1266305

ACTIVITY BASED SAMPLING SUMMARY REPORT

PUBLIC RECEPTORS

LIBBY, MONTANA OPERABLE UNIT 6

LIBBY, MONTANA

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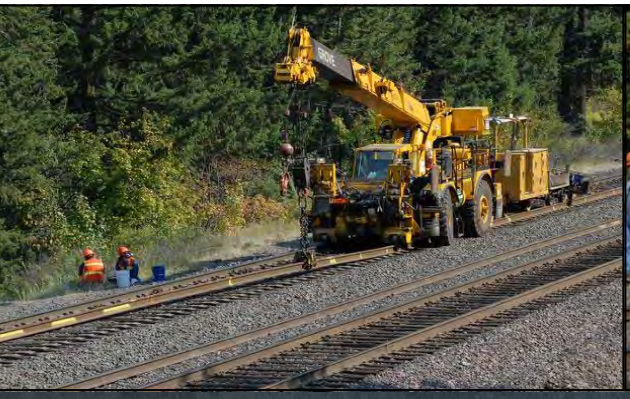

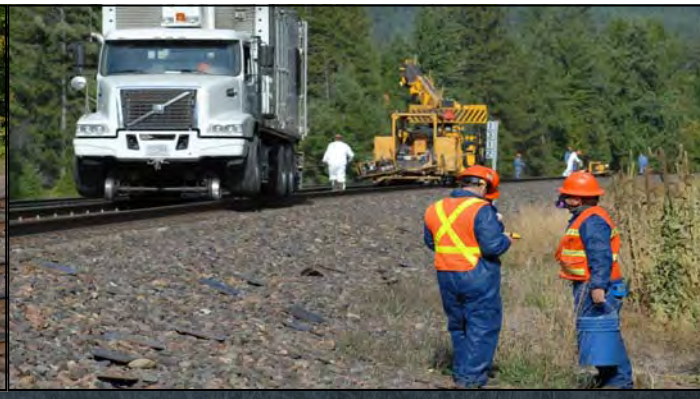

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EXECUTIVE SUMMARY

The following document has been prepared to summarize the methods used and results of an Activity Based Sampling (ABS) event conducted in September 2008 at the request of the U.S. Environmental Protection Agency (EPA).

The ABS event was designed to evaluate potential exposure to two populations: BNSF Railway Company (BNSF) Maintenance of Way (MOW) Workers (Worker) and the general public (Public). This report will focus on the sampling and results conducted for the evaluation of the Public. Discussions of the sampling and results from the Worker assessment will be published under separate cover.

INTRODUCTION

The Libby asbestos site has been on the National Priorities List since 2002 and encompasses the towns of Libby and Troy, Montana, the former W.R. Grace mine-site and several other Operable Units (OU). Property owned by the BNSF Railway Company (BNSF) has been designated OU6 and is defined geographically by the BNSF property boundaries and extent of contamination associated with the railyard and other Right of Way (ROW). Generally OU6 is as wide as the ROW (CDM, 2008) with the western and eastern limits being defined by limits of OU7 and OU4, respectively (Figure 1).

In preparation for the 2008 ABS event the following documents were prepared to govern the sampling, analysis and safety aspects of the project:

- Public Receptor Sampling and Analysis Plan (Public SAP) (AECOM, 2008a);
- Worker Receptor Sampling and Analysis Plan (Worker SAP) (AECOM, 2008b);
- Project-specific Health and Safety Plan (HSP) (EMR, 2008); and
- SAP analytical summaries.

Collectively these documents served to provide guidance in the collection and analysis of samples and to govern health and safety procedures. The focus of this report will be methods and procedures defined in the Public SAP.

SAMPLING AND ANALYTICAL

Air and soil matrices were sampled during the Public portion of the ABS event. Personal air samples were collected from 2 different populations to evaluate the potential exposure risk of: 1) simulated Pedestrian Trespassers; and 2) simulated On-looker Trespassers. Stationary air samples were collected to monitor ambient air quality near the BNSF property boundaries. Soils were evaluated for visible vermiculite and laboratory samples collected to determine the magnitude of any soil impacts. Camp, Dresser and McKey (CDM) personnel provided sampling oversight on behalf of the EPA.

All air samples were submitted to CDM for analysis by EMSL Analytical, Inc. (EMSL) utilizing ISO 10312 methods. Soil samples were also submitted to CDM for preparation and eventual analysis by EMSL using Polarized Light Microscopy (PLM) Visual Estimation (VE) and PLM-Gravimetric methods for fine and coarse fractions, respectively.

RESULTS

A total of 22 stationary air samples and two (2) duplicates were collected and submitted for laboratory analysis. All samples met the target analytical sensitivity of 0.0024 structures/cubic centimeter. All samples were non-detect for Libby Amphibole (LA), Other Amphibole (OA) and Chrysotile.

A total of 7 simulated onlooker trespasser and 14 simulated pedestrian trespasser scenario air samples were collected during the seven day sampling event. All samples met the target analytical sensitivity. All simulated trespasser scenario air samples were non-detect.

A total of 8 blank samples were collected and submitted for analysis. Three of the blanks were not analyzed at the discretion of EMSL and were archived. All of the blanks were non-detect.

A total of 62 soil samples were collected and contained a fine fraction, which were analyzed via PLM-VE methods. A total of 18 QA/QC samples were prepared by CDM and submitted for PLM-VE analysis. All fine fraction samples, with the exception of RR-00022 and RR-00025, were non-detect for LA, OA and Chrysotile. Samples RR-00022 and RR-00025 contained 0.1% LA and were found in bin B1. Both samples were collected within the limits of the Kootenai Falls siding at BNSF MP 1331.5 (RR-00022) and MP 1331 (RR-00025).

Fifty (50) soil samples had a coarse fraction that was analyzed via PLM-Gravimetric methods. Additionally, 8 QA/QC samples were prepared by CDM and submitted for analysis. All samples were non-detect for LA, OA and Chrysotile.

TABLE OF CONTENTS

EXECUTIVE SUMMARY i
INTRODUCTION i
SAMPLING AND ANALYTICAL i
RESULTS ii
LIST OF TABLES v
LIST OF FIGURES v
LIST OF APPENDICIES v
LIST OF ACRONYMS vi
1.0 SITE LOCATION 1
2.0 ABS PREPARATION 2
2.1 ABS Docments 2
2.1.1 Public Receptor Sampling and Analysis Plan 2
2.1.2 Health and Safety Plan 2
2.1.3 SAP Analytical Summaries 2
2.2 Site Specfic Procedures 2
2.3 Sampling Methods and Equipment 3
2.3.1 Personal Air Samples 3
2.3.2 Stationary Air Samples 3
2.3.3 Soil Sample Collection 4
2.3.4 Meteorological Data 5
2.3.5 Location Data 5
3.0 DOCUMENTATION PROGRAM 6
3.1 Field Notes 6
3.2 Field Sample Data Sheets 6
3.3 Meteorological Data 6
4.0 SAMPLE ANALYSIS 7
4.1 Analytical Methods 7
4.1.1TEM Analysis 7
4.1.2 PLM-VE/PLM-Gravimetric analysis 7
5.0 SAMPLING PROGRAM 9

5.1 Sampling Areas 9
5.2 Deviations from SAP 9
5.3 Personal Air Sampling 10
5.3.1 Simulated Pedestrian Tresspasser Sampling 10
5.3.2 Simulated On-Looker Trespasser Sampling 10
5.4 Stationary Air Sampling 11
5.5 Soil Sampling 11
5.6 Sample Identification Numbers 11
6.0 SAMPLING SUMMARY 12
6.1 September 17, 2008 12
6.2 September 18, 2008 12
6.3 September 19, 2008 13
6.4 September 22, 2008 13
6.5 September 23, 2008 13
6.6 September 24, 2008 14
6.7 September 25, 2008 14
7.0 DISCUSSION OF RESULTS 16
7.1 Stationary Air Sampling Results 16
7.2 Simulated Tresspasser Scenario Air Sampling Results 16
7.3 Air Sample Blank Results 16
7.4 Soil Sample Analysis 16
7.4.1 Fine Fraction Analysis 16
7.4.2 Coarse Fraction Analysis 17
8.0 REFERENCES 18
9.0 STANDARD OF CARE 19

LIST OF TABLES

Table 1. Summary of ABS Air Sampling Results

Table 2. Summary of Soil Sampling PLM-VE (Fine Fraction) Results

Table 3. Summary of Soil Sampling PLM-Gravimetric (Coarse Fraction) Results

LIST OF FIGURES

Figure 1. Site Location Map

Figure 2. OU6 Overview Map Showing Commonly Referenced Features

Figure 3. Sampling Index Map

Figure 4. MP 1312 Sampling Locations – September 17, 2008

Figure 5. MP 1329.5 Sampling Locations – September 22, 2008

Figure 6. MP 1331 Sampling Locations – September 19, 2008

Figure 7. MP 1331.5 Sampling Locations – September 18, 2008

Figure 8. MP 1337 Sampling Locations – September 23, 2008

Figure 9. MP 1339.5 Sampling Locations – September 24, 2008

Figure 10. MP 1341 Sampling Locations – September 25, 2008

LIST OF APPENDICIES

Appendix A. Analytical Summaries

Appendix B. Field Sampling Data Sheets – Air

Appendix C. Field Sampling Data Sheets – Soil

Appendix D. Meteorological Data

Appendix E. Field Notes

Appendix F. Field Change Orders

Appendix G. Air Sample Laboratory Reports

Appendix H. Soil Sample Laboratory Reports

LIST OF ACRONYMS

ABS – Activity Based Sampling
BNSF – BNSF Railway Company
C – Chrysotile
CDM – Camp, Dresser and McKee
DGPS – Differential Geographic Positioning System
EMSL – EMSL Analytical, Inc
EPA – U.S. Environmental Protection Agency
FCO – Field Change Order
FSDS – Field Sampling Data Sheets
HSP – Health and Safety Plan
ISO – International Organization for Standardization
L/m – Liters per minute
LA – Libby Amphibole
MCE – Mixed Cellulose Ester
MP – Mile Post
NIOSH – National Institute for Occupational Safety and Health
OA – Other Amphibole
OU – Operable Unit
PCM – Phase Contrast Microscopy
PLM –VE – Polarized Light Microscopy – Visual Area Estimation
PLM-Grav – Polarized Light Microscopy – Gravimetric
PPE – Personal Protective Equipment
QA/QC - Quality Assurance/Quality Control
ROW – Right of Way
s/cc – Structures per cubic centimeter
SAP – Sampling and Analysis Plan
SOP – Standard Operating Procedure
TEM – Transmission Electron Microscopy
UTM – Universal Trans Mercator

1.0 SITE LOCATION

The Libby asbestos site has been on the National Priorities List since 2002 and encompasses the towns of Libby and Troy, Montana, the former W.R. Grace mine-site and several other Operable Units (OU). Property owned by the BNSF Railway Company (BNSF) has been designated OU6 and is defined geographically by the BNSF property boundaries and extent of contamination associated with the railyard and other Right of Way (ROW).

In general, OU6 is as wide as the ROW (CDM, 2007). Although no formal geographic boundaries have been established for the western or eastern limits of OU6, EPA's agent, Camp, Dresser and McKee (CDM) has used the limits of OU4 to define the east side boundary and the limits of OU7 defined the west side boundary (Figure 1) (CDM, 2007). These limits roughly correlate to BNSF Mile Post (MP) 1301.5 on the east to MP 1342 on the west (Figure 2).

OU6 is encompassed by BNSF's Kootenai River Subdivision that extends westward from Whitefish, Montana to Sandpoint, Idaho. Approximately 40 trains per day pass over the Kootenai River Subdivision. The portion of the Kootenai River subdivision within OU6 is single track with passing sidings that allow the passing of trains traveling in opposite directions. Passing sidings within OU6 are located at following locations (from east to west) (Figure 2):

- Riverview (MP 1306.9)
- Ripley (MP 1312.2)
- Libby (MP 1319.6)
- Kootenai Falls (MP 1331.3)
- Troy (MP 1337.9)

Two small railyards are present at Libby and Troy (Figure 2) and an industrial spur is present at the east end of Libby. From MP 1301.5 to approximately 1307.5 the BNSF ROW parallels Fisher River and then follows the Kootenai River from approximately MP 1307.5 to the west end of OU6 (Figure 2).

2.0 ABS PREPARATION

2.1 ABS Docments

In preparation for the 2008 Activity Based Sampling (ABS) event, a series of documents were prepared to govern the sampling, analysis and safety aspects of the project. The following is a brief description of purpose of each document that pertains to the Public Receptor portion of the ABS event.

2.1.1 PUBLIC RECEPTOR SAMPLING AND ANALYSIS PLAN

The Public Receptor Sampling and Analysis Plan (Public SAP) (AECOM, September 2008b) detailed the methods and procedures that were utilized during stationary air, simulated trespasser personal air and soil sampling. The Public SAP addressed public receptors that may be exposed to LA in air as a result of BNSF rail maintenance activities. Public receptors identified in the Public SAP included two simulated trespasser scenarios and near-by residents.

2.1.2 HEALTH AND SAFETY PLAN

A project-specific Health and Safety Plan (HSP) was developed to cover safety and Personal Protective Equipment (PPE) issues for personnel involved with the sampling activities (EMR, 2008). The HSP was not developed as a site specific plan since the work sites would be changing daily. In addition to the HSP, all sampling personnel attended daily BNSF safety briefing that included job specific details including planned work activities, area specific hazards and weather forecasts.

2.1.3 SAP ANALYTICAL SUMMARIES

A SAP analytical summary was developed for samples collected during the Public portion of the ABS. The analytical summary was approved by the EPA, EPA agents and contracted laboratories. The purpose of the analytical summary was to condense the analytical parameters specified in the Public SAP into an easily referenced guide for laboratory analysis of each matrix-specific sample group (i.e. personal air, stationary air and soil samples). The approved Public Receptor analytical summary is included in Appendix A.

2.2 Site Specfic Procedures

Prior to initiating ABS sampling, EMR field staff received training from CDM related to visual estimation vermiculite concentrations in soils, soil sampling procedures and Field Sample Data Sheet (FSDS) procedures that are specific to the Libby Superfund Site. The visual estimation of vermiculite concentration training followed the procedures outlined in Standard Operating Procedure (SOP) CDM-Libby-06, Revision 1 – *Semi-Quantitative Visual Estimation of,*

Vermiculite in Soils at Residential and Commercial Properties (CDM, 2007). Soil sampling procedures followed SOP CDM-LIBBY-05, *Revision 2 – Soil Sample Collection at Residential and Commercial Properties* (CDM, undated). The FSDS training did not follow a specific SOP, but rather focused on the Libby-specific procedures to be followed for completion of FSDS forms and the submission of air and soil samples for analysis.

2.3 Sampling Methods and Equipment

The following is a discussion of the methods and equipment used during ABS to collect each sample media.

2.3.1 PERSONAL AIR SAMPLES

Personal air samples were collected for this portion of the ABS event to evaluate air quality for simulated trespasser scenarios. Three trespasser scenario air samples were collected each day of the sampling event. Personal air samples were collected using Gillian BDX II personal air pumps equipped with Zefon 25mm Phase Contrast Microscopy (PCM) cassettes with 0.8 µm Mixed Cellulose Ester (MCE) filters. Personal air samples were collected at flow rates that ranged between 1.4 Liters/minute (L/m) and 2.8 L/m, as determined by testing with a calibrated rotameter at the beginning and ending of the day. These cassettes were utilized for both PCM analysis by National Institute for Occupational Safety and Health (NIOSH) Method 7400 and Transmission Electron Microscopy (TEM) analysis by the International Organization for Standardization (ISO) Method 10312. All personal air samples requiring fixed laboratory analysis were submitted to CDM for analysis by EMSL Analytical, Inc (EMSL). Copies of the FSDSs for the Public Receptor personal air samples are found in Appendix B.

2.3.2 STATIONARY AIR SAMPLES

Stationary air samples were collected to evaluate air quality near the BNSF property boundary. Stationary air samples were collected using EMS Megalite high-volume air pumps equipped with Zefon 25mm PCM cassettes with 0.8 µm MCE filters. The filters were suspended approximately 4 feet above ground surface with the filter opening facing downward to prevent the deposition of foreign material on the filter. Stationary air pumps were checked and adjusted daily to achieve a flow rate of 7.6 L/m as determined with a calibrated rotameter. All stationary air samples were submitted to EMSL via CDM for TEM analysis via ISO 10312 methods. Copies of the FSDSs for stationary air samples are found in Appendix B.

Air sample field blanks were collected on a daily basis and submitted for analysis. In addition, two duplicate stationary samples (BA-00064 and BA-00068) were collected to evaluate laboratory accuracy.

2.3.3 SOIL SAMPLE COLLECTION

Discrete soil samples were collected from up to 15 locations per work area. The soil samples were collected to determine whether LA was present in exposed soils adjacent to the work areas. A stainless steel trowel was used to loosen and collect approximately 1 kilogram of soil between the ground surface and a depths between 4 inches and 6 inches. The samples were placed and submitted in one-gallon re-sealable plastic bags. The samples were labeled with a unique, pre-printed identification label established by CDM and cross-referenced with an identical identification label on the FSDS. The sample bag was placed inside a second labeled, re-sealable plastic bag.

The trowel used to collect soil samples was decontaminated between each sampling location and transported between sampling locations in a sealed zip-lock bag. The decontamination procedures used during the ABS differed slightly from those specified in the Public SAP and are discussed in section 6.2.

Each soil sample location was marked using high visibility survey tape to ensure that the sample locations could be found during Differential Geographic Positioning System (DGPS) surveying. Soil samples were submitted to CDM for separation and preparation before being shipped to the EMSL Libby, Montana laboratory for analysis. Following preparation by CDM, the samples were transported to EMSL for analysis via Polarized Light Microscopy Visual Area Estimation (PLM-VE) and PLM-Gravimetric (PLM-Grav) methods. Additional discussion of the soil analysis process is found in Section 4.1.3. Copies of the FSDSs for the soil samples are found in Appendix C.

During sample collection, the soils were evaluated for the presence of vermiculite using semi-quantitative methods referenced in Section 3.2. The purpose of estimation of visible vermiculite soil is to assist in the identification and delineation of visible vermiculite in soils without the collection of significant numbers of laboratory samples. During ABS visual estimation was incorporated to follow EPA standard operating procedures, but was not used as a substitute for laboratory analysis or to delineate the extent of visible vermiculite in soils.

All soil sampling locations were assigned a semi-quantitative estimate of visible vermiculite and categorized as none, low, medium (intermediate) or high according to the following criteria (CDM, 2007):

- None – no visible vermiculite
- Low – a maximum of a few flakes per sample location
- Medium (Intermediate) – Vermiculite easily observed throughout the sample location, including the surface.
- High – Vermiculite easily observed throughout the sample location, including the surface.

It should be noted that the description of the medium and high categories are identical in the reference document (CDM, 2007).

The results of the semi-quantitative estimation are discussed in Section 7.0.

2.3.4 METEOROLOGICAL DATA

On-site and local meteorological data was collected on a daily basis during the ABS event. On-site meteorological data was collected using a Met One AutoMet 3 data station and logging system. The station observed and recorded the following meteorological parameters:

- Barometric pressure (serial number U3918);
- Relative humidity and temperature (serial number U3209);
- Rainfall (serial number P8153);
- Wind speed and direction (serial number W3817)
- Datalogger (serial number F2211)

All the sensors were factory calibrated in September, 2008. The data logger was programmed to read all parameters at 30 second intervals. On-site meteorological data is presented in Appendix D.

2.3.5 LOCATION DATA

The Universal Trans Mercator (UTM) coordinates for soil sample, stationary air sample and meteorological station locations were determined using a Trimble Model GeoXH Differential Global Positioning System (DGPS) with sub-meter accuracy. This geospatial data was imported into Arc GIS to accurately locate the sample locations presented in Figures 4 through 10.

3.0 DOCUMENTATION PROGRAM

3.1 Field Notes

Two sets of field notes were collected by EMR personnel, one maintained by the soil sampling crew while the other was maintained by personnel outside the work area. These notes apply to both the Worker and Public Receptor portions of the ABS event and contain details regarding general field conditions, sample location information, soil descriptions, and timing of work completed. All notes were kept in bound field books and copies are found in Appendix E.

3.2 Field Sample Data Sheets

Information for each sample collected was logged on one of three types FSDSs that were provided by CDM: 1) personal air samples; 2) stationary air samples; and 3) soil samples. FSDSs were completed by EMR personnel using CDM-assigned sample numbering labels as well as sample specific data. Personal and stationary air sample FSDSs are found in Appendix B and soil sample FSDSs are found in Appendix C.

3.3 Meteorological Data

On-site meteorological data was collected on a daily basis during the ABS event as described in 3.3.4. Additionally, local meteorological data was downloaded daily from the USDA Forest Service Fire Weather Forecasting Station LBBM8, which is located on the southwest side of Libby, Montana. Both on-site and local meteorological data was uploaded daily to a field computer and backed up on an external hard drive. All meteorological data is presented in Appendix D.

4.0 SAMPLE ANALYSIS

4.1 Analytical Methods

All samples collected as part of the ABS event were submitted to the CDM Libby, Montana office. Upon approval of the analytical summary sheets, CDM generated chain of custody forms and submitted all air matrix samples to EMSL's Libby, Montana laboratory. All soil samples were submitted to CDM's Denver facility for preparation and then forwarded to EMSL for analysis. The following is a brief discussion of the analytical methods used in the analysis of the ABS samples.

4.1.1TEM ANALYSIS

Worker, simulated trespasser and stationary air samples were submitted for TEM analysis using the ISO 10312 methodology. This method determines and counts the type(s) of asbestos structure present, but sometimes cannot discriminate between individual fibers of amphibole and non-asbestos analogues of the same amphibole mineral. The method categorizes structures of various lengths and widths into "bins" to count the various fractions of LA, OA and Chrysotile (C). The method specifies six bins that are characterized as follows:

- Bin A: All LA, OA and C fibers with a length to width aspect ratio less than 5:1;
- Bin B: All LA, OA and C fibers with a length to width aspect ratio greater than or equal to 5:1 and length less than 0.5 µm;
- Bin C: All LA, OA and C fibers with an a length to width aspect ratio greater than or equal to 5:1 and width less than or equal to 0.5 µm;
- Bin D: All LA, OA and C fibers with a length to width aspect ratio greater than or equal to 5:1, with fiber length between 0.5 µm and 5 µm;
- Bin E: All LA, OA and C fibers with a length to width aspect ratio greater than or equal to 5:1, length between 5 and 10 microns and width less than or equal to 0.5 µm; and
- Bin F: All LA, OA and C fibers with a length to width aspect ratio greater than or equal to 5:1, length greater than 10 µm and width less than or equal to 0.5 µm.

Results are expressed in units of structures per cubic centimeter (s/cc) (Table 1).

All air samples collected as part of the Public portion of the ABS event were directly prepared.

4.1.2 PLM-VE/PLM-GRAVIMETRIC ANALYSIS

Samples of soil and soil-like materials collected as part of the Libby Superfund Site are prepared by CDM for analysis of LA by separation of coarse fraction and fine fraction materials using a ¼-inch sieve. Coarse fraction materials (greater than ¼-inch in diameter) are retained during sieving and fine fraction materials (less than ¼-inch in diameter) pass through the sieve. Each of these fractions is then analyzed for LA as follows (USEPA, 2008):

- The coarse fraction is analyzed using stereomicroscopy and Polarized Light Microscopy (PLM) to identify coarse particles that are asbestos, and estimating the mass percent by weighing those asbestos particles gravimetrically.
- The fine fraction is ground to less than or equal to 250 µm particle size and is evaluated by PLM-VE to estimate the mass fraction for LA using site-specific reference material as a frame of reference.

Soil results are expressed in % mass in Tables 2 and 3.

5.0 SAMPLING PROGRAM

5.1 Sampling Areas

EMR personnel consulted with the BNSF RP-15 and RP-21 Roadmasters on a daily basis to determine the planned activities and the exact work area in which sampling would take place. The work areas moved daily and sampling areas were dependant on several factors including the following:

- Maintenance Project Duration – projects that would be completed in less than 3 hours were not targeted for soil or stationary air sampling since the job duration would be of insufficient length to collect an acceptable volume of air;
- Work Site Accessibility – remote projects were excluded since equipment needed for sampling had to be carried to the work site;
- Planned Maintenance Activities – sampling was biased towards maintenance activities associated with wooden ties due to the more invasive nature of the work. However a mixture of wood and concrete tie work was sampled to determine potential exposures for both sets of activities.

5.2 Deviations from SAP

The ABS event was conducted in accordance with the procedures described in the Public SAPs except when field conditions warranted a deviation. The following is a discussion of deviations from the SAPs that were incorporated into the sampling process based on field conditions. All deviations were documented on Field Change Order (FCO) forms, which are found in Appendix F. Many of the deviations resulted from determining actual field conditions versus those speculated during the SAP development.

- FCO #17-1: A flow rate of 5 L/m could not be achieved with the personal pumps. Reduced flow rates increased the duration of sampling events from 4 hours to 8 hours.
- FCO #17-2: The SAP specified the collection of samples from two on-looker trespassers. Due to personnel limitations only one on-looker trespasser was sampled.
- FCO #17-3: The SAP assumed that no train traffic would pass through the sampling area. On day 1 train traffic was allowed to pass through the sampling area during maintenance and sampling activities. All subsequent trains passing through the sampling area were recorded in the field book.
- FCO #17-4: The SAP specified that the simulated pedestrian trespasser would be sampled away from maintenance activities. Due to manpower limitations the simulated pedestrian trespassers spent the majority of the sampling period in areas where maintenance activity was occurring.
- FCO #17-5: The SAP specified that composite soil samples would be collected and sampling equipment would be wrapped in tin foil between sample locations. Discrete soil samples were collected and sampling equipment was decontaminated between sample locations, dried and placed in a clean zip-lock bag.

- FCO #17-6: Worker sampling event duration is variable and is not under the control of the sampling team. The SAP called for maximum sample duration of 4 hours for workers. Pumps were placed on workers at the beginning of a shift and retrieved at the end of the shift. The increased duration may result in filter overloading.
- FCO #18-1: The Day 2 maintenance area was shorter than Day 1 and less area had exposed soil. The number of soil samples was reduced from 15 to 9 due to reduced track protection time and the lack of exposed soil.
- FCO #18-2: Assessed and reduced worker air sample flow rate from 2.8L/m to 1.0 L/m to reduce filter overloading.
- FCO #18-3: Day 1 field setting was extremely dry and significant dust was created by vehicles passing through the sampling area on an adjacent access road. Day 2 conditions featured the same soil moisture conditions but overall dust levels were lower since this site did not have an access road.
- FCO #19-1: Scheduled maintenance was less than 1,000 feet in length with an expected duration of 2 to 3 hours. The sampling plan was modified to account for the short length and duration.
- FCO #22-1: The SAP called for a suspension of work during precipitation events. The SAP was modified to continue sampling during the light to moderate rainfall event that occurred this day.

Since the FCOs represent actual field conditions, these deviations will likely be incorporated into future ABS events and SAP revisions.

5.3 Personal Air Sampling

Two potential public receptor exposure scenarios were evaluated with personal air sampling techniques. The public receptor scenarios consisted of: 1) simulated pedestrian trespassers; and 2) simulated on-looker trespasser and are discussed below. All personal air samples were collected using the equipment and procedures described in Section 3.3.1. The collection locations of personal air samples are not depicted on Figures 4-10 since the sampled personnel were not stationary.

5.3.1 SIMULATED PEDESTRIAN TRESSPASSER SAMPLING

Two personal air samples were collected each work day to evaluate the potential exposure of two simulated trespassers walking single file down the BNSF right-of-way (ROW). As stated in Section 6.2, this scenario was outlined in the SAP to be executed outside of the maintenance work zone. Due to personnel limitations these samples were collected from the breathing zone of EMR personnel that spent considerable time within the maintenance work zone and were tasked with soil sample collection.

5.3.2 SIMULATED ON-LOOKER TRESPASSER SAMPLING

One personal air sample was collected each work day to evaluate the potential exposure of a single simulated trespasser observing the maintenance activities from BNSF property but not on

the immediate ROW. These samples were collected from the breathing zone of EMR personnel that spent the majority of their time outside the maintenance work zone.

5.4 Stationary Air Sampling

Stationary air sampling was done to assess potential exposure to airborne asbestos fibers originating from rail maintenance activities and migrating off the immediate ROW. A total of 2 to 4 stationary air samples were collected each sampling day with the number of samples being dependent on the length of the work area. The stationary air samples were placed within the maintenance work zone on both sides of the mainline to evaluate air both upwind and downwind air quality. Stationary air sampling locations where four (4) air samples were collected, the samples were laid out in a rectangular pattern measuring approximately 75 feet by 100 feet with the long axis of the rectangle being parallel to the tracks. In areas where only two (2) stationary air samples were collected, one (1) sample was collected from both sides of the tracks. Stationary air sample locations are depicted on Figures 4 through 10.

5.5 Soil Sampling

Discrete soil samples locations were evenly spaced at intervals that ranged from approximately 40 to 320 feet. The spacing was dependant on the length of the work area and the availability of exposed soil. Areas that did not have exposed soil (i.e. covered with ballast) were not sampled. Soil samples were collected from the soil surface nearest the track on which the work was occurring. Soil samples were collected from one side or both sides of the track depending on the track configuration and availability of exposed soil. Soil sample locations are depicted on Figures 4 through 10.

5.6 Sample Identification Numbers

All samples were assigned a unique sample identification consisting of a prefix followed by a five digit number that signify the order in which the samples were collected. All sample identifications were pre-assigned by CDM. Air samples were designated by a BA prefix while soil samples were designated by a RR prefix. The Location IDs used during the collection of both air (AD-005568) and soil samples (SP-138460) were also assigned by CDM.

6.0 SAMPLING SUMMARY

The following is a discussion of the work areas and daily sampling activities that occurred during the Public Receptor portion of the ABS event. The following discussion contains gaps in the personal air sampling numbering since additional samples were collected during the Worker Receptor portion of the ABS event. The results of this sampling are discussed under separate cover in the *Activity Based Sampling Summary Report – Worker Receptors* (EMR, 2010).

6.1 September 17, 2008

Sampling focused on RP-15 that was relaying approximately 2,000 feet of rail on wood ties at MP 1312, approximately 7.5 miles east of Libby (Figure 3).

The following samples were collected:

- Two (2) simulated pedestrian trespasser personal air samples BA-00003 and BA-00004;
- One (1) simulated on-looker trespasser personal air sample BA-00005;
- Four (4) stationary air samples BA-00006 through BA-00009;
- One (1) air sample blank BA-00010;
- Fifteen (15) soil samples RR-00001 through RR-00015.

No visible vermiculite was observed in soil samples RR-00001, RR-00006 through RR-00008, RR-00013 and RR-00015. The remaining nine (9) soil samples were classified as containing low amounts of vermiculite (Table 2). Stationary air and soil sampling locations are depicted on Figure 4.

6.2 September 18, 2008

Sampling focused on RP-15 that was replacing approximately 2,900 feet of rail on wooden ties at Kootenai Falls Siding (MP 1331.5). This work site was approximately 12½ miles west of Libby (Figure 3).

The following samples were collected:

- Two (2) simulated pedestrian trespasser personal air samples BA-00013 and BA-00014;
- One (1) simulated on-looker trespasser personal air sample BA-00015;
- Four (4) stationary air samples BA-00016 through BA-00019;
- One (1) air sample blank BA-00020;
- Eight (8) soil samples RR-00016 through RR-00023.

No visible vermiculite was observed in soil samples RR-00016 through RR-00019. Low concentrations of visible vermiculite were observed in soil samples RR-00020 through RR-00023 (Table 2). Stationary air and soil sampling locations are depicted on Figure 7.

6.3 September 19, 2008

Sampling focused on RP-15 that replaced 610 feet of rail on wooden ties at Kootenai Falls Siding (MP 1331). This work site was approximately 12 miles west of Libby (Figure 3).

The following samples were collected:

- Two (2) simulated pedestrian trespasser personal air samples BA-00023 and BA-00024;
- One (1) simulated on-looker trespasser personal air sample BA-00025;
- Two (2) stationary air samples BA-00026 and BA-00028;
- One (1) air sample blank BA-00027;
- Six (6) soil samples RR-00025 through RR-00030

The number of stationary air samples and soil samples was reduced on this site due to the short length of the project. No visible vermiculite was observed in any of the soil samples (Table 2). Stationary air and soil sampling locations are depicted on Figure 6.

6.4 September 22, 2008

Sampling focused on RP-15 that replaced 1,400 feet of rail on wooden ties east of Kootenai Falls Siding (MP 1329.5). This work site was approximately 10 miles west of Libby (Figure 3).

The following samples were collected:

- One (1) simulated on-looker trespasser personal air sample BA-00031;
- Two (2) simulated pedestrian trespasser personal air samples BA-00032 and BA-00033;
- Two (2) stationary air samples BA-00034 and BA-00035;
- One (1) air sample blank BA-00036;
- Eight (8) soil samples RR-00031 through RR-00038.

Visible vermiculite was observed in only one soil sample (RR-00036) and was classified as low concentration (Table 2). Stationary air and soil sampling locations are depicted on Figure 5.

6.5 September 23, 2008

Sampling focused on RP-21 that replaced 1,000 feet of rail on concrete ties at the east end of Troy (MP 1337). This work site was approximately 1 mile east of Troy (Figure 3).

The following samples were collected:

- One (1) simulated on-looker trespasser personal air sample BA-00039;
- Two (2) simulated pedestrian trespasser personal air samples BA-00040 and BA-00041;
- Two (2) stationary air samples BA-00044 and BA-00045;
- One (1) air sample blank BA-00046;
- Eight (8) soil samples RR-00039 through RR-00046.

No visible vermiculite was observed in soil sample RR-00040. However, visible vermiculite was observed in soil samples RR-00039, RR-00041 through RR-00045 and were classified as low concentration. Additionally, soil sample RR-00046 contained visible vermiculite and was classified as medium concentration (Table 2). Stationary air and soil sampling locations are depicted on Figure 8.

6.6 September 24, 2008

Sampling focused on RP-21 that replaced 1,300 feet of rail on concrete ties at the east end of the BNSF Troy yard (MP 1339.5). This work site was approximately 1.5 miles west of Troy (Figure 9).

The following samples were collected:

- One (1) simulated on-looker trespasser personal air sample BA-00049;
- Two (2) simulated pedestrian trespasser personal air samples BA-00050 and BA-00051;
- Four (4) stationary air samples BA-00052 and BA-00055;
- Two (2) air sample blanks BA-00056 and BA-00057;
- 9 soil samples RR-00047 through RR-00055.

No visible vermiculite was observed in soil samples RR-00047 through RR-00049, but low concentrations were observed in samples RR-00050 through RR-00055. Stationary air and soil sampling locations are depicted on Figure 10. This project completed RP-21's work within OU6.

6.7 September 25, 2008

Sampling focused on RP-15 that replaced 600 feet of rail on wooden ties east of the Troy (MP 1341). This work site was approximately 3.6 miles west of Troy (Figure 2).

The following samples were collected:

- One (1) simulated on-looker trespasser personal air sample BA-00060;
- Two (2) simulated pedestrian trespasser personal air samples BA-00061 and BA-00062;
- Four (4) stationary air samples BA-00064 and BA-00067;
- One (1) duplicate stationary air sample BA-00068;

- One (1) air sample blank BA-00069;
- 7 soil samples RR-00056 through RR-00062.

Visible vermiculite was not observed in any of the soil samples. Stationary air and soil sampling locations are depicted on Figure 10. This project completed RP-15's work within OU6.

7.0 DISCUSSION OF RESULTS

Air sample results are summarized in Table 1 and complete laboratory reports and chain of custody forms are found in Appendix G. Soil sample results are summarized in Tables 2 and 3 and complete laboratory reports and chain-of-custody forms are found in Appendix H.

7.1 Stationary Air Sampling Results

A total of 22 stationary air samples and two (2) duplicates were collected and submitted for laboratory analysis using ISO 10312 methods. Analytical sensitivity for these samples ranged from 0.000397 s/cc to 0.0024 s/cc. All samples met the target analytical sensitivity. All samples were non-detect for LA, OA and Chrysotile (Table 1).

7.2 Simulated Tresspasser Scenario Air Sampling Results

A total of seven (7) simulated onlooker trespasser and 14 simulated pedestrian trespasser scenario air samples were collected. All simulated trespasser samples were submitted for analysis using ISO 10312 methodology and analytical sensitivity ranged from 0.000967 s/cc to 0.00125 s/cc. All samples met the target analytical sensitivity. All simulated trespasser scenario air samples were non-detect (Table 1).

7.3 Air Sample Blank Results

A total of 8 blank samples were collected and submitted for analysis. Three of the blanks were not analyzed at the discretion of EMSL and were archived. All of the blanks that were analyzed resulted in non-detection of LA, OA and Chrysotile (Table 1).

7.4 Soil Sample Analysis

Each soil sample was sieved and subdivided into fine and coarse fraction by CDM as described in Section 5.1.3. The following is a discussion of the results of analysis of each of these fractions.

7.4.1 FINE FRACTION ANALYSIS

A total of 61 soil samples were collected during the ABS event. All samples contained a fine fraction, which was analyzed via PLM-VE methods. A total of 18 Quality Assurance/Quality Control (QA/QC) samples were prepared by CDM and submitted for PLM-VE analysis. All samples, with the exception of RR-00022 and RR-00025, were non-detect for LA, OA and Chrysotile. Samples RR-00022 and RR-00025 contained 0.1% LA and were found in bin B1. Both samples were collected within the limits of the Kootenai Falls siding at BNSF MP 1331.5

(RR-00022) and MP 1331 (RR-00025). These locations are depicted on Figures 7 and 6, respectively.

7.4.2 COARSE FRACTION ANALYSIS

A total of 50 samples had coarse fractions that were analyzed via PLM-Gravimetric methods. Additionally, 8 QA/QC samples were prepared by CDM and submitted for analysis. All samples were non-detect for LA, OA and Chrysotile (Table 3).

8.0 REFERENCES

AECOM, 2008a, *Rail Maintenance Worker Receptor Activity-Based Sampling and Analysis Plan - Operable Unit 6*. October, 2008

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CDM, 2007, *Semi-Quantitative Visual Estimation of Vermiculite is Soils at Residential and Commercial Properties*. May, 2007

EMR, 2008, *Health and Safety Plan – BNSF Maintenance of Way Activity Based Sampling, Libby, Montana*. September, 2008.

EMR, 2010, *Activity Based Sampling Summary Report – Worker Receptors*. March, 2010.

USEPA, 2008, *Procedure for Combining Mass Fraction Estimates of Libby Amphibole for the Coarse and Fine Fractions of Soil and Soil-Like Samples at the Libby Asbestos Site – Technical Memo 8*. February 21, 2008.

9.0 STANDARD OF CARE

The data generated and conclusions provided are based upon the scope of work performed. All work was conducted in a manner consistent with customary principles in the fields of science and engineering. EMR is not responsible for the independent conclusions, opinions, or recommendations made by others based on the data presented in this report. No other warranty, expressed or implied, is made.

The results reported and any opinions reached by EMR are for the benefit of the client and unless agreed to by EMR in writing, are not to be disclosed to or relied upon by any third party. The results and opinions set forth by EMR in this report will be valid as of the date of the report. EMR assumes no obligation to advise you of any changes that may later be brought to our attention.

EMR, Inc., as environmental consultants, respectfully submits this report.

The preceding report was prepared and reviewed by the following EMR personnel.

Author:

March 12, 2010
Date

Scott Carney, PG, CHMM
Senior Geologist

Reviewed By:

March 12, 2010
Date

Dave Welch, L.G.
Project Geologist

TABLES

Table 1. Summary of ABS Air Sampling Results
Activity Based Sampling Summary Report - Public Receptors
BNSF RP-15/RP-21
BNSF Kootenai River Subdivision
September 17-25, 2008
EMR Project #5539-120

Index ID	Sample Group	Sample Date	Analysis Date	Sample Type	Volume (L)	Sensitivity	Libby Amphibole s/cc	Other Amphibole s/cc	Chrysotile s/cc	Personnel Name	Job	Milepost
BA-00003	Property	9/17/2008	11/12/2008	Pedestrian	933	0.000814	<DL	<DL	<DL	Amanda Thornton	EMR	1312
BA-00004	Property	9/17/2008	11/12/2008	Pedestrian	991	0.000766	<DL	<DL	<DL	Dave Welch	EMR	1312
BA-00005	Property	9/17/2008	11/6/2008	On-Looker	1028	0.000993	<DL	<DL	<DL	Matt Lenz	EMR	1312
BA-00006	SP-138440	9/17/2008	10/31/2008	Stationary	1778	0.0024	<DL	<DL	<DL	NA	NA	1312
BA-00007	SP-138441	9/17/2008	10/31/2008	Stationary	1763	0.0024	<DL	<DL	<DL	NA	NA	1312
BA-00008	SP-138442	9/17/2008	10/31/2008	Stationary	2440	0.00202	<DL	<DL	<DL	NA	NA	1312
BA-00009	SP-138443	9/17/2008	10/31/2008	Stationary	2402	0.00205	<DL	<DL	<DL	NA	NA	1312
BA-00010	Blank	9/17/2008	10/31/2008	Blank	0	Blank	0	0	0	NA	NA	1312
BA-00013	AD-005568	9/18/2008	11/12/2008	Pedestrian	977	0.000777	<DL	<DL	<DL	Dave Welch	EMR	1331.5
BA-00014	AD-005568	9/18/2008	11/12/2008	Pedestrian	942	0.000806	<DL	<DL	<DL	Amanda Thornton	EMR	1331.5
BA-00015	AD-005568	9/18/2008	11/6/2008	On-Looker	938	0.000987	<DL	<DL	<DL	Matt Lenz	EMR	1331.5
BA-00016	SP-138444	9/18/2008	10/31/2008	Stationary	2675	0.00221	<DL	<DL	<DL	NA	NA	1331.5
BA-00017	SP-138445	9/18/2008	10/31/2008	Stationary	2675	0.00221	<DL	<DL	<DL	NA	NA	1331.5
BA-00018	SP-138446	9/18/2008	10/31/2008	Stationary	2538	0.00233	<DL	<DL	<DL	NA	NA	1331.5
BA-00019	SP-138447	9/18/2008	10/31/2008	Stationary	2523	0.00235	<DL	<DL	<DL	NA	NA	1331.5
BA-00020	Blank	9/18/2008	10/31/2008	Blank	0	Blank	0	0	0	NA	NA	1331.5
BA-00023	AD-005568	9/19/2008	11/12/2008	Pedestrian	960	0.000791	<DL	<DL	<DL	Dave Welch	EMR	1331
BA-00024	AD-005568	9/19/2008	11/12/2008	Pedestrian	953	0.000797	<DL	<DL	<DL	Amanda Thornton	EMR	1331
BA-00025	AD-005568	9/19/2008	11/6/2008	On-Looker	988	0.000967	<DL	<DL	<DL	Matt Lenz	EMR	1331
BA-00026	SP-138448	9/19/2008	10/31/2008	Stationary	1961	0.00216	<DL	<DL	<DL	NA	NA	1331
BA-00027	Blank	9/19/2008	10/31/2008	Blank	0	Blank	0	0	0	NA	NA	1331
BA-00028	SP-138449	9/19/2008	10/31/2008	Stationary	1968	0.00215	<DL	<DL	<DL	NA	NA	1331
BA-00031	AD-005568	9/22/2008	11/6/2008	On-Looker	779	0.000975	<DL	<DL	<DL	Matt Lenz	EMR	1329.8
BA-00032	AD-005568	9/22/2008	11/12/2008	Pedestrian	780	0.000974	<DL	<DL	<DL	Amanda Thornton	EMR	1329.8
BA-00033	AD-005568	9/22/2008	11/12/2008	Pedestrian	658	0.00115	<DL	<DL	<DL	Dave Welch	EMR	1329.8
BA-00034	SP-138450	9/22/2008	10/31/2008	Stationary	1718	0.00215	<DL	<DL	<DL	NA	NA	1329.8
BA-00035	SP-138451	9/22/2008	10/31/2008	Stationary	1718	0.00215	<DL	<DL	<DL	NA	NA	1329.8
BA-00036	Blank	9/22/2008	Archived	Blank	0	Blank	0	0	0	NA	NA	1329.8
BA-00039	AD-005568	9/23/2008	11/6/2008	On-Looker	817	0.00098	<DL	<DL	<DL	Matt Lenz	EMR	1337
BA-00040	AD-005568	9/23/2008	11/13/2008	Pedestrian	780	0.00237	<DL	<DL	<DL	Amanda Thornton	EMR	1337
BA-00041	AD-005568	9/23/2008	11/13/2008	Pedestrian	718	0.00229	<DL	<DL	<DL	Dave Welch	EMR	1337
BA-00044	SP-138454	9/23/2008	11/14/2008	Stationary	1915	0.000397	<DL	<DL	<DL	NA	NA	1337
BA-00045	SP-138455	9/23/2008	11/5/2008	Stationary	1915	0.000397	<DL	<DL	<DL	NA	NA	1337
BA-00046	AD-005568	9/23/2008	Archived	Blank	-	-	-	-		NA	NA	1337

Table 1. Summary of ABS Air Sampling Results
Activity Based Sampling Summary Report - Public Receptors
BNSF RP-15/RP-21
BNSF Kootenai River Subdivision
September 17-25, 2008
EMR Project #5539-120

Index ID	Sample Group	Sample Date	Analysis Date	Sample Type	Volume (L)	Sensitivity	Libby Amphibole s/cc	Other Amphibole s/cc	Chrysotile s/cc	Personnel Name	Job	Milepost
BA-00049	AD-005568	9/24/2008	11/6/2008	On-Looker	803	0.000997	<DL	<DL	<DL	Matt Lenz	EMR	1339.5
BA-00050	AD-005568	9/24/2008	11/13/2008	Pedestrian	806	0.0023	<DL	<DL	<DL	Amanda Thornton	EMR	1339.5
BA-00051	AD-005568	9/24/2008	11/13/2008	Pedestrian	791	0.0022	<DL	<DL	<DL	Dave Welch	EMR	1339.5
BA-00052	SP-138456	9/24/2008	11/5/2008	Stationary	1626	0.000467	<DL	<DL	<DL	NA	NA	1339.5
BA-00053	SP-138457	9/24/2008	11/5/2008	Stationary	1619	0.000469	<DL	<DL	<DL	NA	NA	1339.5
BA-00054	SP-138458	9/24/2008	11/5/2008	Stationary	1634	0.000465	<DL	<DL	<DL	NA	NA	1339.5
BA-00055	SP-138459	9/24/2008	11/5/2008	Stationary	1634	0.000465	<DL	<DL	<DL	NA	NA	1339.5
BA-00056	AD-005568	9/24/2008	Archived	Blank	0	-	-	-	-	NA	NA	1339.5
BA-00057	AD-005568	9/24/2008	Archived	Blank	0	-	-	-	-	NA	NA	1339.5
BA-00060	AD-005568	9/25/2008	11/6/2008	On-Looker	608	0.00125	<DL	<DL	<DL	Matt Lenz	EMR	1341
BA-00061	AD-005568	9/25/2008	11/13/2008	Pedestrian	630	0.00235	<DL	<DL	<DL	Amanda Thornton	EMR	1341
BA-00062	AD-005568	9/25/2008	11/13/2008	Pedestrian	602	0.00234	<DL	<DL	<DL	Dave Welch	EMR	1341
BA-00063	SP-138460	9/25/2008	NS	Stationary	1170	-	-	-	-	NA	NA	1341
BA-00064	SP-138460	9/25/2008	11/5/2008	Stationary [1]	1170	0.000649	<DL	<DL	<DL	NA	NA	1341
BA-00065	SP-138461	9/25/2008	11/5/2008	Stationary	1178	0.000645	<DL	<DL	<DL	NA	NA	1341
BA-00066	SP-138462	9/25/2008	11/5/2008	Stationary	1170	0.000649	<DL	<DL	<DL	NA	NA	1341
BA-00067	SP-138463	9/25/2008	11/5/2008	Stationary	1178	0.000645	<DL	<DL	<DL	NA	NA	1341
BA-00068	SP-138464	9/25/2008	11/5/2008	Stationary [2]	1178	0.000645	<DL	<DL	<DL	NA	NA	1341
BA-00069	AD-005568	9/25/2008	11/6/2008	Blank	0	Blank	0	0	0	NA	NA	1341

NA - Not Applicable
DL - Detection Limits
NS - Not Submitted due to damage to filter

Archived - Blank archieved by CDM
1 - Colocated with BA-000063
2 - Colocated with BA-00067

Table 2. Summary of Soil Sampling PLM-VE (Fine Fraction) Results
Activity Based Sampling Summary Report - Public Receptors
BNSF RP-15/RP-21
BNSF Kootenai River Subdivision
September 17-25, 2008
EMR Project #5539-120

Index ID	Location ID	Sample Group	Sample Date	Analysis Date	Libby Amphibole %	Bin	Other Amphibole %	Chrysotile %	Visible Vermiculite	Milepost
September 17, 2008 - 15 samples										
RR-00001	SP-138460	Property	9/17/2008	4/27/2009	ND	A	ND	ND	None	1312
RR-00002	SP-138461	Property	9/17/2008	4/27/2009	ND	A	ND	ND	Low	1312
RR-00003	SP-138462	Property	9/17/2008	4/27/2009	ND	A	ND	ND	Low	1312
RR-00004	SP-138463	Property	9/17/2008	4/27/2009	ND	A	ND	ND	Low	1312
RR-00005	SP-138464	Property	9/17/2008	4/27/2009	ND	A	ND	ND	Low	1312
RR-00006	SP-138465	Property	9/17/2008	4/27/2009	ND	A	ND	ND	None	1312
RR-00007	SP-138466	Property	9/17/2008	4/27/2009	ND	A	ND	ND	None	1312
RR-00008	SP-138467	Property	9/17/2008	4/27/2009	ND	A	ND	ND	None	1312
RR-00009	SP-138468	Property	9/17/2008	4/27/2009	ND	A	ND	ND	Low	1312
RR-00010	SP-138469	Property	9/17/2008	4/27/2009	ND	A	ND	ND	Low	1312
RR-00011	SP-138470	Property	9/17/2008	4/27/2009	ND	A	ND	ND	Low	1312
RR-00012	SP-138471	Property	9/17/2008	4/27/2009	ND	A	ND	ND	Low	1312
RR-00013	SP-138472	Property	9/17/2008	4/27/2009	ND	A	ND	ND	None	1312
RR-00014	SP-138473	Property	9/17/2008	4/27/2009	ND	A	ND	ND	Low	1312
RR-00015	SP-138474	Property	9/17/2008	4/27/2009	ND	A	ND	ND	None	1312
September 18, 2008 - 9 samples										
RR-00016	SP-138475	Property	9/18/2008	4/27/2009	ND	A	ND	ND	None	1331.5
RR-00017	SP-138476	Property	9/18/2008	4/27/2009	ND	A	ND	ND	None	1331.5
RR-00018	SP-138477	Property	9/18/2008	4/27/2009	ND	A	ND	ND	None	1331.5
RR-00019	SP-138478	Property	9/18/2008	4/27/2009	ND	A	ND	ND	None	1331.5
RR-00020	SP-138479	Property	9/18/2008	4/27/2009	ND	A	ND	ND	Low	1331.5
RR-00021	SP-138480	Property	9/18/2008	4/27/2009	ND	A	ND	ND	Low	1331.5
RR-00022	SP-138481	Property	9/18/2008	4/28/2009	0.1	B1	ND	ND	Low	1331.5
RR-00023	SP-138482	Property	9/18/2008	4/28/2009	ND	A	ND	ND	Low	1331.5
RR-00024	SP-138483	Not Used	9/18/2008	4/28/2009	NA	NA	NA	NA	NA	1331.5
September 19, 2008 - 6 samples										
RR-00025	SP-138484	Property	9/19/2009	4/28/2009	0.1	B1	ND	ND	None	1331
RR-00026	SP-138485	Property	9/19/2009	4/28/2009	ND	A	ND	ND	None	1331
RR-00027	SP-138486	Property	9/19/2009	4/28/2009	ND	A	ND	ND	None	1331
RR-00028	SP-138487	Property	9/19/2009	4/28/2009	ND	A	ND	ND	None	1331
RR-00029	SP-138488	Property	9/19/2009	4/28/2009	ND	A	ND	ND	None	1331
RR-00030	SP-138489	Property	9/19/2009	4/28/2009	ND	A	ND	ND	None	1331
September 22, 2008 - 8 samples										
RR-00031	SP-138490	Property	9/22/2009	4/28/2009	ND	A	ND	ND	None	1329.8
RR-00032	SP-138491	Property	9/22/2009	4/28/2009	ND	A	ND	ND	None	1329.8
RR-00033	SP-138492	Property	9/22/2009	4/28/2009	ND	A	ND	ND	None	1329.8
RR-00034	SP-138493	Property	9/22/2009	4/28/2009	ND	A	ND	ND	None	1329.8
RR-00035	SP-138494	Property	9/22/2009	4/28/2009	ND	A	ND	ND	None	1329.8
RR-00036	SP-138495	Property	9/22/2009	4/28/2009	ND	A	ND	ND	Low	1329.8
RR-00037	SP-138496	Property	9/22/2009	4/28/2009	ND	A	ND	ND	None	1329.8
RR-00038	SP-138497	Property	9/22/2009	4/28/2009	ND	A	ND	ND	None	1329.8

Table 2. Summary of Soil Sampling PLM-VE (Fine Fraction) Results
Activity Based Sampling Summary Report - Public Receptors
BNSF RP-15/RP-21
BNSF Kootenai River Subdivision
September 17-25, 2008
EMR Project #5539-120

Index ID	Location ID	Sample Group	Sample Date	Analysis Date	Libby Amphibole %	Bin	Other Amphibole %	Chrysotile %	Visible Vermiculite	Milepost
September 23, 2008 - 8 samples										
RR-00039	SP-138498	Property	9/23/2009	4/28/2009	ND	A	ND	ND	Low	1337
RR-00040	SP-138499	Property	9/23/2009	4/28/2009	ND	A	ND	ND	None	1337
RR-00041	SP-138500	Property	9/23/2009	4/28/2009	ND	A	ND	ND	Low	1337
RR-00042	SP-138501	Property	9/23/2009	4/28/2009	ND	A	ND	ND	Low	1337
RR-00043	SP-138502	Property	9/23/2009	4/28/2009	ND	A	ND	ND	Low	1337
RR-00044	SP-138503	Property	9/23/2009	4/28/2009	ND	A	ND	ND	Low	1337
RR-00045	SP-138504	Property	9/23/2009	4/28/2009	ND	A	ND	ND	Low	1337
RR-00046	SP-138505	Property	9/23/2009	4/29/2009	ND	A	ND	ND	Medium	1337
September 24, 2008 - 9 samples										
RR-00047	SP-138506	Property	9/24/2008	4/29/2009	ND	A	ND	ND	None	1339.5
RR-00048	SP-138507	Property	9/24/2008	4/29/2009	ND	A	ND	ND	None	1339.5
RR-00049	SP-138508	Property	9/24/2008	4/29/2009	ND	A	ND	ND	None	1339.5
RR-00050	SP-138509	Property	9/24/2008	4/29/2009	ND	A	ND	ND	Low	1339.5
RR-00051	SP-138510	Property	9/24/2008	4/29/2009	ND	A	ND	ND	Low	1339.5
RR-00052	SP-138511	Property	9/24/2008	4/29/2009	ND	A	ND	ND	Low	1339.5
RR-00053	SP-138512	Property	9/24/2008	4/29/2009	ND	A	ND	ND	Low	1339.5
RR-00054	SP-138513	Property	9/24/2008	4/29/2009	ND	A	ND	ND	Low	1339.5
RR-00055	SP-138514	Property	9/24/2008	4/29/2009	ND	A	ND	ND	Low	1339.5
September 25, 2008 - 7 samples										
RR-00056	SP-138515	Property	9/25/2008	4/29/2009	ND	A	ND	ND	None	1341
RR-00057	SP-138516	Property	9/25/2008	4/29/2009	ND	A	ND	ND	None	1341
RR-00058	SP-138517	Property	9/25/2008	4/29/2009	ND	A	ND	ND	None	1341
RR-00059	SP-138518	Property	9/25/2008	4/29/2009	ND	A	ND	ND	None	1341
RR-00060	SP-138519	Property	9/25/2008	4/29/2009	ND	A	ND	ND	None	1341
RR-00061	SP-138520	Property	9/25/2008	4/29/2009	ND	A	ND	ND	None	1341
RR-00062	SP-138520	Property	9/25/2008	4/29/2009	ND	A	ND	ND	None	1341
CDM QA/QC - 18 samples										
RR-00201	NA	QA Sample	10/31/2008	4/29/2009	ND	A	ND	ND	NA	NA
RR-00202	NA	QA Sample	10/31/2008	4/29/2009	ND	A	ND	ND	NA	NA
RR-00203	NA	QA Sample	10/31/2008	4/29/2009	ND	A	ND	ND	NA	NA
RR-00204	NA	QA Sample	11/3/2008	4/29/2009	ND	A	ND	ND	NA	NA
RR-00205	NA	QA Sample	11/4/2008	4/29/2009	ND	A	ND	ND	NA	NA
RR-00206	NA	QA Sample	11/4/2008	4/29/2009	ND	A	ND	ND	NA	NA
RR-00207	NA	QA Sample	4/13/2009	4/29/2009	ND	A	ND	ND	NA	NA
RR-00208	NA	QA Sample	4/14/2009	4/29/2009	ND	A	ND	ND	NA	NA
RR-00209	NA	QA Sample	4/14/2009	4/29/2009	ND	A	ND	ND	NA	NA
RR-00210	NA	QA Sample	4/14/2009	4/30/2009	ND	A	ND	ND	NA	NA
RR-00211	NA	QA Sample	4/15/2009	4/30/2009	ND	A	ND	ND	NA	NA
RR-00212	NA	QA Sample	4/15/2009	4/30/2009	ND	A	ND	ND	NA	NA
RR-00213	NA	QA Sample	4/15/2009	4/30/2009	ND	A	ND	ND	NA	NA
RR-00214	NA	QA Sample	4/17/2009	4/30/2009	ND	A	ND	ND	NA	NA
RR-00215	NA	QA Sample	4/17/2009	4/30/2009	ND	A	ND	ND	NA	NA
RR-00216	NA	QA Sample	4/17/2009	4/30/2009	ND	A	ND	ND	NA	NA
RR-00217	NA	QA Sample	4/21/2009	4/30/2009	ND	A	ND	ND	NA	NA
RR-00218	NA	QA Sample	4/21/2009	4/30/2009	ND	A	ND	ND	NA	NA

NA - Not Applicable
RR-002XX series samples are QA/QC samples generated by CDM during soil sample preparation

Table 3. Summary of Soil Sampling PLM-Gravimetric (Coarse Fraction) Results
Activity Based Sampling Summary Report - Public Receptors
BNSF RP-15/RP-21
BNSF Kootenai River Subdivision
September 17-25, 2008
EMR Project #5539-120

Index ID	Location ID	Sample Group	Sample Date	Analysis Date	Libby Amphibole Quantity	Other Amphibole Quantity	Chrysotile Quantity	Milepost
September 17, 2008 - 8 samples								
RR-00001	SP-138460	Property	9/17/2008	4/30/2009	ND	ND	ND	1312
RR-00002	SP-138461	Property	9/17/2008	4/30/2009	ND	ND	ND	1312
RR-00005	SP-138464	Property	9/17/2008	4/30/2009	ND	ND	ND	1312
RR-00011	SP-138470	Property	9/17/2008	4/30/2009	ND	ND	ND	1312
RR-00012	SP-138471	Property	9/17/2008	4/30/2009	ND	ND	ND	1312
RR-00013	SP-138472	Property	9/17/2008	4/30/2009	ND	ND	ND	1312
RR-00014	SP-138473	Property	9/17/2008	4/30/2009	ND	ND	ND	1312
RR-00015	SP-138474	Property	9/17/2008	4/30/2009	ND	ND	ND	1312
September 18, 2008 - 8 samples								
RR-00016	SP-138475	Property	9/18/2008	4/30/2009	ND	ND	ND	1331.5
RR-00017	SP-138476	Property	9/18/2008	5/1/2009	ND	ND	ND	1331.5
RR-00018	SP-138477	Property	9/18/2008	5/1/2009	ND	ND	ND	1331.5
RR-00019	SP-138478	Property	9/18/2008	5/1/2009	ND	ND	ND	1331.5
RR-00020	SP-138479	Property	9/18/2008	5/1/2009	ND	ND	ND	1331.5
RR-00021	SP-138480	Property	9/18/2008	5/1/2009	ND	ND	ND	1331.5
RR-00022	SP-138481	Property	9/18/2008	5/1/2009	ND	ND	ND	1331.5
RR-00023	SP-138482	Property	9/18/2008	5/1/2009	ND	ND	ND	1331.5
September 19, 2008 - 5 samples								
RR-00025	SP-138484	Property	9/19/2009	5/1/2009	ND	ND	ND	1331
RR-00027	SP-138486	Property	9/19/2009	5/1/2009	ND	ND	ND	1331
RR-00028	SP-138487	Property	9/19/2009	5/1/2009	ND	ND	ND	1331
RR-00029	SP-138488	Property	9/19/2009	5/1/2009	ND	ND	ND	1331
RR-00030	SP-138489	Property	9/19/2009	5/1/2009	ND	ND	ND	1331
September 22, 2008 - 7 samples								
RR-00031	SP-138490	Property	9/22/2009	5/1/2009	ND	ND	ND	1329.8
RR-00032	SP-138491	Property	9/22/2009	5/1/2009	ND	ND	ND	1329.8
RR-00033	SP-138492	Property	9/22/2009	5/1/2009	ND	ND	ND	1329.8
RR-00034	SP-138493	Property	9/22/2009	5/1/2009	ND	ND	ND	1329.8
RR-00035	SP-138494	Property	9/22/2009	5/1/2009	ND	ND	ND	1329.8
RR-00036	SP-138495	Property	9/22/2009	5/4/2009	ND	ND	ND	1329.8
RR-00037	SP-138496	Property	9/22/2009	5/4/2009	ND	ND	ND	1329.8
September 23, 2008 - 8 samples								
RR-00039	SP-138498	Property	9/23/2009	5/4/2009	ND	ND	ND	1337
RR-00040	SP-138499	Property	9/23/2009	5/4/2009	ND	ND	ND	1337
RR-00041	SP-138500	Property	9/23/2009	5/4/2009	ND	ND	ND	1337
RR-00042	SP-138501	Property	9/23/2009	5/4/2009	ND	ND	ND	1337
RR-00043	SP-138502	Property	9/23/2009	5/4/2009	ND	ND	ND	1337
RR-00044	SP-138503	Property	9/23/2009	5/4/2009	ND	ND	ND	1337
RR-00045	SP-138504	Property	9/23/2009	5/4/2009	ND	ND	ND	1337
RR-00046	SP-138505	Property	9/23/2009	5/4/2009	ND	ND	ND	1337

Table 3. Summary of Soil Sampling PLM-Gravimetric (Coarse Fraction) Results
Activity Based Sampling Summary Report - Public Receptors
BNSF RP-15/RP-21
BNSF Kootenai River Subdivision
September 17-25, 2008
EMR Project #5539-120

Index ID	Location ID	Sample Group	Sample Date	Analysis Date	Libby Amphibole Quantity	Other Amphibole Quantity	Chrysotile Quantity	Milepost
September 24, 2008 - 8 samples								
RR-00047	SP-138506	Property	9/24/2008	5/4/2009	ND	ND	ND	1339.5
RR-00048	SP-138507	Property	9/24/2008	5/4/2009	ND	ND	ND	1339.5
RR-00050	SP-138509	Property	9/24/2008	5/4/2009	ND	ND	ND	1339.5
RR-00051	SP-138510	Property	9/24/2008	5/4/2009	ND	ND	ND	1339.5
RR-00052	SP-138511	Property	9/24/2008	5/4/2009	ND	ND	ND	1339.5
RR-00053	SP-138512	Property	9/24/2008	5/4/2009	ND	ND	ND	1339.5
RR-00054	SP-138513	Property	9/24/2008	5/4/2009	ND	ND	ND	1339.5
RR-00055	SP-138514	Property	9/24/2008	5/4/2009	ND	ND	ND	1339.5
September 25, 2008 - 7 samples								
RR-00056	SP-138515	Property	9/25/2008	5/4/2009	ND	ND	ND	1341
RR-00057	SP-138516	Property	9/25/2008	5/4/2009	ND	ND	ND	1341
RR-00058	SP-138517	Property	9/25/2008	5/4/2009	ND	ND	ND	1341
RR-00059	SP-138518	Property	9/25/2008	5/4/2009	ND	ND	ND	1341
RR-00060	SP-138519	Property	9/25/2008	5/4/2009	ND	ND	ND	1341
RR-00061	SP-138520	Property	9/25/2008	5/4/2009	ND	ND	ND	1341
RR-00062	SP-138520	Property	9/25/2008	5/4/2009	ND	ND	ND	1341
September 26, 2008 - 8 samples								
RR-00203	NA	QA Sample	10/31/2008	5/4/2009	ND	ND	ND	NA
RR-00206	NA	QA Sample	11/4/2008	5/4/2009	ND	ND	ND	NA
RR-00209	NA	QA Sample	4/14/2009	5/4/2009	ND	ND	ND	NA
RR-00212	NA	QA Sample	4/15/2009	5/4/2009	ND	ND	ND	NA
RR-00215	NA	QA Sample	4/17/2009	5/4/2009	ND	ND	ND	NA
RR-00216	NA	QA Sample	4/17/2009	5/4/2009	ND	ND	ND	NA
RR-00217	NA	QA Sample	4/21/2009	5/4/2009	ND	ND	ND	NA
RR-00218	NA	QA Sample	4/21/2009	5/4/2009	ND	ND	ND	NA

NA - Not Applicable
ND - Not Detected
RR-002XX series samples are QA/QC samples generated by CDM during soil sample preparation

FIGURES

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Figure 1
Site Location Map

Activity Based Sampling
Summary Report
--
Public Receptors

BNSF Kootenai River Sub
Libby, Montana

0 7,000 14,000 28,000
Scale In Feet

0 2 4
Scale In Miles

Project Number: 5539-140
Date: March 8, 2010
Drafted By: KLA
Reviewed By: SJC
Reference: Lincoln Topo MDRNRCS

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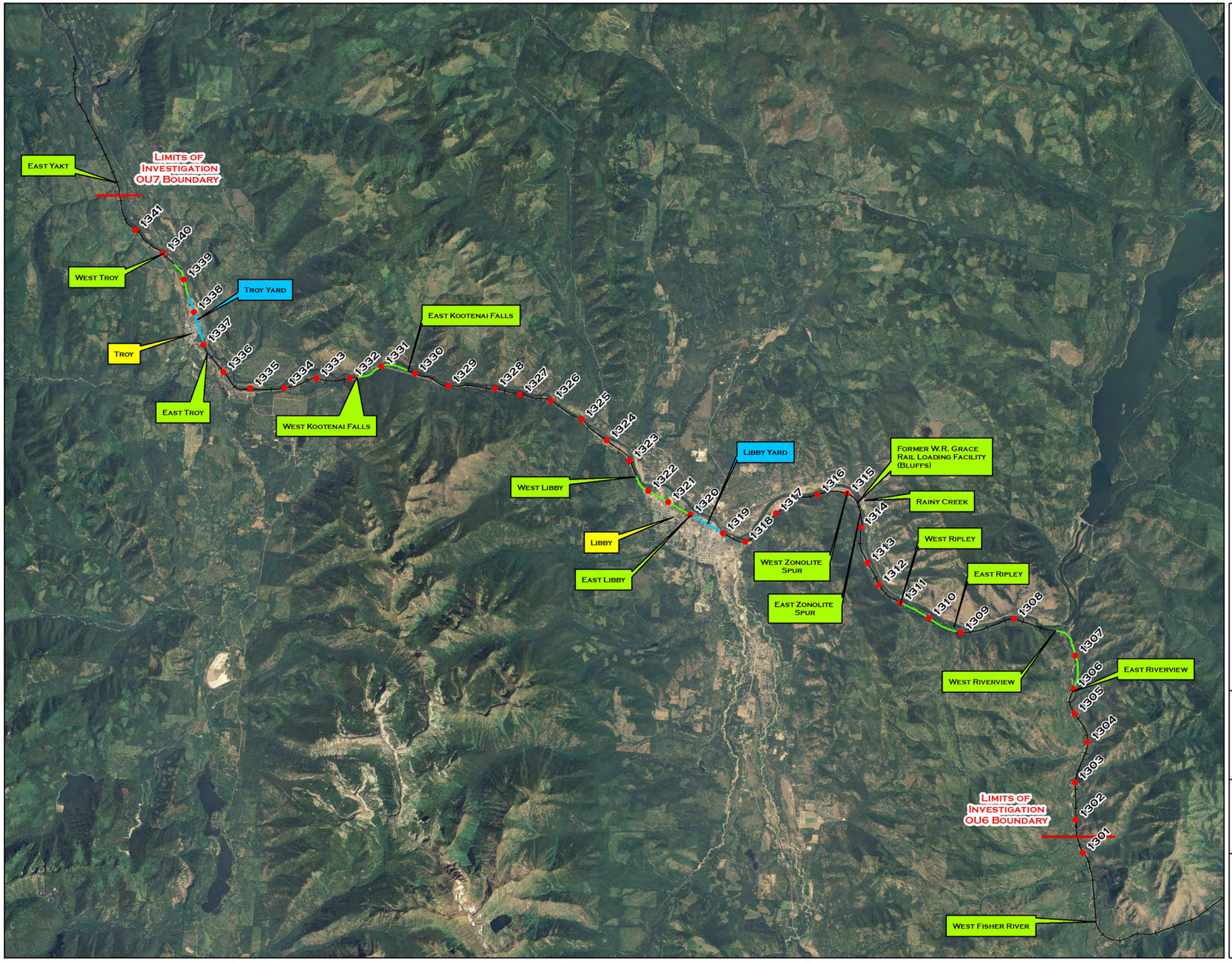

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Figure 2
OU6 Overview Map Showing Commonly Referenced Features

Activity Based Sampling Summary Report
--
Public Receptors

BNSF Kootenai River Sub
Libby, Montana

Legend

- Approximate Milepost Locations
- Rail Sidings
- BNSF Railway
- BNSF Yard

0 7,000 14,000 28,000
Scale In Feet

0 2 4
Scale In Miles

Project Number: 5539-140
Date: March 8, 2010
Drafted By: KLA
Reviewed By: SJC
Reference: 2006 Lincoln Aerial

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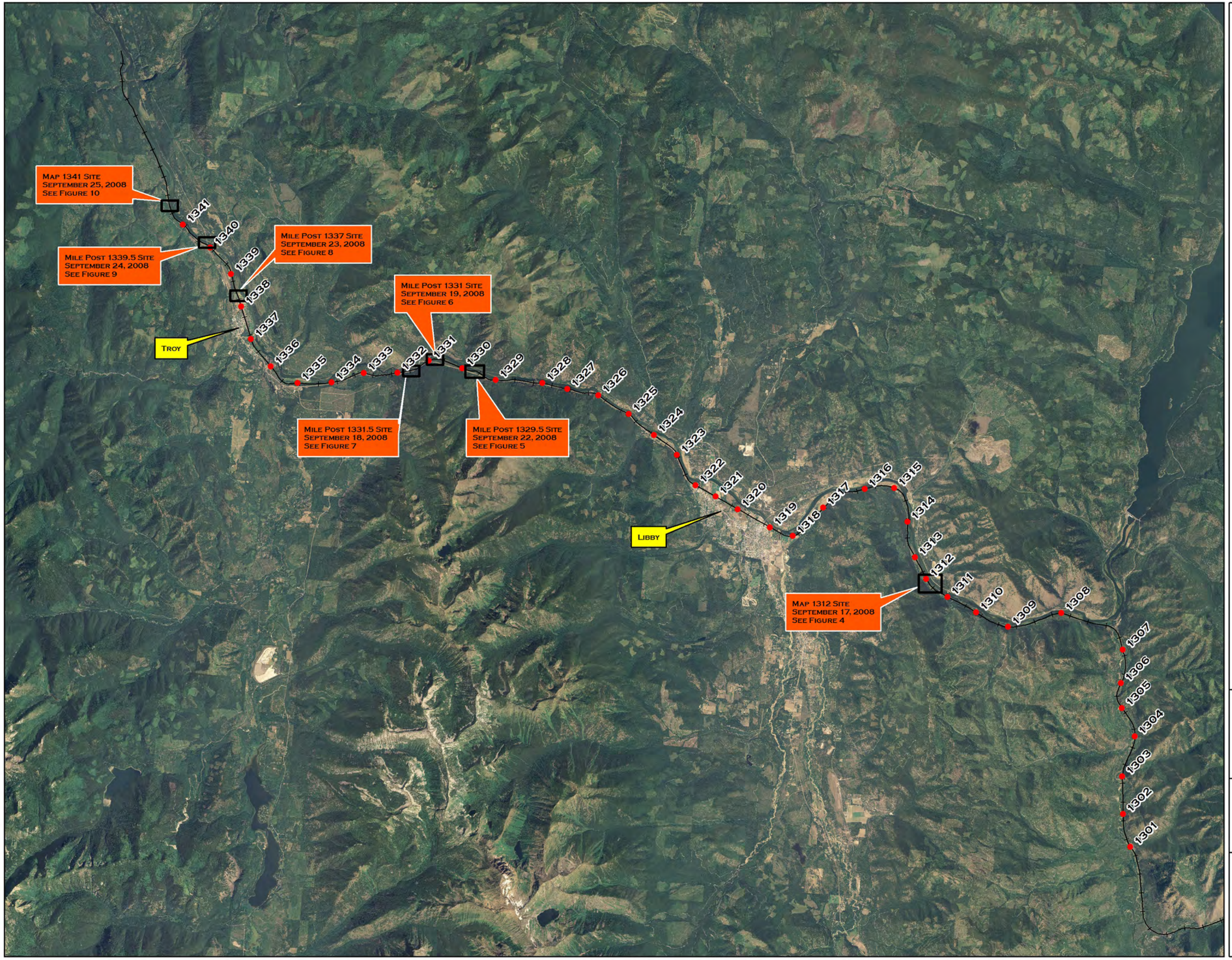

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Figure 3
Sampling Index Map

Activity Based Sampling
Summary Report
--
Public Receptors

BNSF Kootenai River Sub
Libby, Montana

Legend

- Approximate Milepost Locations
- BNSF Railway

0 7,000 14,000 28,000
Scale In Feet

0 2 4
Scale In Miles

Project Number: 5539-140
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Figure 4
MP 1312
Sampling Location
September 17, 2008

Activity Based Sampling
Summary Report
--
Public Receptors

BNSF Kootenai River Sub
Libby, Montana

Legend

- Met Station
- Stationary Air Samples (BA Prefix)
- Soil Samples (RR Prefix)
- BNSF Railway

0 100 200 400
Scale In Feet

0 0.025 0.05
Scale In Miles

Project Number: 5539-140
Date: March 8, 2010
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Reviewed By: SJC
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Figure 5
MP 1329.5
Sampling Location
September 22, 2008

Activity Based Sampling
Summary Report
--
Public Receptors

BNSF Kootenai River Sub
Libby, Montana

Legend

- Met Station
- Stationary Air Samples (BA Prefix)
- Soil Samples (RR Prefix)
- BNSF Railway

0 50 100 200
Scale In Feet

0 0.01 0.02
Scale In Miles

Project Number: 5539-140
Date: March 8, 2010
Drafted By: KLA
Reviewed By: SJC
Reference: 2006 Lincoln Aerial

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Figure 6
MP 1331
Sampling Location
September 19, 2008

Activity Based Sampling
Summary Report
--
Public Receptors

BNSF Kootenai River Sub
Libby, Montana

Legend

- Met Station
- Stationary Air Samples (BA Prefix)
- Soil Samples (RR Prefix)
- BNSF Railway

0 75 150 300
Scale In Feet

0 0.02 0.04
Scale In Miles

Project Number: 5539-140
Date: March 8, 2010
Drafted By: KLA
Reviewed By: SJC
Reference: 2006 Lincoln Aerial

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Figure 7
MP 1331.5
Sampling Location
September 18, 2008

Activity Based Sampling
Summary Report
--
Public Receptors

BNSF Kootenai River Sub
Libby, Montana

Legend

- Met Station
- Stationary Air Samples (BA Prefix)
- Soil Samples (RR Prefix)
- BNSF Railway

0 50 100 200
Scale In Feet

0 0.01 0.02
Scale In Miles

Project Number: 5539-140
Date: March 8, 2010
Drafted By: KLA
Reviewed By: SJC
Reference: 2006 Lincoln Aerial

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Figure 8
MP 1337
Sampling Location
September 23, 2008

Activity Based Sampling
Summary Report
--
Public Receptors

BNSF Kootenai River Sub
Libby, Montana

Legend

- Met Station
- Stationary Air Samples (BA Prefix)
- Soil Samples (RR Prefix)
- BNSF Railway

0 100 200 400
Scale In Feet

0 0.02 0.04
Scale In Miles

Project Number: 5539-140
Date: March 8, 2010
Drafted By: KLA
Reviewed By: SJC
Reference: 2006 Lincoln Aerial

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Figure 9
MP 1339.5
Sampling Location
September 24, 2008

Activity Based Sampling
Summary Report
--
Public Receptors

BNSF Kootenai River Sub
Libby, Montana

Legend

- Met Station
- Stationary Air Samples (BA Prefix)
- Soil Samples (RR Prefix)
- BNSF Railway

0 50 100 200
Scale In Feet

0 0.01 0.02
Scale In Miles

Project Number: 5539-140
Date: March 8, 2010
Drafted By: KLA
Reviewed By: SJC
Reference: 2006 Lincoln Aerial

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Figure 10
MP 1341
Sampling Location
September 25, 2008

Activity Based Sampling
Summary Report
--
Public Receptors

BNSF Kootenai River Sub
Libby, Montana

Legend

- Met Station
- Stationary Air Samples (BA Prefix)
- Soil Samples (RR Prefix)
- BNSF Railway

0 50 100 200
Scale In Feet

0 0.01 0.02
Scale In Miles

Project Number: 5539-140
Date: March 8, 2010
Drafted By: KLA
Reviewed By: SJC
Reference: 2006 Lincoln Aerial

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APPENDIX A

ANALYTICAL SUMMARIES

SAP ANALYTICAL SUMMARY # OU6RR0908
SUMMARY OF PREPARATION AND ANALYTICAL REQUIREMENTS FOR ASBESTOS

SAP Title: Rail Maintenance Public Receptor Activity-Based Sampling and Analysis Plan

SAP Date (Revision): September 23, 2008

EPA Technical Advisor: Kathryn Hernandez
(contact to advise on DQOs of SAP related to preparation/analytical requirements)

Sampling Program Overview: This document is the Rail Maintenance Public Receptor Activity-Based Sampling and Analysis Plan (SAP) for the collection and analysis of samples of soil and outdoor air in the immediate vicinity of rail maintenance activities that may actively disturb outdoor soil on portions of BNSF Railway Company (BNSF) Right-of-Way (ROW), which is located within Operable Unit (OU) six of the Libby, Montana, Superfund Site. This SAP addresses public receptors (e.g., trespassers, near-by residents) that may be exposed to asbestos in air as a result of BNSF rail maintenance activities. Potential exposures will be evaluated through the collection of personal air samples (tresspassers), stationary air samples and soil samples (to provide valuable information for scoping the RI/FS Work Plan for OU6). A total of 53 air samples (21 personal, 25 stationary, 7 blanks) and 61 soil samples will be collected.

Index ID Prefix: BA = Air, RR = Soil

Medium-Specific TEM/PCM Preparation and Analytical Requirements for Field Samples:

Medium Code	Medium, Sample Type	Preparation Details				Analysis Details			Applicable Laboratory Modifications (c)
		Investigative? (a)	Indirect Prep? (a,b)		Filter Archive? (b)	Method(s)	Recording Rules	Analytical Sensitivity/ Stopping Rules	
			With Ashing (b)	Without Ashing (b)					
A	Outdoor ABS Onlooker Air Samples	Yes	Yes Based on Analyst's Judgement	No	Yes	TEM ISO 10312	All Asbestos structures counted; L: ≥0.5µm AR: ≥3:1	Count until 1 is achieved: i) Target S = 0.0001 cc-1(d), ii) 50 LA found, or iii) 0.5 mm^2 of filter is evaluated	LB-000016, LB-000016a, LB-000019, LB-000028, LB-000029, LB-000029a, LB-000029b, LB-000030, LB-0000031, LB-000031a, LB-000045, LB-000053, LB-000066, LB-000084, LB-000085
B	Outdoor ABS Pedestrian Air Samples	Yes	Yes Based on Analyst's Judgement	No	Yes	TEM ISO 10312	All Asbestos structures counted; L: ≥0.5µm	Count until 1 is achieved: i) Target S = 0.0001 cc-	LB-000016, LB-000016a, LB-000019, LB-000028, LB-000029, LB-000029a, LB-000029b, LB-000030,

Medium Code	Medium, Sample Type	Preparation Details				Analysis Details			Applicable Laboratory Modifications (c)
		Investigative? (a)	Indirect Prep? (a,b)		Filter Archive? (b)	Method(s)	Recording Rules	Analytical Sensitivity/ Stopping Rules	
			With Ashing (b)	Without Ashing (b)					
							AR: ≥3:1	1(d), ii) 50 LA found, or iii) 0.5 mm^2 of filter is evaluated	LB-0000031, LB-000031a, LB-000045, LB-000053, LB-000066, LB-000084, LB-000085
C	Outdoor Stationary Air Samples	Yes	Yes Based on Analyst's Judgement	No	Yes	TEM ISO 10312	All Asbestos structures counted; L: ≥0.5µm AR: ≥3:1	Count until 1 is achieved: i) Target S = 0.0001 cc-1(d), ii) 50 LA found, or iii) 0.5 mm^2 of filter is evaluated	LB-000016, LB-000016a, LB-000019, LB-000028, LB-000029, LB-000029a, LB-000029b, LB-000030, LB-0000031, LB-000031a, LB-000045, LB-000053, LB-000066, LB-000084, LB-000085

(a) See LB-000053 for additional details
(b) See most current version of EPA-LIBBY-08 for preparation details
(c) Use most recent versions of listed modifications
(d) Target sensitivitiy is set at 0.0001 cc-1; however, according to the Field Change Order (FCO) #17-1 (attached), sensitivity was adjusted to 0.0024 cc-1.

TEM/PCM Preparation and Analytical Requirements for Quality Control Samples:

Medium Code	Medium, Sample Type	Preparation Details			Analysis Details			Applicable Laboratory Modifications (c)
		Indirect Prep?		Filter Archive? (b)	Method(s)	Recording Rules	Stopping Rules	
		With Ashing (b)	Without Ashing (b)					
D	Field Blank	No	No	Yes	TEM ISO 10312	All Asbestos structures counted; L: ≥0.5µm AR: ≥3:1	Count until 0.1 mm^2 of filter is evaluated	LB-000016, LB-000016a, LB-000019, LB-000028, LB-000029, LB-000029a, LB-000029b, LB-000030, LB-0000031, LB-000031a, LB-000045, LB-000053, LB-000066, LB-000084, LB-000085
E	Lot Blank	No	No	Yes	TEM ISO 10312	All Asbestos structures counted; L: ≥0.5µm	Count until 0.1 mm^2 of filter is evaluated	LB-000016, LB-000016a, LB-000019, LB-000028, LB-000029, LB-000029a, LB-000029b, LB-000030,

Medium Code	Medium, Sample Type	Preparation Details			Analysis Details			Applicable Laboratory Modifications (c)
		Indirect Prep?		Filter Archive? (b)	Method(s)	Recording Rules	Stopping Rules	
		With Ashing (b)	Without Ashing (b)					
						AR: ≥3:1		LB-0000031, LB-000031a, LB-000045, LB-000053, LB-000066, LB-000084, LB-000085

(d) Target sensitivitiy is set at 0.0001 cc-1; however, according to the Field Change Order (FCO) #17-1 (attached) sensitivity was adjusted to 0.0024 cc-1.

PLM Preparation and Analytical Requirements:

Medium Code	Medium, Sample Type	Preparation Method	Analysis Method	Applicable Laboratory Modifications
F	Grab Soil Samples	PLM-VE: CDM-Libby-06, Rev 1	PLM-VE: SRC LIBBY - 03, Rev. 1	LB-000024, LB-0000024a

Laboratory Quality Control Frequencies:

TEM: Lab Blank – 4%
Recount Same – 1%
Recount Different – 2.5%
Verified Analysis – 1%
Repreparation – 1%
Interlab – 0.5%

PLM: Lab Duplicate –10%
Interlab – 10%

Requirements Revision:

Revision #:	Effective Date:	Revision Description

Analytical Laboratory Review Sign-off:

☐ Batta [sign & date: _____]
☐ EMSL-Libby [sign & date: _____]
☐ EMSL – Westmont [sign & date: _____]
☐ EMSL – Beltsville [sign & date: _____]
☐ ESAT [sign & date: _____]
☐ Hygeia [sign & date: _____]
☐ MAS [sign & date: _____]
☐ RESI [sign & date: _____]

[Checking the box and initialing above indicates that the laboratory has reviewed and acknowledged the preparation and analytical requirements associated with the specified SAP.]

APPENDIX B

FIELD SAMPLING DATA SHEETS - AIR

Sheet No.: PA- **004869**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 1 Page No: 6 Sampling Date: 9/17/08

Address: BNSF ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: Lentz

Person Sampled/Co. Name: Amanda Thoton / EMR SSN: 4491 Task: Trespassers-Pedestrian

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00003	9/17/08 ML	
Location ID	AD-005568		
Sample Group	Property		
Location Description	MP 13.12		
Category (circle)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor Outdoor	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	4099		
Flow Meter ID No.	UFB-65		
Start Date	9/17/08		
Start Time	0711.49 / 13.48 / 9/17/08		
Start Flow (L/min)	2.8 / 2.4 / ML		
Stop Date	9/17/08		
Stop Time	1348		
Stop Flow (L/min)	2.4		
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No Yes NA	No Yes NA	No Yes NA
Sample Type	TWA EXC NA	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO)	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____

For Field Team Completion (Provide Initials) ML	Completed by ML	QC by

vs 042308

Sheet No.: PA- 004870

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 1 Page No: 6 Sampling Date: 9/17/08

Address: BNSF ROW Owner/Tenant: BNSF

Business Name: ~~BNSF ROW~~ 9/17/08 NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: Dave Welch

Person Sampled/Co. Name: Dave Welch / EMR SSN: 9586 Task: Trespassers - Pedestrian

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00004	9/17/08 ML	
Location ID	AD-005568		
Sample Group	Property		
Location Description	MP 1312		
Category (circle)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor Outdoor	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	4100		
Flow Meter ID No.	VFB-65		
Start Date	9/17/08		
Start Time	749 1343		
Start Flow (L/min)	2.8 2.8		
Stop Date	9/17/08		
Stop Time	1343		
Stop Flow (L/min)	2.8		
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No Yes NA	No Yes NA	No Yes NA
Sample Type	TWA EXC NA	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO)	Volpe: Entered Validated	Volpe: Entered Validated	Volpe: Entered Validated

For Field Team Completion (Provide Initials)	Completed by ML	QC by

vs 042308

Sheet No.: PA- 004871

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 1 Page No: 6 Sampling Date: 9/17/08

Address: BNSF ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: Matt Lenz

Person Sampled/Co. Name: Matt Lenz / EMR SSN: 2806 Task: On-looker Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00005	9/17/08 ML	
Location ID	AD-005568		
Sample Group	Property		
Location Description	MP 1312		
Category (circle)	(FS) FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor (Outdoor)	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	(25mm) 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 (PCM- 0.8)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	(Rotometer) DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	4097		
Flow Meter ID No.	VFB-65		
Start Date	9/17/08		
Start Time	0753		
Start Flow (L/min)	2.8		
Stop Date	9/17/08		
Stop Time	1400		
Stop Flow (L/min)	2.8		
Pump fault? (circle)	(No) Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No (Yes) NA	No Yes NA	No Yes NA
Sample Type	TWA EXC (NA)	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number:			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO)	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____

For Field Team Completion (Provide Initials) ML	Completed by ML	QC by

vs 042308

Sheet No.: SA-**008679**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: 1 Page No: 6 Sampling Date: 9/17/08

Address: BNSF ROW Owner/Tenant: BNSF

usiness Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: John Starr, Matt Lenz

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00006 9/17/08	BA- 00007 9/17/08	BA- 00008 9/17/08
Location ID	SP- 138440	SP- 138441	SP- 138442
Sample Group	Property →	→	→
Location Description	MP1312	MP1312	MP1312
Category (circle)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)
Matrix Type (circle)	Indoor Outdoor NA	Indoor Outdoor NA	Indoor Outdoor NA
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample
GPS File (fill in or circle)	Filename:_____ NA	Filename:_____ NA	Filename:_____ NA
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	~~PFKS-1~~ 8369	8361	6401
Flow Meter ID No.	PFKS-1	PFKS-1	PFKS-1
Start Date	9/17/08	9/17/08 ML 9/17/08	9/17/08
Start Time	~~0714~~ 0911 ~~1305~~	~~0720~~ ~~0912~~ ~~1304~~	0734 1255 ML 9/17/08
Start Flow (L/min)	7.6 ~~7.6~~ ML	7.6 ~~7.6~~	~~10.2~~ 7.6 7.6 ~~7.6~~
Stop Date	9/17/08 9/17/08 ML 9/17/08	9/17/08	9/17/08
Stop Time	1305	1304	1255
Stop Flow (L/min)	7.6	7.6	7.6
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite? (circle)	No Yes NA	No Yes NA	No Yes NA
Sample Type (circle)	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear NA
Field Comments Cassette Lot Number:_____	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO): _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by: ML	QC by:

vs 10507

Sheet No.: SA-**008680**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: 1 Page No: 6 Sampling Date: 9/17/08

Address: BNSF ROW Owner/Tenant: BNSF

usiness Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: Lenz

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00009 JJ 9/17/08		
Location ID	SP- 138443 JB		
Sample Group	Property		
Location Description	MP1312		
Category (circle)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)
Matrix Type (circle)	Indoor Outdoor NA	Indoor Outdoor NA	Indoor Outdoor NA
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample
GPS File (fill in or circle)	Filename: NA	Filename: NA	Filename: NA
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	Q0802365		
Flow Meter ID No.	PFKS-1		
Start Date	9/17/08		
Start Time	0737 JJ 9/17/08 ~~1253~~ 1253		
Start Flow (L/min)	~~10.2~~ 7.6 ~~7.6~~ 7.6 MC 9/17/08		
Stop Date			
Stop Time 9/17/08 MC	~~1253~~ 1253		
Stop Flow (L/min)	~~7~~ 7.6		
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite? (circle)	No Yes NA	No Yes NA	No Yes NA
Sample Type (circle)	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear NA
Field Comments			
Cassette Lot Number:	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO):	Volpe: Entered Validated	Volpe: Entered Validated	Volpe: Entered Validated

For Field Team Completion (Provide Initials)	Completed by: ML	QC by:

vs 10507

Sheet No.: SA-**008683**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: 1 Page No: 6 Sampling Date: 9/17/08

Address: BNSF ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names:

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00010		
Location ID	Blank		
Sample Group	~~Property~~ Blank ML 9/17/08	Property	Property
Location Description	Blank		
Category (circle)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)
Matrix Type (circle)	Indoor Outdoor NA	Indoor Outdoor NA	Indoor Outdoor NA
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample
GPS File (fill in or circle)	Filename: NA	Filename: NA	Filename: NA
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number			
Flow Meter ID No.			
Start Date			
Start Time			
Start Flow (L/min)			
Stop Date			
Stop Time			
Stop Flow (L/min)			
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite? (circle)	No Yes NA	No Yes NA	No Yes NA
Sample Type (circle)	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear NA
Field Comments			
Cassette Lot Number:	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO):	Volpe: Entered Validated	Volpe: Entered Validated	Volpe: Entered Validated

For Field Team Completion (Provide Initials)	Completed by: ML	QC by:

vs 10507

Sheet No.: PA- **004874**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 4 Sampling Date: 9/18/08

Address: BNSF-ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: Matt Lenz

Person Sampled/Co. Name: Dave Welch / EMR SSN: 7586 Task: Trespassers

Data Item	ML 9/18/08 Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00013		
Location ID	AD-005568		
Sample Group	Property		
Location Description	MP-1331.5		
Category (circle)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor Outdoor	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	4100		
Flow Meter ID No.	UFB-65	ML 9/18/08	
Start Date	9/18/08		
Start Time	1006		
Start Flow (L/min)	2.8		
Stop Date	9/18/08		
Stop Time	1555		
Stop Flow (L/min)	2.8		
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No Yes NA	No Yes NA	No Yes NA
Sample Type	TWA EXC NA	TWA EXC NA	TWA EXC NA
Field Comments Cassette Lot Number: 7198170164	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by ML	QC by SJC

vs 042308

Sheet No.: PA- **004875**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 4 Sampling Date: 9/18/08

Address: BNSF-ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: Matt Kent

Person Sampled/Co. Name: Amanda Thorton / EMR SSN: 4491 Task: Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	ML 9/18/08 BA- 00014		
Location ID	AD-005568		
Sample Group	Property		
Location Description	MP-13.31.5		
Category (circle)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor Outdoor	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	4095	ML 9/18/08	
Flow Meter ID No.	NFB-65		
Start Date	9/18/08		
Start Time 9/18/08	1000		
Start Flow (L/min)	2.8		
Stop Date	9/18/08		
Stop Time	1555		
Stop Flow (L/min)	2.6		
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No Yes NA	No Yes NA	No Yes NA
Sample Type	TWA EXC NA	TWA EXC NA	TWA EXC NA
Field Comments Cassette Lot Number: 7198170164	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by ML	QC by SJC

vs 042308

Sheet No.: PA- **004876**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 4 Sampling Date: 9/18/08

Address: BNSF-ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: Matt Lenz

Person Sampled/Co. Name: Matt Lenz / EMR SSN: 2506 Task: Onlooker/Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	ML 9/18/08 BA- 00015		
Location ID	AD-005568		
Sample Group	Property		
Location Description	MP 1331.5		
Category (circle)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor Outdoor	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	4099	ML 9/18/08	
Flow Meter ID No.	VFB-65		
Start Date	9/18/08		
Start Time	1015		
Start Flow (L/min)	2.8		
Stop Date	9/18/08		
Stop Time	1556		
Stop Flow (L/min)	2.7		
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No Yes NA	No Yes NA	No Yes NA
Sample Type	TWA EXC NA	TWA EXC NA	TWA EXC NA
Field Comments Cassette Lot Number: 7198170164	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by ML	QC by SJC

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Sheet No.: SA-**008681**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: _____ Page No: _____ Sampling Date: 9/18/08

Address: BNSF ROW Owner/Tenant: BNSF

usiness Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: John Starr, Scott Carney

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	ML 9/18/08 BA- 00016	ML 9/18/08 BA- 00017	ML 9/18/08 BA- 00018
Location ID	SP- 138444	SP- 138445	SP- 138446
Sample Group	Property	Property	Property
Location Description	MP 1331.5	MP 1331.5	MP 1331.5
Category (circle)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)
Matrix Type (circle)	Indoor Outdoor NA	Indoor Outdoor NA	Indoor Outdoor NA
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	~~TEM- .45~~ PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample
GPS File (fill in or circle)	Filename: BNSF-ROW NA	Filename: BNSF-ROW NA	Filename: BNSF-ROW NA
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	~~83~~ 6401 ML 9/18/08	8369 ML 9/18/08	8361 ML 9/18/08
Flow Meter ID No.	~~UFB 65~~ PFKS-1	~~UFB 65~~ PFKS-1	~~UFB 65~~ PFKS-1
Start Date	9/18/08	9/18/08	9/18/08
Start Time	0958 ~~0910~~	0958	1011
Start Flow (L/min)	7.6	7.6	7.6
Stop Date	9/18/08	9/18/08	9/18/08
Stop Time	1550	1550	1545
Stop Flow (L/min)	7.6	7.6	7.6
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite? (circle)	No Yes NA	No Yes NA	No Yes NA
Sample Type (circle)	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear NA
Field Comments Cassette Lot Number: 719870164	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO): _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by: ML	QC by: SJC

vs 10507

Sheet No.: SA-**008692**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: 2 Page No: 4 Sampling Date: 9/18/08

Address: BNSF ROW Owner/Tenant: BNSF

usiness Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: John Starr, Scott Carney

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	ML 9/18/08 BA- 00019	ML 9/18/08 BA- 00020	
Location ID	SP- 138447	Blank	
Sample Group	Property	Blank	
Location Description	MP 331.5	Blank	
Category (circle)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank) ML 9/18/08
Matrix Type (circle)	Indoor Outdoor NA	Indoor Outdoor NA	Indoor Outdoor NA
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample
GPS File (fill in or circle)	Filename: BNSF-ROW NA	Filename: BNSF-ROW NA	Filename: BNSF-ROW NA
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	802365		
Flow Meter ID No.	PFKS-1		
Start Date	9/18/08		
Start Time	1012		
Start Flow (L/min)	7.6		
Stop Date	9/18/08		
Stop Time	1544		
Stop Flow (L/min)	7.6		
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite? (circle)	No Yes NA	No Yes NA	No Yes NA
Sample Type (circle)	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear NA
Field Comments Cassette Lot Number: 719870164	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO): _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by: ML	QC by: SJC

vs 10507

Sheet No.: PA- 004879

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 11 Sampling Date: 9/19/08

Address: BNSF - ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: Matt Lenz

Person Sampled/Co. Name: Dave Welch / EMR SSN: 9886 Task: Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	DW 9/19/08 BA- 00023		
Location ID	AD-005568		
Sample Group	Property		
Location Description	MP-1330.5 ML 9/19/08 (1331)		
Category (circle)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor Outdoor	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	4091		
Flow Meter ID No.	VFB-65		
Start Date	9/19/08		
Start Time	0648		
Start Flow (L/min)	2.8		
Stop Date	9/19/08		
Stop Time	1231		
Stop Flow (L/min)	2.8		
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No Yes NA	No Yes NA	No Yes NA
Sample Type	TWA EXC NA	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: 119870164			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO)	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____

ML 9/19/08

For Field Team Completion (Provide Initials)	Completed by ML	QC by DW

vs 042308

Sheet No.: PA- 004878

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 11 Sampling Date: 9/19/08

Address: BNSF - ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: Matt Lenz

Person Sampled/Co. Name: Amanda Thorton EMR SSN: 4491 Task: Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	ML 9/19/08 BA- 00024		
Location ID	AD-005568		
Sample Group	Property		
Location Description	MP ~~1330.5~~ ML 9/19/08 1331		
Category (circle)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor Outdoor	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	4095		
Flow Meter ID No.	VFB-65		
Start Date	9/19/08		
Start Time	0648		
Start Flow (L/min)	2.8		
Stop Date	9/19/08		
Stop Time	1241		
Stop Flow (L/min)	2.6		
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No Yes NA	No Yes NA	No Yes NA
Sample Type	TWA EXC NA	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: 7198170164			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO)	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____

ML 9/19/08

For Field Team Completion (Provide Initials)	Completed by ML	QC by DJ

vs 042308

Sheet No.: PA- **004880**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 11 Sampling Date: 9/19/08

Address: BNSF-ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: Matt Lenz

Person Sampled/Co. Name: Matt Lenz / EMR SSN: 2806 Task: Onlooker/Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	ML 9/19/08 BA- 00025		
Location ID	AD-005568		
Sample Group	Property		
Location Description	MP- 1330-1331 ML 9/19/08		
Category (circle)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor Outdoor	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	4099		
Flow Meter ID No.	UFB-65		
Start Date	9/19/08		
Start Time	ML 9/19/08 ~~0631~~ 0618		
Start Flow (L/min)	2.8		
Stop Date	9/19/08		
Stop Time	1241		
Stop Flow (L/min)	2.8		
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No Yes NA	No Yes NA	No Yes NA
Sample Type	TWA EXC NA	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: 119817064			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO) ____	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____

ML 9/19/08

For Field Team Completion (Provide Initials)	Completed by ML	QC by DW

vs 042308

Sheet No.: SA-**008682**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: 2 Page No: 11 Sampling Date: 9/19/08

Address: BNSF ROW Owner/Tenant: BNSF

usiness Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: John Starr, Dave Welch

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	DW 9-19-08 BA- 00026	DW 9-19-08 BA- 00027	DW 9-19-08 BA- 00028
Location ID	SP- 138448	Blank	SP- 138449
Sample Group	Property	Blank	Property
Location Description	MP ~~1330.5~~ 1331 ML 9/19/08	Blank	~~MP 1330.5~~ MP 1331 ML 9/19/08
Category (circle)	(FS) FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS (FB-(field blank)) LB-(lot blank) DB-(prep-dry blank)	(FS) FB-(field blank) LB-(lot blank) DB-(prep-dry blank)
Matrix Type (circle)	Indoor (Outdoor) NA	Indoor (Outdoor) NA	Indoor (Outdoor) NA
Filter Diameter (circle)	(25mm) 37mm	(25mm) 37mm	(25mm) 37mm
Pore Size (circle)	~~TEM- .45~~ (PCM- 0.8)	TEM- .45 (PCM- 0.8)	TEM- .45 (PCM- 0.8)
GPS Status (circle)	(Collected) Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) (~~Not Collected- not required for sample~~)	(Collected) Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample
GPS File (fill in or circle)	Filename: BNSF-ROW NA	Filename: NA	Filename: BNSF-ROW NA
Flow Meter Type (circle)	(Rotometer) DryCal NA	Rotometer DryCal NA	(Rotometer) DryCal NA
Pump ID Number	6401		83609
Flow Meter ID No.	PFKS-1		PFKS-1
Start Date	9/19/08		9/19/08
Start Time	0729		0729
Start Flow (L/min)	7.6		7.6
Stop Date	9/19/08		9/19/08
Stop Time	1147		~~1147~~ ML 9/19/08 1148
Stop Flow (L/min)	7.6		7.6
Pump fault? (circle)	(No) Yes NA	No Yes NA	(No) Yes NA
MET Station onsite? (circle)	No (Yes) NA	No Yes NA	No (Yes) NA
Sample Type (circle)	Pre Post Clear 2nd Clear 3rd Clear (NA)	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear (NA)
Field Comments			
Cassette Lot Number: 719817064	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO): ____	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____

ML 9/19/08

For Field Team Completion (Provide Initials)	Completed by: ML	QC by: DW

vs 10507

Sheet No.: PA- **004904**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 13 Sampling Date: 9/22/08

Address: BNSF-ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway (Other) ROW)

Sampling Team: CDM (Other) EMR Names: Matt Lenz

Person Sampled/Co. Name: Matt Lenz / EMR SSN: 2806 Task: Onlooker/Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	MC 9/22/08 BA- 00031		
Location ID	AD-005568		
Sample Group	Property		
Location Description	MP-1329 1328 1329.8 MC 9/22/08		
Category (circle)	(FS) FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor (Outdoor)	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	(25mm) 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 (PCM- 0.8)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	(Rotometer) DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	4095		
Flow Meter ID No.	UFB-65		
Start Date	9/22/08		
Start Time	0941		
Start Flow (L/min)	2.8		
Stop Date	9/22/08		
Stop Time	1435		
Stop Flow (L/min)	2.5		
Pump fault? (circle)	(No) Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No (Yes) NA	No Yes NA	No Yes NA
Sample Type	TWA EXC (NA)	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: 7778170164			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO)	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____

For Field Team Completion (Provide Initials)	Completed by ML	QC by DW

vs 042308

Sheet No.: PA- **004905**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 13 Sampling Date: 9/22/08

Address: BNSF-ROW Owner/Tenant: BNSF

~~Business Name:~~ NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: Amanda Thorton, Matt Lutz

Person Sampled/Co. Name: Amanda Thorton / EMR SSN: 4491 Task: Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00032		
Location ID	AD-005568		
Sample Group	Property		
Location Description	MP ~~1324~~ 1329.8 ~~1328~~ ML 9/22/08		
Category (circle)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor Outdoor	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	4091		
Flow Meter ID No.	UFB-65		
Start Date	9/22/08		
Start Time	0946		
Start Flow (L/min)	2.8		
Stop Date	9/22/08		
Stop Time	1435		
Stop Flow (L/min)	2.6		
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No Yes NA	No Yes NA	No Yes NA
Sample Type	TWA EXC NA	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: 7198170164			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO)	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____

For Field Team Completion (Provide Initials)	Completed by ML	QC by DW

vs 042308

Sheet No. PA- **004906**

LIBBY FIELD SAMPLE DATA SHEET (FSD$) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 13 Sampling Date: 9/22/08

Address: BNSF - ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: Matt Lenz

Person Sampled/Co. Name: Dave Welch / EMR SSN: 9586 Task: Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00033		
Location ID	AD-005568		
Sample Group	Property		
Location Description	MP- 1329 1329.8 1328 ML 9/22/08		
Category (circle)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor Outdoor	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	4100		
Flow Meter ID No.	VFB-65		
Start Date	9/22/08		
Start Time	1030		
Start Flow (L/min)	2.8		
Stop Date	9/22/08		
Stop Time	1425		
Stop Flow (L/min)	2.8		
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No Yes NA	No Yes NA	No Yes NA
Sample Type	TWA EXC NA	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number	7198170164		
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO)	Volpe: Entered Validated	Volpe: Entered Validated	Volpe: Entered Validated

For Field Team Completion (Provide Initials)	Completed by ML	QC by DW

vs 042308

Sheet No.: SA-**008685**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: 2 Page No: 13/14 Sampling Date: 9/22/08

Address: BNSF ROW Owner/Tenant: BNSF

usiness Name: NA

Land Use: Residential School Commercial Mining Roadway (Other) (ROW)

Sampling Team: CDM Other EMR Names: MATT LEHZ, JOHN STARR

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	ML 9/22/08 BA- 00034	ML 9/22/08 BA- 00035	ML 9/22/08 BA- 00036
Location ID	SP- 138450	SP- 138451	Blank
Sample Group	Property	Property	~~Property~~ ML 9/22/08 Blank
Location Description	MP ~~1329~~ 1329.8 ~~1328~~ ML 9/22/08	MP ~~1329~~ 1329.8 ~~1328~~ ML 9/22/08	Blank
Category (circle)	(FS) FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	(FS) FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS (FB-(field blank)) LB-(lot blank) DB-(prep-dry blank)
Matrix Type (circle)	Indoor (Outdoor) NA	Indoor (Outdoor) NA	Indoor (Outdoor) NA
Filter Diameter (circle)	(25mm) 37mm	(25mm) 37mm	(25mm) 37mm
Pore Size (circle)	(TEM- .45) (PCM- 0.8)	TEM- .45 (PCM- 0.8)	TEM- .45 (PCM- 0.8)
GPS Status (circle)	(Collected) Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	(Collected) Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) (Not Collected- not required for sample)
GPS File (fill in or circle)	Filename: BNSF-ROW NA	Filename: BNSF-ROW NA	Filename: _____ (NA)
Flow Meter Type (circle)	(Rotometer) DryCal NA	(Rotometer) DryCal NA	Rotometer DryCal NA
Pump ID Number	6401	8369	
Flow Meter ID No.	PFKS-1	PFKS-1	
Start Date	9/22/08	9/22/08	
Start Time	1051	1051	
Start Flow (L/min)	7.6	7.6	
Stop Date	9/22/08	9/22/08	ML 9/22/08
Stop Time	1437	1437	
Stop Flow (L/min)	7.6	7.6	
Pump fault? (circle)	(No) Yes NA	(No) Yes NA	No Yes NA
MET Station onsite? (circle)	No (Yes) NA	No (Yes) NA	No (Yes) NA
Sample Type (circle)	Pre Post Clear 2nd Clear 3rd Clear (NA)	Pre Post Clear 2nd Clear 3rd Clear (NA)	Pre Post Clear 2nd Clear 3rd Clear (NA)
Field Comments Cassette Lot Number: 7198170164	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO): _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by: MC	QC by: [illegible]

vs 10507

Sheet No.: PA- 004901

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 16 Sampling Date: 9/23/08

Address: BNSF - ROW (Owner/Tenant) BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway (Other) (ROW)

Sampling Team: CDM (Other) EMR Names: Matt Lenz

Person Sampled/Co. Name: Matt Lenz / EMR SSN: 2806 Task: onlooker/Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00039		
Location ID	AD-0055568		
Sample Group	Property		
Location Description	MP-1337		
Category (circle)	(FS) FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor (Outdoor)	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	(25mm) 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 (PCM- 0.8)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	(Rotometer) DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	4100		
Flow Meter ID No.	VFB-65		
Start Date	9/23/08		
Start Time	0653		
Start Flow (L/min)	2.8		
Stop Date	9/23/08		
Stop Time	1150		
Stop Flow (L/min)	2.7		
Pump fault? (circle)	(No) Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No (Yes) NA	No Yes NA	No Yes NA
Sample Type	TWA EXC (NA)	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: 7198170164			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
	Volpe:	Volpe:	Volpe:
Entered (LFO)	Entered Validated	Entered Validated	Entered Validated

For Field Team Completion (Provide Initials)	Completed by MC	QC by DW

vs 042308

Sheet No. PA- 004902

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 16 Sampling Date: 9/23/08

Address: BNSF-ROW Owner/Tenant: BNSF

Business Name: N/A

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: Matt Kenz

Person Sampled/Co. Name: Amanda Thorton / EMR SSN: 4491 Task: Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00040		
Location ID	AD-005568		
Sample Group	Property		
Location Description	MP-1337		
Category (circle)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor Outdoor	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	4091		
Flow Meter ID No.	VFB-65		
Start Date	9/23/08		
Start Time	0710		
Start Flow (L/min)	2.7		
Stop Date	9/23/08		
Stop Time	1159		
Stop Flow (L/min)	2.7		
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No Yes NA	No Yes NA	No Yes NA
Sample Type	TWA EXC NA	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number	1198170164		
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO)	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____

For Field Team Completion (Provide Initials)	Completed by ML	QC by DW

vs 042308

Sheet No.: PA- 004903

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 16 Sampling Date: 9/23/08

Address: BNSF-ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: Matt Lenz

Person Sampled/Co. Name: Dave Welch / EMR SSN: 9586 Task: Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00041		
Location ID	AD-005568		
Sample Group	Property		
Location Description	MP-1337		
Category (circle)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor Outdoor	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	4095		
Flow Meter ID No.	UFB-65		
Start Date	9/23/08		
Start Time	0720		
Start Flow (L/min)	2.7		
Stop Date	9/23/08		
Stop Time	1151		
Stop Flow (L/min)	2.6		
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No Yes NA	No Yes NA	No Yes NA
Sample Type	TWA EXC NA	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: 7198170164			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
	Volpe:	Volpe:	Volpe:
Entered (LFO)	Entered Validated	Entered Validated	Entered Validated

For Field Team Completion (Provide Initials)	Completed by ML	QC by DW

vs 042308

Sheet No.: SA-008684

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: 2 Page No: 17 Sampling Date: 9/23/08

Address: BNSF ROW Owner/Tenant: BNSF

~~usiness Name:~~ NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: John Starr, Dave Welch

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	ML 9/23/08 BA- 00042	ML 9/23/08 BA- 00043	ML 9/23/08 BA- 00044
Location ID	SP- 138452	SP- 138453	SP- 138454
Sample Group	Property	Property	Property
Location Description	MP-1337	MP-1337	MP-1337
Category (circle)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)
Matrix Type (circle)	Indoor Outdoor NA	Indoor Outdoor NA	Indoor Outdoor NA
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample
GPS File (fill in or circle)	Filename: BNSF-ROW NA	Filename: BNSF-ROW NA	Filename: BNSF-ROW NA
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	6401	8369	8361
Flow Meter ID No.	PFKS-1	PFKS-1	PFKS-1
Start Date	9/23/08	9/23/08	9/23/08
Start Time	0727	0728	0740
Start Flow (L/min)	7.6	7.6	7.6
Stop Date	9/23/08	9/23/08	9/23/08
Stop Time			1152
Stop Flow (L/min)	ML 9/23/08		7.6
Pump fault? (circle)	No Yes NA	ML 9/23/08 No Yes NA	No Yes NA
MET Station onsite? (circle)	No Yes NA	No Yes NA	No Yes NA
Sample Type (circle)	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear NA
Field Comments	Generator stopped working	Generator stopped working	
Cassette Lot Number: 719817064	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO): _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by: ML	QC by: DW

vs 10507

Sheet No.: SA-008686

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: 2 Page No: 17 Sampling Date: 9/23/08

Address: BNSF ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other ROW

Sampling Team: CDM Other EMR Names: John Stasr, Dave Welch, Matt Lenz

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	ML 9/23/08 BA- 00045	ML 9/23/08 BA- 00046	
Location ID	SP- 138455	~~Blank~~ AD-00556B	
Sample Group	Property	Blank	
Location Description	MP-1337	Blank	
Category (circle)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)
Matrix Type (circle)	Indoor Outdoor NA	Indoor Outdoor NA	Indoor Outdoor NA
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample
GPS File (fill in or circle)	Filename: BNSEROW NA	Filename: ~~BNSEROW~~ NA	Filename: NA
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	00802365	ML 9/23/08	
Flow Meter ID No.	PFKS-1		
Start Date	9/23/08		
Start Time	ML 9/23/08 7.6 0740		
Start Flow (L/min)	7.6	ML 9/23/08	
Stop Date	9/23/08		
Stop Time	1152		
Stop Flow (L/min)	7.6		
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite? (circle)	No Yes NA	No Yes NA	No Yes NA
Sample Type (circle)	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear NA
Field Comments			
Cassette Lot Number: 7198170164	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO):	Volpe: Entered Validated	Volpe: Entered Validated	Volpe: Entered Validated

For Field Team Completion (Provide Initials)	Completed by: ML	QC by: DW

vs 10507

Sheet No.: PA- **004886**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 19 Sampling Date: 9/24/08

Address: BNSF-ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: Matt Lenz

Person Sampled/Co. Name: Matt Lenz / EMR SSN: 2806 Task: Onlooker/Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	ML 9/24/08 BA- 00049		
Location ID	AD-005568		
Sample Group	Property		
Location Description	MP-1339.8		
Category (circle)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor Outdoor	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	4100		
Flow Meter ID No.	UFB-65		
Start Date	~~9/23/08~~ ML 9/24/08 9/24/08		
Start Time	0907		
Start Flow (L/min)	2.8		
Stop Date	9/24/08		
Stop Time	1359		
Stop Flow (L/min)	2.7		
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No Yes NA	No Yes NA	No Yes NA
Sample Type	TWA EXC NA	TWA EXC NA	TWA EXC NA
Field Comments Cassette Lot Number: 7198170164	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by ML	QC by DW

vs 042308

Sheet No.: PA- **004887**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 19 Sampling Date: 9/24/08

Address: BNSF - ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: Matt Lenz

Person Sampled/Co. Name: Amanda Thorton / EMR SSN: 4491 Task: Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	ML 9/24/08 BA- 00050		
Location ID	AD-005568		
Sample Group	Property		
Location Description	MP-1339.5		
Category (circle)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor Outdoor	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8 ML	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA 9/24/08	Rotometer DryCal NA
Pump ID Number	4099		
Flow Meter ID No.	UFB-65		
Start Date	9/24/08		
Start Time	0907		
Start Flow (L/min)	2.8		
Stop Date	9/24/08		
Stop Time	1400		
Stop Flow (L/min)	2.7		
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No Yes NA	No Yes NA	No Yes NA
Sample Type	TWA EXC NA	TWA EXC NA	TWA EXC NA
Field Comments Cassette Lot Number: 7198170164	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by ML	QC by DW

vs 042308

Sheet No.: PA- **004888**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 19 Sampling Date: 9/24/08

Address: BNSF-ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: Matt Lenz

Person Sampled/Co. Name: ~~Amanda Thorton~~ Dave Welch / EMR SSN: ~~4491~~ 9586 Task: Trespasser

ML 9/24/08

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00051		
Location ID	AD-005568		
Sample Group	Property		
Location Description	MP-1339.5		
Category (circle)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor Outdoor	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	4098		
Flow Meter ID No.	UFB-65		
Start Date	9/24/08		
Start Time	0907		
Start Flow (L/min)	2.7		
Stop Date	9/24/08		
Stop Time	1400		
Stop Flow (L/min)	2.7		
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No Yes NA	No Yes NA	No Yes NA
Sample Type	TWA EXC NA	TWA EXC NA	TWA EXC NA
Field Comments Cassette Lot Number: 7198170164	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by ML	QC by

vs 042308

Sheet No.: SA-**008687**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: 2 Page No: 20 Sampling Date: 9/24/08

Address: BNSF ROW Owner/Tenant: BNSF

usiness Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: John Starr, Dave Welch

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	DW 9/24/08 BA- 00052	DW 9/24/08 BA- 00053	DW 9/24/08 BA- 00054
Location ID	SP- 138456	SP- 138457	SP- 138458
Sample Group	Property	Property	Property
Location Description	MP-1339.5	MP-1339.5	MP-1339.5
Category (circle)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)
Matrix Type (circle)	Indoor Outdoor NA	Indoor Outdoor NA	Indoor Outdoor NA
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample
GPS File (fill in or circle)	Filename: BNSF-ROW NA	Filename: BNSF-ROW NA	Filename: BNSF-ROW NA
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	00802365	6401	8361
Flow Meter ID No.	PFKS-1	PFKS-1	PFKS-1
Start Date	9/24/08	9/24/08	9/24/08
Start Time	0909	0910	0911
Start Flow (L/min)	7.6	7.6	7.6
Stop Date	9/24/08	9/24/08	9/24/08
Stop Time	1243	1243	1246
Stop Flow (L/min)	7.6	7.6	7.6
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite? (circle)	No Yes NA	No Yes NA	No Yes NA
Sample Type (circle)	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear NA
Field Comments Cassette Lot Number: 7198170164	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO): _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by: ML	QC by: DW

vs 10507

Sheet No.: SA-**008688**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: 2 Page No: 20 Sampling Date: 9/24/08

Address: BNSF ROW Owner/Tenant: BNSF

usiness Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: John Starr

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	DW 9-24-08 BA- 00055	DW 9-24-08 BA- 00056	DW 9-24-08 BA- 00057
Location ID	SP- 138459	AD-005568	AD-005568
Sample Group	Property	Blank	Blank
Location Description	MP-1339.5	MP-1339.5	MP-1339.5
Category (circle)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)
Matrix Type (circle)	Indoor Outdoor NA	Indoor Outdoor NA	Indoor Outdoor NA
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample
GPS File (fill in or circle)	Filename: BNSF-ROW NA	Filename: NA	Filename: NA
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	8369		
Flow Meter ID No.	PFKS-1		
Start Date	9/24/08		
Start Time	0911	ML	ML
Start Flow (L/min)	7.6	9/24/08	9/24/08
Stop Date	9/24/08		
Stop Time	1246		
Stop Flow (L/min)	7.6		
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite? (circle)	No Yes NA	No Yes NA	No Yes NA
Sample Type (circle)	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear NA
Field Comments Cassette Lot Number: 7198170164	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO):	Volpe: Entered Validated	Volpe: Entered Validated	Volpe: Entered Validated

For Field Team Completion (Provide Initials)	Completed by: ML	QC by: DW

vs 10507

Sheet No.: PA- 004891

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 21 Sampling Date: 9/25/08

Address: BNSF-ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: Matt Lenz

Person Sampled/Co. Name: Matt Lenz / EMR SSN: 2806 Task: onlooker/Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00060		
Location ID	AD-005568		
Sample Group	Property		
Location Description	MP-1341		
Category (circle)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor Outdoor	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	4099		
Flow Meter ID No.	UFB-65		
Start Date	9/25/08		
Start Time	0653		
Start Flow (L/min)	2.8		
Stop Date	9/25/08		
Stop Time	1030		
Stop Flow (L/min)	2.8		
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No Yes NA	No Yes NA	No Yes NA
Sample Type	TWA EXC NA	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number	7108170164		
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO)	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____

For Field Team Completion (Provide Initials)	Completed by ML	QC by DW

vs 042308

Sheet No. PA- 004892

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: _____ Sampling Date: 9/25/08

Address: BNSF-ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: Matt Lenz

Person Sampled/Co. Name: Amanda Thorton / EMR SSN: 4491 Task: Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	ML 9/25/08 BA- 00061		
Location ID	AD-005568		
Sample Group	Property		
Location Description	MP-005568		
Category (circle)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor Outdoor	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	4098		
Flow Meter ID No.	VFB-65		
Start Date	9/25/08		
Start Time	0655		
Start Flow (L/min)	2.8		
Stop Date	9/25/08		
Stop Time	1040		
Stop Flow (L/min)	2.8		
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No Yes NA	No Yes NA	No Yes NA
Sample Type	TWA EXC NA	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: 7198170164	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

ML 9/25/08

For Field Team Completion (Provide Initials)	Completed by ML	QC by DW

vs 042308

Sheet No. PA- 004893

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No. 2 Page No. 22 Sampling Date: 9/25/08

Address: BNSF Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: Matt Kenz

Person Sampled/Co. Name: Dave Welch / EMR SSN: 9586 Task: Trespasser

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	9/25/08 BA- 00062		
Location ID	AD-005568		
Sample Group	Property		
Location Description	MP-1341		
Category (circle)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor Outdoor	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	4100		
Flow Meter ID No	UFB-65		
Start Date	9/25/08		
Start Time	0656		
Start Flow (L/min)	2.8		
Stop Date	9/25/08		
Stop Time	1031		
Stop Flow (L/min)	2.8		
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No Yes NA	No Yes NA	No Yes NA
Sample Type	TWA EXC NA	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: 7198170104			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO)	Volpe: Entered Validated	Volpe: Entered Validated	Volpe: Entered Validated

ML 9/25/08

For Field Team Completion (Provide Initials)	Completed by ML	QC by DW

vs 042308

Sheet No.: SA-**008690**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: 2 Page No: 21 Sampling Date: 9/25/08

Address: BNSF ROW Owner/Tenant: BNSF

usiness Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: John Starr, Matt Lenz, Dave Welch

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	ML 9/25/08 BA- 00063	ML 9/25/08 BA- 00064	ML 9/25/08 BA- 00065
Location ID	SP-138460	SP-138460	SP-138461
Sample Group	Property	Property	Property
Location Description	MP-1341	MP-1341	MP-1341
Category (circle)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)
Matrix Type (circle)	Indoor Outdoor NA	Indoor Outdoor NA	Indoor Outdoor NA
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample
GPS File (fill in or circle)	Filename: BNSF-ROW NA	Filename: BNSF-ROW NA	Filename: BNSF-ROW NA
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	P09063	6401	8369
Flow Meter ID No.	PFKS-1	PFKS-1	PFKS-1
Start Date	9/25/08	9/25/08	9/25/08
Start Time	0728	0728	0728
Start Flow (L/min)	7.6	7.6	7.6
Stop Date	9/25/08	9/25/08	9/25/08
Stop Time	1002	1002	1003
Stop Flow (L/min)	7.6	7.6	7.6
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite? (circle)	No Yes NA	No Yes NA	No Yes NA
Sample Type (circle)	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear NA
Field Comments Cassette Lot Number: 7198170164	Cap put on while pump still running slight tear in filter Archive Blank (circle): Yes No	Co Located with BA-00063 Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO): _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by: ML	QC by: DW

vs 10507

Sheet No.: SA-008691

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: 2 Page No: 21,22 Sampling Date: 9/25/08

Address: BNSF ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: John Starr, Matt Lenz, Dave Welch

Data Item	ML 9/25/08 Cassette 1	ML 9/25/08 Cassette 2	ML 9/25/08 Cassette 3
Index ID	BA- 00066	BA- 00067	BA- 00068
Location ID	SP-138462	SP-138463	SP-138463
Sample Group	Property	Property	Property
Location Description	MP-1341	MP-1341	MP-1341
Category (circle)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)	FS FB-(field blank) LB-(lot blank) DB-(prep-dry blank)
Matrix Type (circle)	Indoor Outdoor NA	Indoor Outdoor NA	Indoor Outdoor NA
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected- not required for sample
GPS File (fill in or circle)	Filename: BNSF-ROW NA	Filename: BNSF-ROW NA	Filename: BNSF-ROW NA
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number	8361	0802362	0802365
Flow Meter ID No.	PFKS-1	PFKS-1	PFKS-1
Start Date	9/25/08	9/25/08	9/25/08
Start Time	0725	0725	0725
Start Flow (L/min)	7.6	7.6	7.6
Stop Date	9/25/08	9/25/08	9/25/08
Stop Time	0959	1000	1000
Stop Flow (L/min)	7.6	7.6	7.6
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite? (circle)	No Yes NA	No Yes NA	No Yes NA
Sample Type (circle)	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear NA
Field Comments Cassette Lot Number: 7198170164	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Co located with BA-00067 Archive Blank (circle): Yes No
Entered (LFO): _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by: ML	QC by: DW

vs 10507

Sheet No.: PA- 004894

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: 2 Page No: 23 Sampling Date: 9/25/08

Address: BNSF-ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: Not here

~~Person Sampled/Co. Name: / SSN: Task:~~

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID	BA- 00069		
Location ID	AD-005568		
Sample Group	Blank		
Location Description	Blank		
Category (circle)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor Outdoor	Indoor Outdoor	Indoor Outdoor
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number			
Flow Meter ID No.			
Start Date			
Start Time			
Start Flow (L/min)			
Stop Date			
Stop Time			
Stop Flow (L/min)			
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No Yes NA	No Yes NA	No Yes NA
Sample Type	TWA EXC NA	TWA EXC NA	TWA EXC NA
Field Comments			
Cassette Lot Number: 7H8170164			
	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
Entered (LFO)	Volpe: Entered Validated	Volpe: Entered Validated	Volpe: Entered Validated

ML 9/25/08

For Field Team Completion (Provide Initials)	Completed by ML	QC by DW

vs 042308

APPENDIX C

FIELD SAMPLING DATA SHEETS – SOIL

Sheet No.: S- **005922**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: _____ Sampling Date: 9-17-08

ddress: BNSF ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other X Names: DAVID WELCH AND AMALIA THORNTON-EMI

Data Item	Sample 1	Sample 2	Sample 3
Index ID	DLW 9-17-08 RR- 00001	DLW 9-17-08 RR- 00002	DLW 9-17-08 RR- 00003
Location ID	SP- 138460	SP- 138461	SP- 138462
Sample Group	~~MP~~ DLW 9-17-08 Property	Property	PROPERTY
Location Description (circle)	Back yard Front yard Side yard Driveway Other MP 1312	Back yard Front yard Side yard Driveway Other MP 1312	Back yard Front yard Side yard Driveway Other MP 1312
Category (circle)	FS FD of _____ EB LB	FS FD of _____ EB LB	FS FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	Surface Soil Other _____	Surface Soil Other _____	Surface Soil Other _____
Type (circle)	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename:_____ NA	Filename:_____ NA	Filename:_____ NA
Sample Time	1037 (MOUNTAIN TIME)	1048 (MT)	1057 (MT)
Top Depth (inches below ground surface)	0	0	0
Bottom Depth (inches below ground surface)	5"	4"	5"
Field Comments *Note if vermiculite is visible in sampled area*	BD-_____ None	BD-_____ LOW	BD-_____ LOW
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by:	QC by:

vs 10507

Sheet No.: S- **005923**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: _____ Sampling Date: 9-17-08

ddress: BNSF ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other ( )

Sampling Team: CDM Other X Names: DAVID WELCH AND AMANDA THORNTON -EMI

Data Item	Sample ~~1~~ 4 DJW 9-17-08	Sample ~~2~~ 5 DJW 9-17-08	Sample ~~3~~ 6 DJW 9-17-08
Index ID DJW 9-17-08	RR- 00004	RR- 00005	RR- 00006
Location ID	SP- 138463	SP- 138464	SP- 138465
Sample Group	PROPERTY	PROPERTY	PROPERTY
Location Description (circle)	Back yard Front yard Side yard Driveway Other MP 1312	Back yard Front yard Side yard Driveway Other MP 1312	Back yard Front yard Side yard Driveway Other MP 1312
Category (circle)	FS FD of _____ EB LB	FS FD of _____ EB LB	FS FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	Surface Soil Other _____	Surface Soil Other _____	Surface Soil Other _____
Type (circle)	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename:_____ NA	Filename:_____ NA	Filename:_____ NA
Sample Time	1105 (MT)	1113 (MT)	1122 (MT)
Top Depth (inches below ground surface)	0	0	0
Bottom Depth (inches below ground surface)	6"	5"	5"
Field Comments *Note if vermiculite is visible in sampled area*	BD-_____ LOW	BD-_____ LOW	BD-_____ NONE
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by:	QC by:

vs 10507

Sheet No.: S- **005924**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: _____ Sampling Date: 9-17-08

Address: BNSF ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other X Names: DAVID WELCH AND AMANDA THORNTON-EM

Data Item	Sample ~~1~~ 7	Sample ~~2~~ 8	Sample ~~3~~ 9
Index ID	RR- 00007	RR- 00008	RR- 00009
Location ID	SP- 138466	SP- 138467	SP- 138468
Sample Group	PROPERTY	PROPERTY	PROPERTY
Location Description (circle)	Back yard Front yard Side yard Driveway Other MP 1312	Back yard Front yard Side yard Driveway Other MP 1312	Back yard Front yard Side yard Driveway Other MP 1312
Category (circle)	FS FD of _____ EB LB	FS FD of _____ EB LB	FS FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	Surface Soil Other _____	Surface Soil Other _____	Surface Soil Other _____
Type (circle)	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename:_____ NA	Filename:_____ NA	Filename:_____ NA
Sample Time	1129 (MT)	1138 (MT)	1147 (MT)
Top Depth (inches below ground surface)	0	0	0
Bottom Depth (inches below ground surface)	6"	6"	4" (BALLAST)
Field Comments *Note if vermiculite is visible in sampled area*	BD-_____ NONE	BD-_____ NONE	BD-_____ LOW
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by:	QC by:

vs 10507

Sheet No.: S- **005925**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: _____ Sampling Date: 9-17-08

Address: BHSF ROW Owner/Tenant: BHSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (R.O.W)

Sampling Team: CDM Other X Names: DAVID WELCH AND AMANDA THORNTON - EMR

Data Item	Sample 10	Sample 11	Sample 12
Index ID	RR- 00010	RR- 00011	RR- 00012
Location ID	SP- 138469	SP- 138470	SP- 138471
Sample Group	PROPERTY	PROPERTY	PROPERTY
Location Description (circle)	Back yard Front yard Side yard Driveway Other MP 1312	Back yard Front yard Side yard Driveway Other MP 1312	Back yard Front yard Side yard Driveway Other MP 1312
Category (circle)	FS FD of _____ EB LB	FS FD of _____ EB LB	FS FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	Surface Soil Other _____	Surface Soil Other _____	Surface Soil Other _____
Type (circle)	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename:_____ NA	Filename:_____ NA	Filename:_____ NA
Sample Time	1156 (MT)	1204 (MT)	1214 (MT)
Top Depth (inches below ground surface)	0	0	0
Bottom Depth (inches below ground surface)	4"	4"	
Field Comments *Note if vermiculite is visible in sampled area*	BD-_____ LOW	BD-_____ LOW	BD-_____ LOW
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by:	QC by:

vs 10507

Sheet No.: S- **005926**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: _____ Sampling Date: 9-17-08

ddress: BNSF ROW Owner/Tenant: BNSF

Business Name: NA

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other X Names: DAVID WELCH AND AMANDA THORNTON-EMR

Data Item	Sample 13	Sample 14	Sample 15
Index ID	RR- 00013	RR- 00014	RR- 00015
Location ID	SP- 138472	SP- 138473	SP- 138474
Sample Group	PROPERTY	PROPERTY	PROPERTY
Location Description (circle)	Back yard Front yard Side yard Driveway Other MP 1312	Back yard Front yard Side yard Driveway Other MP 1312	Back yard Front yard Side yard Driveway Other MP 1312
Category (circle)	FS FD of _____ EB LB	FS FD of _____ EB LB	FS FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	Surface Soil Other _____	Surface Soil Other _____	Surface Soil Other _____
Type (circle)	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename:_____ NA	Filename:_____ NA	Filename:_____ NA
Sample Time	1233	1254	1316
Top Depth (inches below ground surface)	0	0	0
Bottom Depth (inches below ground surface)	4"	4"	4"
Field Comments *Note if vermiculite is visible in sampled area*	BD-_____ NONE	BD-_____ LOW	BD-_____ NONE
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by:	QC by:

vs 10507

Sheet No.: S- **005927**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 18 20 19 Sampling Date: 09-18-08

Address: ~~MP 1331.5~~ ACT 9-18-08 BNSF ROW Owner/Tenant: BNSF

Business Name: N/A

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	ACT 9-18-08 RR- 00016	ACT 9-18-08 RR- 00017	ACT 9-18-08 RR- 00018
Location ID	SP- 138475	SP- 138476	SP- 138477
Sample Group	PROPERTY	PROPERTY	PROPERTY
Location Description (circle)	Back yard Front yard Side yard Driveway Other MP 1331.5	Back yard Front yard Side yard Driveway Other MP 1331.5	Back yard Front yard Side yard Driveway Other 1331.5
Category (circle)	ES FD of _____ EB LB	FS FD of _____ EB LB	FS FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	Surface Soil Other _____	Surface Soil Other _____	Surface Soil Other _____
Type (circle)	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: BNSF ROW NA	Filename: BNSF ROW NA	Filename: BNSF ROW NA
Sample Time	1107	1115	1118
Top Depth (inches below ground surface)	0	0	0
Bottom Depth (inches below ground surface)	4"	4"	4"
Field Comments *Note if vermiculite is visible in sampled area*	ACT ~~BD-~~ AD-005568 9-18-08 NONE	ACT ~~BD-~~ AD-005568 9-18-08 NONE	ACT ~~BD-~~ AD-005568 9-18-08 NONE
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by: DJW	QC by: ACT

vs 10507

Sheet No.: S- **006101**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 19 & 20 Sampling Date: 09-18-08

Address: ~~MP 1331.5~~ 9-18-08 BNSF ROW Owner/Tenant: BNSF

Business Name: N/A

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	RR- 00019	RR- 00020	RR- 00021
Location ID	SP- 138478	SP- 138479	SP- 138480
Sample Group	PROPERTY	PROPERTY	PROPERTY
Location Description (circle)	Back yard Front yard Side yard Driveway Other MP 1331.5	Back yard Front yard Side yard Driveway Other MP 1331.5	Back yard Front yard Side yard Driveway Other MP 1331.5
Category (circle)	FS FD of _____ EB LB	FS FD of _____ EB LB	FS FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	Surface Soil Other _____	Surface Soil Other _____	Surface Soil Other _____
Type (circle)	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: BNSF ROW NA	Filename: BNSF ROW NA	Filename: BNSF ROW NA
Sample Time	1142	1152	1200
Top Depth (inches below ground surface)	0	0	0
Bottom Depth (inches below ground surface)	4"	4"	4"
Field Comments *Note if vermiculite is visible in sampled area*	~~BD~~ AD-005568 9-18-08 NONE	~~BD~~ AD-005568 9-18-08 LOW	~~BD~~ AD-005568 9-18-08 LOW
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by: DJW	QC by:

vs 10507

Sheet No.: S- **006102**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 20 Sampling Date: 09-18-08

Address: ~~MP 1331.5~~ AC 9-18-08 BNSF ROW Owner/Tenant: BNSF

Business Name: N/A

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	AC 9-18-08 RR- 00022	AC 9-18-08 RR- 00023	RR- 00024
Location ID	SP- 138481	SP- 138482	SP- 138483
Sample Group	PROPERTY	PROPERTY	
Location Description (circle)	Back yard Front yard Side yard Driveway Other MP 1331.5	Back yard Front yard Side yard Driveway Other MP 1331.5	Back yard Front yard Side yard Driveway Other
Category (circle)	FS FD of _____ EB LB	FS FD of _____ EB LB	FS FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	Surface Soil Other _____	Surface Soil Other _____	Surface Soil Other _____
Type (circle)	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: BNSF ROW NA	Filename: BNSF ROW NA	Filename: _____ NA
Sample Time	1213	1227	
Top Depth (inches below ground surface)	0	0	
Bottom Depth (inches below ground surface)	AC 9-18-08 ~~0~~ 6"	AC 9-18-08 ~~0~~ 6"	
Field Comments *Note if vermiculite is visible in sampled area*	AC ~~BD~~- AD-005568 9-18-08 LOW	AC ~~BD~~- AD-005568 9-18-08 LOW	BD- _____
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

AC 09-18-08 NOT USED

For Field Team Completion (Provide Initials)	Completed by: DJW	QC by: AC

vs 10507

Sheet No.: S- **006103**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 23824 Sampling Date: 09-19-08

Address: BNSF ROW Owner/Tenant: BNSF

Business Name: N/A

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	RR- 00025	RR- 00026	RR- 00027
Location ID	SP- 138484	SP- 138485	SP- 138486
Sample Group	PROPERTY	PROPERTY	PROPERTY
Location Description (circle)	Back yard Front yard Side yard Driveway Other MP ~~1330.5~~ 1331 DW 9-19-08	Back yard Front yard Side yard Driveway Other MP ~~1330.5~~ 1331 DW 9-19-08	Back yard Front yard Side yard Driveway Other MP ~~1330.5~~ 1331 DW 9-19-08
Category (circle)	FS FD of _____ EB LB	FS FD of _____ EB LB	FS FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	Surface Soil Other _____	Surface Soil Other _____	Surface Soil Other _____
Type (circle)	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: BNSF ROW NA	Filename: BNSF ROW NA	Filename: BNSF ROW NA
Sample Time	0754	0804	0813
Top Depth (inches below ground surface)	0	0	0
Bottom Depth (inches below ground surface)	6"	6"	6"
Field Comments *Note if vermiculite is visible in sampled area*	~~BD~~ AD-005568 9-19-08 NONE	~~BD~~ AD-005568 9-19-08 NONE	~~BD~~ AD-005568 9-19-08 NONE
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by: AW	QC by: DW

vs 10507

Sheet No.: S- **006104**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 24 Sampling Date: 09-19-08

Address: ~~N/A~~ BNSF ROW Owner/Tenant: BNSF

Business Name: N/A

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	RR- 00028	RR- 00029	RR- 00030
Location ID	SP- 138487	SP- 138488	SP- 138489
Sample Group	PROPERTY	PROPERTY	PROPERTY
Location Description (circle)	Back yard Front yard Side yard Driveway Other ~~1330.5~~ 1331 DW 9-19-08	Back yard Front yard Side yard Driveway Other ~~1330.5~~ 1331 DW 9-19-08	Back yard Front yard Side yard Driveway Other ~~1330.5~~ 1331 DW 9-19-08
Category (circle)	FS FD of _____ EB LB	FS FD of _____ EB LB	FS FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	Surface Soil Other _____	Surface Soil Other _____	Surface Soil Other _____
Type (circle)	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: BNSF ROW NA	Filename: BNSF ROW NA	Filename: BNSF ROW NA
Sample Time	0821	0832	0842
Top Depth (inches below ground surface)	0	0	0
Bottom Depth (inches below ground surface)	6"	3"	3"
Field Comments *Note if vermiculite is visible in sampled area*	~~BD~~- AD-005568 9-19-08 NONE	~~BD~~- AD-005568 9-19-08 NONE	~~BD~~- AD-005568 9-19-08 NONE
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by:	QC by:

vs 10507

Sheet No.: S- **006105**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 28 Sampling Date: 09-22-08

Address: BNSF ROW Owner/Tenant: BNSF

Business Name: N/A

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	RR- 00031	RR- 00032	RR- 00033
Location ID	SP- 138490	SP- 138491	SP- 138492
Sample Group	PROPERTY	PROPERTY	PROPERTY
Location Description (circle)	Back yard Front yard Side yard Driveway Other MP 1329.8	Back yard Front yard Side yard Driveway Other MP 1329.8	Back yard Front yard Side yard Driveway Other MP 1329.8
Category (circle)	FS FD of _____ EB LB	FS FD of _____ EB LB	FS FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	Surface Soil Other _____	Surface Soil Other _____	Surface Soil Other _____
Type (circle)	Grab Comp. # subsamples ____	Grab Comp. # subsamples ____	Grab Comp. # subsamples ____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: BNSF ROW NA	Filename: BNSF ROW NA	Filename: BNSF ROW NA
Sample Time	1115	1122	1128
Top Depth (inches below ground surface)	0	0	0
Bottom Depth (inches below ground surface)	4"	4"	4"
Field Comments *Note if vermiculite is visible in sampled area*	BD- AD-005568 9-22-08 NONE	BD- AD-005568 9-22-08 NONE	BD- AD-005568 9-22-08 NONE
Entered (LFO) ____	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____

For Field Team Completion (Provide Initials)	Completed by:	QC by: DW

vs 10507

Sheet No.: S- 006106

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 28 & 29 Sampling Date: 09-22-08

Address: BNSF ROW Owner/Tenant: BNSF

Business Name: N/A

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	AL 9-22-08 RR- 00034	AL 9-22-08 RR- 00035	AL 9-22-08 RR- 00036
Location ID	SP- 138493	SP- 138494	SP- 138495
Sample Group	PROPERTY	PROPERTY	PROPERTY
Location Description (circle)	Back yard Front yard Side yard Driveway Other MP 329.8	Back yard Front yard Side yard Driveway Other MP 329.8	Back yard Front yard Side yard Driveway Other MP 329.8
Category (circle)	FS FD of _____ EB LB	FS FD of _____ EB LB	FS FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	Surface Soil Other _____	Surface Soil Other _____	Surface Soil Other _____
Type (circle)	Grab Comp. # subsamples ____	Grab Comp. # subsamples ____	Grab Comp. # subsamples ____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: BNSF ROW NA	Filename: BNSF ROW NA	Filename: BNSF ROW NA
Sample Time	AL 9-22-08 ~~1125~~ 1133	1143	1150
Top Depth (inches below ground surface)	0	0	0
Bottom Depth (inches below ground surface)	4"	6"	6"
Field Comments *Note if vermiculite is visible in sampled area*	AL ~~BD-~~ AD-005568 9-22-08 NONE	AL ~~BD-~~ AD-005568 9-22-08 NONE	AL ~~BD-~~ AD-005568 9-22-08 LOW
Entered (LFO) ____	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____

For Field Team Completion (Provide Initials)	Completed by: AL	QC by: DW

vs 10507

Sheet No.: S- **006107**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 29 & 30 Sampling Date: 09-22-08

Address: BNSF ROW Owner/Tenant: BNSF

Business Name: N/A

Land Use: Residential School Commercial Mining Roadway (Other) (ROW)

Sampling Team: CDM (Other) EMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	ACT 9-22-08 RR- 00037	AC 9-22-08 RR- 00038	NOT USED
Location ID	SP- 138496	SP- 138497	AC 9-22-08
Sample Group	PROPERTY	PROPERTY	PROPERTY
Location Description (circle)	Back yard Front yard Side yard Driveway (Other) MP 1329.8	Back yard Front yard Side yard Driveway (Other) MP 1329.8	Back yard Front yard Side yard Driveway (Other) MP 1329.8
Category (circle)	(FS) FD of _____ EB LB	(FS) FD of _____ EB LB	(FS) FD of DLW 9-22-08 EB LB
Matrix Type (Surface soil unless other wise noted)	(Surface Soil) Other _____	(Surface Soil) Other _____	(Surface Soil) Other _____
Type (circle)	(Grab) Comp. # subsamples ____	(Grab) Comp. # subsamples ____	(Grab) Comp. # subsamples ____
GPS Status (circle)	(Collected) Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	(Collected) Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	(Collected) Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: BNSF ROW NA	Filename: BNSF ROW NA	Filename: BNSF ROW NA
Sample Time	1200	1208	
Top Depth (inches below ground surface)	0	0	0
Bottom Depth (inches below ground surface)	3"	5"	
Field Comments *Note if vermiculite is visible in sampled area*	AC ~~BD~~ AD-005568 9-22-08 NONE	AC ~~BD~~ AD-005568 9-22-08 NONE	AC ~~BD~~ AD-005568 9-22-08
Entered (LFO) ____	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____

For Field Team Completion (Provide Initials)	Completed by AC	QC by: DW

vs 10507

Sheet No.: S- **006108**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 32 Sampling Date: 09-23-08

Address: BNSF ROW Owner/Tenant: BNSF

Business Name: N/A

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	RR- 00039	RR- 00040	RR- 00041
Location ID	SP- 138498	SP- 138499	SP- 138500
Sample Group	PROPERTY	PROPERTY	PROPERTY
Location Description (circle)	Back yard Front yard Side yard Driveway Other MP 1337B	Back yard Front yard Side yard Driveway Other MP 1337B	Back yard Front yard Side yard Driveway Other MP 1337B
Category (circle)	FS FD of _____ EB LB	FS FD of _____ EB LB	FS FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	Surface Soil Other _____	Surface Soil Other _____	Surface Soil Other _____
Type (circle)	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: BNSF ROW NA	Filename: BNSF ROW NA	Filename: BNSF ROW NA
Sample Time	0831	0838	0848
Top Depth (inches below ground surface)	0	0	0
Bottom Depth (inches below ground surface)	6"	6"	6"
Field Comments *Note if vermiculite is visible in sampled area*	BD- AD-005568 LOW	BD- AD-005568 NONE	BD- AD-005568 LOW
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by:	QC by: DW

vs 10507

Sheet No.: S- 006109

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 33 Sampling Date 09-23-08

Address: BNSF ROW Owner/Tenant: BNSF

Business Name: N/A

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	DW 9-23-08 RR- 00042	DW 9-23-08 RR- 00043	DW 9-23-08 RR- 00044
Location ID	9-23-08 SP- 138501	9-23-08 SP- 138502	SP- 138503
Sample Group	PROPERTY	PROPERTY	PROPERTY
Location Description (circle)	Back yard Front yard Side yard Driveway Other MP 1337 B	Back yard Front yard Side yard Driveway Other 1337B	Back yard Front yard Side yard Driveway Other 1337 B
Category (circle)	FS FD of _____ EB LB	FS FD of _____ EB LB	FS FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	Surface Soil Other _____	Surface Soil Other _____	Surface Soil Other _____
Type (circle)	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: BNSF ROW NA	Filename: BNSF ROW NA	Filename: BNSF ROW NA
Sample Time	0856	0913 AM 9-23-08 0924	0913
Top Depth (inches below ground surface)	0	0	0
Bottom Depth (inches below ground surface)	6"	6"	6"
Field Comments *Note if vermiculite is visible in sampled area*	AO ~~BD~~- AD-005568 9-23-08 LOW	AO ~~BD~~- AD-005568 9-23-08 LOW	AO ~~BD~~- AD-005568 9-23-08 LOW
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by: AO	QC by: DW

vs 10507

Sheet No.: S- **006110**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 34 Sampling Date: 09-23-08

ddress: BNSF ROW Owner/Tenant: BNSF

usiness Name: N/A

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	DW 9-23-08 RR- 00045	DW 9-23-08 RR- 00046	
Location ID	SP- 138504	SP- 138505	
Sample Group	PROPERTY	PROPERTY	
Location Description (circle)	Back yard Front yard Side yard Driveway Other MP 1337 B	Back yard Front yard Side yard Driveway Other 1337 B	Back yard Front yard AW 9-23-08 Side yard Driveway Other 1337 B
Category (circle)	FS FD of _____ EB LB	FS FD of _____ EB LB	FS FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	Surface Soil Other _____	Surface Soil Other _____	Surface Soil Other _____
Type (circle)	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: BNSF ROW NA	Filename: BNSF ROW NA	Filename: BNSF ROW NA
Sample Time	0936	0947	
Top Depth (inches below ground surface)	0	0	0
Bottom Depth (inches below ground surface)	6"	6"	
Field Comments *Note if vermiculite is visible in sampled area*	AW ~~BD~~- AD-005568 9-23-08 LOW	AW ~~BD~~- AD005568 9-23-08 ~~LOW~~ Medium DW 9-23-08	AW ~~BD~~- _____ 9-23-08
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by: AW	QC by: DW

vs 10507

Sheet No.: S- **006111**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 37 & 38 Sampling Date: 9-24-08

Address: BNSF ROW Owner/Tenant: BNSF

Business Name: N/A

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMC Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	RR- 00047	RR- 00048	RR- 00049
Location ID	SP- 138506	SP- 138507	SP- 138508
Sample Group	PROPERTY	PROPERTY	PROPERTY
Location Description (circle)	Back yard Front yard Side yard Driveway Other MP 1339.5	Back yard Front yard Side yard Driveway Other MP 1339.5	Back yard Front yard Side yard Driveway Other MP 1339.5
Category (circle)	FS FD of _____ EB LB	FS FD of _____ EB LB	FS FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	Surface Soil Other _____	Surface Soil Other _____	Surface Soil Other _____
Type (circle)	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: BNSF ROW NA	Filename: BNSF ROW NA	Filename: BNSF ROW NA
Sample Time	0955	1002	1011
Top Depth (inches below ground surface)	0	0	0
Bottom Depth (inches below ground surface)	4"	6"	6"
Field Comments *Note if vermiculite is visible in sampled area*	~~BD~~ AD-005568 9-24-08 NONE	~~BD~~ AD-005568 9-24-08 NONE	~~BD~~ AD-005568 9-24-08 ~~6"~~ 9-24-08 NONE
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed By: AM	QC by: DW

vs 10507

Sheet No.: S- **006112**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 38 & 39 Sampling Date: 9-24-08

Address: BNSF ROW Owner/Tenant: BNSF

Business Name: N/A

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	RR- 00050	RR- 00051	RR- 00052
Location ID	SP- 138509	SP- 138510	SP- 138511
Sample Group	PROPERTY	PROPERTY	PROPERTY
Location Description (circle)	Back yard Front yard Side yard Driveway Other MP 1339.5	Back yard Front yard Side yard Driveway Other MP 1339.5	Back yard Front yard Side yard Driveway Other MP 1339.5
Category (circle)	FS FD of _____ EB LB	FS FD of _____ EB LB	FS FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	Surface Soil Other _____	Surface Soil Other _____	Surface Soil Other _____
Type (circle)	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: BNSF ROW NA	Filename: BNSF ROW NA	Filename: BNSF ROW NA
Sample Time	1018	1027	1037
Top Depth (inches below ground surface)	0	0	0
Bottom Depth (inches below ground surface)	4"	6"	6"
Field Comments *Note if vermiculite is visible in sampled area*	~~BD~~ AD-005568 9-24-08 LOW	~~BD~~ AD-005568 9-24-08 LOW	~~BD~~ AD-005568 9-24-08 LOW
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by:	QC by: DW

vs 10507

Sheet No.: S- **006113**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 39 & 40 Sampling Date: 9-24-08

Address: BNSF ROW Owner/Tenant: BNSF

Business Name: N/A

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	ACT 9-24-08 RR- 00053	ACT 9-24-08 RR- 00054	
Location ID	SP- 138512	SP- 138513	
Sample Group	PROPERTY	PROPERTY	
Location Description (circle)	Back yard Front yard Side yard Driveway Other MP 1339.5	Back yard Front yard Side yard Driveway Other MP 1339.5	Back yard Front yard ACT Side yard 9-24-08 Driveway Other
Category (circle)	FS FD of _____ EB LB	FS FD of _____ EB LB	FS FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	Surface Soil Other _____	Surface Soil Other _____	Surface Soil Other _____
Type (circle)	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: BNSF ROW NA	Filename: BNSF ROW NA	Filename: BNSF ROW NA
Sample Time	1047	1102	
Top Depth (inches below ground surface)	0	0	
Bottom Depth (inches below ground surface)	6"	5"	
Field Comments *Note if vermiculite is visible in sampled area*	ACT ~~BD-~~ AD-005568 9-24-08 LOW	ACT ~~BD-~~ AD-005568 9-24-08 LOW	BD-_____
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by: ACT	QC by: DW

vs 10507

Sheet No.: S- **006114**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 40 Sampling Date: 9-24-08

Address: BNSF ROW Owner/Tenant: BNSF

Business Name: N/A

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: DAVE WEZCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID AC 9/24/08	RR- 00055		
Location ID	SP- 138514		
Sample Group	PROPERTY		
Location Description (circle)	Back yard Front yard Side yard Driveway Other MP 1339.5	Back yard Front yard Side yard Driveway Other _____	Back yard Front yard Side yard Driveway Other _____
Category (circle)	FS FD of _____ EB LB	FS FD of _____ EB LB	FS FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	Surface Soil Other _____	Surface Soil Other _____	Surface Soil Other _____
Type (circle)	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: BNSF ROW NA	Filename: _____ NA	Filename: _____ NA
Sample Time	1110		
Top Depth (inches below ground surface)	0		
Bottom Depth (inches below ground surface)	5"		
Field Comments *Note if vermiculite is visible in sampled area*	~~BD-~~ AD-005568 AC 9/24/08 LOW	BD- _____	BD- _____
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by:	QC by: DW

vs 10507

Sheet No.: S- **006115**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 43 Sampling Date: 9-25-08

Address: BNSF ROW Owner/Tenant: BNSF

Business Name: N/A

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	RR- 00056	RR- 00057	RR- 00058
Location ID	SP- 138515	SP- 138516	SP- 138517
Sample Group	PROPERTY	PROPERTY	PROPERTY
Location Description (circle)	Back yard Front yard Side yard Driveway Other MP 1341	Back yard Front yard Side yard Driveway Other MP 1341	Back yard Front yard Side yard Driveway Other MP 1341
Category (circle)	FS FD of _____ EB LB	FS FD of _____ EB LB	FS FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	Surface Soil Other _____	Surface Soil Other _____	Surface Soil Other _____
Type (circle)	Grab Comp. # subsamples ____	Grab Comp. # subsamples ____	Grab Comp. # subsamples ____
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: BNSF ROW NA	Filename: BNSF ROW NA	Filename: BNSF ROW NA
Sample Time	0752	0803	0812
Top Depth (inches below ground surface)	0	0	0
Bottom Depth (inches below ground surface)	6"	6"	6"
Field Comments *Note if vermiculite is visible in sampled area*	BD- AD-005568 9-25-08 NONE	BD- AD-005568 9-25-08 NONE	BD- AD 005568 9-25-08 NONE
Entered (LFO) ____	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____

For Field Team Completion (Provide Initials)	Completed by:	QC by: DW

vs 10507

Sheet No.: S- **006116**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 43&44 Sampling Date: 09-25-08

Address: BNSF ROW Owner/Tenant: BNSF

Business Name: N/A

Land Use: Residential School Commercial Mining Roadway (Other) ROW)

Sampling Team: CDM (Other) EMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	RR- 00059	RR- 00060	RR- 00061
Location ID	SP- 138518	SP- 138519	SP- 138520
Sample Group	PROPERTY	PROPERTY	PROPERTY
Location Description (circle)	Back yard Front yard Side yard Driveway (Other) MP 1341	Back yard Front yard Side yard Driveway (Other) MP 1341	Back yard Front yard Side yard Driveway (Other) MP 1341
Category (circle)	(FS) FD of _____ EB LB	(FS) FD of _____ EB LB	(FS) FD of _____ EB LB
Matrix Type (Surface soil unless other wise noted)	(Surface Soil) Other _____	(Surface Soil) Other _____	(Surface Soil) Other _____
Type (circle)	(Grab) Comp. # subsamples _____	(Grab) Comp. # subsamples _____	(Grab) Comp. # subsamples _____
GPS Status (circle)	(Collected) Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	(Collected) Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	(Collected) Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: BNSF ROW NA	Filename: BNSF ROW NA	Filename: BNSF ROW NA
Sample Time	0822	0833	0844
Top Depth (inches below ground surface)	0	0	0
Bottom Depth (inches below ground surface)	6"	6"	6"
Field Comments *Note if vermiculite is visible in sampled area*	~~BD-~~ AD-005568 9-25-08 NONE	~~BD-~~ AD-005568 9-25-08 NONE	~~BD-~~ AD-005568 9-25-08 NONE
Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by:	QC by: DW

vs 10507

Sheet No.: S- **006117**

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: 1 Page No: 44 Sampling Date: 9-25-08

Address: BNSF ROW Owner/Tenant: BNSF

Business Name: N/A

Land Use: Residential School Commercial Mining Roadway Other (ROW)

Sampling Team: CDM Other EMR Names: DAVE WELCH & AMANDA THORNTON

Data Item	Sample 1	Sample 2	Sample 3
Index ID	AT 9-25-08 RR- 00062		
Location ID	SP-138520 ~~SP- 138521~~		
Sample Group	PROPERTY		
Location Description (circle)	Back yard Front yard Side yard Driveway Other MP 1341	Back yard Front yard AT 9-25-08 Side yard Driveway Other	Back yard Front yard AT 9-25-08 Side yard Driveway Other
Category (circle)	ML 1/22/08 ~~FS~~ FD of RR-00061 EB LB	FS FD of EB LB	FS FD of EB LB
Matrix Type (Surface soil unless other wise noted)	Surface Soil Other	Surface Soil Other	Surface Soil Other
Type (circle)	Grab Comp. # subsamples	Grab Comp. # subsamples	Grab Comp. # subsamples
GPS Status (circle)	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample	Collected Previously Collected Not Collected-no signal (3 attempts) Not Collected-not required for sample
GPS File (fill in or circle)	Filename: BNSF ROW NA	Filename: NA	Filename: NA
Sample Time	0848		
Top Depth (inches below ground surface)	0		
Bottom Depth (inches below ground surface)	6"		
Field Comments *Note if vermiculite is visible in sampled area*	KV 9-25-08 BD- AD-003568 NONE	BD-	BD-
Entered (LFO)	Volpe: Entered Validated	Volpe: Entered Validated	Volpe: Entered Validated

For Field Team Completion (Provide Initials)	Completed by: AT	QC by: DW

vs 10507

APPENDIX D

METEOROLOGICAL DATA

ID = LBBM8	TMPF °F	DWPF °F	RELH %	SKNT &nb	GUST &nb	DRCT	QFLG	SOLR &nb	PREC &nb	FT °F
9-17-2008 23:04 MDT	53	36.3	53	0	1	13	OK	0	32.22	49
9-17-2008 22:04 MDT	57	38	49	0	1	14	OK	0	32.22	53
9-17-2008 21:04 MDT	62	38.6	42	0	1	35	OK	0	32.22	57
9-17-2008 20:04 MDT	68	40	36	0	1	268	OK	8	32.22	62
9-17-2008 19:04 MDT	76	43.2	31	0	1	278	OK	28	32.22	70
9-17-2008 18:04 MDT	82	38.2	21	0	3	192	OK	51	32.22	77
9-17-2008 17:04 MDT	86	32.9	15	1	4	214	OK	277	32.22	83
9-17-2008 16:04 MDT	90	37.7	16	1	5	171	OK	578	32.22	97
9-17-2008 15:04 MDT	87	38.3	18	1	4	255	OK	653	32.22	90
9-17-2008 14:04 MDT	82	38.2	21	1	4	158	OK	670	32.22	92
9-17-2008 13:04 MDT	74	38.8	28	1	5	90	OK	636	32.22	85
9-17-2008 12:04 MDT	64	37.9	38	1	4	99	OK	342	32.22	72
9-17-2008 11:04 MDT	54	37.7	54	1	3	103	OK	121	32.22	53
9-17-2008 10:04 MDT	47	38.1	71	1	3	189	OK	56	32.22	45
9-17-2008 9:04 MDT	40	37	89	0	1	196	OK	37	32.22	39
9-17-2008 8:04 MDT	36	34.7	95	0	0	0	OK	9	32.22	35
9-17-2008 7:04 MDT	36	34.2	93	0	0	0	OK	0	32.22	35
9-17-2008 6:04 MDT	38	35.3	90	0	0	0	OK	0	32.22	36
9-17-2008 5:04 MDT	39	35.2	86	0	1	294	OK	0	32.22	37
9-17-2008 4:04 MDT	41	36.5	84	0	0	0	OK	0	32.22	38
9-17-2008 3:04 MDT	42	36	79	0	0	0	OK	0	32.22	40
9-17-2008 2:04 MDT	44	36.3	74	0	0	0	OK	0	32.22	42
9-17-2008 1:04 MDT	47	37.7	70	0	0	0	OK	0	32.22	44
9-17-2008 0:04 MDT	49	37	63	0	1	8	OK	0	32.22	46
MesoWest Disclaimer										
Data provided by: Bureau of Land Management & USDA Forest Service										
Contact MesoWest										

ID = LBBM8	TMPF °F	DWPF °F	RELH %	SKNT &nb	GUST &nb	DRCT	QFLG	SOLR &nb	PREC &nb	FT °F
9-18-2008 23:04 MDT	58	40	51	0	0	0	OK	0	32.22	54
9-18-2008 22:04 MDT	61	40.6	47	0	0	0	OK	0	32.22	58
9-18-2008 21:04 MDT	64	40.4	42	0	0	0	OK	0	32.22	61
9-18-2008 20:04 MDT	69	41.6	37	0	1	3	OK	7	32.22	63
9-18-2008 19:04 MDT	77	44.9	32	0	1	290	OK	37	32.22	71
9-18-2008 18:04 MDT	82	40.5	23	0	1	273	OK	63	32.22	77
9-18-2008 17:04 MDT	87	35.4	16	1	4	167	OK	256	32.22	84
9-18-2008 16:04 MDT	90	37.7	16	2	3	192	OK	535	32.22	95
9-18-2008 15:04 MDT	88	37.7	17	1	3	226	OK	616	32.22	93
9-18-2008 14:04 MDT	82	39.4	22	1	4	137	OK	632	32.22	91
9-18-2008 13:04 MDT	76	38.6	26	1	4	255	OK	607	32.22	85
9-18-2008 12:04 MDT	67	36.9	33	1	4	136	OK	341	32.22	73
9-18-2008 10:04 MDT	47	37.4	69	0	2	112	OK	58	32.22	46
9-18-2008 9:04 MDT	40	36.2	86	0	1	267	OK	35	32.22	40
9-18-2008 8:04 MDT	37	34.9	92	0	0	0	OK	7	32.22	36
9-18-2008 7:04 MDT	38	35.3	90	0	0	0	OK	0	32.22	36
9-18-2008 6:04 MDT	39	35.5	87	0	0	0	OK	0	32.22	37
9-18-2008 5:04 MDT	41	36.2	83	0	0	0	OK	0	32.22	38
9-18-2008 4:04 MDT	42	36	79	0	0	0	OK	0	32.22	40
9-18-2008 3:04 MDT	44	36.6	75	0	1	284	OK	0	32.22	42
9-18-2008 2:04 MDT	46	38.2	74	0	0	0	OK	0	32.22	43
9-18-2008 1:04 MDT	48	37.2	66	0	1	1	OK	0	32.22	45
9-18-2008 0:04 MDT	51	38	61	0	1	310	OK	0	32.22	47
MesoWest Disclaimer										
Data provided by: Bureau of Land Management & USDA Forest Service										
Contact MesoWest										

ID = LBBM8	TMPF °F	DWPF °F	RELH %	SKNT &nb	GUST &nb	DRCT	QFLG	SOLR &nb	PREC &nb	FT °F
9-19-2008 23:04 MDT	56	38.1	51	0	1	67	OK	0	32.22	52
9-19-2008 22:04 MDT	59	39.9	49	0	1	66	OK	0	32.22	55
9-19-2008 21:04 MDT	63	41.3	45	0	1	41	OK	0	32.22	59
9-19-2008 20:04 MDT	68	41.4	38	0	1	64	OK	5	32.22	63
9-19-2008 19:04 MDT	75	42.3	31	0	0	0	OK	28	32.22	70
9-19-2008 18:04 MDT	81	42.9	26	0	3	218	OK	57	32.22	77
9-19-2008 17:04 MDT	88	39.2	18	1	4	191	OK	221	32.22	84
9-19-2008 16:04 MDT	92	40.9	17	1	4	217	OK	494	32.22	93
9-19-2008 15:04 MDT	88	39.2	18	1	3	155	OK	554	32.22	96
9-19-2008 14:04 MDT	83	41.4	23	1	4	168	OK	605	32.22	90
9-19-2008 13:04 MDT	76	43.2	31	1	3	171	OK	559	32.22	85
9-19-2008 12:04 MDT	67	41.2	39	1	3	121	OK	329	32.22	73
9-19-2008 11:04 MDT	57	41.9	57	1	3	207	OK	127	32.22	57
9-19-2008 10:04 MDT	50	40.6	70	0	1	130	OK	72	32.22	49
9-19-2008 9:04 MDT	43	39.7	88	0	0	0	OK	35	32.22	42
9-19-2008 8:04 MDT	40	37.9	92	0	0	0	OK	8	32.22	39
9-19-2008 7:04 MDT	41	38	89	0	0	0	OK	0	32.22	39
9-19-2008 6:04 MDT	43	38.8	85	0	0	0	OK	0	32.22	40
9-19-2008 5:04 MDT	44	38.9	82	0	1	327	OK	0	32.22	42
9-19-2008 4:04 MDT	46	39.5	78	0	1	301	OK	0	32.22	43
9-19-2008 3:04 MDT	47	39.1	74	0	2	6	OK	0	32.22	45
9-19-2008 2:04 MDT	49	39.6	70	0	0	0	OK	0	32.22	46
9-19-2008 1:04 MDT	52	40.2	64	0	1	311	OK	0	32.22	48
9-19-2008 0:04 MDT	54	39.6	58	0	1	320	OK	0	32.22	51
MesoWest Disclaimer										
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Contact MesoWest										

ID = LBBM8	TMPF °F	DWPF °F	RELH %	SKNT &nb	GUST &nb	DRCT	QFLG	SOLR &nb	PREC &nb	FT °F
9-22-2008 23:04 MDT	42	42	100	0	0	0	OK	0	32.65	42
9-22-2008 22:04 MDT	43	43	100	0	0	0	OK	0	32.65	42
9-22-2008 21:04 MDT	43	43	100	0	6	252	OK	0	32.65	42
9-22-2008 20:04 MDT	46	46	100	1	3	175	OK	5	32.64	45
9-22-2008 19:04 MDT	49	47.6	95	0	3	280	OK	48	32.64	47
9-22-2008 18:04 MDT	48	47.5	98	0	4	349	OK	59	32.64	48
9-22-2008 17:04 MDT	50	47.2	90	1	7	10	OK	39	32.64	48
9-22-2008 16:04 MDT	59	42.9	55	1	4	324	OK	241	32.61	53
9-22-2008 15:04 MDT	58	45.5	63	1	4	72	OK	218	32.61	55
9-22-2008 14:04 MDT	55	46.5	73	2	4	73	OK	166	32.61	54
9-22-2008 13:04 MDT	60	48.6	66	2	5	71	OK	379	32.6	59
9-22-2008 12:04 MDT	55	53.9	96	1	4	61	OK	120	32.6	56
9-22-2008 11:04 MDT	53	53	100	0	2	188	OK	106	32.6	54
9-22-2008 10:04 MDT	51	51	100	0	1	14	OK	83	32.6	53
9-22-2008 9:04 MDT	49	49	100	0	2	79	OK	22	32.6	50
9-22-2008 8:04 MDT	48	48	100	1	3	58	OK	1	32.59	49
9-22-2008 7:04 MDT	48	48	100	1	2	329	OK	0	32.54	48
9-22-2008 6:04 MDT	48	48	100	1	3	272	OK	0	32.54	48
9-22-2008 5:04 MDT	49	49	100	0	1	260	OK	0	32.54	49
9-22-2008 4:04 MDT	49	49	100	0	2	45	OK	0	32.54	49
9-22-2008 3:04 MDT	49	49	100	0	1	202	OK	0	32.54	49
9-22-2008 2:04 MDT	49	49	100	0	1	46	OK	0	32.54	49
9-22-2008 1:04 MDT	49	49	100	0	1	103	OK	0	32.54	49
9-22-2008 0:04 MDT	49	49	100	0	0	0	OK	0	32.54	49
MesoWest Disclaimer										
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Contact MesoWest										

ID = LBBM8	TMPF °F	DWPF °F	RELH %	SKNT &nb	GUST &nb	DRCT	QFLG	SOLR &nb	PREC &nb	FT °F
9-23-2008 23:04 MDT	42	36.6	81	0	0	0	OK	0	32.65	40
9-23-2008 22:04 MDT	43	36.9	79	0	1	4	OK	0	32.65	42
9-23-2008 21:04 MDT	45	35.8	70	0	1	27	OK	0	32.65	44
9-23-2008 20:04 MDT	49	37.4	64	0	1	29	OK	4	32.65	46
9-23-2008 19:04 MDT	54	38.2	55	0	2	21	OK	35	32.65	51
9-23-2008 18:04 MDT	58	34.4	41	2	6	221	OK	62	32.65	56
9-23-2008 17:04 MDT	59	29.2	32	1	5	67	OK	268	32.65	57
9-23-2008 16:04 MDT	65	32	29	1	6	144	OK	608	32.65	72
9-23-2008 15:04 MDT	65	35.9	34	1	4	183	OK	590	32.65	72
9-23-2008 14:04 MDT	62	34	35	1	5	275	OK	627	32.65	64
9-23-2008 13:04 MDT	61	34.5	37	1	4	193	OK	637	32.65	64
9-23-2008 12:04 MDT	54	45.9	74	1	3	141	OK	351	32.65	56
9-23-2008 11:04 MDT	46	43.5	91	1	3	181	OK	141	32.65	45
9-23-2008 10:04 MDT	43	42.2	97	0	3	134	OK	87	32.65	44
9-23-2008 9:04 MDT	41	41	100	1	3	78	OK	30	32.65	42
9-23-2008 8:04 MDT	41	41	100	0	2	159	OK	3	32.65	41
9-23-2008 7:04 MDT	41	41	100	1	4	64	OK	0	32.65	41
9-23-2008 6:04 MDT	41	41	100	0	3	88	OK	0	32.65	42
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9-23-2008 4:04 MDT	41	41	100	0	0	0	OK	0	32.65	40
9-23-2008 3:04 MDT	42	42	100	0	0	0	OK	0	32.65	42
9-23-2008 2:04 MDT	42	42	100	0	0	0	OK	0	32.65	42
9-23-2008 1:04 MDT	43	43	100	0	0	0	OK	0	32.65	43
9-23-2008 0:04 MDT	43	43	100	0	0	0	OK	0	32.65	43
MesoWest Disclaimer										
Data provided by: Bureau of Land Management & USDA Forest Service										
Contact MesoWest										

ID = LBBM8	TMPF °F	DWPF °F	RELH %	SKNT &nb	GUST &nb	DRCT	QFLG	SOLR &nb	PREC &nb	FT °F
9-24-2008 23:04 MDT	46	42.9	89	0	3	41	OK	0	32.65	45
9-24-2008 22:04 MDT	47	42.4	84	1	2	27	OK	0	32.65	45
9-24-2008 21:04 MDT	49	42.8	79	0	1	27	OK	0	32.65	47
9-24-2008 20:04 MDT	52	43.3	72	0	1	109	OK	4	32.65	50
9-24-2008 19:04 MDT	56	43.6	63	0	0	0	OK	39	32.65	54
9-24-2008 18:04 MDT	59	42.4	54	0	1	62	OK	92	32.65	58
9-24-2008 17:04 MDT	62	37.4	40	0	3	327	OK	224	32.65	61
9-24-2008 16:04 MDT	64	39.2	40	1	4	148	OK	449	32.65	69
9-24-2008 15:04 MDT	59	37.7	45	1	4	129	OK	498	32.65	67
9-24-2008 14:04 MDT	51	39.3	64	1	3	125	OK	197	32.65	55
9-24-2008 13:04 MDT	48	37.9	68	0	3	166	OK	203	32.65	51
9-24-2008 12:04 MDT	44	38.6	81	0	2	162	OK	158	32.65	46
9-24-2008 11:04 MDT	42	38.7	88	0	2	155	OK	122	32.65	43
9-24-2008 10:04 MDT	39	38	96	0	1	187	OK	79	32.65	40
9-24-2008 9:04 MDT	36	36	100	0	1	242	OK	37	32.65	37
9-24-2008 8:04 MDT	33	33	100	0	1	59	OK	6	32.65	32
9-24-2008 7:04 MDT	33	33	100	0	1	342	OK	0	32.65	32
9-24-2008 6:04 MDT	34	34	100	0	1	23	OK	0	32.65	34
9-24-2008 5:04 MDT	34	34	100	0	1	5	OK	0	32.65	33
9-24-2008 4:04 MDT	35	34.7	99	0	1	1	OK	0	32.65	33
9-24-2008 3:04 MDT	36	35.2	97	0	0	0	OK	0	32.65	35
9-24-2008 2:04 MDT	38	36.2	93	0	0	0	OK	0	32.65	37
9-24-2008 1:04 MDT	40	37	89	0	0	0	OK	0	32.65	39
9-24-2008 0:04 MDT	41	37.1	86	0	1	42	OK	0	32.65	40
MesoWest Disclaimer										
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Contact MesoWest										

ID = LBBM8	TMPF °F	DWPF °F	RELH %	SKNT &nb	GUST &nb	DRCT	QFLG	SOLR &nb	PREC &nb	FT °F
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9-25-2008 22:04 MDT	48	48	100	1	3	1	OK	0	32.72	47
9-25-2008 21:04 MDT	47	47	100	0	2	64	OK	0	32.72	46
9-25-2008 20:04 MDT	49	49	100	0	2	92	OK	3	32.72	47
9-25-2008 19:04 MDT	52	52	100	1	3	33	OK	32	32.72	51
9-25-2008 18:04 MDT	54	54	100	0	6	69	OK	58	32.72	54
9-25-2008 17:04 MDT	57	52.5	85	0	2	341	OK	87	32.65	56
9-25-2008 16:04 MDT	60	48.6	66	0	2	190	OK	127	32.65	61
9-25-2008 15:04 MDT	60	48.2	65	1	2	157	OK	163	32.65	62
9-25-2008 14:04 MDT	57	46.5	68	0	2	194	OK	152	32.65	59
9-25-2008 13:04 MDT	55	45.8	71	0	4	150	OK	175	32.65	56
9-25-2008 12:04 MDT	53	47	80	0	2	84	OK	163	32.65	54
9-25-2008 11:04 MDT	49	47.3	94	1	4	223	OK	75	32.65	49
9-25-2008 10:04 MDT	47	44.5	91	0	3	131	OK	77	32.65	48
9-25-2008 9:04 MDT	43	43	100	0	1	110	OK	27	32.65	43
9-25-2008 8:04 MDT	42	42	100	1	2	46	OK	4	32.65	42
9-25-2008 7:04 MDT	43	43	100	0	2	358	OK	0	32.65	43
9-25-2008 6:04 MDT	42	42	100	0	1	215	OK	0	32.65	42
9-25-2008 5:04 MDT	43	43	100	1	4	79	OK	0	32.65	43
9-25-2008 4:04 MDT	42	42	100	0	2	11	OK	0	32.65	42
9-25-2008 3:04 MDT	43	42.7	99	1	3	280	OK	0	32.65	42
9-25-2008 2:04 MDT	45	43.9	96	1	2	41	OK	0	32.65	44
9-25-2008 0:04 MDT	47	45.1	93	1	3	222	OK	0	32.65	46
MesoWest Disclaimer										
Data provided by: Bureau of Land Management & USDA Forest Service										
Contact MesoWest										

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Printing Date : 2008/09/25

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Export data for station : C A E
Printing Date : 2008/09/25

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2008/09/18	10:25	2.8	169.0	55.2	53.1	3.6	0	27.84	13.14	0.00
2008/09/18	10:26	1.6	160.3	54.4	53.6	4.2	0	27.84	13.09	0.00
2008/09/18	10:27	1.6	166.5	53.8	55.5	3.0	0	27.84	13.06	0.00
2008/09/18	10:28	1.0	150.9	53.2	56.9	3.6	0	27.84	13.04	0.00
2008/09/18	10:29	0.8	167.4	52.8	57.7	1.8	0	27.84	13.03	0.00
2008/09/18	10:30	0.7	154.6	52.5	58.8	1.2	0	27.84	13.02	0.00
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2008/09/18	10:32	2.8	139.1	52.0	58.7	4.2	0	27.84	13.08	0.00
2008/09/18	10:33	2.0	179.7	51.9	58.8	3.6	0	27.84	13.11	0.00
2008/09/18	10:34	1.2	140.5	51.8	59.2	3.0	0	27.83	13.11	0.00
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2008/09/18	10:36	0.6	172.4	51.8	58.7	0.6	0	27.83	13.11	0.00
2008/09/18	10:37	0.8	159.8	51.8	59.6	1.8	0	27.83	13.12	0.00
2008/09/18	10:38	1.4	148.2	51.8	60.5	2.4	0	27.83	13.12	0.00
2008/09/18	10:39	0.8	168.3	51.7	59.0	1.8	0	27.83	13.12	0.00
2008/09/18	10:40	1.9	133.9	51.8	59.1	5.3	0	27.83	13.12	0.00
2008/09/18	10:41	1.2	168.1	51.9	58.0	1.8	0	27.83	13.12	0.00
2008/09/18	10:42	0.8	137.4	52.0	58.3	1.8	0	27.83	13.12	0.00
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2008/09/18	10:45	0.6	137.7	53.0	56.4	0.6	0	27.83	13.11	0.00
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2008/09/18	11:05	2.5	169.7	56.6	51.9	3.6	0	27.86	13.11	0.00
2008/09/18	11:06	1.2	187.3	56.6	51.3	3.6	0	27.86	13.11	0.00
2008/09/18	11:07	1.0	173.3	56.7	51.6	3.0	0	27.86	13.11	0.00
2008/09/18	11:08	1.5	154.4	56.9	51.4	3.0	0	27.86	13.12	0.00
2008/09/18	11:09	1.2	174.5	57.0	50.4	2.4	0	27.86	13.12	0.00
2008/09/18	11:10	0.8	170.5	57.1	53.0	1.8	0	27.86	13.12	0.00
2008/09/18	11:11	0.6	157.1	57.1	52.4	1.2	0	27.86	13.12	0.00
2008/09/18	11:12	1.1	156.4	57.2	52.4	2.4	0	27.87	13.11	0.00
2008/09/18	11:13	0.9	161.8	57.2	51.8	2.4	0	27.87	13.12	0.00
2008/09/18	11:14	1.7	161.9	57.2	51.9	3.0	0	27.87	13.12	0.00
2008/09/18	11:15	1.7	172.0	57.1	52.1	3.0	0	27.87	13.12	0.00
2008/09/18	11:16	2.2	150.7	57.2	51.9	3.6	0	27.86	13.12	0.00
2008/09/18	11:17	3.0	170.9	57.2	50.7	4.2	0	27.86	13.12	0.00
2008/09/18	11:18	2.1	145.5	57.3	51.3	3.6	0	27.86	13.12	0.00
2008/09/18	11:19	2.0	173.9	57.4	51.4	3.6	0	27.86	13.12	0.00
2008/09/18	11:20	2.4	147.5	57.4	51.1	4.2	0	27.86	13.12	0.00
2008/09/18	11:21	0.9	151.0	57.4	50.7	3.0	0	27.86	13.12	0.00
2008/09/18	11:22	1.6	136.4	57.6	49.9	4.2	0	27.86	13.12	0.00
2008/09/18	11:23	0.6	132.9	57.8	49.1	1.2	0	27.86	13.12	0.00

2008/09/18	11:24	0.6	188.3	58.1	48.3	1.2	0	27.86	13.12	0.00
2008/09/18	11:25	0.7	210.9	58.5	47.7	1.2	0	27.86	13.12	0.00
2008/09/18	11:26	1.0	174.7	58.7	48.9	2.4	0	27.86	13.12	0.00
2008/09/18	11:27	3.7	196.6	58.6	50.6	4.8	0	27.87	13.12	0.00
2008/09/18	11:28	1.7	164.7	58.3	51.5	3.6	0	27.87	13.12	0.00
2008/09/18	11:29	1.7	175.3	58.3	52.7	2.4	0	27.87	13.12	0.00
2008/09/18	11:30	1.8	169.8	58.3	51.6	4.2	0	27.87	13.12	0.00
2008/09/18	11:31	3.8	185.3	58.4	46.9	5.3	0	27.87	13.12	0.00
2008/09/18	11:32	3.6	168.2	58.7	48.7	4.8	0	27.87	13.12	0.00
2008/09/18	11:33	3.0	190.5	58.8	49.0	4.2	0	27.87	13.12	0.00
2008/09/18	11:34	3.3	176.2	58.9	49.1	5.9	0	27.87	13.12	0.00
2008/09/18	11:35	1.9	175.3	59.1	50.9	3.0	0	27.87	13.12	0.00
2008/09/18	11:36	1.8	156.0	59.2	51.0	3.6	0	27.87	13.12	0.00
2008/09/18	11:37	3.2	151.9	59.2	49.2	4.2	0	27.87	13.12	0.00
2008/09/18	11:38	1.8	165.7	59.2	50.2	2.4	0	27.87	13.12	0.00
2008/09/18	11:39	0.6	140.6	59.2	50.0	1.2	0	27.87	13.12	0.00
2008/09/18	11:40	0.8	131.3	59.3	49.0	1.2	0	27.87	13.12	0.00
2008/09/18	11:41	1.1	146.3	59.4	47.4	4.2	0	27.87	13.12	0.00
2008/09/18	11:42	2.1	156.4	59.6	49.1	3.0	0	27.87	13.12	0.00
2008/09/18	11:43	2.8	164.8	59.7	49.4	4.2	0	27.87	13.13	0.00
2008/09/18	11:44	4.3	180.5	59.7	46.7	5.9	0	27.87	13.12	0.00
2008/09/18	11:45	3.1	178.7	59.7	48.0	5.3	0	27.87	13.13	0.00
2008/09/18	11:46	3.8	193.4	59.9	45.8	5.9	0	27.87	13.13	0.00
2008/09/18	11:47	1.6	174.7	60.1	49.7	3.6	0	27.87	13.13	0.00
2008/09/18	11:48	2.5	139.2	60.2	47.9	4.2	0	27.87	13.13	0.00
2008/09/18	11:49	2.8	157.8	60.2	48.5	3.6	0	27.87	13.13	0.00
2008/09/18	11:50	2.0	166.4	60.1	49.3	3.0	0	27.87	13.13	0.00
2008/09/18	11:51	2.0	150.6	60.2	49.3	3.6	0	27.87	13.13	0.00
2008/09/18	11:52	1.2	144.3	60.3	48.2	2.4	0	27.87	13.13	0.00
2008/09/18	11:53	1.1	151.7	60.4	48.3	1.8	0	27.87	13.13	0.00
2008/09/18	11:54	1.8	135.0	60.6	46.8	5.3	0	27.87	13.13	0.00
2008/09/18	11:55	2.4	136.5	60.7	46.3	5.9	0	27.87	13.13	0.00
2008/09/18	11:56	1.6	138.1	60.8	46.8	3.6	0	27.87	13.13	0.00
2008/09/18	11:57	1.4	140.9	61.0	46.7	2.4	0	27.87	13.13	0.00
2008/09/18	11:58	2.6	147.5	61.0	46.0	4.2	0	27.87	13.13	0.00
2008/09/18	11:59	2.1	138.7	61.1	46.3	3.6	0	27.87	13.13	0.00
2008/09/18	12:00	1.6	145.8	61.2	47.0	3.0	0	27.87	13.13	0.00
2008/09/18	12:01	1.6	157.1	61.2	46.6	3.0	0	27.87	13.13	0.00
2008/09/18	12:02	2.0	143.2	61.3	47.1	3.6	0	27.87	13.13	0.00
2008/09/18	12:03	1.5	160.1	61.3	47.9	2.4	0	27.87	13.13	0.00
2008/09/18	12:04	1.8	149.2	61.3	47.5	3.6	0	27.87	13.13	0.00
2008/09/18	12:05	1.6	158.5	61.3	47.2	3.0	0	27.87	13.13	0.00
2008/09/18	12:06	1.6	168.4	61.4	46.6	2.4	0	27.87	13.13	0.00
2008/09/18	12:07	1.4	156.2	61.5	46.8	2.4	0	27.87	13.13	0.00
2008/09/18	12:08	1.3	164.2	61.5	46.0	2.4	0	27.87	13.13	0.00
2008/09/18	12:09	1.5	143.3	61.6	47.4	2.4	0	27.87	13.13	0.00
2008/09/18	12:10	1.0	155.8	61.6	45.8	1.8	0	27.87	13.13	0.00
2008/09/18	12:11	2.1	177.7	61.8	45.8	3.6	0	27.87	13.13	0.00
2008/09/18	12:12	1.2	168.8	62.0	47.1	2.4	0	27.86	13.13	0.00
2008/09/18	12:13	1.0	153.1	62.1	45.7	1.8	0	27.87	13.13	0.00
2008/09/18	12:14	2.9	141.8	62.1	45.7	6.5	0	27.86	13.13	0.00
2008/09/18	12:15	2.0	157.9	62.1	46.8	5.9	0	27.86	13.13	0.00
2008/09/18	12:16	1.1	167.3	62.1	47.7	2.4	0	27.87	13.14	0.00
2008/09/18	12:17	1.0	147.6	62.2	48.3	1.8	0	27.86	13.14	0.00
2008/09/18	12:18	1.0	147.3	62.3	47.2	2.4	0	27.86	13.13	0.00
2008/09/18	12:19	1.8	170.2	62.4	46.6	3.0	0	27.86	13.14	0.00
2008/09/18	12:20	2.6	180.9	62.6	45.8	3.6	0	27.86	13.14	0.00
2008/09/18	12:21	0.9	150.4	62.6	47.2	2.4	0	27.86	13.14	0.00
2008/09/18	12:22	2.0	156.2	62.7	46.6	3.0	0	27.86	13.14	0.00
2008/09/18	12:23	0.8	140.1	62.7	46.8	1.8	0	27.86	13.14	0.00
2008/09/18	12:24	0.7	165.2	62.8	46.6	1.8	0	27.86	13.14	0.00
2008/09/18	12:25	0.7	158.1	63.0	46.0	1.2	0	27.86	13.14	0.00
2008/09/18	12:26	2.7	141.5	63.0	45.9	5.3	0	27.86	13.14	0.00
2008/09/18	12:27	1.1	161.8	63.0	45.7	1.8	0	27.86	13.14	0.00
2008/09/18	12:28	2.0	152.1	63.0	46.4	3.6	0	27.86	13.14	0.00
2008/09/18	12:29	1.5	165.1	63.0	45.9	2.4	0	27.86	13.14	0.00

2008/09/18	12:30	1.0	157.1	63.0	47.0	1.8	0	27.86	13.14	0.00
2008/09/18	12:31	1.2	145.9	63.2	46.6	4.2	0	27.86	13.14	0.00
2008/09/18	12:32	2.0	139.1	63.3	46.0	4.2	0	27.86	13.14	0.00
2008/09/18	12:33	1.9	155.9	63.4	47.2	2.4	0	27.86	13.14	0.00
2008/09/18	12:34	1.5	160.5	63.4	47.7	2.4	0	27.86	13.14	0.00
2008/09/18	12:35	0.8	140.0	63.6	46.3	1.8	0	27.86	13.14	0.00
2008/09/18	12:36	2.0	153.5	63.8	44.9	3.0	0	27.86	13.14	0.00
2008/09/18	12:37	2.2	148.1	63.9	46.3	3.6	0	27.86	13.14	0.00
2008/09/18	12:38	1.9	165.7	64.0	44.0	3.0	0	27.86	13.14	0.00
2008/09/18	12:39	1.8	159.7	64.2	42.6	3.6	0	27.86	13.14	0.00
2008/09/18	12:40	2.6	143.1	64.3	43.5	5.3	0	27.86	13.14	0.00
2008/09/18	12:41	1.5	155.0	64.4	42.7	5.3	0	27.86	13.14	0.00
2008/09/18	12:42	1.6	148.4	64.5	41.9	3.0	0	27.86	13.14	0.00
2008/09/18	12:43	0.9	162.8	64.7	43.0	1.8	0	27.86	13.14	0.00
2008/09/18	12:44	1.6	145.5	64.9	41.4	3.6	0	27.86	13.14	0.00
2008/09/18	12:45	1.7	154.2	65.1	41.9	3.0	0	27.86	13.14	0.00
2008/09/18	12:46	1.4	144.3	65.3	41.2	3.0	0	27.86	13.14	0.00
2008/09/18	12:47	1.4	173.0	65.5	41.3	2.4	0	27.86	13.15	0.00
2008/09/18	12:48	0.8	163.3	65.5	41.6	1.8	0	27.86	13.15	0.00
2008/09/18	12:49	1.0	137.3	65.6	40.5	2.4	0	27.86	13.15	0.00
2008/09/18	12:50	2.4	165.8	65.7	40.1	3.6	0	27.86	13.14	0.00
2008/09/18	12:51	1.8	173.5	65.7	41.3	3.6	0	27.86	13.15	0.00
2008/09/18	12:52	1.6	154.7	65.7	41.6	2.4	0	27.86	13.15	0.00
2008/09/18	12:53	1.9	160.4	65.6	41.2	3.6	0	27.86	13.15	0.00
2008/09/18	12:54	2.2	149.2	65.6	41.9	3.0	0	27.86	13.15	0.00
2008/09/18	12:55	3.5	163.9	65.6	41.4	5.9	0	27.86	13.15	0.00
2008/09/18	12:56	1.1	182.5	65.7	42.4	3.6	0	27.86	13.15	0.00
2008/09/18	12:57	1.8	148.0	65.8	39.8	4.2	0	27.86	13.15	0.00
2008/09/18	12:58	2.2	142.0	66.1	39.4	5.3	0	27.86	13.15	0.00
2008/09/18	12:59	2.6	150.3	66.4	39.6	3.6	0	27.86	13.15	0.00
2008/09/18	13:00	2.0	146.2	66.4	40.4	3.0	0	27.86	13.15	0.00
2008/09/18	13:01	2.3	156.3	66.5	38.8	4.2	0	27.85	13.15	0.00
2008/09/18	13:02	0.7	116.8	66.6	40.6	1.8	0	27.86	13.15	0.00
2008/09/18	13:03	2.5	160.4	66.7	39.4	4.8	0	27.85	13.15	0.00
2008/09/18	13:04	1.7	179.2	66.9	37.8	3.6	0	27.86	13.15	0.00
2008/09/18	13:05	0.8	129.8	67.2	38.3	1.8	0	27.85	13.12	0.00
2008/09/18	13:06	2.5	136.7	67.5	38.3	5.3	0	27.86	13.13	0.00
2008/09/18	13:07	0.8	174.5	67.7	37.2	2.4	0	27.86	13.14	0.00
2008/09/18	13:08	1.3	181.1	67.9	34.9	3.0	0	27.86	13.15	0.00
2008/09/18	13:09	1.8	152.7	68.2	37.8	3.6	0	27.86	13.15	0.00
2008/09/18	13:10	1.6	174.1	68.0	38.9	3.6	0	27.86	13.15	0.00
2008/09/18	13:11	0.9	142.6	67.9	39.9	3.0	0	27.86	13.15	0.00
2008/09/18	13:12	1.1	143.4	67.8	37.7	3.0	0	27.86	13.15	0.00
2008/09/18	13:13	0.6	172.7	67.9	37.4	1.8	0	27.86	13.15	0.00
2008/09/18	13:14	1.6	163.2	68.0	37.4	3.6	0	27.86	13.15	0.00
2008/09/18	13:15	1.7	179.9	68.1	37.7	3.6	0	27.86	13.15	0.00
2008/09/18	13:16	1.8	158.9	68.1	39.0	3.0	0	27.86	13.15	0.00
2008/09/18	13:17	1.2	142.2	68.0	37.6	3.0	0	27.86	13.15	0.00
2008/09/18	13:18	0.8	151.4	68.0	39.1	2.4	0	27.86	13.15	0.00
2008/09/18	13:19	1.3	166.2	68.1	39.0	3.0	0	27.86	13.15	0.00
2008/09/18	13:20	0.8	151.7	68.0	38.5	1.8	0	27.86	13.15	0.00
2008/09/18	13:21	2.4	141.5	68.0	39.2	3.6	0	27.86	13.15	0.00
2008/09/18	13:22	2.0	147.5	67.9	39.2	4.2	0	27.86	13.15	0.00
2008/09/18	13:23	2.7	166.8	67.8	38.1	4.2	0	27.86	13.15	0.00
2008/09/18	13:24	1.6	161.0	67.8	37.2	3.0	0	27.86	13.15	0.00
2008/09/18	13:25	1.9	160.8	67.9	38.9	3.6	0	27.85	13.15	0.00
2008/09/18	13:26	4.5	132.7	67.9	38.5	8.3	0	27.85	13.15	0.00
2008/09/18	13:27	2.5	152.9	68.0	39.1	4.8	0	27.85	13.15	0.00
2008/09/18	13:28	1.8	155.8	68.0	38.4	4.2	0	27.85	13.15	0.00
2008/09/18	13:29	2.4	147.9	68.1	38.6	3.6	0	27.86	13.15	0.00
2008/09/18	13:30	2.5	146.3	68.1	39.3	3.6	0	27.85	13.15	0.00
2008/09/18	13:31	3.4	165.0	68.1	38.4	4.2	0	27.85	13.15	0.00
2008/09/18	13:32	2.9	161.6	68.0	39.9	4.2	0	27.85	13.15	0.00
2008/09/18	13:33	2.9	163.1	67.9	38.2	3.6	0	27.85	13.15	0.00
2008/09/18	13:34	2.1	163.3	68.1	39.4	4.2	0	27.85	13.15	0.00
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2008/09/18	15:02	2.1	199.3	74.3	33.1	3.0	0	27.83	13.15	0.00
2008/09/18	15:03	1.6	215.0	74.2	32.5	3.0	0	27.83	13.15	0.00
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Export data for station : C A E
Printing Date : 2008/09/25

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2008/09/19	08:07	0.6	104.2	45.7	77.6	0.6	0	27.78	12.99	0.00
2008/09/19	08:08	0.6	118.8	45.7	77.8	0.6	0	27.78	12.99	0.00
2008/09/19	08:09	0.6	118.3	45.8	77.5	0.6	0	27.78	12.98	0.00
2008/09/19	08:10	0.6	144.5	45.8	77.1	0.6	0	27.78	12.99	0.00
2008/09/19	08:11	0.6	174.5	45.8	77.0	0.6	0	27.78	12.99	0.00
2008/09/19	08:12	0.6	108.9	45.8	76.6	0.6	0	27.78	12.99	0.00
2008/09/19	08:13	0.6	123.0	45.7	76.7	0.6	0	27.79	12.99	0.00
2008/09/19	08:14	0.6	126.0	45.7	76.4	0.6	0	27.79	12.99	0.00
2008/09/19	08:15	0.6	152.8	45.7	76.3	0.6	0	27.79	12.98	0.00
2008/09/19	08:16	0.6	95.1	45.7	76.8	0.6	0	27.79	12.98	0.00
2008/09/19	08:17	0.6	136.1	45.7	76.7	0.6	0	27.79	12.98	0.00
2008/09/19	08:18	0.6	140.3	45.8	76.5	0.6	0	27.79	12.98	0.00
2008/09/19	08:19	0.6	119.2	45.7	76.9	0.6	0	27.79	12.98	0.00
2008/09/19	08:20	0.6	122.2	45.8	77.3	0.6	0	27.79	12.98	0.00
2008/09/19	08:21	0.6	133.9	45.8	76.8	0.6	0	27.79	12.98	0.00
2008/09/19	08:22	0.6	128.8	45.9	76.9	0.6	0	27.79	12.98	0.00
2008/09/19	08:23	1.3	136.1	45.9	76.7	3.6	0	27.79	12.98	0.00
2008/09/19	08:24	0.6	117.0	46.0	76.2	1.2	0	27.79	12.98	0.00
2008/09/19	08:25	0.8	126.8	46.0	76.3	1.8	0	27.79	12.98	0.00
2008/09/19	08:26	0.6	118.3	46.1	76.5	0.6	0	27.79	12.98	0.00
2008/09/19	08:27	0.6	131.6	46.2	75.9	0.6	0	27.79	12.98	0.00
2008/09/19	08:28	0.6	146.2	46.3	75.4	0.6	0	27.79	12.98	0.00
2008/09/19	08:29	0.6	102.4	46.4	75.5	0.6	0	27.79	12.98	0.00
2008/09/19	08:30	0.6	122.7	46.5	74.8	1.2	0	27.79	12.98	0.00
2008/09/19	08:31	0.8	102.7	46.6	74.3	1.8	0	27.79	12.98	0.00
2008/09/19	08:32	0.7	132.2	46.7	74.0	1.2	0	27.79	12.98	0.00
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2008/09/19	08:35	0.6	134.3	47.0	73.7	0.6	0	27.79	12.98	0.00
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2008/09/19	08:37	0.6	115.1	47.3	73.7	0.6	0	27.79	12.98	0.00
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2008/09/19	08:39	0.7	126.1	47.5	72.9	1.2	0	27.79	12.98	0.00
2008/09/19	08:40	0.6	111.4	47.5	72.9	1.2	0	27.80	12.98	0.00
2008/09/19	08:41	1.2	130.9	47.6	72.2	3.0	0	27.80	12.98	0.00
2008/09/19	08:42	1.5	113.7	47.7	72.8	4.2	0	27.80	12.98	0.00
2008/09/19	08:43	1.0	131.9	47.7	71.8	2.4	0	27.80	12.97	0.00
2008/09/19	08:44	1.1	122.2	47.8	72.2	2.4	0	27.80	12.97	0.00
2008/09/19	08:45	0.9	109.4	47.8	71.8	2.4	0	27.80	12.98	0.00
2008/09/19	08:46	0.8	116.0	48.0	71.8	2.4	0	27.80	12.98	0.00
2008/09/19	08:47	1.6	103.1	48.0	70.4	2.4	0	27.80	12.98	0.00
2008/09/19	08:48	1.1	124.0	48.1	70.6	3.0	0	27.81	12.98	0.00
2008/09/19	08:49	0.8	118.7	48.2	70.9	1.8	0	27.81	12.98	0.00
2008/09/19	08:50	1.0	124.8	48.3	71.0	2.4	0	27.81	12.98	0.00
2008/09/19	08:51	1.7	113.7	48.3	70.2	3.0	0	27.81	12.98	0.00
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2008/09/19	08:58	1.6	106.9	48.6	69.7	4.2	0	27.82	12.98	0.00
2008/09/19	08:59	1.6	118.1	48.6	69.8	3.0	0	27.82	12.98	0.00
2008/09/19	09:00	1.5	112.9	48.7	69.8	3.6	0	27.82	12.98	0.00
2008/09/19	09:01	0.8	123.1	48.8	70.8	2.4	0	27.82	12.98	0.00
2008/09/19	09:02	0.9	103.3	48.7	69.9	2.4	0	27.82	12.97	0.00
2008/09/19	09:03	0.8	107.4	48.8	69.9	2.4	0	27.82	12.95	0.00
2008/09/19	09:04	1.7	130.0	48.8	69.2	3.6	0	27.82	12.97	0.00
2008/09/19	09:05	1.2	118.4	48.7	69.5	2.4	0	27.82	12.98	0.00
2008/09/19	09:06	2.4	130.1	48.7	69.0	4.8	0	27.82	12.98	0.00
2008/09/19	09:07	0.6	104.6	48.7	69.5	1.2	0	27.82	12.98	0.00
2008/09/19	09:08	0.9	101.0	48.7	69.2	1.8	0	27.82	12.98	0.00
2008/09/19	09:09	1.1	100.6	48.7	69.5	3.0	0	27.82	12.98	0.00

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Export data for station : C A E
Printing Date : 2008/09/25

,,WS,WD,AT,RH,GUST,CH6,BP,BV,RAIN
,,(MPH),(Deg),(F),(%),(MPH),(none),(HG),(VDC),(in)

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Export data for station : C A E
Printing Date : 2008/09/25

		WS	WD	AT	RH	GUST	CH6	BP	BV	RAIN
		(MPH)	(Deg)	(F)	(%)	(MPH)	(none)	(HG)	(VDC)	(in)
2008/09/23	07:27	0.6	207.6	47.6	73.1	3.1	0	28.03	12.93	0.00
2008/09/23	07:28	0.7	170.2	45.6	75.1	1.2	0	28.04	12.89	0.00
2008/09/23	07:29	0.7	159.3	44.3	77.3	1.2	0	28.04	12.85	0.00
2008/09/23	07:30	0.6	161.1	43.1	79.5	0.6	0	28.05	12.90	0.00
2008/09/23	07:31	0.6	149.2	42.3	81.0	0.6	0	28.05	12.91	0.00
2008/09/23	07:32	1.5	148.8	41.6	82.2	3.0	0	28.05	12.91	0.00
2008/09/23	07:33	1.2	151.6	40.9	83.1	2.4	0	28.05	12.91	0.00
2008/09/23	07:34	0.6	167.4	40.4	84.4	0.6	0	28.05	12.91	0.00
2008/09/23	07:35	0.6	185.2	40.2	85.3	0.6	0	28.05	12.91	0.00
2008/09/23	07:36	0.6	165.9	39.9	85.9	0.6	0	28.05	12.91	0.00
2008/09/23	07:37	0.6	173.7	39.8	86.2	0.6	0	28.05	12.90	0.00
2008/09/23	07:38	0.7	182.7	39.6	86.6	1.8	0	28.05	12.90	0.00
2008/09/23	07:39	0.7	183.5	39.5	87.0	1.2	0	28.05	12.90	0.00
2008/09/23	07:40	0.8	182.9	39.3	87.2	1.8	0	28.05	12.89	0.00
2008/09/23	07:41	0.7	192.3	39.2	87.5	1.2	0	28.05	12.89	0.00
2008/09/23	07:42	0.6	187.1	39.1	87.6	1.2	0	28.05	12.89	0.00
2008/09/23	07:43	1.4	197.9	39.0	88.0	3.0	0	28.05	12.89	0.00
2008/09/23	07:44	1.4	183.4	38.9	88.3	3.0	0	28.05	12.89	0.00
2008/09/23	07:45	0.6	172.6	38.8	88.5	0.6	0	28.05	12.89	0.00
2008/09/23	07:46	1.0	192.8	38.8	88.7	3.0	0	28.05	12.89	0.00
2008/09/23	07:47	2.0	212.1	38.8	88.7	3.6	0	28.05	12.89	0.00
2008/09/23	07:48	2.6	212.4	38.7	88.8	3.6	0	28.05	12.89	0.00
2008/09/23	07:49	0.6	216.6	38.7	88.9	1.8	0	28.05	12.89	0.00
2008/09/23	07:50	1.8	220.8	38.6	89.2	3.6	0	28.05	12.89	0.00
2008/09/23	07:51	2.0	215.2	38.7	89.3	3.6	0	28.05	12.89	0.00
2008/09/23	07:52	2.2	219.5	38.6	89.4	4.2	0	28.05	12.89	0.00
2008/09/23	07:53	2.5	209.1	38.6	89.5	3.6	0	28.05	12.88	0.00
2008/09/23	07:54	1.2	184.7	38.6	89.6	2.4	0	28.05	12.88	0.00
2008/09/23	07:55	1.3	200.2	38.6	89.8	3.0	0	28.05	12.88	0.00
2008/09/23	07:56	3.3	220.6	38.6	89.7	4.8	0	28.05	12.88	0.00
2008/09/23	07:57	1.6	198.8	38.6	89.8	3.0	0	28.05	12.86	0.00
2008/09/23	07:58	0.8	172.8	38.6	89.8	2.4	0	28.05	12.87	0.00
2008/09/23	07:59	0.7	162.9	38.6	89.9	1.8	0	28.05	12.87	0.00
2008/09/23	08:00	0.6	200.0	38.6	90.0	1.2	0	28.05	12.87	0.00
2008/09/23	08:01	2.4	201.0	38.6	90.0	3.0	0	28.05	12.87	0.00
2008/09/23	08:02	1.2	192.8	38.6	90.1	2.4	0	28.05	12.88	0.00
2008/09/23	08:03	0.6	200.7	38.6	90.1	0.6	0	28.05	12.87	0.00
2008/09/23	08:04	0.8	209.7	38.6	90.3	1.8	0	28.05	12.87	0.00
2008/09/23	08:05	1.0	233.2	38.7	90.3	3.0	0	28.05	12.87	0.00
2008/09/23	08:06	1.7	210.4	38.7	90.2	3.0	0	28.05	12.87	0.00
2008/09/23	08:07	0.9	227.3	38.7	90.3	1.8	0	28.05	12.87	0.00
2008/09/23	08:08	1.1	207.8	38.7	90.3	2.4	0	28.05	12.87	0.00
2008/09/23	08:09	0.8	189.8	38.7	90.3	1.8	0	28.05	12.87	0.00
2008/09/23	08:10	1.0	197.5	38.6	90.3	2.4	0	28.05	12.87	0.00
2008/09/23	08:11	1.8	200.0	38.7	90.3	3.0	0	28.05	12.87	0.00
2008/09/23	08:12	0.6	208.1	38.6	90.3	1.2	0	28.05	12.87	0.00
2008/09/23	08:13	0.8	183.7	38.6	90.3	1.8	0	28.05	12.87	0.00
2008/09/23	08:14	0.6	143.8	38.6	90.3	0.6	0	28.05	12.87	0.00
2008/09/23	08:15	0.6	138.9	38.6	90.4	1.2	0	28.05	12.87	0.00
2008/09/23	08:16	0.6	145.5	38.6	90.3	0.6	0	28.05	12.86	0.00
2008/09/23	08:17	0.6	143.6	38.5	90.3	0.6	0	28.05	12.87	0.00
2008/09/23	08:18	0.6	157.1	38.5	90.3	0.6	0	28.05	12.86	0.00
2008/09/23	08:19	0.7	159.2	38.5	90.4	1.8	0	28.05	12.86	0.00
2008/09/23	08:20	1.2	161.4	38.5	90.5	2.4	0	28.06	12.86	0.00
2008/09/23	08:21	0.7	164.7	38.5	90.5	1.8	0	28.06	12.86	0.00
2008/09/23	08:22	0.6	181.9	38.5	90.4	0.6	0	28.06	12.86	0.00
2008/09/23	08:23	0.6	197.5	38.5	90.4	0.6	0	28.06	12.86	0.00
2008/09/23	08:24	0.6	187.5	38.5	90.5	0.6	0	28.06	12.86	0.00
2008/09/23	08:25	0.6	170.3	38.5	90.4	0.6	0	28.06	12.86	0.00
2008/09/23	08:26	0.6	173.3	38.5	90.4	0.6	0	28.06	12.86	0.00

2008/09/23	08:27	0.6	178.1	38.5	90.5	0.6	0	28.06	12.86	0.00
2008/09/23	08:28	0.6	183.3	38.5	90.6	0.6	0	28.06	12.86	0.00
2008/09/23	08:29	0.6	201.6	38.5	90.5	0.6	0	28.06	12.86	0.00
2008/09/23	08:30	0.6	196.4	38.5	90.5	0.6	0	28.06	12.86	0.00
2008/09/23	08:31	0.6	179.6	38.5	90.5	0.6	0	28.06	12.86	0.00
2008/09/23	08:32	0.6	186.9	38.5	90.6	0.6	0	28.06	12.86	0.00
2008/09/23	08:33	0.6	185.4	38.5	90.6	0.6	0	28.06	12.86	0.00
2008/09/23	08:34	0.6	181.8	38.5	90.5	0.6	0	28.06	12.86	0.00
2008/09/23	08:35	0.6	218.9	38.5	90.6	1.2	0	28.06	12.86	0.00
2008/09/23	08:36	1.3	230.4	38.5	90.6	2.4	0	28.06	12.86	0.00
2008/09/23	08:37	1.9	200.9	38.5	90.7	3.6	0	28.06	12.86	0.00
2008/09/23	08:38	2.2	216.5	38.5	90.7	3.6	0	28.06	12.86	0.00
2008/09/23	08:39	0.9	226.6	38.5	90.8	1.8	0	28.06	12.86	0.00
2008/09/23	08:40	2.4	221.6	38.5	90.8	4.2	0	28.06	12.86	0.00
2008/09/23	08:41	1.6	216.6	38.5	90.7	3.6	0	28.06	12.86	0.00
2008/09/23	08:42	1.6	217.8	38.5	90.7	3.6	0	28.06	12.86	0.00
2008/09/23	08:43	0.6	226.8	38.5	90.6	1.2	0	28.06	12.86	0.00
2008/09/23	08:44	0.8	207.3	38.5	90.7	1.8	0	28.06	12.86	0.00
2008/09/23	08:45	1.4	202.8	38.5	90.7	2.4	0	28.07	12.86	0.00
2008/09/23	08:46	1.4	209.3	38.4	90.8	2.4	0	28.06	12.81	0.00
2008/09/23	08:47	1.6	238.5	38.4	90.8	3.0	0	28.07	12.84	0.00
2008/09/23	08:48	2.4	234.5	38.4	90.6	3.6	0	28.07	12.85	0.00
2008/09/23	08:49	2.8	213.4	38.3	90.6	4.2	0	28.07	12.86	0.00
2008/09/23	08:50	1.7	227.7	38.3	90.8	4.2	0	28.07	12.86	0.00
2008/09/23	08:51	1.2	196.3	38.3	90.8	3.0	0	28.07	12.86	0.00
2008/09/23	08:52	2.4	155.0	38.3	90.8	5.3	0	28.07	12.86	0.00
2008/09/23	08:53	3.2	151.5	38.2	90.7	4.8	0	28.07	12.86	0.00
2008/09/23	08:54	1.5	185.6	38.2	90.6	2.4	0	28.07	12.86	0.00
2008/09/23	08:55	0.7	218.7	38.2	90.8	1.8	0	28.07	12.86	0.00
2008/09/23	08:56	0.6	229.2	38.2	90.8	1.2	0	28.07	12.86	0.00
2008/09/23	08:57	0.8	224.7	38.3	90.8	1.8	0	28.07	12.86	0.00
2008/09/23	08:58	0.9	253.0	38.3	91.1	2.4	0	28.07	12.86	0.00
2008/09/23	08:59	0.6	242.9	38.4	90.9	1.2	0	28.07	12.86	0.00
2008/09/23	09:00	0.7	233.3	38.5	90.9	1.8	0	28.07	12.86	0.00
2008/09/23	09:01	0.6	237.5	38.5	91.0	0.6	0	28.07	12.86	0.00
2008/09/23	09:02	1.3	265.2	38.5	90.9	3.0	0	28.07	12.86	0.00
2008/09/23	09:03	1.3	268.3	38.5	90.9	2.4	0	28.07	12.86	0.00
2008/09/23	09:04	1.6	245.2	38.6	90.9	3.0	0	28.07	12.86	0.00
2008/09/23	09:05	1.2	263.7	38.6	90.9	3.6	0	28.07	12.86	0.00
2008/09/23	09:06	0.6	281.3	38.5	90.9	1.8	0	28.07	12.85	0.00
2008/09/23	09:07	1.4	270.7	38.6	90.9	3.6	0	28.07	12.86	0.00
2008/09/23	09:08	1.1	254.8	38.6	90.9	3.0	0	28.07	12.86	0.00
2008/09/23	09:09	0.7	267.3	38.6	91.0	1.8	0	28.07	12.86	0.00
2008/09/23	09:10	0.6	269.0	38.7	91.1	0.6	0	28.07	12.86	0.00
2008/09/23	09:11	0.6	278.2	38.8	91.2	0.6	0	28.07	12.85	0.00
2008/09/23	09:12	1.2	239.2	39.0	91.1	3.0	0	28.07	12.86	0.00
2008/09/23	09:13	0.6	319.4	39.0	91.1	0.6	0	28.07	12.85	0.00
2008/09/23	09:14	0.6	218.6	39.1	91.2	0.6	0	28.07	12.86	0.00
2008/09/23	09:15	0.6	286.2	39.2	91.2	0.6	0	28.07	12.86	0.00
2008/09/23	09:16	0.6	285.0	39.3	91.3	0.6	0	28.07	12.86	0.00
2008/09/23	09:17	0.6	280.4	39.5	91.3	0.6	0	28.07	12.85	0.00
2008/09/23	09:18	0.6	256.9	39.6	91.1	0.6	0	28.07	12.86	0.00
2008/09/23	09:19	0.7	257.9	39.5	91.0	1.8	0	28.07	12.85	0.00
2008/09/23	09:20	0.7	272.1	39.5	91.1	1.8	0	28.07	12.86	0.00
2008/09/23	09:21	0.6	269.3	39.6	91.2	0.6	0	28.07	12.86	0.00
2008/09/23	09:22	0.6	274.9	39.7	91.2	0.6	0	28.08	12.85	0.00
2008/09/23	09:23	0.6	274.7	39.8	91.2	0.6	0	28.08	12.85	0.00
2008/09/23	09:24	0.6	263.2	39.8	91.1	1.2	0	28.08	12.85	0.00
2008/09/23	09:25	0.7	275.0	39.9	91.1	1.2	0	28.08	12.85	0.00
2008/09/23	09:26	1.4	258.6	39.9	91.1	2.4	0	28.08	12.86	0.00
2008/09/23	09:27	2.1	269.2	39.8	90.8	4.2	0	28.08	12.86	0.00
2008/09/23	09:28	1.5	255.2	39.8	90.9	3.6	0	28.08	12.85	0.00
2008/09/23	09:29	1.6	235.0	39.8	90.9	2.4	0	28.08	12.86	0.00
2008/09/23	09:30	1.5	262.9	39.7	90.8	3.0	0	28.08	12.86	0.00
2008/09/23	09:31	0.6	267.5	39.7	90.9	0.6	0	28.08	12.85	0.00
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Printing Date : 2008/09/25

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2008/09/24,09:57,0.6,175.3,40.2,80.7,0.6,0,27.97,12.87,0.00

2008/09/24	09:58	0.6	203.4	40.2	80.5	0.6	0	27.97	12.87	0.00
2008/09/24	09:59	0.6	234.8	40.3	80.3	0.6	0	27.97	12.86	0.00
2008/09/24	10:00	0.6	181.5	40.4	80.7	0.6	0	27.97	12.86	0.00
2008/09/24	10:01	0.6	179.6	40.5	80.5	0.6	0	27.97	12.86	0.00
2008/09/24	10:02	0.6	168.5	40.6	80.8	0.6	0	27.97	12.86	0.00
2008/09/24	10:03	0.6	28.3	40.7	81.5	0.6	0	27.98	12.86	0.00
2008/09/24	10:04	0.6	16.3	40.9	81.2	0.6	0	27.98	12.86	0.00
2008/09/24	10:05	0.6	34.5	41.0	81.4	1.2	0	27.98	12.86	0.00
2008/09/24	10:06	0.6	185.4	41.1	80.7	1.2	0	27.98	12.86	0.00
2008/09/24	10:07	0.6	183.8	41.3	80.6	0.6	0	27.98	12.86	0.00
2008/09/24	10:08	0.6	54.1	41.4	80.6	0.6	0	27.98	12.86	0.00
2008/09/24	10:09	0.6	38.2	41.5	80.4	0.6	0	27.98	12.86	0.00
2008/09/24	10:10	0.6	161.2	41.6	78.7	0.6	0	27.98	12.86	0.00
2008/09/24	10:11	0.6	121.4	41.7	77.7	0.6	0	27.98	12.86	0.00
2008/09/24	10:12	0.6	49.9	41.8	79.5	0.6	0	27.98	12.86	0.00
2008/09/24	10:13	0.6	43.0	41.9	78.5	0.6	0	27.98	12.86	0.00
2008/09/24	10:14	0.6	52.5	41.9	79.0	1.2	0	27.98	12.86	0.00
2008/09/24	10:15	0.6	52.9	42.0	78.7	1.2	0	27.98	12.86	0.00
2008/09/24	10:16	0.6	52.8	42.0	79.3	0.6	0	27.98	12.86	0.00
2008/09/24	10:17	0.6	51.6	42.0	79.2	0.6	0	27.99	12.86	0.00
2008/09/24	10:18	0.6	97.7	42.1	78.6	0.6	0	27.98	12.86	0.00
2008/09/24	10:19	0.6	38.6	42.1	79.0	1.2	0	27.98	12.86	0.00
2008/09/24	10:20	1.4	35.2	42.1	78.7	2.4	0	27.98	12.86	0.00
2008/09/24	10:21	1.1	54.1	42.2	79.0	1.8	0	27.98	12.86	0.00
2008/09/24	10:22	1.1	27.3	42.1	78.8	2.4	0	27.98	12.86	0.00
2008/09/24	10:23	0.8	34.8	42.1	78.2	1.8	0	27.98	12.86	0.00
2008/09/24	10:24	0.6	41.6	42.0	78.7	1.2	0	27.98	12.86	0.00
2008/09/24	10:25	0.9	53.2	42.1	78.2	1.8	0	27.98	12.86	0.00
2008/09/24	10:26	2.2	46.6	42.1	77.8	3.6	0	27.98	12.84	0.00
2008/09/24	10:27	0.6	52.5	42.1	78.7	1.2	0	27.98	12.85	0.00
2008/09/24	10:28	0.8	53.8	42.2	79.0	1.8	0	27.98	12.86	0.00
2008/09/24	10:29	0.6	53.2	42.3	79.0	1.2	0	27.98	12.86	0.00
2008/09/24	10:30	0.6	52.3	42.3	78.7	1.2	0	27.98	12.86	0.00
2008/09/24	10:31	0.8	78.6	42.4	78.3	1.2	0	27.98	12.86	0.00
2008/09/24	10:32	1.5	41.1	42.5	77.8	2.4	0	27.98	12.86	0.00
2008/09/24	10:33	0.6	51.5	42.6	78.2	0.6	0	27.98	12.86	0.00
2008/09/24	10:34	1.4	45.5	42.6	78.4	4.2	0	27.98	12.86	0.00
2008/09/24	10:35	1.2	59.1	42.7	77.0	3.6	0	27.98	12.86	0.00
2008/09/24	10:36	0.6	22.0	42.7	77.0	0.6	0	27.98	12.86	0.00
2008/09/24	10:37	0.7	42.8	42.8	77.6	1.8	0	27.98	12.86	0.00
2008/09/24	10:38	0.8	32.7	42.9	77.3	1.2	0	27.98	12.86	0.00
2008/09/24	10:39	1.3	39.2	42.9	76.3	2.4	0	27.98	12.86	0.00
2008/09/24	10:40	0.6	33.0	42.9	75.9	1.2	0	27.97	12.86	0.00
2008/09/24	10:41	0.6	119.4	42.9	75.7	0.6	0	27.97	12.86	0.00
2008/09/24	10:42	0.6	35.8	42.9	77.2	0.6	0	27.97	12.86	0.00
2008/09/24	10:43	0.6	26.9	43.0	76.2	0.6	0	27.97	12.86	0.00
2008/09/24	10:44	0.6	20.7	43.1	75.5	0.6	0	27.97	12.86	0.00
2008/09/24	10:45	0.6	113.3	43.1	75.1	0.6	0	27.98	12.86	0.00
2008/09/24	10:46	0.6	149.5	43.2	74.6	0.6	0	27.98	12.86	0.00
2008/09/24	10:47	0.6	77.5	43.2	75.3	0.6	0	27.98	12.86	0.00
2008/09/24	10:48	0.6	94.1	43.3	74.8	0.6	0	27.98	12.86	0.00
2008/09/24	10:49	0.6	71.9	43.4	74.6	0.6	0	27.98	12.84	0.00
2008/09/24	10:50	0.6	64.5	43.5	74.5	0.6	0	27.98	12.86	0.00
2008/09/24	10:51	0.6	73.7	43.6	73.6	0.6	0	27.98	12.86	0.00
2008/09/24	10:52	0.6	60.9	43.7	73.2	0.6	0	27.98	12.86	0.00
2008/09/24	10:53	0.6	102.7	43.7	72.9	0.6	0	27.98	12.86	0.00
2008/09/24	10:54	0.6	172.9	43.8	73.1	0.6	0	27.98	12.86	0.00
2008/09/24	10:55	0.6	73.7	43.9	73.5	0.6	0	27.98	12.86	0.00
2008/09/24	10:56	0.6	92.5	44.0	73.0	0.6	0	27.98	12.86	0.00
2008/09/24	10:57	0.6	16.7	44.1	72.9	0.6	0	27.98	12.86	0.00
2008/09/24	10:58	0.6	11.9	44.2	72.0	0.6	0	27.98	12.86	0.00
2008/09/24	10:59	0.6	16.0	44.2	71.6	0.6	0	27.98	12.86	0.00
2008/09/24	11:00	0.9	22.7	44.2	72.4	1.8	0	27.98	12.86	0.00
2008/09/24	11:01	0.6	44.3	44.1	71.8	0.6	0	27.98	12.86	0.00
2008/09/24	11:02	0.6	42.2	44.1	72.9	0.6	0	27.98	12.86	0.00
2008/09/24	11:03	0.6	328.3	44.1	72.7	0.6	0	27.98	12.86	0.00

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2008/09/24,12:09,0.8,203.6,47.8,65.1,1.8,0,27.97,12.87,0.00

2008/09/24	12:10	0.9	210.8	47.9	63.8	1.8	0	27.97	12.87	0.00
2008/09/24	12:11	1.3	213.2	48.0	63.5	4.2	0	27.97	12.87	0.00
2008/09/24	12:12	0.6	213.0	48.1	62.8	1.2	0	27.97	12.87	0.00
2008/09/24	12:13	1.2	200.1	48.1	62.4	2.4	0	27.97	12.87	0.00
2008/09/24	12:14	0.6	228.4	48.2	62.4	0.6	0	27.97	12.87	0.00
2008/09/24	12:15	0.6	205.9	48.3	64.0	0.6	0	27.97	12.87	0.00
2008/09/24	12:16	1.0	218.5	48.4	61.7	2.4	0	27.97	12.87	0.00
2008/09/24	12:17	0.6	214.8	48.5	62.3	1.2	0	27.97	12.87	0.00
2008/09/24	12:18	1.3	202.8	48.6	61.8	3.0	0	27.97	12.87	0.00
2008/09/24	12:19	0.7	210.2	48.6	61.8	1.8	0	27.97	12.87	0.00
2008/09/24	12:20	1.5	195.8	48.7	62.1	3.0	0	27.97	12.87	0.00
2008/09/24	12:21	1.6	209.6	48.8	61.6	3.0	0	27.97	12.87	0.00
2008/09/24	12:22	0.9	209.3	48.8	62.3	1.8	0	27.97	12.87	0.00
2008/09/24	12:23	1.0	188.2	48.9	62.3	1.8	0	27.97	12.87	0.00
2008/09/24	12:24	1.1	195.8	49.0	60.4	1.8	0	27.97	12.87	0.00
2008/09/24	12:25	0.8	191.7	49.0	60.4	3.0	0	27.97	12.87	0.00
2008/09/24	12:26	1.0	218.2	49.1	60.3	3.0	0	27.97	12.87	0.00
2008/09/24	12:27	0.6	198.7	49.2	59.8	1.2	0	27.97	12.88	0.00
2008/09/24	12:28	0.8	200.1	49.3	61.6	1.8	0	27.97	12.88	0.00
2008/09/24	12:29	1.2	184.5	49.5	61.8	2.4	0	27.97	12.88	0.00
2008/09/24	12:30	1.9	206.4	49.6	61.7	4.8	0	27.97	12.88	0.00
2008/09/24	12:31	0.9	194.4	49.6	61.4	2.4	0	27.98	12.88	0.00
2008/09/24	12:32	0.7	203.0	49.7	61.3	1.2	0	27.98	12.88	0.00
2008/09/24	12:33	2.0	194.2	49.7	61.0	3.6	0	27.98	12.88	0.00
2008/09/24	12:34	0.9	207.1	49.7	59.8	2.4	0	27.98	12.88	0.00
2008/09/24	12:35	0.9	217.1	49.7	59.9	2.4	0	27.97	12.88	0.00
2008/09/24	12:36	0.7	171.7	49.7	60.9	1.2	0	27.98	12.88	0.00
2008/09/24	12:37	0.6	171.6	49.8	60.4	0.6	0	27.98	12.88	0.00
2008/09/24	12:38	1.1	179.4	49.8	60.7	3.0	0	27.98	12.88	0.00
2008/09/24	12:39	1.4	197.0	49.9	60.5	3.0	0	27.98	12.88	0.00
2008/09/24	12:40	1.2	176.8	50.0	61.2	3.0	0	27.98	12.88	0.00
2008/09/24	12:41	0.6	182.9	50.2	59.1	1.2	0	27.98	12.88	0.00
2008/09/24	12:42	1.6	195.5	50.2	59.9	4.2	0	27.98	12.88	0.00
2008/09/24	12:43	1.4	214.9	50.2	59.8	3.6	0	27.97	12.88	0.00
2008/09/24	12:44	2.4	200.9	50.2	59.4	4.8	0	27.98	12.88	0.00
2008/09/24	12:45	1.2	211.0	50.3	60.1	3.0	0	27.98	12.88	0.00
2008/09/24	12:46	1.0	211.5	50.4	60.4	2.4	0	27.98	12.88	0.00
2008/09/24	12:47	0.8	212.1	50.5	59.8	1.8	0	27.98	12.88	0.00
2008/09/24	12:48	2.5	209.7	50.6	59.7	4.2	0	27.98	12.88	0.00
2008/09/24	12:49	3.3	204.7	50.7	60.2	4.2	0	27.98	12.88	0.00
2008/09/24	12:50	1.6	193.4	50.9	58.4	3.0	0	27.98	12.87	0.00
2008/09/24	12:51	0.7	190.7	50.8	59.8	1.2	0	27.98	12.88	0.00
2008/09/24	12:52	2.0	210.7	50.9	59.6	4.2	0	27.98	12.86	0.00
2008/09/24	12:53	0.6	211.0	51.0	58.7	1.2	0	27.98	12.85	0.00

Export Filename : C:\MICROMET\MIN1\EXPORT\08091725.TXT
Export data for station : C A E
Printing Date : 2008/09/25

		WS	WD	AT	RH	GUST	CH6	BP	BV	RAIN
		(MPH)	(Deg)	(F)	(%)	(MPH)	(none)	(HG)	(VDC)	(in)
2008/09/25	07:11	1.3	123.0	55.8	78.3	18.7	0	27.88	13.22	0.00
2008/09/25	07:12	0.6	134.6	49.6	77.5	0.6	0	27.84	12.92	0.00
2008/09/25	07:13	0.6	141.3	49.2	78.1	0.6	0	27.85	12.94	0.00
2008/09/25	07:14	0.6	139.3	49.0	79.4	0.6	0	27.85	12.93	0.00
2008/09/25	07:15	0.6	114.3	48.7	80.7	0.6	0	27.85	12.90	0.00
2008/09/25	07:16	0.6	347.1	48.4	81.8	0.6	0	27.86	12.92	0.00
2008/09/25	07:17	0.6	331.5	48.2	82.2	0.6	0	27.86	12.91	0.00
2008/09/25	07:18	0.6	315.1	47.9	83.2	0.6	0	27.86	12.91	0.00
2008/09/25	07:19	0.6	314.6	47.7	83.6	0.6	0	27.86	12.91	0.00
2008/09/25	07:20	0.6	311.8	47.5	83.8	0.6	0	27.86	12.90	0.00
2008/09/25	07:21	0.6	326.8	47.2	84.2	0.6	0	27.86	12.90	0.00
2008/09/25	07:22	0.6	319.3	47.1	84.8	0.6	0	27.86	12.90	0.00
2008/09/25	07:23	0.6	340.2	46.9	85.0	0.6	0	27.86	12.89	0.00
2008/09/25	07:24	0.6	0.0	46.8	85.0	0.6	0	27.86	12.89	0.00
2008/09/25	07:25	0.6	128.7	46.7	85.6	0.6	0	27.86	12.88	0.00
2008/09/25	07:26	0.6	129.9	46.6	85.7	0.6	0	27.86	12.89	0.00
2008/09/25	07:27	0.6	154.8	46.5	85.7	0.6	0	27.86	12.89	0.00
2008/09/25	07:28	0.6	224.3	46.5	85.9	0.6	0	27.86	12.89	0.00
2008/09/25	07:29	0.6	314.8	46.4	86.1	0.6	0	27.86	12.89	0.00
2008/09/25	07:30	0.6	314.1	46.3	86.2	0.6	0	27.86	12.89	0.00
2008/09/25	07:31	0.6	324.2	46.3	86.2	0.6	0	27.86	12.89	0.00
2008/09/25	07:32	0.6	321.9	46.2	86.4	0.6	0	27.86	12.89	0.00
2008/09/25	07:33	0.6	314.6	46.2	86.2	0.6	0	27.86	12.89	0.00
2008/09/25	07:34	0.6	332.0	46.1	86.3	0.6	0	27.86	12.88	0.00
2008/09/25	07:35	0.6	71.4	46.1	86.5	0.6	0	27.86	12.88	0.00
2008/09/25	07:36	0.6	96.1	46.1	86.8	0.6	0	27.86	12.88	0.00
2008/09/25	07:37	0.6	157.9	46.2	86.9	0.6	0	27.86	12.88	0.00
2008/09/25	07:38	0.6	207.5	46.2	86.5	0.6	0	27.86	12.88	0.00
2008/09/25	07:39	0.6	238.1	46.2	86.5	0.6	0	27.86	12.83	0.00
2008/09/25	07:40	0.6	334.2	46.2	86.7	0.6	0	27.86	12.86	0.00
2008/09/25	07:41	0.6	326.7	46.2	87.2	0.6	0	27.86	12.87	0.00
2008/09/25	07:42	0.6	327.2	46.2	87.2	0.6	0	27.86	12.87	0.00
2008/09/25	07:43	0.6	336.0	46.2	87.2	0.6	0	27.86	12.85	0.00
2008/09/25	07:44	0.6	333.1	46.2	87.2	0.6	0	27.86	12.78	0.00
2008/09/25	07:45	0.6	337.9	46.3	87.0	0.6	0	27.86	12.76	0.00
2008/09/25	07:46	0.6	336.3	46.3	86.9	0.6	0	27.86	12.76	0.00
2008/09/25	07:47	0.6	341.4	46.2	86.9	0.6	0	27.86	12.76	0.00
2008/09/25	07:48	0.6	337.8	46.2	87.0	0.6	0	27.86	12.76	0.00
2008/09/25	07:49	0.6	3.7	46.2	86.9	0.6	0	27.87	12.76	0.00
2008/09/25	07:50	0.6	329.0	46.2	86.9	0.6	0	27.87	12.76	0.00
2008/09/25	07:51	0.6	340.4	46.2	87.2	0.6	0	27.87	12.76	0.00
2008/09/25	07:52	0.6	335.7	46.2	87.2	0.6	0	27.87	12.76	0.00
2008/09/25	07:53	0.6	335.6	46.3	87.2	0.6	0	27.87	12.76	0.00
2008/09/25	07:54	0.6	344.7	46.2	87.0	0.6	0	27.87	12.77	0.00
2008/09/25	07:55	0.6	33.2	46.2	86.9	0.6	0	27.87	12.84	0.00
2008/09/25	07:56	0.6	106.3	46.2	87.2	0.6	0	27.87	12.86	0.00
2008/09/25	07:57	0.6	262.5	46.2	87.3	0.6	0	27.87	12.86	0.00
2008/09/25	07:58	0.6	318.1	46.2	87.3	0.6	0	27.87	12.86	0.00
2008/09/25	07:59	0.6	317.6	46.2	87.2	0.6	0	27.87	12.86	0.00
2008/09/25	08:00	0.6	334.0	46.2	87.3	0.6	0	27.87	12.87	0.00
2008/09/25	08:01	0.6	59.7	46.2	87.1	0.6	0	27.87	12.87	0.00
2008/09/25	08:02	0.6	83.8	46.2	86.7	0.6	0	27.87	12.87	0.00
2008/09/25	08:03	0.6	127.3	46.2	86.7	0.6	0	27.87	12.87	0.00
2008/09/25	08:04	0.6	140.0	46.3	86.9	1.2	0	27.87	12.87	0.00
2008/09/25	08:05	0.6	143.9	46.3	86.7	0.6	0	27.87	12.87	0.00
2008/09/25	08:06	0.6	125.7	46.3	86.7	0.6	0	27.87	12.87	0.00
2008/09/25	08:07	0.6	121.9	46.5	86.7	0.6	0	27.87	12.87	0.00
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2008/09/25,10:05,0.6,111.6,47.8,86.2,0.6,0,27.92,12.86,0.00
2008/09/25,10:06,0.6,78.4,47.8,85.4,0.6,0,27.92,12.86,0.00
2008/09/25,10:07,0.6,38.3,47.8,85.0,0.6,0,27.92,12.86,0.00
2008/09/25,10:08,0.6,32.7,47.7,85.2,0.6,0,27.92,12.86,0.00
2008/09/25,10:09,0.6,8.1,47.7,85.2,0.6,0,27.92,12.86,0.00
2008/09/25,10:10,0.6,319.7,47.7,85.3,0.6,0,27.92,12.83,0.00
2008/09/25,10:11,0.6,333.2,47.7,85.8,0.6,0,27.92,12.83,0.00
2008/09/25,10:12,0.6,359.1,47.7,86.3,0.6,0,27.92,12.84,0.00
2008/09/25,10:13,0.6,99.5,47.7,86.4,0.6,0,27.92,12.85,0.00

APPENDIX E

FIELD NOTES

LIBBY, MT & TROY, MT
BNSF RAIL MAINTENANCE
ACTIVITY BASED SAMPLING (ABS)
FIELD BOOK #1
START DATE
09-17-08

"Rite in the Rain"®
ALL-WEATHER
ENVIRONMENTAL
No. 550

Location MP 1312 Hi side Left Date 9-17-08

Project / Client BNSF

0545 EMR ARRIVED ON SITE FOR SAFETY MEETING.

0550 BNSF REP MET WITH SCOTT CARNEY & DAVID WELCH TO DISCUSS HOW TO HANG PUMPS ON WORKERS. ALSO MET WITH LAURA FROMENSR AND NICOLE WITH CDM AT THIS TIME.

0608 BNSF SAFETY MEETING.
TRACK TRAVELING FROM HERE TO RIPLEY, WAS EXPLAINED.
GOOP SUITS & BOOTIES ARE PPE FOR BNSF EMPLOYEES.
EMPLOYEES WITH PERSONAL PUMPS:

ABS 0636 - * VICTOR BACHMEIER 2767 BA-00002 004868
ABS 0636 - ** ERIC PAVLACK 0145 BA-00001 004867 SHEET#
* VICTOR IS CRIB OPERATOR STOPTIME 1436
** ERIC IS LABORER 1432

BOTH PUMPS START TIME 0636

0621 SAFETY MEETING ENDS. BNSF EMPLOYEES OUTFIT INTO LEVEL D PPE WITH SUITS.

Location MP1312 Hi side Left Date 9-17-08

Project / Client BNSF

OSHA SAMPLES

A JOSH SYNNOTT 8473 GROUNDCREW
~~OSHA SAMPLES~~ 09-17-08
B BRYCE VANDENBERG 6225 SCRUB CRANE OP.
C RODNEY ZIMMERMANN 3662 TAMPER OP.
D KAGEN COX 9430 LABORER
E RYAN TUCKER 3932 LABORER
F MIKE COSSART 8354 SPIKER

PUMP NUMBERS			PUMPSTART
C	RODNEY ZIMMERMAN	#3	0637
D	KAGEN COX	#4	0639
A	JOSH SYNNOTT	#5	0641
E	RYAN TUCKER	#6	0642
B	BRYCE VANDENBERG	#7	0644
F	MIKE COSSART	#8	0645

- BNSF REP BRETT PETERSON FOREMAN

0654 LEFT SAFETY MEETING AREA FOR RIPLEY.

0704 ARRIVED AT RIPLEY

TEAM MEMBERS:	TASKS
SCOTT CARNEY (EMR)	AIR / WEATHER MONITOR
DAVE WELCH (EMR)	SOIL / AIR SAMPLEING
JOHN STARR (EMR)	AIR MONITORING

Location ~~B~~ MP 1312 Date 09-17-08

Project / Client BNSF

TEAM MEMBERS CONT

AMANDA THORNTON (EMR) / WEATHER STATION / SOIL SAMP. / FIELD BOOK

MATT LENZ (EMR) AIR SAMP. / GPS / VIDEO

LAURA TROZZOLO

NICOLE (CDM)

BEIN

0710 EMR SAFETY MEETING

- TRACK PROTECTION MAIN IS NOON SIDING IS 1130
- HOSPITAL IS IN LIBBY ON 3RD & LOUISIANA.

0720 SAFETY MEETING ENDS. BEGIN EQUIPMENT SET UP.

0737 BNSF ARRIVES ON SITE

0743 BRETT PETERSON GAVE US INFO AS FOLLOWS:
MAIN 3246-6 WBCS WSS
RIVERVIEW TO WESS RIPLEY
SIDING 2467 ESS RIPLEY TO WSS RIPLEY
BOTH TRACKS ~~ON~~ UNTIL PACIFIC 1130

0811 DAVE WELCH STARTED SETTING UP SOIL SAMPLING PLOTS
GENERATORS UP & RUNNING
WEATHER STATION UP & RUNNING

Location MP 1312 Date 09-17-08

Project / Client BNSF

CURRENT WEATHER CONDITIONS:
TEMP 38°F, CLEAR SKIES WITH VERY MINIMAL CLOUDS

0847 DAVE WELCH & AMANDA THORNTON DON TYVEK SUITS, BOOTIES, & PERSONAL PUMPS TO BEGIN TRESSPASSING ACTIVITIES

START PUMPS
0749 AMANDA 4491 BA-00003 SHEET 004869
0749 DAVE 9586 BA-0004 SHEET 004870

0930 SCOTT CARNEY LEFT TO REPLACE ONE OF THE GENERATORS. IT STOPPED WORKING.

1001 BNSF GANG PASS MP 1312 HEADING WEST

1021 SCOTT CARNEY ARRIVED BACK FROM GETTING A NEW WORKING GENERATOR

1037 SAMPLING OF SOIL BEGINS

SAMPLE 1

RR- 00001

SP- 138460

SHEET # 005922

Location ~~B+~~ MP 1312 Date 09-17-08

Project / Client BNSF

DAVE WELCH COLLECTS 3 FINGERS HIGH FULL OF SOIL IN A ONE GALLON ZIPLOC® BAG FOR SAMPLING ANALYSIS.

1044 MATT LENZ TAKES GPS LOCATION OF SAMPLE POINT (SP) 1

1048 **RR- 00002** SOIL SAMPLE #2 IS TAKEN SHEET #005922

SP- 138461

1048 MATT LENZ TAKES GPS LOCATION OF SP 2

1049 LOW AMOUNT OF VERMICULITE (VISUAL) FOUND IN SOIL

1057 **RR- 00003** SOIL SAMPLE #3 IS TAKEN SHEET #005922

SP- 138462

1057 LOW AMOUNT OF ~~LA~~ VISUAL VIRMICULITE FOUND MOSTLY DISSEMINATED

1057 MATT LENZ TAKES GPS LOCATION OF SP #3

Location MP 1312 Date 09-17-08

Project / Client BNSF

1105 **RR- 00004** SOIL SAMPLE #4 IS TAKEN SHEET #005923

SP- 138463

1105 LOW AMOUNT OF ~~VET~~ VISUAL VERMICULITE FOUND IN SOIL (MOSTLY DISSEMANATED)

1105 MATT LENZ TAKES GPS LOCATION OF SP #4

1113 **RR- 00005** SOIL SAMPLE #5 IS TAKEN SHEET #005923

SP- 138464

1113 LOW AMOUNT OF VERMICULITE (VISUAL) FOUND IN SOIL (MOSTLY DESSIMANATED) ALOT OF COAL IN THE VICINITY

1113 MATT LENS TAKES GPS LOCATION OF SP #5

1122 **RR- 00006** SOIL SAMPLE #6 IS TAKEN SHEET #005923

SP- 138465

1122 NO VISUAL VERMICULITE FOUND IN SOIL

1122 MATT LENZ TAKES GPS LOCATION OF SP #6

Location MP 1312 Date ~~09-0~~ 09-17-08

Project / Client BNSF

1129 **RR- 00007** SOIL SAMPLE #7 IS TAKEN SHEET #005924

SP- 138466

1129 NO VISUAL VERMICULITE PRESENT

1129 MATT LENZ TAKES GPS LOCATION OF SP#7

1138 **RR- 00008** SOIL SAMPLE #8 IS TAKEN SHEET # 005924

SP- 138467

1138 NO VISUAL VERMICULITE FOUND

1138 MATT LENZ TAKES GPS LOCATION OF SP#8

1147 **RR- 00009** SOIL SAMPLE #9 IS TAKEN SHEET # 005924

SP- 138468

1147 LOW AMOUNT OF VISUAL VERMICULITE ENCOUNTERED

1147 MATT LENZ TAKES GPS LOCATION OF SP#9

Location MP 1312 Date 09-17-08

Project / Client BNSF

1156 **RR- 00010** SOIL SAMPLE #10 IS TAKEN SHEET #005925

SP- 138469

1156 LOW AMOUNT OF VISUAL VERMICULITE ENCOUNTERED

1156 MATT LENZ TAKES GPS LOCATION OF SP #10

1204 **RR- 00011** SOIL SAMPLE #11 IS TAKEN SHEET #005925

SP- 138470

1204 LOW AMOUNT OF VISUAL VERMICULITE ENCOUNTERED

1204 MATT LENZ TAKES GPS LOCATION OF SP#11

1214 **RR- 00012** SOIL SAMPLE #12 IS TAKEN SHEET #005925

SP- 138471

1214 LOW AMOUNT OF VISUAL VERMICULITE ENCOUNTERED

1214 MATT LENZ TAKES A GPS LOCATION OF SP #12

Location MP 1312 Date 09-17-08

Project / Client BNSF

*OUT OF SEQUENCE

1233 **RR- 00013** SOIL SAMPLE #13 IS TAKEN SHEET # 005926

SP- 138472

1233 NO VISUAL VERMICULITE ENCOUNTERED

1233 MATT LENZ TOOK GPS LOCATIONS OF SP#'s 13, 14, & 15.

1254 **RR- 00014** SOIL SAMPLE #14 IS TAKEN SHEET #005926

SP- 138473

*1245 TRAIN# 7407 BNSF TRAIN PASSES BY. ALL PERSONNEL CLEAR OF TRACKS EAST BOUND

1256 TRAIN # 5482 ANOTHER EAST BOUND TRAIN PASSES BY. ALL PERSONNEL CLEAR OF TRACKS.

1306 COMMENCED SOIL SAMPLING.

1306 LOW AMOUNT OF VISUAL VERMICULITE ENCOUNTERED

1316 **RR- 00015** SOIL SAMPLE #15 IS TAKEN SHEET # 005926

SP- 138474

Location MP1312 Date 09-17-08

Project / Client BNSF

1316 NO VISUAL VERMICULITE PRESENT

1317 SOIL SAMPELING FOR TODAY IS COMPLETE

1331 FLOW RATE OF PERSONAL PUMPS

AMANDA THORNTON 2.4 L/min

DAVE WELCH 2.8 L/min

No FURTHER ENTRIES AMANDA THORNTON 09-17-08

Location KOOTENAI SUBDIVISION Date 09-18-08

Project / Client BNSF

0600 ARRIVED ONSITE FOR BNSF SAFETY MEETING

0602 COUGAR CROSSED TRACKS INFRONT OF US!

0610 BNSF GANG GATHERED FOR SAFETY MEETING

0611 - ONLY MAIN LINE TODAY 0730-1500 PAC. TIME
- 2900'
- Tying UP AT KOOTENAI FALLS TODAY
- PPE FOR BNSF GANG IS COOPSUITS AND BOOTIES

0630 BNSF GANG STRETCHES BEFORE WORK

PUMP START		SS#		SAMPLE #
0642	RYAN TUCKER	8932	LABORER	11
0644	JOSH SYNNOTT	8473	LABORER	12
0646	BRYCE VANDENBERG	6224	MACHINE	13
0648	MIKE COSSART	8354	OPERATOR	14
0650	KAGEN COX	9430	LABORER	15
0652	RODNEY ZIMMERMAN	3462	TAMPER	16

0655 EMR LEFT FOR KOOTENAI FALLS

0720 EMR ARRIVED ONSITE AT KOOTENAI FALLS (MP 1330 & 1331.9)

0924 EMR WAITED FOR BNSF CREW TO ARRIVE AT MP 1331.5. SAFETY TAILGATE MEETING HELD NOW.

Location MP 1331.5 Date 09-18-08

Project / Client BNSF

0932 - N. SIDE SIDEING TRACK PROTECTION. TRAINS WILL BE COMMING THROUGH. EVERY MACHINE WILL KNOW WHEN TRAINS ARE COMMING
- SOIL ONLY ON NORTH SIDE FOR SAMPLING.
- NOTIFY BNSF PERSONNEL IN CASE OF EMERGENCY. HWY 2 INTO LIBBY FOR NON-CRITICAL EMERGENCY.
- DOUBLE READ (QC) PAPERWORK & INITIAL BEFORE HANDING IN TO CDM
- SOIL SAMPLE AD#'s AD-005568 ON EVERY SHEET.

0941 - SAFETY MEETING ENDED.

0948 - EMR ARRIVES AT JOB ACTIVITY SITE

1004 - AMANDA THORNTON & DAVE WELCH DON TYVEK SUITS & PERSONAL PUMPS

1006 - DAVE WELCH & AMANDA THORNTON TURN PERSONAL PUMPS ON TO BEGIN TRESPASSING ACTIVITIES.

Location MP 1331.5 Date 09-18-08

Project / Client BNSF

*OUT OF SEQUENCE

1010 MATT LENZ DONS AND ACTIVATES PERSONAL PUMP. ALL PUMPS SET TO 2.8 L/MIN.

1024 WEATHER STATION UP & RUNNING CURRENT WEATHER 54.9°F CLEAR BLUE SKIES WINDSPEED VARIES 0.6-2.4 MPH. SUNNY.

1026 MAKE SURE & CHECK WEATHER STATION EVERY HOUR

*1004 DAVE WELCH MARKS SOIL SAMPLING LOCATIONS

1107 **RR- 00016** **SP- 138475** SOIL SAMPLE #16 IS TAKEN SHEET# 005927

1107 NO VISUAL VERMICULITE SEEN.

1110 LABELS KEEP FALLING OFF OF SAMPLE BAGS.

1115 **RR- 00017** **SP- 138476** SOIL SAMPLE #17 IS TAKEN SHEET# 005927

1115 NO VISUAL VERMICULITE (VV) SEEN

Location MP 1331.5 Date 09-18-08

Project / Client BNSF

1118 **RR- 00018** **SP- 138477** SOIL SAMPLE #18 IS TAKEN SHEET# 005927

1120 ACTUAL TRESSPASSERS ON SITE OLD MAN & LADY FISHING ~~W~~ AM 09-18-08 2 SCHNOWSERS.

1120 NO VV SEEN.

1142 **RR- 00019** **SP- 138478** SOIL SAMPLE #19 IS TAKEN SHEET# 006101

1142 NO VV ENCOUNTERED

NOTE: 18 MIN TIME SPAN BETWEEN SAMPLES 18 & 19 WERE DUE TO HAVING TO RETRIEVE FIELD SUPPLIES FROM TRUCK & SPEAKING WITH TRESSPASSERS.

1152 **RR- 00020** **SP- 138479** SOIL SAMPLE #20 IS TAKEN SHEET# 006101

1152 LOW AMOUNT OF VV SEEN. DISSEMINATED VV.

Location MP 1331.5 Date 09-18-08

Project / Client BNSF

1200 **RR- 00021** SOIL SAMPLE #21 IS TAKEN SHEET # 006101

SP- 138480

1200 LOW AMOUNT OF DISSEMINATED VV ENCOUNTERED.

1213 **RR- 00022** SOIL SAMPLE #22 IS TAKEN SHEET # 006102

SP- 138481

1213 LOW AMOUNT OF VV ENCOUNTERED

1227 **RR- 00023** SOIL SAMPLE #23 IS TAKEN SHEET # 006102

SP- 138482

1227 LOW AMOUNT OF DISSEMINATED VV ENCOUNTERED

NOTE SAMPLE #24 WILL NOT BE USED AND WAS NOT COLLECTED. WE WILL RESUME AT #25. THIS WAS MY MISTAKE BY PRELABELING THE FORMS.

1312 GPS POINT TAKEN OF SAMPLE #23.

Location MP 1331.5 Date 09-18-08

Project / Client BNSF

1313 GPS LOCATION TAKEN OF SOIL SAMPLE #22

1314 GPS LOCATION TAKEN OF SOIL SAMPLE #21

1315 GPS LOCATION TAKEN OF SOIL SAMPLE #20

1316 GPS LOCATION TAKEN OF SOIL SAMPLE #19

1316 GPS LOCATION TAKEN OF SOIL SAMPLE #18

1317 GPS LOCATION TAKEN OF SOIL SAMPLE #17

1318 GPS LOCATION TAKEN OF SOIL SAMPLE #18

NOTE ALL GPS LOCATION WERE TAKEN BY MATT LENZ OF EMR.

1350 BNSF TRAIN PASSED BY NORTH BOUND

1417 2 TRESPASSERS CROSS TRACKS TO GO FISHING FOR SALMON

1600 EMR LEFT PREMISES

NO FURTHER ENTRIES

ACT AMANDA THORNTON

Location MP ~~1330.5~~ 1331 (#001 9-19-08) Date 09-19-08

Project / Client BNSF

0555 ALL EMR TEAM ARRIVE ONSITE FOR BNSF SAFETY MEETING

0603 SAFETY MEETING
ROW 6.28.3
212 INJURY FREE DAY
JOB KOOTENAI SIDING
6016
6020
SI 16
610 FEET LEFT TO COMPLETE
MAIN & SIDING TRACK PROTECTION
ALTERNATION BETWEEN THE TWO
TYING UP HERE FOR MONDAY
CONCRETE WORK NEXT WEEK
TYING WOOD UP AT TROY BY
WED. OR THURS. NEXT WEEK
GOOD SUITS & BOOTIES FOR BNSF
EMPLOYEES PPE.
- 406 672 9146 CHAD
GOHMAN TUES WOOD JOB

START TIME		SSN #		SAMPLE ~~PUMP~~ #
0631	RODNEY ZIMMERMAN	3662	TAMPER	#19
0641	KAGEN COX	9430	LABORER	#24
0633	JOSH SYNNOT	8473	MACHINE OPERATOR	#20
0639	BRYCE VANDENBERG	6225	"	#23
0637	MIKE COSSAIRT	8354	"	#22

Location MP ~~1330.5~~ 1331 (#001 9-19-08) Date 09-19-08

Project / Client BNSF

START TIME		SSN #		SAMP #
0635	RYAN TUCKER	3932	LABORER	#21

0648 DAVE WELCH #4091 — TURN PUMPS ON
AMANDA THORNTON 4095
MATT LENZ 4099

0707 CURRENT WEATHER CONDITIONS
50.2°F
WIND SPEED 0.6 MPH
CLEAR DAY WITH NO CLOUDS
NO RAIN FORECASTED.

0707 WEATHER STATION UP & RUNNING

SAMPLE #'s FOR EMR EMPLOYEES
AMANDA THORNTON # BA-00024
MATT LENZ # BA-00025
DAVID WELCH # BA-00023

0754 **RR- 00025** — SOIL SAMPLE #25 IS TAKEN
SP- 138484 — SHEET # 006103

0754 NO VV SEEN

0804 **RR- 00026** — SOIL SAMPLE #26 IS TAKEN
SP- 138485 — SHEET # 006103

Location MP ~~1330.5~~ 1331 Date 09-19-08

Project / Client BNSF

0804 NO VV SEEN IN SAMPLE #26

0813 SOIL SAMPLE #27 IS TAKEN

RR- 00027

SHEET #006103

SP- 138486

0813 NO VV ENCOUNTERED

0821 SOIL SAMPLE #28 IS TAKEN

RR- 00028

SHEET # 006109

SP- 138487

0821 NO VV ENCOUNTERED

0832 SOIL SAMPLE #29 IS TAKEN.

RR- 00029

SHEET #006104

SP- 138488

0832 NO VV ENCOUNTERED

0842 SOIL SAMPLE #30 IS TAKEN

RR- 00030

SHEET #006104

SP- 138489

0842 NO VV ENCOUNTERED

NOTE ROADMASTER TODAY IS ROCKY LASORTE.

0935 SOIL SAMPLE 00025 GPS LOCATION TAKEN

Location MP ~~1330.5~~ 1331 Date 09-19-08

Project / Client BNSF

0936 GPS TAKEN OF SAMPLE #26

0937 GPS TAKEN OF SAMPLE #27

0938 GPS TAKEN OF SAMPLE #28

0940 GPS TAKEN OF SAMPLE #29

0941 GPS TAKEN OF SAMPLE #30

1218 EMR BREAKS DOWN EQUIPMENT

1240 EMR LEAVES WORK SITE (ESTIMATED TIME)

No Further Entries 9-19-08

AMANDA THORNTON

Location 1331 MP TIE-UP Date 9-22-08

Project / Client BNSF

0535 DAVE WELCH & AMANDA THORNTON ARRIVE ON SITE (EMR EMPLOYEES).
- WEATHER 50°F & RAINING. ALSO RAINED LAST NIGHT.

9-22-08 ACT ~~0600~~ ESS KOOTENAI FALLS & WSS KOOTENAI
0600 FALLS.
610' FRIDAY
1120' & 1400' TODAY
1120' WOOD 100' CV ACT 9-22-08 ~~1327~~ 1327
1400' CV ACT 9-22-08 ~~1329A~~ 1329A
1200 TIME TRACK PROTECTION
0600 BNSF SAFETY MEETING
MAIN LINE IS LINE AMTRAK WEST-BOUND.

NOTE ALL PUMPS SET TO 28L/MIN.

START TIME	NAME	SSN	JOB	SAMPLE #
0621	RYAN TUCKER	3932	LABORER	27
0624	MARK ECKSTROM	4489	LABORER	28
0626	COLBEY CHRISTIE	7073	LABORER	29
0629	JOSH SYNNOT	8473	LABORER	30
0633	BRYCE VANDENBERG	6225	MACHINE OPER.	31
0636	MIKE COSSAIRT	8354	MACHINE OPER.	32

0715 EMR & BNSF LEAVE FOR WORK AREA
BNSF WILL MEET EMR AT MP 1329.8

Location MP 1329.8 Date 09-22-08

Project / Client BNSF

0939 WEATHER STATION UP & RUNNING
TEMP 54°F
WIND SPEED VARIBLE BETWEEN 7.8 MPH & 6.0 MPH
0941 BA-00031 MATT LENZ
0946 BA-00032 AMANDA THORNTON
0947 DAVE WELCH & JOHN STARR ARE IN THE PROCESS OF SETTING UP PERIMETER
1009 DAVE WELCH LEFT TO MAKE A PHONE TO CLAIRIFY BNSF DIRECTIONS.
1021 DAVE WELCH RETURNS TO MP 1329
NOTE ROADMASTER WAS NOT CLEAR ON HIS WHITEBOARD OR VERBALLY WHERE THEIR WORK ZONE WOULD BE TODAY.
1025 EMR BROKE DOWN EQUIPMENT & WENT TO MP 1329.8
1040 EMR ARRIVED AT MP 1329.8
1043 WEATHER STATION UP & RUNNING
1046 PERIMETER PUMPS BEING SETUP
1100 SOIL SAMPLE PLOTS SET UP
~~1115~~ ACT 9-22-08

Location MP 1329.8 Date 9-22-08

Project / Client BNSF

1115 **RR- 00031** SOIL SAMPLE #31 IS TAKEN SHEET #006105

1115 **SP- 138490**

1115 NO VV SEEN

1122 **RR- 00032** SOIL SAMPLE #32 IS TAKEN SHEET # 006105

SP- 138491

1122 NO VV SEEN

1123 BEGINS TO RAIN AGAIN

1128 **RR- 00033** SOIL SAMPLE #33 IS TAKEN SHEET # 006105

SP- 138492

1128 NO VV SEEN

NOTE ALL SOIL SAMPLED TODAY IS COARSE SILTY-SAND WITH TOPSOIL & BALLAST INTERMIXED

1133 **RR- 00034** SOIL SAMPLE #34 IS TAKEN SHEET # 006106

SP- 138493

1133 NO VV SEEN

Location MP 1329.8 Date 9-22-08

Project / Client BNSF

1133 SOIL IS VERY WET

1143 **RR- 00035** SOIL SAMPLE #35 IS TAKEN SHEET #006106

SP- 138494

1143 NO VV SEEN

1150 **RR- 00036** SOIL SAMPLE #36 IS TAKEN SHEET # 006106

SP- 138495

1150 LOW AMOUNT OF DISEMMINATED VV SEEN

1200 **RR- 00037** SOIL ~~SAMPLE~~ SAMPLE #37 IS TAKEN SHEET # 006107

SP- 138496

1200 NO VV SEEN

NOTE LACK OF VV COULD BE DUE TO SOIL MOISTURE CONTENT BEING VERY HIGH.

1208 **RR- 00038** SOIL SAMPLE #38 IS TAKEN SHEET # 006107

SP- 138497

Location MP 1329.8 Date 9-22-08

Project / Client BNSF

* OUT OF SEQUENCE

1209	THE SOIL SAMPLE #38 IS THE ONLY DRY SAMPLE TAKEN BUT WITH THE SAME COMPONENTS METIONED EARLIER
1209	NO VV SEEN
1210	SOIL SAMPLE ACTIVITY CONCLUDES
1227	GPS IS TAKEN OF SOIL SAMPLE PLOT #31
1229	GPS IS TAKEN OF SOIL SAMPLE PLOT #32
1230	GPS IS TAKEN OF SOIL SAMPLE PLOT #33
1231	GPS IS TAKEN OF SOIL SAMPLE PLOT #34
1232	GPS IS TAKEN OF SOIL SAMPLE PLOT #35
1234	GPS IS TAKEN OF SOIL SAMPLE PLOT #36
1235	GPS IS TAKEN OF SOIL SAMPLE PLOT #37
1236	GPS IS TAKEN OF SOIL SAMPLE PLOT #38
NOTE	ALL GPS LOCATIONS WERE TAKEN BY MATT LENZ OF EMR
1237	GPS IS TAKEN OF WEATHER STATION GPS IS TAKEN OF STATIONARY PUMP #1401. #BA-00034
1239	GPS IS TAKEN OF STATIONARY PUMP #8369 BA-00035
*1030	GENERATORS FOR STATIONARY PUMPS SWITCHED OUT.

NO FURTHER ENTRIES

AMANDA THORNTON

Location MP 1337.B TROY RAILYARD Date 9-23-08

Project / Client BNSF

0540	DAVE WELCH & AMANDA THORNTON PROMEMR ARRIVE ON SITE
AG 9-23-08 ~~0600~~ 0545	DAVE WELCH & JOHN STARR TALK WITH ROADMASTER CHAD ~~BEAUMAN~~ AG 9-23-08 DOUGHMAN
0600	BNSF SAFETY MEETING COMMENCES RE GAGE CURVE MP 1337.B 1000 FT HIGHSIDE RIGHT HAND RAIL

START TIME	NAME	SSN	JOB AG 9-23-08	SAMPLE #
0628	KARL HARMS ABS	1954	ANCHOR BOX OPER.	40
0631	JODY CROWE OSHA	5426	PLATE BLOCKER OPER	35
0632	BEN ROBERTSON	5372	LABORER	36
0635	CLINT ~~COLLIN~~ COMBS	3009	MACHINE OPER	37
0636	CJ CAVEN	1405	SPIKER PULLER	38
0638	JUSTIN GARRETT	12167	PRE GAGER	39
0640	MATT STASHICK MRS	7132	LABORER BA-00037	~~40~~
	~~ST CHARLES STEWART~~	~~4955~~	~~LABORER~~ AG 9-23-08	
0631	ABS DALE JOHNSON	5315	CRIBBER OPER	

0640 ALL PUMPS HUNG & STARTED.

0710 TRESPASSER PUMP (AMANDA THORNTON) STARTED

0726 WEATHER STATION UP & RUNNING TEMP 45.4°F - FOGGY WIND SPEED 0.6 MPH

Location MP 1337 B TROY RAILYARD Date 09-23-08

Project / Client BNSF

0732 PERIMETER PUMPS STARTED

0819 TEMP 38°F

0831 **RR- 00039** SOIL SAMPLE #39 IS TAKEN SHEET # 006108

SP- 138498

0831 LOW VV SEEN
TEXTURE: SANDY SOIL WITH LOTS OF WOOD & OIL & COARSE GRAVEL

0838 **RR- 00040** SOIL SAMPLE #40 IS TAKEN SHEET # 006108

SP- 138499

TEXTURE: SAME AS ABOVE
HARD TO SEE ANY VV WITH THIS SOIL BEING SO SATURATED

0838 NO VV SEEN

0848 **RR- 00041** SOIL SAMPLE #41 IS TAKEN SHEET # 006108

SP- 138500

TEXTURE: SAME AS ABOVE

0848 LOW VV SEEN

Location MP 1337 B TROY RAILYARD Date 09-23-08

Project / Client BNSF

*OUT OF SEQUENCE DUE TO MACHINE THROWING ROCKS

0856 **RR- 00042** SOIL SAMPLE #42 IS TAKEN SHEET # 006109

SP- 138501

0856 LOW AMOUNT OF VV SEEN
TEXTURE: SAME AS BEFORE

*0924 **RR- 00043** SOIL SAMPLE #43 IS TAKEN SHEET # 006109

SP- 138502

NOTE RAIL WORKERS ARE NOT WEARING RESPIRATORS NOR WERE THEY TOLD TO DO SO

0913 **RR- 00044** SOIL SAMPLE #44 IS TAKEN SHEET # 006109

SP- 138503

0913 LOW VV SEEN
TEXTURE: SAME AS BEFORE

0924 RR-00043
SP-138502
LOW VV SEEN

Location MP 1337B TROY RAILYARD Date 9-23-08

Project / Client BNSF

0936 **RR- 00045** SOIL SAMPLE #45 IS TAKEN SHEET # 006110

SP- 138504

TEXTURE IS SAME AS BEFORE

0936 LOW AMOUNT OF VV SEEN

0947 **RR- 00046** SOIL SAMPLE # 46 IS TAKEN SHEET # 006110

SP- 138505

0947 ~~LOW AMOUNT OF VV SEEN~~

MEDIUM AMOUNT OF VV SEEN

1008 GPS OF SOIL SAMPLE #39 TAKEN

1010 GPS OF SOIL SAMPLE # 40 TAKEN

1012 GPS OF SOIL SAMPLE #41 TAKEN

1015 GPS OF SOIL SAMPLE #42 TAKEN

1017 GPS OF SOIL SAMPLE #43 TAKEN

1019 GPS OF SOIL SAMPLE # 44 TAKEN

1021 GPS OF SOIL SAMPLE # 45 TAKEN

1025 GPS OF SOIL SAMPLE # 46 TAKEN

NOTE NOW THAT THE SUN IS OUT & FOG HAS CLEARED WE SEE VV EVERYWHERE!

1022 GENERATOR FOR STATIONARY PUMPS ON SOUTH TRACKS WENT DEAD. SAMPLES NOT SUBMITTED.

Location MP 1337B TROY RAILYARD Date 9-23-08

Project / Client BNSF

NOTE OF MAJOR CONCERN ROADMASTER OF BP-21 WAS TOLD BY DAVE WELCH OF EMR THAT IT WOULD BE ADVISEABLE TO HAVE HIS WORKERS WEAR RESPIRATORS, BASED ON THE SITE HISTORY OF THE TROY RAIL YARD. HIS WORKERS WERE NOT EVEN INFORMED THAT THERE WAS A THREAT. THE WORKERS AT LEAST DESERVE THE INFORMATION TO MAKE A PERSONAL CHOICE ON WEATHER OR NOT TO DON A RESPIRATOR.

1400 EMR LEFT FOR CDM

NO FURTHER ENTRIES

AMANDA THORNTON 9-23-08

Location TROY YARD TIEUP Date 09-24-08

Project / Client BNSF

0550 EMR EMPLOYEES ARE ALL ONSITE AND SETTING UP EQUIPMENT TO OUTFIT BNSF EMPLOYEES WITH PERSONAL PUMPS.

0600 BNSF SAFETY MEETING COMMENCES TODAY EMR WILL MEET RP-21 AT 2nd JOB SITE AT CV 1339 LOW SIDE LEFT RAIL MP 1339.5, 1300' TIE UP AT YAKT, MP 1343.5

ACCESS - HWY 2 (W), RIGHT ON HUNTSMILL RD HOOK TO THE LEFT.

~2-5 WESTBOUND TRAINS TO WATCH FOR THIS MORNING.

OSHA START TIME	NAME	SSN	JOB	SAMPLE #
0622	DALE JOHNSON	5315	~~ASSISTANT FOREMAN~~ DECLIPPER	43
0624	JODY CROWE	5426		44
0625	CJ CAVEN	1405	LABORER	45
0627	BEN ROBERTSON	5372	ASSISTANT FOREMAN	46
	~~TODD~~ NT 9-29-08			
0629	ARTHUR MCKEE	~~2459~~ 2451	OPERATOR	47
0631	DANIEL RODRIQUEZ	8874	OPERATOR	48

0659 EMR SAFETY MEETING SOIL SAMPLING ACTIVITIES REQUIRE LEVEL C PPE.

NO CRIBBER TODAY (CONCRETE).

Location MP 1339.5 Date 9-24-08

Project / Client BNSF

0857 WEATHER STATION UP & RUNNING.
TEMP 47.3°F
WIND SPEED 0.6MPH
FOGGY BUT THE SUN IS COMMING THROUGH A LITTLE BIT.

0907 PERIMETER PUMPS UP AND RUNNING

NOTE DEFUNKED GENERATOR IS NOW WORKING AGAIN AFTER REPAIR AT RICKS RENTAL IN LIBBY, MT.

0920 DAVE WELCH PLOTS OUT SOIL SAMPLING LOCATIONS.

0953 SOIL SAMPLING BEGINS

0955 **RR- 00047** SOIL SAMPLE #47 IS TAKEN SHEET # 006111

SP- 138506

0955 NO VV SEEN
TEXTURE: CLAY/SILT/SAND WITH COARSE GRAVEL. HARDPACKED

1002 **RR- 00048** SOIL SAMPLE #48 IS TAKEN SHEET # 006111

SP- 138507

1002 TEXTURE: SILTY SAND W/COARSE GRAVEL

Location MP 1339.5 Date 9-24-08

Project / Client BNSF

1002 CJ CAVEN (BNSF) WAS WEARING ONE OF OUR PERSONAL PUMPS. HE TOOK OFF THE PUMP & LEFT IT ON THE BACK OF A PIECE OF EQUIPMENT. ANOTHER BNSF EMPLOYEE FOUND THE PUMP & IS NOW WEARING IT. I WILL ADD HIS NAME WHEN I CAN GET IT. CJ WAS WEARING SAMPLE #45.

1002 NO UV SEEN IN SOIL SAMPLE #48

1011 **RR- 00049** SOIL SAMPLE #49 IS TAKEN SHEET #006111

SP- 138508

TEXTURE: CLAY/SILT/SAND & A LITTLE BIT OF BALLAST

1011 NO UV SEEN

RR- 00050 SOIL SAMPLE #50 IS TAKEN SHEET #006112

SP- 138509

TEXTURE: SAME AS ABOVE

1011 LOW AMOUNT OF UV SEEN

Location MP 1339.5 Date 9-24-08

Project / Client BNSF

1027 **RR- 00051** SOIL SAMPLE #51 IS TAKEN SHEET #006112

SP- 138510

TEXTURE: SAME AS ABOVE BUT OLDER / DARKER SOIL

1027 LOW UV SEEN

1037 **RR- 00052** SOIL SAMPLE #52 IS TAKEN SHEET #006112

SP- 138511

TEXTURE: SAME AS ABOVE

1037 LOW AMOUNT OF UV SEEN

1047 **RR- 00053** SOIL SAMPLE #53 IS TAKEN SHEET #006113

SP- 138512

TEXTURE: SAME AS ABOVE

1047 CAN SEE UV ON SURFACE OF SOIL LOW UV SEEN AT DEPTH

1102 **RR- 00054** SOIL SAMPLE #54 IS TAKEN SHEET #006113

SP- 138513

Location MP 1339.5 Date 9-24-08

Project / Client BNSF

1102 SOIL SAMPLE #54 TEXTURE: SAME AS BEFORE

1102 VV IS SEEN ON SURFACE SOIL
LOW VV SEEN AT DEPTH

1110 SOIL SAMPLE #55 IS TAKEN

RR- 00055

SHEET# 006114

SP- 138514

TEXTURE: SAME AS ABOVE

1110 VV IS SEEN ON SURFACE SOIL
LOW VV SEEN AT DEPTH

1135 GPS OF SOIL SAMPLE #49 IS TAKEN

1137 GPS OF SOIL SAMPLE PLOT #50 IS TAKEN

1138 GPS OF SOIL SAMPLE PLOT #51 IS TAKEN

1139 GPS OF SOIL SAMPLE PLOT #52 IS TAKEN

1140 GPS OF SOIL SAMPLE PLOT #53 IS TAKEN

1143 GPS OF SOIL SAMPLE PLOT #54 IS TAKEN

1144 GPS OF SOIL SAMPLE PLOT #55 IS TAKEN

NOTE ALL GPS RECORDINGS WERE TAKEN BY MATT LENZ OF EMR.

1148 GPS OF STATIONARY PUMP TAKEN BA-00053

1149 GPS OF STATIONARY PUMP TAKEN BA-00052

1150 GPS OF STATIONARY PUMP TAKEN BA-00054

1151 GPS OF STATIONARY PUMP TAKEN BA-00055

Location MP 1339.5 Date 9-24-08

Project / Client BNSF

NOTE THE NAME OF THE BNSF EMPLOYEE THAT DOWNED CJ'S PUMP (#45) WAS "SMILEY." THIS IS THE ONLY INFORMATION WE WERE ABLE TO GATHER.

1400 EMR LEFT FOR CDM.

NO FURTHER ENTRIES

AMANDA THORNTON 9-24-08

tion TROY YARD TIE-UP RP15 Date 9-25-08

ect / Client BNSF

EMR EMPLOYEES ALL ARRIVE AT
TROY YARD TIE-UP TO MEET RP-15
GANG
BNSF SAFETY MEETING COMMENCES
1341 LEFT HIRSA 600' THEN
RP15 WILL BE OUT OF OUG.
BNSF SAFETY MEETING CONCLUDES.
STRETCHING BEGINS.

SAMPLES

ME	NAME	SSN#	JOB ~~SSN#~~ 9-25-08	SAMPLE #
	JOSH SYNNOTT	8473	LABORER	51
	RYAN TUCKER	3932	LABORER	52
	MIKE COSSART	8354	machine oper.	53
	VICTOR BACHMIER	2767	machine oper.	54
	RODNEY ZIMMERMAN	3662	LABORER	55
	KAGEN COX	9430	LABORER	56

EMR ARRIVES AT MP 1341.
EMR SAFETY MEETING. LEVEL D PPE
6 HOUR TRACK PROTECTION 0800-1000 PACIFIC TIME
WEATHER STATION UP & RUNNING.
TEMP 49.8°F
WINDSPEED 0.6MPH
PERIMETER PUMPS UP & RUNNING.

Location MP 1341 Date 9-25-08

Project / Client BNSF

0730 BNSF CREW BUS ARRIVES

0755 **RR- 00056** SOIL SAMPLE #56 IS TAKEN SHEET # 00615

SP- 138515

0755 NO VV SEEN
TEXTURE: SANDY SILT WEATHERED ROCK/BALLAST

0803 **RR- 00057** SOIL SAMPLE #57 IS TAKEN SHEET # 00615

SP- 138516

TEXTURE: SAME AS ABOVE

0803 NO VV SEEN

0812 **RR- 00058** SOIL SAMPLE #58 IS TAKEN SHEET # 00615

SP- 138517

TEXTURE: SAME AS ABOVE

0812 NO VV SEEN

0822 **RR- 00059** SOIL SAMPLE #59 IS TAKEN SHEET # 00615

SP- 138518

Location MP 1341 Date 9-25-08

Project / Client BNSF

0822 ~~SO~~ ALT 9-25-08 NO VV SEEN ON SAMPLE
#RR-00059
TEXTURE: SAME AS BEFORE

0833 **RR- 00060** SOIL SAMPLE #60 IS TAKEN SHEET #006116

SP- 138519

TEXTURE: SAME AS BEFORE

0833 NO VV SEEN

0844 **RR- 00061** SOIL SAMPLE #61 IS TAKEN SHEET #006116

SP- 138520

TEXTURE: SAND W/ LITTLE GRAVEL
NO VV SEEN

0848 **RR- 00062** SOIL SAMPLE #62 IS TAKEN SHEET #006117

SP- 138521

TEXTURE: SANDY W/ LITTLE GRAVEL

0848 NO VV SEEN

0918 GPS SAMPLE LOCATION OF #56 TAKEN

0919 GPS LOCATION OF SOIL SAMPLE #57 TAKEN

0920 GPS LOCATION OF SOIL SAMPLE #58 TAKEN

0922 GPS LOCATION OF SOIL SAMPLE #59 TAKEN

Location MP 1341 Date 9-25-08

Project / Client BNSF

0923 GPS OF SOIL SAMPLE #60 TAKEN

0924 GPS OF SOIL SAMPLE #61 TAKEN

0925 GPS OF SOIL SAMPLE #62 TAKEN

0927 GPS OF STATIONARY PUMP BA-00068 & BA-00067 TAKEN

0927 GPS OF STATIONARY PUMP BA-00066 TAKEN

0929 GPS OF STATIONARY PUMP BA-00063 & BA-00064 TAKEN

ALT ~~0929 GPS OF STATIONARY PUMP BA-000~~

0930 GPS OF WEATHER STATION TAKEN

0930 GPS OF STATIONARY PUMP #BA-00065 TAKEN

NOTE BEGAN RAINING NOW
ALL GPS LOCATIONS TAKEN BY
MATT LENZ OF EMR

Libby, MT & Troy, MT
BNSF Rail Maintenance
Activity Based Sampling (ABS)
Fieldbook #2
Start Date
09-17-08

"Rite in the Rain"®
ALL-WEATHER
ENVIRONMENTAL
No. 550

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

ALL-WEATHER

ENVIRONMENTAL FIELD BOOK

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CONTENTS

PAGE	REFERENCE	DATE
~~3~~	MP-1312	9/17/08
6	MP-1331.5	9/18/08
9	MP-1331	9/19/08
12	MP-1329.8	9/22/08
15	MP-1337	9/23/08
18	MP-1339.5	9/24/08
21	MP-1341	9/25/08
24	Video Log	

Reference Page Index

147 Error codes, Hazardous classifications, Container types
148 Sampling guidelines (Liquids)
149 Sampling guidelines (Solids)
150 Approximate Volume of Water in Casing or Hole, Ground Water Monitoring Well
151 PVC Pipe casing tables
152 Soil Classification
153 Soil Classification
154 Conversions (Length, Weight, Volume, Temp, etc...)
155 Conversions (Concentrations, Volume/Flow or Time, Velocity, Acceleration)
156 Maximum Concentration of Contaminants for the Toxicity Characteristic

CONTENTS

PAGE	REFERENCE	DATE

Location MP-1312 Date 9/17/08

Project / Client BNSF-ROW

0000: Arrive at BNSF Safety Meeting
0630: Personal Pumps started for (two) activity based samples & OSHA (six)
0700: EMR leaves safety meeting site to Ripley MP-1312.
0710: EMR holds tailgate safety meeting. Begin setting up stationary pumps
0730: Generator not working properly. Not enough power for south side pumps
0735: North side pumps started
0747: Trespasser ABS samples started.
0830: Scott Carney leaves site to return generator
0850 M. Lenz begins videotaping track maintenance crew
0910: Scott C back onsite with new generator.
0915: Pumps on south side of track started
1035: Cribber passed pump areas
1144: Pumps check and rates unchanged Onlooker pump dropped from 2.8 to 2.5

Location MP 1312 Date 9/17/08

Project / Client BNSF-ROW

1200: Pumps checked and rates are unchanged

1315 Anchor machine passes pumps

1250: stationary pumps samples collected

~~1343~~ ML 9/17/08 Trespasser samples taken.

1400 EMR offsite

ML 9/17/08 **BA- 00001** ABS started 0636 stopped 1436 2.8 lpm

ML 9/17/08 **BA- 00002** ABS started 0636 stopped 1436 2.8 lpm

ML 9/17/08 **BA- 00003** ABS 0749 start 1348 stop 2.8 lpm 2.4 lpm

ML 9/17/08 **BA- 00004** ABS start 0749 stop 1343 2.8 lpm

ML 9/17/08 **BA- 00005** ABS 0753 start 1400 stopped 2.8 lpm

ML 9/17/08 **BA- 00006** 0911 start 1305 stop 7.6 lpm

SP- 138440

ML 9/17/08 **BA- 00007** 0912 start 1304 stop 7.6 lpm

SP- 138441

Location MP-1312 Date 9/17/08

Project / Client BNSF-ROW

ML 9/17/08 **BA- 00008** 0734 start 1255 stop 7.6 lpm

SP- 138442

ML 9/17/08 **BA- 00009** 0737 start 1253 stop 7.6 lpm

SP- 138443

ML 9/17/08 **BA- 00010** Blank

ML 9/17/08

Location MP-1331.5 Date 9/18/08

Project / Client BNSF-ROW

ML	~~Eric P~~ ML 9/18/08 Victor	0638 start	1.4 lpm
	BA- 00011	1502 stop	
ML	~~Victor~~ ML 9/18/08 Eric P	0648 start	1.4 Lpm
	BA- 00012	1459 stop	
ML	Dave	1000 start	2.8 Lpm
	BA- 00013	1555 stop	
ML	Amanda	1000 start	start 2.8
	BA- 00014	1555 stop	stop 2.6
ML	Matt	1015 start	started 2.8
	BA- 00015	1556 stop	stop 2.7
ML	stationary	0958 start	7.6 LPM
	BA- 00016	1550 stop	
	SP-138444		
ML		0958 start	
	BA- 00017	1550 stop	7.6 LPM
	SP-138445		
ML		1011 start	7.6 LPM
	BA- 00018	1545 stop	
ML	SP-138446	1012 start	7.6 LPM
	BA- 00019	1544 stop	
	SP-138447		
ML		Blank	
	BA- 00020		

Location MP-1331.5 Date 9/18/08

Project / Client BNSF-ROW

0600 Safety meeting at crossroads
0630: Start activity based sampling
0700: Offsite
0730: Arrive at MP 1331.5
EMR decides where sampling should occur, safety meeting (Eng)
0745: EMR prepares for BNSF Track personnel to reach sampling area
0900: BNSF workers approaching
0930: Pumps (stationary) started
0950: Trespasser pumps started
1015: Tie pullers pass by
1030: speed swing & plate puller pass
1100 J. Starr checks stationary pumps Flow Rates have not changed

1120: Tie plugger passes by
1130: Cribber passes by
1136: M. Lenz offsite to resolve GPS issues
1219 Rail reset crane to the end of work area 1st equipment to end since Cribber.

Location MP 1331.5 Date 9/18/08

Project / Client BNSF-ROW

1300 M. Lenz returns and takes GPS coordinates of soil sample areas and stationary pumps

1340 Reset crane and welding truck stopped & have been for 30 minutes

1345 ABS pumps checked for flow rate

Matts pump at 2.7 lpm
Amanda's pump at 2.4 lpm
Dave's pump at 2.8 lpm

1350: Train passes by

1400: ML GPS met station

1540: Last of equipment passes

1545: Pull stationary samples

1556: Pull Trespasser pump samples

1615 Downloaded Met Data to Laptop

1630 offsite

ML 9/19/08

Location MP-~~1330.5~~ 1331 Date 9/19/08

Project / Client BNSF-ROW

0545: Arrive to BNSF safety meeting

0648: Start BNSF personal samples

0715: Train passes by

0720: stationary pumps set up and started

0730 Trains have been passing on main work will begin shortly

0740: speed swing

0750: Train passes on Main

0808: Tie pullers pass

0810: workers cutting rail

0815: EMR soil sampling six locations.

0820: EMR videotapes work

0830: M. Lenz checks personal pumps

Amanda's pump dropped from 2.8 to 2.7 lpm

Dave & Matts still at 2.8 lpm

J. Starr checks stationary pumps

0835: Rail moved off siding

0840 work has stopped due to inoperable machine

0850 Reset crane moves inoperable machine off siding.

0900 Tie plugger passes soil sample

0940: Rail reset crane passes.

0941: welding truck passes

Location MP-1331 ML 9/19/08 Date 9/19/08

Project / Client BNSF-ROW

0920: Dave Welch gives personal sample to John Starr. Dave leaves site to make phone call regarding next week

0945: Mlanz takes GPS points of soil, Air samples, and Met station

0950: Spike ~~roller~~ passes ML 9/19/08

~~100~~ 1050: Anchor machine passes

1110: Spike magnet passes.

1130: CBM offsite

1135 Dave returns to site

1140 Last of equipment passes.

1150 EMR pulls stationary pumps

1200 EMR begins taking down equipment

1230: EMR pulls Trespasser samples

1300: EMR offsite

Location MP-~~1330.5~~ 1331 ML 9/19/08 Date 9/19/08

Project / Client BNSF-ROW

BA-00021	start 0630 stop 1223	2.8 Lpm		ML 9/23/08
ML BA- 00022	start 0628 stop 1231	2.8		
ML BA- 00023	start 0648 stop 1231	2.8 Lpm		
ML BA- 00024	start 0648 stop 1241	2.6 Lpm		
ML BA- 00025	start 0648 stop ~~1244~~ 1241	2.8 Lpm		
ML BA- 00026				
ML SP- 138448	0729 start ~~0~~1147 stop	7.6 Lpm		
ML BA- 00027	Blank			
ML BA- 00028	0729 start 1148 stop	7.6 Lpm		
ML SP- 138449				

Location MP- ~~1328~~ 1329.8 ML 9/23/08 Date 9/22/08

Project / Client BNSF

Rainy, cloudy. 54°F

0600: safety meeting.
0630: started BNSF ABS personal pumps Flow 2.8 Lpm
0700: Rain starts to fall. EMR goes offsite to determine if sampling is to be performed
0900: OK to sample given by Scott Carney. Rain has stopped
0940: M. Lenz & Amanda start trespasser pumps at 2.8 Lpm
0950: EMR is in wrong location. work Thought to be at 1329 is more at 1329.5. EMR Moves to new location at 1328.
1050: Dave & stationary ABS pumps started.
1100: ~~Spike~~ Anchor puller and speed swing ML 9/22/08 have already passed.
1110: workers are grinding and blowing concrete ties
1120: Rain starts
1130: Amanda T. and Dave W. start sampling soil. Rain stopped
1159: Rail Reset crane passes by

Location MP 1329.8 Date 9/22/08

Project / Client BNSF ML 9/23/08

1210: Welding truck passes by
1215: M. Lenz checks personal pumps on trespassers.
M. Lenz's pump down to 2.7 lpm
Amanda's pump 2.7 lpm
Daves pump 2.8 lpm

1220. Rail anchors being set
1300: Last of equipment passes
1318: BNSF personal samples pulled
1458: Pumps pulled EMR offsite

BA- 00029	start 0629 stop 1318	2.8 Lpm
BA- 00030	start 0629 stop 1318	2.8 lpm
BA- 00031	start 0941 stop 1435	2.6 lpm
BA- 00032	start 0946 stop 1435	2.7 Lpm
BA- 00033	start 1030 stop 1425	2.8 Lpm
BA- 00034	start 1051 stop 1437	7.6 Lpm
SP- 138450		

Location MP-1329.8 Date 9/22/08

Project / Client BNSF mr 9/23/08

BA- 00035	start	1057	
	stop	1437	7.6 lpm
SP- 138451			
BA- 00036	Blank		

Location MP-1337 Date 9/23/08

Project / Client BNSF

Foggy, Cloudy 38°F

0600: Safety meeting Troy Depot
0630: Pumps started
0700: Move to location begin setup
0720: All Trespasser pumps have been started
0721: At 0715 rail was already being out.
0727: South stationary pumps started
0730: Spike puller passes
0745: North side stationary pumps started
0756: Anchor puller passes
0815: Crooper passes
0835: Rail expander passes
0840: Cribber passes
0849: Rail reset crane puts new rail in place
0913: Spikers pass
0920: ML checks Trespasser pumps.
MLs pump down to 2.7 Lpm
AT pump down to 2.7 Lpm
DW pump down to 2.6 Lpm
0930: ML checks pumps on North & South side of tracks (stationary)

Location MP-1337 Date 9/23/08

Project / Client BNSF

940: The "bomb" passes by
1000 AT&DW finish soil sampling
1015 M Lenz takes GPS points of stationary pumps soil and met station
1020 1 south side of the track generator not working, can't restart BA-00043 & BA-00042 pump fault
1030 Last of equipment passes by
1050 EMR begins take down
1150 EMR pulls stationary and personals

BA- 00037

BA- 00038

BA- 00039

BA- 00040

BA- 00041

Location Date

Project / Client

BA- 00042

SP- 138452

BA- 00043

SP- 138453

BA- 00044

SP- 138454

BA- 00045

SP- 138455

BA- 00046

Blank

~~124~~

Location MP - 1339.5 Date 9/24/08

Project / Client BNSF

48°F, Cloudy

0600: BNSF safety meeting at Troy yard.

0620: ABS personals started for BNSF personnel

0645: EMR will sample second stretch of track.

0710: EMR leaves to pick up Dixed generator from Rick's Rental in Libby

0858 EMR onsite. Begins unpacking equipment.

0908 Personal Trespasser samples have been turned on running at 2.8 Lpm. Met station running

0912 stationary pumps running at 7.6 Lpm.

0915 Declipper machines pass by removing clips holding rail to concrete ties

0930 Magnet Machine passed by

0945 Rail reset crane passes by setting in new rail

1000 J. Starr checks stationary pumps. All running at 7.6 Lpm.

Location MP-1339.5 Date 9/24/08

Project / Client BNSF

1005: Soil sampling started at 0930

1015: Leaf blower passes by cleaning of concrete ties. Visible dust.

1105: Grooper passes by

1115: Welding truck passes

1120: Tamper passes

1122: Amanda and Dave Welch finished sampling soil

1130: M. Lenz takes GPS points at soil locations and ABS stationary samples

1155: The bomb passes by Anchors are set by workers Machine follows and locks into place

1225: Last of equipment passes

1309: J. Starr ~~ran~~ goes to Yaak yard to take off ABS

1500: EMR offsite

~~start 1309~~ start 0617	stop 1309	2.8 Lpm
start 0619	stop 1315	2.8 Lpm
start 0907	stop 1359	2.7 Lpm
start 0907	stop 1400	2.7 Lpm

M. 9/24/08 BA- 00047

M.L. 9/24/08 BA- 00048

M.L. 9/24/08 BA- 00049

M.L. 9/24/08 BA- 00050

Location MP-1339.5 Date 9/24/08

Project / Client BNSF

BA- 00051	start 0907 stop 1400	2.7 Lpm
BA- 00052	0909 start stop 1243	7.6 Lpm
SP- 138456		
BA- 00053	start 0910 Stop 1243	7.6 Lpm
SP- 138457		
BA- 00054	start 0911 Stop 1246	7.6Lpm
SP- 138458		
BA- 00055	start 0911 Stop 1246	7.6 Lpm
SP- 138459		
BA- 00056	Field Blank	
BA- 00057	Lot Blank	

ML 9/24/08

Location MP-1341 Date 9/25/08

Project / Client BNSF

48°F, Cloudy,

BA- 00058	start 0623 stop 0925	2.8 Lpm
BA- 00059	start 0625 stop 0924	2.8 Lpm
BA- 00060	start 0653 stop 1030	2.8 lpm
BA- 00061	start 0655 stop 1040	2.8 lpm
BA- 00062	start 0656 stop 1031	2.8 Lpm
BA- 00063	Start 0728 stop 1002	7.6 Lpm
SP-138460		
BA- 00064	co Located sample start 0728 stop 1002	7.6 Lpm
SP-138460		
BA- 00065	Start 0728 stop 1003	7.6 Lpm
SP-138461		
BA- 00066	Start 0725 stop 0959	7.6 Lpm
SP-138462		

ML 9/25/08

Location MP-1341 Date 9/25/08

Project / Client BNSF

BA- 00067

SP-138463

start 0725
stop 1000 7.6 2pm

BA- 00068

SP-138463

co located sample
start 0725 7.6 2pm
stop 1000

0600 BNSF safety meeting at Troy yard
0620 ABS samples started on BNSF workers
0700 Arrive at MP-1341 start Trespasser ABS samples. set up weather station. safety meeting
0725 start stationary samples BA-00064 & BA-00068 are co-located samples
0730 ~~0830~~ EMR starts soil sampling
0731 Clip supply passes to the west
0732 Declipper passes
0738 Declipper passes
0745 speed swing passes to east
0749 speed swing passes to west
0757 Crew prepping ties
0805 Gooper passes
0824 welding truck passes

Location Date

Project / Client

0848 Bomb, ~~Spiker~~ passes
0853 spiker passes

BA- 00069 Field Blank

0900 Magnet machine passes
0920 All machines passed
0930 Starts Raining
0931 : Pumps checked for flow
0 Amandus 2.8
M Lenz 2.8
Daves 2.7
All stationary ~~[illegible]~~ 7.6 Lpm
1000 Stationary pumpsamples pulled
1030 Met station downloaded
Rain stopped light mist, rain did not accumulate
ABS personals pulled
1040 Personal Trespasser pumps pulled
1050 Final cleanup
1059 EMR offsite

Location _____ Date _____

Project / Client Video Log

	Disc Time	
9/17/08	MP-1312	
Disc 1	.01 sec	BNSF safety meeting
	26 sec	Pumps (ABS) assigned to rail workers
	43 sec	Air Monitoring Area
	1.00 min	Spike puller
	1.3 min	crew working
	23 min	cribber machine
	3 min	cribber passing
	4.20 min	Rail reset crane
	6.36 min	Rail work
	7.3 min	Line of machines
	8.4 min	Anchor machine
	8.41 min	Magnet pulling spikes for Scrap
	9.3 min	soil samplers
9/18/08	MP-1331.5	
	9.41	Rail reset crane
	10.4	Trespasser start sampling
	11.26	~~360°~~ view sampling Area
		road work
	12.20	speed swing
	1250	Ballast being moved
	1356	Rail work
	1404	Trespassers (real) on tracks

Location _____ Date _____

Project / Client Video Log (cont.)

9/18/08	1331.5	
Disc 1	15.39 min	welding Truck
	15.5	Air Sampling Area
		Met station
	18.01	- Train passing
	18.22	worker with pump
	18.40	Spiker machine magnet passing
9/19/08	MP-1331	
	19.15	Met Station location
	20.05	360° view of sample Area
	20.50	worker cutting rail
	21.19	Rail Maintenance
MR ~~9/22~~ 9/19/08 ~~9/18/08~~	MP-1331	
Disc 2	.01 sec	soil samplers
	.21	south side of rail not Air sampled
	.56	Rail Reset crane
	1.15	Rail Maintenance
	1.59	Machine inoperable (hydraulic line)
	2.29	Crane removing machine
	5.45	Ballast being moved
	6.06	Grinding rail - welding Truck

Location _____ Date _____

Project / Client Video Log

9/22/08	MP-1329.8	
	8.00	360° view of sampling Area
	8.40	workers using leaf blower
	9.10	Air samples
	9.30	Rail work
	1000	Mile post location
9/23/08	MP-1337	
	1001	360° of work Area
	1030	spike puller
	1130	Coopers applying adhesive
	1140	Rail work
	1200	The "Bomb" machine
9/24/08	MP-1339.5	
	1230	Anchor puller/Declipper
	1300	360° of work area
	1400	Coopers
	1430	The bomb machine
	1450	workers putting clips on ties
9/25/08	MP-1341	
	1500	360° of work area
	1550	Declipper
	1630	Rail work
	1712	Soil samplers
	1730	rail reset crane
	1740	The bomb

Location _____ Date _____

Project / Client _____

~~1800~~		
9/25/08	MP-1341	
	1800	Rail work

ML
9/25/08

APPENDIX F

FIELD CHANGE ORDERS

Field Change Order (FCO) #17-1

DATE: Wednesday, September 17, 2008
ADDRESS: BNSF ROW
PROJECT NAME: Libby Asbestos Project

DESCRIPTION OF CHANGE AND RATIONALE

The flow rates on ABS monitors could not reach 5 L/min (most could reach 2.8 L/min) – had to reassess using higher sensitivity (0.0024 cc-1), instead of original target sensitivity of 0.001 cc-1).

The reduced flow rates led to extending the sampling period from 2 and 4 hr/event to 6 and 8 hr/event.

SIGNATURE APPROVALS

EPA MANAGEMENT: _____ DATE: _____

EMR MANAGEMENT: _____ DATE: 9/17/08

Field Change Order (FCO) #17-2

DATE: Wednesday, September 17, 2008
ADDRESS: BNSF ROW
PROJECT NAME: Libby Asbestos Project

DESCRIPTION OF CHANGE AND RATIONALE

SAP describes ABS sampling for two onlooker trespassers, but during sampling, only one onlooker trespasser was sampled. However, this receptor was located near stationary samples, which should adequately characterize air concentrations near the maintenance activities.

SIGNATURE APPROVALS

EPA MANAGEMENT: _____ DATE: _____

EMR MANAGEMENT: _____ DATE: 9/17/08

Field Change Order (FCO) #17- 3

DATE: Wednesday, September 17, 2008
ADDRESS: BNSF ROW
PROJECT NAME: Libby Asbestos Project

DESCRIPTION OF CHANGE AND RATIONALE

The SAP was written assuming that all train activity on both tracks (main and siding) would be halted during maintenance activities. However, Day 1 maintenance activity occurred on a track siding and after several hours into the maintenance activities, the main track opened to passing trains.

As a result, passing train activities were noted in the field logbook.

SIGNATURE APPROVALS

EPA MANAGEMENT: _____ DATE: _____

EMR MANAGEMENT: _____ DATE: 9/17/08

Field Change Order (FCO) #17- 4

DATE: Wednesday, September 17, 2008
ADDRESS: BNSF ROW
PROJECT NAME: Libby Asbestos Project

DESCRIPTION OF CHANGE AND RATIONALE

SAP describes ABS sampling for a pedestrian trespasser away from maintenance activities, but during sampling, the pedestrian trespassers walked in areas where maintenance work was not occuring, but also walked in areas where maintenance work was occurring. The nature of the track protection is that maintenance activities will occur for the entire length of track protection.

The resulting ABS samples for the pedestrian trespasser may be higher due to the presence of maintenance activities.

SIGNATURE APPROVALS

EPA MANAGEMENT: _____ DATE: _____

EMR MANAGEMENT: _____ DATE: 9/17/08

Field Change Order (FCO) #17- 5

DATE: Wednesday, September 17, 2008
ADDRESS: BNSF ROW
PROJECT NAME: Libby Asbestos Project

DESCRIPTION OF CHANGE AND RATIONALE

SAP describes equipment decontamination procedure for soil sampling procedure and Dave (soil sampler) mentioned that for grab samples that need to be discrete, wrapping soil sampling equipment (trowel) in aluminum foil (which was written for composite samples) after each grab sample collection seems redundant and time-consuming. Instead, the soil sampling equipment (trowel) is decontaminated using a two stage process consisting of Alconox solution and deionized water and dried after each sample. The soil sampling equipment (trowel) was stored in a clean zip-lock bag between each sample point.

SIGNATURE APPROVALS

EPA MANAGEMENT: _____ DATE: _____

EMR MANAGEMENT: _____ DATE: 9/17/08

Field Change Order (FCO) #17- 6

DATE: Wednesday, September 17, 2008
ADDRESS: BNSF ROW
PROJECT NAME: Libby Asbestos Project

DESCRIPTION OF CHANGE AND RATIONALE

Event duration for the worker is variable (up to 10 hr days) and not controlled by sampling design team. Sample team can only control turning on pumps in the morning (approximately 6:30 am) and picking pumps up at the end of the working day (late afternoon) – had to reassess flow rate as setting ABS worker pumps to 2.8 L/min for roughly 10 hour sampling event (6:30 am to 4:30 pm) yielded filter loading.

Reassessed flow rate for worker to avoid filter loading for next sampling event.

SIGNATURE APPROVALS

EPA MANAGEMENT: _____ DATE: _____

EMR MANAGEMENT: _____ DATE: 9/17/08

Field Change Order (FCO) #18-1

DATE: Thursday, September 18, 2008
ADDRESS: BNSF ROW
PROJECT NAME: Libby Asbestos Project

DESCRIPTION OF CHANGE AND RATIONALE

Scheduled maintenance work area was shorter in length with less exposed soil than sampling activities from Day 1. Therefore, number of soil samples decreased from 15 to 9 samples to suit shortened maintenance length and exposed soil conditions.

SIGNATURE APPROVALS

EPA MANAGEMENT: _____ DATE: _____

EMR MANAGEMENT: _____ DATE: 9/18/08

Field Change Order (FCO) #18-2

DATE: Thursday, September 18, 2008
ADDRESS: BNSF ROW
PROJECT NAME: Libby Asbestos Project

DESCRIPTION OF CHANGE AND RATIONALE

Reassessed flow rate for worker to avoid filter loading for sampling event due to previous day's filter loading. Set flow rate from 2.8 L/min to 1.0 L/min to see if loading would still be an issue.

SIGNATURE APPROVALS

EPA MANAGEMENT: _____ DATE: _____

EMR MANAGEMENT: _____ DATE: 9/18/08

Field Change Order (FCO) #18-3

DATE: Thursday, September 18, 2008
ADDRESS: BNSF ROW
PROJECT NAME: Libby Asbestos Project

DESCRIPTION OF CHANGE AND RATIONALE

Note that sampling on Day 1 occurred in a very dry dusty location, with resulting filter loading on worker ABS samples; whereas, Day 2 sampling location was also dry, but significantly less dusty (probably due to minimal exposed soil, and no dirt access road alongside trackage).

SIGNATURE APPROVALS

EPA MANAGEMENT: _____ DATE: _____

EMR MANAGEMENT: _____ DATE: 9/18/08

Field Change Order (FCO) #19-1

DATE: Friday, September 19, 2008
ADDRESS: BNSF ROW
PROJECT NAME: Libby Asbestos Project

DESCRIPTION OF CHANGE AND RATIONALE

Scheduled maintenance work was less than 1,000 feet in length. Therefore, worker ABS sampling period limited compared to Day 1 and Day 2 sampling. Modified sampling plan to suit shortened maintenance length and duration.

SIGNATURE APPROVALS

EPA MANAGEMENT: _____ DATE: _____

EMR MANAGEMENT: _____ DATE: 9/19/08

Field Change Order (FCO) #22-1

DATE: Monday, September 22, 2008
ADDRESS: BNSF ROW
PROJECT NAME: Libby Asbestos Project

DESCRIPTION OF CHANGE AND RATIONALE

The SAP called for ABS sampling only during dry conditions, since it was based on EPA guidance. Sampling on this day event included light to heavy rain and was completed . Soil sampling, ABS and stationary air sampling was completed in otherwise normal fashion.

SIGNATURE APPROVALS

EPA MANAGEMENT: _____ DATE: _____

EMR MANAGEMENT: _____ DATE: 9/22/08

APPENDIX G

AIR SAMPLE LABORATORY REPORTS

INTERNAL CHAIN OF CUSTODY

10/21/2008 10:55:51 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14656**
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801091
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Test: TEM ISO 10312 **Matrix** Air **TAT:** 120 Hour **Qty:** 14

Acct Sts: **Slsprsn:** epodell **Logged:** rmahoney **Date:** 10/21/2008

Sample Condition: ☒ Acceptable ☐ Unacceptable

Comments

Inter- Lab Sample Transfer

Samples Relinquished: _____ Date _____
Samples Received: _____ Date _____
Package Mailed to Westmont: _____ Date _____
Method of Delivery: _____

Includes: (Circle)
Benchsheets Sample Slides Sample filters
Micrographs GridBox Other _____

Final Package Received: _____ Date: _____

Initial Prep (Initials/Lab): KB **Date:** 10/21/08
Filter Prep (Initials/Lab): _____ **Date:**
Grid Prep (Initials/Lab): KB **Date:** 10/22/08

For Special Projects Use Only:
QC Selection: _____ Date:
Date Package Review: KL Date: 2/26/09
Date Package Mailed: _____ Date: 3/2/09

Special Instructions

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	270801091-0001	BA-00003		10/26/2008 9:57:00 AM
270801091	270801091-0002	BA-00004		10/26/2008 9:57:00 AM
270801091	270801091-0003	BA-00013		10/26/2008 9:57:00 AM
270801091	270801091-0004	BA-00014		10/26/2008 9:57:00 AM
270801091	270801091-0005	BA-00023		10/26/2008 9:57:00 AM
270801091	270801091-0006	BA-00024		10/26/2008 9:57:00 AM
270801091	270801091-0007	BA-00032		10/26/2008 9:57:00 AM
270801091	270801091-0008	BA-00033 VA		10/26/2008 9:57:00 AM

LB RD VA

2708-EMR-97 (R-T)/2708-EMR-99 (A-L)

INTERNAL CHAIN OF CUSTODY

10/21/2008 10:55:51 AM

Order ID: 270801091

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID	EMRI78
		Customer PO:	
		Received:	10/21/08 9:57 AM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270801091
Project:	**L14656** **Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

270801091	270801091-0009	BA-00040	10/26/2008 9:57:00 AM
270801091	270801091-0010	BA-00041	10/26/2008 9:57:00 AM
270801091	270801091-0011	BA-00050	10/26/2008 9:57:00 AM
270801091	270801091-0012	BA-00051	10/26/2008 9:57:00 AM
270801091	270801091-0013	BA-00061	10/26/2008 9:57:00 AM
270801091	270801091-0014	BA-00062	10/26/2008 9:57:00 AM

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:53 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14656**
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801091
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Test: **TEM ISO 10312** **Matrix:** Air **TAT:** 120 Hour **Qty:** 14

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	270801091-0001	BA-00003		10/26/2008 9:57:00 AM

Comments:

ANALYZED:	[illegible]	**Date:**	11/12/08
Preliminary Data Sent to Special Projects:	RKm	**Date:**	11/13/08
Data Entry:	[illegible]	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	KL	Date:	12/2/08
Reported to Client:	KL	Date:	12/3/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:53 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14656**
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801091
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	**270801091-0002**	**BA-00004**		**10/26/2008 9:57:00 AM**

Comments:

ANALYZED:	RSP	**Date:**	11/12/08
Preliminary Data Sent to Special Projects:	RKM	**Date:**	11/13/08
Data Entry:	[illegible]	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	KL	Date:	12/2/08
Reported to Client:	KL	Date:	12/3/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:53 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14656**
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801091
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	**270801091-0003**	**BA-00013**		**10/26/2008 9:57:00 AM**

Comments:

ANALYZED:	MPP	**Date:**	11/12/08
Preliminary Data Sent to Special Projects:	RCM	**Date:**	11/13/08
Data Entry:	[illegible]	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	KL	Date:	12/2/08
Reported to Client:	KL	Date:	12/3/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:53 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14656**
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801091
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	**270801091-0004**	**BA-00014**		**10/26/2008 9:57:00 AM**

Comments:

ANALYZED:	[illegible]	**Date:**	11/12/08
Preliminary Data Sent to Special Projects:	RKM	**Date:**	11/13/08
Data Entry:	[illegible]	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	KL	Date:	12/2/08
Reported to Client:	KL	Date:	12/3/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:53 AM

Order ID: 270801091

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	10/21/08 9:57 AM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270801091
Project:	**L14656** **Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	**270801091-0005**	**BA-00023**		**10/26/2008 9:57:00 AM**

Comments:

ANALYZED:	RSP	**Date:**	11/12/08
Preliminary Data Sent to Special Projects:	RICM	**Date:**	11/13/08
Data Entry:	[illegible]	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	KL	Date:	12/2/08
Reported to Client:	KL	Date:	12/3/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:53 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14656**
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801091
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	**270801091-0006**	**BA-00024**		**10/26/2008 9:57:00 AM**

Comments:

ANALYZED:	RSP	**Date:**	11/12/08
Preliminary Data Sent to Special Projects:	RKM	**Date:**	11/13/08
Data Entry:	[illegible]	Date:	11/14/08
Structure Reviewer:		Date:	
Data Validation:	KL	Date:	12/2/08
Reported to Client:	KL	Date:	12/3/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:53 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14656**
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801091
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	**270801091-0007**	**BA-00032**		**10/26/2008 9:57:00 AM**

Comments:

ANALYZED:	RYP	**Date:**	11/12/08
Preliminary Data Sent to Special Projects:	RKm	**Date:**	11/13/08
Data Entry:	Oe	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	KL	Date:	12/2/08
Reported to Client:	KL	Date:	12/3/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:53 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14656**
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801091
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	**270801091-0008**	**BA-00033**		**10/26/2008 9:57:00 AM**

Comments:

ANALYZED:	RMT	**Date:**	11/12/08
Preliminary Data Sent to Special Projects:	RKm	**Date:**	11/13/08
Data Entry:	QL	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	KL	Date:	12/2/08
Reported to Client:	KL	Date:	12/3/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:54 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14656**
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801091
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	**270801091-0009**	**BA-00040**		**10/26/2008 9:57:00 AM**

Comments:

ANALYZED:	PKD	**Date:**	11/13/08
Preliminary Data Sent to Special Projects:	RKm	**Date:**	11/15/08
Data Entry:	[illegible]	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	KL	Date:	12/2/08
Reported to Client:	KL	Date:	12/3/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:54 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14656**
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801091
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	**270801091-0010**	**BA-00041**		**10/26/2008 9:57:00 AM**

Comments:

ANALYZED:	[illegible]	**Date:**	11/13/08
Preliminary Data Sent to Special Projects:	RKM	**Date:**	11/13/08
Data Entry:	[illegible]	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	KL	Date:	12/2/08
Reported to Client:	KL	Date:	12/3/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:54 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14656**
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801091
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	**270801091-0011**	**BA-00050**		**10/26/2008 9:57:00 AM**

Comments:

ANALYZED:	RKD	**Date:**	11/13/08
Preliminary Data Sent to Special Projects:	RKM	**Date:**	11/13/08
Data Entry:	O.	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	KL	Date:	12/2/08
Reported to Client:	KL	Date:	12/3/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:54 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14656**
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801091
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	**270801091-0012**	**BA-00051**		**10/26/2008 9:57:00 AM**

Comments:

ANALYZED:	RKM	**Date:**	11/13/08
Preliminary Data Sent to Special Projects:	RKM	**Date:**	11/13/08
Data Entry:	[illegible]	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	KL	Date:	12/2/08
Reported to Client:	KL	Date:	12/3/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:54 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14656**
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801091
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	**270801091-0013**	**BA-00061**		**10/26/2008 9:57:00 AM**

Comments:

ANALYZED:	RSP	**Date:**	11/13/08
Preliminary Data Sent to Special Projects:	RKm	**Date:**	11/13/08
Data Entry:	Ou	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	KL	Date:	12/2/08
Reported to Client:	KL	Date:	12/3/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 11:01:54 AM

Order ID: 270801091

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14656**
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801091
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801091	**270801091-0014**	**BA-00062**		**10/26/2008 9:57:00 AM**

Comments:

ANALYZED:	RSP	**Date:**	11/13/08
Preliminary Data Sent to Special Projects:	RKM	**Date:**	11/13/08
Data Entry:	ee	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	KL	Date:	12/2/08
Reported to Client:	KL	Date:	12/3/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00003
QA Type	Not QA
Lab Sample Number	270801091-0001
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0	mm2
Indirect factor	1.00E+00	
Number of Grid Openings (amphibole)	39	
Number of Grid Openings (chrysotile)	39	
Grid opening area	0.0130	mm2
Volume (L) or Area (cm2)	933	L
Sensitivity (amphibole)	8.14E-04	s/cc
Sensitivity (chrysotile)	8.14E-04	s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00003_270801091-0001_ISO_11-12-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00003
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	933
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0001
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/12/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, R
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
14	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
14	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00003_270801091-0001_ISO_11-12-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00003	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801091-0001	Count Rule	10312	QA Type	Not QA
Data Entry by:	L. Ramowski	QA by:	K. Lusher		
Data Entry date:	11/14/2008	QA date:	12/2/2008		

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
1	J4	ND														
1	J6	ND														
1	J8	ND														
1	J10	ND														
1	I1	ND														
1	I3	ND														
1	I5	ND														
1	I7	ND														
1	I9	ND														
1	H2	ND														
1	H4	ND														
1	H6	ND														
1	H8	ND														
1	H10	ND														
1	G1	ND														
1	G3	ND														
1	G5	ND														
1	G7	ND														
1	G9	ND														
1	F2	ND														
1	F4	ND														
1	F6	ND														
1	F8	ND														
1	F10	ND														
2	J2	ND														
2	J4	ND														
2	J6	ND														
2	J8	ND														
2	J10	ND														
2	I1	ND														
2	I3	ND														
2	I5	ND														
2	I7	ND														
2	I9	ND														

2	H2	ND															
2	H4	ND															
2	H6	ND															
2	H8	ND															

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00004
QA Type	Not QA
Lab Sample Number	270801091-0002
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0	mm2
Indirect factor	1.00E+00	
Number of Grid Openings (amphibole)	39	
Number of Grid Openings (chrysotile)	39	
Grid opening area	0.0130	mm2
Volume (L) or Area (cm2)	991	L
Sensitivity (amphibole)	7.66E-04	s/cc
Sensitivity (chrysotile)	7.66E-04	s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00004_270801091-0002_ISO_11-12-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00004
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	991
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0002
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/12/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, S
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
13	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
13	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00004_270801091-0002_ISO_11-12-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00004	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801091-0002	Count Rule	10312	QA Type	Not QA
Data Entry by:	L. Ramowski	QA by:	K. Lusher		
Data Entry date:	11/14/2008	QA date:	12/2/2008		

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J1	ND														
1	J3	ND														
1	J5	ND														
1	J7	ND														
1	J9	ND														
1	I2	ND														
1	I4	ND														
1	I6	ND														
1	I8	ND														
1	I10	ND														
1	H1	ND														
1	H3	ND														
1	H5	ND														
1	H7	ND														
1	H9	ND														
1	G2	ND														
1	G4	ND														
1	G6	ND														
1	G8	ND														
1	G10	ND														
1	D2	ND														
1	D4	ND														
1	D6	ND														
1	D8	ND														
1	D10	ND														
2	I2	ND														
2	I4	ND														
2	I6	ND														
2	I8	ND														
2	I10	ND														
2	G2	ND														
2	G4	ND														
2	G6	ND														
2	G8	ND														
2	G10	ND														

2	E2	ND															
2	E4	ND															
2	E6	ND															
2	E8	ND															

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00013
QA Type	Not QA
Lab Sample Number	270801091-0003
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0	mm2
Indirect factor	1.00E+00	
Number of Grid Openings (amphibole)	39	
Number of Grid Openings (chrysotile)	39	
Grid opening area	0.0130	mm2
Volume (L) or Area (cm2)	977	L
Sensitivity (amphibole)	7.77E-04	s/cc
Sensitivity (chrysotile)	7.77E-04	s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00013_270801091-0003_ISO_11-12-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00013
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	977
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0003
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/12/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, T
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
13	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
13	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00013_270801091-0003_ISO_11-12-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00013	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801091-0003	Count Rule	10312	QA Type	Not QA
Data Entry by:	L. Ramowski	QA by:	K. Lusher		
Data Entry date:	11/14/2008	QA date:	12/2/2008		

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
1	J4	ND														
1	J6	ND														
1	J8	ND														
1	J10	ND														
1	I1	ND														
1	I3	ND														
1	I5	ND														
1	I7	ND														
1	I9	ND														
1	G2	ND														
1	G4	ND														
1	G6	ND														
1	G8	ND														
1	G10	ND														
1	F1	ND														
1	F3	ND														
1	F5	ND														
1	F7	ND														
1	F9	ND														
1	E2	ND														
1	E4	ND														
1	E6	ND														
1	E8	ND														
1	E10	ND														
2	I1	ND														
2	I3	ND														
2	I5	ND														
2	I7	ND														
2	I9	ND														
2	H2	ND														
2	H4	ND														
2	H6	ND														
2	H8	ND														
2	H10	ND														

2	G5	ND																	
2	G7	ND																	

EMSL SM

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00014
QA Type	Not QA
Lab Sample Number	270801091-0004
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	39
Number of Grid Openings (chrysotile)	39
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	942 L
Sensitivity (amphibole)	8.06E-04 s/cc
Sensitivity (chrysotile)	8.06E-04 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00014_270801091-0004_ISO_11-12-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27	EPA Sample Number:	BA-00014	Analyzed by	R. Pescador
Instrument	JEOL 100 CX II (49)	Sample Type	Air	Analysis date	11/12/2008
Voltage (KV)	100 kV	Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	942	Prep	Direct
Magnification	19,000 X	Date received by lab	10/21/2008	If sample type = air, is there loose material or debris in the cowl?	No
Grid opening area (mm2)	0.0130	Lab Job Number:	270801091	Counting rules	ISO (Air or Dust)
Scale: 1L =	1.000	Lab Sample Number:	270801091-0004	Grid storage location	2708-EMR-99, A
Scale: 1D =	1.000	Number of grids prepared	5	Archive filter(s) storage location	Westmont
Primary filter area (mm2)	385.0	Prepared by	K. Barnes	[redacted]	
Secondary Filter Area (mm2)	360.0	Preparation date	10/22/2008	F- factor	1
Category	Field	EPA COC Number	L14656	QA Type	Not QA
Filter Status	Analyzed				

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
14	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
14	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00014_270801091-0004_ISO_11-12-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00014	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801091-0004	Count Rule	10312	QA Type	Not QA
Data Entry by:	L. Ramowski	QA by:	K. Lusher		
Data Entry date:	11/14/2008	QA date:	12/2/2008		

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	J1	ND														
1	J3	ND														
1	J5	ND														
1	J7	ND														
1	J9	ND														
1	I2	ND														
1	I4	ND														
1	I6	ND														
1	I8	ND														
1	I10	ND														
1	G2	ND														
1	G4	ND														
1	G6	ND														
1	G8	ND														
1	G10	ND														
1	F1	ND														
1	F3	ND														
1	F5	ND														
1	F7	ND														
1	F9	ND														
1	D2	ND														
1	D4	ND														
1	D6	ND														
1	D8	ND														
1	D10	ND														
2	I6	ND														
2	I8	ND														
2	I10	ND														
2	H7	ND														
2	H9	ND														
2	G6	ND														
2	G8	ND														
2	G10	ND														
2	F1	ND														
2	F3	ND														

2	F5	ND															
2	F7	ND															
2	F9	ND															
2	E10	ND															

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00023
QA Type	Not QA
Lab Sample Number	270801091-0005
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	39
Number of Grid Openings (chrysotile)	39
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	960 L
Sensitivity (amphibole)	7.91E-04 s/cc
Sensitivity (chrysotile)	7.91E-04 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00023_270801091-0005_ISO_11-12-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00023
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	960
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0005
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/12/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-99, B
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
13	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
13	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00023_270801091-0005_ISO_11-12-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00023	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801091-0005	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/14/2008	QA date:	12/2/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	G1	ND														
1	G3	ND														
1	G5	ND														
1	G7	ND														
1	G9	ND														
1	F2	ND														
1	F4	ND														
1	F6	ND														
1	F8	ND														
1	F10	ND														
1	E1	ND														
1	E3	ND														
1	E5	ND														
1	E7	ND														
1	E9	ND														
1	D2	ND														
1	D4	ND														
1	D6	ND														
1	D8	ND														
1	D10	ND														
1	C1	ND														
1	C3	ND														
1	C5	ND														
1	C7	ND														
1	C9	ND														
2	J1	ND														
2	J3	ND														
2	J5	ND														
2	J7	ND														
2	J9	ND														
2	I2	ND														
2	I4	ND														
2	I6	ND														
2	I8	ND														
2	I10	ND														

2	H1	ND															
2	H3	ND															
2	H5	ND															
2	H7	ND															

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00024
QA Type	Not QA
Lab Sample Number	270801091-0006
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	39
Number of Grid Openings (chrysotile)	39
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	953 L
Sensitivity (amphibole)	7.97E-04 s/cc
Sensitivity (chrysotile)	7.97E-04 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00024_270801091-0006_ISO_11-12-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00024
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	953
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0006
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/12/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-99, C
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
13	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
13	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00024_270801091-0006_ISO_11-12-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00024	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801091-0006	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/14/2008	QA date:	12/2/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	J2	ND														
1	J4	ND														
1	J6	ND														
1	J8	ND														
1	J10	ND														
1	I1	ND														
1	I3	ND														
1	I5	ND														
1	I7	ND														
1	I9	ND														
1	H2	ND														
1	H4	ND														
1	H6	ND														
1	H8	ND														
1	H10	ND														
1	G1	ND														
1	G3	ND														
1	G5	ND														
1	G7	ND														
1	G9	ND														
1	F2	ND														
1	F4	ND														
1	F6	ND														
1	F8	ND														
1	F10	ND														
2	J1	ND														
2	J3	ND														
2	J5	ND														
2	J7	ND														
2	J9	ND														
2	I2	ND														
2	I4	ND														
2	I6	ND														
2	I8	ND														
2	I10	ND														

2	H1	ND														
2	H3	ND														
2	H5	ND														
2	H7	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00032
QA Type	Not QA
Lab Sample Number	270801091-0007
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	39
Number of Grid Openings (chrysotile)	39
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	780 L
Sensitivity (amphibole)	9.74E-04 s/cc
Sensitivity (chrysotile)	9.74E-04 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00032_270801091-0007_ISO_11-12-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00032
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	780
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0007
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/12/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-99, D
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
16	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
16	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00032_270801091-0007_ISO_11-12-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00032	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801091-0007	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/14/2008	QA date:	12/2/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
1	J4	ND														
1	J6	ND														
1	J8	ND														
1	J10	ND														
1	H2	ND														
1	H4	ND														
1	H6	ND														
1	H8	ND														
1	H10	ND														
1	G1	ND														
1	G3	ND														
1	G5	ND														
1	G7	ND														
1	G9	ND														
1	F2	ND														
1	F4	ND														
1	F6	ND														
1	F8	ND														
1	F10	ND														
1	E1	ND														
1	E3	ND														
1	E5	ND														
1	E7	ND														
1	E9	ND														
2	I1	ND														
2	I3	ND														
2	I5	ND														
2	I7	ND														
2	I9	ND														
2	H2	ND														
2	H4	ND														
2	H6	ND														
2	H8	ND														
2	H10	ND														

2	G1	ND															
2	G3	ND															
2	G5	ND															
2	G7	ND															

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00033
QA Type	Not QA
Lab Sample Number	270801091-0008
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0	mm2
Indirect factor	1.00E+00	
Number of Grid Openings (amphibole)	39	
Number of Grid Openings (chrysotile)	39	
Grid opening area	0.0130	mm2
Volume (L) or Area (cm2)	658	L
Sensitivity (amphibole)	1.15E-03	s/cc
Sensitivity (chrysotile)	1.15E-03	s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00033_270801091-0008_ISO_11-12-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00033
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	658
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0008
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/12/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-99, E
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
19	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
19	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00033_270801091-0008_ISO_11-12-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00033	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801091-0008	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/14/2008	QA date:	12/2/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	J2	ND														
1	J4	ND														
1	J6	ND														
1	J8	ND														
1	J10	ND														
1	H2	ND														
1	H4	ND														
1	H6	ND														
1	H8	ND														
1	H10	ND														
1	G1	ND														
1	G3	ND														
1	G5	ND														
1	G7	ND														
1	G9	ND														
1	F2	ND														
1	F4	ND														
1	F6	ND														
1	F8	ND														
1	F10	ND														
1	E1	ND														
1	E3	ND														
1	E5	ND														
1	E7	ND														
1	E9	ND														
2	J2	ND														
2	J4	ND														
2	J6	ND														
2	J8	ND														
2	J10	ND														
2	H2	ND														
2	H4	ND														
2	H6	ND														
2	H8	ND														
2	H10	ND														

2	G1	ND															
2	G3	ND															
2	G5	ND															
2	G7	ND															

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00040
QA Type	Not QA
Lab Sample Number	270801091-0009
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0	mm2
Indirect factor	1.00E+00	
Number of Grid Openings (amphibole)	16	
Number of Grid Openings (chrysotile)	16	
Grid opening area	0.0130	mm2
Volume (L) or Area (cm2)	780	L
Sensitivity (amphibole)	2.37E-03	s/cc
Sensitivity (chrysotile)	2.37E-03	s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00040_270801091-0009_ISO_11-13-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00040
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	780
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0009
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/13/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-99, F
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
16	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
16	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00040_270801091-0009_ISO_11-13-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00040	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801091-0009	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/14/2008	QA date:	12/2/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	J1	ND														
1	J3	ND														
1	J5	ND														
1	J7	ND														
1	J9	ND														
1	H2	ND														
1	H4	ND														
1	H6	ND														
1	H8	ND														
1	H10	ND														
2	F1	ND														
2	F3	ND														
2	F5	ND														
2	F7	ND														
2	F9	ND														
2	E8	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00041
QA Type	Not QA
Lab Sample Number	270801091-0010
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	18
Number of Grid Openings (chrysotile)	18
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	718 L
Sensitivity (amphibole)	2.29E-03 s/cc
Sensitivity (chrysotile)	2.29E-03 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00041_270801091-0010_ISO_11-13-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00041
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	718
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0010
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/13/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-99, G
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
18	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
18	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00041_270801091-0010_ISO_11-13-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00041	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801091-0010	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/14/2008	QA date:	12/2/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	I2	ND														
1	I4	ND														
1	I6	ND														
1	I8	ND														
1	I10	ND														
1	C2	ND														
1	C4	ND														
1	C6	ND														
1	C8	ND														
1	C10	ND														
2	F1	ND														
2	F3	ND														
2	F5	ND														
2	F7	ND														
2	F9	ND														
2	E6	ND														
2	E8	ND														
2	E10	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00050
QA Type	Not QA
Lab Sample Number	270801091-0011
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	16
Number of Grid Openings (chrysotile)	16
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	806 L
Sensitivity (amphibole)	2.30E-03 s/cc
Sensitivity (chrysotile)	2.30E-03 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00050_270801091-0011_ISO_11-13-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00050
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	806
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0011
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/13/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-99, H
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
16	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
16	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00050_270801091-0011_ISO_11-13-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00050	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801091-0011	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/14/2008	QA date:	12/2/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	I2	ND														
1	I4	ND														
1	I6	ND														
1	I8	ND														
1	I10	ND														
1	G1	ND														
1	G3	ND														
1	G5	ND														
1	G7	ND														
1	G9	ND														
2	I1	ND														
2	I3	ND														
2	I5	ND														
2	I7	ND														
2	I9	ND														
2	F9	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00051
QA Type	Not QA
Lab Sample Number	270801091-0012
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	17
Number of Grid Openings (chrysotile)	17
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	791 L
Sensitivity (amphibole)	2.20E-03 s/cc
Sensitivity (chrysotile)	2.20E-03 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00051_270801091-0012_ISO_11-13-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00051
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	791
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0012
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/13/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-99, I
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
16	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
16	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00051_270801091-0012_ISO_11-13-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00051	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801091-0012	Count Rule	10312	QA Type	Not QA
Data Entry by:	L. Ramowski	QA by:	K. Lusher		
Data Entry date:	11/14/2008	QA date:	11/2/2008		

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	F1	ND														
1	F3	ND														
1	F5	ND														
1	F7	ND														
1	F9	ND														
1	D2	ND														
1	D4	ND														
1	D6	ND														
1	D8	ND														
1	D10	ND														
2	G4	ND														
2	J2	ND														
2	J4	ND														
2	J6	ND														
2	J8	ND														
2	J10	ND														
2	G2	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00061
QA Type	Not QA
Lab Sample Number	270801091-0013
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0	mm2
Indirect factor	1.00E+00	
Number of Grid Openings (amphibole)	20	
Number of Grid Openings (chrysotile)	20	
Grid opening area	0.0130	mm2
Volume (L) or Area (cm2)	630	L
Sensitivity (amphibole)	2.35E-03	s/cc
Sensitivity (chrysotile)	2.35E-03	s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00061_270801091-0013_ISO_11-13-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00061
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	630
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0013
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/13/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-99, J
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
20	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
20	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00061_270801091-0013_ISO_11-13-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00061	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801091-0013	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/14/2008	QA date:	12/2/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	J1	ND														
1	J3	ND														
1	J5	ND														
1	J7	ND														
1	J9	ND														
1	G2	ND														
1	G4	ND														
1	G6	ND														
1	G8	ND														
1	G10	ND														
2	G1	ND														
2	G3	ND														
2	G5	ND														
2	G7	ND														
2	G9	ND														
2	F2	ND														
2	F4	ND														
2	F6	ND														
2	F8	ND														
2	F10	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00062
QA Type	Not QA
Lab Sample Number	270801091-0014
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	21
Number of Grid Openings (chrysotile)	21
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	602 L
Sensitivity (amphibole)	2.34E-03 s/cc
Sensitivity (chrysotile)	2.34E-03 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00062_270801091-0014_ISO_11-13-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00062
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	602
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0014
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/13/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-99, K
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
21	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
21	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00062_270801091-0014_ISO_11-13-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00062	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801091-0014	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/14/2008	QA date:	12/2/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	I2	ND														
1	I4	ND														
1	I6	ND														
1	I8	ND														
1	I10	ND														
1	G2	ND														
1	G4	ND														
1	G6	ND														
1	G8	ND														
1	G10	ND														
2	H1	ND														
2	H3	ND														
2	H5	ND														
2	H7	ND														
2	H9	ND														
2	G2	ND														
2	G4	ND														
2	G6	ND														
2	G8	ND														
2	G10	ND														
2	E1	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	0
QA Type	LB
Lab Sample Number	270801091
Sample Type	Air
Category	Blank
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	10
Number of Grid Openings (chrysotile)	10
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	0 L
Sensitivity (amphibole)	Blank s/cc
Sensitivity (chrysotile)	Blank s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
		10	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a					
b					
c					
d					
e					
f					
Total					<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: 270801091_ISO_11-13-08_DLB.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Blank
Filter Status	Analyzed

EPA Sample Number:	
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	
Date received by lab	
Lab Job Number:	270801091
Lab Sample Number:	270801091
Number of grids prepared	3
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	R. Pescador
Analysis date	11/13/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-99, L
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Lab Blank

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

	Target Sensitivity
10	GOs required to reach target sensitivity
10	Maximum # of GOs
50	Maximum # of Structure
10	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

_270801091_ISO_11-13-08_DLB.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	0	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801091	Count Rule	10312	QA Type	LB

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/14/2008	QA date:	12/2/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J1	ND														
1	J3	ND														
1	J5	ND														
1	J7	ND														
1	J9	ND														
2	I1	ND														
2	I3	ND														
2	I5	ND														
2	I7	ND														
2	I9	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00033
QA Type	VA
Lab Sample Number	270801091-0008
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	39
Number of Grid Openings (chrysotile)	39
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	658 L
Sensitivity (amphibole)	1.15E-03 s/cc
Sensitivity (chrysotile)	1.15E-03 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00033_270801091-0008_ISO_12-01-08_DVA.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00033
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	658
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0008
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number	L14656

Analyzed by	E.Wyatt-Pescador
Analysis date	12/1/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-99, E
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Verified Analysis

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
19	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
19	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00033_270801091-0008_ISO_12-01-08_DVA.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00033	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801091-0008	Count Rule	10312	QA Type	VA

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	12/2/2008	QA date:	12/2/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	J2	ND														
1	J4	ND														
1	J6	ND														
1	J8	ND														
1	J10	ND														
1	H2	ND														
1	H4	ND														
1	H6	ND														
1	H8	ND														
1	H10	ND														
1	G1	ND														
1	G3	ND														
1	G5	ND														
1	G7	ND														
1	G9	ND														
1	F2	ND														
1	F4	ND														
1	F6	ND														
1	F8	ND														
1	F10	ND														
1	E1	ND														
1	E3	ND														
1	E5	ND														
1	E7	ND														
1	E9	ND														
2	J2	ND														
2	J4	ND														
2	J6	ND														
2	J8	ND														
2	J10	ND														
2	H2	ND														
2	H4	ND														
2	H6	ND														
2	H8	ND														
2	H10	ND														

2	G1	ND															
2	G3	ND															
2	G5	ND															
2	G7	ND															

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00040
QA Type	RD
Lab Sample Number	270801091-0009
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	13
Number of Grid Openings (chrysotile)	13
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	780 L
Sensitivity (amphibole)	2.92E-03 s/cc
Sensitivity (chrysotile)	2.92E-03 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00040_270801091-0009_ISO_01-30-09_DRD.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27	EPA Sample Number:	BA-00040	Analyzed by	R. Mahoney
Instrument	JEOL 100 CX II (27-02)	Sample Type	Air	Analysis date	1/30/2009
Voltage (KV)	100 kV	Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	780	Prep	Direct
Magnification	19,000 X	Date received by lab	10/21/2008	If sample type = air, is there loose material or debris in the cowl?	No
Grid opening area (mm2)	0.0130	Lab Job Number:	270801091	Counting rules	ISO (Air or Dust)
Scale: 1L =	1.000	Lab Sample Number:	270801091-0009	Grid storage location	2708-EMR-99, F
Scale: 1D =	1.000	Number of grids prepared	5	Archive filter(s) storage location	Westmont
Primary filter area (mm2)	385.0	Prepared by	K. Barnes		
Secondary Filter Area (mm2)	360.0	Preparation date	10/22/2008	F- factor	1
Category	Field	EPA COC Number	L14656	QA Type	Recount Different
Filter Status	Analyzed				

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
16	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
16	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

Grid 1 openings J7 and H10 plus Grid 2 opening F3 - blown

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00040_270801091-0009_ISO_01-30-09_DRD.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00040	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801091-0009	Count Rule	10312	QA Type	RD

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	1/30/2009	QA date:	2/3/2009

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	J1	ND														
1	J3	ND														
1	J5	ND														
1	J9	ND														
1	H2	ND														
1	H4	ND														
1	H6	ND														
1	H8	ND														
2	F1	ND														
2	F5	ND														
2	F7	ND														
2	F9	ND														
2	E8	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00003
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	933
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0001
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/12/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97, R
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right----->

Recording Rules:

Minimum Aspect Ratio (circle one):

none (≥3:1) ≥5:1

Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:

Target Sensitivity:	0.0024 ~~0.0001~~
Max # of GOs:	14 ~~39~~
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														
	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *(For dust and dustfall, enter 1.0)*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00003	QA TYPE		LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0001	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-97, R

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
	H10	ND														
	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
	G9	ND														
	F2	ND														
	F4	ND														
	F6	ND														
	F8	ND														
	F10	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00003	QA TYPE	Not QA	LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0001	SAMPLE TYPE	A			GRID STORAGE LOC.	2708-EMR-97, R

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	J2	ND														
	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														
	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
			RSB 11/12/08													

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00004
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	991
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0002
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/12/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97, S
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right----->

Recording Rules:

Minimum Aspect Ratio (circle one): none (≥ 3:1) ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity: 0.0024 ~~0.0004~~

Max # of GOs: 13 ~~99~~

Target # of Structures: 50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J1	ND														
	J3	ND														
	J5	ND														
	J7	ND														
	J9	ND														
	I2	ND														
	I4	ND														
	I6	ND														
	I8	ND														
	I10	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00004	QA TYPE		LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0002	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-97, S

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class					1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM	Sketch/Comments	Sketch	Photo	EDS	
	H1	ND														
	H3	ND														
	H5	ND														
	H7	ND														
	H9	ND														
	G2	ND														
	G4	ND														
	G6	ND														
	G8	ND														
	G10	ND														
	D2	ND														
	D4	ND														
	D6	ND														
	D8	ND														
	D10	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00004	QA TYPE		LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0002	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-97, S

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	I2	ND														
	I4	ND														
	I6	ND														
	I8	ND														
	I10	ND														
	G2	ND														
	G4	ND														
	G6	ND														
	G8	ND														
	G10	ND														
	E2	ND														
	E4	ND														
	E6	ND														
	E8	ND														
			11/12/08													

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00013
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	977
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0003
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/ 12/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97, T
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right----->

Recording Rules:

Minimum Aspect Ratio (circle one): none (≥ 3:1) ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity: RMY 1/12/09 0.0024 ~~0.0004~~

Max # of GOs: 13 ~~39~~

Target # of Structures: 50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														
	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No

If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00013	QA TYPE	Not QA	LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0003	SAMPLE TYPE	A			GRID STORAGE LOC.	2708-EMR-97, T

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	G2	ND														
	G4	ND														
	G6	ND														
	G8	ND														
	G10	ND														
	F1	ND														
	F3	ND														
	F5	ND														
	F7	ND														
	F9	ND														
	E2	ND														
	E4	ND														
	E6	ND														
	E8	ND														
→	E10	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00013	QA TYPE		LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0003	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-97, T

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
	H10	ND														
	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
			[illegible] 11/12/08													

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00014
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	942
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0004
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/12/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, A
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Recording Rules:

Minimum Aspect Ratio (circle one):

none (≥ 3:1) ≥ 5:1

Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:

Target Sensitivity:	0.0024 ~~0.0001~~
Max # of GOs:	14 ~~39~~
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J1	ND														
	J3	ND														
	J5	ND														
	J7	ND														
	J9	ND														
	I2	ND														
	I4	ND														
	I6	ND														
	I8	ND														
	I10	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *(For dust and dustfall, enter 1.0)*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00014	QA TYPE		LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0004	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-99, A

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	G2	ND														
	G4	ND														
	G6	ND														
	G8	ND														
	G10	ND														
	F1	ND														
	F3	ND														
	F5	ND														
	F7	ND														
	F9	ND														
	D2	ND														
	D4	ND														
	D6	ND														
	D8	ND														
	D10	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00014	QA TYPE		LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0004	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-99, A

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	I6	ND														
	I8	ND														
	I10	ND														
	H7	ND														
	H9	ND														
	G6	ND														
	G8	ND														
	G10	ND														
	F1	ND														
	F3	ND														
	F5	ND														
	F7	ND														
	F9	ND														
	E10	ND														
			RSH 4/12/08													

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00023
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	960
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0005
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/12/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, B
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right----->

Recording Rules:

Minimum Aspect Ratio (circle one):	none	(≥3:1) ≥ 5:1
Minimum Length (um):	0.5	
Minimum Width (um):	None	

Stopping Rules:

Target Sensitivity:	0.0024 ~~0.0001~~
Max # of GOs:	13 ~~30~~
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
	G9	ND														
	F2	ND														
	F4	ND														
	F6	ND														
	F8	ND														
	F10	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
if No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00023	QA TYPE		LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0005	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-99, B

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	E1	ND														
	E3	ND														
	E5	ND														
	E7	ND														
	E9	ND														
	D2	ND														
	D4	ND														
	D6	ND														
	D8	ND														
	D10	ND														
	C1	ND														
	C3	ND														
	C5	ND														
	C7	ND														
	C9	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00023	QA TYPE		LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0005	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-99, B

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	J1	ND														
	J3	ND														
	J5	ND														
	J7	ND														
	J9	ND														
	I2	ND														
	I4	ND														
	I6	ND														
	I8	ND														
	I10	ND														
	H1	ND														
	H3	ND														
	H5	ND														
	H7	ND														
			[illegible] 8/12/08													

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00024
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	953
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0006
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/12/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, C
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right----->

Recording Rules:

Minimum Aspect Ratio (circle one): none (≥ 3:1) ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity: 0.0024 ~~0.0001~~

Max # of GOs: 13 ~~20~~

Target # of Structures: 50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														
	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00024	QA TYPE		LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0006	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-99, C

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
	H10	ND														
	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
	G9	ND														
	F2	ND														
	F4	ND														
	F6	ND														
	F8	ND														
	F10	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00024	QA TYPE		LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0006	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-99, C

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	J1	ND														
	J3	ND														
	J5	ND														
	J7	ND														
	J9	ND														
	I2	ND														
	I4	ND														
	I6	ND														
	I8	ND														
	I10	ND														
	H1	ND														
	H3	ND														
	H5	ND														
	H7	ND														
		RSB 11/12/08														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00032
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	780
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0007
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/12/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, D
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right----->

Recording Rules:

Minimum Aspect Ratio (circle one): none (≥ 3:1) ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity: 0.0024 ~~0.0001~~

Max # of GOs: 16 ~~99~~

Target # of Structures: 50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
	H10	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00032	QA TYPE		LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0007	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-99, D

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
	G9	ND														
	F2	ND														
	F4	ND														
	F6	ND														
	F8	ND														
	F10	ND														
	E1	ND														
	E3	ND														
	E5	ND														
	E7	ND														
	E9	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00032	QA TYPE	Not QA	LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0007	SAMPLE TYPE	A			GRID STORAGE LOC.	2708-EMR-99, D

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
	H10	ND														
	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
			RSM 4/12/08													

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00033
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	658
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0008
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/ 12 /2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, E
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right----->

Recording Rules:

Minimum Aspect Ratio (circle one):		
none	(≥ 3:1)	≥ 5:1
Minimum Length (um):	0.5	
Minimum Width (um):	None	

Stopping Rules:

Target Sensitivity:	0.0024 ~~0.0001~~
Max # of GOs:	19 ~~30~~
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
	H10	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00033	QA TYPE	Not QA	LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0008	SAMPLE TYPE	A			GRID STORAGE LOC.	2708-EMR-99, E

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
	G9	ND														
	F2	ND														
	F4	ND														
	F6	ND														
	F8	ND														
	F10	ND														
	E1	ND														
	E3	ND														
	E5	ND														
	E7	ND														
	E9	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00033	QA TYPE		LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0008	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-99, E

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	J2	ND														
	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
	H10	ND														
	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
		RSJ 4/12/08														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00040
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	780
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0009
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/13/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, F
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Recording Rules:

Minimum Aspect Ratio (circle one): none ≥ 3:1 ≥ 5:1

Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:

Target Sensitivity:	0.0024
Max # of GOs:	16
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J1	ND														
	J3	ND														
	J5	ND														
	J7	ND														
	J9	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
	H10	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *(For dust and dustfall, enter 1.0)*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00040	QA TYPE		LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0009	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-99, F

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	F1	ND														
	F3	ND														
	F5	ND														
	F7	ND														
	F9	ND														
	E8	ND														

[illegible] 5/13/09

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00041
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	718
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0010
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/13/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, G
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:		
Minimum Aspect Ratio (circle one):	none	(≥ 3:1) ≥ 5:1
Minimum Length (um):	0.5	
Minimum Width (um):	None	

Stopping Rules:	
Target Sensitivity:	0.0024
Max # of GOs:	18
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	I2	ND														
	I4	ND														
	I6	ND														
	I8	ND														
	I10	ND														
	C2	ND														
	C4	ND														
	C6	ND														
	C8	ND														
	C10	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00041	QA TYPE	Not QA	LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0010	SAMPLE TYPE	A			GRID STORAGE LOC.	2708-EMR-99, G

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	F1	ND														
	F3	ND														
	F5	ND														
	F7	ND														
	F9	ND														
	E6	ND														
	E8	ND														
	E10	ND														

11/5/08

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00050
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	806
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0011
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/13/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, H
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right----->

Recording Rules:

Minimum Aspect Ratio (circle one):

none (≥ 3:1) ≥ 5:1

Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:

Target Sensitivity:	0.0024
Max # of GOs:	16
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	I2	ND														
	I4	ND														
	I6	ND														
	I8	ND														
	I10	ND														
	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
	G9	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00050	QA TYPE		LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0011	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-99, H

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														
	F9	ND														

11/13/08

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00051
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	791
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0012
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/13/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, I
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right----->

Recording Rules:	
Minimum Aspect Ratio (circle one):	
none (≥ 3:1)	≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	0.0024
Max # of GOs:	16
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	F1	ND														
	F3	ND														
	F5	ND														
	F7	ND														
	F9	ND														
	D2	ND														
	D4	ND														
	D6	ND														
	D8	ND														
	D10	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00051	QA TYPE		LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0012	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-99, I

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	~~J4~~ G4	ND														
	J2	ND														
	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														
	G2	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	366
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00061
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	630
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0013
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/13/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, J
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right----->

Recording Rules:

Minimum Aspect Ratio (circle one):	none	(≥ 3:1) ≥ 5:1
Minimum Length (um):	0.5	
Minimum Width (um):	None	

Stopping Rules:

Target Sensitivity:	0.0024
Max # of GOs:	20
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J1	ND														
	J3	ND														
	J5	ND														
	J7	ND														
	J9	ND														
	G2	ND														
	G4	ND														
	G6	ND														
	G8	ND														
	G10	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00061	QA TYPE		LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0013	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-99, J

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
	G9	ND														
	F2	ND														
	F4	ND														
	F6	ND														
	F8	ND														
	F10	ND														

RSP 11/13/08

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00062
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	6 ~~202~~
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0014
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

RKM 11/14/08

Analyzed by	R. Pescador
Analysis date	11/13/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, K
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right----->

Recording Rules:

Minimum Aspect Ratio (circle one):	none (≥ 3:1) ≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:

Target Sensitivity:	0.0024
Max # of GOs:	21
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	I2	NO														
	I4	NO														
	I6	NO														
	I8	NO														
	I10	NO														
	G2	NO														
	G4	NO														
	G6	NO														
	G8	NO														
	G10	NO														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00062	QA TYPE		LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0014	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-99, K

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	H1	ND														
	H3	ND														
	H5	ND														
	H7	ND														
	H9	ND														
	G2	ND														
	G4	ND														
	G6	ND														
	G8	ND														
	G10	ND														
	E1	ND														

11/13/08

LB

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Blank
Primary filter pore size (um)	0.8

EPA Sample Number:	
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	
Date received by lab	
Lab Job Number:	270801091
Lab Sample Number:	270801091
Number of grids prepared	3
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/13/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, L
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Lab Blank

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right----->

Recording Rules:

Minimum Aspect Ratio (circle one):

none (≥ 3:1) ≥ 5:1

Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:

Target Sensitivity:	
Max # of GOs:	10
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J1	ND														
	J3	ND														
	J5	ND														
	J7	ND														
	J9	ND														
2	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

VIA

BNSF 2008 Libby Site Investigation v33
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00033
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	658
Date received by lab	10/21/2008
Lab Job Number:	270801091
Lab Sample Number:	270801091-0008
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/2008
EPA COC Number:	L M4656
Secondary filter pore size (um)	0.2

Analyzed by	E. Wyatt-Pescador
Analysis date	12/1/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, E
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Verified Analysis

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:	
Minimum Aspect Ratio (circle one):	
none	≥ 3:1 ≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	0.0024 ~~0.0001~~
Max # of GOs:	39
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
1	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
↓	H10	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No
If No, explain:

BNSF 2008 Libby Site Investigation v33
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00033	QA TYPE	LAB JOB NUMBER 270801091
LAB SAMPLE NO.	270801091-0008	SAMPLE TYPE	A	Verified Analysis	GRID STORAGE LOC. 2708-EMR-99, E

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
	G9	ND														
	F2	ND														
	F4	ND														
	F6	ND														
	F8	ND														
	F10	ND														
	E1	ND														
	E3	ND														
	E5	ND														
	E7	ND														
	E9	ND														

BNSF 2008 Libby Site Investigation v33
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00033	QA TYPE	Verified Analysis	LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0008	SAMPLE TYPE	A			GRID STORAGE LOC.	2708-EMR-99, E

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	J2	ND														
	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
	H10	ND														
	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
		EJHP 12/1/09														

RD

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX-II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00040
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	780
Date received by lab	10/21/08
Lab Job Number:	270801091
Lab Sample Number:	270801091-0009
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/22/08
EPA COC Number:	L14656
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	1/30/09
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-99, F
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Recount Different

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Recording Rules:

Minimum Aspect Ratio (circle one): none (≥ 3:1) ≥ 5:1

Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:

Target Sensitivity:	0.0024
Max # of GOs:	16
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J1	ND														
	J3	ND														
	J5	ND														
	J7	Grid	blown													
	J9	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
	H10	Grid	blown													

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00040	QA TYPE	Recount Different	LAB JOB NUMBER	270801091
LAB SAMPLE NO.	270801091-0009	SAMPLE TYPE	A			GRID STORAGE LOC.	2708-EMR-99, F

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	F1	ND														
	F3	Grid blown														
	F5	ND														
	F7	ND														
	F9	ND														
	E8	ND														

R/Cm 1/30/09

Chain of Custody Record

Libby Asbestos Investigation

No. L14656

From: CDM
60 Port Blvd, Ste. 200
Libby, MT 59923

U.S. Environmental Protection Agency, Region VIII
1595 Wynkoop Street
Denver, CO 80202-1129

Send to: EMSL-Mobile Lab
107 W 4th St
Libby, MT 59923

via: ☑ hand delivery ☐ shipped

270801091

Date Shipped: 10/21/2008
Carrier Name: Hand-delivered
Airbill: NA

Sample Placed in Cooler/Bag	Index ID	Suffix ID	Sample Date	Sample Media (S=Soil; W=Water; D=Dust; A=Air; B=Bulk Insulation)	Volume (L) or Area (cm2)	Filter Pore Size (um)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
✓	BA-00003		9/17/2008	A	933 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	✓
✓	BA-00004		9/17/2008	A	991 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	✓
✓	BA-00013		9/18/2008	A	977 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	✓
✓	BA-00014		9/18/2008	A	942 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	✓
✓	BA-00023		9/19/2008	A	960 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	✓
✓	BA-00024		9/19/2008	A	953 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	✓
✓	BA-00032		9/22/2008	A	780 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	✓
✓	BA-00033		9/22/2008	A	658 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	✓
✓	BA-00040		9/23/2008	A	780 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	✓
✓	BA-00041		9/23/2008	A	718 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	✓
✓	BA-00050		9/24/2008	A	806 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	✓
✓	BA-00051		9/24/2008	A	791 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	✓
✓	BA-00061		9/25/2008	A	630 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	✓
✓	BA-00062		9/25/2008	A	602 L	0.8	5 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-B	✓

Total Number of Samples 14

END OF SUBMITTAL

Additional Comments: Please see attachment ~ Thank you!

Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
R. Kair CDM	10-21-08 0957	R.K Mahoney EMSL	10/21/08 0957	OK Accept
Elizabeth J. Wyatt Fernandez/EMSL	1/5/09 1505	L. Ramowski EMSL	1/27/09 9:09	Complete

March 24, 2005 Rev 3

JOMAY WYATT-PESCADOR
406-293-9066
EMSL ANALYTICAL, INC.
107 WEST 4TH STREET
LIBBY MT 59923

35 LBS

1 OF 1

SHIP TO:
CHARLES LACERRA
856-858-4800 253
EMSL ANALYTICAL, INC.
107 HADDON AVENUE
WESTMONT NJ 08108-2711

NJ 081 9-06

UPS GROUND
TRACKING #: 1Z Y84 048 03 9892 8735

BILLING: P/P

UIS 11.0.17. WXPIE70 84.0A 10/2008 TM

RECEIVED
JAN 27 2009
9:09 AM

EMSL Analytical, Inc.
107 Haddon Avenue
Westmont, New Jersey 08108
Phone: (856) 858-4800
Fax: (856) 858-9551

LETTER OF TRANSMITTAL

To:	Scott Carney	Date:	February 9 ,2009
	EMR, Inc.	From:	Charles E. LaCerra
	11 East Superior Street Suite 260	Re:	Libby, MT BNSF Work Mobile Lab Analytical Reports
	Duluth, MN 55802		See Below
	Phone: 763-277-5200		

We are sending you: **× Attached** ___ **Under separate cover via** _____

- ☐ Solicitation
- ☐ Copy of Letter
- ☐ Invoice #'s See Below
- ☐ Subcontract
- ☐ As noted
- ☐ Other
- ☐ Laboratory Samples
- ☒ Analytical Reports

These are transmitted as indicated below:

- ☐ Execute___Original(s)
- ☐ Review & Comment
- ☐ For Approval
- ☐ Return ____Orginal(s)
- ☐ As Requested
- ☐ Respond as instructed
- ☒ For Your Information/File
- ☐ Other

Remarks:

Enclosed please find one (1) copy of the following mobile lab analytical reports for analysis for your review and use for the above referenced project:

270801090

Please feel free to contact me with any questions or if you require additional information

Copy to: _____ Signed: Charles LaCerra

INTERNAL CHAIN OF CUSTODY

10/21/2008 10:21:45 AM

Order ID: 270801090

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14655**
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801090
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Test: TEM ISO 10312 **Matrix** Air **TAT:** 120 Hour **Qty:** 8

Acct Sts: **Slsprsn:** epodell **Logged:** rmahoney **Date:** 10/21/2008

Sample Condition: ☑ Acceptable ☐ Unacceptable

Comments

Inter- Lab Sample Transfer

Samples Relinquished: _____ Date _____
Samples Received: _____ Date _____
Package Mailed to Westmont: _____ Date _____
Method of Delivery: _____
Includes: (Circle)
Benchsheets Sample Slides Sample filters
Micrographs GridBox Other _____

Final Package Received: _____ Date: _____

Initial Prep (Initials/Lab): KB **Date:** 10/21/08
Filter Prep (Initials/Lab): _____ **Date:**
Grid Prep (Initials/Lab): KB **Date:** 10/21/08

For Special Projects Use Only:
QC Selection: _____ Date:
Date Package Review: KL Date: 2/4/09
Date Package Mailed: [illegible] Date: 2/19/09

Special Instructions
Pre hardcopy review 2-4-09 by KL

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801090	270801090-0001 I	BA-00005 RS		10/26/2008 9:57:00 AM
270801090	270801090-0002 J	BA-00015		10/26/2008 9:57:00 AM
270801090	270801090-0003 K	BA-00025		10/26/2008 9:57:00 AM
270801090	270801090-0004 L	BA-00031		10/26/2008 9:57:00 AM
270801090	270801090-0005 M	BA-00039		10/26/2008 9:57:00 AM
270801090	270801090-0006 N	BA-00049		10/26/2008 9:57:00 AM
270801090	270801090-0007 O	BA-00060		10/26/2008 9:57:00 AM
270801090	270801090-0008 P	BA-00069		10/26/2008 9:57:00 AM

RS

2708-EMR-97(I-Q)

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 10:17:15 AM

Order ID: 270801090

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14655**
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801090
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Test: TEM ISO 10312 **Matrix:** Air **TAT:** 120 Hour **Qty:** 8

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801090	270801090-0001	BA-00005		10/26/2008 9:57:00 AM

Comments:

ANALYZED:	RSG	**Date:**	11/6/08
Preliminary Data Sent to Special Projects:	RKm	**Date:**	11/6/08
Data Entry:	[illegible]	Date:	11/1/08
Structure Review:	KL	Date:	~~12/1/08~~ 12/4/09
Data Validation:	KL	Date:	12/1/08
Reported to Client:	KL	Date:	12/1/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 10:17:16 AM

Order ID: 270801090

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14655**
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801090
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801090	**270801090-0002**	**BA-00015**		**10/26/2008 9:57:00 AM**

Comments:

ANALYZED:	[illegible]	**Date:**	11/6/08
Preliminary Data Sent to Special Projects:	RKm	**Date:**	11/6/08
Data Entry:	[illegible]	Date:	11/4/08
Structure Review:		Date:	
Data Validation:	KL	Date:	12/1/08
Reported to Client:	KL	Date:	12/1/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 10:17:16 AM

Order ID: 270801090

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14655**
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801090
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801090	**270801090-0003**	**BA-00025**		**10/26/2008 9:57:00 AM**

Comments:

ANALYZED:	[illegible]	**Date:**	11/6/08
Preliminary Data Sent to Special Projects:	RKm	**Date:**	11/6/08
Data Entry:	[illegible]	Date:	11/11/08
Structure Review:		Date:	
Data Validation:	KL	Date:	12/1/08
Reported to Client:	KL	Date:	12/1/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 10:17:16 AM

Order ID: 270801090

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14655**
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801090
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801090	**270801090-0004**	**BA-00031**		**10/26/2008 9:57:00 AM**

Comments:

ANALYZED:	[illegible]	**Date:**	11/6/08
Preliminary Data Sent to Special Projects:	R/cm	**Date:**	11/6/08
Data Entry:	[illegible]	Date:	11/11/08
Structure Review:		Date:	
Data Validation:	KL	Date:	12/1/08
Reported to Client:	KL	Date:	12/1/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 10:17:16 AM

Order ID: 270801090

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14655**
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801090
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801090	**270801090-0005**	**BA-00039**		**10/26/2008 9:57:00 AM**

Comments:

ANALYZED:	[illegible]	**Date:**	11/6/08
Preliminary Data Sent to Special Projects:	RKm	**Date:**	11/6/08
Data Entry:	[illegible]	Date:	4/4/08
Structure Review:		Date:	
Data Validation:	KL	Date:	12/1/08
Reported to Client:		Date:	

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 10:17:16 AM

Order ID: 270801090

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14655**
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801090
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801090	**270801090-0006**	**BA-00049**		**10/26/2008 9:57:00 AM**

Comments:

ANALYZED:	[illegible]	**Date:**	11/4/08
Preliminary Data Sent to Special Projects:	RKM	**Date:**	11/6/08
Data Entry:	[illegible]	Date:	11/14/08
Structure Review:		Date:	
Data Validation:	KL	Date:	12/1/08
Reported to Client:	KL	Date:	12/1/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 10:17:16 AM

Order ID: 270801090

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14655**
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801090
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801090	**270801090-0007**	**BA-00060**		**10/26/2008 9:57:00 AM**

Comments:

ANALYZED:	RKG	**Date:**	11/6/08
Preliminary Data Sent to Special Projects:	RKm	**Date:**	11/6/08
Data Entry:	Oz	Date:	11/4/08
Structure Review:		Date:	
Data Validation:	KL	Date:	12/1/08
Reported to Client:	KL	Date:	12/4/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

10/21/2008 10:17:16 AM

Order ID: 270801090

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14655**
Samples collected 9/17, 18, 19, 22, 23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/21/08 9:57 AM

EMSL Order: 270801090
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801090	**270801090-0008**	**BA-00069**		**10/26/2008 9:57:00 AM**

Comments:

ANALYZED:	PSD	**Date:**	11/6/08
Preliminary Data Sent to Special Projects:	RKM	**Date:**	11/6/08
Data Entry:	OL	Date:	11/11/08
Structure Review:		Date:	
Data Validation:	KL	Date:	12/1/08
Reported to Client:	KL	Date:	12/1/08

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID		PARAMETERS	
Status	Analyzed	Effective filter area	385.0 mm2
EPA Sample Number	BA-00005	Indirect factor	1.00E+00
QA Type	Not QA	Number of Grid Openings (amphibole)	29
Lab Sample Number	270801090-0001	Number of Grid Openings (chrysotile)	29
Sample Type	Air	Grid opening area	0.0130 mm2
Category	Field	Volume (L) or Area (cm2)	1028 L
Prep	Direct	Sensitivity (amphibole)	9.93E-04 s/cc
Counting Rules	10312	Sensitivity (chrysotile)	9.93E-04 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024	29	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00005_270801090-0001_ISO_11-06-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00005
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1028
Date received by lab	10/21/2008
Lab Job Number:	270801090
Lab Sample Number:	270801090-0001
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/21/2008
EPA COC Number	L14655

Analyzed by	R. Pescador
Analysis date	11/6/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, I
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
13	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
13	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00005_270801090-0001_ISO_11-06-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00005	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801090-0001	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/11/2008	QA date:	12/1/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	J2	ND														
1	J4	ND														
1	J6	ND														
1	J8	ND														
1	J10	ND														
1	I1	ND														
1	I3	ND														
1	I5	ND														
1	I7	ND														
1	I9	ND														
1	F2	ND														
1	F4	ND														
1	F6	ND														
1	F8	ND														
1	F10	ND														
2	J1	ND														
2	J3	ND														
2	J5	ND														
2	J7	ND														
2	J9	ND														
2	I2	ND														
2	I4	ND														
2	I6	ND														
2	I8	ND														
2	I10	ND														
2	C3	ND														
2	C5	ND														
2	C7	ND														
2	C9	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID		PARAMETERS	
Status	Analyzed	Effective filter area	385.0 mm2
EPA Sample Number	BA-00015	Indirect factor	1.00E+00
QA Type	Not QA	Number of Grid Openings (amphibole)	32
Lab Sample Number	270801090-0002	Number of Grid Openings (chrysotile)	32
Sample Type	Air	Grid opening area	0.0130 mm2
Category	Field	Volume (L) or Area (cm2)	938 L
Prep	Direct	Sensitivity (amphibole)	9.87E-04 s/cc
Counting Rules	10312	Sensitivity (chrysotile)	9.87E-04 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024	32	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00015_270801090-0002_ISO_11-06-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00015
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	938
Date received by lab	10/21/2008
Lab Job Number:	270801090
Lab Sample Number:	270801090-0002
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/21/2008
EPA COC Number	L14655

Analyzed by	R. Pescador
Analysis date	11/6/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, J
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
14	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
14	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00015_270801090-0002_ISO_11-06-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00015	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801090-0002	Count Rule	10312	QA Type	Not QA
Data Entry by:	L. Ramowski	QA by:	K. Lusher		
Data Entry date:	11/11/2008	QA date:	12/1/2008		

Maximum # of Grid Openings Reached-Complete current GO then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	I1	ND														
1	I3	ND														
1	I5	ND														
1	I7	ND														
1	I9	ND														
1	H2	ND														
1	H4	ND														
1	H6	ND														
1	H8	ND														
1	H10	ND														
1	G1	ND														
1	G3	ND														
1	G5	ND														
1	G7	ND														
1	G9	ND														
1	F2	ND														
1	F4	ND														
1	F6	ND														
1	F8	ND														
1	F10	ND														
2	J1	ND														
2	J3	ND														
2	J5	ND														
2	J7	ND														
2	J9	ND														
2	H1	ND														
2	H3	ND														
2	H5	ND														
2	H7	ND														
2	H9	ND														
2	F1	ND														
2	F3	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00025
QA Type	Not QA
Lab Sample Number	270801090-0003
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	31
Number of Grid Openings (chrysotile)	31
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	988 L
Sensitivity (amphibole)	9.67E-04 s/cc
Sensitivity (chrysotile)	9.67E-04 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024	13	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00025_270801090-0003_ISO_11-06-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00025
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	988
Date received by lab	10/21/2008
Lab Job Number:	270801090
Lab Sample Number:	270801090-0003
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/21/2008
EPA COC Number	L14655

Analyzed by	R. Pescador
Analysis date	11/6/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, K
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
13	GOs required to reach target sensitivity
13	Maximum # of GOs
50	Maximum # of Structure
13	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00025_270801090-0003_ISO_11-06-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00025	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801090-0003	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/11/2008	QA date:	12/1/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	J2	ND														
1	J4	ND														
1	J6	ND														
1	J8	ND														
1	J10	ND														
1	H2	ND														
1	H4	ND														
1	H6	ND														
1	H8	ND														
1	H10	ND														
1	G1	ND														
1	G3	ND														
1	G5	ND														
1	G7	ND														
1	G9	ND														
2	I1	ND														
2	I3	ND														
2	I5	ND														
2	I7	ND														
2	I9	ND														
2	H2	ND														
2	H4	ND														
2	H6	ND														
2	H8	ND														
2	H10	ND														
2	G1	ND														
2	G3	ND														
2	G5	ND														
2	G7	ND														
2	G9	ND														
2	F8	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00031
QA Type	Not QA
Lab Sample Number	270801090-0004
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	39
Number of Grid Openings (chrysotile)	39
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	779 L
Sensitivity (amphibole)	9.75E-04 s/cc
Sensitivity (chrysotile)	9.75E-04 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00031_270801090-0004_ISO_11-06-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00031
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	779
Date received by lab	10/21/2008
Lab Job Number:	270801090
Lab Sample Number:	270801090-0004
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/21/2008
EPA COC Number	L14655

Analyzed by	R. Pescador
Analysis date	11/6/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, L
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
16	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
16	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00031_270801090-0004_ISO_11-06-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00031	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801090-0004	Count Rule	10312	QA Type	Not QA
Data Entry by:	L. Ramowski	QA by:	K. Lusher		
Data Entry date:	11/11/2008	QA date:	12/1/2008		

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	I1	ND														
1	I3	ND														
1	I5	ND														
1	I7	ND														
1	I9	ND														
1	H2	ND														
1	H4	ND														
1	H6	ND														
1	H8	ND														
1	H10	ND														
1	F1	ND														
1	F3	ND														
1	F5	ND														
1	F7	ND														
1	F9	ND														
1	E2	ND														
1	E4	ND														
1	E6	ND														
1	E8	ND														
1	E10	ND														
2	J1	ND														
2	J3	ND														
2	J5	ND														
2	J7	ND														
2	J9	ND														
2	I2	ND														
2	I4	ND														
2	I6	ND														
2	I8	ND														
2	I10	ND														
2	H1	ND														
2	H3	ND														
2	H5	ND														
2	H7	ND														
2	H9	ND														

2	F1	ND															
2	F3	ND															
2	F5	ND															
2	F7	ND															

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00039
QA Type	Not QA
Lab Sample Number	270801090-0005
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0	mm2
Indirect factor	1.00E+00	
Number of Grid Openings (amphibole)	37	
Number of Grid Openings (chrysotile)	37	
Grid opening area	0.0130	mm2
Volume (L) or Area (cm2)	817	L
Sensitivity (amphibole)	9.80E-04	s/cc
Sensitivity (chrysotile)	9.80E-04	s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00039_270801090-0005_ISO_11-06-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00039
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	817
Date received by lab	10/21/2008
Lab Job Number:	270801090
Lab Sample Number:	270801090-0005
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/21/2008
EPA COC Number	L14655

Analyzed by	R. Pescador
Analysis date	11/6/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, M
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
16	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
16	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00039_270801090-0005_ISO_11-06-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00039	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801090-0005	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/11/2008	QA date:	12/1/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	G1	ND														
1	G3	ND														
1	G5	ND														
1	G7	ND														
1	G9	ND														
1	F2	ND														
1	F4	ND														
1	F6	ND														
1	F8	ND														
1	F10	ND														
1	E1	ND														
1	E3	ND														
1	E5	ND														
1	E7	ND														
1	E9	ND														
1	D2	ND														
1	D4	ND														
1	D6	ND														
1	D8	ND														
1	D10	ND														
2	J2	ND														
2	J4	ND														
2	J6	ND														
2	J8	ND														
2	J10	ND														
2	H2	ND														
2	H4	ND														
2	H6	ND														
2	H8	ND														
2	H10	ND														
2	G1	ND														
2	G3	ND														
2	G5	ND														
2	G7	ND														
2	G9	ND														

2	F2	ND															
2	F4	ND															

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00049
QA Type	Not QA
Lab Sample Number	270801090-0006
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0	mm2
Indirect factor	1.00E+00	
Number of Grid Openings (amphibole)	37	
Number of Grid Openings (chrysotile)	37	
Grid opening area	0.0130	mm2
Volume (L) or Area (cm2)	803	L
Sensitivity (amphibole)	9.97E-04	s/cc
Sensitivity (chrysotile)	9.97E-04	s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00049_270801090-0006_ISO_11-06-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00049
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	803
Date received by lab	10/21/2008
Lab Job Number:	270801090
Lab Sample Number:	270801090-0006
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/21/2008
EPA COC Number	L14655

Analyzed by	R. Pescador
Analysis date	11/6/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, N
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
16	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
16	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00049_270801090-0006_ISO_11-06-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00049	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801090-0006	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/11/2008	QA date:	12/1/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	J1	ND														
1	J3	ND														
1	J5	ND														
1	J7	ND														
1	J9	ND														
1	I2	ND														
1	I4	ND														
1	I6	ND														
1	I8	ND														
1	I10	ND														
1	G2	ND														
1	G4	ND														
1	G6	ND														
1	G8	ND														
1	G10	ND														
1	F1	ND														
1	F3	ND														
1	F5	ND														
1	F7	ND														
1	F9	ND														
2	I2	ND														
2	I4	ND														
2	I6	ND														
2	H8	ND														
2	H10	ND														
2	G1	ND														
2	G3	ND														
2	G5	ND														
2	G7	ND														
2	G9	ND														
2	F2	ND														
2	F4	ND														
2	F6	ND														
2	F8	ND														
2	F10	ND														

2	E1	ND															
2	E3	ND															

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00060
QA Type	Not QA
Lab Sample Number	270801090-0007
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0	mm2
Indirect factor	1.00E+00	
Number of Grid Openings (amphibole)	39	
Number of Grid Openings (chrysotile)	39	
Grid opening area	0.0130	mm2
Volume (L) or Area (cm2)	608	L
Sensitivity (amphibole)	1.25E-03	s/cc
Sensitivity (chrysotile)	1.25E-03	s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00060_270801090-0007_ISO_11-06-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27	EPA Sample Number:	BA-00060	Analyzed by	R. Pescador
Instrument	JEOL 100 CX (30)	Sample Type	Air	Analysis date	11/6/2008
Voltage (KV)	100 kV	Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	608	Prep	Direct
Magnification	19,000 X	Date received by lab	10/21/2008	If sample type = air, is there loose material or debris in the cowl?	No
Grid opening area (mm2)	0.0130	Lab Job Number:	270801090	Counting rules	ISO (Air or Dust)
Scale: 1L =	1.000	Lab Sample Number:	270801090-0007	Grid storage location	2708-EMR-97, O
Scale: 1D =	1.000	Number of grids prepared	5	Archive filter(s) storage location	Westmont
Primary filter area (mm2)	385.0	Prepared by	K. Barnes	[redacted]	
Secondary Filter Area (mm2)	360.0	Preparation date	10/21/2008	F- factor	1
Category	Field	EPA COC Number	L14655	QA Type	Not QA
Filter Status	Analyzed				

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
21	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
21	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00060_270801090-0007_ISO_11-06-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00060	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801090-0007	Count Rule	10312	QA Type	Not QA
Data Entry by:	L. Ramowski	QA by:	K. Lusher		
Data Entry date:	11/11/2008	QA date:	12/1/2008		

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	I3	ND														
1	I5	ND														
1	I7	ND														
1	I9	ND														
1	H4	ND														
1	H6	ND														
1	H8	ND														
1	G1	ND														
1	G3	ND														
1	G5	ND														
1	G7	ND														
1	G9	ND														
1	F2	ND														
1	F4	ND														
1	F6	ND														
1	F8	ND														
1	F10	ND														
1	E3	ND														
1	E5	ND														
1	E7	ND														
1	E9	ND														
2	J3	ND														
2	J5	ND														
2	J7	ND														
2	J9	ND														
2	I4	ND														
2	I6	ND														
2	I8	ND														
2	H1	ND														
2	H3	ND														
2	H5	ND														
2	H7	ND														
2	G2	ND														
2	G6	ND														
2	F1	ND														

2	F3	ND															
2	E2	ND															
2	E4	ND															
2	D1	ND															

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID	
Status	Analyzed
EPA Sample Number	BA-00069
QA Type	Not QA
Lab Sample Number	270801090-0008
Sample Type	Air
Category	Blank
Prep	Direct
Counting Rules	10312

PARAMETERS	
Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	8
Number of Grid Openings (chrysotile)	8
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	0 L
Sensitivity (amphibole)	Blank s/cc
Sensitivity (chrysotile)	Blank s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
		8	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a					
b					
c					
d					
e					
f					
Total					<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00069_270801090-0008_ISO_11-06-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Blank
Filter Status	Analyzed

EPA Sample Number:	BA-00069
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	
Date received by lab	10/21/2008
Lab Job Number:	270801090
Lab Sample Number:	270801090-0008
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/21/2008
EPA COC Number	L14655

Analyzed by	R. Pescador
Analysis date	11/6/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, P
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

	Target Sensitivity
10	GOs required to reach target sensitivity
8	Maximum # of GOs
50	Maximum # of Structure
8	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00069_270801090-0008_ISO_11-06-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00069	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801090-0008	Count Rule	10312	QA Type	Not QA
Data Entry by:	L. Ramowski	QA by:	K. Lusher		
Data Entry date:	11/11/2008	QA date:	12/1/2008		

Maximum # of Grid Openings Reached-Complete current GO then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	G3	ND														
1	G5	ND														
1	G7	ND														
1	G9	ND														
2	I1	ND														
2	I3	ND														
2	I5	ND														
2	I7	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00005
QA Type	RS
Lab Sample Number	270801090-0001
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	13
Number of Grid Openings (chrysotile)	13
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	1028 L
Sensitivity (amphibole)	2.22E-03 s/cc
Sensitivity (chrysotile)	2.22E-03 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00005_270801090-0001_ISO_12-01-08_DRS.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00005
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1028
Date received by lab	10/21/2008
Lab Job Number:	270801090
Lab Sample Number:	270801090-0001
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/21/2008
EPA COC Number	L14655

Analyzed by	R. Pescador
Analysis date	12/1/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, I
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Recount Same

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
13	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
13	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00005_270801090-0001_ISO_12-01-08_DRS.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00005	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801090-0001	Count Rule	10312	QA Type	RS

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	12/2/2008	QA date:	12/3/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	J2	ND														
1	J4	ND														
1	J6	ND														
1	J8	ND														
1	J10	ND														
1	I1	ND														
1	I3	ND														
2	J1	ND														
2	J3	ND														
2	J5	ND														
2	J7	ND														
2	J9	ND														
2	I2	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00005
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1028
Date received by lab	10/21/08
Lab Job Number:	270801090
Lab Sample Number:	270801090-0001
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/21/08
EPA COC Number:	L14655
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/ 6 /2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97, I
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:	
Minimum Aspect Ratio (circle one):	
none (≥ 3:1)	≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	0.00034 ~~0.0001~~
Max # of GOs:	~~20~~ 13
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														
	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00005	QA TYPE	Not QA	LAB JOB NUMBER	270801090
LAB SAMPLE NO.	270801090-0001	SAMPLE TYPE	A			GRID STORAGE LOC.	2708-EMR-97, I

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class					1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM	Sketch/Comments	Sketch	Photo	EDS	
1	F2	ND														
	F4	ND														
	F6	ND														
	F8	ND														
	F10	ND														
2	J1	ND														
	J3	ND														
	J5	ND														
	J7	ND														
	J9	ND														
	I2	ND														
	I4	ND														
	I6	ND														
	I8	ND														
	I10	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00005	QA TYPE	Not QA	LAB JOB NUMBER	270801090
LAB SAMPLE NO.	270801090-0001	SAMPLE TYPE	A			GRID STORAGE LOC.	2708-EMR-97, I

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	C3	ND														
	C5	ND														
	C7	ND														
	C9	ND														

RSD 11/6/08

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00015
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	938
Date received by lab	10/21/08
Lab Job Number:	270801090
Lab Sample Number:	270801090-0002
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/21/08
EPA COC Number:	L14655
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/6/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97, J
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:

Minimum Aspect Ratio (circle one):

none ≥3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity: ~~0.0001~~ 0.0024

Max # of GOs: ~~32~~ 14

Target # of Structures: 50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
	H10	ND														

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

F-factor Calculation:

Indirect Prep Inputs

- Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
- First resuspension volume or rinsate volume (mL)
- Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

- Second resuspension volume (mL)
- Volume applied to secondary filter (mL) or used for serial dilution
- Third resuspension volume (mL)
- Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

- Fraction of secondary filter used for ashing

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00015	QA TYPE		LAB JOB NUMBER	270801090
LAB SAMPLE NO.	270801090-0002	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-97, J

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
	G9	ND														
	F2	ND														
	F4	ND														
	F6	ND														
	F8	ND														
	F10	ND														
2	J1	ND														
	J3	ND														
	J5	ND														
	J7	ND														
	J9	ND														

JOMAY WYATT-PESCADOR
406-293-9066
EMSL ANALYTICAL, INC.
107 WEST 4TH STREET,
LIBBY MT 59923

25 LBS

1 OF 1

SHIP TO:
CHARLES LACERRA
856-858-4800 1253
EMSL ANALYTICAL, INC.
107 HADDON AVENUE
WESTMONT NJ 08108-2711

NJ 081 9-06

UPS GROUND
TRACKING #: 1Z Y84 048 03 9389 9115

BILLING: P/P

TM

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DEC - 4 2008
9:04 AM

EMSL Analytical, Inc.
107 Haddon Avenue
Westmont, New Jersey 08108
Phone: (856) 858-4800
Fax: (856) 858-9551

LETTER OF TRANSMITTAL

To:	Scott Carney	Date:	December 15, 2008
	EMR, Inc.	From:	Charles E. LaCerra
	11 East Superior Street Suite 260	Re:	Libby, MT BNSF Work Mobile Lab Analytical Reports
	Duluth, MN 55802		See Below
	Phone: 763-277-5200		

We are sending you: **× Attached** ___ **Under separate cover via** _____

- ☐ Solicitation
- ☐ Copy of Letter
- ☐ Invoice #'s See Below
- ☐ Subcontract
- ☐ As noted
- ☐ Other
- ☐ Laboratory Samples
- ☒ Analytical Reports

These are transmitted as indicated below:

- ☐ Execute___Original(s)
- ☐ Review & Comment
- ☐ For Approval
- ☐ Return ____Orginal(s)
- ☐ As Requested
- ☐ Respond as instructed
- ☒ For Your Information/File
- ☐ Other

Remarks:

Enclosed please find one (1) copy of the following mobile lab analytical reports for analysis for your review and use for the above referenced project:

270801085

Please feel free to contact me with any questions or if you require additional information

Copy to: _____ Signed: Charles LaCerra

INTERNAL CHAIN OF CUSTODY

10/20/2008 2:34:37 PM

Order ID: 270801085

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14650**
Samples collected 9/17, 18, 19, 23/2008

Customer ID: EMRI78
Customer PO:
Received: 10/20/08 12:21 PM

EMSL Order: 270801085
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Invoice to Burlington N. Santa Fe/BNSF Rlwy (BURL54), 2500 Lou Menk Drive, Fort Worth, TX 76131

Test: TEM ISO 10312 **Matrix** Air **TAT:** 3 weeks **Qty:** 16

Acct Sts: **Slsprsn:** epodell **Logged:** jwyattpescador **Date:** 10/20/2008

BillingFrequency: With Report

Sample Condition: ☑ Acceptable ☐ Unacceptable

Comments

☐ Exempt from prep charge
☐ Exempt from lab opening fee
☐ Exempt from layer/aliquot charges

Prepped: KB **Date:** 10/20/08
Analyzed: RKw **Date:** 10/31/08
Data Entry: Q **Date:** 11/3/08
Screened: TP **Date:** 11/4/08
Mailed: Q **Date:** 12/15/08

Special Instructions Prehardcopyreview CJ 12/11/08

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801085	270801085-0001	BA-00006 •		11/10/2008 12:21:00 P
270801085	270801085-0002	BA-00007 •		11/10/2008 12:21:00 P
270801085	270801085-0003	BA-00008 •		11/10/2008 12:21:00 P
270801085	270801085-0004	BA-00009 •		11/10/2008 12:21:00 P
270801085	270801085-0005	BA-00010 •		11/10/2008 12:21:00 P
270801085	270801085-0006	BA-00016 •		11/10/2008 12:21:00 P
270801085	270801085-0007	BA-00017 •		11/10/2008 12:21:00 P
270801085	270801085-0008	BA-00018 •		11/10/2008 12:21:00 P
270801085	270801085-0009	BA-00019 •		11/10/2008 12:21:00 P
270801085	270801085-0010	BA-00020 •		11/10/2008 12:21:00 P
270801085	270801085-0011	BA-00026 • RS		11/10/2008 12:21:00 P

RS LB

2708-EMR-96(M-T) / 2708-EMR-97(A-H)

INTERNAL CHAIN OF CUSTODY

10/20/2008 2:34:37 PM

Order ID: 270801085

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	10/20/08 12:21 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270801085
Project:	**L14650** **Samples collected 9/17, 18, 19, 23/2008**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Invoice to Burlington N. Santa Fe/BNSF Rlwy (BURL54), 2500 Lou Menk Drive, Fort Worth, TX 76131

270801085	270801085-0012	BA-00027 •		11/10/2008 12:21:00 P
270801085	270801085-0013	BA-00028 •		11/10/2008 12:21:00 P
270801085	270801085-0014	BA-00034 •		11/10/2008 12:21:00 P
270801085	270801085-0015	BA-00035 •		11/10/2008 12:21:00 P
270801085	270801085-0016	BA-00036	Archive	11/10/2008 12:21:00 P

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00006
QA Type	Not QA
Lab Sample Number	270801085-0001
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	7
Number of Grid Openings (chrysotile)	7
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	1778 L
Sensitivity (amphibole)	2.38E-03 s/cc
Sensitivity (chrysotile)	2.38E-03 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00006_270801085-0001_ISO_10-31-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00006
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1778
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0001
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, M
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
7	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
7	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00006_270801085-0001_ISO_10-31-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00006	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801085-0001	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	T. Peters
Data Entry date:	11/3/2008	QA date:	11/4/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	B5	ND														
1	B8	ND														
1	D3	ND														
1	D5	ND														
2	G3	ND														
2	G5	ND														
2	G7	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00007
QA Type	Not QA
Lab Sample Number	270801085-0002
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	7
Number of Grid Openings (chrysotile)	7
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	1763 L
Sensitivity (amphibole)	2.40E-03 s/cc
Sensitivity (chrysotile)	2.40E-03 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

EMSL
SM

FILE NAME: BA-00007_270801085-0002_ISO_10-31-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00007
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1763
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0002
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, N
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
7	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
7	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00007_270801085-0002_ISO_10-31-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00007	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801085-0002	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	T. Peters
Data Entry date:	11/3/2008	QA date:	11/4/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	C4	ND														
1	C6	ND														
1	C8	ND														
1	E8	ND														
2	C4	ND														
2	C6	ND														
2	C8	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00008
QA Type	Not QA
Lab Sample Number	270801085-0003
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	6
Number of Grid Openings (chrysotile)	6
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	2440 L
Sensitivity (amphibole)	2.02E-03 s/cc
Sensitivity (chrysotile)	2.02E-03 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00008_270801085-0003_ISO_10-31-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00008
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	2440
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0003
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, O
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
6	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
6	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00008_270801085-0003_ISO_10-31-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00008	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801085-0003	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	T .Peters
Data Entry date:	11/3/2008	QA date:	11/4/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	H4	ND														
1	H6	ND														
1	H8	ND														
2	C3	ND														
2	C5	ND														
2	C7	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00009
QA Type	Not QA
Lab Sample Number	270801085-0004
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0	mm2
Indirect factor	1.00E+00	
Number of Grid Openings (amphibole)	6	
Number of Grid Openings (chrysotile)	6	
Grid opening area	0.0130	mm2
Volume (L) or Area (cm2)	2402	L
Sensitivity (amphibole)	2.05E-03	s/cc
Sensitivity (chrysotile)	2.05E-03	s/cc

Recording Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00009_270801085-0004_ISO_10-31-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00009
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	2402.0
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0004
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, P
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
6	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
6	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00009_270801085-0004_ISO_10-31-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00009	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801085-0004	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	T. Peters
Data Entry date:	11/3/2008	QA date:	11/4/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	A3	ND														
1	A5	ND														
1	B4	ND														
2	A4	ND														
2	A7	ND														
2	C7	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00010
QA Type	Not QA
Lab Sample Number	270801085-0005
Sample Type	Air
Category	Blank
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	10
Number of Grid Openings (chrysotile)	10
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	0 L
Sensitivity (amphibole)	Blank s/cc
Sensitivity (chrysotile)	Blank s/cc

Recording Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping Rules:

Target S	Max GOs	Max N
	10	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a					
b					
c					
d					
e					
f					
Total					<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00010_270801085-0005_ISO_10-31-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Blank
Filter Status	Analyzed

EPA Sample Number:	BA-00010
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0005
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, Q
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

	Target Sensitivity
10	GOs required to reach target sensitivity
10	Maximum # of GOs
50	Maximum # of Structure
10	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00010_270801085-0005_ISO_10-31-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00010	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801085-0005	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	T. Peters
Data Entry date:	11/3/2008	QA date:	11/4/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	D2	ND														
1	D4	ND														
1	D6	ND														
1	D8	ND														
1	D10	ND														
2	D2	ND														
2	D4	ND														
2	D6	ND														
2	D8	ND														
2	D10	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID		**PARAMETERS**		
Status	Analyzed	Effective filter area	385.0	mm2
EPA Sample Number	BA-00016	Indirect factor	1.00E+00	
QA Type	Not QA	Number of Grid Openings (amphibole)	5	
Lab Sample Number	270801085-0006	Number of Grid Openings (chrysotile)	5	
Sample Type	Air	Grid opening area	0.0130	mm2
Category	Field	Volume (L) or Area (cm2)	2675	L
Prep	Direct	Sensitivity (amphibole)	2.21E-03	s/cc
Counting Rules	10312	Sensitivity (chrysotile)	2.21E-03	s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00016_270801085-0006_ISO_10-31-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00016
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	2675
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0006
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, R
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
5	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
5	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00016_270801085-0006_ISO_10-31-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00016	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801085-0006	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	T. Peters
Data Entry date:	11/3/2008	QA date:	11/4/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	B2	ND														
1	B6	ND														
1	B8	ND														
2	H4	ND														
2	H6	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00017
QA Type	Not QA
Lab Sample Number	270801085-0007
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	5
Number of Grid Openings (chrysotile)	5
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	2675 L
Sensitivity (amphibole)	2.21E-03 s/cc
Sensitivity (chrysotile)	2.21E-03 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00017_270801085-0007_ISO_10-31-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00017
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	2675.0
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0007
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, S
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
5	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
5	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00017_270801085-0007_ISO_10-31-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00017	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801085-0007	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	T. Peters
Data Entry date:	11/3/2008	QA date:	11/4/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	H5	ND														
1	H7	ND														
1	H9	ND														
2	C5	ND														
2	C7	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00018
QA Type	Not QA
Lab Sample Number	270801085-0008
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	5
Number of Grid Openings (chrysotile)	5
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	2538 L
Sensitivity (amphibole)	2.33E-03 s/cc
Sensitivity (chrysotile)	2.33E-03 s/cc

Recording Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00018_270801085-0008_ISO_10-31-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00018
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	2538
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0008
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, T
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
5	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
5	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00018_270801085-0008_ISO_10-31-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00018	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801085-0008	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	T. Peters
Data Entry date:	11/3/2008	QA date:	11/4/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	A5	ND														
1	A7	ND														
1	A9	ND														
2	C3	ND														
2	C5	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00019
QA Type	Not QA
Lab Sample Number	270801085-0009
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	5
Number of Grid Openings (chrysotile)	5
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	2523 L
Sensitivity (amphibole)	2.35E-03 s/cc
Sensitivity (chrysotile)	2.35E-03 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00019_270801085-0009_ISO_10-31-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00019
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	2523
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0009
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, A
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
5	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
5	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00019_270801085-0009_ISO_10-31-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00019	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801085-0009	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	T. Peters
Data Entry date:	11/3/2008	QA date:	11/4/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	B3	ND														
1	B5	ND														
1	B7	ND														
2	A3	ND														
2	A5	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00020
QA Type	Not QA
Lab Sample Number	270801085-0010
Sample Type	Air
Category	Blank
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	10
Number of Grid Openings (chrysotile)	10
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	0 L
Sensitivity (amphibole)	Blank s/cc
Sensitivity (chrysotile)	Blank s/cc

Recording Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping Rules:

Target S	Max GOs	Max N
	10	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a					
b					
c					
d					
e					
f					
Total					<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00020_270801085-0010_ISO_10-31-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27	EPA Sample Number:	BA-00020	Analyzed by	R. Mahoney
Instrument	JEOL 100 CX II (49)	Sample Type	Air	Analysis date	10/31/2008
Voltage (KV)	100 kV	Air volume (L), dust sample area (cm2), or dustfall container area (cm2)		Prep	Direct
Magnification	19,000 X	Date received by lab	10/20/2008	If sample type = air, is there loose material or debris in the cowl?	No
Grid opening area (mm2)	0.0130	Lab Job Number:	270801085	Counting rules	ISO (Air or Dust)
Scale: 1L =	1.000	Lab Sample Number:	270801085-0010	Grid storage location	2708-EMR-97, B
Scale: 1D =	1.000	Number of grids prepared	5	Archive filter(s) storage location	Westmont
Primary filter area (mm2)	385.0	Prepared by	K. Barnes	[redacted]	
Secondary Filter Area (mm2)	360.0	Preparation date	10/20/2008	F- factor	1
Category	Blank	EPA COC Number	L14650	QA Type	Not QA
Filter Status	Analyzed				

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

	Target Sensitivity
10	GOs required to reach target sensitivity
10	Maximum # of GOs
50	Maximum # of Structure
10	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00020_270801085-0010_ISO_10-31-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00020	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801085-0010	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	T. Peters
Data Entry date:	11/3/2008	QA date:	11/4/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	D2	ND														
1	D4	ND														
1	D6	ND														
1	D8	ND														
1	D10	ND														
2	I1	ND														
2	I3	ND														
2	I5	ND														
2	I7	ND														
2	I9	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID		PARAMETERS	
Status	Analyzed	Effective filter area	385.0 mm2
EPA Sample Number	BA-00026	Indirect factor	1.00E+00
QA Type	Not QA	Number of Grid Openings (amphibole)	7
Lab Sample Number	270801085-0011	Number of Grid Openings (chrysotile)	7
Sample Type	Air	Grid opening area	0.0130 mm2
Category	Field	Volume (L) or Area (cm2)	1961 L
Prep	Direct	Sensitivity (amphibole)	2.16E-03 s/cc
Counting Rules	10312	Sensitivity (chrysotile)	2.16E-03 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00026_270801085-0011_ISO_10-31-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27	EPA Sample Number:	BA-00026	Analyzed by	R. Mahoney
Instrument	JEOL 100 CX II (49)	Sample Type	Air	Analysis date	10/31/2008
Voltage (KV)	100 kV	Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1961	Prep	Direct
Magnification	19,000 X	Date received by lab	10/20/2008	If sample type = air, is there loose material or debris in the cowl?	No
Grid opening area (mm2)	0.0130	Lab Job Number:	270801085	Counting rules	ISO (Air or Dust)
Scale: 1L =	1.000	Lab Sample Number:	270801085-0011	Grid storage location	2708-EMR-97, C
Scale: 1D =	1.000	Number of grids prepared	5	Archive filter(s) storage location	Westmont
Primary filter area (mm2)	385.0	Prepared by	K. Barnes	[redacted]	
Secondary Filter Area (mm2)	360.0	Preparation date	10/20/2008	F- factor	1
Category	Field	EPA COC Number	L14650	QA Type	Not QA
Filter Status	Analyzed				

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
7	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
7	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00026_270801085-0011_ISO_10-31-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00026	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801085-0011	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	T. Peters
Data Entry date:	11/3/2008	QA date:	11/4/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	H5	ND														
1	H7	ND														
1	H9	ND														
2	C4	ND														
2	C6	ND														
2	C8	ND														
2	D9	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID		**PARAMETERS**	
Status	Analyzed	Effective filter area	385.0 mm2
EPA Sample Number	BA-00027	Indirect factor	1.00E+00
QA Type	Not QA	Number of Grid Openings (amphibole)	10
Lab Sample Number	270801085-0012	Number of Grid Openings (chrysotile)	10
Sample Type	Air	Grid opening area	0.0130 mm2
Category	Blank	Volume (L) or Area (cm2)	0 L
Prep	Direct	Sensitivity (amphibole)	Blank s/cc
Counting Rules	10312	Sensitivity (chrysotile)	Blank s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
		10	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a					
b					
c					
d					
e					
f					
Total					<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00027_270801085-0012_ISO_10-31-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Blank
Filter Status	Analyzed

EPA Sample Number:	BA-00027
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0012
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, D
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

	Target Sensitivity
10	GOs required to reach target sensitivity
10	Maximum # of GOs
50	Maximum # of Structure
10	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00027_270801085-0012_ISO_10-31-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00027	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801085-0012	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	T.Peters
Data Entry date:	11/3/2008	QA date:	11/4/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	D2	ND														
1	D4	ND														
1	D6	ND														
1	D8	ND														
1	D10	ND														
2	B2	ND														
2	B4	ND														
2	B6	ND														
2	B8	ND														
2	D2	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00028
QA Type	Not QA
Lab Sample Number	270801085-0013
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	7
Number of Grid Openings (chrysotile)	7
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	1968 L
Sensitivity (amphibole)	2.15E-03 s/cc
Sensitivity (chrysotile)	2.15E-03 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00028_270801085-0013_ISO_10-31-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00028
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1968
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0013
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, E
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
7	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
7	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00034
QA Type	Not QA
Lab Sample Number	270801085-0014
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	8
Number of Grid Openings (chrysotile)	8
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	1718 L
Sensitivity (amphibole)	2.15E-03 s/cc
Sensitivity (chrysotile)	2.15E-03 s/cc

Recording Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00034_270801085-0014_ISO_10-31-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00034
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1718
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0014
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, F
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
8	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
8	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00034_270801085-0014_ISO_10-31-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00034	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801085-0014	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	T. Peters
Data Entry date:	11/3/2008	QA date:	11/4/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	B2	ND														
1	B4	ND														
1	B6	ND														
1	D3	ND														
2	D2	ND														
2	D4	ND														
2	D6	ND														
2	D8	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID		**PARAMETERS**	
Status	Analyzed	Effective filter area	385.0 mm2
EPA Sample Number	BA-00035	Indirect factor	1.00E+00
QA Type	Not QA	Number of Grid Openings (amphibole)	8
Lab Sample Number	270801085-0015	Number of Grid Openings (chrysotile)	8
Sample Type	Air	Grid opening area	0.0130 mm2
Category	Field	Volume (L) or Area (cm2)	1718 L
Prep	Direct	Sensitivity (amphibole)	2.15E-03 s/cc
Counting Rules	10312	Sensitivity (chrysotile)	2.15E-03 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00035_270801085-0015_ISO_10-31-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00035
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1718
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0015
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	10/31/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, G
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
8	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
8	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00035_270801085-0015_ISO_10-31-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00035	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801085-0015	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	T. Peters
Data Entry date:	11/3/2008	QA date:	11/4/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	D3	ND														
1	D5	ND														
1	D7	ND														
1	D9	ND														
2	G2	ND														
2	G4	ND														
2	G6	ND														
2	G8	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID		**PARAMETERS**	
Status	Analyzed	Effective filter area	385.0 mm2
EPA Sample Number	BA-00026	Indirect factor	1.00E+00
QA Type	RS	Number of Grid Openings (amphibole)	7
Lab Sample Number	270801085-0011	Number of Grid Openings (chrysotile)	7
Sample Type	Air	Grid opening area	0.0130 mm2
Category	Field	Volume (L) or Area (cm2)	1961 L
Prep	Direct	Sensitivity (amphibole)	2.16E-03 s/cc
Counting Rules	10312	Sensitivity (chrysotile)	2.16E-03 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00026_270801085-0011_ISO_11-03-08_DRS.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00026
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1961
Date received by lab	10/20/2008
Lab Job Number:	270801085
Lab Sample Number:	270801085-0011
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	11/3/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, C
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Recount Same

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
7	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
7	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00026_270801085-0011_ISO_11-03-08_DRS.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00026	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801085-0011	Count Rule	10312	QA Type	RS

Data Entry by:	L. Ramowski	QA by:	T. Peters
Data Entry date:	11/3/2008	QA date:	11/4/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	H5	ND														
1	H7	ND														
1	H9	ND														
2	C4	ND														
2	C6	ND														
2	C8	ND														
2	D9	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	0
QA Type	LB
Lab Sample Number	270801085
Sample Type	Air
Category	Blank
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	10
Number of Grid Openings (chrysotile)	10
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	0 L
Sensitivity (amphibole)	Blank s/cc
Sensitivity (chrysotile)	Blank s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
		10	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a					
b					
c					
d					
e					
f					
Total					<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: 270801085_ISO_11-14-08_DLB.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Blank
Filter Status	Analyzed

EPA Sample Number:	
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	
Date received by lab	
Lab Job Number:	270801085
Lab Sample Number:	270801085
Number of grids prepared	3
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14650

Analyzed by	R. Mahoney
Analysis date	11/14/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-97, H
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Lab Blank

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

	Target Sensitivity
10	GOs required to reach target sensitivity
10	Maximum # of GOs
50	Maximum # of Structure
10	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

_270801085_ISO_11-14-08_DLB.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	0	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801085	Count Rule	10312	QA Type	LB

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/12/2008	QA date:	11/17/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	B7	ND														
1	B8	ND														
1	I4	ND														
1	J5	ND														
1	J9	ND														
2	J3	ND														
2	J5	ND														
2	I2	ND														
2	I4	ND														
2	G6	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00006
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1778
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0001
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96,m
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:

Minimum Aspect Ratio (circle one): none (≥ 3:1) ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity: 0.0024

Max # of GOs: 7

Target # of Structures: 50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	B5	ND														
	B8	ND														
	D3	ND														
	D5	ND														
2	G3	ND														
	G5	ND														
	G7	ND														

RKM 10/31/08

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00007
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1763
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0002
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, N
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:

Minimum Aspect Ratio (circle one): none | ≥ 3:1 | ≥ 5:1

Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:

Target Sensitivity:	0.0024
Max # of GOs:	7
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	C4	ND														
↓	C6	ND														
↓	C8	ND														
↓	E8	ND														
2	C4	ND														
↓	C6	ND														
↓	C8	ND														

R/cm 10/31/08

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00008
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	2440
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0003
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, 0
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:

Minimum Aspect Ratio (circle one): none | ≥ 3:1 | ≥ 5:1

Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:

Target Sensitivity:	0.0024
Max # of GOs:	6
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	H4	ND														
	H6	ND														
	H8	ND														
2	C3	ND														
	C5	ND														
	C7	ND														

RKM 11/31/08

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume epplied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No

If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-06009
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	2402
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0004
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96,P
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:

Minimum Aspect Ratio (circle one): none | ≥ 3:1 | ≥ 5:1

Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:

Target Sensitivity:	0.0024
Max # of GOs:	6
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	A3	ND														
↓	A5	ND														
↓	B4	ND														
2	A4	ND														
↓	A7	ND														
↓	C7	ND														

RCM 10/31/08

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

Grid opening traverse direction (circle one):
H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Blank
Primary filter pore size (um)	0.8

EPA Sample Number:	BB-00010
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	0
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0005
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, Q
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:

Minimum Aspect Ratio (circle one): none | ≥ 3:1 | ≥ 5:1

Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:

Target Sensitivity:	
Max # of GOs:	10
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	D2	ND														
	D4	ND														
	D6	ND														
	D8	ND														
	D10	ND														
2	D2	ND														
	D4	ND														
	D6	ND														
	D8	ND														
	D10	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00016
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	2625
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0006
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96R
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right---->

Recording Rules:

Minimum Aspect Ratio (circle one):

none ≥ 3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity: 0.0024

Max # of GOs: 5

Target # of Structures: 50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	B2	ND														
↓	B6	ND														
↓	B8	ND														
2	H4	ND														
2	H6	ND														

RKM 10/31/08

F-factor Calculation:

Indirect Prep Inputs

- Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
- First resuspension volume or rinsate volume (mL)
- Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

- Second resuspension volume (mL)
- Volume applied to secondary filter (mL) or used for serial dilution
- Third resuspension volume (mL)
- Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

- Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00017
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	2675
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0007
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, S
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:

Minimum Aspect Ratio (circle one): none | (≥ 3:1) | ≥ 5:1

Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:

Target Sensitivity:	0.0024
Max # of GOs:	5
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	H5	NO														
↓	H7	NO														
↓	H9	NO														
2	C5	NO														
2	C7	NO														

KKm 10/31/08

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00018
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	2538
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0008
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, T
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:

Minimum Aspect Ratio (circle one): none (≥ 3:1) ≥ 5:1

Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:

Target Sensitivity:	0.0024
Max # of GOs:	5
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	A5	ND														
↓	A7	ND														
↓	A9	ND														
2	C3	ND														
2	C5	ND														

RCM 10/31/08

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00019
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	2523
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0009
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97,A
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:

Minimum Aspect Ratio (circle one): none (≥ 3:1) ≥ 5:1

Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:

Target Sensitivity:	0.0024
Max # of GOs:	5
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	B3	NO														
↓	B5	NO														
↓	B7	NO														
2	A3	NO														
2	A5	NO														

RKM 10/31/08

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1:0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Blank
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00020
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	Ø
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0010
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97.3
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:

Minimum Aspect Ratio (circle one): none | (≥ 3:1) | ≥ 5:1

Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:

Target Sensitivity:	
Max # of GOs:	10
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	D2	ND														
	D4	ND														
	D6	ND														
	D8	ND														
	D10	ND														
2	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														

RJM 11/3/08

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00026
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1961
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0011
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97,C
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:

Minimum Aspect Ratio (circle one): none (≥ 3:1) ≥ 5:1

Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:

Target Sensitivity:	0.0024
Max # of GOs:	7
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	H5	ND														
↓	H7	ND														
↓	H9	ND														
2	C4	ND														
↓	C6	ND														
↓	C8	ND														
↓	D9	ND														

RVM 10/31/08

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Blank
Primary filter pore size (um)	0.8

EPA Sample Number:	BP-00027
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	0
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0012
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97.D
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

Recording Rules:

Minimum Aspect Ratio (circle one): none | ≥ 3:1 | ≥ 5:1

Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:

Target Sensitivity:	
Max # of GOs:	10
Target # of Structures:	50

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	D2	ND														
	D4	ND														
	D6	ND														
	D8	ND														
	D10	ND														
2	B2	ND														
	B4	ND														
	B6	ND														
	B8	ND	CJ 12/11/08													
	D2	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BB-00028
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1968
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0013
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97, E
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:

Minimum Aspect Ratio (circle one): none | (≥ 3:1) | ≥ 5:1

Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:

Target Sensitivity:	0.0024
Max # of GOs:	7
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	B2	ND														
	B4	ND														
	B6	ND														
	B8	ND														
2	B3	ND														
	B5	ND														
	B7	ND														

RKM 10/31/08

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BP-00034
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1718
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0014
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97, F
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:

Minimum Aspect Ratio (circle one): none ≥ 3:1 ≥ 5:1

Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:

Target Sensitivity:	0.0024
Max # of GOs:	8
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	B2	ND														
	B4	ND														
	B6	ND														
	D3	ND														
2	D2	ND	CJL 12/11/08													
	D4	ND														
	D6	ND														
	D8	ND														
								RMA 10/31/08								

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00035
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1718
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0015
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	10/31/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97, G
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:

Minimum Aspect Ratio (circle one): none ≥ 3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity: 0.0024

Max # of GOs: 8

Target # of Structures: 50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	D3	ND														
	D5	ND														
	D7	ND														
	D9	ND														
2	G2	ND														
	G4	ND														
	G6	ND														
	G8	ND														

R/cm 10/31/08

F-factor Calculation:

Indirect Prep Inputs

- Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
- First resuspension volume or rinsate volume (mL)
- Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

- Second resuspension volume (mL)
- Volume applied to secondary filter (mL) or used for serial dilution
- Third resuspension volume (mL)
- Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

- Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

RS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00026
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1961
Date received by lab	10/20/08
Lab Job Number:	270801085
Lab Sample Number:	270801085-0011
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	11/3/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97.C
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Recount Same

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:

Minimum Aspect Ratio (circle one): none | ≥ 3:1 | ≥ 5:1

Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:

Target Sensitivity:	0.0024
Max # of GOs:	7
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	H5	ND														
	H7	ND														
	H9	ND														
2	C4	ND														
	C6	ND														
	C8	ND														
	D9	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No
If No, explain:

(LB)

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	0
Date received by lab	
Lab Job Number:	270801085
Lab Sample Number:	270801085
Number of grids prepared	3
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14650
Secondary filter pore size (um)	0.2

Analyzed by	R. Mahoney
Analysis date	11/14/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-97, H
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Lab Blamk

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:	
Minimum Aspect Ratio (circle one):	none / ≥ 3:1 / ≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	
Max # of GOs:	10
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	B7	ND														
	B9	ND														
	I4	ND														
	J5	ND														
	J9	ND														
2	J3	ND														
	J5	ND														
	I2	ND														
	I4	ND														
	G6	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No
If No, explain:

Chain of Custody Record

Libby Asbestos Investigation

No. L14650

From: CDM
60 Port Blvd, Ste. 200
Libby, MT 59923

U.S. Environmental Protection Agency, Region VIII
1595 Wynkoop Street
Denver, CO 80202-1129

Send to: EMSL-Mobile Lab
107 W 4th St
Libby, MT 59923

via: ☑ hand delivery ☐ shipped

Date Shipped: 10/20/2008
Carrier Name: Hand-delivered
Airbill: NA

270801085

Sample Placed in Cooler/Bag	Index ID	Suffix ID	Sample Date	Sample Media (S=Soil; W=Water; D=Dust; A=Air; B=Bulk Insulation)	Volume (L) or Area (cm2)	Filter Pore Size (um)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
☑	BA-00035		9/23/2008	A	1718 L	0.8	21 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-C	☑
☑	BA-00036		9/23/2008	A	Ø L	0.8	21 Day	TEM-ISO10312 (ISO 10312:1995 (E))	Archive OU6RR0908-D	☑

Total Number of Samples 16

END OF SUBMITTAL

Additional Comments: See attachment

Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Kari CDM	10.20.08 1221	Elizabeth J. Wyatt-Resendez/EMSL	10/20/08/1221	OK to accept
Elizabeth J. Wyatt-Resendez/EMSL	11/24/08/1045	L. Ramaswami EMSL	12/4/08 9:04	Complete

JOMAY WYATT-PESCADOR
406-293-9066
EMSL ANALYTICAL, INC.
107 WEST 4TH STREET
LIBBY MT 59923

25 LBS

1 OF 1

SHIP TO:
CHARLES LACERRA
856-858-4800 1253
EMSL ANALYTICAL, INC.
107 HADDON AVENUE
WESTMONT NJ 08108-2711

NJ 081 9-06

UPS GROUND

TRACKING #: 1Z Y84 048 03 9389 9115

BILLING: P/P

TM

EMSL
107 HAD
HADDON T
P: PINK
72A
1Z Y84048039

RECEIVED
DEC - 4 2008
9:04 AM

EMSL Analytical, Inc.
107 Haddon Avenue
Westmont, New Jersey 08108
Phone: (856) 858-4800
Fax: (856) 858-9551

LETTER OF TRANSMITTAL

To:	Scott Carney	Date:	December 22, 2008
	EMR, Inc.	From:	Charles E. LaCerra
	11 East Superior Street Suite 260	Re:	Libby, MT BNSF Work Mobile Lab Analytical Reports
	Duluth, MN 55802		See Below
	Phone: 763-277-5200		

We are sending you: **× Attached** ___ **Under separate cover via** _____

- ☐ Solicitation
- ☐ Copy of Letter
- ☐ Invoice #'s See Below
- ☐ Subcontract
- ☐ As noted
- ☐ Other
- ☐ Laboratory Samples
- ☒ Analytical Reports

These are transmitted as indicated below:

- ☐ Execute___Original(s)
- ☐ Review & Comment
- ☐ For Approval
- ☐ Return ____Orginal(s)
- ☐ As Requested
- ☐ Respond as instructed
- ☒ For Your Information/File
- ☐ Other

Remarks:

Enclosed please find one (1) copy of the following mobile lab analytical reports for analysis for your review and use for the above referenced project:

270801086

Please feel free to contact me with any questions or if you require additional information

Copy to: _____ Signed: Charles LaCerra

INTERNAL CHAIN OF CUSTODY

10/20/2008 2:52:25 PM

Order ID: 270801086

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **L14651**
Samples collected 9/23, 24, 25/2008

Customer ID: EMRI78
Customer PO:
Received: 10/20/08 12:21 PM

EMSL Order: 270801086
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Invoice to Burlington N. Santa Fe/BNSF Rlwy (BURL54), 2500 Lou Menk Drive, Fort Worth, TX 76131

Test: TEM ISO 10312 **Matrix** Air **TAT:** 3 weeks **Qty:** 15

Acct Sts: **Slsprsn:** epodell **Logged:** jwyattpescador **Date:** 10/20/08

BillingFrequency: With Report

Sample Condition: ☑ Acceptable ☐ Unacceptable

Comments

☐ Exempt from prep charge
☐ Exempt from lab opening fee
☐ Exempt from layer/aliquot charges

Prepped: KB **Date:** 10/20/08
Analyzed: [illegible] **Date:** 11/4,5/08
Data Entry: [illegible] **Date:** 11/4/08 + 11/5/08
Screened: KL **Date:** 11/23/08
Mailed: [illegible] **Date:** 12/22/08

Special Instructions

Pre hardcopy review 12-12-08 by KL

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270801086	270801086-0001 A	BA-00044		11/10/2008 12:21:00 P
270801086	270801086-0002 B	BA-00045		11/10/2008 12:21:00 P
270801086	270801086-0003	BA-00046	Archive	11/10/2008 12:21:00 P
270801086	270801086-0004 C	BA-00052		11/10/2008 12:21:00 P
270801086	270801086-0005 D	BA-00053		11/10/2008 12:21:00 P
270801086	270801086-0006 E	BA-00054		11/10/2008 12:21:00 P
270801086	270801086-0007 F	BA-00055		11/10/2008 12:21:00 P
270801086	270801086-0008	BA-00056	Archive	11/10/2008 12:21:00 P
270801086	270801086-0009	BA-00057	Archive	11/10/2008 12:21:00 P
270801086	270801086-0010	BA-00063 Damaged		11/10/2008 12:21:00 P
270801086	270801086-0011 G	BA-00064		11/10/2008 12:21:00 P

RS, LB, RP

2708-EMR-96(A-L)

INTERNAL CHAIN OF CUSTODY

10/20/2008 2:52:25 PM

Order ID: 270801086

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	10/20/08 12:21 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270801086
Project:	**L14651** **Samples collected 9/23, 24, 25/2008**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Invoice to Burlington N. Santa Fe/BNSF Rlwy (BURL54), 2500 Lou Menk Drive, Fort Worth, TX 76131

270801086	270801086-0012 H BA-00065	11/10/2008 12:21:00 P
270801086	270801086-0013 I BA-00066	11/10/2008 12:21:00 P
270801086	270801086-0014 J BA-00067 RP	11/10/2008 12:21:00 P
270801086	270801086-0015 K BA-00068 RS, ~~RP~~ MPY 11/5/08	11/10/2008 12:21:00 P

RS, LB, RP

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00044
QA Type	Not QA
Lab Sample Number	270801086-0001
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0	mm2
Indirect factor	1.00E+00	
Number of Grid Openings (amphibole)	39	
Number of Grid Openings (chrysotile)	39	
Grid opening area	0.0130	mm2
Volume (L) or Area (cm2)	1915	L
Sensitivity (amphibole)	3.97E-04	s/cc
Sensitivity (chrysotile)	3.97E-04	s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024	39	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00044_270801086-0001_ISO_11-04-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00044
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1915
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0001
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	11/4/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, A
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
7	GOs required to reach target sensitivity
7	Maximum # of GOs
50	Maximum # of Structure
7	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00044_270801086-0001_ISO_11-04-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00044	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801086-0001	Count Rule	10312	QA Type	Not QA
Data Entry by:	L. Ramowski	QA by:	K. Lusher		
Data Entry date:	11/11/2008	QA date:	11/28/2008		

Maximum # of Grid Openings Reached-Complete current GO then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	J1	ND														
1	J3	ND														
1	J5	ND														
1	J7	ND														
1	J9	ND														
1	I2	ND														
1	I4	ND														
1	I6	ND														
1	I8	ND														
1	I10	ND														
1	H1	ND														
1	H3	ND														
1	H5	ND														
1	H7	ND														
1	H9	ND														
1	G2	ND														
1	G4	ND														
1	G6	ND														
1	G8	ND														
1	G10	ND														
1	F1	ND														
1	F3	ND														
1	F5	ND														
1	F7	ND														
1	F9	ND														
2	I2	ND														
2	I4	ND														
2	I6	ND														
2	I8	ND														
2	I10	ND														
2	H1	ND														
2	H3	ND														
2	H5	ND														
2	H7	ND														
2	H9	ND														

2	G2	ND														
2	G4	ND														
2	G6	ND														
2	G8	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID		PARAMETERS	
Status	Analyzed	Effective filter area	385.0 mm2
EPA Sample Number	BA-00045	Indirect factor	1.00E+00
QA Type	Not QA	Number of Grid Openings (amphibole)	39
Lab Sample Number	270801086-0002	Number of Grid Openings (chrysotile)	39
Sample Type	Air	Grid opening area	0.0130 mm2
Category	Field	Volume (L) or Area (cm2)	1915 L
Prep	Direct	Sensitivity (amphibole)	3.97E-04 s/cc
Counting Rules	10312	Sensitivity (chrysotile)	3.97E-04 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024	39	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00045_270801086-0002_ISO_11-05-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00045
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1915
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0002
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	11/5/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, B
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
7	GOs required to reach target sensitivity
7	Maximum # of GOs
50	Maximum # of Structure
7	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00045_270801086-0002_ISO_11-05-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00045	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801086-0002	Count Rule	10312	QA Type	Not QA
Data Entry by:	L. Ramowski	QA by:	K. Lusher		
Data Entry date:	11/11/2008	QA date:	11/28/2008		

Maximum # of Grid Openings Reached-Complete current GO then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	I1	ND														
1	I3	ND														
1	I5	ND														
1	I7	ND														
1	I9	ND														
1	H2	ND														
1	H4	ND														
1	H6	ND														
1	H8	ND														
1	H10	ND														
1	G1	ND														
1	G3	ND														
1	G5	ND														
1	G7	ND														
1	G9	ND														
1	F2	ND														
1	F4	ND														
1	F6	ND														
1	F8	ND														
1	F10	ND														
1	E1	ND														
1	E3	ND														
1	E5	ND														
1	E7	ND														
1	E9	ND														
2	I1	ND														
2	I3	ND														
2	I5	ND														
2	I7	ND														
2	I9	ND														
2	H2	ND														
2	H4	ND														
2	H6	ND														
2	H8	ND														
2	H10	ND														

2	G1	ND															
2	G3	ND															
2	G5	ND															
2	G7	ND															

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00052
QA Type	Not QA
Lab Sample Number	270801086-0004
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0	mm2
Indirect factor	1.00E+00	
Number of Grid Openings (amphibole)	39	
Number of Grid Openings (chrysotile)	39	
Grid opening area	0.0130	mm2
Volume (L) or Area (cm2)	1626	L
Sensitivity (amphibole)	4.67E-04	s/cc
Sensitivity (chrysotile)	4.67E-04	s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024	39	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00052_270801086-0004_ISO_11-05-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00052
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1626
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0004
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	11/5/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, C
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
8	GOs required to reach target sensitivity
8	Maximum # of GOs
50	Maximum # of Structure
8	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00052_270801086-0004_ISO_11-05-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00052	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801086-0004	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/11/2008	QA date:	11/28/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	G1	ND														
1	G3	ND														
1	G5	ND														
1	G7	ND														
1	G9	ND														
1	F2	ND														
1	F4	ND														
1	F6	ND														
1	F8	ND														
1	F10	ND														
1	E1	ND														
1	E3	ND														
1	E5	ND														
1	E7	ND														
1	E9	ND														
1	D2	ND														
1	D4	ND														
1	D6	ND														
1	D8	ND														
1	D10	ND														
1	C1	ND														
1	C3	ND														
1	C5	ND														
1	C7	ND														
1	C9	ND														
2	I1	ND														
2	I3	ND														
2	I5	ND														
2	I7	ND														
2	I9	ND														
2	G1	ND														
2	G3	ND														
2	G5	ND														
2	G7	ND														
2	G9	ND														

2	F2	ND														
2	F4	ND														
2	F6	ND														
2	F8	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID	
Status	Analyzed
EPA Sample Number	BA-00053
QA Type	Not QA
Lab Sample Number	270801086-0005
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS		
Effective filter area	385.0	mm2
Indirect factor	1.00E+00	
Number of Grid Openings (amphibole)	39	
Number of Grid Openings (chrysotile)	39	
Grid opening area	0.0130	mm2
Volume (L) or Area (cm2)	1619	L
Sensitivity (amphibole)	4.69E-04	s/cc
Sensitivity (chrysotile)	4.69E-04	s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024	39	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00053_270801086-0005_ISO_11-05-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00053
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1619.0
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0005
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	11/5/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, D
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
8	GOs required to reach target sensitivity
8	Maximum # of GOs
50	Maximum # of Structure
8	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00053_270801086-0005_ISO_11-05-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00053	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801086-0005	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/11/2008	QA date:	11/28/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	I2	ND														
1	I4	ND														
1	I6	ND														
1	I8	ND														
1	I10	ND														
1	H1	ND														
1	H3	ND														
1	H5	ND														
1	H7	ND														
1	H9	ND														
1	G2	ND														
1	G4	ND														
1	G6	ND														
1	G8	ND														
1	G10	ND														
1	F1	ND														
1	F3	ND														
1	F5	ND														
1	F7	ND														
1	F9	ND														
1	E2	ND														
1	E4	ND														
1	E6	ND														
1	E8	ND														
1	E10	ND														
2	H1	ND														
2	H3	ND														
2	H5	ND														
2	H7	ND														
2	H9	ND														
2	G2	ND														
2	G4	ND														
2	G6	ND														
2	G8	ND														
2	G10	ND														

2	F1	ND														
2	F3	ND														
2	F5	ND														
2	F7	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00054
QA Type	Not QA
Lab Sample Number	270801086-0006
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	39
Number of Grid Openings (chrysotile)	39
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	1634 L
Sensitivity (amphibole)	4.65E-04 s/cc
Sensitivity (chrysotile)	4.65E-04 s/cc

Recording Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping Rules:

Target S	Max GOs	Max N
0.0024	39	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00054_270801086-0006_ISO_11-05-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00054
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1634.0
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0006
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	11/5/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, E
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
8	GOs required to reach target sensitivity
8	Maximum # of GOs
50	Maximum # of Structure
8	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00054_270801086-0006_ISO_11-05-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00054	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801086-0006	Count Rule	10312	QA Type	Not QA
Data Entry by:	L. Ramowski	QA by:	K. Lusher		
Data Entry date:	11/11/2008	QA date:	11/28/2008		

Maximum # of Grid Openings Reached-Complete current GO then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	I2	ND														
1	I4	ND														
1	I6	ND														
1	I8	ND														
1	I10	ND														
1	H1	ND														
1	H3	ND														
1	H5	ND														
1	H7	ND														
1	H9	ND														
1	G2	ND														
1	G4	ND														
1	G6	ND														
1	G8	ND														
1	G10	ND														
1	F1	ND														
1	F3	ND														
1	F5	ND														
1	F7	ND														
1	F9	ND														
1	D2	ND														
1	D4	ND														
1	D6	ND														
1	D8	ND														
1	D10	ND														
2	J1	ND														
2	J3	ND														
2	J5	ND														
2	J7	ND														
2	J9	ND														
2	I2	ND														
2	I4	ND														
2	I6	ND														
2	I8	ND														
2	I10	ND														

2	G1	ND															
2	G3	ND															
2	G5	ND															
2	G7	ND															

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID		PARAMETERS	
Status	Analyzed	Effective filter area	385.0 mm2
EPA Sample Number	BA-00055	Indirect factor	1.00E+00
QA Type	Not QA	Number of Grid Openings (amphibole)	39
Lab Sample Number	270801086-0007	Number of Grid Openings (chrysotile)	39
Sample Type	Air	Grid opening area	0.0130 mm2
Category	Field	Volume (L) or Area (cm2)	1634 L
Prep	Direct	Sensitivity (amphibole)	4.65E-04 s/cc
Counting Rules	10312	Sensitivity (chrysotile)	4.65E-04 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024	8	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00055_270801086-0007_ISO_11-05-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00055
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1634
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0007
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	11/5/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, F
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
8	GOs required to reach target sensitivity
8	Maximum # of GOs
50	Maximum # of Structure
8	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00055_270801086-0007_ISO_11-05-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00055	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801086-0007	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/11/2008	QA date:	11/28/2008

Maximum # of Grid Openings Reached-Complete current GO then stop:

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO	error check	GO name check
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.		
1	G1	ND															OK	
1	G3	ND															OK	
1	G5	ND															OK	
1	G7	ND															OK	
1	G9	ND															OK	
1	F2	ND															OK	
1	F4	ND															OK	
1	F6	ND															OK	
1	F8	ND															OK	
1	F10	ND															OK	
1	E1	ND															OK	
1	E3	ND															OK	
1	E5	ND															OK	
1	E7	ND															OK	
1	E9	ND															OK	
1	D2	ND															OK	
1	D4	ND															OK	
1	D6	ND															OK	
1	D8	ND															OK	
1	D10	ND															OK	
1	C1	ND															OK	
1	C3	ND															OK	
1	C5	ND															OK	
1	C7	ND															OK	
1	C9	ND															OK	
2	J2	ND															OK	
2	J4	ND															OK	
2	J6	ND															OK	
2	J8	ND															OK	
2	J10	ND															OK	
2	H2	ND															OK	
2	H4	ND															OK	
2	H6	ND															OK	
2	H8	ND															OK	
2	H10	ND															OK	
2	F2	ND															OK	
2	F4	ND															OK	
2	F6	ND															OK	
2	F8	ND															OK	

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID	
Status	Damaged
EPA Sample Number	BA-00063
QA Type	Not QA
Lab Sample Number	270801086-0010
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS		
Effective filter area	385.0	mm2
Indirect factor	1.00E+00	
Number of Grid Openings (amphibole)	0	
Number of Grid Openings (chrysotile)	0	
Grid opening area	0.0130	mm2
Volume (L) or Area (cm2)	1170	L
Sensitivity (amphibole)		s/cc
Sensitivity (chrysotile)		s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00063_270801086-0010_ISO_01-00-00_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Damaged

EPA Sample Number:	BA-00063
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1170.0
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0010
Number of grids prepared	
Prepared by	
Preparation date	
EPA COC Number	L14651

Analyzed by	
Analysis date	
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

COMMENTS

damaged filter

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
11	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
11	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00063_270801086-0010_ISO_01-00-00_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00063	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801086-0010	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/11/2008	QA date:	11/28/2008

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID		PARAMETERS	
Status	Analyzed	Effective filter area	385.0 mm2
EPA Sample Number	BA-00064	Indirect factor	1.00E+00
QA Type	Not QA	Number of Grid Openings (amphibole)	39
Lab Sample Number	270801086-0011	Number of Grid Openings (chrysotile)	39
Sample Type	Air	Grid opening area	0.0130 mm2
Category	Field	Volume (L) or Area (cm2)	1170 L
Prep	Direct	Sensitivity (amphibole)	6.49E-04 s/cc
Counting Rules	10312	Sensitivity (chrysotile)	6.49E-04 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024	11	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00064_270801086-0011_ISO_11-05-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00064
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1170
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0011
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	11/5/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, G
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
11	GOs required to reach target sensitivity
11	Maximum # of GOs
50	Maximum # of Structure
11	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00064_270801086-0011_ISO_11-05-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00064	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801086-0011	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/12/2008	QA date:	11/28/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J1	ND														
1	J3	ND														
1	J5	ND														
1	J7	ND														
1	J9	ND														
1	I2	ND														
1	I4	ND														
1	I6	ND														
1	I8	ND														
1	I10	ND														
1	H1	ND														
1	H3	ND														
1	H5	ND														
1	H7	ND														
1	H9	ND														
1	G2	ND														
1	G4	ND														
1	G6	ND														
1	G8	ND														
1	G10	ND														
1	F1	ND														
1	F3	ND														
1	F5	ND														
1	F7	ND														
1	F9	ND														
2	J2	ND														
2	J4	ND														
2	J6	ND														
2	J8	ND														
2	J10	ND														
2	I1	ND														
2	I3	ND														
2	I5	ND														
2	I7	ND														
2	I9	ND														

2	H2	ND															
2	H4	ND															
2	H6	ND															
2	H8	ND															

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID	
Status	Analyzed
EPA Sample Number	BA-00065
QA Type	Not QA
Lab Sample Number	270801086-0012
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS		
Effective filter area	385.0	mm2
Indirect factor	1.00E+00	
Number of Grid Openings (amphibole)	39	
Number of Grid Openings (chrysotile)	39	
Grid opening area	0.0130	mm2
Volume (L) or Area (cm2)	1178	L
Sensitivity (amphibole)	6.45E-04	s/cc
Sensitivity (chrysotile)	6.45E-04	s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024	11	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00065_270801086-0012_ISO_11-05-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00065
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1178
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0012
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	11/5/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, H
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
11	GOs required to reach target sensitivity
11	Maximum # of GOs
50	Maximum # of Structure
11	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00065_270801086-0012_ISO_11-05-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00065	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801086-0012	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/12/2008	QA date:	11/28/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
1	J4	ND														
1	J6	ND														
1	J8	ND														
1	J10	ND														
1	I1	ND														
1	I3	ND														
1	I5	ND														
1	I7	ND														
1	I9	ND														
1	H2	ND														
1	H4	ND														
1	H6	ND														
1	H8	ND														
1	H10	ND														
1	G1	ND														
1	G3	ND														
1	G5	ND														
1	G7	ND														
1	G9	ND														
1	F2	ND														
1	F4	ND														
1	F6	ND														
1	F8	ND														
1	F10	ND														
2	J1	ND														
2	J3	ND														
2	J5	ND														
2	J7	ND														
2	J9	ND														
2	G1	ND														
2	G3	ND														
2	G5	ND														
2	G7	ND														
2	G9	ND														

2	F2	ND															
2	F4	ND															
2	F6	ND															
2	F8	ND															

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00066
QA Type	Not QA
Lab Sample Number	270801086-0013
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	39
Number of Grid Openings (chrysotile)	39
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	1170 L
Sensitivity (amphibole)	6.49E-04 s/cc
Sensitivity (chrysotile)	6.49E-04 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024	11	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00066_270801086-0013_ISO_11-05-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00066
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall coritainer area (cm2)	1170
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0013
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	11/5/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, I
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
11	GOs required to reach target sensitivity
11	Maximum # of GOs
50	Maximum # of Structure
11	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00066_270801086-0013_ISO_11-05-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00066	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801086-0013	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/12/2008	QA date:	11/28/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	I1	ND														
1	I3	ND														
1	I5	ND														
1	I7	ND														
1	I9	ND														
1	G1	ND														
1	G3	ND														
1	G5	ND														
1	G7	ND														
1	G9	ND														
1	F2	ND														
1	F4	ND														
1	F6	ND														
1	F8	ND														
1	F10	ND														
1	E1	ND														
1	E3	ND														
1	E5	ND														
1	E7	ND														
1	E9	ND														
1	D2	ND														
1	D4	ND														
1	D6	ND														
1	D8	ND														
1	D10	ND														
2	J2	ND														
2	J4	ND														
2	J6	ND														
2	J8	ND														
2	J10	ND														
2	I1	ND														
2	I3	ND														
2	I5	ND														
2	I7	ND														
2	I9	ND														

2	H2	ND															
2	H4	ND															
2	H6	ND															
2	H8	ND															

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00067
QA Type	Not QA
Lab Sample Number	270801086-0014
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	39
Number of Grid Openings (chrysotile)	39
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	1178 L
Sensitivity (amphibole)	6.45E-04 s/cc
Sensitivity (chrysotile)	6.45E-04 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024	11	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00067_270801086-0014_ISO_11-05-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27	EPA Sample Number:	BA-00067	Analyzed by	R. Pescador
Instrument	JEOL 100 CX (30)	Sample Type	Air	Analysis date	11/5/2008
Voltage (KV)	100 kV	Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1178	Prep	Direct
Magnification	19,000 X	Date received by lab	10/20/2008	If sample type = air, is there loose material or debris in the cowl?	No
Grid opening area (mm2)	0.0130	Lab Job Number:	270801086	Counting rules	ISO (Air or Dust)
Scale: 1L =	1.000	Lab Sample Number:	270801086-0014	Grid storage location	2708-EMR-96, J
Scale: 1D =	1.000	Number of grids prepared	5	Archive filter(s) storage location	Westmont
Primary filter area (mm2)	385.0	Prepared by	K. Barnes	[redacted]	
Secondary Filter Area (mm2)	360.0	Preparation date	10/20/2008	F- factor	1
Category	Field	EPA COC Number	L14651	QA Type	Not QA
Filter Status	Analyzed				

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
11	GOs required to reach target sensitivity
11	Maximum # of GOs
50	Maximum # of Structure
11	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00067_270801086-0014_ISO_11-05-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00067	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801086-0014	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/12/2008	QA date:	11/28/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	H1	ND														
1	H3	ND														
1	H5	ND														
1	H7	ND														
1	H9	ND														
1	G2	ND														
1	G4	ND														
1	G6	ND														
1	G8	ND														
1	G10	ND														
1	F1	ND														
1	F3	ND														
1	F5	ND														
1	F7	ND														
1	F9	ND														
1	E2	ND														
1	E4	ND														
1	E6	ND														
1	E8	ND														
1	E10	ND														
1	D1	ND														
1	D3	ND														
1	D5	ND														
1	D7	ND														
1	D9	ND														
2	I1	ND														
2	I3	ND														
2	I5	ND														
2	I7	ND														
2	I9	ND														
2	H2	ND														
2	H4	ND														
2	H6	ND														
2	H8	ND														
2	H10	ND														

2	G1	ND														
2	G3	ND														
2	G5	ND														
2	G7	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID		PARAMETERS	
Status	Analyzed	Effective filter area	385.0 mm2
EPA Sample Number	BA-00068	Indirect factor	1.00E+00
QA Type	Not QA	Number of Grid Openings (amphibole)	39
Lab Sample Number	270801086-0015	Number of Grid Openings (chrysotile)	39
Sample Type	Air	Grid opening area	0.0130 mm2
Category	Field	Volume (L) or Area (cm2)	1178 L
Prep	Direct	Sensitivity (amphibole)	6.45E-04 s/cc
Counting Rules	10312	Sensitivity (chrysotile)	6.45E-04 s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024	11	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00068_270801086-0015_ISO_11-05-08_D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00068
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1178
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0015
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	11/5/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, K
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Not QA

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
11	GOs required to reach target sensitivity
11	Maximum # of GOs
50	Maximum # of Structure
11	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00068_270801086-0015_ISO_11-05-08_D.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00068	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801086-0015	Count Rule	10312	QA Type	Not QA

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/12/2008	QA date:	11/28/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
1	J4	ND														
1	J6	ND														
1	J8	ND														
1	J10	ND														
1	H2	ND														
1	H4	ND														
1	H6	ND														
1	H8	ND														
1	H10	ND														
1	G1	ND														
1	G3	ND														
1	G5	ND														
1	G7	ND														
1	G9	ND														
1	F2	ND														
1	F4	ND														
1	F6	ND														
1	F8	ND														
1	F10	ND														
1	E1	ND														
1	E3	ND														
1	E5	ND														
1	E7	ND														
1	E9	ND														
2	J2	ND														
2	J4	ND														
2	J6	ND														
2	J8	ND														
2	J10	ND														
2	I1	ND														
2	I3	ND														
2	I5	ND														
2	I7	ND														
2	I9	ND														

2	H2	ND															
2	H4	ND															
2	H6	ND															
2	H8	ND															

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	0
QA Type	LB
Lab Sample Number	270801086
Sample Type	Air
Category	Blank
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0 mm2
Indirect factor	1.00E+00
Number of Grid Openings (amphibole)	10
Number of Grid Openings (chrysotile)	10
Grid opening area	0.0130 mm2
Volume (L) or Area (cm2)	0 L
Sensitivity (amphibole)	Blank s/cc
Sensitivity (chrysotile)	Blank s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
		10	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a					
b					
c					
d					
e					
f					
Total					<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: 270801086_ISO_11-05-08_DLB.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Blank
Filter Status	Analyzed

EPA Sample Number:	
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	
Date received by lab	
Lab Job Number:	270801086
Lab Sample Number:	270801086
Number of grids prepared	3
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	11/5/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, L
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Lab Blank

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

	Target Sensitivity
10	GOs required to reach target sensitivity
10	Maximum # of GOs
50	Maximum # of Structure
10	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

_270801086_ISO_11-05-08_DLB.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	0	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801086	Count Rule	10312	QA Type	LB

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	11/12/2008	QA date:	11/28/2008

Maximum # of Grid Openings Reached-Complete current GO then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	Chrys.
1	F1	ND														
1	F3	ND														
1	F5	ND														
1	F7	ND														
1	F9	ND														
2	E1	ND														
2	E3	ND														
2	E5	ND														
2	E7	ND														
2	E9	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00068
QA Type	RS
Lab Sample Number	270801086-0015
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0	mm2
Indirect factor	1.00E+00	
Number of Grid Openings (amphibole)	10	
Number of Grid Openings (chrysotile)	10	
Grid opening area	0.0130	mm2
Volume (L) or Area (cm2)	1178	L
Sensitivity (amphibole)	2.51E-03	s/cc
Sensitivity (chrysotile)	2.51E-03	s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024	11	50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00068_270801086-0015_ISO_12-01-08_DRS.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00068
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1178
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0015
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	12/1/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-96, K
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Recount Same

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
11	GOs required to reach target sensitivity
11	Maximum # of GOs
50	Maximum # of Structure
11	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00068_270801086-0015_ISO_12-01-08_DRS.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00068	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801086-0015	Count Rule	10312	QA Type	RS

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	12/2/2008	QA date:	12/3/2008

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
1	J4	ND														
1	J6	ND														
1	J8	ND														
1	J10	ND														
2	J2	ND														
2	J4	ND														
2	J6	ND														
2	J8	ND														
2	J10	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status	Analyzed
EPA Sample Number	BA-00067
QA Type	RP
Lab Sample Number	270801086-0014
Sample Type	Air
Category	Field
Prep	Direct
Counting Rules	10312

PARAMETERS

Effective filter area	385.0	mm2
Indirect factor	1.00E+00	
Number of Grid Openings (amphibole)	11	
Number of Grid Openings (chrysotile)	11	
Grid opening area	0.0130	mm2
Volume (L) or Area (cm2)	1178	L
Sensitivity (amphibole)	2.29E-03	s/cc
Sensitivity (chrysotile)	2.29E-03	s/cc

Recording Rules:	Min. AR	Min length (um)	Min width (um)
	≥ 3:1	0.5	none

Stopping Rules:	Target S	Max GOs	Max N
	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
c	0	0	0		
d	0	0	0		
e	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		
Grand total	0	OK			

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	<DL	<DL	<DL		
b	<DL	<DL	<DL		
c	<DL	<DL	<DL		
d	<DL	<DL	<DL		
e	<DL	<DL	<DL		
f	<DL	<DL	<DL		
Total	<DL	<DL	<DL	<DL	<DL

Type	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	c		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: BA-00067_270801086-0014_ISO_12-01-08_DRP.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed

EPA Sample Number:	BA-00067
Sample Type	Air
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1178
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0014
Number of grids prepared	5
Prepared by	E.Wyatt-Pescador
Preparation date	10/20/2008
EPA COC Number	L14651

Analyzed by	R. Pescador
Analysis date	12/1/2008
Prep	Direct
If sample type = air, is there loose material or debris in the cowl?	No
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-108, A
Archive filter(s) storage location	Westmont
[redacted]	
F- factor	1
QA Type	Repreparation

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

0.0024	Target Sensitivity
11	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure
11	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

[redacted] Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*

[redacted] First resuspension volume or rinsate volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

[redacted] Second resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

[redacted] Third resuspension volume (mL)

[redacted] Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

[redacted] Fraction of secondary filter used for ashing

[redacted] F-factor

Grid opening traverse direction:	V

COMMENTS

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

BA-00067_270801086-0014_ISO_12-01-08_DRP.xls

ERROR CHECK
OK - No errors found

EPA SAMPLE ID:	BA-00067	Sample Type	Air	Prep	Direct
LAB SAMPLE ID:	270801086-0014	Count Rule	10312	QA Type	RP

Data Entry by:	L. Ramowski	QA by:	K. Lusher
Data Entry date:	12/2/2008	QA date:	12/3/2008

Target Sensitivity Reached-Complete current GO, then stop.

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)				Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	H5	ND														
1	H7	ND														
1	H9	ND														
1	C8	ND														
1	C10	ND														
1	B9	ND														
2	I1	ND														
2	I3	ND														
2	H2	ND														
2	G1	ND														
2	F2	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	3100
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00044
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1915
Date received by lab	10/20/08
Lab Job Number:	270801086
Lab Sample Number:	270801086-0001
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/4/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, A
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:

Minimum Aspect Ratio (circle one): none ≥ 3:1 ≥ 5:1

Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:

Target Sensitivity:	0.0001
Max # of GOs:	39
Target # of Structures:	50

KC 12-12-

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J1	ND														
	J3	ND														
	J5	ND														
	J7	ND														
	J9	ND														
	I2	ND														
	I4	ND														
	I6	ND														
	I8	ND														
	I10	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00044	QA TYPE		LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0001	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-96, A

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	H1	ND														
	H3	ND														
	H5	ND														
	H7	ND														
	H9	ND														
	G2	ND														
	G4	ND														
	G6	ND														
	G8	ND														
	G10	ND														
	F1	ND														
	F3	ND														
	F5	ND														
	F7	ND														
	F9	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00044	QA TYPE		LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0001	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-96, A

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	I2															
	I4															
	I6															
	I8															
	I10															
	H1															
	H3															
	H5															
	H7															
	H9															
	G2															
	G4															
	G6															
	G8															
		[illegible] 1/4/08														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00045
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1915
Date received by lab	10/20/08
Lab Job Number:	270801086
Lab Sample Number:	270801086-0002
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/5/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, B
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:

Minimum Aspect Ratio (circle one):

none ≥ 3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

K.L 0.0024 12-17-08

Target Sensitivity: 0.0001

Max # of GOs: 39

Target # of Structures: 50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
	H10	ND														

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00045	QA TYPE		LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0002	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-96, B

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
	G9	ND														
	F2	ND														
	F4	ND														
	F6	ND														
	F8	ND														
	F10	ND														
	E1	ND														
	E3	ND														
	E5	ND														
	E7	ND														
	E9	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00045	QA TYPE		LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0002	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-96, B

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
	H10	ND														
	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
		11/5/08														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00052
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1626
Date received by lab	10/20/08
Lab Job Number:	270801086
Lab Sample Number:	270801086-0004
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/5/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, C
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:

Minimum Aspect Ratio (circle one):

none ≥ 3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity: ~~0.0001~~ 0.0024

Max # of GOs: 39

Target # of Structures: 50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
	G9	ND														
	F2	ND														
	F4	ND														
	F6	ND														
	F8	ND														
	F10	ND														

F-factor Calculation:

Indirect Prep Inputs

- Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
- First resuspension volume or rinsate volume (mL)
- Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

- Second resuspension volume (mL)
- Volume applied to secondary filter (mL) or used for serial dilution
- Third resuspension volume (mL)
- Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

- Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00052	QA TYPE	Not QA	LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0004	SAMPLE TYPE	A			GRID STORAGE LOC.	2708-EMR-96, C

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	E1	ND														
	E3	ND														
	E5	ND														
	E7	ND														
	E9	ND														
	D2	ND														
	D4	ND														
	D6	ND														
	D8	ND														
	D10	ND														
	C1	ND														
	C3	ND														
	C5	ND														
	C7	ND														
	C9	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00052	QA TYPE	Not QA	LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0004	SAMPLE TYPE	A			GRID STORAGE LOC.	2708-EMR-96, C

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														
	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
	G9	ND														
	F2	ND														
	F4	ND														
	F6	ND														
	F8	ND														
		[illegible] 4/4/08														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00053
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1619
Date received by lab	10/20/08
Lab Job Number:	270801086
Lab Sample Number:	270801086-0005
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/5/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, D
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:

Minimum Aspect Ratio (circle one): none (≥ 3:1) ≥ 5:1

Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules: KL 12-17-08

Target Sensitivity:	0.0024 ~~0.0004~~
Max # of GOs:	39
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	I2	ND														
	I4	ND														
	I6	ND														
	I8	ND														
	I10	ND														
	H1	ND														
	H3	ND														
	H5	ND														
	H7	ND														
	H9	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one): H Horizontal (V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No

If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00053	QA TYPE		LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0005	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-96, D

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	G2	ND														
	G4	ND														
	G6	ND														
	G8	ND														
	G10	ND														
	F1	ND														
	F3	ND														
	F5	ND														
	F7	ND														
	F9	ND														
	E2	ND														
	E4	ND														
	E6	ND														
	E8	ND														
	E10	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00053	QA TYPE		LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0005	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-96, D

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	H1	ND														
	H3	ND														
	H5	ND														
	H7	ND														
	H9	ND														
	G2	ND														
	G4	ND														
	G6	ND														
	G8	ND														
	G10	ND														
	F1	ND														
	F3	ND														
	F5	ND														
	F7	ND														
		[illegible] 4/8/01														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00054
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1634
Date received by lab	10/20/08
Lab Job Number:	270801086
Lab Sample Number:	270801086-0006
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/5/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, E
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:		
Minimum Aspect Ratio (circle one):		
none	(≥ 3:1)	≥ 5:1
Minimum Length (um):	0.5	
Minimum Width (um):	None	

Stopping Rules:	
Target Sensitivity:	0.0024 ~~0.0001~~ KT 12-12-08
Max # of GOs:	39
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	I2	ND														
	I4	ND														
	I6	ND														
	I8	ND														
	I10	ND														
	H1	ND														
	H3	ND														
	H5	ND														
	H7	ND														
	H9	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00054	QA TYPE		LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0006	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-96, E

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	G2	ND														
	G4	ND														
	G6	ND														
	G8	ND														
	G10	ND														
	F1	ND														
	F3	ND														
	F5	ND														
	F7	ND														
	F9	ND														
	D2	ND														
	D4	ND														
	D6	ND														
	D8	ND														
	D10	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00054	QA TYPE		LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0006	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-96, E

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	J1	ND														
	J3	ND														
	J5	ND														
	J7	ND														
	J9	ND														
	I2	ND														
	I4	ND														
	I6	ND														
	I8	ND														
	I10	ND														
	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
		[illegible]														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00055
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1634
Date received by lab	10/20/08
Lab Job Number:	270801086
Lab Sample Number:	270801086-0007
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/5/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, F
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:		
Minimum Aspect Ratio (circle one):	none	≥ 3:1 (circled)	≥ 5:1
Minimum Length (um):	0.5	
Minimum Width (um):	None	

KL 12-12-08

Stopping Rules:	
Target Sensitivity:	0.0024 ~~0.0001~~
Max # of GOs:	39
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
	G9	ND														
	F2	ND														
	F4	ND														
	F6	ND														
	F8	ND														
	F10	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00055	QA TYPE		LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0007	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-96, F

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	E1	ND														
	E3	ND														
	E5	ND														
	E7	ND														
	E9	ND														
	D2	ND														
	D4	ND														
	D6	ND														
	D8	ND														
	D10	ND														
	C1	ND														
	C3	ND														
	C5	ND														
	C7	ND														
	C9	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00055	QA TYPE		LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0007	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-96, F

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	J2	ND														
	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
	H10	ND														
	F2	ND														
	F4	ND														
	F6	ND														
	F8	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00063
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1170
Date received by lab	10/20/08
Lab Job Number:	270801086
Lab Sample Number:	270801086-0010
Number of grids prepared	
Prepared by	
Preparation date	
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	
Analysis date	
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:

Minimum Aspect Ratio (circle one):

none ≥ 3:1 ≥ 5:1

Minimum Length (um): 0.5

Minimum Width (um): None

Stopping Rules:

Target Sensitivity: ~~0.0001~~ 0.0024 KL 1-2-2-d

Max # of GOs: 39

Target # of Structures: 50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
			DAMAGED				FILTER									

F-factor Calculation:

Indirect Prep Inputs

- Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
- First resuspension volume or rinsate volume (mL)
- Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

- Second resuspension volume (mL)
- Volume applied to secondary filter (mL) or used for serial dilution
- Third resuspension volume (mL)
- Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

- Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No

If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00064
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1170
Date received by lab	10/20/08
Lab Job Number:	270801086
Lab Sample Number:	270801086-0011
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/5/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, G
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:	
Minimum Aspect Ratio (circle one):	
none (≥ 3:1) ≥ 5:1	
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	0.0024 ~~0.0001~~
Max # of GOs:	39
Target # of Structures:	50

KL 12-17-08

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J1	ND														
	J3	ND														
	J5	ND														
	J7	ND														
	J9	ND														
	I2	ND														
	I4	ND														
	I6	ND														
	I8	ND														
	I10	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00064	QA TYPE	Not QA	LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0011	SAMPLE TYPE	A			GRID STORAGE LOC.	2708-EMR-96, G

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	H1	ND														
	H3	ND														
	H5	ND														
	H7	ND														
	H9	ND														
	G2	ND														
	G4	ND														
	G6	ND														
	G8	ND														
	G10	ND														
	F1	ND														
	F3	ND														
	F5	ND														
	F7	ND														
	F9	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00064	QA TYPE		LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0011	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-96, G

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	J2	ND														
	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														
	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
		[illegible]														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00065
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1178
Date received by lab	10/20/08
Lab Job Number:	270801086
Lab Sample Number:	270801086-0012
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/5/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, H
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:	
Minimum Aspect Ratio (circle one):	none / ≥ 3:1 / ≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

12/2/08 LL

Stopping Rules:	
Target Sensitivity:	0.0024 ~~0.0001~~
Max # of GOs:	39
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														
	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00065	QA TYPE	Not QA	LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0012	SAMPLE TYPE	A			GRID STORAGE LOC.	2708-EMR-96, H

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
	H10	ND														
	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
	G9	ND														
	F2	ND														
	F4	ND														
	F6	ND														
	F8	ND														
	F10	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00065	QA TYPE	Not QA	LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0012	SAMPLE TYPE	A			GRID STORAGE LOC.	2708-EMR-96, H

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	J1	ND														
	J3	ND														
	J5	ND														
	J7	ND														
	J9	ND														
	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
	G9	ND														
	F2	ND														
	F4	ND														
	F6	ND														
	F8	ND														
		esy 11/7/08														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00066
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1170
Date received by lab	10/20/08
Lab Job Number:	270801086
Lab Sample Number:	270801086-0013
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/5/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, I
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:

Minimum Aspect Ratio (circle one):		
none	(≥ 3:1)	≥ 5:1
Minimum Length (um):		0.5
Minimum Width (um):		None

Stopping Rules:

Target Sensitivity:	0.0024 KL 12-12-08 ~~0.0001~~
Max # of GOs:	39
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														
	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
	G9	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00066	QA TYPE		LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0013	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-96, I

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	F2	ND														
	F4	ND														
	F6	ND														
	F8	ND														
	F10	ND														
	E1	ND														
	E3	ND														
	E5	ND														
	E7	ND														
	E9	ND														
	D2	ND														
	D4	ND														
	D6	ND														
	D8	ND														
	D10	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00066	QA TYPE	Not QA	LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0013	SAMPLE TYPE	A			GRID STORAGE LOC.	2708-EMR-96, I

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	J2	ND														
	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														
	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
		RSH 11/5/08														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00067
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1178
Date received by lab	10/20/08
Lab Job Number:	270801086
Lab Sample Number:	270801086-0014
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/5/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, J
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:	
Minimum Aspect Ratio (circle one):	
none ≥ 3:1	≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	0.0624 ~~0.0001~~
Max # of GOs:	39
Target # of Structures:	50

KL 12-17-08

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	H1	ND														
	H3	ND														
	H5	ND														
	H7	ND														
	H9	ND														
	G2	ND														
	G4	ND														
	G6	ND														
	G8	ND														
	G10	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00067	QA TYPE		LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0014	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-96, J

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	F1	ND														
	F3	ND														
	F5	ND														
	F7	ND														
	F9	ND														
	E2	ND														
	E4	ND														
	E6	ND														
	E8	ND														
	E10	ND														
	D1	ND														
	D3	ND														
	D5	ND														
	D7	ND														
	D9	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00067	QA TYPE		LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0014	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-96, J

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
	H10	ND														
	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
		[illegible] 1/15/08														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00068
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1178
Date received by lab	10/20/08
Lab Job Number:	270801086
Lab Sample Number:	270801086-0015
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/5/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, K
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right—>

Recording Rules:

Minimum Aspect Ratio (circle one):

none (≥ 3:1) ≥ 5:1

Minimum Length (um):	0.5
Minimum Width (um):	None

12-12-08

Stopping Rules: KL

Target Sensitivity:	0.0024 ~~0.0001~~
Max # of GOs:	39
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														
	H10	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00068	QA TYPE		LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0015	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-96, K

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	G1	ND														
	G3	ND														
	G5	ND														
	G7	ND														
	G9	ND														
	F2	ND														
	F4	ND														
	F6	ND														
	F8	ND														
	F10	ND														
	E1	ND														
	E3	ND														
	E5	ND														
	E7	ND														
	E9	ND														

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00068	QA TYPE		LAB JOB NUMBER	270801086
LAB SAMPLE NO.	270801086-0015	SAMPLE TYPE	A		Not QA	GRID STORAGE LOC.	2708-EMR-96, K

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
Z	J2	ND														
	J4	ND														
	J6	ND														
	J8	ND														
	J10	ND														
	I1	ND														
	I3	ND														
	I5	ND														
	I7	ND														
	I9	ND														
	H2	ND														
	H4	ND														
	H6	ND														
	H8	ND														

LB

BNSF 2008 Libby Site Investigation v32h
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Blank
Primary filter pore size (um)	0.8

EPA Sample Number:	
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	
Date received by lab	
Lab Job Number:	270801086
Lab Sample Number:	270801086
Number of grids prepared	3
Prepared by	K. Barnes
Preparation date	10/20/08
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	11/5/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, L
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Lab Blank

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:

Minimum Aspect Ratio (circle one):	none (≥ 3:1) ≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:

Target Sensitivity:	
Max # of GOs:	10
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	F1	ND														
	F3	ND														
	F5	ND														
	F7	ND														
	F9	ND														
2	E1	ND														
	E3	ND														
	E5	ND														
	E7	ND														
	E9	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *(For dust and dustfall, enter 1.0)*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

RS

BNSF 2008 Libby Site Investigation v33
TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (27-2)
Voltage (KV)	100
Magnification	19,000X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	366
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	BA-00068
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1178
Date received by lab	10/20/2008
Lab Job Number:	270801086
Lab Sample Number:	270801086-0015
Number of grids prepared	5
Prepared by	K. Barnes
Preparation date	10/20/2008
EPA COC Number:	L14651
Secondary filter pore size (um)	0.2

Analyzed by	R. Pescador
Analysis date	12/1/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-96, K
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Recount Same

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right——>

Recording Rules:	
Minimum Aspect Ratio (circle one):	
none (≥ 3:1)	≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	none

Stopping Rules:	
Target Sensitivity:	0.00024
Max # of GOs:	11
Target # of Structures:	50

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class (see below)				Sketch/ Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
1	J2	ND														
	J4	ND														
	J6	ND														
	J8	ND														
↓	J10	ND														
2	J2	ND														
	J4	ND														
	J6	ND														
	J8	ND														
↓	J10	ND														

F-factor Calculation:

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or ashing *[For dust and dustfall, enter 1.0]*
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

	Fraction of secondary filter used for ashing

LA = Libby-type amphibole OA = Other (non-Libby type) amphibole C = Chrysotile NAM = Non-asbestos material

Grid opening traverse direction (circle one):
H Horizontal
(V) Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No
If No, explain:

BNSF 2008 Libby Site Investigation v33
TEM Asbestos Structure Count

LAB NAME	EMSL27	EPA SAMPLE NO.	BA-00067	QA TYPE	Re-prep.
LAB SAMPLE NO.	270801086-0014	SAMPLE TYPE	A	LAB JOB NUMBER	270801086
				GRID STORAGE LOC.	2708-EMR-108, A

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				Sketch/Comments	1 = yes, blank = no			Fract. GO Chrys.
			Primary	Total	Length	Width		LA	OA	C	NAM		Sketch	Photo	EDS	
2	F2	ND														

[illegible] 2/10/08

Chain of Custody Record

Libby Asbestos Investigation

No. L14651

From: CDM
60 Port Blvd, Ste. 200
Libby, MT 59923

U.S. Environmental Protection Agency, Region VIII
1595 Wynkoop Street
Denver, CO 80202-1129

Send to: EMSL-Mobile Lab
107 W 4th St
Libby, MT 59923

via: ☑ hand delivery ☐ shipped

Date Shipped: 10/20/2008
Carrier Name: Hand-delivered
Airbill: NA

270801086

Sample Placed in Cooler/Bag	Index ID	Suffix ID	Sample Date	Sample Media (S=Soil; W=Water; D=Dust; A=Air; B=Bulk Insulation)	Volume (L) or Area (cm2)	Filter Pore Size (um)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
☑	BA-00068		9/25/2008	A	1178 L	0.8	21 Day	TEM-ISO10312 (ISO 10312:1995 (E))	OU6RR0908-C	☑

Total Number of Samples 15

END OF SUBMITTAL

Additional Comments:

Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
P Kari CDM	10.20.08 1221	E Fabrik J Wyatt-Resander/EMSL	10/20/08/1221	Ok & accept
E Fabrik J Wyatt-Resander/EMSL	11/24/08/1045	L Ramowski EMSL	12/4/08 9:04	Complete

APPENDIX H

SOIL SAMPLE LABORATORY REPORTS

JOMAY WYATT-PESCADOR
406-293-9066
EMSL ANALYTICAL, INC.
107 WEST 4TH STREET,
LIBBY MT 59923

25 LBS

1 OF 1

SHIP TO:
CHARLES LACERRA
856-858-4800 1253
EMSL ANALYTICAL, INC.
107 HADDON AVENUE
WESTMONT NJ 08108-2711

NJ 081 9-06

UPS GROUND

TRACKING #: 1Z Y84 048 03 9389 9115

BILLING: P/P

TM

EMSL
107 HAD
HADDON T
P: PINK
72A
1ZY84048039

RECEIVED
DEC - 4 2008
9:04 AM

EMSL Analytical, Inc.
107 Haddon Avenue
Westmont, New Jersey 08108
Phone: (856) 858-4800
Fax: (856) 858-9551

LETTER OF TRANSMITTAL

To:	Scott Carney	Date:	July 3 ,2009
	EMR, Inc.	From:	Charles E. LaCerra
	11 East Superior Street Suite 260	Re:	Libby, MT BNSF Work Mobile Lab Analytical Reports
	Duluth, MN 55802		See Below
	Phone: 763-277-5200		

We are sending you: **× Attached** **___ Under separate cover via _____**

- ☐ Solicitation
- ☐ Copy of Letter
- ☐ Invoice #'s See Below
- ☐ Subcontract
- ☐ As noted
- ☐ Other
- ☐ Laboratory Samples
- ☒ Analytical Reports

These are transmitted as indicated below:

- ☐ Execute___Original(s)
- ☐ Review & Comment
- ☐ For Approval
- ☐ Return ____Orginal(s)
- ☐ As Requested
- ☐ Respond as instructed
- ☒ For Your Information/File
- ☐ Other

Remarks:

Enclosed please find one (1) copy of the following mobile lab analytical reports for analysis for your review and use for the above referenced project:

270900047

Please feel free to contact me with any questions or if you require additional information

Copy to: _____ Signed: Charles LaCerra

STANDARD LABORATORY DATA PACKAGE CHECKLIST

Instructions: All applicable data package deliverables are included in the following nine pages. Using the print option will print out all forms necessary and in the appropriate order. Please provide information as directed.

Analytical Test Report
Bulk Asbestos Analysis by Polarized Light Microscopy (PLM)

Prepared For:	EMR, Inc. 11 East Superior Street
City/State:	Duluth, MN 55802
Laboratory Name:	EMSL Analytical, Inc.
City/State:	Libby, Montana
Laboratory Job No.:	270900047
Method Utilized (SOP and Rev. No.):	SRC-Libby-03, Rev. 1
Circle One:	(Visual Estimation) Point Counting Approach
Report Reviewed by:	

STANDARD LABORATORY DATA PACKAGE CHECKLIST

Instructions: For PLM analytical results raw data packages, complete and sign the following checklist. Attach supporting documentation as outlined below. Organize the supporting documentation in the order listed below. Paginate the completed raw data package.

		Laboratory Verification (Initials and Date)	Validator Verification (Initials and Date)
1	**Number of samples received:** 79 *An SDG is defined as no more than 200 samples.* **Additional Supporting Documentation:** Attach COC forms having footer R (report).	KB 4/27/09	6/22/09 [illegible]
2	**Date of sample receipt and condition of samples:** 4/24/2009 OK *For Condition of samples enter "OK" or "See SDG Case Narrative".*	KB 4/27/09	6/22/09 [illegible]
3	**SDG Case Narrative:** **Additional Supporting Documentation:** Attach SDG Narrative and any modification forms.	KB 4/27/09	6/22/09 [illegible]
4	**Check for contamination (daily):** Wipe microscope slides with lens paper before using. *Laboratory Verification initial and date signifies that this has been performed for the samples in this SDG.*	KB 4/27/09	N/A
5	**Verification of the refractive indices of the refractive index liquids once per month:** **Additional Supporting Documentation:** Provide information indicating a monthly record of checking each of the four liquids including liquid name, lot number and analyst initials. (See table - Results of RI Liquids Calibration)	KB 4/27/09	N/A
6	**Verification of microscope adjustments prior to each SDG:** *Laboratory Verification initial and date signifies that this has been performed for the samples in this SDG.*	KB 4/27/09	N/A
7	**Reference material - Visual Estimation Approach:** *Laboratory Verification initial and date signifies that this has been performed for the samples in this SDG.*	KB 4/27/09	N/A
	Reference material - Point Counting Approach: **Additional Supporting Documentation:** Provide calibration curve documentation, printed from the EDD spreadsheet.	KB 4/27/09	N/A
8	**VE and/or PC hard copy data forms (as presented in the EDD spreadsheet):** **Additional Supporting Documentation:** Copies of the Hard Copy Data Forms for all investigative samples and laboratory duplicates will be provided from systems that are entered electronically.	KB 4/27/09	6/22/09 [illegible]
9	**Bench sheets for data results:** **Additional Supporting Documentation:** Provide copies of the hand written or LIMS system generated raw data sheets for sample results.	KB 4/27/09	6/22/09 [illegible]

COCs

Chain of Custody Record

Libby Asbestos Investigation

U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

No. D2591

From: CDM
2714 Walnut St
Denver, CO 80205

Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

via: ☐ hand delivery ☑ shipped

09 APR 23 PM 12:40

Date Shipped: 4/22/2009
Carrier Name: Fed-Ex
Airbill: N/A

270900047

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air;B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
☑	RR-00001	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00002	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00003	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00004	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00005	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00006	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00007	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00008	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00009	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00010	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00011	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 79

END OF SUBMITTAL

Additional Comments:

QC'd 789 042209

Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Carrie Madrid CDM	4/22/09 1200	R.K. Malony EMSL K N FX 10 30	4/24/09 1345	OK Accept
Elizabeth J. Wyatt-Pescador/EMSL	5/15/09 0836			

Apr 24, 2003 Rev 1

Analytical Report Copy

Page 1 of 8

Chain of Custody Record

Libby Asbestos Investigation

No. D2591

From: CDM
2714 Walnut St
Denver, CO 80205

U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

via: ☐ hand delivery ☑ shipped

09 APR 22 PM 12:41

Date Shipped: 4/22/2009
Carrier Name: Fed-Ex
Airbill: N/A

270900047

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air;B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
☑	RR-00012	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00013	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00014	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00015	FG	1	9/17/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00016	FG	1	9/18/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00017	FG	1	9/18/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00018	FG	1	9/18/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00019	FG	1	9/18/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00020	FG	1	9/18/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00021	FG	1	9/18/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00022	FG	1	9/18/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 79

END OF SUBMITTAL

Additional Comments:

QC'd 489042209

Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Carrie Madrid CDM	4/22/09 1200	R K Mahoney EMSL	4/24/09 1345	OK Receipt
Elizabeth J. Wyatt-Pescador/EMSL	5/15/09/0836			

Apr 24, 2003 Rev 1

Report Copy

Chain of Custody Record

Libby Asbestos Investigation

U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

No. D2591

From: CDM
2714 Walnut St
Denver, CO 80205

Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

09 APR 23 PM 12:41

RECEIVED

via: ☐ hand delivery ☑ shipped

Date Shipped: 4/22/2009
Carrier Name: Fed-Ex
Airbill: N/A

270900047

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air;B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
☑	RR-00023	FG	1	9/18/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00025	FG	1	9/19/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00026	FG	1	9/19/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00027	FG	1	9/19/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00028	FG	1	9/19/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00029	FG	1	9/19/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00030	FG	1	9/19/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00031	FG	1	9/22/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00032	FG	1	9/22/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00033	FG	1	9/22/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00034	FG	1	9/22/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 79

END OF SUBMITTAL

Additional Comments:

QC'd 989042209

Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Carrie Madrid CDM	4/22/09 1200	R.K. Mahoney EMSL	4/24/09 1345	OK Accept
Elizabeth J. Wyatt-Pescador/EMSL	5/15/09/0836			

Chain of Custody Record

From: CDM
2714 Walnut St
Denver, CO 80205

Libby Asbestos Investigation

U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

No. D2591

Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

via: ☐ hand delivery ☑ shipped

Date Shipped: 4/22/2009
Carrier Name: Fed-Ex
Airbill: N/A

09 APR 13 PM 12:41
RECEIVED
270900047

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air;B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
✓	RR-00035	FG	1	9/22/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		✓
✓	RR-00036	FG	1	9/22/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		✓
✓	RR-00037	FG	1	9/22/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		✓
✓	RR-00038	FG	1	9/22/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		✓
✓	RR-00039	FG	1	9/23/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		✓
✓	RR-00040	FG	1	9/23/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		✓
✓	RR-00041	FG	1	9/23/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		✓
✓	RR-00042	FG	1	9/23/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		✓
✓	RR-00043	FG	1	9/23/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		✓
✓	RR-00044	FG	1	9/23/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		✓
✓	RR-00045	FG	1	9/23/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		✓

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 79

END OF SUBMITTAL

Additional Comments:

QC'd 4/24/09

Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Carrie Madrid CDM	4/22/09 1200	R.K. Mahoney EMSL	4/24/09 1345	OK Accept
Elizabeth J. Wyatt-Pescador/EMSL	5/15/09/0836			

Chain of Custody Record

Libby Asbestos Investigation

No. D2591

From: CDM
2714 Walnut St
Denver, CO 80205

U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

09 APR 23 PM 12:41

RECEIVED
EMSL
WESTMONT, NJ

via: ☐ hand delivery ☑ shipped

Date Shipped: 4/22/2009
Carrier Name: Fed-Ex
Airbill: N/A

270900047

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air;B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
☑	RR-00046	FG	1	9/23/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00047	FG	1	9/24/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00048	FG	1	9/24/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00049	FG	1	9/24/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00050	FG	1	9/24/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00051	FG	1	9/24/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00052	FG	1	9/24/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00053	FG	1	9/24/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00054	FG	1	9/24/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00055	FG	1	9/24/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00056	FG	1	9/25/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 79

END OF SUBMITTAL

Additional Comments:

QC'd 989 042209

Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Carrie Madrid CDM	4/22/09 1200	R.K. Mahoney EMSL	4/24/09 1345	OK Barent
Elizabeth J. Wyatt-Pescador/EMSL	5/15/09 /0836			

Chain of Custody Record

Libby Asbestos Investigation

U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

No. D2591

From: CDM
2714 Walnut St
Denver, CO 80205

Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

via: ☐ hand delivery ☑ shipped

09 APR 23 PM 12:41

RECEIVED

Date Shipped: 4/22/2009
Carrier Name: Fed-Ex
Airbill: N/A

270900047

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air;B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
☑	RR-00057	FG	1	9/25/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00058	FG	1	9/25/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00059	FG	1	9/25/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00060	FG	1	9/25/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00061	FG	1	9/25/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00062	FG	1	9/25/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00201	FG	1	10/31/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00202	FG	1	10/31/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00203	FG	1	10/31/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00204	FG	1	11/3/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00205	FG	1	11/4/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 79

END OF SUBMITTAL

Additional Comments:

QC'd 459 042209

Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Carrie Madrid CDM	4/22/09 1200	R.K. Mahoney EMSL	4/24/09 1345	OK Accept
Elizabeth J. Wyatt-Pescador/EMSL	5/15/09/0836			

Chain of Custody Record

Libby Asbestos Investigation

No. D2591

From: CDM
2714 Walnut St
Denver, CO 80205

U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

via: ☐ hand delivery ☑ shipped

Date Shipped: 4/22/2009
Carrier Name: Fed-Ex
Airbill: N/A

09 APR 23 PM 12:41
RECEIVED EMSL WESTMONT NJ
27

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air;B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
☑	RR-00206	FG	1	11/4/2008	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00207	FG	1	4/13/2009	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00208	FG	1	4/14/2009	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00209	FG	1	4/14/2009	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00210	FG	1	4/14/2009	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00211	FG	1	4/15/2009	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00212	FG	1	4/15/2009	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00213	FG	1	4/15/2009	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00214	FG	1	4/17/2009	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00215	FG	1	4/17/2009	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00216	FG	1	4/17/2009	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 79

END OF SUBMITTAL

Additional Comments:

QC'd 989 042209

Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Carrie Madrid CDM	4/22/09 1200	R.K. Mahoney EMSL	4/24/09 1345	OK Accept
Elizabeth J. Wyatt-Pescador/EMSL	5/15/09/0836			

Apr 24, 2003 Rev 1

Analytical Report Copy

Chain of Custody Record

Libby Asbestos Investigation

U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

No. D2591

From: CDM
2714 Walnut St
Denver, CO 80205

Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

via: ☐ hand delivery ☑ shipped

09 APR 23 PM 12:41

RECEIVED
EMSL
WESTMONT, NJ

Date Shipped: 4/22/2009
Carrier Name: Fed-Ex
Airbill: N/A

270900047

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air;B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
☑	RR-00217	FG	1	4/21/2009	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑
☑	RR-00218	FG	1	4/21/2009	S	3 Day	PLM-VE (SRC-Libby-03 (rev 2))		☑

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 79

END OF SUBMITTAL

Additional Comments:

QC'd 459 042209

Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Carrie Madrid CDM	4/22/09 1200	R.K. Mahony EMSL	4/24/09 1345	OK Accept
Elizabeth J. Wyatt-Pescador/EMSL	5/15/09/0836			

INTERNAL CHAIN OF CUSTODY

4/24/2009 3:31:46 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21

Customer ID EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Test: **PLM Libby VE** **Matrix** Soils **TAT:** 72 Hour **Qty:** 79

Acct Sts: **Slsprsn:** epodell **Logged:** rmahoney **Date:** 4/24/2009

Inter- Lab Sample Transfer

Samples Relinquished: _____ Date _____
Samples Received: _____ Date _____
Package Mailed to Westmont: _____ Date _____
Method of Delivery: _____
Includes: (Circle)
Benchsheets Sample Slides Sample filters
Micrographs GridBox Other _____

Final Package Received: _____ Date: _____

Sample Condition: ☒ Acceptable ☐ Unacceptable

Comments No prep involved, only analysis.

Initial Prep (Initials/Lab): KRB **Date:** 4/27-4/30/09
Filter Prep (Initials/Lab): _____ **Date:** _____
Grid Prep (Initials/Lab): _____ **Date:** _____

For Special Projects Use Only
QC Selection: _____ Date: _____
Date Package Review: TP Date: 6/29/09
Date Package Mailed: ae Date: 7/3/09

Special Instructions

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0001	RR-00001		4/27/2009 1:45:00 PM
270900047	270900047-0002	RR-00002		4/27/2009 1:45:00 PM
270900047	270900047-0003	RR-00003		4/27/2009 1:45:00 PM
270900047	270900047-0004	RR-00004		4/27/2009 1:45:00 PM
270900047	270900047-0005	RR-00005		4/27/2009 1:45:00 PM
270900047	270900047-0006	RR-00006		4/27/2009 1:45:00 PM
270900047	270900047-0007	RR-00007		4/27/2009 1:45:00 PM
270900047	270900047-0008	RR-00008		4/27/2009 1:45:00 PM

INTERNAL CHAIN OF CUSTODY

4/24/2009 3:31:46 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

270900047	270900047-0009	RR-00009	4/27/2009 1:45:00 PM
270900047	270900047-0010	RR-00010	4/27/2009 1:45:00 PM
270900047	270900047-0011	RR-00011	4/27/2009 1:45:00 PM
270900047	270900047-0012	RR-00012	4/27/2009 1:45:00 PM
270900047	270900047-0013	RR-00013	4/27/2009 1:45:00 PM
270900047	270900047-0014	RR-00014	4/27/2009 1:45:00 PM
270900047	270900047-0015	RR-00015	4/27/2009 1:45:00 PM
270900047	270900047-0016	RR-00016	4/27/2009 1:45:00 PM
270900047	270900047-0017	RR-00017	4/27/2009 1:45:00 PM
270900047	270900047-0018	RR-00018	4/27/2009 1:45:00 PM
270900047	270900047-0019	RR-00019	4/27/2009 1:45:00 PM
270900047	270900047-0020	RR-00020	4/27/2009 1:45:00 PM
270900047	270900047-0021	RR-00021	4/27/2009 1:45:00 PM
270900047	270900047-0022	RR-00022	4/27/2009 1:45:00 PM
270900047	270900047-0023	RR-00023	4/27/2009 1:45:00 PM
270900047	270900047-0024	RR-00025	4/27/2009 1:45:00 PM
270900047	270900047-0025	RR-00026	4/27/2009 1:45:00 PM
270900047	270900047-0026	RR-00027	4/27/2009 1:45:00 PM
270900047	270900047-0027	RR-00028	4/27/2009 1:45:00 PM
270900047	270900047-0028	RR-00029	4/27/2009 1:45:00 PM

INTERNAL CHAIN OF CUSTODY

4/24/2009 3:31:46 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

270900047	270900047-0029	RR-00030	4/27/2009 1:45:00 PM
270900047	270900047-0030	RR-00031	4/27/2009 1:45:00 PM
270900047	270900047-0031	RR-00032	4/27/2009 1:45:00 PM
270900047	270900047-0032	RR-00033	4/27/2009 1:45:00 PM
270900047	270900047-0033	RR-00034	4/27/2009 1:45:00 PM
270900047	270900047-0034	RR-00035	4/27/2009 1:45:00 PM
270900047	270900047-0035	RR-00036	4/27/2009 1:45:00 PM
270900047	270900047-0036	RR-00037	4/27/2009 1:45:00 PM
270900047	270900047-0037	RR-00038	4/27/2009 1:45:00 PM
270900047	270900047-0038	RR-00039	4/27/2009 1:45:00 PM
270900047	270900047-0039	RR-00040	4/27/2009 1:45:00 PM
270900047	270900047-0040	RR-00041	4/27/2009 1:45:00 PM
270900047	270900047-0041	RR-00042	4/27/2009 1:45:00 PM
270900047	270900047-0042	RR-00043	4/27/2009 1:45:00 PM
270900047	270900047-0043	RR-00044	4/27/2009 1:45:00 PM
270900047	270900047-0044	RR-00045	4/27/2009 1:45:00 PM
270900047	270900047-0045	RR-00046	4/27/2009 1:45:00 PM
270900047	270900047-0046	RR-00047	4/27/2009 1:45:00 PM
270900047	270900047-0047	RR-00048	4/27/2009 1:45:00 PM
270900047	270900047-0048	RR-00049	4/27/2009 1:45:00 PM

INTERNAL CHAIN OF CUSTODY

4/24/2009 3:31:46 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

270900047	270900047-0049	RR-00050	4/27/2009 1:45:00 PM
270900047	270900047-0050	RR-00051	4/27/2009 1:45:00 PM
270900047	270900047-0051	RR-00052	4/27/2009 1:45:00 PM
270900047	270900047-0052	RR-00053	4/27/2009 1:45:00 PM
270900047	270900047-0053	RR-00054	4/27/2009 1:45:00 PM
270900047	270900047-0054	RR-00055	4/27/2009 1:45:00 PM
270900047	270900047-0055	RR-00056	4/27/2009 1:45:00 PM
270900047	270900047-0056	RR-00057	4/27/2009 1:45:00 PM
270900047	270900047-0057	RR-00058	4/27/2009 1:45:00 PM
270900047	270900047-0058	RR-00059	4/27/2009 1:45:00 PM
270900047	270900047-0059	RR-00060	4/27/2009 1:45:00 PM
270900047	270900047-0060	RR-00061	4/27/2009 1:45:00 PM
270900047	270900047-0061	RR-00062	4/27/2009 1:45:00 PM
270900047	270900047-0062	RR-00201	4/27/2009 1:45:00 PM
270900047	270900047-0063	RR-00202	4/27/2009 1:45:00 PM
270900047	270900047-0064	RR-00203	4/27/2009 1:45:00 PM
270900047	270900047-0065	RR-00204	4/27/2009 1:45:00 PM
270900047	270900047-0066	RR-00205	4/27/2009 1:45:00 PM
270900047	270900047-0067	RR-00206	4/27/2009 1:45:00 PM
270900047	270900047-0068	RR-00207	4/27/2009 1:45:00 PM

INTERNAL CHAIN OF CUSTODY

4/24/2009 3:31:46 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

270900047	270900047-0069	RR-00208	4/27/2009 1:45:00 PM
270900047	270900047-0070	RR-00209	4/27/2009 1:45:00 PM
270900047	270900047-0071	RR-00210	4/27/2009 1:45:00 PM
270900047	270900047-0072	RR-00211	4/27/2009 1:45:00 PM
270900047	270900047-0073	RR-00212	4/27/2009 1:45:00 PM
270900047	270900047-0074	RR-00213	4/27/2009 1:45:00 PM
270900047	270900047-0075	RR-00214	4/27/2009 1:45:00 PM
270900047	270900047-0076	RR-00215	4/27/2009 1:45:00 PM
270900047	270900047-0077	RR-00216	4/27/2009 1:45:00 PM
270900047	270900047-0078	RR-00217	4/27/2009 1:45:00 PM
270900047	270900047-0079	RR-00218	4/27/2009 1:45:00 PM

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:09 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332		
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Order:	270900047
		EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Test: PLM Libby VE **Matrix:** Soils **TAT:** 72 Hour **Qty:** 79

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0001	RR-00001		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	**Date:**	4/27/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	4/30/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:09 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0002**	**RR-00002**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/27/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	ea	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:10 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0003**	**RR-00003**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/27/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:10 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25,** 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0004**	**RR-00004**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/27/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	Ou	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:10 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332		
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Order:	270900047
		EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0005**	**RR-00005**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/27/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TR	Date:	5/1/09
Reported to Client:	TR	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:10 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332		
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Order:	270900047
		EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0006**	**RR-00006**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/27/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	sl	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:10 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0007**	**RR-00007**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/27/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	el	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:10 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0008**	**RR-00008**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/27/09
Preliminary Data Sent to Special Projects:	RCM	**Date:**	4/30/09
Data Entry:	ec	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:10 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0009**	**RR-00009**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/27/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:10 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0010	RR-00010		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	**Date:**	4/27/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:10 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0011	RR-00011		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	**Date:**	4/27/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	Ja	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:10 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0012**	**RR-00012**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/27/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:10 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0013**	**RR-00013**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/27/09
Preliminary Data Sent to Special Projects:	Rcm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:10 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0014**	**RR-00014**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/27/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:	[illegible]	Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0015**	**RR-00015**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/27/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0016**	**RR-00016**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/27/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	Je	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25,** 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0017**	**RR-00017**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KPD	**Date:**	4/27/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0018**	**RR-00018**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/27/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	OL	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25**, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0019**	**RR-00019**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KRP	**Date:**	4/27/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0020**	**RR-00020**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/27/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	ar	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0021**	**RR-00021**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/27/09
Preliminary Data Sent to Special Projects:	R/cm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25,** 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0022**	**RR-00022**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/28/09
Preliminary Data Sent to Special Projects:	RKM	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TD	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0023**	**RR-00023**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/28/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0024**	**RR-00025**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/28/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332		
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25,** 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Order:	270900047
		EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0025**	**RR-00026**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/28/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	DL	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0026**	**RR-00027**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/28/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25,** 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0027**	**RR-00028**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/28/09
Preliminary Data Sent to Special Projects:	RKM	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:11 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0028**	**RR-00029**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/28/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0029**	**RR-00030**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/28/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	eu	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0030**	**RR-00031**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/28/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	JL	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0031**	**RR-00032**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/28/09
Preliminary Data Sent to Special Projects:	R/cm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24,** 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0032**	**RR-00033**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/28/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	le	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0033**	**RR-00034**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/28/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	ea	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0034	RR-00035		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	Date:	4/28/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0035**	**RR-00036**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/28/09
Preliminary Data Sent to Special Projects:	RKM	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TR	Date:	5/1/09
Reported to Client:	TR	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332		
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25,** 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Order:	270900047
		EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0036**	**RR-00037**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/28/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0037**	**RR-00038**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/28/09
Preliminary Data Sent to Special Projects:	Rkm	**Date:**	4/30/09
Data Entry:	ac	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332		
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Order:	270900047
		EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0038**	**RR-00039**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	Date:	4/28/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0039**	**RR-00040**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	Date:	4/28/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	Dr	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TR	Date:	5/1/09
Reported to Client:	TR	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0040**	**RR-00041**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/28/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0041**	**RR-00042**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/28/09
Preliminary Data Sent to Special Projects:	RKM	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:12 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24,** 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0042**	**RR-00043**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/28/09
Preliminary Data Sent to Special Projects:	R Kim	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0043**	**RR-00044**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/28/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0044**	**RR-00045**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/28/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	Oe	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25,** 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0045**	**RR-00046**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/29/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0046**	**RR-00047**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/29/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	ee	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0047**	**RR-00048**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/29/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0048**	**RR-00049**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/29/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332		
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Order:	270900047
		EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0049**	**RR-00050**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/29/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25**, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0050**	**RR-00051**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/29/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	el	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25**, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0051**	**RR-00052**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/29/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	OL	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332		
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24,** 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Order:	270900047
		EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0052**	**RR-00053**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/29/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0053**	**RR-00054**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	LB	**Date:**	4/29/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	ac	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24,** 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0054**	**RR-00055**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:13 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24,** 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0055**	**RR-00056**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	JP	Date:	5/1/09
Reported to Client:	JP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:14 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0056**	**RR-00057**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/29/09
Preliminary Data Sent to Special Projects:	R Km	**Date:**	4/30/09
Data Entry:	Dc	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:14 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0057**	**RR-00058**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	VB	**Date:**	4/29/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:14 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25**, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0058**	**RR-00059**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/29/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	ea	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:14 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0059**	**RR-00060**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/29/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	Jc	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:14 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0060**	**RR-00061**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/29/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	.a	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:14 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24,** 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0061**	**RR-00062**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/29/09
Preliminary Data Sent to Special Projects:	Rem	**Date:**	4/30/09
Data Entry:	el	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:14 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24,** 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0062**	**RR-00201**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/29/09
Preliminary Data Sent to Special Projects:	R Kim	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:14 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332		
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24,** 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Order:	270900047
		EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0063**	**RR-00202**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/29/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Reviser:	[illegible]	Date:	
Data Validation:	[illegible]	Date:	5/1/09
Reported to Client:	[illegible]	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:14 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24,** 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0064**	RR-00203		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/29/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:14 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24,** 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0065**	RR-00204		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	ac	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:14 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0066**	**RR-00205**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	[illegible]	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:14 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24,** 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0067**	**RR-00206**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/29/09
Preliminary Data Sent to Special Projects:	RKM	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:15 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332		
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24,** 25, 10/31, **11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Order:	270900047
		EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0068**	RR-00207		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/29/09
Preliminary Data Sent to Special Projects:	R/km	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TB	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:15 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0069**	RR-00208		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	Date:	4/29/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	Oe	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:15 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24**, 25, 10/31, **11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0070**	RR-00209		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/29/09
Preliminary Data Sent to Special Projects:	R/km	**Date:**	4/30/09
Data Entry:	JL	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:15 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24,** 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0071**	RR-00210		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	VK	**Date:**	4/30/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	Dc	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TR	Date:	5/4/09
Reported to Client:	TR	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:15 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0072**	RR-00211		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	Date:	4/30/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	[illegible]	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/4/09
Reported to Client:	TP	Date:	5/4/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:15 PM

Order ID: 270900047

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2591**
Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, **11/3, 4, 4/13, 14, 15, 17, 21**

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900047
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0073**	RR-00212		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	Date:	4/30/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:15 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	**270900047-0074**	**RR-00213**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	Date:	4/30/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:15 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332		
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24**, 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Order:	270900047
		EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0075	RR-00214		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/30/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:15 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23,** 24, 25, 10/31, 11/3, **4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0076	RR-00215		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/30/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL CHAIN OF CUSTODY

4/24/2009 3:32:15 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 6[illegible]-2337 Phone: (218) 625-2032	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/31, 11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0077	RR-00216		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	Date:	4/30/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

Micrograph Number	Type Diffraction or Morphology

INTERNAL [illegible] CHAIN OF CUSTODY

4/24/2009 3:32:15 PM

Order ID: 27[illegible]0047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 6[illegible]-2337 Phone: (218) 6[illegible]-2[illegible]	EMSL Order:	270900047
Project:	**D2591** **Samples collected 9/17, 18, 19, 22, 23, 24, 25, 10/[illegible], 11/3, 4, 4/13, 14, 15, 17, 21**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	[illegible]-0078	RB-[illegible]		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	Date:	4/30/09
Preliminary Data Sent to Special Projects:	RKm	Date:	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TD	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 3:32:15 PM

Order ID: 270900047

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2317 Phone: (218) 625-2322	EMSL Order:	270900047
Project:	**D2591** **Samples** collected 9/**17, 18, 19,** 22, 23, 24, 25, 10/31, 11/3, **4, 4/13,** 14, 15, 17, 21	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900047	270900047-0079	RR-09213		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/30/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	4/30/09
Data Entry:	[illegible]	Date:	5/1/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/1/09
Reported to Client:	TP	Date:	5/1/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

SDG NARRATIVE

Instructions: The following information should be included in all narratives. Please see the attached narrative template.

1. List the method or methods used.
2. For any modifications, reference the modification number and attach a copy of the signed document to the raw data package.
3. If sample condition is not "OK", explain why and any implications to the data.

Asbestos • Microbiology • Indoor Air Quality • Industrial Hygiene • Lead • Chemistry • Materials • Radon

EMSL ANALYTICAL, INC.
www.emsl.com

Corporate Office & Lab
107 Haddon Avenue
Westmont, NJ 08108
PH 800-220-3675
PH 856-858-4800
FAX 856-858-4766

June 22, 2009

Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802
Phone: 763-277-5200

RE: SDG Narrative – PLM Analysis by SRC-Libby-03, Revision 2
EMSL Analytical, Inc. Laboratory Order ID: 270900047

Dear Mr. Carney:

Seventy-Nine (79) samples were received in a sealed box on 4/24/09 and signed for by the sample-receiving clerk. These samples were assigned to an internal EMSL laboratory order ID number of 270900047, each sample was assigned a unique, sequential laboratory ID number, and the job was entered into the Laboratory Information System (LIMS). The laboratory ID numbers and the login information are summarized on the EMSL internal Chain of Custodies. Sample condition and signatures are recorded on Chain of Custody D2591as submitted by CDM Libby, MT.

These samples were analyzed in accordance with SRC-Libby-03, Revision 2 for the Analysis of Asbestos Fibers in Soil by Polarized Light Microscopy, Visual Estimation Approach, with modifications described in Laboratory Modification document:.

Results were e-mailed to the Libby Distribution Group on 5/1/09. If you have any questions or require additional information, please do not hesitate to contact me at 856-858-4800, ext. 1253.

Sincerely,
EMSL Analytical, Inc.

Charles LaCerra
Special Projects Manager

SAMPLE RESULTS

See Attached Sample Results

Instructions: These sample result forms are from the PLM (VE & PC) Data Sheet and EDD.xls file. They are labeled in this file as the VE or PC hard copy data form.

FILE NAME: EMSL27_270900047_PLM_VE.xls

Version : 7c

PLM VISUAL ESTIMATION DATA RECORDING SHEET

Laboratory Name	EMSL27	Data Entry by:	L. Ramowski
Job Number	270900047	Data Entry Date:	5/1/2009
Date Received	4/24/2009		
SOP Name/Revision	SRC-LIBBY-03 (Rev 2)	QC Check by:	T. Peters
Spreadsheet version	7c	QC Check Date:	5/1/2009

EPA Index ID	Index Suffix Char	Index Suffix No.	QA Type (NOT QA, LDS, LDC)	Lab Sample ID	Date Analyzed	Analyst Name	Stereomicroscopy Examination: Sample Appearance	Libby Amphibole (LA): Qual	LA-MF (%)	Bin	Other Amphibole (OA): Qual	OA-AF (%)	OA Type (AMOS, ANTH, CROC, UNK)	Chrysotile (Ch): Qual	Ch-AF (%)	Deviation?	Comments	OPTICAL PROPERTIES FOR LA (see key for data entry inputs): Morph.	Fiber Color	Sign Elong. (+/-)	Pleoch. (Y/N)	Extinct. Angle	Ref. Index α	Ref. Index γ	Biref	Optical Comments
RR-00001	FG	1	Not QA	270900047-0001	4/27/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00002	FG	1	Not QA	270900047-0002	4/27/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00003	FG	1	Not QA	270900047-0003	4/27/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00004	FG	1	Not QA	270900047-0004	4/27/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00005	FG	1	Not QA	270900047-0005	4/27/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00006	FG	1	Not QA	270900047-0006	4/27/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00007	FG	1	Not QA	270900047-0007	4/27/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00008	FG	1	Not QA	270900047-0008	4/27/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00009	FG	1	Not QA	270900047-0009	4/27/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00010	FG	1	Not QA	270900047-0010	4/27/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00011	FG	1	Not QA	270900047-0011	4/27/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00012	FG	1	Not QA	270900047-0012	4/27/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00013	FG	1	Not QA	270900047-0013	4/27/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00014	FG	1	Not QA	270900047-0014	4/27/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00015	FG	1	Not QA	270900047-0015	4/27/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00016	FG	1	Not QA	270900047-0016	4/27/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00017	FG	1	Not QA	270900047-0017	4/27/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00018	FG	1	Not QA	270900047-0018	4/27/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00019	FG	1	Not QA	270900047-0019	4/27/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00020	FG	1	Not QA	270900047-0020	4/27/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00021	FG	1	Not QA	270900047-0021	4/27/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00022	FG	1	Not QA	270900047-0022	4/28/2009	K. Barnes	,homogeneous, non-fib	TR	0.1	B1	ND	0		ND	0			ST	C	+	N	O	1.625	1.633	L	
RR-00023	FG	1	Not QA	270900047-0023	4/28/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00025	FG	1	Not QA	270900047-0024	4/28/2009	K. Barnes	,homogeneous, non-fib	TR	0.1	B1	ND	0		ND	0			ST	C	+	N	O	1.626	1.631	L	
RR-00026	FG	1	Not QA	270900047-0025	4/28/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00027	FG	1	Not QA	270900047-0026	4/28/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00028	FG	1	Not QA	270900047-0027	4/28/2009	K. Barnes	en,heterogeneous,fibro	ND	0	A	ND	0		ND	0											
RR-00029	FG	1	Not QA	270900047-0028	4/28/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00030	FG	1	Not QA	270900047-0029	4/28/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00031	FG	1	Not QA	270900047-0030	4/28/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00032	FG	1	Not QA	270900047-0031	4/28/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00033	FG	1	Not QA	270900047-0032	4/28/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00034	FG	1	Not QA	270900047-0033	4/28/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00035	FG	1	Not QA	270900047-0034	4/28/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00036	FG	1	Not QA	270900047-0035	4/28/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00037	FG	1	Not QA	270900047-0036	4/28/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00038	FG	1	Not QA	270900047-0037	4/28/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00039	FG	1	Not QA	270900047-0038	4/28/2009	K. Barnes	k,homogeneous-non-fib	ND	0	A	ND	0		ND	0											
RR-00040	FG	1	Not QA	270900047-0039	4/28/2009	K. Barnes	y,homogeneous,non-fib	ND	0	A	ND	0		ND	0											
RR-00041	FG	1	Not QA	270900047-0040	4/28/2009	K. Barnes	k,homogeneous-non-fib	ND	0	A	ND	0		ND	0											
RR-00042	FG	1	Not QA	270900047-0041	4/28/2009	K. Barnes	y,homogeneous,non-fib	ND	0	A	ND	0		ND	0											
RR-00043	FG	1	Not QA	270900047-0042	4/28/2009	K. Barnes	y,homogeneous,non-fib	ND	0	A	ND	0		ND	0											
RR-00044	FG	1	Not QA	270900047-0043	4/28/2009	K. Barnes	y,homogeneous,non-fib	ND	0	A	ND	0		ND	0											
RR-00045	FG	1	Not QA	270900047-0044	4/28/2009	K. Barnes	n,homogeneous,non-fib	ND	0	A	ND	0		ND	0											
RR-00046	FG	1	Not QA	270900047-0045	4/29/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00047	FG	1	Not QA	270900047-0046	4/29/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00048	FG	1	Not QA	270900047-0047	4/29/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00049	FG	1	Not QA	270900047-0048	4/29/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00050	FG	1	Not QA	270900047-0049	4/29/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00051	FG	1	Not QA	270900047-0050	4/29/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00052	FG	1	Not QA	270900047-0051	4/29/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00053	FG	1	Not QA	270900047-0052	4/29/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00054	FG	1	Not QA	270900047-0053	4/29/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00055	FG	1	Not QA	270900047-0054	4/29/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00056	FG	1	Not QA	270900047-0055	4/29/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00057	FG	1	Not QA	270900047-0056	4/29/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00058	FG	1	Not QA	270900047-0057	4/29/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00059	FG	1	Not QA	270900047-0058	4/29/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00060	FG	1	Not QA	270900047-0059	4/29/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00061	FG	1	Not QA	270900047-0060	4/29/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00062	FG	1	Not QA	270900047-0061	4/29/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00201	FG	1	Not QA	270900047-0062	4/29/2009	K. Barnes	e,homogeneous,non-fib	ND	0	A	ND	0		ND	0											
RR-00202	FG	1	Not QA	270900047-0063	4/29/2009	K. Barnes	e,homogeneous,non-fib	ND	0	A	ND	0		ND	0											
RR-00203	FG	1	Not QA	270900047-0064	4/29/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00204	FG	1	Not QA	270900047-0065	4/29/2009	K. Barnes	e,homogeneous,non-fib	ND	0	A	ND	0		ND	0											
RR-00205	FG	1	Not QA	270900047-0066	4/29/2009	K. Barnes	e,homogeneous,non-fib	ND	0	A	ND	0		ND	0											
RR-00206	FG	1	Not QA	270900047-0067	4/29/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00207	FG	1	Not QA	270900047-0068	4/29/2009	K. Barnes	e,homogeneous,non-fib	ND	0	A	ND	0		ND	0											
RR-00208	FG	1	Not QA	270900047-0069	4/29/2009	K. Barnes	e,homogeneous,non-fib	ND	0	A	ND	0		ND	0											
RR-00209	FG	1	Not QA	270900047-0070	4/29/2009	K. Barnes	,homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00210	FG	1	Not QA	270900047-0071	4/30/2009	K. Barnes	e,homogeneous,non-fib	ND	0	A	ND	0		ND	0											
RR-00211	FG	1	Not QA	270900047-0072	4/30/2009	K. Barnes	e,homogeneous,non-fib	ND	0	A	ND	0		ND	0											

FILE NAME: EMSL27_270900047_PLM_VE.xls

Version : 7c

PLM VISUAL ESTIMATION DATA RECORDING SHEET

Laboratory Name	EMSL27	Data Entry by:	L. Ramowski
Job Number	270900047	Data Entry Date:	5/1/2009
Date Received	4/24/2009		
SOP Name/Revision	SRC-LIBBY-03 (Rev 2)	QC Check by:	T. Peters
Spreadsheet version	7c	QC Check Date:	5/1/2009

							Stereomicroscopy Examination	Libby Amphibole (LA)			Other Amphibole (OA)			Chrysotile (Ch)				OPTICAL PROPERTIES FOR LA (see key for data entry inputs)								
EPA Index ID	Index Suffix Char.	Index Suffix No.	QA Type (NOT QA, LDS, LDC)	Lab Sample ID	Date Analyzed	Analyst Name	Sample Appearance	Qual	LA-MF (%)	Bin	Qual	OA-AF (%)	OA Type (AMOS, ANTH, CROC, UNK)	Qual	Ch-AF (%)	Deviation?	Comments	Morph.	Fiber Color	Sign Elong. (+/-)	Pleoch. (Y/N)	Extinct. Angle	Ref. Index α	Ref. Index γ	Biref.	Optical Comments
RR-00212	FG	1	Not QA	270900047-0073	4/30/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00213	FG	1	Not QA	270900047-0074	4/30/2009	K. Barnes	e,homogeneous,non-fib	ND	0	A	ND	0		ND	0											
RR-00214	FG	1	Not QA	270900047-0075	4/30/2009	K. Barnes	e,homogeneous,non-fib	ND	0	A	ND	0		ND	0											
RR-00215	FG	1	Not QA	270900047-0076	4/30/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											
RR-00216	FG	1	Not QA	270900047-0077	4/30/2009	K. Barnes	e,homogeneous,non-fib	ND	0	A	ND	0		ND	0											
RR-00217	FG	1	Not QA	270900047-0078	4/30/2009	K. Barnes	e,homogeneous,non-fib	ND	0	A	ND	0		ND	0											
RR-00218	FG	1	Not QA	270900047-0079	4/30/2009	K. Barnes	homogeneous, non-fib	ND	0	A	ND	0		ND	0											

BENCH SHEETS

Instructions: Please provide handwritten or LIMS system generated raw data sheets for sample results.

PLM VISUAL ESTIMATION DATA RECORDING SHEET

Laboratory Name EMSL27

Job Number 270900047

Date Received 4/24/2009

SOP Name/Revision SRC-Libby-03 Rev ~~1~~ 2 KB 4/30/

EPA Index ID	Index Suffix Char.	Index Suffix No.	QA Type (NOT QA, LDS, LDC)	Lab Sample ID	Date Analyzed	Analyst Name	Stereomicroscopy Examination					Libby Amphibole		Other Amphibole		
							Sample Appearance	Est. % LA		Est. % OA and C						
								Qual (ND, Tr, <)	Mass Fract (%)	Qual (ND, <)	Area Fract (%)	Qual (ND, Tr, <)	Mass Fract (%)	Qual (ND, <)	Area Fract (%)	OA Type (AMOS, ANTH, CROC, UNK)
RR-00001	FG	1	NotQA	270900047-0001	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00002	FG	1	NotQA	-0002	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00003	FG	1	NotQA	-0003	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00004	FG	1	NotQA	-0004	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00005	FG	1	NotQA	-0005	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00006	FG	1	NotQA	-0006	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00007	FG	1	NotQA	-0007	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00008	FG	1	NotQA	-0008	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00009	FG	1	NotQA	-0009	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00010	FG	1	NotQA	-0010	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00011	FG	1	NotQA	-0011	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	KB 4/27/09 ~~ND~~ 0	ND	0	ND	0	ND	0	
RR-00012	FG	1	NotQA	-0012	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00013	FG	1	NotQA	-0013	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00014	FG	1	NotQA	-0014	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00015	FG	1	NotQA	-0015	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00016	FG	1	NotQA	-0016	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00017	FG	1	NotQA	-0017	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00018	FG	1	NotQA	-0018	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00019	FG	1	NotQA	-0019	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00020	FG	1	NotQA	-0020	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00021	FG	1	NotQA	-0021	4/27/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00022	FG	1	NotQA	-0022	4/28/09	KBarnes	Tan, homogeneous non-fibrous	TR	0.1	ND	0	TR	0.1	ND	0	

Note: Data Recording Sheet is formatted to print on 11x17 paper.

	Chrysotile		Deviation?	Comments (list below)	OPTICAL PROPERTIES FOR LA (see key for appropriate data inputs)							
	Qual (ND, <)	Area Fract (%)			Morph.	Fiber Color	Sign Elong. (+/-)	Pleoch. (Y/N)	Angle Extinct.	Ref. Index α	Ref. Index γ	Biref.
RR-00001	ND	0										
RR-00002	ND	0										
RR-00003	ND	0										
RR-00004	ND	0										
RR-00005	ND	0										
RR-00006	ND	0										
RR-00007	ND	0										
RR-00008	ND	0										
RR-00009	ND	0										
RR-000010	ND	0										
RR000011	ND	0										
RR-00012	ND	0										
RR-00013	ND	0										
RR-00014	ND	0										
RR-00015	ND	0										
RR-00016	ND	0										
RR-00017	ND	0										
RR-00018	ND	0										
RR-00019	ND	0										
RR-00020	ND	0										
RR-00021	ND	0										
RR-00022	ND	0			ST	C	+	N	0	1.625	1.633	L

PLM VISUAL ESTIMATION DATA RECORDING SHEET

Laboratory Name EMSL27

Job Number 270900047

Date Received 4/24/2009

SOP Name/Revision SRC-Libby-03 Rev. ~~1~~ 2 KB 4/30/

EPA Index ID	Index Suffix Char.	Index Suffix No.	QA Type (NOT QA, LDS, LDC)	Lab Sample ID	Date Analyzed	Analyst Name	Stereomicroscopy Examination					Libby Amphibole		Other Amphibole		
							Sample Appearance	Est. % LA		Est. % OA and C						
								Qual (ND, Tr, <)	Mass Fract (%)	Qual (ND, <)	Area Fract (%)	Qual (ND, Tr, <)	Mass Fract (%)	Qual (ND, <)	Area Fract (%)	OA Type (AMOS, ANTH, CROC, UNK)
RR-00023	FG	1	NOTQA	-0023	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00025	FG	1	NOTQA	-0024	4/28/09	KBarnes	Tan, homogeneous non-fibrous	TR	0.1	ND	0	TR	0.1	ND	0	
RR-00026	FG	1	NOTQA	-0025	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00027	FG	1	NOTQA	-0026	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00028	FG	1	NOTQA	-0027	4/28/09	KBarnes	Tan, heterogeneous fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00029	FG	1	NOTQA	-0028	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00030	FG	1	NOTQA	-0029	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00031	FG	1	NOTQA	-0030	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00032	FG	1	NOTQA	-0031	4/28/09	KBarnes	Tan-homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00033	FG	1	NOTQA	-0032	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00034	FG	1	NOTQA	-0033	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00035	FG	1	NOTQA	-0034	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00036	FG	1	NOTQA	-0035	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00037	FG	1	NOTQA	-0036	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00038	FG	1	NOTQA	-0037	4/28/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00039	FG	1	NOTQA	-0038	4/28/09	KBarnes	Black, nonfibrous homogeneous	ND	0	ND	0	ND	0	ND	0	
RR-00040	FG	1	NOTQA	-0039	4/28/09	KBarnes	gray, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00041	FG	1	NOTQA	-0040	4/28/09	KBarnes	black, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00042	FG	1	NOTQA	-0041	4/28/09	KBarnes	gray, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00043	FG	1	NOTQA	-0042	4/28/09	KBarnes	gray, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00044	FG	1	NOTQA	-0043	4/28/09	KBarnes	gray, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00045	FG	1	NOTQA	-0044	4/28/09	KBarnes	brown, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	

Note: Data Recording Sheet is formatted to print on 11x17 paper.

	Chrysotile		Deviation?	Comments (list below)	OPTICAL PROPERTIES FOR LA (see key for appropriate data inputs)							
	Qual (ND, <)	Area Fract (%)			Morph.	Fiber Color	Sign Elong. (+/-)	Pleoch. (Y/N)	Angle Extinct.	Ref. Index α	Ref. Index γ	Biref.
RR-00023	ND	0										
RR-00025	ND	0			ST	C	+	N	0	1.626	1.631	L
RR-00026	ND	0										
RR-00027	ND	0										
RR-00028	ND	0										
RR-00029	ND	0										
RR-00030	ND	0										
RR-00031	ND	0										
RR-00032	ND	0										
RR-00033	ND	0										
RR-00034	ND	0										
RR-00035	ND	0										
RR-00036	ND	0										
RR-00037	ND	0										
RR-00038	ND	0										
RR-00039	ND	0										
RR-00040	ND	0										
RR-00041	ND	0										
RR-00042	ND	0										
RR-00043	ND	0										
RR-00044	ND	0										
RR-00045	ND	0										

PLM VISUAL ESTIMATION DATA RECORDING SHEET

Laboratory Name EMSL27

Job Number 270900047

Date Received 4/24/2009

SOP Name/Revision SRC-Libby-03 Rev. ~~1~~ 2 KBS 4/20/10

EPA Index ID	Index Suffix Char.	Index Suffix No.	QA Type (NOT QA, LDS, LDC)	Lab Sample ID	Date Analyzed	Analyst Name	Stereomicroscopy Examination					Libby Amphibole		Other Amphibole		
							Sample Appearance	Est. % LA		Est. % OA and C						
								Qual (ND, Tr, <)	Mass Fract (%)	Qual (ND, <)	Area Fract (%)	Qual (ND, Tr, <)	Mass Fract (%)	Qual (ND, <)	Area Fract (%)	OA Type (AMOS, ANTH, CROC, UNK)
RR-00046	FG	1	NotQA	-0045	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00047	FG	1	NotQA	-0046	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00048	FG	1	NotQA	-0047	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00049	FG	1	NotQA	-0048	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00050	FG	1	NotQA	-0049	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00051	FG	1	NotQA	-0050	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00052	FG	1	NotQA	-0051	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00053	FG	1	NotQA	-0052	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00054	FG	1	NotQA	-0053	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00055	FG	1	NotQA	-0054	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00056	FG	1	NotQA	-0055	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00057	FG	1	NotQA	-0056	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00058	FG	1	NotQA	-0057	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00059	FG	1	NotQA	-0058	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00060	FG	1	NotQA	-0059	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00061	FG	1	NotQA	-0060	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00062	FG	1	NotQA	-0061	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00201	FG	1	NotQA	-0062	4/29/09	KBarnes	white, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00202	FG	1	NotQA	-0063	4/29/09	KBarnes	white, non-fibrous homogeneous	ND	0	ND	0	ND	0	ND	0	
RR-00203	FG	1	NotQA	-0064	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00204	FG	1	NotQA	-0065	4/29/09	KBarnes	white, non-fibrous homogeneous	ND	0	ND	0	ND	0	ND	0	
RR-00205	FG	1	NotQA	-0066	4/29/09	KBarnes	white, non-fibrous homogeneous	ND	0	ND	0	ND	0	ND	0	

Note: Data Recording Sheet is formatted to print on 11x17 paper.

	Chrysotile		Deviation?	Comments (list below)	OPTICAL PROPERTIES FOR LA (see key for appropriate data inputs)							
	Qual (ND, <)	Area Fract (%)			Morph.	Fiber Color	Sign Elong. (+/-)	Pleoch. (Y/N)	Angle Extinct.	Ref. Index α	Ref. Index γ	Biref.
RR-00046	ND	0										
RR-00047	ND	0										
RR-00048	ND	0										
RR-00049	ND	0										
RR-00050	ND	0										
RR-00051	ND	0										
RR-00052	ND	0										
RR-00053	ND	0										
RR-00054	ND	0										
RR-00055	ND	0										
RR-00056	ND	0										
RR-00057	ND	0										
RR-00058	ND	0										
RR-00059	ND	0										
RR-00060	ND	0										
RR-00061	ND	0										
RR-00062	ND	0										
RR-00201	ND	0										
RR-00202	ND	0										
RR-00203	ND	0										
RR-00204	ND	0										
RR-00205	ND	0										

PLM VISUAL ESTIMATION DATA RECORDING SHEET

Laboratory Name EMSL27

Job Number 270900047

Date Received 4/24/2009

SOP Name/Revision SRC-Libby-03 Rev. ~~1~~ 2 KB 4/30/

EPA Index ID	Index Suffix Char.	Index Suffix No.	QA Type (NOT QA, LDS, LDC)	Lab Sample ID	Date Analyzed	Analyst Name	Stereomicroscopy Examination					Libby Amphibole		Other Amphibole		
							Sample Appearance	Est. % LA		Est. % OA and C						
								Qual (ND, Tr, <)	Mass Fract (%)	Qual (ND, <)	Area Fract (%)	Qual (ND, Tr, <)	Mass Fract (%)	Qual (ND, <)	Area Fract (%)	OA Type (AMOS, ANTH, CROC, UNK)
RR-00206	FG	1	NOTQA	-0067	4/29/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00207	FG	1	NOTQA	-0068	4/29/09	KBarnes	white, non-fibrous homogeneous	ND	0	ND	0	ND	0	ND	0	
RR-00208	FG	1	NOTQA	-0069	4/29/09	KBarnes	white, non-fibrous homogeneous	ND	0	ND	0	ND	0	ND	0	
RR-00209	FG	1	NOTQA	-0070	4/29/09	KBarnes	~~Tan~~, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00210	FG	1	NOTQA	-0071	4/30/09	KBarnes	white, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00211	FG	1	NOTQA	-0072	4/30/09	KBarnes	white, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00212	FG	1	NOTQA	-0073	4/30/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00213	FG	1	NOTQA	-0074	4/30/09	KBarnes	white, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00214	FG	1	NOTQA	-0075	4/30/09	KBarnes	white, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00215	FG	1	NOTQA	-0076	4/30/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00216	FG	1	NOTQA	-0077	4/30/09	KBarnes	white, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00217	FG	1	NOTQA	-0078	4/30/09	KBarnes	white, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	
RR-00218	FG	1	NOTQA	-0079	4/30/09	KBarnes	Tan, homogeneous non-fibrous	ND	0	ND	0	ND	0	ND	0	

K Barnes
4/30/09

Note: Data Recording Sheet is formatted to print on 11x17 paper.

	Chrysotile		Deviation?	Comments (list below)	OPTICAL PROPERTIES FOR LA (see key for appropriate data inputs)							
	Qual (ND, <)	Area Fract (%)			Morph.	Fiber Color	Sign Elong. (+/-)	Pleoch. (Y/N)	Angle Extinct.	Ref. Index α	Ref. Index γ	Biref.
RR-00206	ND	0										
RR-00207	ND	0										
RR-00208	ND	0										
RR-00209	ND	0										
RR-00210	ND	0										
RR-00211	ND	0										
RR-00212	ND	0										
RR-00213	ND	0										
RR-00214	ND	0										
RR-00215	ND	0										
RR-00216	ND	0										
RR-00217	ND	0										
RR-00218	ND	0										

KBarnes
4/30/09

PLMVE: SRC-LIBBY-03, REV. 1

~~Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy~~

KB/4/24/09

Client:

Address:

Fax:

Project:

Logged:

TAT: [redacted]

Date/Time Due:

Special Instructions

Order Number

270900047

Macroscopic	Treatment	COMPONENT TYPES: Asbestos	COMPONENT TYPES: Fibrous	COMPONENT TYPES: Non-Fibrous	MICROSCOPIC: Optical Properties
COLOR (C) 1 Brown 4 White 7 Black 2 Gray 5 Red 8 Silver 3 Tan 6 Various 9 Blue 10 Yellow TEXTURE (T) 1 Fibrous 2 Non-Fibrous 3 Other HOMOGENEITY (H) 1 Homogeneous 3 OTHER 2 Heterogeneous 4 Layers (#)	1 Teased 2 Crushed 3 Dissolve 4 Ashed 5 Heated 6 Melted	1 Chrysotile 2 Amosite 3 Anthophyllite 4 Tremolite 5 Actinolite 6 Crocidolite	7 Cellulose 8 Glass 9 Min. Wool 10 Synthetic 11 Other 12 Wollastonite 13 Hair	14 Quartz 15 Mica 16 Gypsum 17 Cal. Carbonate 18 Matrix 19 Perlite 20 Other	Morphology (M): 1. Wavy 2. Straight 3. Uniform Diameter 4. Ribbon-Like 5. Tapered Ends 6. Scaled 7. Fibrid 8. Medulla 9. Exotic Shape 10. Other Sign of Elongation (S): 1. + 2. - 3. Variable Pleochroism (P): 1. Yes 2. No Birefringence (B): 1 Low: 0.010 2 Med 0.010-0.050 3 High >0.050 4 None 0.00 or Isotropic Fiber Color (FC): 1 White 2 Brown 3 Beige 4 Blue 5 Green 6 Colorless Extinction (E): 1. Parallel 2. Symmetrical 3. Oblique 4. Undulose

Sample	Macrosc.	Treat	Stereo Asbestos Est. %	Asbestos Type	% of Asbestos	Other Fibrous Type	Other Fibrous %	Non-Fibrous Type	Non-Fibrous %	Non-Asb Char. Ex. E4	Optical Properties ⊥ R.I.	Optical Properties ∥ R.I.	Optical Properties M	Optical Properties S	Optical Properties P	Optical Properties B	Optical Properties (FC)	Optical Properties E
RR-00001	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	
RR-00002	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	
RR-00003	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	
RR-00004	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	
RR-00005	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	
RR-00006	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	
RR-00007	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	
RR-00008	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	
RR-00009	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	
RR-00010	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	

Analyst: KBarnes Date: 4/27/09 Computer: _____ Date: _____

Room Temp (C): 18.3

PLMVE: SRC-LIBBY-03, REV. 1

~~Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy~~

Rev. 2 KB 4/30/09

Client: Logged: TAT: [redacted]

Address: Date/Time Due:

Fax:

Project:

Special Instructions	Order Number
	270900047

Macroscopic	Treatment	COMPONENT TYPES: Asbestos	Fibrous	Non-Fibrous	MICROSCOPIC Optical Properties
COLOR (C) 1 Brown 4 White 7 Black 2 Gray 5 Red 8 Silver 3 Tan 6 Various 9 Blue 10 Yellow TEXTURE (T) 1 Fibrous 2 Non-Fibrous 3 Other HOMOGENEITY (H) 1 Homogeneous 3 OTHER 2 Heterogeneous 4 Layers (#)	1 Teased 2 Crushed 3 Dissolve 4 Ashed 5 Heated 6 Melted	1 Chrysotile 2 Amosite 3 Anthophyllite 4 Tremolite 5 Actinolite 6 Crocidolite	7 Cellulose 8 Glass 9 Min. Wool 10 Synthetic 11 Other 12 Wollastonite 13 Hair	14 Quartz 15 Mica 16 Gypsum 17 Cal. Carbonate 18 Matrix 19 Perlite 20 Other	Morphology (M): 1. Wavy 2. Straight 3. Uniform Diameter 4. Ribbon-Like 5. Tapered Ends 6. Scaled 7. Pitted 8. Medulla 9. Exotic Shape 10. Other Sign of Elongation (S): 1. + 2. - 3. Variable Pleochroism (P): 1. Yes 2. No Birefringence (B): 1 Low: 0.010 2 Med 0.010-0.050 3 High >0.050 4 None 0.00 or Isotropic Fiber Color (FC): 1 White 2 Brown 3 Beige 4 Blue 5 Green 6 Colorless Extinction (E): 1. Parallel 2. Symmetrical 3. Oblique 4. Undulose

Sample	Macrosc.	Treat	Stereo Asbestos Est. %	Asbestos Type	% of Asbestos	Other Fibrous Type	Other Fibrous %	Non-Fibrous Type	Non-Fibrous %	Non-Asb Char. Ex. E4	Optical Properties ⊥ R.I.	Optical Properties ∥ R.I.	M	S	P	B	(FC)	E
RR-00011	(C) 3	1	0	ND	0	—		20	100									
	(T) 2																	
	(H) 1																	
RR-00012	(C) 3	1	0	ND	0	—		20	100									
	(T) 2																	
	(H) 1																	
RR-00013	(C) 3	1	0	ND	0	—		20	100									
	(T) 2																	
	(H) 1																	
RR-00014	(C) 3	1	0	ND	0	—		20	100									
	(T) 2																	
	(H) 1																	
RR-00015	(C) 3	1	0	ND	0	—		20	100									
	(T) 2																	
	(H) 1																	
RR-00016	(C) 3	1	0	ND	0	—		20	100									
	(T) 2																	
	(H) 1																	
RR-00017	(C) 3	1	0	ND	0	—		20	100									
	(T) 2																	
	(H) 1																	
RR-00018	(C) 3	1	0	ND	0	—		20	100									
	(T) 2																	
	(H) 1																	
RR-00019	(C) 3	1	0	ND	0	—		20	100									
	(T) 2																	
	(H) 1																	
RR-00020	(C) 3	1	0	ND	0	—		20	100									
	(T) 2																	
	(H) 1																	

Analyst: KBarnes Date: 4/27/09 Computer: _____ Date: _____

Room Temp (C): 20.4

PLMVE: SRC-LIBBY-03, REV. 1

KB 4/30/09

Rev. 2

~~Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy~~

Client:

Logged:

TAT: [redacted]

Address:

Date/Time Due:

Fax:

Project:

Special Instructions

Order Number

270900047

Macroscopic	Treatment	COMPONENT TYPES: Asbestos	Fibrous	Non-Fibrous	MICROSCOPIC: Optical Properties
COLOR (C) 1 Brown 4 White 7 Black 2 Gray 5 Red 8 Silver 3 Tan 6 Various 9 Blue 10 Yellow TEXTURE (T) 1 Fibrous 2 Non-Fibrous 3 Other HOMOGENEITY (H) 1 Homogeneous 3 OTHER 2 Heterogeneous 4 Layers (#)	1 Teased 2 Crushed 3 Dissolve 4 Ashed 5 Heated 6 Melted	1 Chrysotile 2 Amosite 3 Anthophyllite 4 Tremolite 5 Actinolite 6 Crocidolite	7 Cellulose 8 Glass 9 Min. Wool 10 Synthetic 11 Other 12 Wollastonite 13 Hair	14 Quartz 15 Mica 16 Gypsum 17 Cal. Carbonate 18 Matrix 19 Perlite 20 Other	Morphology (M): 1. Wavy 2. Straight 3. Uniform Diameter 4. Ribbon-Like 5. Tapered Ends 6. Beaded 7. Pitted 8. Medulla 9. Exotic Shape 10. Other Sign of Elongation (S): 1. + 2. - 3. Variable Pleochroism (P): 1. Yes 2. No Birefringence (B): 1 Low: 0.010 2 Med 0.010-0.050 3 High >0.050 4 None 0.00 or Isotropic Fiber Color (FC): 1 White 2 Brown 3 Beige 4 Blue 5 Green 6 Colorless Extinction (E): 1. Parallel 2. Symmetrical 3. Oblique 4. Undulose

Sample	Macrosc.	Treat	Stereo Asbestos Est. %	Asbestos Type	% of Asbestos	Other Fibrous Type	Other Fibrous %	Non-Fibrous Type	Non-Fibrous %	Non-Asb Char. Ex. E4	Optical Properties ⊥ R.I.	Optical Properties ∥ R.I.	Optical Properties M	Optical Properties S	Optical Properties P	Optical Properties B	Optical Properties (FC)	Optical Properties E
RR-00021	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	
RR-00022	(C) 3	1	TR	4/5	0.1	—	—	20	100		1.625	1.633	2	1	2	1	6	3
	(T) 2																	
	(H) 1																	
RR-00023	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	
RR-00025	(C) 3	1	TR	4/5	0.1	—	—	20	100		1.626	1.631	2	1	2	1	6	3
	(T) 2																	
	(H) 1																	
RR-00026	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	
RR-00027	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	
RR-00028	(C) 3	1	0	ND	0	7	8	20	92									
	(T) 1																	
	(H) 2																	
RR-00029	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	
RR-00030	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	
RR-00031	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	

Analyst: KBarnes Date: 4/27/28/09 Computer: _____ Date: _____

Room Temp (C): 18.6

PLMVE: SRC-LIBBY-03, ~~REV. 1~~ Rev. 2

KB 4/30/09

~~Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy~~

Client: Logged: TAT: [redacted]

Address: Date/Time Due:

Fax:

Project:

Special Instructions

Order Number 270900047

Macroscopic	Treatment	Asbestos	Fibrous	Non-Fibrous
COLOR (C) 1 Brown 4 White 7 Black 2 Gray 5 Red 8 Silver 3 Tan 6 Various 9 Blue 10 Yellow TEXTURE (T) 1 Fibrous 2 Non-Fibrous 3 Other HOMOGENEITY (H) 1 Homogeneous 3 OTHER 2 Heterogeneous 4 Layers (#)	1 Teased 2 Crushed 3 Dissolve 4 Ashed 5 Heated 6 Melted	1 Chrysotile 2 Amosite 3 Anthophyllite 4 Tremolite 5 Actinolite 6 Crocidolite	7 Cellulose 8 Glass 9 Min. Wool 10 Synthetic 11 Other 12 Wollastonite 13 Hair	14 Quartz 15 Mica 16 Gypsum 17 Cal. Carbonate 18 Matrix 19 Perlite 20 Other

MICROSCOPIC Optical Properties

Morphology (M): 1. Wavy 2. Straight 3. Uniform Diameter 4. Ribbon-Like 5. Tapered Ends 6. Sealed 7. Fitted 8. Medulla 9. Exotic Shape 10. Other

Sign of Elongation (S): 1. + 2. - 3. Variable

Pleochroism (P): 1. Yes 2. No

Birefringence (B): 1 Low: 0.010 2 Med 0.010-0.050 3 High >0.050 4 None 0.00 or Isotropic

Fiber Color (FC): 1 White 2 Brown 3 Beige 4 Blue 5 Green 6 Colorless

Extinction (E): 1. Parallel 2. Symmetrical 3. Oblique 4. Undulose

Sample	Macrosc.	Treat	Stereo Asbestos Est. %	Asbestos Type	% of Asbestos	Other Fibrous Type	Other Fibrous %	Non-Fibrous Type	Non-Fibrous %	Non-Asb Char. Ex. E4	Optical Properties ⊥ R.I.	Optical Properties ∥ R.I.	P	B	(FC)	E
RR-00032	(C) 3	1	0	ND	0	—		20	100							
	(T) 2										M	S				
	(H) 1															
RR-00033	(C) 3	1	0	ND	0	—		20	100							
	(T) 2										M	S				
	(H) 1															
RR-00034	(C) 3	1	0	ND	0	—		20	100							
	(T) 2										M	S				
	(H) 1															
RR-00035	(C) 3	1	0	ND	0	—		20	100							
	(T) 2										M	S				
	(H) 1															
RR-00036	(C) 3	1	0	ND	0	—		20	100							
	(T) 2										M	S				
	(H) 1															
RR-00037	(C) 3	1	0	ND	0	—		20	100							
	(T) 2										M	S				
	(H) 1															
RR-00038	(C) 3	1	0	ND	0	—		20	100							
	(T) 2										M	S				
	(H) 1															
RR-00039	(C) 7	1	0	ND	0	—		20	100							
	(T) 2										M	S				
	(H) 1															
RR-00040	(C) 2	1	0	ND	0	—		20	100							
	(T) 2										M	S				
	(H) 1															
RR-00041	(C) 7	1	0	ND	0	—		20	100							
	(T) 2										M	S				
	(H) 1															

Analyst: KBarnes Date: 4/28/09 Computer: _____ Date: _____

Room Temp (C): 20.6

PLMVE: SRC-LIBBY-03, REV. 1

KB 4/30/09

[redacted] Rev. 2

Client: Logged: TAT: [redacted]

Address: Date/Time Due:

Fax:

Project:

Special Instructions	Order Number
	270900047

Macroscopic	Treatment	COMPONENT TYPES: Asbestos	Fibrous	Non-Fibrous	MICROSCOPIC: Optical Properties
COLOR (C): 1 Brown, 2 Gray, 3 Tan, 4 White, 5 Red, 6 Various, 7 Black, 8 Silver, 9 Blue, 10 Yellow TEXTURE (T): 1 Fibrous, 2 Non-Fibrous, 3 Other HOMOGENEITY (H): 1 Homogeneous, 2 Heterogeneous, 3 OTHER, 4 Layers (#)	1 Teased 2 Crushed 3 Dissolve 4 Ashed 5 Heated 6 Melted	1 Chrysotile 2 Amosite 3 Anthophyllite 4 Tremolite 5 Actinolite 6 Crocidolite	7 Cellulose 8 Glass 9 Min. Wool 10 Synthetic 11 Other 12 Wollastonite 13 Hair	14 Quartz 15 Mica 16 Gypsum 17 Cal. Carbonate 18 Matrix 19 Perlite 20 Other	Morphology (M): 1. Wavy, 2. Straight, 3. Uniform Diameter, 4. Ribbon-Like, 5. Tapered Ends, 6. Sealed, 7. Pitted, 8. Medulla, 9. Exotic Shape, 10. Other Sign of Elongation (S): 1. +, 2. -, 3. Variable Pleochroism (P): 1. Yes, 2. No Birefringence (B): 1 Low: 0.010, 2 Med 0.010-0.050, 3 High >0.050, 4 None 0.00 or Isotropic Fiber Color (FC): 1 White, 2 Brown, 3 Beige, 4 Blue, 5 Green, 6 Colorless Extinction (E): 1. Parallel, 2. Symmetrical, 3. Oblique, 4. Undulose

Sample	Macrosc.	Treat	Stereo Asbestos Est. %	Asbestos Type	% of Asbestos	Other Fibrous Type	Other Fibrous %	Non-Fibrous Type	Non-Fibrous %	Non-Asb Char. Ex. E4	Optical Properties			
RR-00042	(C) 2	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00043	(C) 2	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00044	(C) 2	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00045	(C) 1	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00046	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00047	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00048	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00049	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00050	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00051	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E

Analyst: KBarnes Date: 4/28-29/09 Computer: _____ Date: _____

Room Temp (C): 21.4

PLMVE: SRC-LIBBY-03, REV. 1

KB 4/30/09

[redacted] Rev. 2

Client: Logged: TAT: [redacted]

Address: Date/Time Due:

Fax:

Project:

Special Instructions	Order Number
	270900047

Macroscopic	Treatment	COMPONENT TYPES: Asbestos	Fibrous	Non-Fibrous	MICROSCOPIC Optical Properties
COLOR (C): 1 Brown, 2 Gray, 3 Tan, 4 White, 5 Red, 6 Various, 7 Black, 8 Silver, 9 Blue, 10 Yellow TEXTURE (T): 1 Fibrous, 2 Non-Fibrous, 3 Other HOMOGENEITY (H): 1 Homogeneous, 2 Heterogeneous, 3 OTHER, 4 Layers (#)	1 Teased, 2 Crushed, 3 Dissolve, 4 Ashed, 5 Heated, 6 Melted	1 Chrysotile, 2 Amosite, 3 Anthophyllite, 4 Tremolite, 5 Actinolite, 6 Crocidolite	7 Cellulose, 8 Glass, 9 Min. Wool, 10 Synthetic, 11 Other, 12 Wollastonite, 13 Hair	14 Quartz, 15 Mica, 16 Gypsum, 17 Cal. Carbonate, 18 Matrix, 19 Perlite, 20 Other	Morphology (M): 1. Wavy, 2. Straight, 3. Uniform Diameter, 4. Ribbon-Like, 5. Tapered Ends, 6. Sealed, 7. Pitted, 8. Medulla, 9. Exotic Shape, 10. Other Sign of Elongation (S): 1. +, 2. -, 3. Variable Pleochroism (P): 1. Yes, 2. No Birefringence (B): 1 Low: 0.010, 2 Med 0.010-0.050, 3 High >0.050, 4 None 0.00 or Isotropic Fiber Color (FC): 1 White, 2 Brown, 3 Beige, 4 Blue, 5 Green, 6 Colorless Extinction (E): 1. Parallel, 2. Symmetrical, 3. Oblique, 4. Undulose

Sample	Macrosc.	Treat	Stereo Asbestos Est. %	Asbestos Type	% of Asbestos	Other Fibrous Type	Other Fibrous %	Non-Fibrous Type	Non-Fibrous %	Non-Asb Char. Ex. E4	Optical Properties			
RR-00052	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00053	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00054	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00055	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00056	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00057	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00058	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00059	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00060	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00061	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E

Analyst: KBarnes Date: 4/29/09 Computer: _____ Date: _____

Room Temp (C): 20.0

PLMVE: SRC-LIBBY-03, REV. 1

KB 4/30/09

~~Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy~~

REV. 2

Client: Logged: TAT: [redacted]

Address: Date/Time Due:

Fax:

Project:

Special Instructions

Order Number 270900047

Macroscopic	Treatment	COMPONENT TYPES: Asbestos	Fibrous	Non-Fibrous	MICROSCOPIC Optical Properties
COLOR (C): 1 Brown, 2 Gray, 3 Tan, 4 White, 5 Red, 6 Various, 7 Black, 8 Silver, 9 Blue, 10 Yellow	1 Teased, 2 Crushed, 3 Dissolve, 4 Ashed, 5 Heated, 6 Melted	1 Chrysotile, 2 Amosite, 3 Anthophyllite, 4 Tremolite, 5 Actinolite, 6 Crocidolite	7 Cellulose, 8 Glass, 9 Min. Wool, 10 Synthetic, 11 Other, 12 Wollastonite, 13 Hair	14 Quartz, 15 Mica, 16 Gypsum, 17 Cal. Carbonate, 18 Matrix, 19 Perlite, 20 Other	Morphology (M): 1. Wavy, 2. Straight, 3. Uniform Diameter, 4. Ribbon-Like, 5. Tapered Ends, 6. Sealed, 7. Pitted, 8. Medulla, 9. Exotic Shape, 10. Other; Sign of Elongation (S): 1. +, 2. -, 3. Variable; Pleochroism (P): 1. Yes, 2. No; Birefringence (B): 1 Low: 0.010, 2 Med 0.010-0.050, 3 High >0.050, 4 None 0.00 or Isotropic; Fiber Color (FC): 1 White, 2 Brown, 3 Beige, 4 Blue, 5 Green, 6 Colorless; Extinction (E): 1. Parallel, 2. Symmetrical, 3. Oblique, 4. Undulose
TEXTURE (T): 1 Fibrous, 2 Non-Fibrous, 3 Other					
HOMOGENEITY (H): 1 Homogeneous, 2 Heterogeneous, 3 OTHER, 4 Layers (#)					

Sample	Macrosc.	Treat	Stereo Asbestos Est. %	Asbestos Type	% of Asbestos	Other Fibrous Type	Other Fibrous %	Non-Fibrous Type	Non-Fibrous %	Non-Asb Char. Ex. E4	Optical Properties ⊥ R.I.	∥ R.I.	M	S	P	B	(FC)	E
RR-00062	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	
RR-00201	(C) 4	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	
RR-00202	(C) 4	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	
RR-00203	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	
RR-00204	(C) 4	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	
RR-00205	(C) 4	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	
RR-00206	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	
RR-00207	(C) 4	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	
RR-00208	(C) 4	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	
RR-00209	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 1																	

Analyst: KBarnes Date: 4/29/09 Computer: _____ Date: _____

Room Temp (C): 21.5

PLMVE: SRC-LIBBY-03, ~~REV. 1~~ 4/30/09

[redacted] Rev. 2

Client: Logged: TAT: [redacted]

Address: Date/Time Due:

Fax:

Project:

Special Instructions	Order Number
	270900047

Macroscopic	Treatment	COMPONENT TYPES: Asbestos	Fibrous	Non-Fibrous	MICROSCOPIC: Optical Properties
COLOR (C): 1 Brown, 2 Gray, 3 Tan, 4 White, 5 Red, 6 Various, 7 Black, 8 Silver, 9 Blue, 10 Yellow TEXTURE (T): 1 Fibrous, 2 Non-Fibrous, 3 Other HOMOGENEITY (H): 1 Homogeneous, 2 Heterogeneous, 3 OTHER, 4 Layers (#)	1 Teased 2 Crushed 3 Dissolve 4 Ashed 5 Heated 6 Melted	1 Chrysotile 2 Amosite 3 Anthophyllite 4 Tremolite 5 Actinolite 6 Crocidolite	7 Cellulose 8 Glass 9 Min. Wool 10 Synthetic 11 Other 12 Wollastonite 13 Hair	14 Quartz 15 Mica 16 Gypsum 17 Cal. Carbonate 18 Matrix 19 Perlite 20 Other	Morphology (M): 1. Wavy, 2. Straight, 3. Uniform Diameter, 4. Ribbon-Like, 5. Tapered Ends, 6. Sealed, 7. Pitted, 8. Medulla, 9. Exotic Shape, 10. Other Sign of Elongation (S): 1. +, 2. -, 3. Variable Pleochroism (P): 1. Yes, 2. No Birefringence (B): 1 Low: 0.010, 2 Med 0.010-0.050, 3 High >0.050, 4 None 0.00 or Isotropic Fiber Color (FC): 1 White, 2 Brown, 3 Beige, 4 Blue, 5 Green, 6 Colorless Extinction (E): 1. Parallel, 2. Symmetrical, 3. Oblique, 4. Undulose

Sample	Macrosc.	Treat	Stereo Asbestos Est. %	Asbestos Type	% of Asbestos	Other Fibrous Type	Other Fibrous %	Non-Fibrous Type	Non-Fibrous %	Non-Asb Char. Ex. E4	Optical Properties			
RR-00210	(C) 4	1	0	ND	0	—	—	20	100		⊥ R.I.		∥ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00211	(C) 4	1	0	ND	0	—	—	20	100		⊥ R.I.		∥ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00212	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		∥ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00213	(C) 4	1	0	ND	0	—	—	20	100		⊥ R.I.		∥ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00214	(C) 4	1	0	ND	0	—	—	20	100		⊥ R.I.		∥ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00215	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		∥ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00216	(C) 4	1	0	ND	0	—	—	20	100		⊥ R.I.		∥ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00217	(C) 4	1	0	ND	0	—	—	20	100		⊥ R.I.		∥ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
RR-00218	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		∥ R.I.	
	(T) 2										M		S	
	(H) 1										P	B	(FC)	E
	(C)							20			⊥ R.I.		∥ R.I.	
	(T)										M		S	
	(H)										P	B	(FC)	E

KB 4/30/09

Analyst: KBarnes Date: 4/30/09 Computer: _____ Date: _____

Room Temp (C): 18.1

REFRACTIVE INDEX LIQUIDS

Instructions: Please see and follow attached table from Shu-Chun Su, Technical Expert for NVLAP Asbestos Programs. (Suggested Format for Recording Results of RI Liquids Calibration using Cargille Glass Standard and Dispersion Staining Method - Version: February 1996)

The following components are included in the table:

1 Date
2 Nominal or Labeled n_D 25 degree Celsius
3 Cargille Glass
3a Nominal or Labeled R.I.
3b Lot No.
4 Central Stop DS Observation
4a Predominant DS Color
4b Corresponding $alpha_0$
5 Liquid or Room Temperature (degree Celsius)
6 Actual or Calibrated n_D 25 degree Celsius
7 Difference between Calibrated n_D 25 degree Celsius and Labeled n_D 25 degree Celsius
8 Accept or Reject
9 Analyst

Calibration Of Common RI Oils

Date: 4/17/09

RI Oil		CARGILLE GLASS		CENTRAL STOP DS						
N_D	Lot #	Labeled RI	Lot #	DS Color	λ_0	dN_D/dt	T_R	N_X	N_D-N_X	Accept or Reject
1.550	13619HI	1.550	C	BLUE	600	4.91E-04	19.0	1.549	0.001	ACCEPT
1.605	0701	1.600	B	BLUE	620	4.41E-04	19.1	1.601	0.004	ACCEPT
1.680		1.680	C	BLUE	600	4.75E-04	19.1	1.677	0.003	ACCEPT
1.700		1.700				4.80E-04			1.700	REJECT

From Su (1996) RI Oil Conversion Tables
Temperture Corrected

N_D=The Refracted Index the Manufacturer Calibrated for the Oil At 25^0 C

λ_0 = Associated wavelength of observerd Dispersion Staining Color (from McCrone color chart)

dn_D/dt=The Change in Refractive Index per Degree Celsius from RI Oil bottle

T_R=Room Temperature at the Time of the Calibration in °C

N_X=The Refractive Index Measured During Calibration

Analyst: K Barnes 5/5/09
Signature / Date

Calibration Of Non Common RI Oils

Date: **4/17/09**

RI Oil				Cargille Glass				Central Stop Dispersion Staining			
Labeled N_D	Lot #	dn_D/dt	n_F-n_C	Lableled RI	Lot #	n_F	n_C	DS Color	λ_0	K_D	T_R°C
1.625	0807	-4.52E-04	0.0275	1.625	B	1.63824	1.62065	Purple	589	0	19.0

From RI Oil Bottle

From Cargille Glass Charts (supplied w/ Cargille Bead Set)

From Su (2002)Table 2

RI Oil		Calculated Values			
Labeled N_D	Lot #	n_D liq	N_{CORR}	Labaled N_D-N_{Corr}	Accept or Reject
1.625	0807	1.625	1.622	0.003	***ACCEPT***

Labeled N_D=The Refracted Index the Manufacturer Calibrated for the Oil At 25° C
dn_D/dt=The Change in Refractive Index per Degree Celsius
Oil n_F-n_C = Dispersion Coefficient of RI Oil
Solid n_F-n_C = Dispersion Coefficient of Cargille Glass used
λ_0 = Associated wavelength of observed Dispersion Staining Color (from McCrone Color chart)
K_D = Coefficient determined for matching DS wavelength
T_R°C = Room temperature at time of calibration in °C
n_D liq =The Refractive Index Measured During Calibration
N_{Corr}=The Refractive Index After Temperature Correction Of N_D liq

Analyst: KBarnes 5/13/09
Signature / Date

Controlled Document
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STANDARD LABORATORY DATA PACKAGE CHECKLIST

Instructions: All applicable data package deliverables are included in the following nine pages. Using the print option will print out all forms necessary and in the appropriate order. Please provide information as directed.

Analytical Test Report
Bulk Asbestos Analysis by Polarized Light Microscopy (PLM)

Prepared For:	EMR, Inc. 11 East Superior Street
City/State:	Duluth, MN 55802
Laboratory Name:	EMSL Analytical, Inc.
City/State:	Libby, Montana
Laboratory Job No.:	270900048
Method Utilized (SOP and Rev. No.):	~~SRC-Libby-03, Rev. 1~~ KB 5/4/09 PLM-GRHV (SRC-LIBBY-01, Rev. 1)
Circle One:	(Visual Estimation) Point Counting Approach
Report Reviewed by:	

STANDARD LABORATORY DATA PACKAGE CHECKLIST

Instructions: For PLM analytical results raw data packages, complete and sign the following checklist. Attach supporting documentation as outlined below. Organize the supporting documentation in the order listed below. Paginate the completed raw data package.

		Laboratory Verification (Initials and Date)	Validator Verification (Initials and Date)
1	**Number of samples received:** 57 *An SDG is defined as no more than 200 samples.* **Additional Supporting Documentation:** Attach COC forms having footer R (report).	KB 4/30/09	6/22/09
2	**Date of sample receipt and condition of samples:** 4/24/2009 OK *For Condition of samples enter "OK" or "See SDG Case Narrative".*	KB 4/30/09	6/22/09
3	**SDG Case Narrative:** **Additional Supporting Documentation:** Attach SDG Narrative and any modification forms.	KB 4/30/09	6/22/09
4	**Check for contamination (daily):** Wipe microscope slides with lens paper before using. *Laboratory Verification initial and date signifies that this has been performed for the samples in this SDG.*	KB 4/30/09	N/A
5	**Verification of the refractive indices of the refractive index liquids once per month:** **Additional Supporting Documentation:** Provide information indicating a monthly record of checking each of the four liquids including liquid name, lot number and analyst initials. (See table - Results of RI Liquids Calibration)	KB 4/30/09	N/A
6	**Verification of microscope adjustments prior to each SDG:** *Laboratory Verification initial and date signifies that this has been performed for the samples in this SDG.*	KB 4/30/09	N/A
7	**Reference material - Visual Estimation Approach:** *Laboratory Verification initial and date signifies that this has been performed for the samples in this SDG.*	KB 4/30/09	N/A
	Reference material - Point Counting Approach: **Additional Supporting Documentation:** Provide calibration curve documentation, printed from the EDD spreadsheet.	KB 4/30/09	N/A
8	**VE and/or PC hard copy data forms (as presented in the EDD spreadsheet):** **Additional Supporting Documentation:** Copies of the Hard Copy Data Forms for all investigative samples and laboratory duplicates will be provided from systems that are entered electronically.	KB 4/30/09	6/22/09
9	**Bench sheets for data results:** **Additional Supporting Documentation:** Provide copies of the hand written or LIMS system generated raw data sheets for sample results.	KB 4/30/09	6/22/09

COCs

Chain of Custody Record

From: CDM
2714 Walnut St
Denver, CO 80205

Libby Asbestos Investigation

U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

No. D2592

Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

via: ☐ hand delivery ☑ shipped

Date Shipped: 4/22/2009
Carrier Name: Fed-Ex
Airbill: N/A

2709000048

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air;B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
☑	RR-00001	C		9/17/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00002	C		9/17/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00005	C		9/17/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00011	C		9/17/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00012	C		9/17/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00013	C		9/17/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00014	C		9/17/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00015	C		9/17/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00016	C		9/18/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00017	C		9/18/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00018	C		9/18/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 57

END OF SUBMITTAL

Additional Comments:

QC'd 4/29 042209

Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Carrie Madrid CDM	4/22/09 1250	Elyla J. Wyatt-Pescador/EMSL	4/24/09 1345	ok d accept
Elyla J. Wyatt-Pescador/EMSL	5/15/09 1949			

Apr 24, 2003 Rev 1

Analytical Support Group

Chain of Custody Record

From: CDM
2714 Walnut St
Denver, CO 80205

Libby Asbestos Investigation

U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

No. D2592

Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

via: ☐ hand delivery ☑ shipped

Date Shipped: 4/22/2009
Carrier Name: Fed-Ex
Airbill: N/A

270900048

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air;B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
☑	RR-00019	C		9/18/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00020	C		9/18/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00021	C		9/18/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00022	C		9/18/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00023	C		9/18/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00025	C		9/19/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00027	C		9/19/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00028	C		9/19/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00029	C		9/19/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00030	C		9/19/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00031	C		9/22/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 57

END OF SUBMITTAL

Additional Comments:

QC'd 959 042209

Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Carrie Madrid CDM	4/22/09 1250	Edith J. Myatt-Pescador/EMSL	4/24/09 1345	OK & accept
Edith J. Myatt-Pescador/EMSL	5/15/09/0949			

Chain of Custody Record

From: CDM
2714 Walnut St
Denver, CO 80205

Libby Asbestos Investigation

U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

No. D2592

Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

via: ☐ hand delivery ☑ shipped

Date Shipped: 4/22/2009
Carrier Name: Fed-Ex
Airbill: N/A

2709000048

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air;B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
☑	RR-00032	C		9/22/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00033	C		9/22/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00034	C		9/22/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00035	C		9/22/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00036	C		9/22/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00037	C		9/22/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00039	C		9/23/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00040	C		9/23/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00041	C		9/23/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00042	C		9/23/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00043	C		9/23/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 57

END OF SUBMITTAL

Additional Comments:

QC'd 989042209

Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Carin Madrid CDM	4/22/09 1250	Elizabeth J. Wyatt-Pescador/EMSL	4/24/09/1345	ok & accept
Elizabeth J. Wyatt-Pescador/EMSL	5/15/09/0949			

Apr 24, 2003 Rev 1

Chain of Custody Record

Libby Asbestos Investigation

No. D2592

From: CDM
2714 Walnut St
Denver, CO 80205

U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

via: ☐ hand delivery ☑ shipped

Date Shipped: 4/22/2009
Carrier Name: Fed-Ex
Airbill: N/A

270900048

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air;B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
☑	RR-00044	C		9/23/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00045	C		9/23/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00046	C		9/23/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00047	C		9/24/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00048	C		9/24/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00050	C		9/24/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00051	C		9/24/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00052	C		9/24/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00053	C		9/24/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00054	C		9/24/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑
☑	RR-00055	C		9/24/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		☑

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 57

END OF SUBMITTAL

Additional Comments:

QC'd 484 042209

Carrie Madrid CDM 4/22/09 1250 Elizth J. Wyatt-Pescador/EMSL 4/24/09/1345 OK to accept

Relinquished by (Signature and Company) Date/Time Received by (Signature and Company) Date/Time Sample Condition upon Receipt

Elizth J. Wyatt-Pescador/EMSL 5/15/09/0949

Relinquished by (Signature and Company) Date/Time Received by (Signature and Company) Date/Time Sample Condition upon Receipt

Relinquished by (Signature and Company) Date/Time Received by (Signature and Company) Date/Time Sample Condition upon Receipt

Chain of Custody Record

Libby Asbestos Investigation

No. D2592

From: CDM
2714 Walnut St
Denver, CO 80205

U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

via: ☐ hand delivery ☑ shipped

Date Shipped: 4/22/2009
Carrier Name: Fed-Ex
Airbill: N/A

270900048

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air;B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
✓	RR-00056	C		9/25/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		✓
✓	RR-00057	C		9/25/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		✓
✓	RR-00058	C		9/25/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		✓
✓	RR-00059	C		9/25/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		✓
✓	RR-00060	C		9/25/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		✓
✓	RR-00061	C		9/25/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		✓
✓	RR-00062	C		9/25/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		✓
✓	RR-00203	C		10/31/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		✓
✓	RR-00206	C		11/4/2008	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		✓
✓	RR-00209	C		4/14/2009	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		✓
✓	RR-00212	C		4/15/2009	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		✓

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 57

END OF SUBMITTAL

Additional Comments:

QC'd 4/24/09 042209

Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Carrie Madrid CDM	4/22/09 1250	Elizabeth J. Wyatt-Pescador/EMSL	4/24/09/1345	OK + accept
Elizabeth J. Wyatt-Pescador/EMSL	5/15/09/0949			

Apr 24, 2003 Rev 1

Page 5 of 6

Chain of Custody Record

Libby Asbestos Investigation

No. D2592

From: CDM
2714 Walnut St
Denver, CO 80205

U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

Send to: EMSL-Westmont
107 Haddon Ave
Westmont, NJ 08108

via: ☐ hand delivery ☑ shipped

Date Shipped: 4/22/2009
Carrier Name: Fed-Ex
Airbill: N/A

270900048

Sample Placed in Cooler/Bag	Index ID	Suffix ID*	Suffix #	Sample Date	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air;B=Bulk Insulation)	Turn Around Time	Analysis Request	Comments	Sample Received by Lab
✓	RR-00215	C		4/17/2009	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		✓
✓	RR-00218	C		4/21/2009	S	3 Day	PLM-GRAV (SRC-Libby-01 (rev 1))		✓

*Suffix IDs: C= Coarse; B= Bulk; F= Fine; FG= Fine Ground; CA= Archive Coarse; BA= Archive Bulk; FA= Archive Fine; FGA=Archive Fine Ground

Total Number of Samples 57

END OF SUBMITTAL

Additional Comments:

QC'd 4/29 042209

Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Carrie Madrid CDM	4/22/09 1250	Elijah J. Wyatt-Pescador/EMSL	4/24/09/1345	OK & accept
Elijah J. Wyatt-Pescador/EMSL	5/15/09/0949			
Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt

INTERNAL CHAIN OF CUSTODY

4/24/2009 4:17:23 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Test: **PLM Libby Gravimetric** **Matrix** Soils **TAT:** 72 Hour **Qty:** 57

Acct Sts: **Slsprsn:** epodell

Logged: jwyattpescador **Date:** 4/24/2009

Sample Condition: ☑ Acceptable ☐ Unacceptable

Inter- Lab Sample Transfer

Samples Relinquished: _____ Date _____
Samples Received: _____ Date _____
Package Mailed to Westmont: _____ Date _____
Method of Delivery: _____
Includes: (Circle)
Benchsheets Sample Slides Sample filters
Micrographs GridBox Other _____

Final Package Received: _____ Date: _____

Comments No prep involved, only analysis. I poured the Samples out of a bag to examine them under the Stereoscope.

Initial Prep (Initials/Lab): KB **Date:** 4/30 - 5/4/09
Filter Prep (Initials/Lab): _____ **Date:** _____
Grid Prep (Initials/Lab): _____ **Date:** _____

For Special Projects Use Only:

QC Selection: _____ Date: _____
Date Package Review: VP Date: 8/10/09
Date Package Mailed: VP Date: 8/10/09

Special Instructions

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0001	RR-00001		4/27/2009 1:45:00 PM
270900048	270900048-0002	RR-00002		4/27/2009 1:45:00 PM
270900048	270900048-0003	RR-00005		4/27/2009 1:45:00 PM
270900048	270900048-0004	RR-00011		4/27/2009 1:45:00 PM
270900048	270900048-0005	RR-00012		4/27/2009 1:45:00 PM
270900048	270900048-0006	RR-00013		4/27/2009 1:45:00 PM
270900048	270900048-0007	RR-00014		4/27/2009 1:45:00 PM
270900048	270900048-0008	RR-00015		4/27/2009 1:45:00 PM

INTERNAL CHAIN OF CUSTODY

4/24/2009 4:17:23 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332		
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Order:	270900048
		EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

270900048	270900048-0009	RR-00016	4/27/2009 1:45:00 PM
270900048	270900048-0010	RR-00017	4/27/2009 1:45:00 PM
270900048	270900048-0011	RR-00018	4/27/2009 1:45:00 PM
270900048	270900048-0012	RR-00019	4/27/2009 1:45:00 PM
270900048	270900048-0013	RR-00020	4/27/2009 1:45:00 PM
270900048	270900048-0014	RR-00021	4/27/2009 1:45:00 PM
270900048	270900048-0015	RR-00022	4/27/2009 1:45:00 PM
270900048	270900048-0016	RR-00023	4/27/2009 1:45:00 PM
270900048	270900048-0017	RR-00025	4/27/2009 1:45:00 PM
270900048	270900048-0018	RR-00027	4/27/2009 1:45:00 PM
270900048	270900048-0019	RR-00028	4/27/2009 1:45:00 PM
270900048	270900048-0020	RR-00029	4/27/2009 1:45:00 PM
270900048	270900048-0021	RR-00030	4/27/2009 1:45:00 PM
270900048	270900048-0022	RR-00031	4/27/2009 1:45:00 PM
270900048	270900048-0023	RR-00032	4/27/2009 1:45:00 PM
270900048	270900048-0024	RR-00033	4/27/2009 1:45:00 PM
270900048	270900048-0025	RR-00034	4/27/2009 1:45:00 PM
270900048	270900048-0026	RR-00035	4/27/2009 1:45:00 PM
270900048	270900048-0027	RR-00036	4/27/2009 1:45:00 PM
270900048	270900048-0028	RR-00037	4/27/2009 1:45:00 PM

INTERNAL CHAIN OF CUSTODY

4/24/2009 4:17:23 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332		
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Order:	270900048
		EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

270900048	270900048-0029	RR-00039	4/27/2009 1:45:00 PM
270900048	270900048-0030	RR-00040	4/27/2009 1:45:00 PM
270900048	270900048-0031	RR-00041	4/27/2009 1:45:00 PM
270900048	270900048-0032	RR-00042	4/27/2009 1:45:00 PM
270900048	270900048-0033	RR-00043	4/27/2009 1:45:00 PM
270900048	270900048-0034	RR-00044	4/27/2009 1:45:00 PM
270900048	270900048-0035	RR-00045	4/27/2009 1:45:00 PM
270900048	270900048-0036	RR-00046	4/27/2009 1:45:00 PM
270900048	270900048-0037	RR-00047	4/27/2009 1:45:00 PM
270900048	270900048-0038	RR-00048	4/27/2009 1:45:00 PM
270900048	270900048-0039	RR-00050	4/27/2009 1:45:00 PM
270900048	270900048-0040	RR-00051	4/27/2009 1:45:00 PM
270900048	270900048-0041	RR-00052	4/27/2009 1:45:00 PM
270900048	270900048-0042	RR-00053	4/27/2009 1:45:00 PM
270900048	270900048-0043	RR-00054	4/27/2009 1:45:00 PM
270900048	270900048-0044	RR-00055	4/27/2009 1:45:00 PM
270900048	270900048-0045	RR-00056	4/27/2009 1:45:00 PM
270900048	270900048-0046	RR-00057	4/27/2009 1:45:00 PM
270900048	270900048-0047	RR-00058	4/27/2009 1:45:00 PM
270900048	270900048-0048	RR-00059	4/27/2009 1:45:00 PM

INTERNAL CHAIN OF CUSTODY

4/24/2009 4:17:23 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900048
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22,** 23, 24, **25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

270900048	270900048-0049	RR-00060	4/27/2009 1:45:00 PM
270900048	270900048-0050	RR-00061	4/27/2009 1:45:00 PM
270900048	270900048-0051	RR-00062	4/27/2009 1:45:00 PM
270900048	270900048-0052	RR-00203	4/27/2009 1:45:00 PM
270900048	270900048-0053	RR-00206	4/27/2009 1:45:00 PM
270900048	270900048-0054	RR-00209	4/27/2009 1:45:00 PM
270900048	270900048-0055	RR-00212	4/27/2009 1:45:00 PM
270900048	270900048-0056	RR-00215	4/27/2009 1:45:00 PM
270900048	270900048-0057	RR-00218	4/27/2009 1:45:00 PM

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:53 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Test: **PLM Libby Gravimetric** **Matrix:** Soils **TAT:** 72 Hour **Qty:** 57

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0001	RR-00001		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	**Date:**	4/30/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:53 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0002	RR-00002		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	**Date:**	4/30/09
Preliminary Data Sent to Special Projects:	R/Cm	**Date:**	5/4/09
Data Entry:	Qa	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:53 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0003**	**RR-00005**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/30/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/15/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:53 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0004	RR-00011		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	**Date:**	4/30/09
Preliminary Data Sent to Special Projects:	RKM	**Date:**	5/4/09
Data Entry:	el	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:53 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900048
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0005**	**RR-00012**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/30/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	ee	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:53 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332		
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Order:	270900048
		EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0006**	**RR-00013**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/30/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:53 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900048
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0007**	**RR-00014**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KS	**Date:**	4/30/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:53 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0008**	**RR-00015**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/30/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TD	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:53 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0009**	**RR-00016**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	4/30/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	e	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:53 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0010	RR-00017		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	VB	**Date:**	5/1/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	ea	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:53 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900048
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0011**	**RR-00018**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/1/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900048
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0012**	**RR-00019**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KD	**Date:**	5/1/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900048
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0013**	**RR-00020**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/1/09
Preliminary Data Sent to Special Projects:	R/Cm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900048
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0014**	**RR-00021**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/1/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	OL	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0015**	**RR-00022**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/1/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	TD	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0016**	**RR-00023**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/1/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0017**	**RR-00025**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/1/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	Oc	Date:	5/15/09
Structure Reviewer:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0018**	**RR-00027**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/1/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	~~TP~~ [illegible]	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	[illegible] TP	Date:	5/15/09
Reported to Client:	[illegible] TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0019**	**RR-00028**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/1/09
Preliminary Data Sent to Special Projects:	RKM	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900048
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0020**	**RR-00029**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/1/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0021**	**RR-00030**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/1/09
Preliminary Data Sent to Special Projects:	RKM	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0022	RR-00031		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	**Date:**	5/1/09
Preliminary Data Sent to Special Projects:	RKM	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	JP	Date:	5/15/09
Reported to Client:	JP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0023**	**RR-00032**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/1/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/5/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0024	RR-00033		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	**Date:**	5/1/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	ae	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:54 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900048
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0025**	**RR-00034**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/1/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900048
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0026**	**RR-00035**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/1/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0027**	**RR-00036**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	JL	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0028	RR-00037		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	ae	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/5/09
Reported to Client:	TP	Date:	5/9/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900048
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0029**	**RR-00039**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/5/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0030**	**RR-00040**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	dc	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0031	RR-00041		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	ve	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/5/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0032	RR-00042		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/4/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900048
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0033**	**RR-00043**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	Ok	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900048
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0034**	**RR-00044**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/5/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900048
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0035**	**RR-00045**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0036	RR-00046		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0037**	**RR-00047**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKM	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:55 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900048
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0038**	**RR-00048**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKM	**Date:**	5/4/09
Data Entry:	DC	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0039**	**RR-00050**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	ol	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0040	RR-00051		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/5/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0041	RR-00052		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RCm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332		
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Order:	270900048
		EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0042	RR-00053		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	OL	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0043	RR-00054		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900048
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0044**	**RR-00055**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0045	RR-00056		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	ea	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/5/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332		
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Order:	270900048
		EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0046**	**RR-00057**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	ea	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/5/09
Reported to Client:	TP	Date:	5/9/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900048
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0047**	**RR-00058**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	DC	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0048	RR-00059		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKM	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332		
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Order:	270900048
		EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0049**	**RR-00060**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0050**	**RR-00061**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	Dc	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0051	RR-00062		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKM	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/5/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:56 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0052**	**RR-00203**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKM	**Date:**	5/4/09
Data Entry:	ea	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:57 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0053**	**RR-00206**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	R Kim	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:57 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900048
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0054**	**RR-00209**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/5/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/5/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:57 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0055	RR-00212		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KD	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	RKm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:57 PM

Order ID: 270900048

Attn:	Scott Carney EMR, Inc. 11 East Superior Street Suite 260 Duluth, MN 55802	Customer ID:	EMRI78
		Customer PO:	
		Received:	04/24/09 1:45 PM
Fax:	(218) 625-2337 Phone: (218) 625-2332	EMSL Order:	270900048
Project:	**D2592** **Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009**	EMSL Proj ID:	BNSF Libby, MT 2008
		Cust COC ID	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	**270900048-0056**	**RR-00215**		**4/27/2009 1:45:00 PM**

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	R/cm	**Date:**	5/4/09
Data Entry:	[illegible]	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

INTERNAL SAMPLE CHAIN OF CUSTODY

4/24/2009 4:21:57 PM

Order ID: 270900048

Attn: Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802

Fax: (218) 625-2337 Phone: (218) 625-2332

Project: **D2592**
Samples collected 9/ 17, 18, 19, 22, 23, 24, 25, 10/31, 11/4/ 2008 & 4/ 14, 15, 17, 21/2009

Customer ID: EMRI78
Customer PO:
Received: 04/24/09 1:45 PM

EMSL Order: 270900048
EMSL Proj ID: BNSF Libby, MT 2008
Cust COC ID

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270900048	270900048-0057	RR-00218		4/27/2009 1:45:00 PM

Comments:

ANALYZED:	KB	**Date:**	5/4/09
Preliminary Data Sent to Special Projects:	R Kim	**Date:**	5/4/09
Data Entry:	Jc	Date:	5/15/09
Structure Review:		Date:	
Data Validation:	TP	Date:	5/15/09
Reported to Client:	TP	Date:	5/19/09

Micrographs:

	Micrograph Number	Type Diffraction or Morphology

SDG NARRATIVE

Instructions: The following information should be included in all narratives. Please see the attached narrative template.

1. List the method or methods used.
2. For any modifications, reference the modification number and attach a copy of the signed document to the raw data package.
3. If sample condition is not "OK", explain why and any implications to the data.

Asbestos • Microbiology • Indoor Air Quality • Industrial Hygiene • Lead • Chemistry • Materials • Radon

EMSL ANALYTICAL, INC.
www.emsl.com

Corporate Office & Lab
107 Haddon Avenue
Westmont, NJ 08108
PH 800-220-3675
PH 856-858-4800
FAX 856-858-4766

June 22, 2009

Scott Carney
EMR, Inc.
11 East Superior Street
Suite 260
Duluth, MN 55802
Phone: 763-277-5200

RE: SDG Narrative – PLM Analysis by SRC-Libby-03, Revision 2
EMSL Analytical, Inc. Laboratory Order ID: 270900048

Dear Mr. Carney:

Fifty-Seven (57) samples were received in a sealed box on 4/24/09 and signed for by the sample-receiving clerk. These samples were assigned to an internal EMSL laboratory order ID number of 270900048, each sample was assigned a unique, sequential laboratory ID number, and the job was entered into the Laboratory Information System (LIMS). The laboratory ID numbers and the login information are summarized on the EMSL internal Chain of Custodies. Sample condition and signatures are recorded on Chain of Custody D2592 as submitted by CDM Libby, MT.

These samples were analyzed in accordance with SRC-Libby-03, Revision 2 for the Analysis of Asbestos Fibers in Soil by Polarized Light Microscopy, Visual Estimation Approach, with modifications described in Laboratory Modification document:.

Results were e-mailed to the Libby Distribution Group on 5/19/09. If you have any questions or require additional information, please do not hesitate to contact me at 856-858-4800, ext. 1253.

Sincerely,
EMSL Analytical, Inc.

Charles LaCerra
Special Projects Manager

SAMPLE RESULTS

See Attached Sample Results

Instructions: These sample result forms are from the PLM (VE & PC) Data Sheet and EDD.xls file. They are labeled in this file as the VE or PC hard copy data form.

Electronic Data Log Sheet v8 for SOP SRC-LIBBY-01 (Stereomicroscopic and Gravimetric Analysis of Coarse Soil)

File Name: GRAV_EMSL27_270900048_04-30-09.xls
Spreadsheet: Version 8

Lab Name: EMSL27
SOP Version: PLM-GRAV (SRC-LIBBY-01 REV.1)
Lab Job No: 270900048

Electronic Data Entry by: L. Ramowski
Electronic Data Entry date: 05/15/2009

QA by: T. Peters
QA date: 05/15/2009

Click Here to Save File

Key:
- Data entry fields
- Missing required data entry or invalid entry
- Possible data entry omission or error
- Calculated cells--Do not enter data here
- Data entry not required

EPA Index ID	Index Suffix	Lab Job-Sample No.	Status (1 = Analyzed, 2 = Missing, 3 = Contam, 4 = Cancelled)	QA Type (Not QA)	Total Sample Weight (g): Tare Weight (g) Empty Container	Total Sample Weight (g): Mass of Sample + Container (g)	Total Sample Weight (g): Mass of Sample (g)	Analysis Details: Analyst Initials	Analysis Details: Analysis Date	Mass of Asbestos Particles (mg) – Libby Amphibole (LA): LA Qual (ND, Tr)	Libby Amphibole (LA): Tare Weight - Container (mg)	Libby Amphibole (LA): Mass of LA + Container (mg)	Libby Amphibole (LA): Mass (mg) LA	Other Amphibole (OA): OA Qual (ND, Tr)	Other Amphibole (OA): OA Type (AMOS, ANTH, CROC, UNK)	Other Amphibole (OA): Tare Weight - Container (mg)	Other Amphibole (OA): Mass of OA + Container (mg)	Other Amphibole (OA): Mass (mg) OA	Chrysotile (C): C Qual (ND, Tr)	Chrysotile (C): Tare Weight - Container (mg)	Chrysotile (C): Mass of C + Container (mg)	Chrysotile (C): Mass (mg) C	Asbestos Fractions (Values are displayed to two decimal places. Full values are uploaded into database.): % LA	% OA	% C	Comments (enter full text, not codes)
RR-00001	C	270900048-0001	1	Not QA	2.31	64.29	61.98	KB	4/30/2009	ND				ND					ND								
RR-00002	C	270900048-0002	1	Not QA	2.21	58.93	56.73	KB	4/30/2009	ND				ND					ND								
RR-00005	C	270900048-0003	1	Not QA	2.22	54.77	52.55	KB	4/30/2009	ND				ND					ND								
RR-00011	C	270900048-0004	1	Not QA	2.21	6.96	4.76	KB	4/30/2009	ND				ND					ND								
RR-00012	C	270900048-0005	1	Not QA	2.23	47.78	45.55	KB	4/30/2009	ND				ND					ND								
RR-00013	C	270900048-0006	1	Not QA	2.28	41.73	39.45	KB	4/30/2009	ND				ND					ND								
RR-00014	C	270900048-0007	1	Not QA	2.32	94.82	92.50	KB	4/30/2009	ND				ND					ND								
RR-00015	C	270900048-0008	1	Not QA	2.32	24.19	21.87	KB	4/30/2009	ND				ND					ND								
RR-00016	C	270900048-0009	1	Not QA	2.32	158.26	155.94	KB	4/30/2009	ND				ND					ND								
RR-00017	C	270900048-0010	1	Not QA	2.30	60.22	57.91	KB	5/1/2009	ND				ND					ND								
RR-00018	C	270900048-0011	1	Not QA	2.34	100.56	98.22	KB	5/1/2009	ND				ND					ND								
RR-00019	C	270900048-0012	1	Not QA	2.30	53.67	51.37	KB	5/1/2009	ND				ND					ND								
RR-00020	C	270900048-0013	1	Not QA	2.34	46.46	44.12	KB	5/1/2009	ND				ND					ND								
RR-00021	C	270900048-0014	1	Not QA	2.33	61.81	59.48	KB	5/1/2009	ND				ND					ND								
RR-00022	C	270900048-0015	1	Not QA	2.36	39.58	37.22	KB	5/1/2009	ND				ND					ND								
RR-00023	C	270900048-0016	1	Not QA	2.34	42.46	40.12	KB	5/1/2009	ND				ND					ND								
RR-00025	C	270900048-0017	1	Not QA	2.34	52.15	49.81	KB	5/1/2009	ND				ND					ND								
RR-00027	C	270900048-0018	1	Not QA	2.37	40.50	38.13	KB	5/1/2009	ND				ND					ND								
RR-00028	C	270900048-0019	1	Not QA	2.35	47.80	45.45	KB	5/1/2009	ND				ND					ND								
RR-00029	C	270900048-0020	1	Not QA	2.32	36.78	34.46	KB	5/1/2009	ND				ND					ND								
RR-00030	C	270900048-0021	1	Not QA	2.31	24.01	21.71	KB	5/1/2009	ND				ND					ND								
RR-00031	C	270900048-0022	1	Not QA	2.34	87.78	85.43	KB	5/1/2009	ND				ND					ND								
RR-00032	C	270900048-0023	1	Not QA	2.39	72.12	69.73	KB	5/1/2009	ND				ND					ND								
RR-00033	C	270900048-0024	1	Not QA	2.35	45.12	42.77	KB	5/1/2009	ND				ND					ND								
RR-00034	C	270900048-0025	1	Not QA	2.33	51.68	49.36	KB	5/1/2009	ND				ND					ND								
RR-00035	C	270900048-0026	1	Not QA	2.37	42.91	40.55	KB	5/1/2009	ND				ND					ND								
RR-00036	C	270900048-0027	1	Not QA	2.35	16.75	14.39	KB	5/4/2009	ND				ND					ND								
RR-00037	C	270900048-0028	1	Not QA	2.32	57.13	54.81	KB	5/4/2009	ND				ND					ND								
RR-00039	C	270900048-0029	1	Not QA	2.38	37.56	35.19	KB	5/4/2009	ND				ND					ND								
RR-00040	C	270900048-0030	1	Not QA	2.31	42.71	40.40	KB	5/4/2009	ND				ND					ND								
RR-00041	C	270900048-0031	1	Not QA	2.37	33.37	31.00	KB	5/4/2009	ND				ND					ND								
RR-00042	C	270900048-0032	1	Not QA	2.35	41.72	39.37	KB	5/4/2009	ND				ND					ND								
RR-00043	C	270900048-0033	1	Not QA	2.34	21.88	19.54	KB	5/4/2009	ND				ND					ND								
RR-00044	C	270900048-0034	1	Not QA	2.31	10.60	8.29	KB	5/4/2009	ND				ND					ND								
RR-00045	C	270900048-0035	1	Not QA	2.35	29.16	26.81	KB	5/4/2009	ND				ND					ND								
RR-00046	C	270900048-0036	1	Not QA	2.35	21.80	19.45	KB	5/4/2009	ND				ND					ND								
RR-00047	C	270900048-0037	1	Not QA	2.38	28.73	26.35	KB	5/4/2009	ND				ND					ND								
RR-00048	C	270900048-0038	1	Not QA	2.33	15.74	13.41	KB	5/4/2009	ND				ND					ND								
RR-00050	C	270900048-0039	1	Not QA	2.35	36.11	33.76	KB	5/4/2009	ND				ND					ND								
RR-00051	C	270900048-0040	1	Not QA	2.37	93.97	91.60	KB	5/4/2009	ND				ND					ND								
RR-00052	C	270900048-0041	1	Not QA	2.38	39.96	37.58	KB	5/4/2009	ND				ND					ND								
RR-00053	C	270900048-0042	1	Not QA	2.34	79.05	76.71	KB	5/4/2009	ND				ND					ND								
RR-00054	C	270900048-0043	1	Not QA	2.34	44.03	41.68	KB	5/4/2009	ND				ND					ND								
RR-00055	C	270900048-0044	1	Not QA	2.38	33.84	31.46	KB	5/4/2009	ND				ND					ND								
RR-00056	C	270900048-0045	1	Not QA	2.37	77.82	75.46	KB	5/4/2009	ND				ND					ND								
RR-00057	C	270900048-0046	1	Not QA	2.37	67.86	65.49	KB	5/4/2009	ND				ND					ND								
RR-00058	C	270900048-0047	1	Not QA	2.36	84.44	82.08	KB	5/4/2009	ND				ND					ND								
RR-00059	C	270900048-0048	1	Not QA	2.34	33.26	30.92	KB	5/4/2009	ND				ND					ND								
RR-00060	C	270900048-0049	1	Not QA	2.32	85.85	83.53	KB	5/4/2009	ND				ND					ND								
RR-00061	C	270900048-0050	1	Not QA	2.36	16.91	14.55	KB	5/4/2009	ND				ND					ND								
RR-00062	C	270900048-0051	1	Not QA	2.35	8.20	5.85	KB	5/4/2009	ND				ND					ND								
RR-00203	C	270900048-0052	1	Not QA	2.34	67.22	64.88	KB	5/4/2009	ND				ND					ND								
RR-00206	C	270900048-0053	1	Not QA	2.35	48.54	46.20	KB	5/4/2009	ND				ND					ND								
RR-00209	C	270900048-0054	1	Not QA	2.35	37.01	34.66	KB	5/4/2009	ND				ND					ND								
RR-00212	C	270900048-0055	1	Not QA	2.36	6.04	3.68	KB	5/4/2009	ND				ND					ND								
RR-00215	C	270900048-0056	1	Not QA	2.39	25.47	23.08	KB	5/4/2009	ND				ND					ND								
RR-00218	C	270900048-0057	1	Not QA	2.35	42.73	40.38	KB	5/4/2009	ND				ND					ND								

BENCH SHEETS

Instructions: Please provide handwritten or LIMS system generated raw data sheets for sample results.

Data Log Sheet v8 for SOP SRC-LIBBY-01

Stereomicroscopic and Gravimetric Analysis of Coarse Soil

Lab Name:	EMSL27
SOP Version:	PLM-GRAV (SRC-LIBBY-01, REV.1)
Lab Job No.	270900048

EPA Index ID	Index Suffix	Lab Job-Sample No.	Status 1 = Analyzed 2 = Missing 3 = Contam 4 = Cancelled	QA Type (Not QA)	Total Sample Weight (g)			Analysis Details		Mass of Asbestos Particles (mg)								
										Libby Amphibole (LA) Asbestos				Other Amphibole (OA) Asbestos				
					Tare Weight (g) Empty Container	Mass of Sample + Container (g)	Mass of Sample (g)	Analyst Initials	Analysis Date	LA Qual* (ND, Tr)	Tare Weight - Container (mg)	Mass of LA + Container (mg)	Mass (mg) LA	OA Qual* (ND, Tr)	OA Type** (AMOS, ANTH, CROC, UNK)	Tare Weight - Container (mg)	Mass of OA + Container (mg)	Mass (mg) OA
RR-00001	C	270900048-0001	1	Not QA	2.30862	64.28781		KB	4/30/09	ND				ND				
RR-00002	C	-0002	1	Not QA	2.20504	58.93365		KB	4/30/09	ND				ND				
RR-00005	C	-0003	1	Not QA	2.21944	54.76513		KB	4/30/09	ND				ND				
RR-00011	C	-0004	1	Not QA	2.20862	6.96420		KB	4/30/09	ND				ND				
RR-00012	C	-0005	1	Not QA	2.23470	47.78915		KB	4/30/09	ND				ND				
RR-00013	C	-0006	1	Not QA	2.28155	41.72746		KB	4/30/09	ND				ND				
RR-00014	C	-0007	1	Not QA	2.31503	94.816		KB	4/30/09	ND				ND				
RR-00015	C	-0008	1	Not QA	2.31890	24.19314		KB	4/30/09	ND				ND				
RR-00016	C	-0009	1	Not QA	2.32040	158.26363		KB	4/30/09	ND				ND				
RR-00017	C	-0010	1	not QA	2.30465	60.21580		KB	5/1/09	ND				ND				
RR-00018	C	-0011	1	not QA	2.33847	100.56262		KB	5/1/09	ND				ND				
RR-00019	C	-0012	1	Not QA	2.30001	53.66962		KB	5/1/09	ND				ND				
RR-00020	C	-0013	1	Not QA	2.34357	46.46034		KB	5/1/09	ND				ND				
RR-00021	C	-0014	1	Not QA	2.32800	61.8093		KB	5/1/09	ND				ND				
RR-00022	C	-0015	1	Not QA	2.3629	39.5782		KB	5/1/09	ND				ND				
RR-00023	C	-0016	1	Not QA	2.3400	42.4568		KB	5/1/09	ND				ND				
RR-00025	C	-0017	1	Not QA	2.3438	52.1505		KB	5/1/09	ND				ND				
RR-00027	C	-0018	1	Not QA	2.3724	40.4993		KB	5/1/09	ND				ND				
RR-00028	C	-0019	1	Not QA	2.3525	47.8047		KB	5/1/09	ND				ND				

(2)

Calculated automatically in the "Electronic Data Entry" form. Do not enter data here.

	Chrysotile (C) Asbestos							Comments (see Notes below)
	C Qual* (ND, Tr)	Tare Weight - Container (mg)	Mass of C + Container (mg)	Mass (mg) C	% LA	% OA	% C	
RR-00001	ND							
RR-00002	ND							
RR-00005	ND							
RR-00011	ND							
RR-00012	ND							
RR-00013	ND							
RR-00014	ND							
RR-00015	ND							
RR-00016	ND							
RR-00017	ND							
RR-00018	ND							
RR-00019	ND							
RR-00020	ND							
RR-00021	ND							
RR-00022	ND							
RR-00023	ND							
RR-00025	ND							
RR-00027	ND							
RR-00028	ND							

Data Log Sheet v8 for SOP SRC-LIBBY-01

Stereomicroscopic and Gravimetric Analysis of Coarse Soil

Lab Name:	EMSL27
SOP Version:	PLM-GRAV (SRC-LIBBY-01, REV.1)
Lab Job No.	270900048

EPA Index ID	Index Suffix	Lab Job-Sample No.	Status (1 = Analyzed, 2 = Missing, 3 = Contam, 4 = Cancelled)	QA Type (Not QA)	Total Sample Weight (g): Tare Weight (g) Empty Container	Total Sample Weight (g): Mass of Sample + Container (g)	Total Sample Weight (g): Mass of Sample (g)	Analysis Details: Analyst Initials	Analysis Date	Mass of Asbestos Particles (mg) – Libby Amphibole (LA) Asbestos: LA Qual* (ND, Tr)	Libby Amphibole (LA) Asbestos: Tare Weight - Container (mg)	Libby Amphibole (LA) Asbestos: Mass of LA + Container (mg)	Libby Amphibole (LA) Asbestos: Mass (mg) LA	Other Amphibole (OA) Asbestos: OA Qual* (ND, Tr)	Other Amphibole (OA) Asbestos: OA Type** (AMOS, ANTH, CROC, UNK)	Other Amphibole (OA) Asbestos: Tare Weight - Container (mg)	Other Amphibole (OA) Asbestos: Mass of OA + Container (mg)	Other Amphibole (OA) Asbestos: Mass (mg) OA
RR-00029	C	-0020	1	Not QA	2.3223	36.7803		KB	5/1/09	ND				ND				
RR-00030	C	-0021	1	Not QA	2.3076	24.0132		KB	5/1/09	ND				ND				
RR-00031	C	-0022	1	Not QA	2.3433	87.7760		KB	5/1/09	ND				ND				
RR-00032	C	-0023	1	Not QA	2.3870	72.1193		KB	5/1/09	ND				ND				
RR-00033	C	-0024	1	Not QA	2.3500	45.1191		KB	5/1/09	ND				ND				
RR-00034	C	-0025	1	Not QA	2.3273	51.6838		KB	5/1/09	ND				ND				
RR-00035	C	-0026	1	Not QA	2.3650	42.9136		KB	5/1/09	ND				ND				
RR-00036	C	-0027	1	Not QA	2.3533	16.7451		KB	5/4/09	ND				ND				
RR-00037	C	-0028	1	Not QA	2.3175	57.1317		KB	5/4/09	ND				ND				
RR-00039	C	-0029	1	Not QA	2.3775	37.5649		KB	5/4/09	ND				ND				
RR-00040	C	-0030	1	Not QA	2.3110	42.7118		KB	5/4/09	ND				ND				
RR-00041	C	-0031	1	Not QA	2.3704	33.3664		KB	5/4/09	ND				ND				
RR-00042	C	-0032	1	Not QA	2.3502	41.7234		KB	5/4/09	ND				ND				
RR-00043	C	-0033	1	Not QA	2.3440	21.8823		KB	5/4/09	ND				ND				
RR-00044	C	-0034	1	Not QA	2.3136	10.6020		KB	5/4/09	ND				ND				
RR-00045	C	-0035	1	Not QA	2.3523	29.1622		KB	5/4/09	ND				ND				
RR-00046	C	-0036	1	Not QA	2.3538	21.8010		KB	5/4/09	ND				ND				
RR-00047	C	-0037	1	Not QA	2.3807	28.7286		KB	5/4/09	ND				ND				
RR-00048	C	-0038	1	Not QA	2.3279	15.7417		KB	5/4/09	ND				ND				

Page _____ of _____

Calculated automatically in the "Electronic Data Entry" form. Do not enter data here.

	Chrysotile (C) Asbestos							Comments (see Notes below)
	C Qual* (ND, Tr)	Tare Weight - Container (mg)	Mass of C + Container (mg)	Mass (mg) C	% LA	% OA	% C	
RR-00029	ND							
RR-00030	ND							
RR-00031	ND							
RR-00032	ND							
RR-00033	ND							
RR-00034	ND							
RR-00035	ND							
RR-00036	ND							
RR-00037	ND							
RR-00039	ND							
RR-00040	ND							
RR-00041	ND							
RR-00042	ND							
RR-00043	ND							
RR-00044	ND							
RR-00045	ND							
RR-00046	ND							
RR-00047	ND							
RR-00048	ND							

5

Data Log Sheet v8 for SOP SRC-LIBBY-01

Stereomicroscopic and Gravimetric Analysis of Coarse Soil

Lab Name:	EMSL27
SOP Version:	PLM-GRAV (SRC-LIBBY-01, REV.1)
Lab Job No.	270900048

EPA Index ID	Index Suffix	Lab Job-Sample No.	Status (1 = Analyzed, 2 = Missing, 3 = Contam, 4 = Cancelled)	QA Type (Not QA)	Total Sample Weight (g): Tare Weight (g) Empty Container	Total Sample Weight (g): Mass of Sample + Container (g)	Total Sample Weight (g): Mass of Sample (g)	Analysis Details: Analyst Initials	Analysis Details: Analysis Date	Mass of Asbestos Particles (mg) – Libby Amphibole (LA) Asbestos: LA Qual* (ND, Tr)	Libby Amphibole (LA) Asbestos: Tare Weight - Container (mg)	Libby Amphibole (LA) Asbestos: Mass of LA + Container (mg)	Libby Amphibole (LA) Asbestos: Mass (mg) LA	Other Amphibole (OA) Asbestos: OA Qual* (ND, Tr)	Other Amphibole (OA) Asbestos: OA Type** (AMOS, ANTH, CROC, UNK)	Other Amphibole (OA) Asbestos: Tare Weight - Container (mg)	Other Amphibole (OA) Asbestos: Mass of OA + Container (mg)	Other Amphibole (OA) Asbestos: Mass (mg) OA
RR-00050	C	-0039	1	Not QA	2.3487	36.1068		KB	5/4/09	ND				ND				
RR-00051	C	-0040	1	Not QA	2.3711	93.9703		KB	5/4/09	ND				ND				
RR-00052	C	-0041	1	Not QA	2.3798	39.9590		KB	5/4/09	ND				ND				
RR-00053	C	-0042	1	Not QA	2.3390	79.0525		KB	5/4/09	ND				ND				
RR-00054	C	-0043	1	Not QA	2.3449	44.0286		KB	5/4/09	ND				ND				
RR-00055	C	-0044	1	Not QA	2.3755	33.8403		KB	5/4/09	ND				ND				
RR-00056	C	-0045	1	Not QA	2.3666	77.8216		KB	5/4/09	ND				ND				
RR-00057	C	-0046	1	Not QA	2.3721	67.8613		KB	5/4/09	ND				ND				
RR-00058	C	-0047	1	Not QA	2.3579	84.4398		KB	5/4/09	ND				ND				
RR-00059	C	-0048	1	Not QA	2.3355	33.2602		KB	5/4/09	ND				ND				
RR-00060	C	-0049	1	Not QA	2.3200	85.8471		KB	5/4/09	ND				ND				
RR-00061	C	-0050	1	Not QA	2.3561	16.9061		KB	5/4/09	ND				ND				
RR-00062	C	-0051	1	Not QA	2.3492	8.2014		KB	5/4/09	ND				ND				
RR-00203	C	-0052	1	Not QA	2.3408	67.2166		KB	5/4/09	ND				ND				
RR-00206	C	-0053	1	Not QA	2.3469	48.5449		KB	5/4/09	ND				ND				
RR-00209	C	-0054	1	Not QA	2.3464	37.0072		KB	5/4/09	ND				ND				
RR-00212	C	-0055	1	Not QA	2.3550	6.0377		KB	5/4/09	ND				ND				
RR-00215	C	-0056	1	Not QA	2.3907	25.4730		KB	5/4/09	ND				ND				
RR-00218	C	-0057	1	Not QA	2.3459	42.7305		KB	5/4/09	ND				ND				

(4)

Page _____ of _____

Calculated automatically in the "Electronic Data Entry" form. Do not enter data here.

	Chrysotile (C) Asbestos							Comments (see Notes below)
	C Qual* (ND, Tr)	Tare Weight - Container (mg)	Mass of C + Container (mg)	Mass (mg) C	% LA	% OA	% C	
RR-00050	ND							
RR-00051	ND							
RR-00052	ND							
RR-00053	ND							
RR-00054	ND							
RR-00055	ND							
RR-00056	ND							
RR-00057	ND							
RR-00058	ND							
RR-00059	ND							
RR-00060	ND							
RR-00061	ND							
RR-00062	ND							
RR-00203	ND							
RR-00206	ND							
RR-00209	ND							
RR-00212	ND							
RR-00215	ND							
RR-00218	ND							

~~Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy~~

Client:

Address:

Fax:

Project:

PLM-GRAV(SRC-Libby-01,Rev.1)

Logged:

Date/Time Due:

TAT: ~~QC~~

Special Instructions

Order Number

270900048

Macroscopic	Treatment	Asbestos	Fibrous	Non-Fibrous
COLOR (C) 1 Brown 4 White 7 Black 2 Gray 5 Red 8 Silver 3 Tan 6 Various 9 Blue 10 Yellow TEXTURE (T) 1 Fibrous 2 Non-Fibrous 3 Other HOMOGENEITY (H) 1 Homogeneous 3 OTHER 2 Heterogeneous 4 Layers (#)	1 Teased 2 Crushed 3 Dissolve 4 Ashed 5 Heated 6 Melted	1 Chrysotile 2 Amosite 3 Anthophyllite 4 Tremolite 5 Actinolite 6 Crocidolite	7 Cellulose 8 Glass 9 Min. Wool 10 Synthetic 11 Other 12 Wollastonite 13 Hair	14 Quartz 15 Mica 16 Gypsum 17 Cal. Carbonate 18 Matrix 19 Perlite 20 Other

COMPONENT TYPES

MICROSCOPIC Optical Properties

Morphology (M): 1. Wavy, 2. Straight, 3. Uniform Diameter, 4. Ribbon-Like, 5. Tapered Ends, 6. Sealed, 7. Pitted, 8. Medulla, 9. Exotic Shape, 10. Other

Sign of Elongation (S): 1. +, 2. -, 3. Variable

Pleochroism (P): 1. Yes, 2. No

Birefringence (B): 1 Low: 0.010, 2 Med 0.010-0.050, 3 High >0.050, 4 None 0.00 or Isotropic

Fiber Color (FC): 1 White, 2 Brown, 3 Beige, 4 Blue, 5 Green, 6 Colorless

Extinction (E): 1. Parallel, 2. Symmetrical, 3. Oblique, 4. Undulose

Sample	Macrosc.	Treat	Stereo Asbestos Est. %	Asbestos Type	% of Asbestos	Other Fibrous Type	Other Fibrous %	Non-Fibrous Type	Non-Fibrous %	Non-Asb Char. Ex. E4	Optical Properties ⊥ R.I.	Optical Properties ∥ R.I.	M	S	P	B	(FC)	E
RR-00001	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 2																	
RR-00002	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 2																	
RR-00005	(C) 3,7,11	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 2																	
RR-00011	(C) 3,2	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 2																	
RR-00012	(C) 6	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 2																	
RR-00013	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 2																	
RR-00014	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 2																	
RR-00015	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 2																	
RR-00016	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 2																	
RR-00017	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 2																	

Analyst: KBarnes Date: 4/30-5/1/09 Computer: Date:

Room Temp (C): 20.2

~~Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy~~

(2)

Client: Logged: TAT: ~~QC~~

Address: Date/Time Due:

Fax:

Project: PLM-GRAV(SRC-Libby-01,Rev.1)

Special Instructions

Order Number 270900048

Macroscopic	Treatment	COMPONENT TYPES: Asbestos	Fibrous	Non-Fibrous	MICROSCOPIC: Optical Properties
COLOR (C) 1 Brown 4 White 7 Black 2 Gray 5 Red 8 Silver 3 Tan 6 Various 9 Blue 10 Yellow TEXTURE (T) 1 Fibrous 2 Non-Fibrous 3 Other HOMOGENEITY (H) 1 Homogeneous 3 OTHER 2 Heterogeneous 4 Layers (#)	1 Teased 2 Crushed 3 Dissolve 4 Ashed 5 Heated 6 Melted	1 Chrysotile 2 Amosite 3 Anthophyllite 4 Tremolite 5 Actinolite 6 Crocidolite	7 Cellulose 8 Glass 9 Min. Wool 10 Synthetic 11 Other 12 Wollastonite 13 Hair	14 Quartz 15 Mica 16 Gypsum 17 Cal. Carbonate 18 Matrix 19 Perlite 20 Other	Morphology (M): 1. Wavy 6. Sealed; 2. Straight 7. Pitted; 3. Uniform Diameter 8. Medulla; 4. Ribbon-Like 9 Exotic Shape; 5. Tapered Ends 10. Other Sign of Elongation (S): 1. + 2. - 3. Variable Pleochroism (P): 1. Yes 2. No Birefringence (B): 1 Low: 0.010 2 Med 0.010-0.050 3 High >0.050 4 None 0.00 or Isotropic Fiber Color (FC): 1 White 2 Brown 3 Beige 4 Blue 5 Green 6 Colorless Extinction (E): 1. Parallel 2. Symmetrical 3. Oblique 4. Undulose

Sample	Macrosc.	Treat	Stereo Asbestos Est. %	Asbestos Type	% of Asbestos	Other Fibrous Type	Other Fibrous %	Non-Fibrous Type	Non-Fibrous %	Non-Asb Char. Ex. E4	Optical Properties			
RR-00018	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 2										P	B	(FC)	E
RR-00019	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 2										P	B	(FC)	E
RR-00020	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 2										P	B	(FC)	E
RR-00021	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 2										P	B	(FC)	E
RR-00022	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 2										P	B	(FC)	E
RR-00023	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 2										P	B	(FC)	E
RR-00025	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 2										P	B	(FC)	E
RR-00027	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 2										P	B	(FC)	E
RR-00028	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 2										P	B	(FC)	E
RR-00029	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 2										P	B	(FC)	E

Analyst: KBarnes Date: 5/1/09 Computer: _____ Date: _____

Room Temp (C): 18.6

~~Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy~~

(3)

Client:

Logged:

TAT: QC

Address:

Date/Time Due:

Fax:

Project:

PLM-GRAV (SRC-Libby-01, Rev.1)

Special Instructions

Order Number

270900048

Macroscopic	Treatment	Asbestos	Fibrous	Non-Fibrous
COLOR (C) 1 Brown 4 White 7 Black 2 Gray 5 Red 8 Silver 3 Tan 6 Various 9 Blue 10 Yellow TEXTURE (T) 1 Fibrous 2 Non-Fibrous 3 Other HOMOGENEITY (H) 1 Homogeneous 3 OTHER 2 Heterogeneous 4 Layers (#)	1 Teased 2 Crushed 3 Dissolve 4 Ashed 5 Heated 6 Melted	1 Chrysotile 2 Amosite 3 Anthophyllite 4 Tremolite 5 Actinolite 6 Crocidolite	7 Cellulose 8 Glass 9 Min. Wool 10 Synthetic 11 Other 12 Wollastonite 13 Hair	14 Quartz 15 Mica 16 Gypsum 17 Cal. Carbonate 18 Matrix 19 Perlite 20 Other

MICROSCOPIC — Optical Properties

Morphology (M)		Sign of Elongation (S)
1. Wavy 2. Straight 3. Uniform Diameter 4. Ribbon-Like 5. Tapered Ends	6. Scaled 7. Fluted 8. Medulla 9. Exotic Shape 10. Other	1. + 2. - 3. Variable

Pleochroism (P)	Birefringence (B)	Fiber Color (FC)	Extinction (E)
1. Yes 2. No	1 Low 0.010 2 Med 0.010-0.050 3 High >0.050 4 None 0.00 or Isotropic	1 White 2 Brown 3 Beige 4 Blue 5 Green 6 Colorless	1. Parallel 2. Symmetrical 3. Oblique 4. Undulose

Sample	Macrosc.	Treat	Stereo Asbestos Est. %	Asbestos Type	% of Asbestos	Other Fibrous Type	Other Fibrous %	Non-Fibrous Type	Non-Fibrous %	Non-Asb Char. Ex. E4	Optical Properties ⊥ R.I.	Optical Properties ∥ R.I.	Optical Properties P / B	Optical Properties (FC) / E
RR-00030	(C) 3	1	0	ND	0	—	—	20	100					
	(T) 2										M	S		
	(H) 2										P	B	(FC)	E
RR-00031	(C) 3	1	0	ND	0	—	—	20	100					
	(T) 2										M	S		
	(H) 2										P	B	(FC)	E
RR-00032	(C) 3	1	0	ND	0	—	—	20	100					
	(T) 2										M	S		
	(H) 2										P	B	(FC)	E
RR-00033	(C) 3	1	0	ND	0	—	—	20	100					
	(T) 2										M	S		
	(H) 2										P	B	(FC)	E
RR-00034	(C) 3	1	0	ND	0	—	—	20	100					
	(T) 2										M	S		
	(H) 2										P	B	(FC)	E
RR-00035	(C) 3	1	0	ND	0	—	—	20	100					
	(T) 2										M	S		
	(H) 2										P	B	(FC)	E
RR-00036	(C) 3	1	0	ND	0	—	—	20	100					
	(T) 2										M	S		
	(H) 2										P	B	(FC)	E
RR-00037	(C) 3	1	0	ND	0	—	—	20	100					
	(T) 2										M	S		
	(H) 2										P	B	(FC)	E
RR-00039	(C) 7	1	0	ND	0	—	—	20	100					
	(T) 2										M	S		
	(H) 2										P	B	(FC)	E
RR-00040	(C) 3	1	0	ND	0	—	—	20	100					
	(T) 2										M	S		
	(H) 2										P	B	(FC)	E

Analyst: KBarnes Date: 5/11-4/09 Computer: _____ Date: _____

Room Temp (C): 20.1

~~Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy~~

Client:

Logged:

TAT: ~~QC~~

Address:

Date/Time Due:

Fax:

Project:

PLM-GRAV (SRC-Libby-01, Rev.1)

Special Instructions

Order Number

270900048

Macroscopic	Treatment	Asbestos	Fibrous	Non-Fibrous
COLOR (C) 1 Brown 4 White 7 Black 2 Gray 5 Red 8 Silver 3 Tan 6 Various 9 Blue 10 Yellow TEXTURE (T) 1 Fibrous 2 Non-Fibrous 3 Other HOMOGENEITY (H) 1 Homogeneous 3 OTHER 2 Heterogeneous 4 Layers (#)	1 Teased 2 Crushed 3 Dissolve 4 Ashed 5 Heated 6 Melted	1 Chrysotile 2 Amosite 3 Anthophyllite 4 Tremolite 5 Actinolite 6 Crocidolite	7 Cellulose 8 Glass 9 Min. Wool 10 Synthetic 11 Other 12 Wollastonite 13 Hair	14 Quartz 15 Mica 16 Gypsum 17 Cal. Carbonate 18 Matrix 19 Perlite 20 Other

MICROSCOPIC Optical Properties

Morphology (M): 1. Wavy 2. Straight 3. Uniform Diameter 4. Ribbon-Like 5. Tapered Ends 6. Sealed 7. Pitted 8. Medulla 9. Exotic Shape 10. Other

Sign of Elongation (S): 1. + 2. - 3. Variable

Pleochroism (P): 1. Yes 2. No

Birefringence (B): 1 Low: 0.010 2 Med 0.010-0.050 3 High >0.050 4 None 0.00 or Isotropic

Fiber Color (FC): 1 White 2 Brown 3 Beige 4 Blue 5 Green 6 Colorless

Extinction (E): 1. Parallel 2. Symmetrical 3. Oblique 4. Undulose

Sample	Macrosc.	Treat	Stereo Asbestos Est. %	Asbestos Type	% of Asbestos	Other Fibrous Type	Other Fibrous %	Non-Fibrous Type	Non-Fibrous %	Non-Asb Char. Ex. E4	Optical Properties ⊥ R.I.	Optical Properties ∥ R.I.	M	S	P	B	(FC)	E
RR-00041	(C) 7	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 2																	
RR-00042	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 2																	
RR-00043	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 2																	
RR-00044	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 2																	
RR-00045	(C) 2	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 2																	
RR-00046	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 2																	
RR-00047	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 2																	
RR-00048	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 2																	
RR-00050	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 2																	
RR-00051	(C) 3	1	0	ND	0	—	—	20	100									
	(T) 2																	
	(H) 2																	

Analyst: K Barnes Date: 5/4/09 Computer: _____ Date: _____

Room Temp (C): 19.6

~~Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy~~

5

Client:

Logged:

TAT: ~~QC~~

Address:

Date/Time Due:

Fax:

Project:

PLM-GRAV (SRC-Libby-01, Rev.1)

Special Instructions

Order Number

270900048

Macroscopic	Treatment	Asbestos	Fibrous	Non-Fibrous
COLOR (C) 1 Brown 4 White 7 Black 2 Gray 5 Red 8 Silver 3 Tan 6 Various 9 Blue 10 Yellow TEXTURE (T) 1 Fibrous 2 Non-Fibrous 3 Other HOMOGENEITY (H) 1 Homogeneous 3 OTHER 2 Heterogeneous 4 Layers (#)	1 Teased 2 Crushed 3 Dissolve 4 Ashed 5 Heated 6 Melted	1 Chrysotile 2 Amosite 3 Anthophyllite 4 Tremolite 5 Actinolite 6 Crocidolite	7 Cellulose 8 Glass 9 Min. Wool 10 Synthetic 11 Other 12 Wollastonite 13 Hair	14 Quartz 15 Mica 16 Gypsum 17 Cal. Carbonate 18 Matrix 19 Perlite 20 Other

MICROSCOPIC — Optical Properties

Morphology (M): 1. Wavy, 2. Straight, 3. Uniform Diameter, 4. Ribbon-Like, 5. Tapered Ends, 6. Sealed, 7. Pitted, 8. Medulla, 9. Exotic Shape, 10. Other

Sign of Elongation (S): 1. +, 2. -, 3. Variable

Pleochroism (P): 1. Yes, 2. No

Birefringence (B): 1 Low: 0.010, 2 Med 0.010-0.050, 3 High >0.050, 4 None 0.00 or Isotropic

Fiber Color (FC): 1 White, 2 Brown, 3 Beige, 4 Blue, 5 Green, 6 Colorless

Extinction (E): 1. Parallel, 2. Symmetrical, 3. Oblique, 4. Undulose

Sample	Macrosc.	Treat	Stereo Asbestos Est. %	Asbestos Type	% of Asbestos	Other Fibrous Type	Other Fibrous %	Non-Fibrous Type	Non-Fibrous %	Non-Asb Char. Ex. E4	Optical Properties			
RR-00052	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 2										P	B	(FC)	E
RR-00053	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 2										P	B	(FC)	E
RR-00054	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 2										P	B	(FC)	E
RR-00055	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 2										P	B	(FC)	E
RR-00056	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 2										P	B	(FC)	E
RR-00057	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 2										P	B	(FC)	E
RR-00058	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 2										P	B	(FC)	E
RR-00059	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 2										P	B	(FC)	E
RR-00060	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 2										P	B	(FC)	E
RR-00061	(C) 3	1	0	ND	0	—	—	20	100		⊥ R.I.		‖ R.I.	
	(T) 2										M		S	
	(H) 2										P	B	(FC)	E

Analyst: KBarnes Date: 5/4/09 Computer: _____ Date: _____

Room Temp (C): 21.0

~~Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy~~

(6)

Client: Logged: TAT: ~~QC~~

Address: Date/Time Due:

Fax:

Project: PLM-GRAV (SRC-Libby-01, Rev. 1)

Special Instructions

Order Number: 270900048

Macroscopic	Treatment	Asbestos	Fibrous	Non-Fibrous
COLOR (C) 1 Brown 4 White 7 Black 2 Gray 5 Red 8 Silver 3 Tan 6 Various 9 Blue 10 Yellow TEXTURE (T) 1 Fibrous 2 Non-Fibrous 3 Other HOMOGENEITY (H) 1 Homogeneous 3 OTHER 2 Heterogeneous 4 Layers (#)	1 Teased 2 Crushed 3 Dissolve 4 Ashed 5 Heated 6 Melted	1 Chrysotile 2 Amosite 3 Anthophyllite 4 Tremolite 5 Actinolite 6 Crocidolite	7 Cellulose 8 Glass 9 Min. Wool 10 Synthetic 11 Other 12 Wollastonite 13 Hair	14 Quartz 15 Mica 16 Gypsum 17 Cal. Carbonate 18 Matrix 19 Perlite 20 Other

MICROSCOPIC — Optical Properties

Morphology (M): 1. Wavy, 2. Straight, 3. Uniform Diameter, 4. Ribbon-Like, 5. Tapered Ends, 6. Sealed, 7. Pitted, 8. Medulla, 9. Exotic Shape, 10. Other

Sign of Elongation (S): 1. +, 2. -, 3. Variable

Pleochroism (P): 1. Yes, 2. No

Birefringence (B): 1 Low: 0.010, 2 Med 0.010-0.050, 3 High >0.050, 4 None 0.00 or Isotropic

Fiber Color (FC): 1 White, 2 Brown, 3 Beige, 4 Blue, 5 Green, 6 Colorless

Extinction (E): 1. Parallel, 2. Symmetrical, 3. Oblique, 4. Undulose

Sample	Macrosc.	Treat	Stereo Asbestos Est. %	Asbestos Type	% of Asbestos	Other Fibrous Type	Other Fibrous %	Non-Fibrous Type	Non-Fibrous %	Non-Asb Char. Ex. E4	Optical Properties ⊥ R.I.	Optical Properties ∥ R.I.	M	S	P	B	(FC)	E
RR-00062	(C) 3	1	0	ND	0	—		20	100									
	(T) 2																	
	(H) 2																	
RR-00203	(C) 3	1	0	ND	0	—		20	100									
	(T) 2																	
	(H) 2																	
RR-00206	(C) 3	1	0	ND	0	—		20	100									
	(T) 2																	
	(H) 2																	
RR-00209	(C) 3	1	0	ND	0	—		20	100									
	(T) 2																	
	(H) 2																	
RR-00212	(C) 3	1	0	ND	0	—		20	100									
	(T) 2																	
	(H) 2																	
RR-00215	(C) 3	1	0	ND	0	—		20	100									
	(T) 2																	
	(H) 2																	
RR-00218	(C) 3	1	0	ND	0	—		20	100									
	(T) 2																	
	(H) 2																	
	(C)							20										
	(T)																	
	(H)																	
	(C)				KB 5/4/09			20										
	(T)																	
	(H)																	
	(C)							20										
	(T)																	
	(H)																	

Analyst: KBarnes Date: 5/4/09 Computer: _____ Date: _____

Room Temp (C): 21.0

Calibration Of Common RI Oils

Date: 4/17/09

RI Oil		CARGILLE GLASS		CENTRAL STOP DS						
N_D	Lot #	Labeled RI	Lot #	DS Color	λ_0	dN_D/dt	T_R	N_X	N_D-N_X	Accept or Reject
1.550	13619HI	1.550	C	BLUE	600	4.91E-04	19.0	1.549	0.001	ACCEPT
1.605	0701	1.600	B	BLUE	620	4.41E-04	19.1	1.601	0.004	ACCEPT
1.680		1.680	C	BLUE	600	4.75E-04	19.1	1.677	0.003	ACCEPT
1.700		1.700				4.80E-04			1.700	REJECT

From Su (1996) RI Oil Conversion Tables
Temperture Corrected

N_D=The Refracted Index the Manufacturer Calibrated for the Oil At 25^0 C

λ_0 = Associated wavelength of observerd Dispersion Staining Color (from McCrone color chart)

dn_D/dt=The Change in Refractive Index per Degree Celsius from RI Oil bottle

T_R=Room Temperature at the Time of the Calibration in °C

N_X=The Refractive Index Measured During Calibration

Analyst: KBarnes 5/5/09
Signature / Date

Calibration Of Non Common RI Oils

Date: **4/17/09**

RI Oil				Cargille Glass				Central Stop Dispersion Staining			
Labeled N_D	Lot #	dn_D/dt	n_F-n_C	Lableled RI	Lot #	n_F	n_C	DS Color	λ_0	K_D	T_R°C
1.625	0807	-4.52E-04	0.0275	1.625	B	1.63824	1.62065	Purple	589	0	19.0

From RI Oil Bottle

From Cargille Glass Charts (supplied w/ Cargille Bead Set)

From Su (2002)Table 2

RI Oil		Calculated Values			
Labeled N_D	Lot #	n_D liq	N_{CORR}	Labaled N_D-N_{Corr}	Accept or Reject
1.625	0807	1.625	1.622	0.003	***ACCEPT***

Labeled N_D=The Refracted Index the Manufacturer Calibrated for the Oil At 25° C
dn_D/dt=The Change in Refractive Index per Degree Celsius
Oil n_F-n_C = Dispersion Coefficient of RI Oil
Solid n_F-n_C = Dispersion Coefficient of Cargille Glass used
λ_0 = Associated wavelength of observed Dispersion Staining Color (from McCrone Color chart)
K_D = Coefficient determined for matching DS wavelength
T_R°C = Room temperature at time of calibration in °C
n_D liq =The Refractive Index Measured During Calibration
N_{Corr}=The Refractive Index After Temperature Correction Of N_D liq

Analyst: KBarnes 5/13/09
Signature / Date