM Equivalent Structures (PCME)	Air Conc (s/cc)	90% Confidence Interval	Data Qual	Air Conc (s/cc)	90% Confidence Interval	Data Qual	Air Conc (s/cc)	90% Confidence Interval	Data Qual
Total Asbestos	**1.0E-03**	**5.3E-05 - 4.9E-03**		0.0E+00	0.0E+00 - 3.0E-03	U	**9.4E-04**	**4.8E-05 - 4.5E-03**	
Total Chrysotile (CH)	0.0E+00	0.0E+00 - 3.1E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 2.8E-03	U
Total Amphibole	**1.0E-03**	**5.3E-05 - 4.9E-03**		0.0E+00	0.0E+00 - 3.0E-03	U	**9.4E-04**	**4.8E-05 - 4.5E-03**	
actinolite (AC)	0.0E+00	0.0E+00 - 3.1E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 2.8E-03	U
amosite (AM)	0.0E+00	0.0E+00 - 3.1E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 2.8E-03	U
anthophyllite (AN)	0.0E+00	0.0E+00 - 3.1E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 2.8E-03	U
crocidolite (CR)	0.0E+00	0.0E+00 - 3.1E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 2.8E-03	U
tremolite (TR)	0.0E+00	0.0E+00 - 3.1E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 2.8E-03	U
Libby amphibole (LA)	**1.0E-03**	**5.3E-05 - 4.9E-03**		0.0E+00	0.0E+00 - 3.0E-03	U	**9.4E-04**	**4.8E-05 - 4.5E-03**	
other amphibole (OA)	0.0E+00	0.0E+00 - 3.1E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 2.8E-03	U
other mineral class (OM)	0.0E+00	0.0E+00 - 3.1E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 2.8E-03	U
Solid Soln: Amosite	0.0E+00	0.0E+00 - 3.1E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 2.8E-03	U
Solid Soln: Trem-Act	0.0E+00	0.0E+00 - 3.1E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 2.8E-03	U

Notes:

x.x E±*yy* = *x.x* multiplied times 10 raised to the *yy* power
% = Percent
BOLD = Results for "Air Conc (s/cc)" represented in BOLD type indicate positive values
AB1 = Activity-based air sampling Round No. 1
AH = High flow rate air sample
Conc = Concentration
DUP = Field duplicate sample
G144 = Vermiculite exfoliation site GAO 144

PCM = Phase Contrast Microscopy
PH = High flow rate perimeter air sample
Qual = Qualifier
s/cc = Structures per cubic centimeter
Soln = Solution
U = The analyte was analyzed for, but was not detected above the level of the reported sensitivity.

TABLE 7
ANALYTICAL RESULTS FOR BULK MATERIAL SAMPLES

Sample Number	00001		00002		00003		00004		00006		00007		00008		00009	
Sample Designation	G144-AB1-B-22		G144-AB2-B-23		G144-AB3-B-45		G144-AB4-B-46		G144-BS-48		G144-BS-49		G144-BS-50		G144-BS-51	
Station Identification	G144AB112		G144AB213		G144AB325		G144AB426		G144BS28		G144BS29		G144BS29		G144BS30	
Sample Description	5-Point composite from Activity-Based Round 1, Raking		6-Point composite from Activity-Based Round 2, Raking and Sweeping		5-Point composite from Activity-Based Round 3, Raking		5-Point composite from Activity-Based Round 4, Raking		9-Point composite from at and near perimeter of former office building		Grab at about 0-12 inches BGS from mound of mixed debris and soil		Grab at about 12-24 inches BGS from same mound as for G144-BS-49		Grab at about 0-12 inches BGS from elevated, sloped plateau area	
Sample Collection Date	3/24/2010		3/24/2010		3/25/2010		3/25/2010		3/25/2010		3/30/2010		3/30/2010		3/30/2010	
Water Content (Percent)	26.68		24.00		36.81		16.61		46.46		44.46		34.06		26.99	
Particle Size Distribution Parameter	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**
Greater than 2.0 mm	8.10		14.27		0.54		11.62		5.41		41.39		30.30		13.07	
Greater than 0.150 mm but less than 2.0 mm	50.54		57.09		63.93		55.21		53.45		47.20		50.40		61.31	
Greater than 0.075 mm but less than 0.150 mm	13.39		8.07		11.82		8.73		13.28		5.49		6.16		8.48	
Less than 0.075 mm	37.41		26.46		29.40		34.46		36.09		16.52		25.58		25.25	
Total	109.45		105.89		105.69		110.02		108.22		110.61		112.43		108.11	
Bulk Sample Analysis Parameter	**Result**	**Data Qual**	**Result**	**Data Qual**	**Result**	**Data Qual**	**Result**	**Data Qual**	**Result**	**Data Qual**	**Result**	**Data Qual**	**Result**	**Data Qual**	**Result**	**Data Qual**
Greater than 75 µm																
Percent asbestos	PC Trace		None Detected	U	PC Trace		None Detected	U	PC Trace		None Detected	U	PC Trace		PC 0.5	
Type of asbestos	Actinolite	J	None Detected	U	Chrysotile		None Detected	UJ	Actinolite	J	None Detected	U	Actinolite	J	Actinolite	J
Percent non-asbestos fibrous material	Trace		Trace		Trace		Trace		Trace		None Detected	U	Trace		Trace	
Type of non-asbestos fibrous material	Cellulose		Cellulose		Cellulose		Cellulose	J	Cellulose		None Detected	U	Cellulose		Cellulose	
Percent non-fibrous material	100		100		100		100		100		100		100		PC 99.5	
Less than 75 µm																
Percent asbestos	None Detected	U	None Detected	U	None Detected	U	None Detected	U	None Detected	U	None Detected	U	None Detected	U	PC Trace	
Type of asbestos	None Detected	U	None Detected	U	None Detected	U	None Detected	U	None Detected	U	None Detected	U	None Detected	U	Actinolite	J
Percent non-asbestos fibrous material	None Detected	U	None Detected	U	None Detected	U	None Detected	U	None Detected	U	None Detected	U	Trace		None Detected	U
Type of non-asbestos fibrous material	None Detected	U	None Detected	U	None Detected	U	None Detected	U	None Detected	U	None Detected	U	Cellulose		None Detected	U
Percent non-fibrous material	100		100		100		100		100		100		100		100	

Sample Number	00010		00011		00012		00013		00014		00069		00070	
Sample Designation	G144-BS-52		G144-BS-53		G144-BS-54		G144-BS-55		G144-BS-56		G144-BS-57		G144-BS-58	
Station Identification	G144BS30		G144BS31		G144BS31		G144BS32		G144BS33		G144BS34		G144BS35	
Sample Description	Grab at about 12-15 inches BGS from same location as G144-BS-51		Grab at about 0-12 inches BGS from mound south of elevated, sloped plateau area		Grab at about 12-24 inches BGS from same location as G144-BS-53		Grab of sediment at about 0-4 inches BGS from bank of small, unnamed drainage		Grab at 0-1.5 inches BGS from crawl space beneath former office building		5-Point composite from near northern perimeter of parcel No. 44		5-Point composite from near southern perimeter and center of parcel No. 44	
Sample Collection Date	3/30/2010		3/30/2010		3/30/2010		3/30/2010		3/30/2010		4/15/2010		4/15/2010	
Water Content (Percent)	20.09		21.32		14.84		74.02		16.06		49.08		16.33	
Particle Size Distribution Parameter	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**
Greater than 2.0 mm	11.60		24.85		36.98		2.26		31.45		20.98		34.36	
Greater than 0.150 mm but less than 2.0 mm	54.77		48.24		41.06		43.09		41.41		42.53		37.83	
Greater than 0.075 mm but less than 0.150 mm	9.98		8.81		6.05		23.97		7.91		9.89		7.50	
Less than 0.075 mm	31.41		28.09		26.12		37.14		24.35		37.21		31.53	
Total	107.76		109.99		110.20		106.46		105.11		110.61		111.22	
Bulk Sample Analysis Parameter	**Result**	**Data Qual**	**Result**	**Data Qual**	**Result**	**Data Qual**	**Result**	**Data Qual**	**Result**	**Data Qual**	**Result**	**Data Qual**	**Result**	**Data Qual**
Greater than 75 µm														
Percent asbestos	PC 0.25		PC Trace		PC Trace		None Detected	U	None Detected	U	None Detected	U	None Detected	U
Type of asbestos	Actinolite	J	Actinolite	J	Chrysotile		None Detected	U	None Detected	U	None Detected	U	None Detected	U
Percent non-asbestos fibrous material	Trace		Trace		Trace		Trace		Trace		Trace		Trace	
Type of non-asbestos fibrous material	Cellulose		Cellulose		Cellulose		Cellulose		Cellulose		Cellulose		Cellulose	
Percent non-fibrous material	PC 99.75		100		100		100		100		100		100	
Less than 75 µm														
Percent asbestos	PC 0.75		None Detected	U	None Detected	U	None Detected	U	None Detected	U	None Detected	U	None Detected	U
Type of asbestos	Actinolite	J	None Detected	U	None Detected	U	None Detected	U	None Detected	U	None Detected	U	None Detected	U
Percent non-asbestos fibrous material	None Detected	U	None Detected	U	None Detected	U	None Detected	U	None Detected	U	None Detected	U	None Detected	U
Type of non-asbestos fibrous material	None Detected	U	None Detected	U	None Detected	U	None Detected	U	None Detected	U	None Detected	U	None Detected	U
Percent non-fibrous material	PC 99.25		100		100		100		100		100		100	

Notes:

% = Percent
AB1 = Activity-based air sampling Round No. 1
AB2 = Activity-based air sampling Round No. 2
AB3 = Activity-based air sampling Round No. 3
AB4 = Activity-based air sampling Round No. 4
B = Bulk material sample
BGS = Below ground surface
BS = Bulk material sample not associated with a particular aggressive air or activity-based air sampling round.
G144 = Vermiculite exfoliation site GAO 144

J = The identification of the analyte is qualified as estimated.
µm = Micrometer
mm = Millimeter
PC = Indicates Stratified Point Count Method performed.
PC Trace = Asbestos was detected below the quantitation limit of 0.25%, but was not quantifiable.
Qual = Qualifier
Trace = The analyte was detected below the quantitation limit of 0.25%, but was not quantifiable.
U = The analyte was analyzed for, but was not detected above the quantitation limit of 0.25%.
UJ = While the analyte was analyzed for and reported as not detected, the absence of asbestos was nc confirmed. Consequently, the identification (of the absence) of the analyte is qualified as estimatec

TABLE 8
ACTIVITY-BASED AIR SAMPLES: ROUND 2, RAKING AND SWEEPING

Collection Date	Station Identification	Sample Designation	Sample Number	Sample Location and Description	Sampling Duration (minutes)	Air Volume Sampled (liters)
March 24, 2010	G144AB211	G144-AB2-AH-20	00043	ABS: Backpack High Volume Sample.	120	1,214.40
March 24, 2010	**G144AB211**	**G144-AB2-AL-21**	**00044**	**ABS: Backpack Low Volume Sample.**	**121**	**355.74**
March 24, 2010	G144AB207	G144-AB2-PH-12	00035	ABS: Perimeter Upwind, High Volume Sample.	120	1,179.60
March 24, 2010	**G144AB207**	**G144-AB2-PL-13**	**00036**	**ABS: Perimeter Upwind, Low Volume Sample.**	**122**	**362.34**
March 24, 2010	**G144AB208**	**G144-AB2-PH-14**	**00037**	**ABS: Perimeter Upwind, High Volume Sample.**	**120**	**1,151.40**
March 24, 2010	G144AB208	G144-AB2-PL-15	00038	ABS: Perimeter Upwind, Low Volume Sample.	124	370.76
March 24, 2010	**G144AB209**	**G144-AB2-PH-16**	**00039**	**ABS: Perimeter Downwind, High Volume Sample.**	**120**	**1,182.60**
March 24, 2010	G144AB209	G144-AB2-PL-17	00040	ABS: Perimeter Downwind, Low Volume Sample.	124	369.52
March 24, 2010	**G144AB210**	**G144-AB2-PH-18**	**00041**	**ABS: Perimeter Downwind, High Volume Sample.**	**120**	**1,182.60**
March 24, 2010	G144AB210	G144-AB2-PL-19	00042	ABS: Perimeter Downwind, Low Volume Sample.	125	373.75

BULK MATERIAL SAMPLES FOR ACTIVITY-BASED: ROUND 2, RAKING AND SWEEPING

Collection Date	Station Identification	Sample Designation	Sample Number	Sample Location and Description	Sampling Duration (minutes)	Air Volume Sampled (liters)
March 24, 2010	**G144AB213**	**G144-AB2-B-23**	**00002**	**6-point composite of soil and surface debris within area of Activity-Based Round 2. One aliquot was from pile of swept material on asphalt surface, and five aliquots were taken from the soil-covered area.**	**NA**	**NA**

Notes:

Adjacent rows that share the same highlighted color (yellow or green) indicate collocated air sample sets. A sample set consists of a high-volume air sample and a low-volume air sample (sometimes with a collocated field duplicate sample for one or both).

BOLD = Samples in BOLD type indicate those samples that were analyzed by the laboratory.
AB2 = Activity-based air sampling Round No. 2
ABS = Activity-based air sampling
AH = High flow rate air sample
AL = Low flow rate air sample
B = Bulk material sample
G144 = Vermiculite exfoliation site GAO 144
NA = Not applicable
PH = High flow rate perimeter air sample
PL = Low flow rate perimeter air sample

TABLE 9
ANALYTICAL RESULTS FOR ACTIVITY-BASED AIR SAMPLES: ROUND 2, RAKING AND SWEEPING

Sample Number:	00044				00036				00037				00039			
Sample Designation:	G144-AB2-AL-21				G144-AB2-PL-13				G144-AB2-PH-14				G144-AB2-PH-16			
Station Identification:	G144AB211				G144AB207				G144AB208				G144AB209			
Sample Description:	Backpack - Low Volume				Perimeter Upwind - Low Volume				Perimeter Upwind - High Volume				Perimeter Downwind - High Volume			
Sample Collection Date:	3/24/2010				3/24/2010				3/24/2010				3/24/2010			
Air Volume Sampled (liters):	355.74				362.34				1,151.40				1,182.60			
Sample Preparation:	Direct				Direct				Direct				Direct			
Sensitivity (s/cc):	9.8E-04				9.9E-04				9.4E-04				9.9E-04			
PCM Equivalent Structures (PCME)	Air Conc (s/cc)	90% Confidence Interval		Data Qual	Air Conc (s/cc)	90% Confidence Interval		Data Qual	Air Conc (s/cc)	90% Confidence Interval		Data Qual	Air Conc (s/cc)	90% Confidence Interval		Data Qual
Total Asbestos	0.0E+00	0.0E+00 -	2.9E-03	U	**9.9E-04**	**5.1E-05 -**	**4.7E-03**		**9.4E-04**	**4.8E-05 -**	**4.5E-03**		0.0E+00	0.0E+00 -	3.0E-03	U
Total Chrysotile (CH)	0.0E+00	0.0E+00 -	2.9E-03	U	0.0E+00	0.0E+00 -	3.0E-03	U	0.0E+00	0.0E+00 -	2.8E-03	U	0.0E+00	0.0E+00 -	3.0E-03	U
Total Amphibole	0.0E+00	0.0E+00 -	2.9E-03	U	**9.9E-04**	**5.1E-05 -**	**4.7E-03**		**9.4E-04**	**4.8E-05 -**	**4.5E-03**		0.0E+00	0.0E+00 -	3.0E-03	U
actinolite (AC)	0.0E+00	0.0E+00 -	2.9E-03	U	**9.9E-04**	**5.1E-05 -**	**4.7E-03**		0.0E+00	0.0E+00 -	2.8E-03	U	0.0E+00	0.0E+00 -	3.0E-03	U
amosite (AM)	0.0E+00	0.0E+00 -	2.9E-03	U	0.0E+00	0.0E+00 -	3.0E-03	U	0.0E+00	0.0E+00 -	2.8E-03	U	0.0E+00	0.0E+00 -	3.0E-03	U
anthophyllite (AN)	0.0E+00	0.0E+00 -	2.9E-03	U	0.0E+00	0.0E+00 -	3.0E-03	U	0.0E+00	0.0E+00 -	2.8E-03	U	0.0E+00	0.0E+00 -	3.0E-03	U
crocidolite (CR)	0.0E+00	0.0E+00 -	2.9E-03	U	0.0E+00	0.0E+00 -	3.0E-03	U	0.0E+00	0.0E+00 -	2.8E-03	U	0.0E+00	0.0E+00 -	3.0E-03	U
tremolite (TR)	0.0E+00	0.0E+00 -	2.9E-03	U	0.0E+00	0.0E+00 -	3.0E-03	U	0.0E+00	0.0E+00 -	2.8E-03	U	0.0E+00	0.0E+00 -	3.0E-03	U
Libby amphibole (LA)	0.0E+00	0.0E+00 -	2.9E-03	U	0.0E+00	0.0E+00 -	3.0E-03	U	**9.4E-04**	**4.8E-05 -**	**4.5E-03**		0.0E+00	0.0E+00 -	3.0E-03	U
other amphibole (OA)	0.0E+00	0.0E+00 -	2.9E-03	U	0.0E+00	0.0E+00 -	3.0E-03	U	0.0E+00	0.0E+00 -	2.8E-03	U	0.0E+00	0.0E+00 -	3.0E-03	U
other mineral class (OM)	0.0E+00	0.0E+00 -	2.9E-03	U	0.0E+00	0.0E+00 -	3.0E-03	U	0.0E+00	0.0E+00 -	2.8E-03	U	0.0E+00	0.0E+00 -	3.0E-03	U
Solid Soln: Amosite	0.0E+00	0.0E+00 -	2.9E-03	U	0.0E+00	0.0E+00 -	3.0E-03	U	0.0E+00	0.0E+00 -	2.8E-03	U	0.0E+00	0.0E+00 -	3.0E-03	U
Solid Soln: Trem-Act	0.0E+00	0.0E+00 -	2.9E-03	U	0.0E+00	0.0E+00 -	3.0E-03	U	0.0E+00	0.0E+00 -	2.8E-03	U	0.0E+00	0.0E+00 -	3.0E-03	U

Sample Number:	00041			
Sample Designation:	G144-AB2-PH-18			
Station Identification:	G144AB210			
Sample Description:	Perimeter Downwind - High Volume			
Sample Collection Date:	3/24/2010			
Air Volume Sampled (liters):	1,182.60			
Sample Preparation:	Direct			
Sensitivity (s/cc):	9.9E-04			
PCM Equivalent Structures (PCME)	Air Conc (s/cc)	90% Confidence Interval		Data Qual
Total Asbestos	0.0E+00	0.0E+00 -	3.0E-03	U
Total Chrysotile (CH)	0.0E+00	0.0E+00 -	3.0E-03	U
Total Amphibole	0.0E+00	0.0E+00 -	3.0E-03	U
actinolite (AC)	0.0E+00	0.0E+00 -	3.0E-03	U
amosite (AM)	0.0E+00	0.0E+00 -	3.0E-03	U
anthophyllite (AN)	0.0E+00	0.0E+00 -	3.0E-03	U
crocidolite (CR)	0.0E+00	0.0E+00 -	3.0E-03	U
tremolite (TR)	0.0E+00	0.0E+00 -	3.0E-03	U
Libby amphibole (LA)	0.0E+00	0.0E+00 -	3.0E-03	U
other amphibole (OA)	0.0E+00	0.0E+00 -	3.0E-03	U
other mineral class (OM)	0.0E+00	0.0E+00 -	3.0E-03	U
Solid Soln: Amosite	0.0E+00	0.0E+00 -	3.0E-03	U
Solid Soln: Trem-Act	0.0E+00	0.0E+00 -	3.0E-03	U

Notes:

*x.x*E±*yy* = *x.x* multiplied times 10 raised to the *yy* power
% = Percent
BOLD = Results for "Air Conc (s/cc)" represented in BOLD type indicate positive values
AB2 = Activity-based air sampling Round No. 2
AL = Low flow rate air sample
Conc = Concentration
G144 = Vermiculite exfoliation site GAO 144
PCM = Phase Contrast Microscopy
PH = High flow rate perimeter air sample
PL = Low flow rate perimeter air sample
Qual = Qualifier
s/cc = Structures per cubic centimeter
Soln = Solution
U = The analyte was analyzed for, but was not detected above the level of the reported sensitivity.

TABLE 10
ACTIVITY-BASED AIR SAMPLES: ROUND 3, RAKING

Collection Date	Station Identification	Sample Designation	Sample Number	Sample Location and Description	Sampling Duration (minutes)	Air Volume Sampled (liters)
March 25, 2010	**G144AB319**	**G144-AB3-AH-33**	**00055**	**ABS: Backpack High Volume Sample.**	**120**	**1,188.60**
March 25, 2010	G144AB319	G144-AB3-AL-34	00056	ABS: Backpack Low Volume Sample.	121	361.19
March 25, 2010	**G144AB315**	**G144-AB3-PH-25**	**00047**	**ABS: Perimeter Upwind, High Volume Sample.**	**120**	**1,185.60**
March 25, 2010	G144AB315	G144-AB3-PL-26	00048	ABS: Perimeter Upwind, Low Volume Sample.	122	367.22
March 25, 2010	**G144AB316**	**G144-AB3-PH-27**	**00049**	**ABS: Perimeter Downwind, High Volume Sample.**	**120**	**1,185.60**
March 25, 2010	G144AB316	G144-AB3-PL-28	00050	ABS: Perimeter Downwind, Low Volume Sample.	123	370.85
March 25, 2010	**G144AB317**	**G144-AB3-PH-29**	**00051**	**ABS: Perimeter Downwind, High Volume Sample.**	**120**	**1,192.80**
March 25, 2010	G144AB317	G144-AB3-PL-30	00052	ABS: Perimeter Downwind, Low Volume Sample.	123	367.77
March 25, 2010	**G144AB318**	**G144-AB3-PH-31**	**00053**	**ABS: Perimeter Downwind, High Volume Sample.**	**120**	**1,182.60**
March 25, 2010	G144AB318	G144-AB3-PL-32	00054	ABS: Perimeter Downwind, Low Volume Sample.	124	371.38

BULK MATERIAL SAMPLES FOR ACTIVITY-BASED: ROUND 3, RAKING

Collection Date	Station Identification	Sample Designation	Sample Number	Sample Location and Description	Sampling Duration (minutes)	Air Volume Sampled (liters)
March 25, 2010	**G144AB325**	**G144-AB3-B-45**	**00003**	**5-point composite of soil and surface debris within the area of Activity-Based Round 3. All aliquots were collected from a depth interval of about 0-2 inches below ground surface.**	**NA**	**NA**

Notes:

Adjacent rows that share the same highlighted color (yellow or green) indicate collocated air sample sets. A sample set consists of a high-volume air sample and a low-volume air sample (sometimes with a collocated field duplicate sample for one or both).

BOLD = Samples in BOLD type indicate those samples that were analyzed by the laboratory.
AB3 = Activity-based air sampling Round No. 3
ABS = Activity-based air sampling
AH = High flow rate air sample
AL = Low flow rate air sample
B = Bulk material sample
G144 = Vermiculite exfoliation site GAO 144
NA = Not applicable
PH = High flow rate perimeter air sample
PL = Low flow rate perimeter air sample

TABLE 11
ANALYTICAL RESULTS FOR ACTIVITY-BASED AIR SAMPLES: ROUND 3, RAKING

Sample Number:	00055			00047			00049			00051		
Sample Designation:	G144-AB3-AH-33			G144-AB3-PH-25			G144-AB3-PH-27			G144-AB3-PH-29		
Station Identification:	G144AB319			G144AB315			G144AB316			G144AB317		
Sample Description:	Backpack - High Volume			Perimeter Upwind - High Volume			Perimeter Downwind - High Volume			Perimeter Downwind - High Volume		
Sample Collection Date:	3/25/2010			3/25/2010			3/25/2010			3/25/2010		
Air Volume Sampled (liters):	1,188.60			1,185.60			1,185.60			1,192.80		
Sample Preparation:	Direct			Direct			Direct			Direct		
Sensitivity (s/cc):	9.8E-04			9.8E-04			9.8E-04			9.8E-04		
PCM Equivalent Structures (PCME)	Air Conc (s/cc)	90% Confidence Interval	Data Qual	Air Conc (s/cc)	90% Confidence Interval	Data Qual	Air Conc (s/cc)	90% Confidence Interval	Data Qual	Air Conc (s/cc)	90% Confidence Interval	Data Qual
Total Asbestos	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U
Total Chrysotile (CH)	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U
Total Amphibole	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U
actinolite (AC)	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U
amosite (AM)	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U
anthophyllite (AN)	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U
crocidolite (CR)	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U
tremolite (TR)	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U
Libby amphibole (LA)	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U
other amphibole (OA)	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U
other mineral class (OM)	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U
Solid Soln: Amosite	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U
Solid Soln: Trem-Act	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U

Sample Number:	00053		
Sample Designation:	G144-AB3-PH-31		
Station Identification:	G144AB318		
Sample Description:	Perimeter Downwind - High Volume		
Sample Collection Date:	3/25/2010		
Air Volume Sampled (liters):	1,182.60		
Sample Preparation:	Direct		
Sensitivity (s/cc):	9.9E-04		
PCM Equivalent Structures (PCME)	Air Conc (s/cc)	90% Confidence Interval	Data Qual
Total Asbestos	0.0E+00	0.0E+00 - 3.0E-03	U
Total Chrysotile (CH)	0.0E+00	0.0E+00 - 3.0E-03	U
Total Amphibole	0.0E+00	0.0E+00 - 3.0E-03	U
actinolite (AC)	0.0E+00	0.0E+00 - 3.0E-03	U
amosite (AM)	0.0E+00	0.0E+00 - 3.0E-03	U
anthophyllite (AN)	0.0E+00	0.0E+00 - 3.0E-03	U
crocidolite (CR)	0.0E+00	0.0E+00 - 3.0E-03	U
tremolite (TR)	0.0E+00	0.0E+00 - 3.0E-03	U
Libby amphibole (LA)	0.0E+00	0.0E+00 - 3.0E-03	U
other amphibole (OA)	0.0E+00	0.0E+00 - 3.0E-03	U
other mineral class (OM)	0.0E+00	0.0E+00 - 3.0E-03	U
Solid Soln: Amosite	0.0E+00	0.0E+00 - 3.0E-03	U
Solid Soln: Trem-Act	0.0E+00	0.0E+00 - 3.0E-03	U

Notes:

x.x E±*yy* = *x.x* multiplied times 10 raised to the *yy* power
% = Percent
AB3 = Activity-based air sampling Round No. 3
AH = High flow rate air sample
Conc = Concentration
G144 = Vermiculite exfoliation site GAO 144
PCM = Phase Contrast Microscopy
PH = High flow rate perimeter air sample
Qual = Qualifier
s/cc = Structures per cubic centimeter
Soln = Solution
U = The analyte was analyzed for, but was not detected above the level of the reported sensitivity.

TABLE 12
ACTIVITY-BASED AIR SAMPLES: ROUND 4, RAKING

Collection Date	Station Identification	Sample Designation	Sample Number	Sample Location and Description	Sampling Duration (minutes)[a]	Air Volume Sampled (liters)
March 25, 2010	**G144AB424**	**G144-AB4-AH-43**	**00065**	**ABS: Backpack High Volume Sample. Near the end of the sampling period, the filter may have been damaged due to a sudden but brief interruption of air flow.**	**113**	**1,137.35**
March 25, 2010	G144AB424	G144-AB4-AL-44	00066	ABS: Backpack Low Volume Sample.	113	335.61
March 25, 2010	**G144AB420**	**G144-AB4-PH-35**	**00057**	**ABS: Perimeter Upwind, High Volume Sample.**	**114**	**1,120.62**
March 25, 2010	G144AB420	G144-AB4-PL-36	00058	ABS: Perimeter Upwind, Low Volume Sample.	115	343.28
March 25, 2010	**G144AB421**	**G144-AB4-PH-37**	**00059**	**ABS: Perimeter Upwind, High Volume Sample.**	**118**	**1,153.45**
March 25, 2010	G144AB421	G144-AB4-PL-38	00060	ABS: Perimeter Upwind, Low Volume Sample.	118	354.00
March 25, 2010	**G144AB422**	**G144-AB4-PH-39**	**00061**	**ABS: Perimeter Downwind, High Volume Sample.**	**120**	**1,179.60**
March 25, 2010	G144AB422	G144-AB4-PL-40	00062	ABS: Perimeter Downwind, Low Volume Sample.	120	362.40
March 25, 2010	**G144AB423**	**G144-AB4-PH-41**	**00063**	**ABS: Perimeter Downwind, High Volume Sample.**	**120**	**1,170.00**
March 25, 2010	G144AB423	G144-AB4-PL-42	00064	ABS: Perimeter Downwind, Low Volume Sample.	121	361.19

BULK MATERIAL SAMPLES FOR ACTIVITY-BASED: ROUND 4, RAKING

Collection Date	Station Identification	Sample Designation	Sample Number	Sample Location and Description	Sampling Duration (minutes)	Air Volume Sampled (liters)
March 25, 2010	**G144AB426**	**G144-AB4-B-46**	**00004**	**5-point composite of soil and surface debris within the area of Activity-Based Round 4. Four aliquots were collected from about 0-2 inches below ground surface (BGS), and one aliquot was collected from about 0-1 inches BGS.**	**NA**	**NA**

Notes:

Adjacent rows that share the same highlighted color (yellow or green) indicate collocated air sample sets. A sample set consists of a high-volume air sample and a low-volume air sample (sometimes with a collocated field duplicate sample for one or both).

a = Some sampling durations are shorter than 120 minutes because a heavy sprinkling of rain occurred near the end of the activity period, forcing the activity to end somewhat early.

BOLD = Samples in BOLD type indicate those samples that were analyzed by the laboratory.

AB4 = Activity-based air sampling Round No. 4

ABS = Activity-based air sampling

AH = High flow rate air sample

AL = Low flow rate air sample

B = Bulk material sample

G144 = Vermiculite exfoliation site GAO 144

NA = Not applicable

PH = High flow rate perimeter air sample

PL = Low flow rate perimeter air sample

TABLE 13
ANALYTICAL RESULTS FOR ACTIVITY-BASED AIR SAMPLES: ROUND 4, RAKING

Sample Number:	00065			00057			00059			00061		
Sample Designation:	G144-AB4-AH-43			G144-AB4-PH-35			G144-AB4-PH-37			G144-AB4-PH-39		
Station Identification:	G144AB424			G144AB420			G144AB421			G144AB422		
Sample Description:	Backpack - High Volume			Perimeter Upwind - High Volume			Perimeter Upwind - High Volume			Perimeter Downwind - High Volume		
Sample Collection Date:	3/25/2010			3/25/2010			3/25/2010			3/25/2010		
Air Volume Sampled (liters):	1,137.35			1,120.62			1,153.45			1,179.60		
Sample Preparation:	Direct			Direct			Direct			Direct		
Sensitivity (s/cc):	9.9E-04			9.6E-04			9.7E-04			9.9E-04		
PCM Equivalent Structures (PCME)	Air Conc (s/cc)	90% Confidence Interval	Data Qual	Air Conc (s/cc)	90% Confidence Interval	Data Qual	Air Conc (s/cc)	90% Confidence Interval	Data Qual	Air Conc (s/cc)	90% Confidence Interval	Data Qual
Total Asbestos	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U
Total Chrysotile (CH)	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U
Total Amphibole	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U
actinolite (AC)	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U
amosite (AM)	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U
anthophyllite (AN)	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U
crocidolite (CR)	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U
tremolite (TR)	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U
Libby amphibole (LA)	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U
other amphibole (OA)	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U
other mineral class (OM)	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U
Solid Soln: Amosite	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U
Solid Soln: Trem-Act	0.0E+00	0.0E+00 - 3.0E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 2.9E-03	U	0.0E+00	0.0E+00 - 3.0E-03	U

Sample Number:	00063		
Sample Designation:	G144-AB4-PH-41		
Station Identification:	G144AB423		
Sample Description:	Perimeter Downwind - High Volume		
Sample Collection Date:	3/25/2010		
Air Volume Sampled (liters):	1,170.00		
Sample Preparation:	Direct		
Sensitivity (s/cc):	1.0E-03		
PCM Equivalent Structures (PCME)	Air Conc (s/cc)	90% Confidence Interval	Data Qual
Total Asbestos	0.0E+00	0.0E+00 - 3.0E-03	U
Total Chrysotile (CH)	0.0E+00	0.0E+00 - 3.0E-03	U
Total Amphibole	0.0E+00	0.0E+00 - 3.0E-03	U
actinolite (AC)	0.0E+00	0.0E+00 - 3.0E-03	U
amosite (AM)	0.0E+00	0.0E+00 - 3.0E-03	U
anthophyllite (AN)	0.0E+00	0.0E+00 - 3.0E-03	U
crocidolite (CR)	0.0E+00	0.0E+00 - 3.0E-03	U
tremolite (TR)	0.0E+00	0.0E+00 - 3.0E-03	U
Libby amphibole (LA)	0.0E+00	0.0E+00 - 3.0E-03	U
other amphibole (OA)	0.0E+00	0.0E+00 - 3.0E-03	U
other mineral class (OM)	0.0E+00	0.0E+00 - 3.0E-03	U
Solid Soln: Amosite	0.0E+00	0.0E+00 - 3.0E-03	U
Solid Soln: Trem-Act	0.0E+00	0.0E+00 - 3.0E-03	U

Notes:

x.x E±*yy* = *x.x* multiplied times 10 raised to the *yy* power
% = Percent
AB4 = Activity-based air sampling Round No. 4
AH = High flow rate air sample
Conc = Concentration
G144 = Vermiculite exfoliation site GAO 144
PCM = Phase Contrast Microscopy
PH = High flow rate perimeter air sample
Qual = Qualifier
s/cc = Structures per cubic centimeter
Soln = Solution
U = The analyte was analyzed for, but was not detected above the level of the reported sensitivity.

TABLE 14
ADDITIONAL BULK MATERIAL SAMPLES

Collection Date	Station Identification	Sample Designation	Sample Number	Sample Location and Description	Sampling Duration (minutes)	Air Volume Sampled (liters)
March 25, 2010	G144BS27	G144-BS-47	00005	2-point composite sample of vermiculite attic insulation collected from the attic of the former office building for the vermiculite exfoliation facility.	NA	NA
March 25, 2010	G144BS28	G144-BS-48	00006	9-point composite of soil at and near the perimeter of the former office building for the vermiculite exfoliation facility.	NA	NA
March 30, 2010	G144BS29	G144-BS-49	00007	Grab sample of soil and debris collected at a depth interval of about 0-12 inches below ground surface (BGS) from a mound of mixed debris and soil.	NA	NA
March 30, 2010	G144BS29	G144-BS-50	00008	Grab sample of soil and debris collected at a depth interval of about 12-24 inches BGS from the same mound of mixed debris and soil as for sample G144-BS-49.	NA	NA
March 30, 2010	G144BS30	G144-BS-51	00009	Grab sample of soil and debris collected at a depth interval of about 0-12 inches BGS from an area that slopes upward from east-to-west, forming an elevated, sloped plateau above the surrounding area.	NA	NA
March 30, 2010	G144BS30	G144-BS-52	00010	Grab sample of soil and debris collected at a depth interval of about 12-15 inches BGS from the same location on the plateau as for sample G144-BS-51.	NA	NA
March 30, 2010	G144BS31	G144-BS-53	00011	Grab sample of soil and debris collected at a depth interval of about 0-12 inches BGS from an approximately 5-feet-high mound of debris and soil located in woods south of the elevated, sloped plateau area.	NA	NA
March 30, 2010	G144BS31	G144-BS-54	00012	Grab sample of soil and debris collected at a depth interval of about 12-24 inches BGS from the same location on the mound as for sample G144-BS-53.	NA	NA
March 30, 2010	G144BS32	G144-BS-55	00013	Grab sample of sediment collected at a depth interval of about 0-4 inches BGS, from the west bank of a small unnamed drainage that flows through site GAO 144, and about 10 feet from the drainage's confluence with South Fork Peachtree Creek.	NA	NA
March 30, 2010	G144BS33	G144-BS-56	00014	Grab sample of soil and debris collected at a depth interval of about 0-1.5 inches BGS from just inside the doorway to the crawl space beneath the former office building for the vermiculite exfoliation facility.	NA	NA
April 15, 2010	G144BS34	G144-BS-57	00069	5-point composite sample of soil and debris collected at depth intervals of about 0-2.5 inches BGS from undisturbed locations near the northern perimeter of parcel No. 44, then occupied by Habersham Gardens Landscape Services and Garden Center.	NA	NA
April 15, 2010	G144BS35	G144-BS-58	00070	5-point composite sample of soil, gravel, and debris collected at depth intervals of about 0-2.5 inches BGS (four aliquots) and 0-1 inch BGS (one aliquot), taken from more actively-used locations near the southern perimeter and center of parcel No. 44, then occupied by Habersham Gardens Landscape Services and Garden Center.	NA	NA
December 6, 2010	G144BS36	G144-BS-59	00142	Grab sample of soil and debris collected from a depth interval of about 3-8 inches BGS from a location in the southern portion of the elevated, sloped plateau area.	NA	NA
December 6, 2010	G144BS36	G144-BS-59CH	00143	Grab sample of small chips that appeared to be vermiculite, collected from the same depth interval (about 3-8 inches BGS) and location (southern portion of the elevated, sloped plateau area) as for sample G144-BS-59.	NA	NA
December 6, 2010	G144BS36	G144-BS-60	00144	Grab sample of soil and debris collected from a depth interval of about 8-17 inches BGS from the same location (southern portion of the elevated, sloped plateau area) as for sample G144-BS-59.	NA	NA
December 6, 2010	G144BS37	G144-BS-61	00145	Grab sample of soil and debris collected from a depth interval of about 3-7 inches BGS from a location in the western portion of the elevated, sloped plateau area. This sample was collected very near the location for samples G144-BS-49 and G144-BS -50.	NA	NA
December 6, 2010	G144BS37	G144-BS-62	00146	Grab sample of soil and debris collected from a depth interval of about 7-16 inches BGS from the same location (western portion of the elevated, sloped plateau area) as for sample G144-BS-61.	NA	NA
December 6, 2010	G144BS37	G144-BS-62CH	00147	Grab sample of small chips that appeared to be vermiculite, collected from the same depth interval (about 7-16 inches BGS) and location (western portion of the elevated, sloped plateau area) as for sample G144-BS-62.	NA	NA
December 6, 2010	G144BS38	G144-BS-63	00148	Grab sample of soil and debris collected from a depth interval of about 3-7 inches BGS from a location in the central portion of the elevated, sloped plateau area.	NA	NA
December 6, 2010	G144BS38	G144-BS-63CH	00149	Grab sample of small chips that appeared to be vermiculite, collected from the same depth interval (about 3-7 inches BGS) and location (central portion of the elevated, sloped plateau area) as for sample G144-BS-63.	NA	NA
December 6, 2010	G144BS38	G144-BS-64	00150	Grab sample of soil and debris collected from a depth interval of about 7-13 inches BGS from the same location (central portion of the elevated, sloped plateau area) as for sample G144-BS-63.	NA	NA
December 6, 2010	G144BS38	G144-BS-64CH	00151	Grab sample of small chips that appeared to be vermiculite, collected from the same depth interval (about 7-13 inches BGS) and location (central portion of the elevated, sloped plateau area) as for sample G144-BS-64.	NA	NA
December 6, 2010	G144BS39	G144-BS-65	00152	Grab sample of soil and debris collected from a depth interval of about 3-6 inches BGS from a location in the eastern portion of the elevated, sloped plateau area.	NA	NA
December 6, 2010	G144BS39	G144-BS-66	00153	Grab sample of soil and debris collected from a depth interval of about 6-16 inches BGS from the same location (eastern portion of the elevated, sloped plateau area) as for sample G144-BS-65.	NA	NA
December 6, 2010	G144BS39	G144-BS-66CH	00154	Grab sample of small chips that appeared to be vermiculite, collected from the same depth interval (about 6-16 inches BGS) and location (eastern portion of the elevated, sloped plateau area) as for sample G144-BS-66.	NA	NA
December 6, 2010	G144BS40	G144-BS-67	00155	Grab sample of soil and debris collected from a depth interval of about 3-5 inches BGS from a location near the northern extent of the elevated, sloped plateau area.	NA	NA
December 6, 2010	G144BS40	G144-BS-67CH	00157	Grab sample of small chips that appeared to be vermiculite, collected from a depth interval of about 3 inches BGS and taken from the same location (northern extent of the elevated, sloped plateau area) as for sample G144-BS-67.	NA	NA
December 6, 2010	G144BS40	G144-BS-68	00156	Grab sample of soil and debris collected from a depth interval of about 5-12 inches BGS from the same location (northern extent of the elevated, sloped plateau area) as for sample G144-BS-67.	NA	NA

Notes:

BOLD = Samples in BOLD type indicate those samples that were analyzed by the laboratory.
BS = Bulk material sample not associated with a particular aggressive air or activity-based air sampling round.
CH = Designates a sample of small chips that appeared to be vermiculite.
G144 = Vermiculite exfoliation site GAO 144
NA = Not applicable

TABLE 15
ANALYTICAL RESULTS FOR VERMICULITE ATTIC INSULATION, ADDITIONAL BULK MATERIAL SAMPLE

Sample Number:	**00005**	
Sample Designation:	**G144-BS-47**	
Station Identification:	**G144BS27**	
Sample Description:	**2-Point composite of vermiculite attic insulation from attic of former office building**	
Sample Collection Date:	**3/25/2010**	
Water Content (Percent):	**NA**	
TEM Bulk Sample Analysis Parameter	**Result**	**Data Qual**
Vermiculite Mineral Sinks		
Percent asbestos	None Detected	U
Type of asbestos	None Detected	U
Percent non-asbestos fibrous material	Trace, Detected at <0.25%	
Type of non-asbestos fibrous material	SiAlMg M+	
Percent non-fibrous material	100	
Type of non-fibrous material	SiAlMg M+	
Vermiculite Mineral Suspension		
Percent asbestos	Trace, Detected at <0.25%	
Type of asbestos	Actinolite	
Percent non-asbestos fibrous material	Trace, Detected at <0.25%	
Type of non-asbestos fibrous material	SiAlMg M+	
Percent non-fibrous material	100	
Type of non-fibrous material	SiAlMg M+	
Particle Size Distribution Parameter	**Result (percent)**	**Data Qual**
Greater than 2.0 mm	NA	
Greater than 0.150 mm but less than 2.0 mm	NA	
Greater than 0.075 mm but less than 0.150 mm	NA	
Less than 0.075 mm	NA	
Total	NA	
PLM Bulk Sample Analysis Parameter	**Result**	**Data Qual**
Total Sample		
Percent asbestos	None Detected	U
Type of asbestos	None Detected	U
Percent non-asbestos fibrous material	None Detected	U
Type of non-asbestos fibrous material	None Detected	U
Percent non-fibrous material	100	
Floats		
Percent asbestos	None Detected	U
Type of asbestos	None Detected	U
Percent non-asbestos fibrous material	None Detected	U
Type of non-asbestos fibrous material	None Detected	U
Percent non-fibrous material	100	
Sinks		
Percent asbestos	None Detected	U
Type of asbestos	None Detected	U
Percent non-asbestos fibrous material	None Detected	U
Type of non-asbestos fibrous material	None Detected	U
Percent non-fibrous material	100	

Notes:

% = Percent
BS = Bulk material sample not associated with a particular aggressive air or activity-based air sampling round.
G144 = Vermiculite exfoliation site GAO 144
mm = Millimeter
NA = Not applicable
PLM = Polarized Light Microscopy
Qual = Qualifier
TEM = Transmission Electron Microscopy
Trace = The analyte was detected below the quantitation limit of 0.25%, but was not quantifiable.
U = The analyte was analyzed for, but was not detected above the quantitation limit of 0.25%.
< = Less than.

TABLE 16
ANALYTICAL RESULTS FOR ADDITIONAL BULK MATERIAL SAMPLES COLLECTED DECEMBER 6, 2010

Sample Number:	00142		00143		00144		00145		00146		00147		00148		00149	
Sample Designation:	G144-BS-59		G144-BS-59CH		G144-BS-60		G144-BS-61		G144-BS-62		G144-BS-62CH		G144-BS-63		G144-BS-63CH	
Station Identification:	G144BS36		G144BS36		G144BS36		G144BS37		G144BS37		G144BS37		G144BS38		G144BS38	
Sample Description:	Grab at about 3-8 inches BGS from southern portion of elevated, sloped plateau area		Grab of chips at about 3-8 inches BGS, same depth interval and location as G144-BS-59		Grab at about 8-17 inches BGS from same location as G144-BS-59		Grab at about 3-7 inches BGS from western portion of elevated, sloped plateau area		Grab at about 7-16 inches BGS from same location as G144-BS-61		Grab of chips at about 7-16 inches BGS, same depth interval and location as G144-BS-62		Grab at about 3-7 inches BGS from central portion of elevated, sloped plateau area		Grab of chips at about 3-7 inches BGS, same depth interval and location as G144-BS-63	
Sample Collection Date:	12/6/2010		12/6/2010		12/6/2010		12/6/2010		12/6/2010		12/6/2010		12/6/2010		12/6/2010	
Water Content (Percent):	19.79		NA		23.58		28.88		30.92		NA		17.53		NA	
Particle Size Distribution Parameter	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**
Greater than 2.0 mm	3.8		NA		8.5		11.3		3.1		NA		11.3		NA	
Greater than 0.150 mm but less than 2.0 mm	64.7		NA		64.3		72.6		71.2		NA		54.8		NA	
Greater than 0.075 mm but less than 0.150 mm	12.7		NA		11.5		7.4		10.3		NA		16.2		NA	
Less than 0.075 mm	18.8		NA		15.7		8.7		15.4		NA		17.7		NA	
Total	NA		NA		NA		NA		NA		NA		NA		NA	
Bulk Sample Analysis Parameter	**Result**	**Data Qual**	**Result**	**Data Qual**	**Result**	**Data Qual**	**Result**	**Data Qual**	**Result**	**Data Qual**	**Result**	**Data Qual**	**Result**	**Data Qual**	**Result**	**Data Qual**
CARB 435 (By Point Counting)																
Percent asbestos	No Asbestos Found	U	0.5		No Asbestos Found	U	0.5		Trace		0.75		No Asbestos Found	U	Trace	
Type of asbestos	No Asbestos Found	U	Tremolite		No Asbestos Found	U	Tremolite		Tremolite		Tremolite		No Asbestos Found	U	Tremolite	
Percent non-asbestos fibrous material	NA		NA		NA		NA		NA		NA		NA		NA	
Type of non-asbestos fibrous material	NA		NA		NA		NA		NA		NA		NA		NA	
Percent non-fibrous material	100		99.5		100		99.5		100		99.25		100		100	
CARB 435 (By Visual Estimates)																
Percent asbestos	No Asbestos Found	U	<1		No Asbestos Found	U	2		2		2		No Asbestos Found	U	<1	
Type of asbestos	No Asbestos Found	U	Tremolite		No Asbestos Found	U	Tremolite		Tremolite		Tremolite		No Asbestos Found	U	Tremolite	
Percent non-asbestos fibrous material	2		2		3		2		2		2		2		2	
Type of non-asbestos fibrous material	Cellulose		Cellulose		Cellulose		Cellulose		Cellulose		Cellulose		Cellulose		Cellulose	
Percent non-fibrous material	98		98		97		96		96		96		98		98	

Sample Number:	00150		00151		00152		00153		00154		00155		00157		00156	
Sample Designation:	G144-BS-64		G144-BS-64CH		G144-BS-65		G144-BS-66		G144-BS-66CH		G144-BS-67		G144-BS-67CH		G144-BS-68	
Station Identification:	G144BS38		G144BS38		G144BS39		G144BS39		G144BS39		G144BS40		G144BS40		G144BS40	
Sample Description:	Grab at about 7-13 inches BGS from same location as G144-BS-63		Grab of chips at about 7-13 inches BGS, same depth interval and location as G144-BS-64		Grab at about 3-6 inches BGS from eastern portion of elevated, sloped plateau area		Grab at about 6-16 inches BGS from same location as G144-BS-65		Grab of chips at about 6-16 inches BGS, same depth interval and location as G144-BS-66		Grab at about 3-5 inches BGS from near northern extent of elevated, sloped plateau area		Grab of chips at about 3 inches BGS, from same location as G144-BS-67		Grab at about 5-12 inches BGS from same location as G144-BS-67	
Sample Collection Date:	12/6/2010		12/6/2010		12/6/2010		12/6/2010		12/6/2010		12/6/2010		12/6/2010		12/6/2010	
Water Content (Percent):	17.83		NA		21.10		21.05		NA		22.64		NA		39.49	
Particle Size Distribution Parameter	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**	**Result (percent)**	**Data Qual**
Greater than 2.0 mm	6.2		NA		6.8		14.6		NA		6.9		NA		6.2	
Greater than 0.150 mm but less than 2.0 mm	62.5		NA		64.3		60.5		NA		65.9		NA		60.8	
Greater than 0.075 mm but less than 0.150 mm	14.0		NA		13.8		9.6		NA		11.6		NA		17.5	
Less than 0.075 mm	17.3		NA		15.1		15.3		NA		15.6		NA		15.5	
Total	NA		NA		NA		NA		NA		NA		NA		NA	
Bulk Sample Analysis Parameter	**Result**	**Data Qual**	**Result**	**Data Qual**	**Result**	**Data Qual**	**Result**	**Data Qual**	**Result**	**Data Qual**	**Result**	**Data Qual**	**Result**	**Data Qual**	**Result**	**Data Qual**
CARB 435 (By Point Counting)																
Percent asbestos	0.75; Trace		Trace		0.5		Trace		Trace		0.75		Trace		No Asbestos Found	U
Type of asbestos	0.75% Tremolite; Trace % Chrysotile		Tremolite		Tremolite		Tremolite		Tremolite		Tremolite		Tremolite		No Asbestos Found	U
Percent non-asbestos fibrous material	NA		NA		NA		NA		NA		NA		NA		NA	
Type of non-asbestos fibrous material	NA		NA		NA		NA		NA		NA		NA		NA	
Percent non-fibrous material	99.25		100		99.5		100		100		99.25		100		100	
CARB 435 (By Visual Estimates)																
Percent asbestos	<1		<1		<1		<1		<1		<1		<1		No Asbestos Found	U
Type of asbestos	Tremolite		Tremolite		Tremolite		Tremolite		Tremolite		Tremolite		Tremolite		No Asbestos Found	U
Percent non-asbestos fibrous material	2		<1		2		2		2		2		2		2	
Type of non-asbestos fibrous material	Cellulose		Cellulose		Cellulose		Cellulose		Cellulose		Cellulose		Cellulose		Cellulose	
Percent non-fibrous material	98		100		98		98		98		98		98		98	

Notes:

% = Percent
BGS = Below ground surface
BS = Bulk material sample not associated with a particular aggressive air or activity-based air sampling round.
CH = Designates a sample of small chips that appeared to be vermiculite.
G144 = Vermiculite exfoliation site GAO 144

mm = Millimeter
NA = Not applicable
Qual = Qualifier
Trace = The analyte was detected below the quantitation limit of 0.2% (Visual Estimates) or 0.25% (Point Counting), but was not quantifiable.
U = The analyte was analyzed for, but was not detected above the quantitation limit of 0.2% for Visual Estimates or 0.25% for Point Counting.
< = Less than.

APPENDIX C

LOGBOOK NOTES AND FIELD SHEETS

(58 Sheets)

LOGBOOK G144-20G-01

"Rite in the Rain"®

ALL-WEATHER

JOURNAL

No. 391

"Rite in the Rain"®
ALL-WEATHER WRITING PAPER

LOGBOOK G144-LOG-01

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Clear Vinyl Protective Slipcovers (Item No. 30) are available for this style of notebook. Helps protect your notebook from wear & tear. Contact your dealer or the J. L. Darling Corporation.

CONTENTS

PAGE	REFERENCE	DATE
	LOGBOOK G144-LOG-01	

VERMICULITE EXFOLIATION SITE
W.R. GRACE
GAO 144
1167 ZONOLITE PLACE N.E.
ATLANTA, DEKALB COUNTY
GEORGIA 30306

TAD. No. TIZMI-05-003-0077

TETRA TECH EM, INC.
1955 EVERGREEN BLVD.
BUILDING 200, SUITE 300
DULUTH, GEORGIA 30096

CONTACT:
JOHN SCHENDER 404-373-8768
LEONARDO CERON 678-936-1017

3/24/10 John Schendel

0800 - START Randy Mayor and Satara Thomas arrive on site.

0900 - START Schendel (John) arrives at site. Talked, met with Terry Sutton of Soto Zen Center. He gave START Schendel a tour of former office.

Met with Taura M. Ellistin of Soto Zen Center (B); he gave me phone to speak to.

Mike Goldman: Soil sampling was conducted in late 1980s, early 1990s. Analyzed for BTEX, organic compounds (There were underground storage tanks nearby offsite.) Asbestos sampling has been done in the building (former office of vermiculite facility). They found no friable asbestos. There is a piece of transite (B) on pipe back of ~~underneath~~ older bathroom closet, ~~[illegible]~~ door.

WEATHER: Clear, cool. Slight breeze.

Number 770-842-3874 for Barbara Shepherd, owner of parcel where SOTO Zen Center is located.

0940 - SESD Mike Crowe and Greg Noah arrive.

~1500 - OSC Germ arrives on site.

~1900 - START and SESD personnel have all left site.

John Schendel
3/24/10

John Schendel
3/24/10

3/25/10 John Schendel

OBJECTIVES:

- Check model, etc of weather station. DONE (1)
- Collect bulk sample of attic vermiculite in 3 one-gallon ziplocks DONE (2)
- Conduct AB (3) at crossroads DONE (3)
- Conduct AB (4) DONE (4)
- Collect bulk sample of sediment at Peachtree Creek. DONE } TO BE DONE LATER

0730 TO 0740: START Schendel, Magee, Thomas, and Turner arrive.

WEATHER: Cool, partly cloudy.

0750 - SESD Crane and Noah arrive.

1551 - START personnel and SESD personnel leave site.

ADDITIONAL OBJECTIVES:

- Collect bulk sample in crawl space of former office. DONE
- Take three sets of hand auger bulk samples. Each set will consist of two samples: 0-1 foot bgs and 1-2 foot bgs. These samples will be collected in piles located in the west part of the property of the former facility. DONE } TO BE DONE LATER
- Measure and record dimensions of AB (1) ↳ 20'x20' and AB (2) about 20 feet x 30 feet DONE

John Schnell
3/25/10

John Schnell
3/25/10

3/30/10 John Schendel

0910 - START John Schendel and Randy Mayer arrive at site.

~~Weather~~: Mildly cool, clear, slight breeze.

G1448329

33.80575746°N

-84.34351523°W

G1448530

33.80574560°N

~~-84.34321177°W~~ -84.34321255°W

G1448531

33.80532675°N

-84.34326140°W

G1448532

33.80457030°N

-84.34431506°W

1310 - START Schendel and Mayer leave site.

John Schendel
3/30/10

John Schendel
3/30/10

4/15/14 John Schendel

0800 - START John Schendel arrives at site.

WEATHER: Mild, little if any breeze, clear but perhaps some ground fog.

0820 - Met with Brad Balsis, of Habershan Gardens.

~0830 - START Country Boden arrives. Sometime thereafter, Walt Harrison arrives to talk with START Schendel about the sampling effort. He indicated that before Peachtree Creek was "cleaned up" this area used to flood. Now, since this property is raised somewhat relative to the surrounding area, it does not flood so much. He also said at one time in the past this parcel was used by a concrete business, perhaps to park concrete trucks.

1040 - START Schendel and Boden leave site.

John Schendel
4/15/14

4/15/14 John Schendel

Brad Balsis
Horticultural Service
Habershan gardens
landscape services & garden center
1134 Dalton Road NE
Atlanta, Georgia 30306
Phone: 404.873.4702 Fax: 404.873.6581
Email: brad@habershamgardens.com
www.habershamgardens.com

John Schendel
4/15/14

11/12/10 John Schendl

Ø730 - START Randy Mayer arrives at site.

0750 - START John Schendl arrives at site.

~~WEATHER~~: CLEAR, CALM, COOL (~49°F).

0800 - Tim Fredericks arrives.

0815 - OSC Terry Stilman arrived.

0830 - OSC Stilman uses a shovel to dig a hole near where G144-B$-49 and G144-B$-50 were collected; the hole was dug several feet east of the mound believed to be where these samples were collected. Hole was dug about ~~1½ feet deep~~ (JS) 11/12/10 1¾ feet deep. Below 1 foot deep, Tim Fredericks found what he thought was vermiculite chunks about up to 1cm in diameter. Some chunks were saved inside an unused nitrile glove.

0840 - START Mayer takes a photograph of hole. He collects GPS coordinates:

33.8Ø5862 °N

84.343464 °W.

Photo No. ~~237~~ (JS) 11/12/10 ~~ØØ1~~: "photo1", facing NE.

Also, photo No. "Photo ØØ1, facing downward.

11/12/10 John Schendl

11/12/10 John Schendl

~~0850~~: OSC Terry Stilman digs ~~within~~ south of (JS) 11/12/10 the general vicinity of where Activity-Based Round ① (Rakin) was conducted last March 2010. Terry Stilman dug less than a foot and Tim Fredericks found pieces of material that looked like vermiculite. These pieces were saved inside an unused nitrile glove. (JS) 11/12/10

GPS: 33.8Ø5768 °N

84.343479 °W.

Photo No. (JS) 11/12/10 ~~238~~: "Photo ØØ2", looking downward.

Ø9ØØ: OSC Stilman digs about 15-20 feet north of hole dug just before. (JS) 11/12/10 Tim Fredericks identifies and saves a few pieces of material he believes may be vermiculite, within the first 6 inches of depth; these pieces are stored in an unused glove.

Tim indicated that Libby vermiculite has a both gold and blue appearance, the blue being kind of a blue gun-metal color.

OSC Stilman proceeds to dig further using the shovel supplemented with a pick axe. At 8 inches deep, Tim Fredericks finds more pieces of what he thinks may be vermiculite.

This location is probably in the general vicinity of (maybe slightly south of) where Activity-Based Round ① was conducted.

11/12/10 John Schendel

GPS Coordinates:

33.8Ø5736 °N

84.343157 °W

Photo No. "Photo ØØ3" ~~229~~ of hole; looking downward.

Photo No. ~~240~~ "Photo 2-3" (11/12/10) at the hole taken of START Schendel standing at the previous hole; facing generally southward.

Ø913 - OSC Stilwan digs in a spot thought to be off of the "plateau", to the east. There was a lot of ~~dr~~ (23) gravel.

GPS: 33.8Ø55ØØ°N

84.342771°W

Photo No. "Photo ØØ4" ~~241~~ (11/12/10) of hole; looking downward.

Photo No. ~~242~~ "Photo 4" (11/12/10) of hole (where Schendel stands); facing generally north.

Tim Fredericks found no evidence of material that looks like vermiculite at this location.

Ø922 - Tim Fredericks digs within the area where Activity-Based Round (3) (Raking) was conducted. He dug about 6 inches deep, and found no material that appeared to be vermiculite.

Ø93Ø - Tim Fredericks digs atop mound at or near where samples G144-B$-53 and G144-B$-54 were collected. He dug

11/12/1Ø John Schendel

about 9 inches deep and saw no evidence of material that looks like vermiculite.

GPS: 33.8Ø525Ø °N

84.343235 °W

Photo No. (11/12/10) ~~243~~ "Photo ØØ5"; looking downward.

1ØØØ - Terry Stilwan, Tim Fredericks, Randy Mayer, and John Schendel leave site.

The purpose of this site visit was to allow Tim Fredericks to look at surface and subsurface soil to determine if there was the presence of material that looks like vermiculite, particularly Libby vermiculite. The intention was to find out if vermiculite was present and if its presence influenced decisions on how to proceed with the risk assessment of the site. Of interest to Tim Fredericks was the "plateau" of earth that was located west of the former office and that rose in elevation as one proceeded west to the edge of thicker woods, where uneven piles of material were

11/12/14 John Scherdel

observed. Of the spots where digging occurred, Tim Frederick observed what he thought were fragments of vermiculite - possibly Libby vermiculite - at three separate spots, all located on the "plateau" area. These fragments were saved by storing temporarily inside an unused nitrile glove - a separate unused glove was used for storing the fragments collected from each of the three locations. After returning to the cars after digging was over, SMMT Scherdel transferred the collected fragments from each of the three spots into separate 1-gallon ziplock bags. The bags were labeled: "sample No. 1", "sample No. 2", and "sample No. 3", to signify the order in which the sets of fragments were collected. Tim Frederick indicated that he might look at the fragments further under a microscope. No samples were saved by Tetra Tech.

11/12/14 John Scherdel

12/6/14
John Scherdel

12/6/10 John Schendel

Φ93Φ- START John Schendel arrives at site. START Randy Mayer arrived at Φ915. Tim Fredericks at EPA arrived at Φ935.

WEATHER: VERY COLD, PARTLY CLOUDY, WINDY.

Φ945 - EPA Terry Stickman arrives.

1Φ23- URS arrives. Chris Keiser. 678-361-1758

11Φ2 - Bill Miller, Remedium, arrives.

URS contractor deconned an auger bucket using tap water and liquinox.

EPA, START, URS, and Bill Miller conduct a site walk in the "plateau" area of site. They will sample at 5 locations.

13ΦΦ- Bill Miller, START Mayer, and URS Keiser break for lunch - go offsite.

Notes on sampling approach:

- We picked five locations from which to collect two samples at each location, for a total of 10 samples.
- In addition, if any fragments that appeared to be vermiculite were observed, a few of these

fragments were separated out and collected to submit to Tetra Tech's laboratory for analysis - these "chip" samples were not split with URS/W.R. Grace.

- At each of the five locations, the first sample was collected as a grab sample starting at its shallowest at 3 inches below ground surface (bgs) and extending to 5 to 8 or so inches bgs. This sample was collected using only a spoon and a bowl (all stainless steel).
- Then, to collect the second sample at a given location, an auger was used to go from the deepest depth of the first sample down to an appropriate limit of, for example, 12 or 18 inches. A new spoon was used to extract the sample from the auger into a bowl, a new bowl.
- All samples were homogenized and rocks and organic debris (leaves, roots) were discarded

during mixing, before dispensing into appropriate sample jars.
- These samples (except for the "chip" samples) were split between Tetra Tech and URS.
- Only Tetra Tech's gloves, stainless steel bowls, stainless steel spoons, and stainless steel augers were used to collect the samples. All sampling equipment had been decontaminated and wrapped in aluminum foil and bagged in plastic in advance of the sampling event.

1730 - START Schendel and Mayer and URS Kaiser leave site. Bill Miller had left an hour or two earlier.

12/6/10
John Schendel

Two chip samples (samples of what appeared to be vermiculite chips) were on December 6, 2010 placed into plastic ziplock bags when they were collected because the field team did not have enough 8-ounce glass jars to contain these samples. On this day (December 7, 2010) these samples were transferred into new unused 4-ounce glass jars for storage and eventual shipment to the laboratory. These two samples were:

- G144-B$-66CH (ØØ154)
- G144-B$-67CH (ØØ157)

12/7/10
John Schendel

ADDITIONAL NOTES ABOUT SAMPLING CONDUCTED WITH WR GRACE AND THEIR CONTRACTOR ON 12/6/10:

- As discussed before, of the 16 samples collected, 10 were split with WR Grace/URS. These were the 10 samples of bulk material collected at discrete depth intervals from 5 specific locations. The 6 samples not split with WR Grace/URS were the "chip" samples collected when vermiculite-looking chips were observed during the collecting of the 10 bulk material samples; this extraction of select chips from the bulk matrix was done at the direction of Tim Frederick of EPA.
- Of the 10 bulk material samples that were collected and split with WR Grace/URS, for each sample, Chin Keiser of URS was always the one who mixed and homogenized the sample using stainless steel bowl and spoon. When it came time to dispense the homogenized bulk material into the sample containers (2 8-ounce jars for Tetra Tech and either a plastic ziplock bag or two small plastic vials

for URS), Chin Keiser dispensed the bulk material using the stainless steel spoon ~~Each spoonful~~ (31) 12/7/10 in the following way (though this procedure may have varied a bit at times). A spoonful of material was used to fill one of the two Tetra Tech jars. A second spoonful of material was used to fill the second Tetra Tech jar. Then a third spoonful of material was used to ~~simultaneously~~ (32) 12/7/10 simultaneously fill both of the smaller URS plastic vials (or the URS ziplock bag - which happened only once). Then, successive spoonsful were used to continue filling the containers, starting over with Tetra Tech's first jar and proceeding in circular fashion through all the containers, until all of the containers were roughly filled up.

John Schaefer
12/7/10

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6 32281 39111 1

Site Name: Vermiculite Exfo W.R. Grace GAO 144	Page 1 of 1
TDD No.: TTEMI-05-003-0077	Date: 3/25/10

Background Air Sampling, Field and Lot Blanks, and Meteorological Station

No./Facing	NA	NA		NA	NA
Affix Label Here	00015	00016		00017	00018
Station ID G144 (35)	LOT 36 ~~LOT 34~~	LOT 37 ~~LOT 35~~ (5)		FB38 ~~FB36~~ (35)	FB39 ~~FB37~~ (35)
Sample Name G144-	LOT-08-59	LOT-08-~~58~~60		FB-61 08-89	FB-63 08-~~60~~
Field Duplicates			(35)	(35)	(35)
High/Low Set					
Location	0.8µm FILTER LOT BLANK	0.8µm FILTER LOT BLANK		0.8µm FILTER FIELD BLANK	0.8µm FILTER FIELD BLANK
Latitude (decimal degrees)	NA	NA		NA	NA
Longitude (decimal degrees)	NA	NA		NA	NA
Pump Type & No.	NA	NA		NA	NA
Sample Media	0.8µm	0.8µm		0.8µm	0.8µm
Start Time	NA	NA		NA	NA
Stop Time/ Elapsed Minutes					
Restart Time					
Stop Time/ Elapsed Minutes					
Restart Time					
Stop Time/ Elapsed Minutes					
Restart Time					
Pump Final Stop Time					
Pump Total Run Time (minutes)					
Rotameter No. Start/End					
Starting Flow Rate (L/min)					
Ending Flow Rate (L/min)					
Average Flow Rate (L/min)					
Sampled Air Volume (L)					

Met Station

Make and Model:

Serial No.:

Other Specifications:

Parameters	Units
Wind Speed:	
Wind Direction:	
Temperature:	
Relative Humidity:	
Precipitation:	
Atmospheric Pressure:	

~~Met Station Notes:~~ (35) Note: Specification for 0.8µm MCE filter cassette: SKC Inc. Catalogue No. 225-321A, Pre-loaded Cassette; MCE, Backchek®, PCM asbestos, 0.8µm, 25mm, Pre-loaded, (50/Pkg); Lot No. 8158-709PASK-265; Exp. Date 10/2012. Certification Lot No. 8158-709PASK-265.

Notes:

BKAyy; AAnyy; ABnyy; BSyy

-BKA-##; -AAn-[AH, AL, B, D, PH]-##; -ABn-[AH, AL, B, D, PH, PL]-##; -BS-##

-LOT-[08, 45]-##; -FB-[08, 45]-##; -DUP

Site Name: Vermiculite Exfo W.R. Grace GAO 144	Page 1 of 1
TDD No.: TTEMI-05-003-0077	Date: 3/24/10

Background Air Sampling, Field and Lot Blanks, and Meteorological Station

P No./Facing	100-0006 / NORTH					100-0007 NORTH
Affix Label Here	00019	00020				
Station ID G144	BKA01	BKA01				
Sample Name G144-	BKA-01	BKA-01-DUP				
Field Duplicates	—	—				
High/Low Set						
Location	BACKGROUND AIR	BACKGROUND AIR DUPLICATE				
Latitude (decimal degrees)	33.805	70486				33.80566164
Longitude (decimal degrees)	-84.342	13396				-84.342 02055
Pump Type & No.	AIRCON H2N, G2, H3	AIRCON H5N				
Sample Media	0.8 µm	0.8 µm				
Start Time	1114	1114				
Stop Time/ Elapsed Minutes	LOW BATTERY FAULT / 48					
Restart Time	1239					
Stop Time/ Elapsed Minutes	LOW BATTERY FAULT / 8					
Restart Time	REPLACED WITH AIRCON G2, 1306					
Stop Time/ Elapsed Minutes	LOW BAT FAULT / 186					
Restart Time	REPLACED WITH AIRCON H3, 1638					
Pump Final Stop Time	RAN FOR: 59 min					
Pump Total Run Time (minutes)	301	384				
Rotameter No. Start/End	H1, H1, H1 / H1	H1 / H1				
Starting Flow Rate (L/min)	10, 10, 10	10				
Ending Flow Rate (L/min)	9.66	9.19				
Average Flow Rate (L/min)	9.83	9.595				
Sampled Air Volume (L)	2,958.83	3,684.48				

Met Station

Make and Model: DAVIS VANTAGE PRO PRODUCT No. 6310 MODEL No. 6160

Serial No.: MFG CODE: A11127A77 CAN: 3788104116A

Other Specifications:

Parameters	Units
Wind Speed:	MPH
Wind Direction:	YES
Temperature:	°F
Relative Humidity:	%
Precipitation:	INCHES
Atmospheric Pressure:	INCHES

Met Station Notes: During AB①, winds were variable but generally coming from the west or southwest. By the time AB② began, winds seem to have shifted and were coming from the east or just south of east. By the end of AB②, the wind may have been more generally from the south.

Notes:

BKAyy; AAnyy; ABnyy; BSyy

-BKA-##; -AAn-[AH, AL, B, D, PH]-##; -ABn-[AH, AL, B, D, PH, PL]-##; -BS-##

-LOT-[08, 45]-##; -FB-[08, 45]-##; -DUP

Site Name: Vermiculite Exfo W.R. Grace GAO 144 | **Page** 1 **of** 3

TDD No.: TTEMI-05-003-0077 | **Date:** 3/24/10

Activity: ACTIVITY-BASED : RAKING | **Round:** 1

Photo No./Facing	1ØØ-ØØØ2 / NORTH →				1ØØ-ØØØ3 / NORTH		1ØØ-ØØØ4 / NORTH		1ØØ-ØØØ5 / NORTH	
Affix Label Here	00021	00022	00023	00024	00025	00026	00027	00028	00029	00030
Station ID G144	AB1Ø2	AB1Ø2	AB1Ø2	AB1Ø2	AB1Ø3	AB1Ø3	AB1Ø4	AB1Ø4	AB1Ø5	AB1Ø5
Sample Name G144-	AB1-PH -Ø2	AB1-PH -Ø2-DUP	AB1-PL -Ø3	AB1-PL -Ø3-DUP	AB1-PH -Ø4	AB1-PL -Ø5	AB1-PH -Ø6	AB1-PL -Ø7	AB1-PH -Ø8	AB1-PL -Ø9
Field Duplicates										
High/Low Set										
Location	PERIMETER UPWIND HIGH FLOW	PERIMETER UPWIND HIGH FLOW DUPLICATE	PERIMETER UPWIND LOW FLOW	PERIMETER UPWIND LOW FLOW DUPLICATE	PERIMETER DOWNWIND HIGH FLOW	PERIMETER DOWNWIND LOW FLOW	PERIMETER DOWNWIND HIGH FLOW	PERIMETER DOWNWIND LOW FLOW	PERIMETER DOWNWIND HIGH FLOW	PERIMETER DOWNWIND LOW FLOW
Latitude (decimal degrees)	CENTER OF AREA: 33.8Ø5626Ø1									
Longitude (decimal degrees)	-84.3431966Ø									
Pump Type & No.	AIRCON G2 (1) G4	AIRCON H6	SKC Ø2	SKC Ø6	AIRCON H3	SKC L2	AIRCON H9	SKC S8	AIRCON H4, H14N	SKC L3
Sample Media	0.8µm	0.8µm	0.8µm	0.8µm	0.8µm	0.8µm	0.8µm	0.8µm	0.8µm	0.8µm
Pump Start Time	~~1155~~ (1) AIRCON G2	1151	1151	1151	1151	1151	1151	1151	1151	1151
Time/ Elapsed Minutes	FAILED IMMEDIATELY REPLACED								LOW BATTERY FAULT 4	
Restart Time	WITH AIRCON G4, START AT 1159								12Ø2	
Stop Time/ Elapsed Minutes									LOW BATTERY FAULT 1	
Restart Time									REPLACED WITH H14N 12Ø9	
Stop Time/ Elapsed Minutes									Unsure if this recorded time was for just H14N or (H4 + H14N)	
Restart Time										
Pump Final Stop Time										
Pump Total Run Time (minutes)	119	120	120	120	120	120	120	120	MIN : MAX 113 : 118	120
Rotameter No. Start/End	H1, H1 / H1	H1 / H1	L2 / L2	L2 / L2	H1 / H1	L2 / L2	H1 / H1	L2 / L2	H1, H1 / H1	L2 / L2
Starting Flow Rate (L/min)	10, 10	10	3	3	10	3	10	3	10, 10	3
Ending Flow Rate (L/min)	9.71	9.71	2.88	2.90	9.76	2.97	9.50	2.81	9.60	2.96
Average Flow Rate (L/min)	9.855	9.855	2.94	2.95	9.88	2.985	9.75	2.9Ø5	(1) 9.8	2.98
Sampled Air Volume (L)	1,172.745	1,182.6	352.8	354	1,185.6	358.2	1,17Ø	348.6	MIN : MAX 1,107.4 : 1,156.4	357.6

: Stationary high- and low-flow rate perimeter filter cassettes were positioned facing generally downward and about 4 to 4.5 feet above the ground. The activity was conducted according to the procedure included with these field notes.

Activity Participant	Time In	Time Out
MIKE CROWE	~1151	1231
ERIK TURNER	1231	

Site Name: Vermiculite Exfo W.R. Grace GAO 144										Page 2 of 3
TDD No.: TTEMI-05-003-0077				Date: 3/24/10						
Activity: ACTIVITY-BASED : RAKING										Round: 1
Photo No./Facing	100-0001 / NORTH →									
Affix Label Here	00031	00032	00033	00034						
Station ID G144	AB106	AB106	AB106	AB106						
Sample Name G144-	AB1-AH-10	AB1-AH-10-DUP	AB1-AL-11	AB1-AL-11-DUP						
Field Duplicates	—		—							
High/Low Set	—	—	—	—						
Location	BACKPACK HIGH FLOW	BACKPACK HIGH FLOW DUPLICATE	BACKPACK LOW FLOW	BACKPACK LOW FLOW DUPLICATE						
Latitude (decimal degrees)	← NOT MEASURED →									
Longitude (decimal degrees)	← NOT MEASURED →									
Pump Type & No.	QUICKPAK Q3	QUICKPAK Q4	SKC #1	SKC LS						
Sample Media	0.8μm	0.8μm	0.8μm	0.8μm						
Pump Start Time	1151	1151	1151	1151						
Stop Time/ Elapsed Minutes										
Restart Time										
Stop Time/ Elapsed Minutes										
Restart Time										
Stop Time/ Elapsed Minutes										
Restart Time										
Pump Final Stop Time										
Pump Total Run Time (minutes)	120	120	120	120						
Rotameter No. Start/End	H1 / H1	H1 / H1	L2 / L2	L2 / L2						
Starting Flow Rate (L/min)	10	10.07	3	3						
Ending Flow Rate (L/min)	9.60	9.81*	2.97	2.95						
Average Flow Rate (L/min)	9.8	9.94	2.985	2.975						
Sampled Air Volume (L)	1,176	1,192.8	358.2	357						

Note: During post-sample measurement of pump flow, the low-flow rotameter was accidentally switched to the filter cassette, which may have restricted the flow. The rotameter damaged the filter.

Activity Participant | Time in | Time Out

A leaf rake was used during the entire activity. The raked area had appropriate dimensions of 20 feet by 20 feet. Note: This area was chosen to be sampled because it occurs in the ~~origin of the western spur of the closed portion of the facility~~ (?) middle of the western area of the former facility, according to a 1960 aerial photograph. [illegible] this aerial photo, LO[illegible] FB[illegible]

Site Name: Vermiculite Exfo W.R. Grace GAO 144										Page of
TDD No.: TTEMI-05-003-0077						Date:				
Activity:										Round:
Photo No./Facing										
Affix Label Here										
Station ID G144										
Sample Name G144-										
Field Duplicates										
High/Low Set										
Location										
Latitude (decimal degrees)										
Longitude (decimal degrees)						3/24/10				
Pump Type & No.						John Schardl				
Sample Media										
Pump Start Time										
Time/ Elapsed Minutes										
Restart Time										
Stop Time/ Elapsed Minutes										
Restart Time										
Stop Time/ Elapsed Minutes										
Restart Time										
Pump Final Stop Time										
Pump Total Run Time (minutes)										
Rotameter No. Start/End										
Starting Flow Rate (L/min)										
Ending Flow Rate (L/min)										
Average Flow Rate (L/min)										
Sampled Air Volume (L)										

s:

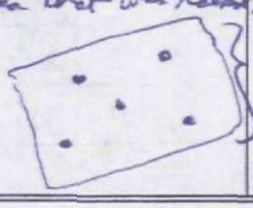
Activity Participant	Time In	Time Out

BKAyy; AAnyy; ABnyy; BSyy

-BKA-##; -AAn-[AH, AL, B, D, PH]-##; -ABn-[AH, AL, B, D, PH, PL]-##; -BS-##

-LOT-[08, 45]-##; -FB-[08, 45]-##; -DUP

Site Name: Vermiculite Exfo W.R. Grace GAO 144				Page 3 of 3
TDD No.: TTEMI-05-003-0077			Date: 3/24/10	
Activity: Bulk Material for ACTIVITY-BASED: RAKING				Round: 1

P' No./Facing					
Affix Label Here		00001			
Station ID G144____		AB112			
Sample Name G144-____		-AB1-B-22			
Field Duplicates					
Name(s) of Samplers		ERIC TURNER			
Sample Collection Time		~1510			
Check One	Debris[a]	X			
	Soil[a]	X			
	Vermiculite Attic Insulation (VAI)[a]				
Equipment (check all that apply)	SS Auger				
	SS Spoon	X			
	SS Bowl	X			
	8-ounce Jar	X			
	Three 1-gallon ziplock bags				
Grab/Composite Information	Grab (Gr) or Composite (Co)	Gr (Co)	Gr Co	Gr Co	Gr Co
	Grab Depth Interval (inches)				
	No. of Composite Aliquots	5			
	No. 1 Depth Interval (inches)	all 0-2 inches bgs.			
	No. 2 Depth Interval (inches)				
	No. 3 Depth Interval (inches)				
	No. 4 Depth Interval (inches)				
	No. 5 Depth Interval (inches)				
Latitude (decimal degrees)		NOT MEASURED			
Longitude (decimal degrees)		NOT MEASURED			
Sampling Location (draw aliquot locations relative to one another; also see associated figure) N ↑		Equal aliquots of soil and debris taken from 5 points within the area that was raked:  APPROXIMATE LOCATIONS (Also see additional drawing.)	Note: sample was homogenized before dispensing into the jar. Rocks and organic fragments were discarded during mixing.		

Notes:

a = Collect debris or soil in one 8-ounce jar and VAI in three 1-gal. ziplock bags.

AAnyy with -AAn-B-##
ABnyy with -ABn-B-##
BSyy with -BS-##

-DUP

Site Name: Vermiculite Exfo W.R. Grace GAO 144 | Page 1 of 3

TDD No.: TTEMI-05-003-0077 | Date: 3/24/10

Activity: ACTIVITY-BASED: RAKING AND SWEEPING | Round: 2

Photo No./Facing	100-0009 / NORTH		100-0010 / NORTH		100-0011 / NORTH		100-0012 / NORTH			
Affix Label Here	00035 (B)	00036	00037	00038	00039	00040	00041	00042		
Station ID G144	AB207	AB207	AB208	AB208	AB209	AB209	AB210	AB210		
Sample Name G144-	AB2-PH -12	AB2-PL -13	AB2-PH -14	AB2-PL -15	AB2-PH -16	AB2-PL -17	AB2-PH -18	AB2-PL -19		
Field Duplicates										
High/Low Set										
Location	PERIMETER UPWIND HIGH FLOW	PERIMETER UPWIND LOW FLOW	PERIMETER UPWIND HIGH FLOW (B)	PERIMETER UPWIND LOW FLOW (B)	PERIMETER DOWNWIND HIGH FLOW	PERIMETER DOWNWIND LOW FLOW	PERIMETER DOWNWIND HIGH FLOW	PERIMETER DOWNWIND LOW FLOW		
Latitude (decimal degrees)	← CENTER OF AREA →									
Longitude (decimal degrees)	(B) ~~33.80562601~~ 33.80529398									
	(B) ~~-84.34319660~~ -84.341648775									
Pump Type & No.	AIRCON G5	GILIAN L6	AIRCON H13	GILIAN L7	AIRCON G1	GILIAN L9	AIRCON H12	GILIAN L8		
Sample Media	0.8μm	0.8μm	0.8μm	0.8μm	0.8μm	0.8μm	0.8μm	0.8μm		
Pump Start Time	1525	1525	1525	1525	1525	1525	1525	1525		
Time/ Elapsed Minutes										
Restart Time										
Stop Time/ Elapsed Minutes										
Restart Time										
Stop Time/ Elapsed Minutes										
Restart Time										
Pump Final Stop Time										
Pump Total Run Time (minutes)	120	122	120	124	120	124	120	125		
Rotameter No. Start/End	H1 / H1	L2 / L2	H1 / H1	L2 / L2	H1 / H1	L2 / L2	H1 / H1	L2 / L2		
Starting Flow Rate (L/min)	10	3	10	3	10	3	10	3		
Ending Flow Rate (L/min)	9.66	2.94	9.19	2.98	9.71	2.96	9.71	2.98		
Average Flow Rate (L/min)	9.83	2.97	9.595	2.99	9.855	2.98	9.855	2.99		
Sampled Air Volume (L)	1,179.6	362.34	1,151.4	370.76	1,182.6	369.52	1,182.6	373.75		

S: Stationary high- and low-flowrate perimeter filter cassettes were stained facing generally downward and about 4 to 4.5 feet above the ground. The activity was conducted according to the procedure included with these field notes. This activity, however, involved

Activity Participant	Time In	Time Out
SAYARA THOMAS	~1525	(B) ~~1625~~ 1624
GREG NOAH	1625	

GO TO NEXT PAGE

Site Name: Vermiculite Exfo W.R. Grace GAO 144										Page 2 of 3
TDD No.: TTEMI-05-003-0077					Date: 3/24/10					
Activity: ACTIVITY - BASED: RAKING AND SWEEPING										Round: 2
Photo No./Facing	100-0008	NORTH								
Affix Label Here	00043	00044								
Station ID G144	AB2 11	AB211								
Sample Name G144-	AB2-AH -20	AB2-AL -21								
Field Duplicates										
High/Low Set	—	—								
Location	BACKPACK HIGH FLOW	BACKPACK LOW FLOW								
Latitude (decimal degrees)	NOT MEASURED									
Longitude (decimal degrees)	NOT MEASURED									
Pump Type & No.	QUICKTAKE Q1 ~~NOT MEASURED~~	~~SKC~~ GILIAN L10								
Sample Media	0.8 µm	0.8 µm								
Pump Start Time	1525	1525								
Stop Time/ Elapsed Minutes										
Restart Time										
Stop Time/ Elapsed Minutes										
Restart Time										
Stop Time/ Elapsed Minutes										
Restart Time										
Pump Final Stop Time										
Pump Total Run Time (minutes)	120	121								
Rotameter No. Start/End	H1 / H1	L2 / L2								
Starting Flow Rate (L/min)	10.07	3								
Ending Flow Rate (L/min)	10.17	2.88								
Average Flow Rate (L/min)	10.12	2.94								
Sampled Air Volume (L)	1,214.4	355.74								

Sweeping was begun along two edges of the rectangular area and raking was begun along the other two edges.

both sweeping an asphalt area and raking a soil and sparse grass-covered area. Sweeping was conducted on the asphalt area and when the soil was encountered, the participant switched to raking.

Activity Participant | Time In | Time Out

Note: This area was chosen to be sampled because it is adjacent to the still standing former office of the facility, in the eastern portion of the former facility.

GO TO NEXT PAGE

Site Name: Vermiculite Exfo W.R. Grace GAO 144										Page of
TDD No.: TTEMI-05-003-0077						Date:				
Activity:										Round:
Photo No./Facing										
Affix Label Here										
Station ID G144										
Sample Name G144-										
Field Duplicates										
High/Low Set										
Location										
Latitude (decimal degrees)										
Longitude (decimal degrees)										
Pump Type & No.										
Sample Media										
Pump Start Time										
Time/ Elapsed Minutes										
Restart Time										
Stop Time/ Elapsed Minutes										
Restart Time										
Stop Time/ Elapsed Minutes										
Restart Time										
Pump Final Stop Time										
Pump Total Run Time (minutes)										
Rotameter No. Start/End										
Starting Flow Rate (L/min)										
Ending Flow Rate (L/min)										
Average Flow Rate (L/min)										
Sampled Air Volume (L)										

John Scherold
3/24/10

Activity Participant	Time In	Time Out

es: Cont. from Page 2 of 3: Conversely, when ~~sweeping was~~ relig was started along an edge, it was conducted on the soil area and when asphalt was encountered, the participant switched to sweeping. Some mixing of swept debris with raked debris may have occurred but generally the raked debris and swept debris was not mixed. Note: The activity area had approximate dimensions of 20 feet by 30 feet (with long side oriented direct north-south).

BKAyy; AAnyy; ABnyy; BSyy -BKA-##; -AAn-[AH, AL, B, D, PH]-##; -ABn-[AH, AL, B, D, PH, PL]-##; -BS-## -LOT-[08, 45]-##; -FB-[08, 45]-##; -DUP

Site Name: Vermiculite Exfo W.R. Grace GAO 144				Page 3 of 3
TDD No.: TTEMI-05-003-0077		Date: 3/24/10		
Activity: Bulk Material for ACTIVITY-BASED: RAKING AND SWEEPING				Round: 2

Pl lo./Facing					
Affix Label Here	00002				
Station ID G144_____	AB2 13				
Sample Name G144-_____	-AB2-B-23				
Field Duplicates					
Name(s) of Samplers	ERIC TURNER				
Sample Collection Time	~1745				
Check One: Debris[a]	X				
Check One: Soil[a]	X				
Check One: Vermiculite Attic Insulation (VAI)[a]					
Equipment (check all that apply): SS Auger					
Equipment: SS Spoon	X				
Equipment: SS Bowl	X				
Equipment: 8-ounce Jar	X				
Equipment: Three 1-gallon ziplock bags					
Grab/Composite Information: Grab (Gr) or Composite (Co)	Gr (Co)	Gr Co	Gr Co	Gr Co	
Grab Depth Interval (inches)					
No. of Composite Aliquots	6				
No. 1 Depth Interval (inches)	Pile of swept material on surface of asphalt				
No. 2 Depth Interval (inches)	0-3 0-3				
No. 3 Depth Interval (inches)	all 1 1/2 TO 2 INCHES BGS				
No. 4 Depth Interval (inches)	TAKEN WITHIN SOIL-COVERED				
No. 5 Depth + No. 6 Interval (inches)	AREA.				
Latitude (decimal degrees)	NOT MEASURED				
Longitude (decimal degrees)	NOT MEASURED				

Sampling Location (draw aliquot locations relative to one another; also see associated figure)

Equal aliquots of soil and debris. One aliquot is taken from a pile of swept-up debris on the asphalt. The other five aliquots were collected within the raked area that was covered in soil.

APPROXIMATE LOCATIONS (also see additional drawing.)

Note: Sample was homogenized before dispensing into the jar. Rocks and organic fragments were discarded during mixing.

Notes:

a = Collect debris or soil in one 8-ounce jar and VAI in three 1-gal. ziplock bags.

AAnyy with -AAn-B-##
ABnyy with -ABn-B-##
BSyy with -BS-##

-DUP

Legend

Streets
Railroad

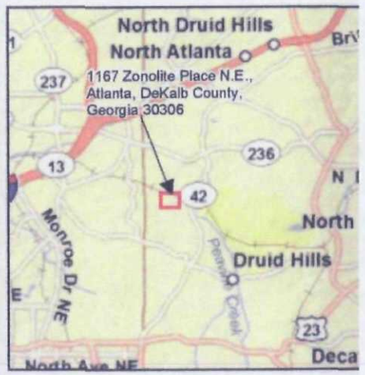
3/24/10

ACTIVITY-BASED SAMPLING ROUND ①: RAKING
AND
ACTIVITY-BASED SAMPLING ROUND ②: RAKING AND SWEEPING

0 50 100 Feet

MAP SOURCE: Imageconnect 'Digital Globe' 2007-07-21

NOTE: DOTS MARKED WITHIN A HATCHED AREA REPRESENT COMPOSITE BULK SAMPLING LOCATION



United States Environmental Protection Agency

VERMICULITE EXFO
W.R. GRACE GAO 144
ATLANTA,
DEKALB COUNTY,
GEORGIA
TDD No.TTEMI-05-003-0077

Figure 3a
WORKING MAP
EAST SECTION

TETRA TECH

3/24/10 ACTIVITY-BASED SAMPLING

3/24/10 ACTIVITY-BASED SAMPLING ROUND (1)

Project

Subject ~~FOLDER G144Φ32410~~ (JB)

Cal. by

App. by

Job No.

Ckd. by

Sheet of

TETRA TECH, INC.

Lat/Long Readings:

G144BKAΦ1

MET STATION

33.80566164°N
-84.34202055°W

G144AB1 (center of area)

AB(1)

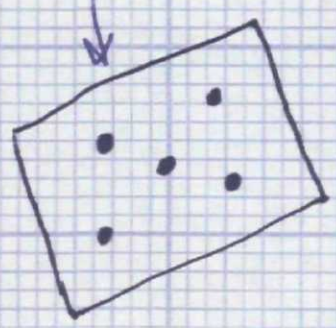
33.80562601N
-84.34319660

33.80570486°N
-84.34213396°W

SAMPLE
G144-AB1-B-22

N

AB(1) (making area)



3/24/10 ACTIVITY-BASED SAMPLING ROUND (2)

Project

Subject

Date

Cal. by

App. by

Job No.

Ckd. by

Sheet of

TETRA TECH, INC.

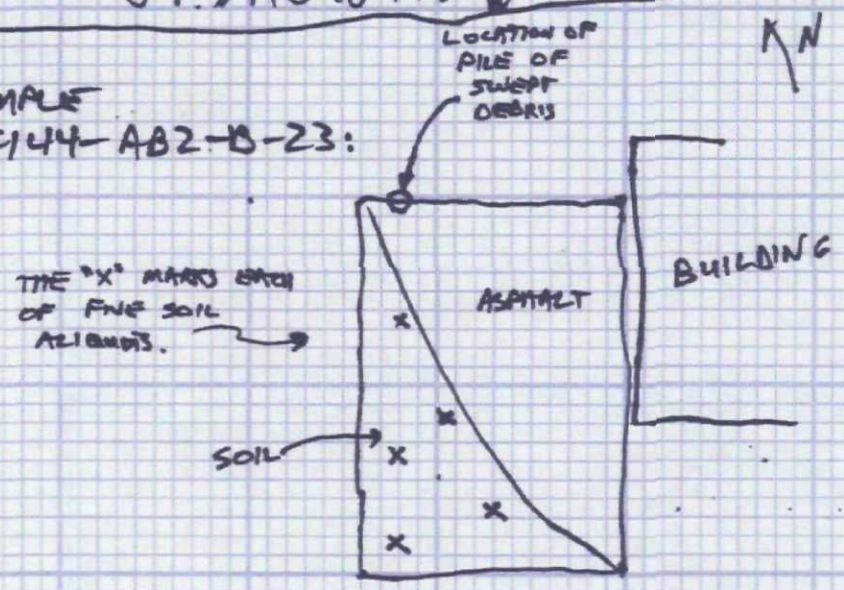
Lat/Long of Center of AB (2) area:

33.80529398°N

-84.3416487775°W

G144AB2

SAMPLE G144-AB2-B-23:



PROCEDURE:
3/24/10 - DESCRIPTION OF RAKING AND SWEEPING ACTIVITIES

Raking and sweeping are appropriate for sites with outdoor areas that are potentially contaminated with asbestos and that are unpaved or have surfaces such as asphalt, pavement, or concrete. Raking/sweeping, if chosen as an ABS activity for this sampling event, may occur on areas selected in the field that display these characteristics. Each raking/sweeping event participant will rake/sweep the entire designated area to remove dust and debris using an 18- to 30-inch push broom, a garden rake, or leaf rake (or some combination thereof). A grab or multi-point composite bulk material sample of the debris will be collected after each round of activity is completed; if there is not enough debris to collect a bulk material sample, then a grab or composite microvacuum dust sample will be collected from the activity area using microvacuuming techniques.

The following raking or sweeping procedure is in general accordance with the procedure found in ERT SOP No. 2084 (Ref. 4):

1. Each participant will don the appropriate PPE (see Appendix D) and the personal sampling pumps contained in a backpack or harness. The open-faced inlets (inlet caps removed) to the filter cassettes attached to the participant will be oriented within the participant's breathing zone and the pumps will be turned on.

2. The participant will begin along one edge of the designated area and rake/sweep the debris from that edge across the designated area to the opposite side, leaving the accumulated debris on the opposite side.

3. Turning 90 degrees, in a clockwise direction, the participant will then raking/sweep starting at this new edge and proceed across the designated area to that edge's opposite side.

4. The participant will continue rotating and raking/sweeping in this manner for the entire duration of the activity period.

5. Whenever raked/swept material is encountered piled up along an edge as a result of earlier raking/sweeping, that material will be raked/swept back across the designated area to the opposite side.

The participant(s) will repeat this sequence of raking/sweeping, re-spreading the dust and debris as it accumulates along the designated area's edges, for the duration of the sampling period (usually 120 minutes).

Site Name: Vermiculite Exfo W.R. Grace GAO 144	Page 1 of 1
TDD No.: TTEMI-05-003-0077	Date: 3/25/10

Background Air Sampling, Field and Lot Blanks, and Meteorological Station

No./Facing	100-0013 / NORTH				
Affix Label Here	00045	00046			
Station ID G144	BKA14	BKA14			
Sample Name G144-	-BKA -24	-BKA -24-DUP			
Field Duplicates					
High/Low Set					
Location	BACKGROUND AIR	BACKGROUND AIR DUPLICATE			
Latitude (decimal degrees)	33.80559270				
Longitude (decimal degrees)	-84.34179747				
Pump Type & No.	ARCON H5N	ARCON H6			
Sample Media	0.8 µm	0.8 µm			
Start Time	0857	0857			
Stop Time/ Elapsed Minutes					
Restart Time					
Stop Time/ Elapsed Minutes					
Restart Time					
Stop Time/ Elapsed Minutes					
Restart Time					
Pump Final Stop Time					
Pump Total Run Time (minutes)	275	275			
Rotameter No. Start/End	H1 / H1	H1 / H1			
Starting Flow Rate (L/min)	10 ~~2.75~~	10			
Ending Flow Rate (L/min)	9.60	9.76			
Average Flow Rate (L/min)	9.8	9.88			
Sampled Air Volume (L)	2,695	2,717			

Notes: ~~is intermittent drizzling during second half of AB 4.~~ (B)

Met Station

Make and Model: DAVIS VANTAGE PRO PRODUCT No. 6310 MODEL No. 6160

Serial No.: MFG CODE: A11127A77

Other Specifications: CAN: 3708104116A

33.80562579

-84.34194352

Parameters	Units
Wind Speed:	MPH
Wind Direction:	YES
Temperature:	°F
Relative Humidity:	%
Precipitation:	INCHES
Atmospheric Pressure:	INCHES

Met Station Notes: The weather is cool warming to mild, fairly cloudy. No precipitation yet, but the air is humid. Wind is light and generally out of the west to southwest. By the middle of AB 4, winds had shifted to coming out of the east, and a light sprinkle occurred. Toward end of AB 4, wind is out of south. ~~There~~ Intermittent sprinkling occurred through the end of AB 4, and winds varied ~~shifting at~~ ~~times back to~~ LOT [08, 45]-##; FB [08, 45]-##; (B) DUP

BKAyy; AAnyy; ABnyy; BSyy

-BKA-##; -AAn-[AH, AL, B, D, PH]-##; -ABn-[AH, AL, B, D, PH, PL]-##; -BS-##

Site Name: Vermiculite Exfo W.R. Grace GAO 144										Page 1 of 3
TDD No.: TTEMI-05-003-0077					Date: 3/25/10					
Activity: ACTIVITY-BASED: RAKING										Round: 3
Photo No./Facing	1ØØ-ØØ15 / NORTH		1ØØ-ØØ16 / NORTH		1ØØ-ØØ17 / NORTH		1ØØ-ØØ18 / NORTH			
Affix Label Here	00047	00048	00049	00050	00051	00052	00053	00054		
Station ID G144	AB315	AB315	AB316	AB316	AB317	AB317	AB318	AB318		
Sample Name G144-	AB3-PH -25	AB3-PL -26	AB3-PH -27	AB3-PL -28	AB3-PH -29	AB3-PL -3Ø	AB3-PH -31	AB3-PL -32		
Field Duplicates										
High/Low Set										
Location	PERIMETER UPWIND HIGH FLOW	PERIMETER UPWIND LOW FLOW	PERIMETER DOWNWIND HIGH FLOW	PERIMETER DOWNWIND LOW FLOW	PERIMETER DOWNWIND HIGH FLOW	PERIMETER DOWNWIND LOW FLOW	PERIMETER DOWNWIND HIGH FLOW	PERIMETER DOWNWIND LOW FLOW		
Latitude (decimal degrees)	←		CENTER OF AREA: 33.8Ø5521 85				→			
Longitude (decimal degrees)			-84.344Ø4983							
Pump Type & No.	AIRCON H14	GILIANL6	AIRCON H3	GILIANL9	ARCON H9	GILIANL7	AIRCON 65	GILIANL8		
Sample Media	0.8µm	0.8µm	0.8µm	0.8µm	0.8µm	0.8µm	0.8µm	0.8µm		
Pump Start Time	ØØ9Ø2	ØØ9Ø2	ØØ9Ø2	ØØ9Ø2	ØØ9Ø2	ØØ9Ø2	ØØ9Ø2	ØØ9Ø2		
Time/ Elapsed Minutes										
Restart Time										
Stop Time/ Elapsed Minutes										
Restart Time										
Stop Time/ Elapsed Minutes										
Restart Time										
Pump Final Stop Time										
Pump Total Run Time (minutes)	120	122	120	123	120	123	120	124		
Rotameter No. Start/End	H1 / H1	L2 / L2	H1 / H1	L2 / L2	H1 / H1	L2 / L2	H1 / H1	L2 / L2		
Starting Flow Rate (L/min)	10	3	10	3	10	3	10	3		
Ending Flow Rate (L/min)	9.76	3.02	9.76	3.03	9.88	2.98	9.71	2.99		
Average Flow Rate (L/min)	9.88	3.Ø1	9.88	3.Ø15	9.94	2.99	9.855	2.995		
Sampled Air Volume (L)	1,185.6	367.22	1,185.6	37Ø.845	1,192.8	367.77	1,182.6	371.38		

s: Stationary high- and low-flow rate perimeter filter cassettes were positioned facing generally downwind and about 4 to 4.5 feet above the ground. The activity was conducted according to the procedure included with these field notes.

Activity Participant	Time In	Time Out
SASHA THOMAS	ØØ9Ø2	1ØØ2
ERIC TURNER	1ØØ2	

BKAyy; AAnyy; ABnyy; BSyy

-BKA-##; -AAn-[AH, AL, B, D, PH]-##; -ABn-[AH, AL, B, D, PH, PL]-##; -BS-##

-LOT-[08, 45]-##; -FB-[08, 45]-##; -DUP

Site Name: Vermiculite Exfo W.R. Grace GAO 144										Page 2 of 3
TDD No.: TTEMI-05-003-0077									Date: 3/25/10	
Activity: ACTIVITY-BASED: RAKING										Round: 3

Photo No./Facing	1~~04~~04/NORTH									
Affix Label Here	00055	00056								
Station ID G144	AB319	AB319								
Sample Name G144-	AB3-AH -33	AB3-AL -34								
Field Duplicates										
High/Low Set	—	—								
Location	BACKPACK HIGH FLOW	BACKPACK LOW FLOW								
Latitude (decimal degrees)	NOT MEASURED									
Longitude (decimal degrees)	NOT MEASURED									
Pump Type & No.	QUICKTAKE Q3	GILIAN L10								
Sample Media	0.8 μm	0.8 μm								
Pump Start Time	0902	0902								
Time/ Elapsed Minutes	/	/	/	/	/	/	/	/	/	/
Restart Time										
Stop Time/ Elapsed Minutes	/	/	/	/	/	/	/	/	/	/
Restart Time										
Stop Time/ Elapsed Minutes	/	/	/	/	/	/	/	/	/	/
Restart Time										
Pump Final Stop Time										
Pump Total Run Time (minutes)	120	121								
Rotameter No. Start/End	H1 / H1	L2 / L2	/	/	/	/	/	/	/	/
Starting Flow Rate (L/min)	10	3								
Ending Flow Rate (L/min)	9.81	2.97								
Average Flow Rate (L/min)	9.905	2.985								
Sampled Air Volume (L)	1,188.6	361.185								

Activity Participant | Time In | Time Out

Note: Soil in the raking area is moist. The day is cool but humid, so the soil is not drying out very quickly, even with the agitation from raking. The raking area is about 15 feet x 15 feet square. This area was chosen for activity-based sampling because it is located in the extreme western end of the facility, adjacent to the [illegible] parking lot.

-B~~[illegible]~~-[AH, AL, B, D, PH, PL]-##; -BS-[08-45]-##; -EB-[08-45]-##; -ABn-[AH, AL, B, D, PH, PL]-##; -BS-##; -DUP

Site Name: Vermiculite Exfo W.R. Grace GAO 144									Page of
TDD No.: TTEMI-05-003-0077					Date:				
Activity:									Round:
Photo No./Facing									
Affix Label Here									
Station ID G144									
Sample Name G144-									
Field Duplicates									
High/Low Set									
Location									
Latitude (decimal degrees)									
Longitude (decimal degrees)									
Pump Type & No.									
Sample Media									
Pump Start Time									
Time/ Elapsed Minutes									
Restart Time									
Stop Time/ Elapsed Minutes									
Restart Time									
Stop Time/ Elapsed Minutes									
Restart Time									
Pump Final Stop Time									
Pump Total Run Time (minutes)									
Rotameter No. Start/End									
Starting Flow Rate (L/min)									
Ending Flow Rate (L/min)									
Average Flow Rate (L/min)									
Sampled Air Volume (L)									

John Schordel
3/25/10

Notes:

Activity Participant	Time In	Time Out

BKAyy; AAnyy; ABnyy; BSyy

-BKA-##; -AAn-[AH, AL, B, D, PH]-##;
-ABn-[AH, AL, B, D, PH, PL]-##; -BS-##

-LOT-[08, 45]-##; -FB-[08, 45]-##;
-DUP

Site Name: Vermiculite Exfo W.R. Grace GAO 144				Page 3 of 3
TDD No.: TTEMI-05-003-0077			Date: 3/25/10	
Activity: Bulk Material for ACTIVITY-BASED: RAKING				Round: 3

[illegible] No./Facing					
Affix Label Here		00003			
Station ID G144_____		AB325			
Sample Name G144-____		AB3-B-45			
Field Duplicates					
Name(s) of Samplers		ERIC TURNER			
Sample Collection Time		1140			
Check One	Debris[a]	X			
	Soil[a]	X			
	Vermiculite Attic Insulation (VAI)[a]				
Equipment (check all that apply)	SS Auger				
	SS Spoon	X			
	SS Bowl	X			
	8-ounce Jar	X			
	Three 1-gallon ziplock bags				
Grab/Composite Information	Grab (Gr) or Composite (Co)	Gr (Co)	Gr Co	Gr Co	Gr Co
	Grab Depth Interval (inches)				
	No. of Composite Aliquots	5			
	No. 1 Depth Interval (inches)	0-2 inches			
	No. 2 Depth Interval (inches)	0-2 "			
	No. 3 Depth Interval (inches)	0-2 "			
	No. 4 Depth Interval (inches)	0-2 "			
	No. 5 Depth Interval (inches)	0-2 "			
Latitude (decimal degrees)		NOT MEASURED			
Longitude (decimal degrees)		NOT MEASURED			
Sampling Location (draw aliquot locations relative to one another; also see associated figure) N ↑		Five point composite sample collected from within the raked area. The sample was homogenized before dispersing into the jar. Rocks and organic fragments were discarded during mixing. approximate aliquot location. (also see other drawing). Note: all aliquots were generally of equal volume.			

Notes:

a = Collect debris or soil in one 8-ounce jar and VAI in three 1-gal. ziplock bags.

AAnyy with -AAn-B-##
ABnyy with -ABn-B-##
BSyy with -BS-##

-DUP

Legend

Railroad

Streets

--- TRAIL

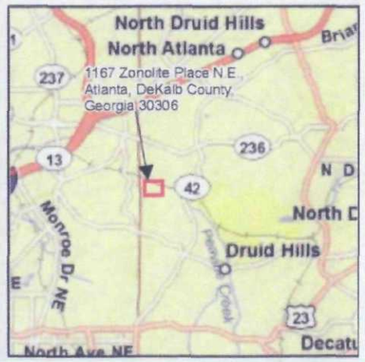
DITCH/CREEK

0 50 100 Feet

MAP SOURCE: Imageconnect 'Digital Globe' 2007-07-21

3/25/10

ACTIVITY-BASED SAMPLING ROUND 3: RAKING



United States Environmental Protection Agency

VERMICULITE EXFO
W.R. GRACE GAO 144
ATLANTA,
DEKALB COUNTY,
GEORGIA
TDD No.TTEMI-05-003-0077

Figure 3b
WORKING MAP
WEST SECTION

TETRA TECH

Site Name: Vermiculite Exfo W.R. Grace GAO 144 | **Page** 1 **of** 3

TDD No.: TTEMI-05-003-0077 | **Date:** 3/25/10

Activity: ACTIVITY-BASED: RAKING | **Round:** (4)

Photo No./Facing	100-0020/NORTH		100-0021/NORTH		100-0022/NORTH		100-0023/NORTH			
Affix Label Here	00057	00058	00059	00060	00061	00062	00063	00064		
Station ID G144	AB420	AB420	AB421	AB421	AB422	AB422	AB423	AB423		
Sample Name G144-	AB4-PH -35	AB4-PL -36	AB4-PH -37	AB4-PL -38	AB4-PH -39	AB4-PL -40	AB4-PH -41	AB4-PL -42		
Field Duplicates High/Low Set										
Location	PERIMETER UPWIND HIGH FLOW	PERIMETER UPWIND LOW FLOW	PERIMETER UPWIND HIGH FLOW	PERIMETER UPWIND LOW FLOW	PERIMETER DOWNWIND HIGH FLOW	PERIMETER DOWNWIND LOW FLOW	PERIMETER DOWNWIND HIGH FLOW	PERIMETER DOWNWIND LOW FLOW		
Latitude (decimal degrees)	CENTER OF AREA: 33.80579924									
Longitude (decimal degrees)	-84.34272404									
Pump Type & No.	AIRCON H12	GILIANL18	AIRCON G1	GILIAN L17	AIRCON G4	GILIAN L19	AIRCON H13	GILIAN L20		
Sample Media	0.8 μm	0.8 μm	0.8 μm	0.8 μm	0.8 μm	0.8 μm	0.8 μm	0.8 μm		
Pump Start Time	1140	1140	1140	1140	1140	1140	1140	1140		
Time/ Elapsed Minutes										
Restart Time										
Stop Time/ Elapsed Minutes										
Restart Time										
Stop Time/ Elapsed Minutes										
Restart Time										
Pump Final Stop Time										
Pump Total Run Time (minutes)	114	115	118	118	120	120	120	121		
Rotameter No. Start/End	H1 / H1	L2 / L2	H1 / H1	L2 / L2	H1 / H1	L2 / L2	H1 / H1	L2 / L2		
Starting Flow Rate (L/min)	10	3	10	3	10	3	10	3		
Ending Flow Rate (L/min)	9.66	2.97	9.55	3.00	9.66	3.04	9.50	2.97		
Average Flow Rate (L/min)	9.83	2.985	9.775	3.0	9.83	3.02	9.75	2.985		
Sampled Air Volume (L)	1,120.62	343.275	1,153.45	354	1,179.6	362.4	1,170	361.185		

: Stationary high- and low-flow rate perimeter filter cassettes were positioned facing generally downward and about 4 to 4.5 feet above the ground. The activity was conducted according to the procedures included with the field notes.

Activity Participant	Time In	Time Out
MIKE CROWE		
RANDY MATHEX		

Site Name: Vermiculite Exfo W.R. Grace GAO 144

TDD No.: TTEMI-05-003-0077 | **Date:** 3/25/10

Activity: ACTIVITY-BASED: RAKING | **Round:** (4)

Photo No./Facing	~~100-0019~~ 19 / NORTH									
Affix Label Here	00065	00066								
Station ID G144	AB424	AB424								
Sample Name G144-	AB4-AH-43	AB4-AL-44								
Field Duplicates										
High/Low Set	→									
Location	BACKPACK HIGH FLOW	BACKPACK LOW FLOW								
Latitude (decimal degrees)	NOT MEASURED									
Longitude (decimal degrees)	NOT MEASURED									
Pump Type & No.	QUICKTAKE 84	GILIANLIE								
Sample Media	0.8 µm	0.8 µm								
Pump Start Time	1140	1140								
Stop Time/ Elapsed Minutes										
Restart Time										
Stop Time/ Elapsed Minutes										
Restart Time										
Stop Time/ Elapsed Minutes										
Restart Time										
Pump Final Stop Time										
Pump Total Run Time (minutes)	113	113								
Rotameter No. Start/End	H1 / H1	L2 / L2								
Starting Flow Rate (L/min)	10.17	3								
Ending Flow Rate (L/min)	9.96*	2.94								
Average Flow Rate (L/min)	10.065	2.97								
Sampled Air Volume (L)	1,137.345	335.61								

*Note: During post-sampling flow rate measurements, flow through the cassette was momentarily inhibited. This may have disturbed the filter.

Activity Participant | Time In | Time Out

: Additional notes: This area was raked and chosen for activity-based sampling because it occupies ground where the rail spur used to be located, as well as the area that existed between the rail spur and the facility buildings that used to exist to the south. The area is irregularly shaped and is about 40 feet long on the long axis and between 5 and 9 feet wide. Note: Near the end of the activity, heavy sprinkles began, forcing the activity to end a bit prematurely (about 7 minutes before the end of the 120-minute activity period).

-BKA-##; -AAn-[AH, AL, B, D, PT]-##; LOT [08, 45]-##; FB [08, 45]-##;
BKAnyy; AAnyy; ABnyy; BSyy; ABn-[AH, AL, B, D, PT]-##; BS-## DUP

Site Name: Vermiculite Exfo W.R. Grace GAO 144										Page of
TDD No.: TTEMI-05-003-0077						Date:				
Activity:										Round:
Photo No./Facing										
Affix Label Here										
Station ID G144										
Sample Name G144-										
Field Duplicates										
High/Low Set										
Location										
Latitude (decimal degrees)										
Longitude (decimal degrees)										
Pump Type & No.										
Sample Media										
Pump Start Time										
Time/ Elapsed Minutes										
Restart Time										
Stop Time/ Elapsed Minutes										
Restart Time										
Stop Time/ Elapsed Minutes										
Restart Time										
Pump Final Stop Time										
Pump Total Run Time (minutes)										
Rotameter No. Start/End										
Starting Flow Rate (L/min)										
Ending Flow Rate (L/min)										
Average Flow Rate (L/min)										
Sampled Air Volume (L)										

John Scherdel
3/25/10

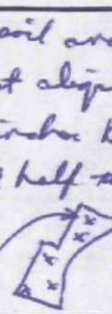
s:

Activity Participant	Time In	Time Out

BKAyy; AAnyy; ABnyy; BSyy

-BKA-##; -AAn-[AH, AL, B, D, PH]-##;
-ABn-[AH, AL, B, D, PH, PL]-##; -BS-##

-LOT-[08, 45]-##, -FB-[08, 45]-##;
-DUP

Site Name: Vermiculite Exfo W.R. Grace GAO 144				Page 3 of 3
TDD No.: TTEMI-05-003-0077			Date: 3/25/10	
Activity: Bulk Material for ACTIVITY-BASED: RAKING				Round: (4)
P' No./Facing				
Affix Label Here	00004			
Station ID G144	AB426			
Sample Name G144-	AB4-B-46			
Field Duplicates				
Name(s) of Samplers	ERIC TURNER			
Sample Collection Time	1410			
Check One: Debris[a]	X			
Check One: Soil[a]	X			
Check One: Vermiculite Attic Insulation (VAI)[a]				
Equipment (check all that apply): SS Auger				
Equipment (check all that apply): SS Spoon	X			
Equipment (check all that apply): SS Bowl	X			
Equipment (check all that apply): 8-ounce Jar	X			
Equipment (check all that apply): Three 1-gallon ziplock bags				
Grab/Composite Information: Grab (Gr) or Composite (Co)	Gr (Co)	Gr Co	Gr Co	Gr Co
Grab/Composite Information: Grab Depth Interval (inches)				
Grab/Composite Information: No. of Composite Aliquots	5			
Grab/Composite Information: No. 1 Depth Interval (inches)	0-2			
Grab/Composite Information: No. 2 Depth Interval (inches)	0-2			
Grab/Composite Information: No. 3 Depth Interval (inches)	0-2			
Grab/Composite Information: No. 4 Depth Interval (inches)	0-2			
Grab/Composite Information: No. 5 Depth Interval (inches)	0-1			
Latitude (decimal degrees)	NOT MEASURED			
Longitude (decimal degrees)	NOT MEASURED			
Sampling Location (draw aliquot locations relative to one another; also see associated figure) N ↑	Five-point composite of soil and debris from raked area. Four southernmost aliquots were roughly equal in volume and 0-2 inches bgs, whereas the northernmost ~~[illegible]~~ (1) aliquot was about half the volume of the other aliquots and was 0-1 inches bgs:  0-1" bgs } Approximate location. (See also drawn figure)			Note: Aliquots were homogenized before dumping into jar. Rocks and organic fragments were discarded during mixing.
Notes:				

a = Collect debris or soil in one 8-ounce jar and VAI in three 1-gal. ziplock bags.

AAnyy with -AAn-B-##
ABnyy with -ABn-B-##
BSyy with -BS-##

-DUP

Legend

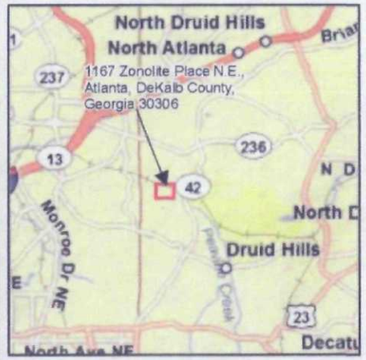
Streets
Railroad

0 50 100 Feet

MAP SOURCE: Imageconnect
'Digital Globe' 2007-07-21

3/25/10

ACTIVITY-BASED SAMPLING
ROUND 4: RAKING



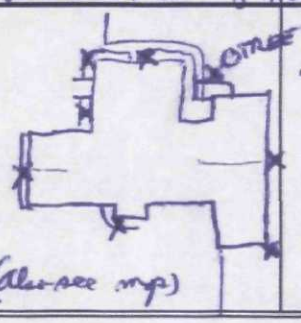
United States Environmental Protection Agency

VERMICULITE EXFO
W.R. GRACE GAO 144
ATLANTA,
DEKALB COUNTY,
GEORGIA
TDD No.TTEMI-05-003-0077

Figure 3a
WORKING MAP
EAST SECTION

TETRA TECH

Site Name: Vermiculite Exfo W.R. Grace GAO 144				Page 1 of 1
TDD No.: TTEMI-05-003-0077			Date: 3/25/10	
Activity: Bulk Material for ADDITIONAL BULK SAMPLING				Round: NA

Facing No./Facing					
Affix Label Here		00005	00006		
Station ID G144		~~AS~~ B$27	B$28		
Sample Name G144-		-B$-47	-B$-48		
Field Duplicates					
Name(s) of Samplers		RANDY MAYER	ERIC TURNER		
Sample Collection Time		~1430	~1500		
Check One	Debris[a]		X		
	Soil[a]		X		
	Vermiculite Attic Insulation (VAI)[a]	X			
Equipment (check all that apply)	SS Auger				
	SS Spoon	X	X		
	SS Bowl	X	X		
	8-ounce Jar		X		
	Three 1-gallon ziplock bags	X			
Grab/Composite Information	Grab (Gr) or Composite (Co)	Gr (Co)	Gr (Co)	Gr Co	Gr Co
	Grab Depth Interval (inches)				
	No. of Composite Aliquots	2	9		
	No. 1 Depth Interval (inches)	Two aliquots of roughly equal volume of attic insulation (vermiculite) sampling in attic of former office of facility now the Atlanta 5010 Zen Center. One area was a walk-in attic and the other area was a lower-roofed attic space.	Nine aliquots of equal volume of soil at eight points around the former office of the vermiculite facility and one point in the little garden area near the entrance to the parking lot. The aliquots were homogenized before dispensing into the jar, and rocks and organic fragments were discarded during mixing.	All aliquots were about 0-2 inches bgs	
	No. 2 Depth Interval (inches)				
	No. 3 Depth Interval (inches)				
	No. 4 Depth Interval (inches)				
	No. 5 Depth Interval (inches)				
Latitude (decimal degrees)					
Longitude (decimal degrees)					
Sampling Location (draw aliquot locations relative to one another; also see associated figure) N↑		(See map) The vermiculite sample was homogenized before dispensing into the Ziplock bags.	 (also see map)	Approximate location of eight soil aliquots located around the Atlanta 5010 Zen Center.	

Notes:

a = Collect debris or soil in one 8-ounce jar and VAI in three 1-gal. ziplock bags.

AAnyy with -AAn-B-##
ABnyy with -ABn-B-##
BSyy with -BS-##

-DUP

Legend

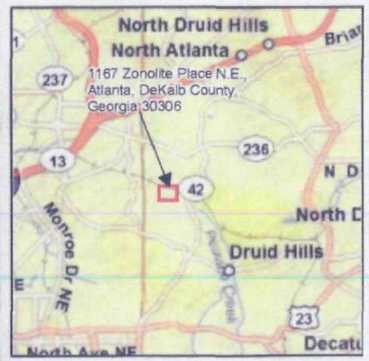
Streets
Railroad

⊗ G144 - B$-48 sample aliquot location.

0 50 100 Feet

MAP SOURCE: Imageconnect 'Digital Globe' 2007-07-21

3/25/10
ADDITIONAL BULK SAMPLING



United States Environmental Protection Agency

VERMICULITE EXFO
W.R. GRACE GAO 144
ATLANTA,
DEKALB COUNTY,
GEORGIA
TDD No.TTEMI-05-003-0077

Figure 3a
WORKING MAP
EAST SECTION

TETRA TECH

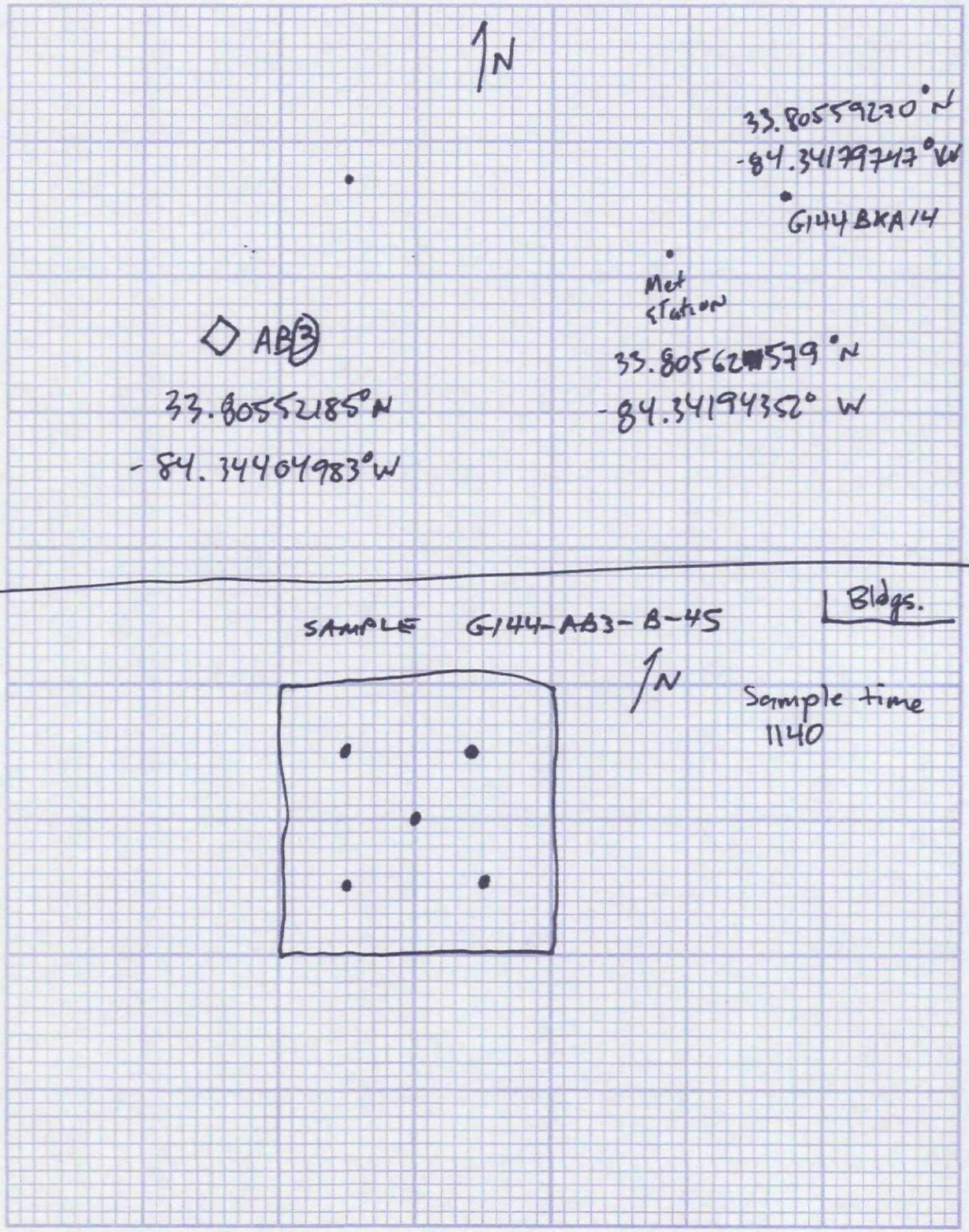
3/25/10 ACTIVITY-BASED SAMPLING
ROUND (3)

Project

Subject

Date | Job No.
Cal. by | Ckd. by
App. by | Sheet of

TETRA TECH, INC.



3/25/10 ACTIVITY-BASED SAMPLING ROUND (4)

Project

Subject

Date

Cal. by

App. by

Job No.

Ckd. by

Sheet of

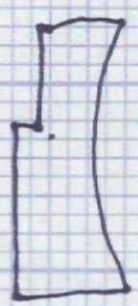
TETRA TECH, INC.

33.80579424 G144AB4

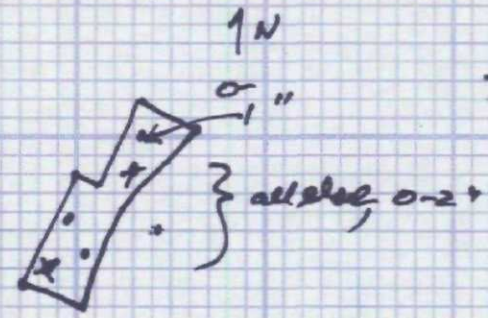
-84.34272404

Lat/Long

Center of AB (4)"



Sample G144-AB4-B-46



TIME: 1410

3/25/10: PROCEDURE FOR RAKING AND SWEEPING ACTIVITIES

Raking and sweeping are appropriate for sites with outdoor areas that are potentially contaminated with asbestos and that are unpaved or have surfaces such as asphalt, pavement, or concrete. Raking/sweeping, if chosen as an ABS activity for this sampling event, may occur on areas selected in the field that display these characteristics. Each raking/sweeping event participant will rake/sweep the entire designated area to remove dust and debris using an 18- to 30-inch push broom, a garden rake, or leaf rake (or some combination thereof). A grab or multi-point composite bulk material sample of the debris will be collected after each round of activity is completed; if there is not enough debris to collect a bulk material sample, then a grab or composite microvacuum dust sample will be collected from the activity area using microvacuuming techniques.

The following raking or sweeping procedure is in general accordance with the procedure found in ERT SOP No. 2084 (Ref. 4):

1. Each participant will don the appropriate PPE (see Appendix D) and the personal sampling pumps contained in a backpack or harness. The open-faced inlets (inlet caps removed) to the filter cassettes attached to the participant will be oriented within the participant's breathing zone and the pumps will be turned on.

2. The participant will begin along one edge of the designated area and rake/sweep the debris from that edge across the designated area to the opposite side, leaving the accumulated debris on the opposite side.

3. Turning 90 degrees, in a clockwise direction, the participant will then raking/sweep starting at this new edge and proceed across the designated area to that edge's opposite side.

4. The participant will continue rotating and raking/sweeping in this manner for the entire duration of the activity period.

5. Whenever raked/swept material is encountered piled up along an edge as a result of earlier raking/sweeping, that material will be raked/swept back across the designated area to the opposite side.

The participant(s) will repeat this sequence of raking/sweeping, re-spreading the dust and debris as it accumulates along the designated area's edges, for the duration of the sampling period (usually 120 minutes).

Site Name: Vermiculite Exfo W.R. Grace GAO 144				Page 1 of 4
TDD No.: TTEMI-05-003-0077			Date: 3/30/10	
Activity: Bulk Material for ADDITIONAL BULK SAMPLING				Round: NA
P No./Facing	←	P1Ø1ØØ24.JPG/NORTH	→	
Affix Label Here	00007		00008	
Station ID G144____	B$29		~~B$3Ø~~ B$29 (B)	
Sample Name G144-____	-B$-49		-B$-5Ø	
Field Duplicates				
Name(s) of Samplers	RANDY MAYER		RANDY MAYER	
Sample Collection Time	Ø93Ø		Ø945	
Check One: Debris[a]	X		X	
Check One: Soil[a]	X		X	
Check One: Vermiculite Attic Insulation (VAI)[a]				
Equipment (check all that apply): SS Auger	X		X	
Equipment (check all that apply): SS Spoon	X		X	
Equipment (check all that apply): SS Bowl	X		X	
Equipment (check all that apply): 8-ounce Jar	X		X	
Equipment (check all that apply): Three 1-gallon ziplock bags				
Grab/Composite Information: Grab (Gr) or Composite (Co)	(Gr) Co	Gr Co	(Gr) Co	Gr Co
Grab Depth Interval (inches)	~0-12 inches bgs		~12-24 inches bgs	
No. of Composite Aliquots				
No. 1 Depth Interval (inches)				
No. 2 Depth Interval (inches)				
No. 3 Depth Interval (inches)				
No. 4 Depth Interval (inches)				
No. 5 Depth Interval (inches)				
Latitude (decimal degrees)	←	33.8Ø575746	→	
Longitude (decimal degrees)		-84.3435 1523		
Sampling Location (draw aliquot locations relative to one another; also see associated figure) N↑	See figure. ~~Comp~~ (B) Sample of a 0-12 inches bgs solids, fully homogenized in a bowl before dispensing into jar. Sample taken from a mound of mixed debris and soil. Debris appears to include rusted metal, stones. ~~Dry~~ (B) During mixing, rocks were discarded.	Auger bucket was changed out between 0-12 inch sample and 12-24 inch sample.	See figure. Sample of a 12-24 inch bgs solid sample, fully homogenized in a bowl before dispensing into jar. Sample taken from same location as for sample G144-B$-49. During mixing, rocks were discarded.	

Notes: (B) and organic fragments

a = Collect debris or soil in one 8-ounce jar and VAI in three 1-gal. ziplock bags.

AAnyy with -AAn-B-##
ABnyy with -ABn-B-##
BSyy with -BS-##

and organic fragments (B)

-DUP

Site Name: Vermiculite Exfo W.R. Grace GAO 144				Page 2 of 4
TDD No.: TTEMI-05-003-0077			Date: 3/30/10	
Activity: Bulk Material for ADDITIONA BULK SAMPLING				Round: NA
No./Facing		P1010025.JPG/NORTH		
Affix Label Here	00009		00010	
Station ID G144____	~~B$31~~ (B) B$30		~~B$32~~ (B) B$30	
Sample Name G144-____	-B$-51		-B$-52	
Field Duplicates				
Name(s) of Samplers	RANDY MAYER		RANDY MAYER	
Sample Collection Time	1020		1045	
Check One: Debris[a]	X		X	
Check One: Soil[a]	X		X	
Check One: Vermiculite Attic Insulation (VAI)[a]				
Equipment (check all that apply): SS Auger	X		X	
Equipment (check all that apply): SS Spoon	X		X	
Equipment (check all that apply): SS Bowl	X		X	
Equipment (check all that apply): 8-ounce Jar	X		X	
Equipment (check all that apply): Three 1-gallon ziplock bags				
Grab/Composite Information: Grab (Gr) or Composite (Co)	(Gr) Co	Gr Co	(Gr) Co	Gr Co
Grab Depth Interval (inches)	~0-12 inches bgs		~12-15 inches bgs	
No. of Composite Aliquots				
No. 1 Depth Interval (inches)				
No. 2 Depth Interval (inches)				
No. 3 Depth Interval (inches)				
No. 4 Depth Interval (inches)				
No. 5 Depth Interval (inches)				
Latitude (decimal degrees)		33.80574560		
Longitude (decimal degrees)		-84.34321255		
Sampling Location (draw aliquot locations relative to one another; also see associated figure) N ↑	See figure. A 0-12 inches bgs sample, fully homogenized in a bowl before dispensing into jar. Sample taken from an area of site that slopes (B) up westward to form a plateau above the surrounding area. During mixing, rocks were discarded	Auger bucket was changed out between the 0-12 inch sample and the 12-15 inch sample.	See figure. (B) A 12-15 inch bgs sample, fully homogenized in a bowl before dispensing into jar. Sample was taken from same location as for sample G144-B$-51. During mixing, rocks (B) and organic fragments were discarded. Sample could not be collected below 15 inches bgs due to refusal when rocks were encountered.	
Notes:				

a = Collect debris or soil in one 8-ounce jar and VAI in three 1-gal. ziplock bags. (B) and organic fragments

AAnyy with -AAn-B-##
ABnyy with -ABn-B-##
BSyy with -BS-##

-DUP

Site Name: Vermiculite Exfo W.R. Grace GAO 144				Page 3 of 4
TDD No.: TTEMI-05-003-0077			Date: 3/30/10	
Activity: Bulk Material for ADDITIONAL BULK SAMPLING				Round: NA
F No./Facing	← P1010026.JPG/NORTH →			
Affix Label Here	00011		00012	
Station ID G144____	~~B$33~~ (E) B$31		~~B$34~~ (JB) B$31	
Sample Name G144-____	-B$-53		-B$-54	
Field Duplicates				
Name(s) of Samplers	RANDY MAYER		RANDY MAYER	
Sample Collection Time	1120		1120	
Check One: Debris[a]	X		X	
Check One: Soil[a]	X		X	
Check One: Vermiculite Attic Insulation (VAI)[a]				
Equipment (check all that apply): SS Auger	X		X	
Equipment (check all that apply): SS Spoon	X		X	
Equipment (check all that apply): SS Bowl	X		X	
Equipment (check all that apply): 8-ounce Jar	X		X	
Equipment (check all that apply): Three 1-gallon ziplock bags				
Grab/Composite Information: Grab (Gr) or Composite (Co)	(Gr) Co	Gr Co	(Gr) Co	Gr Co
Grab Depth Interval (inches)	~0-12 inches bgs		~12-24 inches bgs	
No. of Composite Aliquots				
No. 1 Depth Interval (inches)				
No. 2 Depth Interval (inches)				
No. 3 Depth Interval (inches)				
No. 4 Depth Interval (inches)				
No. 5 Depth Interval (inches)				
Latitude (decimal degrees)	←	33.80532675	→	
Longitude (decimal degrees)		-84.34326140		
Sampling Location (draw aliquot locations relative to one another; also see associated figure)	see figure. A 0-12 inch bgs sample, fully homogenized in a bowl before dispensing into jar. Rocks (JB) and organic fragments were discarded during mixing. Sample collected from a mound of about 5 feet high located in the woods south of plateau area. Mound had visible gravel in it.	auger bucket was changed out between the 0-12 inch sample and the 12-24 inch sample	see figure. A 12-24 inches bgs sample, fully homogenized in a bowl before dispensing into jar. Rocks (JB) and organic fragments were discarded ~~[illegible]~~ during mixing. Sample collected from same location as for sample G144-B$-53	
N ↑				
Notes:				

a = Collect debris or soil in one 8-ounce jar and VAI in three 1-gal. ziplock bags.

AAnyy with -AAn-B-##
ABnyy with -ABn-B-##
BSyy with -BS-##

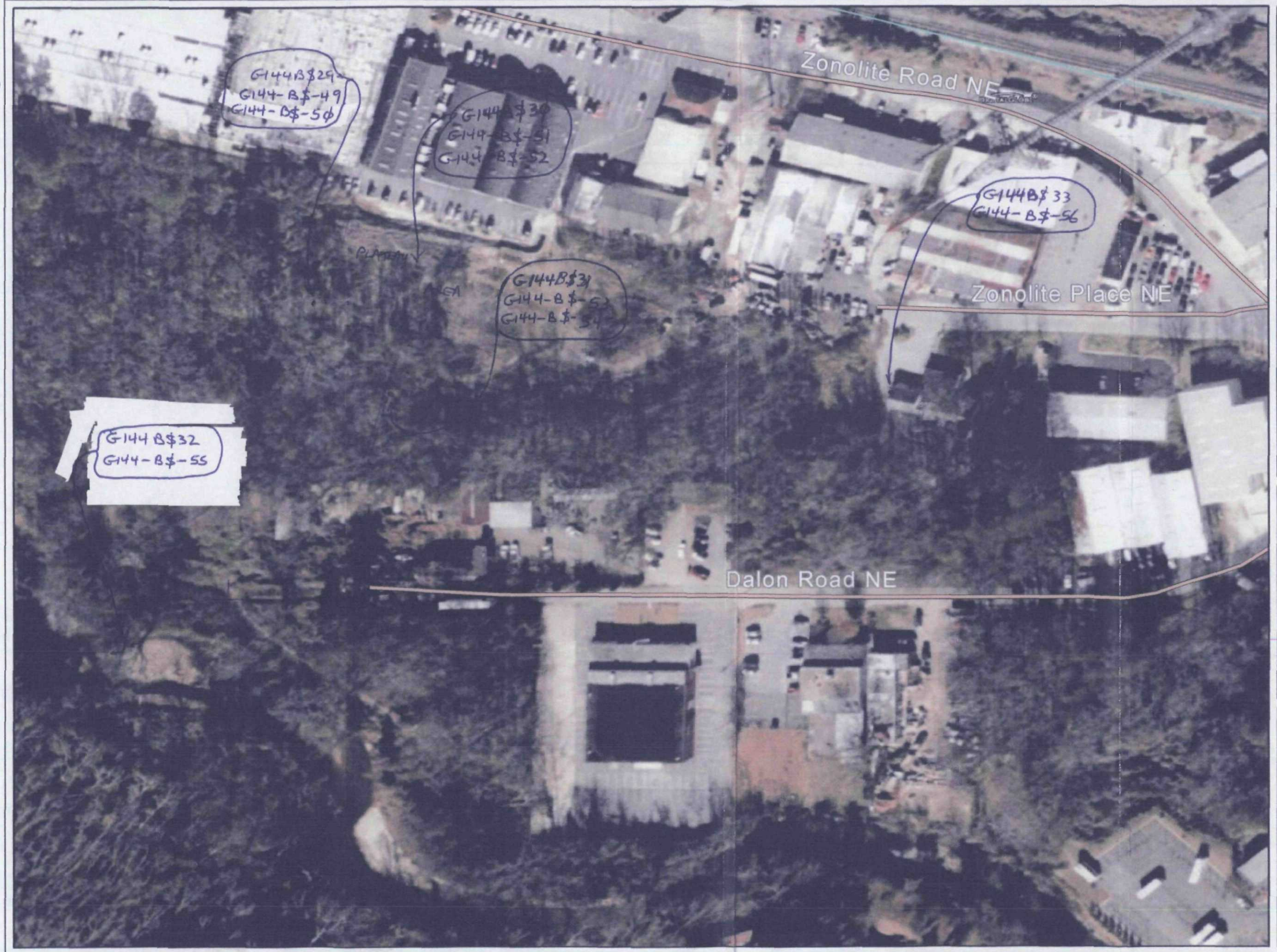
-DUP

Site Name: Vermiculite Exfo W.R. Grace GAO 144				Page 4 of 4
TDD No.: TTEMI-05-003-0077			Date: 3/30/10	
Activity: Bulk Material for ADDITIONAL BULK SAMPLING				Round: NA
F No./Facing	P1Φ1ΦΦ27.JPG / NORTH OR NORTH-NORTHWEST		P1Φ1ΦΦ28.JPG / EAST-SOUTHEAST	
Affix Label Here	00013		00014	
Station ID G144	~~B$35~~ B$32		~~B$36~~ B$33	
Sample Name G144-	-B$-55		-B$-56	
Field Duplicates				
Name(s) of Samplers	JOHN SCHENDEL		JOHN SCHENDEL	
Sample Collection Time	12ΦΦ		1255	
Check One: Debris[a]			X	
Check One: ~~Soil~~ SEDIMENT	X		SOIL: X	
Check One: Vermiculite Attic Insulation (VAI)[a]				
Equipment (check all that apply): SS Auger				
Equipment (check all that apply): SS Spoon	X		X	
Equipment (check all that apply): SS Bowl	X		X	
Equipment (check all that apply): 8-ounce Jar	X		X	
Equipment (check all that apply): Three 1-gallon ziplock bags				
Grab/Composite Information: Grab (Gr) or Composite (Co)	Gr Co	Gr Co	Gr Co	Gr Co
Grab/Composite Information: Grab Depth Interval (inches)	~0-4 inches bgs		~0-1½ inches bgs	
Grab/Composite Information: No. of Composite Aliquots				
Grab/Composite Information: No. 1 Depth Interval (inches)				
Grab/Composite Information: No. 2 Depth Interval (inches)				
Grab/Composite Information: No. 3 Depth Interval (inches)				
Grab/Composite Information: No. 4 Depth Interval (inches)				
Grab/Composite Information: No. 5 Depth Interval (inches)				
Latitude (decimal degrees)	33.8Φ457 7Φ3Φ		NOT MEASURED	
Longitude (decimal degrees)	-84.3443 15Φ6		NOT MEASURED	
Sampling Location (draw aliquot locations relative to one another; also see associated figure) N ↑	Sediment sample collected from west bank of ditch/creek that flows southward through the center of the site. The sample was collected about 10 feet up the creek/ditch from its confluence with Beaverdam Creek. Sample was homogenized before dispensing into jar. See figure.	JB the South Fork	See figure. Sample of soil and debris ~~[illegible]~~ JB in crawl space of attached SOTO Zen Center (former office of vermiculite plant). Sample was collected just inside and left of crawl space door, about 1½ feet in from the doorway. Sample was homogenized before dispensing into jar and rocks were discarded during mixing. ~~The collected material was tan in~~ color until about 1 inch deep, when the clots become more of a dark gray.	
Notes:				

a = Collect debris or soil in one 8-ounce jar and VAI in three 1-gal. ziplock bags.

AAnyy with -AAn-B-##
ABnyy with -ABn-B-##
BSyy with -BS-##

JP



Legend

Streets
Railroad

0 50 100 Feet

MAP SOURCE: Imageconnect
'Digital Globe' 2007-07-21

3/30/10
ADDITIONAL
BULK
SAMPLING

United States Environmental Protection Agency

VERMICULITE EXFO
W.R. GRACE GAO 144
ATLANTA,
DEKALB COUNTY,
GEORGIA
TDD No.TTEMI-05-003-0077

Figure 3a
WORKING MAP
EAST SECTION

TETRA TECH

Site Name: Vermiculite Exfo W.R. Grace GAO 144				Page 1 of 1
TDD No.: TTEMI-05-003-0077			Date: 4/15/10	
Activity: Bulk Material for ADDITIONAL BULK SAMPLING				Round: NA
No./Facing	PHOTOS 100-0001 TO 100-0005		PHOTOS 100-0006 TO 100-0010	
Affix Label Here	00069		00070	
Station ID G144	B$34		B$35	
Sample Name G144-	-B$-57		-B$-58	
Field Duplicates				
Name(s) of Samplers	COURTNEY RODEN		COURTNEY RODEN	
Sample Collection Time	0850		0940	
Check One: Debris[a]	X		X	
Check One: Soil[a]	X		X	
Check One: Vermiculite Attic Insulation (VAI)[a]				
Equipment (check all that apply): SS Auger				
Equipment (check all that apply): SS Spoon	X		X	
Equipment (check all that apply): SS Bowl	X		X	
Equipment (check all that apply): 8-ounce Jar (2 per sample)	X		X	
Equipment (check all that apply): Three 1-gallon ziplock bags				
Grab/Composite Information: Grab (Gr) or Composite (Co)	Gr (Co)	Gr Co	Gr (Co)	Gr Co
Grab/Composite Information: Grab Depth Interval (inches)			~~0~~ (B)	
Grab/Composite Information: No. of Composite Aliquots	5		5	
Grab/Composite Information: No. 1 Depth Interval (inches)	all about 0-2½ inches bags		about 0-2½ inches bags	
Grab/Composite Information: No. 2 Depth Interval (inches)			"	
Grab/Composite Information: No. 3 Depth Interval (inches)			"	
Grab/Composite Information: No. 4 Depth Interval (inches)			about 0-1 inch bags (Photo 100-0009)	
Grab/Composite Information: No. 5 Depth Interval (inches)			about 0-2½ inches bags	
Latitude (decimal degrees)	NOT MEASURED		NOT MEASURED	
Longitude (decimal degrees)	NOT MEASURED		NOT MEASURED	
Sampling Location (draw aliquot locations relative to one another; also see associated figure) N↑	See figure. Five point composite of mostly soil and some debris taken along margin of property in place where ground ~~test~~ (B) appeared not to have been disturbed recently ~~Sump~~ (B)		See figure. Five-point composite of soil and gravel taken from more active areas of property such as areas where parking, plant storage and nursery, and frequent usage may be occurring.	
Notes:	For both samples: Material was thoroughly mixed before dispensing into sample jars. During mixing, roots and organic debris were discarded from the sample bowl.			

a = Collect debris or soil in one 8-ounce jar and VAI in three 1-gal. ziplock bags.

AAnyy with -AAn-B-##
ABnyy with -ABn-B-##
BSyy with -BS-##

-DUP

Legend

Streets

Railroad

⊙ Aligned sample location for G144B$34, sample No. G144-B$-57

X Aligned sample location for G144B$35, sample No. G144-B$-

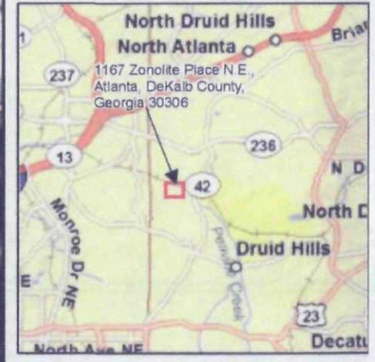
WRONG SCALE

0 50 100 Feet

MAP SOURCE: Imageconnect 'Digital Globe' 2007-07-21

APPROXIMATE TRUE SCALE IS 3.6 ft/in

ADDITIONAL BULK SAMPLING ON 4/15/10



United States Environmental Protection Agency

VERMICULITE EXFO
W.R. GRACE GAO 144
ATLANTA,
DEKALB COUNTY,
GEORGIA
TDD No.TTEMI-05-003-0077

Figure 3a
WORKING MAP
EAST SECTION

TETRA TECH

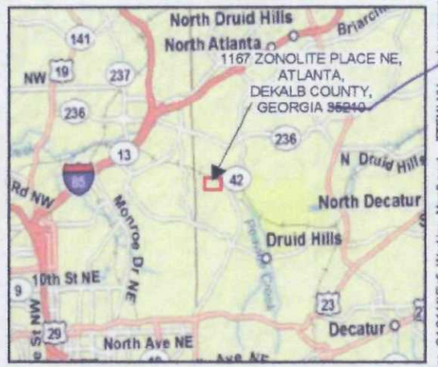
11/12/10: SITE VISIT

11/12/10
SITE
VISIT

N
W E
S

0 25 50 100 150 Feet

MAP SOURCE: USGS, 2010 & 2008.



United States Environmental Protection Agency

VERMICULITE EXFO
W.R. GRACE GAO 144
ATLANTA,
DEKALB COUNTY,
GEORGIA
TDD: TTEMI-05-003-0077

FIGURE 5
WORKING MAP

TETRA TECH

2009-3-19 \GIS_Workspace\TTEMI-05-003-0077_Vermiculite_Exfo_W.R._Grace_GAO144\Fig5_Working_Map2.mxd TTEMI-NV jody summer

Site Name: Vermiculite Exfo W.R. Grace GAO 144				Page 1 of 5
TDD No.: TTEMI-05-003-0077			Date: 12/6/14	
Activity: Bulk Material for ADDITIONAL BULK SAMPLING				Round: —
Photo No./Facing	~~1/NORTH~~ (JS) 12/6/14 NO PHOTO	~~1/NORTH~~ (2/NORTH) (JS) 12/6/14		~~1/NORTH~~ (JS) 12/6/14 NO PHOTO
Affix Label Here (ØØ142)	ØØ142	ØØ144		00143
Station ID G144	B$36	B$36		B$36
Sample Name G144-	-B$-59	-B$-60 (JS) 12/6/14		-B$-59CH
Field Duplicates				
Name(s) of Samplers	CHRIS KEISER ~~RANDY MAYER~~	RANDY MAYER, with Chris Keiser doing mixing and dispensing of sample.		CHRIS KEISER
Sample Collection Time	(JS) 1200	1220		1200
Check One: Debris[a]	X	X		X
Check One: Soil[a]	X	X		
Check One: Vermiculite Attic Insulation (VAI)[a]				
Equipment (check all that apply): SS Auger		X		
Equipment (check all that apply): SS Spoon	X	X		X
Equipment (check all that apply): SS Bowl	X	X		X
Equipment (check all that apply): 8-ounce Jar (2)	for TETRA TECH	for TETRA TECH		One 8-oz jar for tetratech only
Equipment (check all that apply): ~~Three~~ ONE 1-gallon ziplock bags for	URS (Then URS transferred sample into two plastic vials)	URS	TWO SMALL PLASTIC VIALS	—
Grab/Composite Information: Grab (Gr) or Composite (Co)	Gr Co	Gr Co	Gr Co	Gr Co
Grab/Composite Information: Grab Depth Interval (inches)	3-8 inches bgs.	8-17 inches bgs		3-8 inches bgs
Grab/Composite Information: No. of Composite Aliquots				
Grab/Composite Information: No. 1 Depth Interval (inches)				
Grab/Composite Information: No. 2 Depth Interval (inches)				
Grab/Composite Information: No. 3 Depth Interval (inches)				
Grab/Composite Information: No. 4 Depth Interval (inches)				
Grab/Composite Information: No. 5 Depth Interval (inches)				
Latitude (decimal degrees)	33.80556814	See left		See left
Longitude (decimal degrees)	-84.34327668	See left		See left
Sampling Location (draw aliquot locations relative to one another; also see associated figure) N ↑	See figure. Collected on south portion of "plateau" area. Sample homogenized before dispensing into jars and bag.	See figure. Collected same spot as at left.	(JS) and vials.	See figure. Small chips of material that appear to be vermiculite, taken from same material used to create G144-B$-59.

Notes: All samples: homogenized before dispensing into jars and bag. Rocks and organic debris were discarded during the homogenization process.

a = Collect debris or soil in one 8-ounce jar and VAI in three 1-gal. ziplock bags.

AAnyy with -AAn-B-##
ABnyy with -ABn-B-##
BSyy with -BS-##

-DUP

Site Name: Vermiculite Exfo W.R. Grace GAO 144				Page 2 of 5
TDD No.: TTEMI-05-003-0077			Date: 12/6/10	
Activity: Bulk Material for ADDITIONAL BULK MATERIAL SAMPLING				Round: —
Photo No./Facing	~~2 B/NORTHEAST~~ (3/NORTHEAST) 12/6/10	~~3 V/NORTHEAST~~ (4/NORTHEAST) 12/6/10		~~3 B/NE~~ (4/NORTHEAST) 12/6/10
Affix Label Here	ØØ145	ØØ146		00147
Station ID G144____	B$37	B$37		B$37
Sample Name G144-____	-B$-61	-B$-62		-B$-62CH
Field Duplicates				
Name(s) of Samplers	CHRIS KEISER	RANDY MAYER - AUGER CHR KEISER - MIX + DISPENSE		RANDY MAYER - AUGER ~~CHRIS KEISER~~ - SPOON
Sample Collection Time	1345	14ØØ		RAN SCHENDEL AND CHRIS KEISER 14ØØ
Check One: Debris[a]	X	X		X
Check One: Soil[a]	X	X		
Check One: Vermiculite Attic Insulation (VAI)[a]				
Equipment (check all that apply): SS Auger		X		X
Equipment (check all that apply): SS Spoon	X	X		X
Equipment (check all that apply): SS Bowl	X	X		X
Equipment (check all that apply): 8-ounce Jar	Two for Tetra Tech	Two for Tetra Tech		One for Tetra Tech only
Equipment (check all that apply): ~~Three 1-gallon ziplock bags~~ SMALL PLASTIC VIAL	Two for URS	Two for URS		—
Grab/Composite Information: Grab (Gr) or Composite (Co)	Gr Co	Gr Co	Gr Co	Gr Co
Grab/Composite Information: Grab Depth Interval (inches)	3-7 inches bgs	7-16 inches bgs		7-16 inches bgs
Grab/Composite Information: No. of Composite Aliquots				
Grab/Composite Information: No. 1 Depth Interval (inches)				
Grab/Composite Information: No. 2 Depth Interval (inches)				
Grab/Composite Information: No. 3 Depth Interval (inches)				
Grab/Composite Information: No. 4 Depth Interval (inches)				
Grab/Composite Information: No. 5 Depth Interval (inches)				
Latitude (decimal degrees)	33.8Ø576915	See left		See left
Longitude (decimal degrees)	-84.3435190 5	See left		See left
Sampling Location (draw aliquot locations relative to one another; also see associated figure) G144-B$-49 -144-B$-50 12/6/10 N↑	Collected at west end of the "plateau" area, very near where auger sample was collected on 3/30/10. See figure	See left. See figure.		See figure Small chips of material that appear to be vermiculite taken while auguring for sample G144-B$-62. These chips were not observed in the shallow depths above 7 inches bgs.

Notes:

a = Collect debris or soil in one 8-ounce jar and VAI in three 1-gal. ziplock bags.

AAnyy with -AAn-B-##
ABnyy with -ABn-B-##
BSyy with -BS-##

-DUP

Site Name: Vermiculite Exfo W.R. Grace GAO 144				Page 3 of 5
TDD No.: TTEMI-05-003-0077			Date: 12/6/10	
Activity: Bulk Material for ADDITIONAL BULK MATERIAL SAMPLING				Round: —
Photo No./Facing	~~4$/NORTH~~ 5/NORTH (B) 12/6/10	~~5$/NORTH~~ 6/NORTH (B) 12/6/10	~~5$/NORTH~~ 6/NORTH (B) 12/6/10	~~4$/NORTH~~ 5/NORTH (B) 12/6/10
Affix Label Here	ØØ148	ØØ15Ø	00151	00149
Station ID G144_____	B$38	B$38	B$38	B$38
Sample Name G144-_____	-B$-63	-B$-64	-B$-64CH	-B$-63CH
Field Duplicates				
Name(s) of Samplers	CHRIS KEISER	RANDY MAYER - AUGER CHRIS KEISER - MIXING DISPENSE	RANDY MAYER - AUGER JOHN SCHENDEL - SPOON	CHRIS KEISER
Sample Collection Time	1440	1455	1455	1440
Check One: Debris[a]	X	X	X	X
Check One: Soil[a]	X	X		
Check One: Vermiculite Attic Insulation (VAI)[a]				
Equipment (check all that apply): SS Auger		X	X	~~X~~ (B) 12/6/10
Equipment (check all that apply): SS Spoon	X	X	X	X
Equipment (check all that apply): SS Bowl	X	X	X	X
Equipment (check all that apply): 8-ounce Jar	Two for Tetra Tech	Two for Tetra Tech	One for Tetra Tech only	One for Tetra Tech only
Equipment (check all that apply): ~~Three 1-gallon ziplock bags~~ SMALL PLASTIC VIAL	Two for URS	Two for URS	—	—
Grab/Composite Information: Grab (Gr) or Composite (Co)	(Gr) Co	(Gr) Co	(Gr) Co	(Gr) Co
Grab/Composite Information: Grab Depth Interval (inches)	3-7 inches bgs	7-13 inches bgs	7-13 inches bgs	3-7 inches bgs
Grab/Composite Information: No. of Composite Aliquots				
Grab/Composite Information: No. 1 Depth Interval (inches)				
Grab/Composite Information: No. 2 Depth Interval (inches)				
Grab/Composite Information: No. 3 Depth Interval (inches)				
Grab/Composite Information: No. 4 Depth Interval (inches)				
Grab/Composite Information: No. 5 Depth Interval (inches)				
Latitude (decimal degrees)	33.80565229	See left	See left	See left
Longitude (decimal degrees)	-84.34327231	See left	See left	See left
Sampling Location (draw aliquot locations relative to one another; also see associated figure) N ↑	See figure. Collected in central area of plateau.	See figure. There was construction debris in this depth interval, some pieces with smooth, finished flat surface.	See figure. Small chips of material that appear to be vermiculite taken from same depth interval as for sample G144-B$-64.	See figure. Small chips of material that appear to be vermiculite taken from same depth interval as for sample G144-B$-63.

Notes:

a = Collect debris or soil in one 8-ounce jar and VAI in three 1-gal. ziplock bags.

AAnyy with -AAn-B-##
ABnyy with -ABn-B-##
BSyy with -BS-##

-DUP

Site Name: Vermiculite Exfo W.R. Grace GAO 144				Page 4 of 5
TDD No.: TTEMI-05-003-0077			Date: 12/6/14	
Activity: Bulk Material for ADDITIONAL BULK MATERIAL SAMPLING				Round: —
No./Facing	~~6/NORTH~~ 7/NORTH (JS) 12/6/14	~~7/NORTH~~ 8/NORTH (JS) 12/6/14		~~7/NORTH~~ 8/NORTH (JS) 12/6/14
Affix Label Here	00152	00153		00154
Station ID G144	B$39	B$39		B$39
Sample Name G144-	-B$-65	-B$-66		-B$-66CH
Field Duplicates				
Name(s) of Samplers	CHRIS KEISER	RANDY MAYER - AUGER CHRIS KEISER - MIX + DISPERSE		RANDY MAYER - AUGER JOHN SCHANDER - SPOON
Sample Collection Time	1540	1550		1550
Check One: Debris[a]	X	X		X
Check One: Soil[a]	X	X		
Check One: Vermiculite Attic Insulation (VAI)[a]				
Equipment (check all that apply): SS Auger		X		X
Equipment (check all that apply): SS Spoon	X	X		X
Equipment (check all that apply): SS Bowl	X	X		X
Equipment (check all that apply): 8-ounce Jar	Two for Total Tech	Two for Total Tech		One for Total Tech only
Equipment (check all that apply): ~~Three 1-gallon ziplock bags~~ Small Attic VAI	Two for URS	Two for URS		—
Grab/Composite Information: Grab (Gr) or Composite (Co)	Gr Co	Gr Co	Gr Co	Gr Co
Grab Depth Interval (inches)	3-6 inches bgs	6-16 inches bgs		6-16 inches bgs
No. of Composite Aliquots				
No. 1 Depth Interval (inches)				
No. 2 Depth Interval (inches)				
No. 3 Depth Interval (inches)				
No. 4 Depth Interval (inches)				
No. 5 Depth Interval (inches)				
Latitude (decimal degrees)	33.8056360	See bgt		See bgt
Longitude (decimal degrees)	-84.3430557	See bgt		See bgt
Sampling Location (draw aliquot locations relative to one another; also see associated figure) N↑	See figure. Collected from an elevated area near eastern extent of plateau, just north of two trees. There was a large rock in the hole.	See figure. See bgt. Debris in sample included what appeared to be asphalt and perhaps stucco from		See figure. See bgt. Small chips of material that appeared to be vermiculite, taken from same depth interval as G144-B$-66.
Notes:				

a = Collect debris or soil in one 8-ounce jar and VAI in three 1-gal. ziplock bags.

AAnyy with -AAn-B-##
ABnyy with -ABn-B-##
BSyy with -BS-##

-DUP

Site Name: Vermiculite Exfo W.R. Grace GAO 144				Page 5 of 5
TDD No.: TTEMI-05-003-0077			Date: 12/6/1ϕ	
Activity: Bulk Material for ADDITIONAL BULK MATERIAL SAMPLING				Round: —
Photo No./Facing	~~8/NORTH~~ 9/NORTH (B) 12/6/1ϕ	~~9/NORTH~~ 11/NORTH ~~East to NORTH~~ (B) 12/6/1ϕ	~~8/NORTH~~ 9/NORTH (B) 12/6/1ϕ	
Affix Label Here	ϕϕ155	ϕϕ156	00157	
Station ID G144	B$4ϕ	B$4ϕ	B$40	
Sample Name G144-	-B$-67	-B$-68	-B$-67CH	
Field Duplicates				
Name(s) of Samplers	CHRIS KEASER	RANDY MAYER - ANGEL CHRIS KEASER - MK + DISPENSE	CHRIS KEASER	
Sample Collection Time	164ϕ	165ϕ	164ϕ	
Check One: Debris[a]	X	X	X	
Check One: Soil[a]	X	X		
Check One: Vermiculite Attic Insulation (VAI)[a]				
Equipment (check all that apply): SS Auger		X		
Equipment (check all that apply): SS Spoon	X	X	X	
Equipment (check all that apply): SS Bowl	X	X	X	
Equipment (check all that apply): 8-ounce Jar	Two for Total Tech	Two for Total Tech	One baggie for Total Tech only	to be transferred to 4 liter enter on 8-oz jar.
Equipment (check all that apply): ~~Three 1-gallon ziplock bags~~	Two for URS	Two for URS	—	
Grab/Composite Information: Grab (Gr) or Composite (Co)	Gr Co	Gr Co	Gr Co	Gr Co
Grab Depth Interval (inches)	3-5 inches bgs	5-12 inches bgs.	3 inches deep (bgs)	
No. of Composite Aliquots	(B) 12/6/1ϕ			
No. 1 Depth Interval (inches)				
No. 2 Depth Interval (inches)				
No. 3 Depth Interval (inches)				
No. 4 Depth Interval (inches)				
No. 5 Depth Interval (inches)				
Latitude (decimal degrees)	33.845764083	See 6ft.	See 6ft	
Longitude (decimal degrees)	-84.343238ϕ4	See 6ft.	See 6ft.	
Sampling Location (draw aliquot locations relative to one another; also see associated figure) N↑	See figure. collected from near north edge of "plateau" area.	See figure See 6ft.	See figure a small chip that appears to be vermiculite found at 3 inches bgs. (other pieces at shallower depths were observed but not collected)	

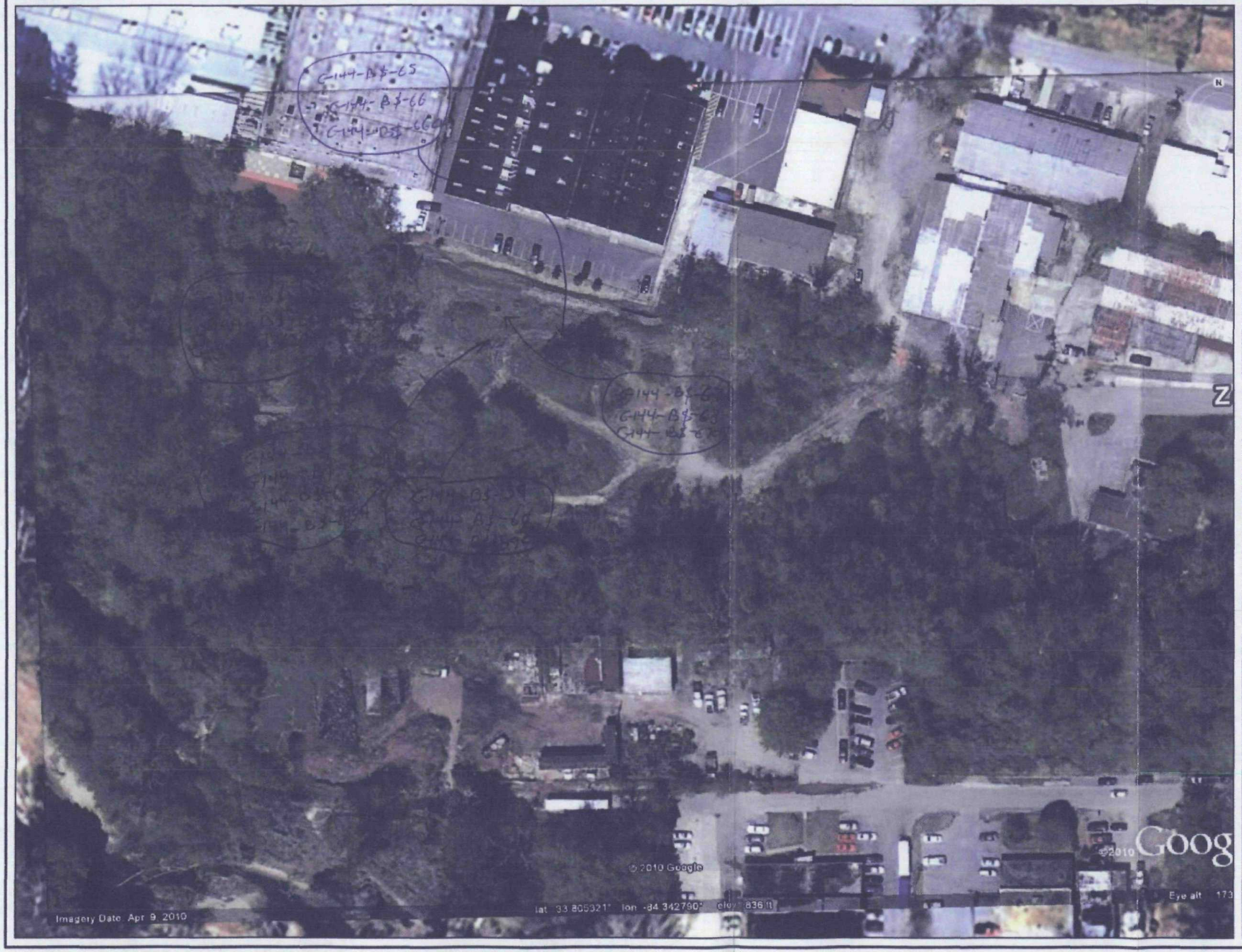
Notes:

a = Collect debris or soil in one 8-ounce jar and VAI in three 1-gal. ziplock bags.

AAnyy with -AAn-B-##
ABnyy with -ABn-B-##
BSyy with -BS-##

-DUP

12/6/10: ADDITIONAL BULK SAMPLING



12/6/10

ADDITIONAL BULK MATERIAL SAMPLING

N
W E
S

0 25 50 100
Feet

Aerial Photograph;
Google Earth 2010

United States
Environmental Protection Agency

VERMICULITE EXFOLIATION SITE
GAO 144
ATLANTA,
DEKALB COUNTY,
GEORGIA
TDD No. TTEMI-05-003-0077

WORKING MAP
12/6/10

TETRA TECH

APPENDIX D

PHOTOGRAPHIC LOG

(15 Pages)

OFFICIAL PHOTOGRAPH NO. 1
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number:	TTEMI-05-003-0077	**Location:**	1167 Zonolite Place NE Atlanta, DeKalb County, Georgia 30306
Orientation:	North	**Date:**	March 24, 2010
Photographer:	John Schendel	**Witness:**	None

Subject: The meteorological station positioned along the northern perimeter of the GAO 144 site.

OFFICIAL PHOTOGRAPH NO. 2
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number:	TTEMI-05-003-0077	**Location:**	1167 Zonolite Place NE Atlanta, DeKalb County, Georgia 30306
Orientation:	North	**Date:**	March 24, 2010
Photographer:	John Schendel	**Witness:**	None

Subject: Background air samples G144-BKA-01 and G144-BKA-01-DUP associated with Activity-Based Air Sampling Rounds 1 and 2. These samples were located along the northern perimeter of the GAO 144 site.

OFFICIAL PHOTOGRAPH NO. 3
U.S. ENVIRONMENTAL PROTECTION AGENCY

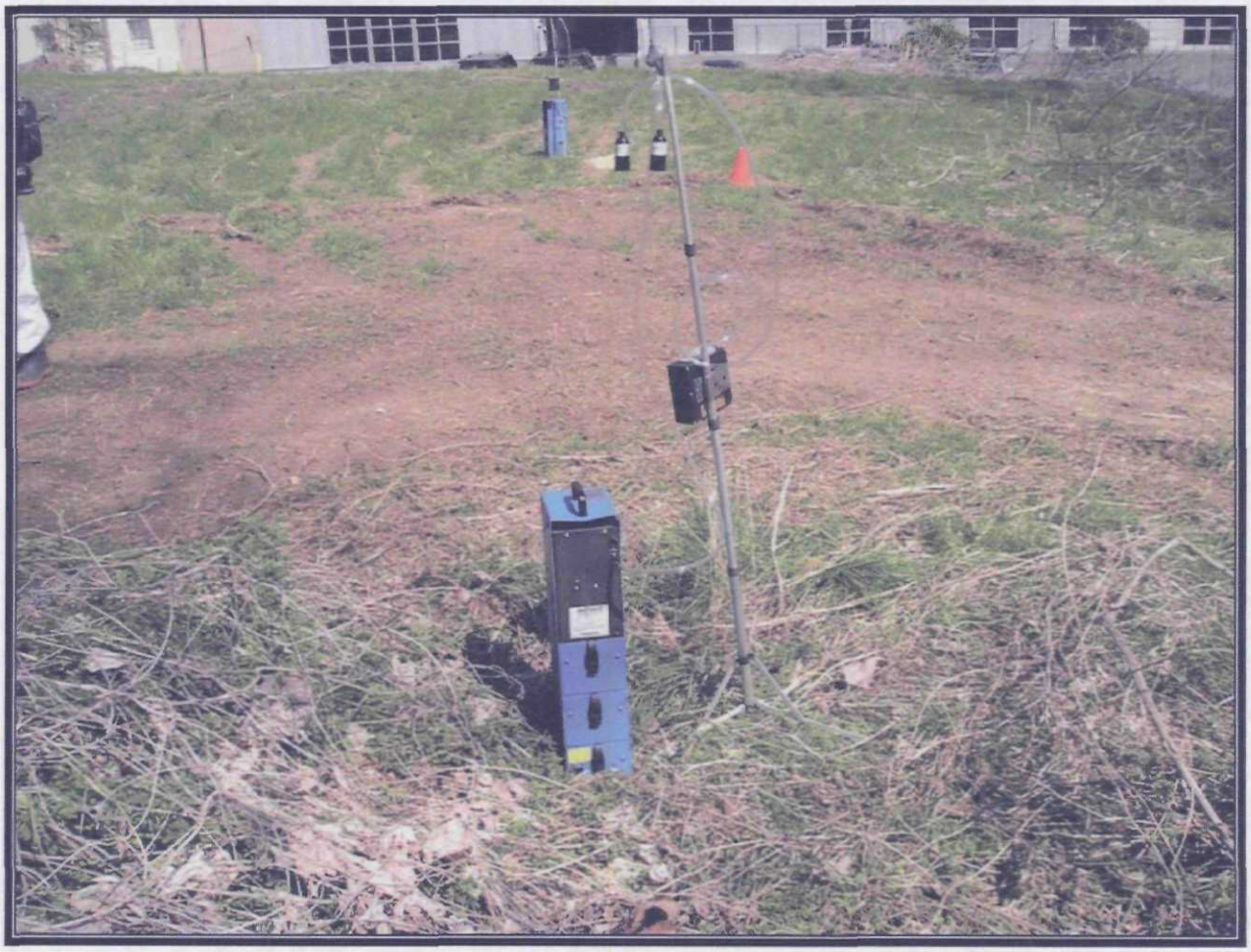
TDD Number:	TTEMI-05-003-0077	**Location:**	1167 Zonolite Place NE Atlanta, DeKalb County, Georgia 30306
Orientation:	North	**Date:**	March 24, 2010
Photographer:	John Schendel	**Witness:**	Randy Mayer, Tetra Tech

Subject: Raking in the area of Activity-Based Air Sampling Round No. 1. The activity was conducted on an elevated, sloped plateau area located in the northern portion of the site. This activity involved the collection of one backpack air sample set (on person raking; samples G144-AB1-AH-10, G144-AB1-AH-10-DUP, G144-AB1-AL-11 and G144-AB1-AH-11-DUP); one stationary upwind perimeter air sample set (see Official Photograph No. 4); and three sets of stationary downwind perimeter air samples (blue boxes; for close-up of one, see Official Photograph No. 5).

OFFICIAL PHOTOGRAPH NO. 4
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number:	TTEMI-05-003-0077	**Location:**	1167 Zonolite Place NE Atlanta, DeKalb County, Georgia 30306
Orientation:	North	**Date:**	March 24, 2010
Photographer:	John Schendel	**Witness:**	None

Subject: Stationary upwind perimeter air sample set (samples G144-AB1-PH-02, G144-AB1-PH-02-DUP, G144-AB1-PL-03 and G144-AB1-PL-03-DUP) associated with Activity-Based Air Sampling Round No. 1. This upwind perimeter air sampling location was adjacent to the southwestern perimeter of the activity area.



OFFICIAL PHOTOGRAPH NO. 5
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number:	TTEMI-05-003-0077	**Location:**	1167 Zonolite Place NE Atlanta, DeKalb County, Georgia 30306
Orientation:	North	**Date:**	March 24, 2010
Photographer:	John Schendel	**Witness:**	None

Subject: Stationary downwind perimeter air sample set (in foreground, samples G144-AB1-PH-08 and G144-AB1-PL-09) associated with Activity-Based Air Sampling Round No. 1. This downwind perimeter air sampling location was adjacent to the southeastern perimeter of the activity area. Another stationary downwind perimeter air sample set (samples G144-AB1-PH-04 and G144-AB1-PL-05) is visible in the background.

OFFICIAL PHOTOGRAPH NO. 6
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number:	TTEMI-05-003-0077	**Location:**	1167 Zonolite Place NE Atlanta, DeKalb County, Georgia 30306
Orientation:	North	**Date:**	March 24, 2010
Photographer:	John Schendel	**Witness:**	None

Subject: Sweeping in the area of Activity-Based Air Sampling Round No. 2 (both raking and sweeping were conducted during this activity). The activity was conducted adjacent to an existing building located in the eastern portion of the GAO 144 site. This building was a former office building for the vermiculite exfoliation facility, and is currently occupied by the Atlanta Soto Zen Center. The activity involved the collection of one backpack air sample set (on person, samples G144-AB2-AH-20 and G144-AB2-AL-21); two stationary upwind perimeter air sample sets (visible in center foreground [samples G144-AB2-PH-14 and G144-AB2-PL-15]and center background [samples G144-AB2-PH-12 and G144-AB2-PL-13]); and two sets of stationary downwind perimeter air samples (one visible at upper left [samples G144-AB2-PH-18 and G144-AB2-PL-19] and one not shown [samples G144-AB2-PH-16 and G144-AB2-PL-17]).

OFFICIAL PHOTOGRAPH NO. 7
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number:	TTEMI-05-003-0077	**Location:**	1167 Zonolite Place NE Atlanta, DeKalb County, Georgia 30306
Orientation:	North	**Date:**	March 25, 2010
Photographer:	John Schendel	**Witness:**	None

Subject: Background air samples G144-BKA-24 and G144-BKA-24-DUP associated with Activity-Based Air Sampling Rounds 3 and 4. These samples were located along the northern perimeter of the GAO 144 site and east of the locations for the two rounds of activity-based air sampling.

OFFICIAL PHOTOGRAPH NO. 8
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number:	TTEMI-05-003-0077	**Location:**	1167 Zonolite Place NE Atlanta, DeKalb County, Georgia 30306
Orientation:	North	**Date:**	March 25, 2010
Photographer:	John Schendel	**Witness:**	None

Subject: Raking in the area of Activity-Based Air Sampling Round No. 3. The activity was conducted in a wooded area at the intersection of unpaved walking trails. This location is centrally located on the GAO 144 site, and west of where the main structures of the vermiculite exfoliation facility are believed to have stood. This activity involved collecting of one backpack air sample set (on person, samples G144-AB3-AH-33 and G144-AB3-AL-34); one stationary upwind perimeter air sample set (not shown); and three sets of stationary downwind perimeter air samples (blue boxes; for close-up, see Official Photo. No. 9).

OFFICIAL PHOTOGRAPH NO. 9
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number:	TTEMI-05-003-0077	**Location:**	1167 Zonolite Place NE Atlanta, DeKalb County, Georgia 30306
Orientation:	North	**Date:**	March 25, 2010
Photographer:	John Schendel	**Witness:**	None

Subject: Stationary downwind perimeter air sample set (samples G144-AB3-PH-27 and G144-AB3-PL-28) associated with Activity-Based Air Sampling Round No. 3. This downwind perimeter air sampling location was adjacent to the northern perimeter of the activity area.

OFFICIAL PHOTOGRAPH NO. 10
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number:	TTEMI-05-003-0077	**Location:**	1167 Zonolite Place NE Atlanta, DeKalb County, Georgia 30306
Orientation:	North	**Date:**	March 25, 2010
Photographer:	John Schendel	**Witness:**	None

Subject: Raking in the area of Activity-Based Air Sampling Round No. 4. The activity was conducted near a drainage ditch that runs along the northern perimeter of the GAO 144 site. This location is in the vicinity of where the northern portion of the main structures of the vermiculite exfoliation facility is believed to have stood, and is also where a railroad spur was located. This activity involved collecting one backpack air sample set (on person, samples G144-AB4-AH-43 and G144-AB4-AL-44); two stationary upwind perimeter air sample sets (one not shown [samples G144-AB4-PH-35 and G144-AB4-PL-36] and the other visible in the background [samples G144-AB4-PH-37 and G144-AB4-PL-38]); and two sets of stationary downwind perimeter air samples (not shown).

OFFICIAL PHOTOGRAPH NO. 11
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number:	TTEMI-05-003-0077	**Location:**	1167 Zonolite Place NE Atlanta, DeKalb County, Georgia 30306
Orientation:	North	**Date:**	March 25, 2010
Photographer:	John Schendel	**Witness:**	None

Subject: Stationary upwind perimeter air sample set (samples G144-AB4-PH-37 and G144-AB4-PL-38) associated with Activity-Based Air Sampling Round No. 4. This upwind perimeter air sampling location was adjacent to the northwest corner of the activity area.

OFFICIAL PHOTOGRAPH NO. 12
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number:	TTEMI-05-003-0077	**Location:**	1167 Zonolite Place NE Atlanta, DeKalb County, Georgia 30306
Orientation:	North	**Date:**	March 30, 2010
Photographer:	John Schendel	**Witness:**	Randy Mayer, Tetra Tech

Subject: Sampling location for additional bulk material samples G144-BS-49 (0 to 12 inches below ground surface) and G144-BS-50 (12 to 24 inches below ground surface). The samples were collected from a mound of mixed debris and soil located in the western portion of the elevated, sloped plateau area. These bulk samples are not associated with any activity-based air sampling rounds.

OFFICIAL PHOTOGRAPH NO. 13
U.S. ENVIRONMENTAL PROTECTION AGENCY

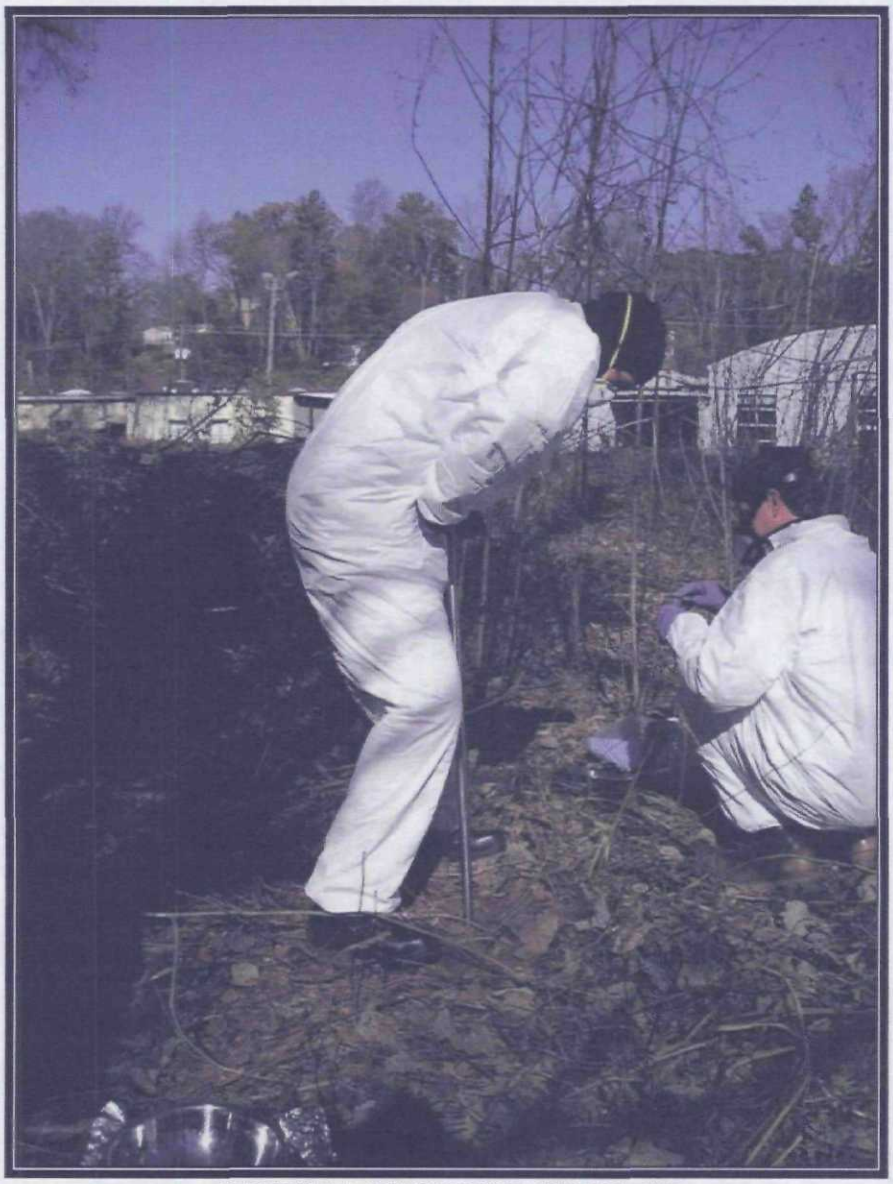
TDD Number:	TTEMI-05-003-0077	**Location:**	1167 Zonolite Place NE Atlanta, DeKalb County, Georgia 30306
Orientation:	East-Southeast	**Date:**	March 30, 2010
Photographer:	John Schendel	**Witness:**	None

Subject: Sampling location for additional bulk material sample G144-BS-56, collected from just inside the doorway to the crawl space beneath the former office building for the vermiculite exfoliation facility. This building is currently occupied by the Atlanta Soto Zen Center. This bulk sample is not associated with any activity-based air sampling rounds.

OFFICIAL PHOTOGRAPH NO. 14
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number:	TTEMI-05-003-0077	**Location:**	1167 Zonolite Place NE Atlanta, DeKalb County, Georgia 30306
Orientation:	West	**Date:**	April 15, 2010
Photographer:	John Schendel	**Witness:**	Courtney Roden, Tetra Tech

Subject: Sampling location for one of five aliquots collected for additional bulk material sample G144-BS-57. The aliquots of the 5-point composite sample were collected from undisturbed locations near the northern perimeter of parcel No. 44, then occupied by Habersham Gardens Landscape Services and Garden Center. This bulk composite sample is not associated with any activity-based air sampling rounds.



OFFICIAL PHOTOGRAPH NO. 15
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number:	TTEMI-05-003-0077	**Location:**	1167 Zonolite Place NE Atlanta, DeKalb County, Georgia 30306
Orientation:	North	**Date:**	December 6, 2010
Photographer:	John Schendel	**Witness:**	Randy Mayer, Tetra Tech

Subject: Sampling location for additional bulk material samples G144-BS-59, G144-BS-59CH (both 3 to 8 inches below ground surface), and G144-BS-60 (8 to 17 inches below ground surface), collected in the southern portion of the elevated, sloped plateau area. These bulk samples are not associated with any activity-based air sampling rounds.

APPENDIX E

TABLE OF WITNESSES

(Two Pages)

TABLE OF WITNESSES

VERMICULITE EXFOLIATION SITE GAO 144
ATLANTA, DEKALB COUNTY, GEORGIA

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Superfund Technical Assessment and Response Team (START)
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Ms. Courtney Roden
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TABLE OF WITNESSES

VERMICULITE EXFOLIATION SITE GAO 144
ATLANTA, DEKALB COUNTY, GEORGIA

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APPENDIX F

SAMPLE CHAINS-OF-CUSTODY AND SPREADSHEETS

(15 Pages)

CHAIN OF CUSTODY RECORD

No: 10-0128-04/01/10-0001

Site #: 10-~~028~~ 1 JS 4/1/10

Contact Name: John Schendel

Contact Phone: 678-775-3089

Lab: IATL

Lab Phone: 856-231-9449

Lab #	Sample #	Location	Analyses	Matrix	Collection Method	Sample Type	Collected	Sample Time	Numb Cont	Container	Preservative
	00002	GAO 144	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	Bulk Solid	Composite, 6-pt.	Field Sample	3/24/2010	1745	1	8 oz glass jar	None
	00005	GAO 144	EPA/600/R-04/004	Vermiculite Attic Insulation	Composite, 2-pt., from attic	Field Sample	3/25/2010	1430	3	1-gallon ziplock bags	None
	00006	GAO 144	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	Bulk Solid	Composite, 9-pt., 0-2 in. bgs	Field Sample	3/25/2010	1500	1	8 oz glass jar	None
	00009	GAO 144	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	Bulk Solid	Grab, 0-12 in. bgs	Field Sample	3/30/2010	1020	1	8 oz glass jar	None
	00010	GAO 144	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	Bulk Solid	Grab, 12-15 in. bgs	Field Sample	3/30/2010	1045	1	8 oz glass jar	None
	00013	GAO 144	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	Bulk Solid	Grab, 0-4 in. bgs	Field Sample	3/30/2010	1200	1	8 oz glass jar	None
	00014	GAO 144	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	Bulk Solid	Grab, 0-1.5 in. bgs	Field Sample	3/30/2010	1255	1	8 oz glass jar	None

Special Instructions: Refer to the instructions on sample analysis contained in Tetra Tech's Excel spreadsheet and in the EPA's Request for Analytical Services. Please note: Analyze these samples by fast turnaround per Nardina Turner's direction.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
SHIP SAMPLES TO LABORATORY	John Schendel	4/1/10									

CHAIN OF CUSTODY RECORD

No: 10-0128-07/22/10-0001

Site #: ~~10-028~~ 10-0128 (JS)

Contact Name: John Schendel

Contact Phone: 678-775-3089

Lab: IATL

Lab Phone: 856-231-9449

Lab #	Sample #	Location	Analyses	Matrix	Sample Type	Collected	Sample Time	Numb Cont	Container	Preservative
	00001	GAO 144	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	Bulk Solid	Field Sample	3/24/2010	1510	1	8 oz glass jar	None
	00003	GAO 144	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	Bulk Solid	Field Sample	3/25/2010	1140	1	8 oz glass jar	None
	00004	GAO 144	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	Bulk Solid	Field Sample	3/25/2010	1410	1	8 oz glass jar	None
	00007	GAO 144	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	Bulk Solid	Field Sample	3/30/2010	0930	1	8 oz glass jar	None
	00008	GAO 144	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	Bulk Solid	Field Sample	3/30/2010	0945	1	8 oz glass jar	None
	00011	GAO 144	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	Bulk Solid	Field Sample	3/30/2010	1120	1	8 oz glass jar	None
	00012	GAO 144	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	Bulk Solid	Field Sample	3/30/2010	1120	1	8 oz glass jar	None
	00069	GAO 144	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	Bulk Solid	Field Sample	4/15/2010	0850	2	8 oz glass jar	None
	00070	GAO 144	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	Bulk Solid	Field Sample	4/15/2010	0940	2	8 oz glass jar	None

Special Instructions: Refer to instructions on sample analysis contained in Tetra Tech's Excel spreadsheet and in EPA's Request for Analytical Services

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
Ship sample to lab	John Schendel	7/22/10									

GAO 144 Solid Samples for IATL

	Site_No	Samp_No	Location	SampleDate	SampleTime	SampleType	Matrix	SampleCollection	Sampler	Remarks	Container	No_Container	Storage	Preservation	Analyses	Item No.
Bulk Solid Sampling	10-0128	00001	GAO 144	3/24/2010	1510	Field Sample	Bulk Solid	Composite, 5-pt.; 0-2 inches bgs	Eric Turner	ABS - Round 1: Raking	8 oz glass jar	1	Ambient	None	CARB 435; ASTM D4643-00; ASTM D422-63 (2007)	1, 2, and 3
	10-0128	00002	GAO 144	3/24/2010	1745	Field Sample	Bulk Solid	Composite, 6-pt.; one aliquot from pile of swept debris atop asphalt, and five aliquots from soil at 0-1.5 or 0-2 inches bgs.	Eric Turner	ABS - Round 2: Raking and Sweeping	8 oz glass jar	1	Ambient	None	CARB 435; ASTM D4643-00; ASTM D422-63 (2007)	1, 2, and 3
	10-0128	00003	GAO 144	3/25/2010	1140	Field Sample	Bulk Solid	Composite, 5-pt.; 0-2 inches bgs	Eric Turner	ABS - Round 3: Raking	8 oz glass jar	1	Ambient	None	CARB 435; ASTM D4643-00; ASTM D422-63 (2007)	1, 2, and 3
	10-0128	00004	GAO 144	3/25/2010	1410	Field Sample	Bulk Solid	Composite, 5-pt.; 0-1 inch bgs (1 pt.) and 0-2 inches bgs (4 pts.)	Eric Turner	ABS - Round 4: Raking	8 oz glass jar	1	Ambient	None	CARB 435; ASTM D4643-00; ASTM D422-63 (2007)	1, 2, and 3
	10-0128	00005	GAO 144	3/25/2010	1430	Field Sample	Vermiculite Attic Insulation	Composite, 2-pt.; one aliquot from one attic space and the other aliquot from a separate attic space, both in the same structure.	Randy Mayer	Additional Bulk Sampling	1-gallon ziplock bags	3	Ambient	None	EPA/600/R-04/004	4
	10-0128	00006	GAO 144	3/25/2010	1500	Field Sample	Bulk Solid	Composite, 9-pt.; 0-2 inches bgs	Eric Turner	Additional Bulk Sampling	8 oz glass jar	1	Ambient	None	CARB 435; ASTM D4643-00; ASTM D422-63 (2007)	1, 2, and 3
	10-0128	00007	GAO 144	3/30/2010	0930	Field Sample	Bulk Solid	Grab; 0-12 inches bgs	Randy Mayer	Additional Bulk Sampling	8 oz glass jar	1	Ambient	None	CARB 435; ASTM D4643-00; ASTM D422-63 (2007)	1, 2, and 3
	10-0128	00008	GAO 144	3/30/2010	0945	Field Sample	Bulk Solid	Grab; 12-24 inches bgs	Randy Mayer	Additional Bulk Sampling	8 oz glass jar	1	Ambient	None	CARB 435; ASTM D4643-00; ASTM D422-63 (2007)	1, 2, and 3
	10-0128	00009	GAO 144	3/30/2010	1020	Field Sample	Bulk Solid	Grab; 0-12 inches bgs	Randy Mayer	Additional Bulk Sampling	8 oz glass jar	1	Ambient	None	CARB 435; ASTM D4643-00; ASTM D422-63 (2007)	1, 2, and 3
	10-0128	00010	GAO 144	3/30/2010	1045	Field Sample	Bulk Solid	Grab; 12-15 inches bgs	Randy Mayer	Additional Bulk Sampling	8 oz glass jar	1	Ambient	None	CARB 435; ASTM D4643-00; ASTM D422-63 (2007)	1, 2, and 3
	10-0128	00011	GAO 144	3/30/2010	1120	Field Sample	Bulk Solid	Grab; 0-12 inches bgs	Randy Mayer	Additional Bulk Sampling	8 oz glass jar	1	Ambient	None	CARB 435; ASTM D4643-00; ASTM D422-63 (2007)	1, 2, and 3
	10-0128	00012	GAO 144	3/30/2010	1120	Field Sample	Bulk Solid	Grab; 12-24 inches bgs	Randy Mayer	Additional Bulk Sampling	8 oz glass jar	1	Ambient	None	CARB 435; ASTM D4643-00; ASTM D422-63 (2007)	1, 2, and 3
	10-0128	00013	GAO 144	3/30/2010	1200	Field Sample	Bulk Solid	Grab; 0-4 inches bgs	John Schendel	Additional Bulk Sampling	8 oz glass jar	1	Ambient	None	CARB 435; ASTM D4643-00; ASTM D422-63 (2007)	1, 2, and 3
	10-0128	00014	GAO 144	3/30/2010	1255	Field Sample	Bulk Solid	Grab; 0-1.5 inches bgs	John Schendel	Additional Bulk Sampling	8 oz glass jar	1	Ambient	None	CARB 435; ASTM D4643-00; ASTM D422-63 (2007)	1, 2, and 3
	10-0128	00069	GAO 144	4/15/2010	0850	Field Sample	Bulk Solid	Composite, 5-pt.; 0-2.5 inches bgs	Courtney Roden	Additional Bulk Sampling	8 oz glass jar	2	Ambient	None	CARB 435; ASTM D4643-00; ASTM D422-63 (2007)	1, 2, and 3
	10-0128	00070	GAO 144	4/15/2010	0940	Field Sample	Bulk Solid	Composite, 5-pt.; 0-1 inch bgs (1 pt.), 0-2.5 inches bgs (4 pts.)	Courtney Roden	Additional Bulk Sampling	8 oz glass jar	2	Ambient	None	CARB 435; ASTM D4643-00; ASTM D422-63 (2007)	1, 2, and 3

Samples shaded in purple were shipped to IATL in April 2010.
Unshaded samples were shipped to IATL in July 2010.

PROJECT 11-0122

CHAIN OF CUSTODY RECORD

Vermiculite GAO 144

Contact Name: John Schendel

Contact Phone: 678-775-3089

No: 11-0122-12/06/10-0001

Lab: Batta Environmental Assoc., Inc.

Lab Phone: 302-737-3376

Lab #	Sample #	Location	Analyses	Matrix	Sample Type	Collected	Sample Time	Numb Cont	Container	Preservative
	00142	GAO 144	CARB 435, ASTM D4643-00,ASTM D422-63 (2007)	Bulk Solid	Field Sample	12/6/2010	1200	2	8 oz glass jar	None
	00143	GAO 144	Modified CARB 435	Solid Chip	Field Sample	12/6/2010	1200	1	8 oz glass jar	None
	00144	GAO 144	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	Bulk Solid	Field Sample	12/6/2010	1220	2	8 oz glass jar	None
	00145	GAO 144	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	Bulk Solid	Field Sample	12/6/2010	1345	2	8 oz glass jar	None
	00146	GAO 144	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	Bulk Solid	Field Sample	12/6/2010	1400	2	8 oz glass jar	None
	00147	GAO 144	Modified CARB 435	Solid Chip	Field Sample	12/6/2010	1400	1	8 oz glass jar	None
	00148	GAO 144	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	Bulk Solid	Field Sample	12/6/2010	1440	2	8 oz glass jar	None
	00149	GAO 144	Modified CARB 435	Solid Chip	Field Sample	12/6/2010	1440	1	8 oz glass jar	None
	00150	GAO 144	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	Bulk Solid	Field Sample	12/6/2010	1455	2	8 oz glass jar	None
	00151	GAO 144	Modified CARB 435	Solid Chip	Field Sample	12/6/2010	1455	1	8 oz glass jar	None
	00152	GAO 144	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	Bulk Solid	Field Sample	12/6/2010	1540	2	8 oz glass jar	None
	00153	GAO 144	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	Bulk Solid	Field Sample	12/6/2010	1550	2	8 oz glass jar	None
	00154	GAO 144	Modified CARB 435	Solid Chip	Field Sample	12/6/2010	1550	1	4 oz glass jar	None
	00155	GAO 144	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	Bulk Solid	Field Sample	12/6/2010	1640	2	8 oz glass jar	None
	00156	GAO 144	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	Bulk Solid	Field Sample	12/6/2010	1650	2	8 oz glass jar	None
	00157	GAO 144	Modified CARB 435	Solid Chip	Field Sample	12/6/2010	1640	1	4 oz glass jar	None

Special Instructions: 14-Day Turnaround Time

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
Ship Samples to Lab	John Schendel	12/13/10									

GAO 144 Solid Samples Collected December 6, 2010 and Sent to Batta

Bulk Solid Sampling Conducted December 6, 2010

Site_No	Samp_No	Location	SampleDate	SampleTime	SampleType	Matrix	SampleCollection	Sampler	Remarks	Container	No_Container	Storage	Preservation	Analyses	Item No.
11-0122	00142	GAO 144	12/6/2010	1200	Field Sample	Bulk Solid	Grab; 3-8 inches bgs	Chris Keiser	Additional Bulk Sampling	8 oz glass jar	2	Ambient	None	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	1, 2, and 3
11-0122	00143	GAO 144	12/6/2010	1200	Field Sample	Solid Chip	Grab; 3-8 inches bgs	Chris Keiser	Additional Bulk Sampling	8 oz glass jar	1	Ambient	None	Modified CARB 435	1
11-0122	00144	GAO 144	12/6/2010	1220	Field Sample	Bulk Solid	Grab; 8-17 inches bgs	Randy Mayer; Chris Keiser	Additional Bulk Sampling	8 oz glass jar	2	Ambient	None	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	1, 2, and 3
11-0122	00145	GAO 144	12/6/2010	1345	Field Sample	Bulk Solid	Grab; 3-7 inches bgs	Chris Keiser	Additional Bulk Sampling	8 oz glass jar	2	Ambient	None	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	1, 2, and 3
11-0122	00146	GAO 144	12/6/2010	1400	Field Sample	Bulk Solid	Grab; 7-16 inches bgs	Randy Mayer; Chris Keiser	Additional Bulk Sampling	8 oz glass jar	2	Ambient	None	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	1, 2, and 3
11-0122	00147	GAO 144	12/6/2010	1400	Field Sample	Solid Chip	Grab; 7-16 inches bgs	Randy Mayer; Chris Keiser; John Schendel	Additional Bulk Sampling	8 oz glass jar	1	Ambient	None	Modified CARB 435	1
11-0122	00148	GAO 144	12/6/2010	1440	Field Sample	Bulk Solid	Grab; 3-7 inches bgs	Chris Keiser	Additional Bulk Sampling	8 oz glass jar	2	Ambient	None	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	1, 2, and 3
11-0122	00149	GAO 144	12/6/2010	1440	Field Sample	Solid Chip	Grab; 3-7 inches bgs	Chris Keiser	Additional Bulk Sampling	8 oz glass jar	1	Ambient	None	Modified CARB 435	1
11-0122	00150	GAO 144	12/6/2010	1455	Field Sample	Bulk Solid	Grab; 7-13 inches bgs	Randy Mayer; Chris Keiser	Additional Bulk Sampling	8 oz glass jar	2	Ambient	None	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	1, 2, and 3
11-0122	00151	GAO 144	12/6/2010	1455	Field Sample	Solid Chip	Grab; 7-13 inches bgs	Randy Mayer; John Schendel	Additional Bulk Sampling	8 oz glass jar	1	Ambient	None	Modified CARB 435	1
11-0122	00152	GAO 144	12/6/2010	1540	Field Sample	Bulk Solid	Grab; 3-6 inches bgs	Chris Keiser	Additional Bulk Sampling	8 oz glass jar	2	Ambient	None	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	1, 2, and 3
11-0122	00153	GAO 144	12/6/2010	1550	Field Sample	Bulk Solid	Grab; 6-16 inches bgs	Randy Mayer; Chris Keiser	Additional Bulk Sampling	8 oz glass jar	2	Ambient	None	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	1, 2, and 3
11-0122	00154	GAO 144	12/6/2010	1550	Field Sample	Solid Chip	Grab; 6-16 inches bgs	Randy Mayer; John Schendel	Additional Bulk Sampling	4 oz glass jar	1	Ambient	None	Modified CARB 435	1
11-0122	00155	GAO 144	12/6/2010	1640	Field Sample	Bulk Solid	Grab; 3-5 inches bgs	Chris Keiser	Additional Bulk Sampling	8 oz glass jar	2	Ambient	None	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	1, 2, and 3
11-0122	00156	GAO 144	12/6/2010	1650	Field Sample	Bulk Solid	Grab; 5-12 inches bgs	Randy Mayer; Chris Keiser	Additional Bulk Sampling	8 oz glass jar	2	Ambient	None	CARB 435, ASTM D4643-00, ASTM D422-63 (2007)	1, 2, and 3
11-0122	00157	GAO 144	12/6/2010	1640	Field Sample	Solid Chip	Grab; 3 inches bgs	Chris Keiser	Additional Bulk Sampling	4 oz glass jar	1	Ambient	None	Modified CARB 435	1

CHAIN OF CUSTODY RECORD

No: 10-0128-07/22/10-0002

Site #: ~~10-028~~ 10-0128 (JS)

Contact Name: John Schendel

Contact Phone: 678-775-3089

Lab: IATL

Lab Phone: 856-231-9449

Lab #	Sample #	Location	Analyses	Matrix	Sample Media	Sample Type	Collected	Sample Time	Numb Cont	Container	Preservative	Volume	Vol Units
	00019	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/24/2010	1114	1	Cassette	None	2958.83	Liters
	00020	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Duplicate of 00019	3/24/2010	1114	1	Cassette	None	3684.48	Liters
	00045	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/25/2010	0857	1	Cassette	None	2695	Liters
	00046	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Duplicate of 00045	3/25/2010	0857	1	Cassette	None	2717	Liters

Special Instructions: Refer to instructions on sample analysis contained in Tetra Tech's Excel spreadsheet and in EPA's Request for Analytical Services

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
Ship samples to Lab.	John Schendel	7/22/10									

GAO 144 Air Samples for IATL

	Site_No	Samp_No	Location	SampleDate	SampleTime	SampleType	Matrix	SampleMedia	Volume	Volume_Units	Sampler	Remarks	Container	No_Container	Storage	Preservation	Analyses	Item No.
Site Daily Background	10-0128	00019	GAO 144	3/24/2010	1114	Field Sample	Air	0.8 um MCE, 25 mm dia.	2958.83	Liters	John Schendel	Site Daily Background	Cassette	1	Ambient	None	ISO 10312: 1995	7
	10-0128	00020	GAO 144	3/24/2010	1114	Field Duplicate of 00019	Air	0.8 um MCE, 25 mm dia.	3684.48	Liters	John Schendel	Site Daily Background	Cassette	1	Ambient	None	ISO 10312: 1995	7
Site Daily Background	10-0128	00045	GAO 144	3/25/2010	0857	Field Sample	Air	0.8 um MCE, 25 mm dia.	2695.00	Liters	John Schendel	Site Daily Background	Cassette	1	Ambient	None	ISO 10312: 1995	7
	10-0128	00046	GAO 144	3/25/2010	0857	Field Duplicate of 00045	Air	0.8 um MCE, 25 mm dia.	2717.00	Liters	John Schendel	Site Daily Background	Cassette	1	Ambient	None	ISO 10312: 1995	7

CHAIN OF CUSTODY RECORD

No: 003.0067-07/22/10-0003

Site #: ~~10-028~~ 10-0128 (JS)

Contact Name: John Schendel

Contact Phone: 678-775-3089

Lab: Batta Environmental Assoc., Inc.

Lab Phone: 302-737-3376

Lab #	Sample #	Location	Analyses	Matrix	Sample Media	Sample Type	Collected	Sample Time (JS)	Numb Cont	Container	Preservative	Volume (JS)	Vol Units
	00015	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Lot Blank	3/25/2010	NA	1	Cassette	None	0	Liters
	00016	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Lot Blank	3/25/2010	NA	1	Cassette	None	0	Liters
	00017	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Blank	3/25/2010	NA	1	Cassette	None	0	Liters
	00018	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Blank	3/25/2010	NA	1	Cassette	None	0	Liters
	00021	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/24/2010	1159	1	Cassette	None	1172.75	Liters
	00022	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Duplicate of 00021	3/24/2010	1151	1	Cassette	None	1182.6	Liters
	00023	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/24/2010	1151	1	Cassette	None	352.8	Liters
	00024	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Duplicate of 00023	3/24/2010	1151	1	Cassette	None	354	Liters
	00025	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/24/2010	1151	1	Cassette	None	1185.6	Liters
	00026	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/24/2010	1151	1	Cassette	None	358.2	Liters
	00027	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/24/2010	1151	1	Cassette	None	1170	Liters

Special Instructions: Refer to instructions on sample analysis contained in Tetra Tech's Excel spreadsheet and in EPA's Request for Analytical Services	SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
Ship samples to lab	John Schendel	7/22/10									

CHAIN OF CUSTODY RECORD

Site #: ~~10-028~~ 10-0128 (B)

Contact Name: John Schendel

Contact Phone: 678-775-3089

No: 003.0067-07/22/10-0003

Lab: Batta Environmental Assoc., Inc.

Lab Phone: 302-737-3376

Lab #	Sample #	Location	Analyses	Matrix	Sample Media	Sample Type	Collected	Sample Time	Numb Cont	Container	Preservative	Volume	Vol Units
	00028	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/24/2010	1151	1	Cassette	None	348.6	Liters
	00029	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/24/2010	1151	1	Cassette	None	MAX: 1156.4 MIN: 1107.4	Liters *
	00030	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/24/2010	1151	1	Cassette	None	357.6	Liters
	00031	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/24/2010	1151	1	Cassette	None	1176	Liters
	00032 (a)	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Duplicate of 00031	3/24/2010	1151	1	Cassette	None	1192.8	Liters
	00033	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/24/2010	1151	1	Cassette	None	358.2	Liters
	00034	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Duplicate of 00033	3/24/2010	1151	1	Cassette	None	357	Liters
	00035	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/24/2010	1525	1	Cassette	None	1179.6	Liters
	00036	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/24/2010	1525	1	Cassette	None	362.34	Liters
	00037	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/24/2010	1525	1	Cassette	None	1151.4	Liters

Special Instructions: Refer to instructions on sample analysis contained in Tetra Tech's Excel spreadsheet and in EPA's Request for Analytical Services

* Refer to Excel spreadsheet, page 1.

(a) Filter may be damaged; see Excel spreadsheet, page 1.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
Ship sample to lab.	John Schendel	7/22/10									

CHAIN OF CUSTODY RECORD

No: 003.0067-07/22/10-0003

Site #: ~~13-028~~ 10-0128 (D)

Contact Name: John Schendel

Contact Phone: 678-775-3089

Lab: Batta Environmental Assoc., Inc.

Lab Phone: 302-737-3376

Lab #	Sample #	Location	Analyses	Matrix	Sample Media	Sample Type	Collected	Sample Time	Numb Cont	Container	Preservative	Volume	Vol Units
	00038	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/24/2010	1525	1	Cassette	None	370.76	Liters
	00039	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/24/2010	1525	1	Cassette	None	1182.6	Liters
	00040	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/24/2010	1525	1	Cassette	None	369.52	Liters
	00041	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/24/2010	1525	1	Cassette	None	1182.6	Liters
	00042	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/24/2010	1525	1	Cassette	None	373.75	Liters
	00043	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/24/2010	1525	1	Cassette	None	1214.4	Liters
	00044	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/24/2010	1525	1	Cassette	None	355.74	Liters
	00047	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/25/2010	0902	1	Cassette	None	1185.6	Liters
	00048	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/25/2010	0902	1	Cassette	None	367.22	Liters
	00049	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/25/2010	0902	1	Cassette	None	1185.6	Liters
	00050	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/25/2010	0902	1	Cassette	None	370.85	Liters

Special Instructions: Refer to instructions on sample analysis contained in Tetra Tech's Excel spreadsheet and in EPA's Request for Analytical Services	**SAMPLES TRANSFERRED FROM**
	CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
Ship samples to lab	John Schendel	7/22/10									

CHAIN OF CUSTODY RECORD

No: 003.0067-07/22/10-0003

Site #: ~~10-028~~ 10-0128 (B)

Contact Name: John Schendel

Contact Phone: 678-775-3089

Lab: Batta Environmental Assoc., Inc.

Lab Phone: 302-737-3376

Lab #	Sample #	Location	Analyses	Matrix	Sample Media	Sample Type	Collected	Sample Time	Numb Cont	Container	Preservative	Volume	Vol Units
	00051	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/25/2010	0902	1	Cassette	None	1192.8	Liters
	00052	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/25/2010	0902	1	Cassette	None	367.77	Liters
	00053	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/25/2010	0902	1	Cassette	None	1182.6	Liters
	00054	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/25/2010	0902	1	Cassette	None	371.38	Liters
	00055	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/25/2010	0902	1	Cassette	None	1188.6	Liters
	00056	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/25/2010	0902	1	Cassette	None	361.19	Liters
	00057	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/25/2010	1140	1	Cassette	None	1120.62	Liters
	00058	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/25/2010	1140	1	Cassette	None	343.28	Liters
	00059	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/25/2010	1140	1	Cassette	None	1153.45	Liters
	00060	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/25/2010	1140	1	Cassette	None	354	Liters
	00061	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/25/2010	1140	1	Cassette	None	1179.6	Liters

Special Instructions: Refer to instructions on sample analysis contained in Tetra Tech's Excel spreadsheet and in EPA's Request for Analytical Services	**SAMPLES TRANSFERRED FROM**
	CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
Ship samples to lab.	John Schendel	7/22/10									

CHAIN OF CUSTODY RECORD

No: 003.0067-07/22/10-0003

Site #: ~~10-028~~ 10-0120 (3)

Contact Name: John Schendel

Contact Phone: 678-775-3089

Lab: Batta Environmental Assoc., Inc.

Lab Phone: 302-737-3376

Lab #	Sample #	Location	Analyses	Matrix	Sample Media	Sample Type	Collected	Sample Time	Numb Cont	Container	Preservative	Volume	Vol Units
	00062	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/25/2010	1140	1	Cassette	None	362.4	Liters
	00063	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/25/2010	1140	1	Cassette	None	1170	Liters
	00064	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/25/2010	1140	1	Cassette	None	361.19	Liters
	00065 (a)	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/25/2010	1140	1	Cassette	None	1137.35	Liters
	00066	GAO 144	ISO 10312: 1995	Air	0.8 um MCE, 25 mm dia.	Field Sample	3/25/2010	1140	1	Cassette	None	335.61	Liters

Special Instructions: Refer to instructions on sample analysis contained in Tetra Tech's Excel spreadsheet and in EPA's Request for Analytical Services (a) Filter may be damaged; see Excel spreadsheet, page 3.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
Ship sample to lab.	John Schendel	7/22/10									

GAO 144 Air Samples for Batta

	Site_No	Samp_No	Location	SampleDate	SampleTime	SampleType	Matrix	SampleMedia	Volume	Volume_Units	Sampler	Remarks	Container	No_Container	Storage	Preservation	Analyses	Item No.
Lot Blanks	10-0128	00015	GAO 144	3/25/2010	Not applicable	Lot Blank	Air	0.8 um MCE, 25 mm dia.	Not applicable	Liters	John Schendel	Lot Blank, 0.8 um filter	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00016	GAO 144	3/25/2010	Not applicable	Lot Blank	Air	0.8 um MCE, 25 mm dia.	Not applicable	Liters	John Schendel	Lot Blank, 0.8 um filter	Cassette	1	Ambient	None	ISO 10312: 1995	6
Field Blanks	10-0128	00017	GAO 144	3/25/2010	Not applicable	Field Blank	Air	0.8 um MCE, 25 mm dia.	Not applicable	Liters	John Schendel	Field Blank, 0.8 um filter	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00018	GAO 144	3/25/2010	Not applicable	Field Blank	Air	0.8 um MCE, 25 mm dia.	Not applicable	Liters	John Schendel	Field Blank, 0.8 um filter	Cassette	1	Ambient	None	ISO 10312: 1995	6
Activity-Based Round 1 (Raking)	10-0128	00021	GAO 144	3/24/2010	1159	Field Sample	Air	0.8 um MCE, 25 mm dia.	1172.75	Liters	John Schendel	Activity-Based, Perimeter Upwind, High Volume. Analyze this sample first, and if overloaded, analyze sample 00023.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00022	GAO 144	3/24/2010	1151	Field Duplicate of 00021	Air	0.8 um MCE, 25 mm dia.	1182.60	Liters	John Schendel	Activity-Based, Perimeter Upwind, High Volume. Analyze this sample first, and if overloaded, analyze sample 00024.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00023	GAO 144	3/24/2010	1151	Field Sample	Air	0.8 um MCE, 25 mm dia.	352.80	Liters	John Schendel	Activity-Based, Perimeter Upwind, Low Volume. Analyze this sample only if sample 00021 is overloaded.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00024	GAO 144	3/24/2010	1151	Field Duplicate of 00023	Air	0.8 um MCE, 25 mm dia.	354.00	Liters	John Schendel	Activity-Based, Perimeter Upwind, Low Volume. Analyze this sample only if sample 00022 is overloaded.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00025	GAO 144	3/24/2010	1151	Field Sample	Air	0.8 um MCE, 25 mm dia.	1185.60	Liters	John Schendel	Activity-Based, Perimeter Downwind, High Volume. Analyze this sample first, and if overloaded, analyze sample 00026.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00026	GAO 144	3/24/2010	1151	Field Sample	Air	0.8 um MCE, 25 mm dia.	358.20	Liters	John Schendel	Activity-Based, Perimeter Downwind, Low Volume. Analyze this sample only if sample 00025 is overloaded.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00027	GAO 144	3/24/2010	1151	Field Sample	Air	0.8 um MCE, 25 mm dia.	1170.00	Liters	John Schendel	Activity-Based, Perimeter Downwind, High Volume. Analyze this sample first, and if overloaded, analyze sample 00028.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00028	GAO 144	3/24/2010	1151	Field Sample	Air	0.8 um MCE, 25 mm dia.	348.60	Liters	John Schendel	Activity-Based, Perimeter Downwind, Low Volume. Analyze this sample only if sample 00027 is overloaded.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00029	GAO 144	3/24/2010	1151	Field Sample	Air	0.8 um MCE, 25 mm dia.	1156.40 1107.40	Liters	John Schendel	Activity-Based, Perimeter Downwind, High Volume. Analyze this sample first, and if overloaded, analyze sample 00030. NOTE: Both minimum and maximum volumes are provided since the true volume, which is uncertain, lies between.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00030	GAO 144	3/24/2010	1151	Field Sample	Air	0.8 um MCE, 25 mm dia.	357.60	Liters	John Schendel	Activity-Based, Perimeter Downwind, Low Volume. Analyze this sample only if sample 00029 is overloaded.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00031	GAO 144	3/24/2010	1151	Field Sample	Air	0.8 um MCE, 25 mm dia.	1176.00	Liters	John Schendel	Activity-Based, Backpack, High Volume. Analyze this sample first, and if overloaded, analyze sample 00033.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00032	GAO 144	3/24/2010	1151	Field Duplicate of 00031	Air	0.8 um MCE, 25 mm dia.	1192.80	Liters	John Schendel	Activity-Based, Backpack, High Volume. Analyze this sample first, and if overloaded, analyze sample 00034. NOTE: Near the end of the sampling period, the filter may have been damaged due to a sudden but brief interruption of air flow.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00033	GAO 144	3/24/2010	1151	Field Sample	Air	0.8 um MCE, 25 mm dia.	358.20	Liters	John Schendel	Activity-Based, Backpack, Low Volume. Analyze this sample only if sample 00031 is overloaded.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00034	GAO 144	3/24/2010	1151	Field Duplicate of 00033	Air	0.8 um MCE, 25 mm dia.	357.00	Liters	John Schendel	Activity-Based, Backpack, Low Volume. Analyze this sample only if sample 00032 is overloaded.	Cassette	1	Ambient	None	ISO 10312: 1995	6

GAO 144 Air Samples for Batta

	Site_No	Samp_No	Location	SampleDate	SampleTime	SampleType	Matrix	SampleMedia	Volume	Volume_Units	Sampler	Remarks	Container	No_Container	Storage	Preservation	Analyses	Item No.
Activity-Based Round 2 (Raking/Sweeping)	10-0128	00035	GAO 144	3/24/2010	1525	Field Sample	Air	0.8 um MCE, 25 mm dia.	1179.60	Liters	John Schendel	Activity-Based, Perimeter Upwind, High Volume. Analyze this sample first, and if overloaded, analyze sample 00036.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00036	GAO 144	3/24/2010	1525	Field Sample	Air	0.8 um MCE, 25 mm dia.	362.34	Liters	John Schendel	Activity-Based, Perimeter Upwind, Low Volume. Analyze this sample only if sample 00035 is overloaded.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00037	GAO 144	3/24/2010	1525	Field Sample	Air	0.8 um MCE, 25 mm dia.	1151.40	Liters	John Schendel	Activity-Based, Perimeter Upwind, High Volume. Analyze this sample first, and if overloaded, analyze sample 00038.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00038	GAO 144	3/24/2010	1525	Field Sample	Air	0.8 um MCE, 25 mm dia.	370.76	Liters	John Schendel	Activity-Based, Perimeter Upwind, Low Volume. Analyze this sample only if sample 00037 is overloaded.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00039	GAO 144	3/24/2010	1525	Field Sample	Air	0.8 um MCE, 25 mm dia.	1182.60	Liters	John Schendel	Activity-Based, Perimeter Downwind, High Volume. Analyze this sample first, and if overloaded, analyze sample 00040.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00040	GAO 144	3/24/2010	1525	Field Sample	Air	0.8 um MCE, 25 mm dia.	369.52	Liters	John Schendel	Activity-Based, Perimeter Downwind, Low Volume. Analyze this sample only if sample 00039 is overloaded.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00041	GAO 144	3/24/2010	1525	Field Sample	Air	0.8 um MCE, 25 mm dia.	1182.60	Liters	John Schendel	Activity-Based, Perimeter Downwind, High Volume. Analyze this sample first, and if overloaded, analyze sample 00042.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00042	GAO 144	3/24/2010	1525	Field Sample	Air	0.8 um MCE, 25 mm dia.	373.75	Liters	John Schendel	Activity-Based, Perimeter Downwind, Low Volume. Analyze this sample only if sample 00041 is overloaded.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00043	GAO 144	3/24/2010	1525	Field Sample	Air	0.8 um MCE, 25 mm dia.	1214.40	Liters	John Schendel	Activity-Based, Backpack, High Volume. Analyze this sample first, and if overloaded, analyze sample 00044	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00044	GAO 144	3/24/2010	1525	Field Sample	Air	0.8 um MCE, 25 mm dia.	355.74	Liters	John Schendel	Activity-Based, Backpack, Low Volume. Analyze this sample only if sample 00043 is overloaded.	Cassette	1	Ambient	None	ISO 10312: 1995	6
Activity-Based Round 3 (Raking)	10-0128	00047	GAO 144	3/25/2010	0902	Field Sample	Air	0.8 um MCE, 25 mm dia.	1185.60	Liters	John Schendel	Activity-Based, Perimeter Upwind, High Volume. Analyze this sample first, and if overloaded, analyze sample 00048.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00048	GAO 144	3/25/2010	0902	Field Sample	Air	0.8 um MCE, 25 mm dia.	367.22	Liters	John Schendel	Activity-Based, Perimeter Upwind, Low Volume. Analyze this sample only if sample 00047 is overloaded.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00049	GAO 144	3/25/2010	0902	Field Sample	Air	0.8 um MCE, 25 mm dia.	1185.60	Liters	John Schendel	Activity-Based, Perimeter Downwind, High Volume. Analyze this sample first, and if overloaded, analyze sample 00050.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00050	GAO 144	3/25/2010	0902	Field Sample	Air	0.8 um MCE, 25 mm dia.	370.85	Liters	John Schendel	Activity-Based, Perimeter Downwind, Low Volume. Analyze this sample only if sample 00049 is overloaded.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00051	GAO 144	3/25/2010	0902	Field Sample	Air	0.8 um MCE, 25 mm dia.	1192.80	Liters	John Schendel	Activity-Based, Perimeter Downwind, High Volume. Analyze this sample first, and if overloaded, analyze sample 00052.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00052	GAO 144	3/25/2010	0902	Field Sample	Air	0.8 um MCE, 25 mm dia.	367.77	Liters	John Schendel	Activity-Based, Perimeter Downwind, Low Volume. Analyze this sample only if sample 00051 is overloaded.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00053	GAO 144	3/25/2010	0902	Field Sample	Air	0.8 um MCE, 25 mm dia.	1182.60	Liters	John Schendel	Activity-Based, Perimeter Downwind, High Volume. Analyze this sample first, and if overloaded, analyze sample 00054.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00054	GAO 144	3/25/2010	0902	Field Sample	Air	0.8 um MCE, 25 mm dia.	371.38	Liters	John Schendel	Activity-Based, Perimeter Downwind, Low Volume. Analyze this sample only if sample 00053 is overloaded.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00055	GAO 144	3/25/2010	0902	Field Sample	Air	0.8 um MCE, 25 mm dia.	1188.60	Liters	John Schendel	Activity-Based, Backpack, High Volume. Analyze this sample first, and if overloaded, analyze sample 00056.	Cassette	1	Ambient	None	ISO 10312: 1995	6
	10-0128	00056	GAO 144	3/25/2010	0902	Field Sample	Air	0.8 um MCE, 25 mm dia.	361.19	Liters	John Schendel	Activity-Based, Backpack, Low Volume. Analyze this sample only if sample 00055 is overloaded.	Cassette	1	Ambient	None	ISO 10312: 1995	6

GAO 144 Air Samples for Batta

Activity-Based Round 4 (Raking)

Site_No	Samp_No	Location	SampleDate	SampleTime	SampleType	Matrix	SampleMedia	Volume	Volume_Units	Sampler	Remarks	Container	No_Container	Storage	Preservation	Analyses	Item No.
10-0128	00057	GAO 144	3/25/2010	1140	Field Sample	Air	0.8 um MCE, 25 mm dia.	1120.62	Liters	John Schendel	Activity-Based, Perimeter Upwind, High Volume. Analyze this sample first, and if overloaded, analyze sample 00058.	Cassette	1	Ambient	None	ISO 10312: 1995	6
10-0128	00058	GAO 144	3/25/2010	1140	Field Sample	Air	0.8 um MCE, 25 mm dia.	343.28	Liters	John Schendel	Activity-Based, Perimeter Upwind, Low Volume. Analyze this sample only if sample 00057 is overloaded.	Cassette	1	Ambient	None	ISO 10312: 1995	6
10-0128	00059	GAO 144	3/25/2010	1140	Field Sample	Air	0.8 um MCE, 25 mm dia.	1153.45	Liters	John Schendel	Activity-Based, Perimeter Upwind, High Volume. Analyze this sample first, and if overloaded, analyze sample 00060.	Cassette	1	Ambient	None	ISO 10312: 1995	6
10-0128	00060	GAO 144	3/25/2010	1140	Field Sample	Air	0.8 um MCE, 25 mm dia.	354.00	Liters	John Schendel	Activity-Based, Perimeter Upwind, Low Volume. Analyze this sample only if sample 00059 is overloaded.	Cassette	1	Ambient	None	ISO 10312: 1995	6
10-0128	00061	GAO 144	3/25/2010	1140	Field Sample	Air	0.8 um MCE, 25 mm dia.	1179.60	Liters	John Schendel	Activity-Based, Perimeter Downwind, High Volume. Analyze this sample first, and if overloaded, analyze sample 00062.	Cassette	1	Ambient	None	ISO 10312: 1995	6
10-0128	00062	GAO 144	3/25/2010	1140	Field Sample	Air	0.8 um MCE, 25 mm dia.	362.40	Liters	John Schendel	Activity-Based, Perimeter Downwind, Low Volume. Analyze this sample only if sample 00061 is overloaded.	Cassette	1	Ambient	None	ISO 10312: 1995	6
10-0128	00063	GAO 144	3/25/2010	1140	Field Sample	Air	0.8 um MCE, 25 mm dia.	1170.00	Liters	John Schendel	Activity-Based, Perimeter Downwind, High Volume. Analyze this sample first, and if overloaded, analyze sample 00064.	Cassette	1	Ambient	None	ISO 10312: 1995	6
10-0128	00064	GAO 144	3/25/2010	1140	Field Sample	Air	0.8 um MCE, 25 mm dia.	361.19	Liters	John Schendel	Activity-Based, Perimeter Downwind, Low Volume. Analyze this sample only if sample 00063 is overloaded.	Cassette	1	Ambient	None	ISO 10312: 1995	6
10-0128	00065	GAO 144	3/25/2010	1140	Field Sample	Air	0.8 um MCE, 25 mm dia.	1137.35	Liters	John Schendel	Activity-Based, Backpack, High Volume. Analyze this sample first, and if overloaded, analyze sample 00066. NOTE: Near the end of the sampling period, the filter may have been damaged due to a sudden but brief interruption of air flow.	Cassette	1	Ambient	None	ISO 10312: 1995	6
10-0128	00066	GAO 144	3/25/2010	1140	Field Sample	Air	0.8 um MCE, 25 mm dia.	335.61	Liters	John Schendel	Activity-Based, Backpack, Low Volume. Analyze this sample only if sample 00065 is overloaded.	Cassette	1	Ambient	None	ISO 10312: 1995	6

APPENDIX G

SCRIBE DATABASE

(On compact disc)

Appendix G – SCRIBE Database is a
Microsoft Access database and is not included
in the Administrative Record.