Final
Quarter 2 and Quarter 3 Memorandum
Outdoor Ambient Air Study

Operable Unit Number 7 of the
Libby Asbestos Superfund Site

Prepared for:
Montana Department of Environmental Quality
Helena Montana

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FINAL
QUARTER 2 AND QUARTER 3 MEMORANDUM
OUTDOOR AMBIENT AIR STUDY

Operable Unit Number 7
of the Libby Asbestos Superfund Site

September 10, 2010

Prepared for:

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1.0 INTRODUCTION

As part of the remedial investigation in Operable Unit Number 7 (OU7), the residential and commercial areas in and around Troy, of the Libby Asbestos Superfund Site, Tetra Tech EM Inc. (Tetra Tech) continued to conduct outdoor ambient air monitoring for the Montana Department of Environmental Quality (DEQ) to evaluate the presence of Libby Amphibole (LA) asbestos in outdoor ambient air throughout OU7.

The outdoor ambient air monitoring program implemented by Tetra Tech is based on the Remedial Investigation Work Plan, Outdoor Ambient Air Study (Tetra Tech 2009a) and the associated health and safety plan (Tetra Tech 2009b) and includes monitoring of ambient air in four distinct "air zones" across OU7. After taking into account variable wind patterns, Tetra Tech established seven monitoring station locations in the four air zones to evaluate human health exposure scenarios throughout the OU.

Analytical data from ambient air monitoring stations in the first and second quarters were not available for timely reporting; therefore, Tetra Tech requested that the second quarter memorandum be combined with the third quarter document when a substantial portion of the analytical data was available for validation and presentation. DEQ agreed to combine the two quarterly memoranda into a single document. A discussion related to the delay in receipt of analytical data is provided in Section 2.4 (Outdoor Ambient Air Monitoring, Issues and Resolutions). At this time, validated analytical data is only available from the first and second quarters and will be presented in this document.

This second and third quarter memorandum summarizes activities related to monitoring station maintenance, outdoor ambient air monitoring activities conducted, issues encountered, and resolutions from January 28, 2010 through July 30, 2010 of the year-long outdoor ambient air monitoring program. This report also provides a summary of validated ambient air data available at the time this document was prepared (Sampling Periods 1 through 18 [Quarter 1 and Quarter 2]).

2.0 QUARTER 2 AND QUARTER 3 AIR MONITORING PLAN IMPLEMENTATION

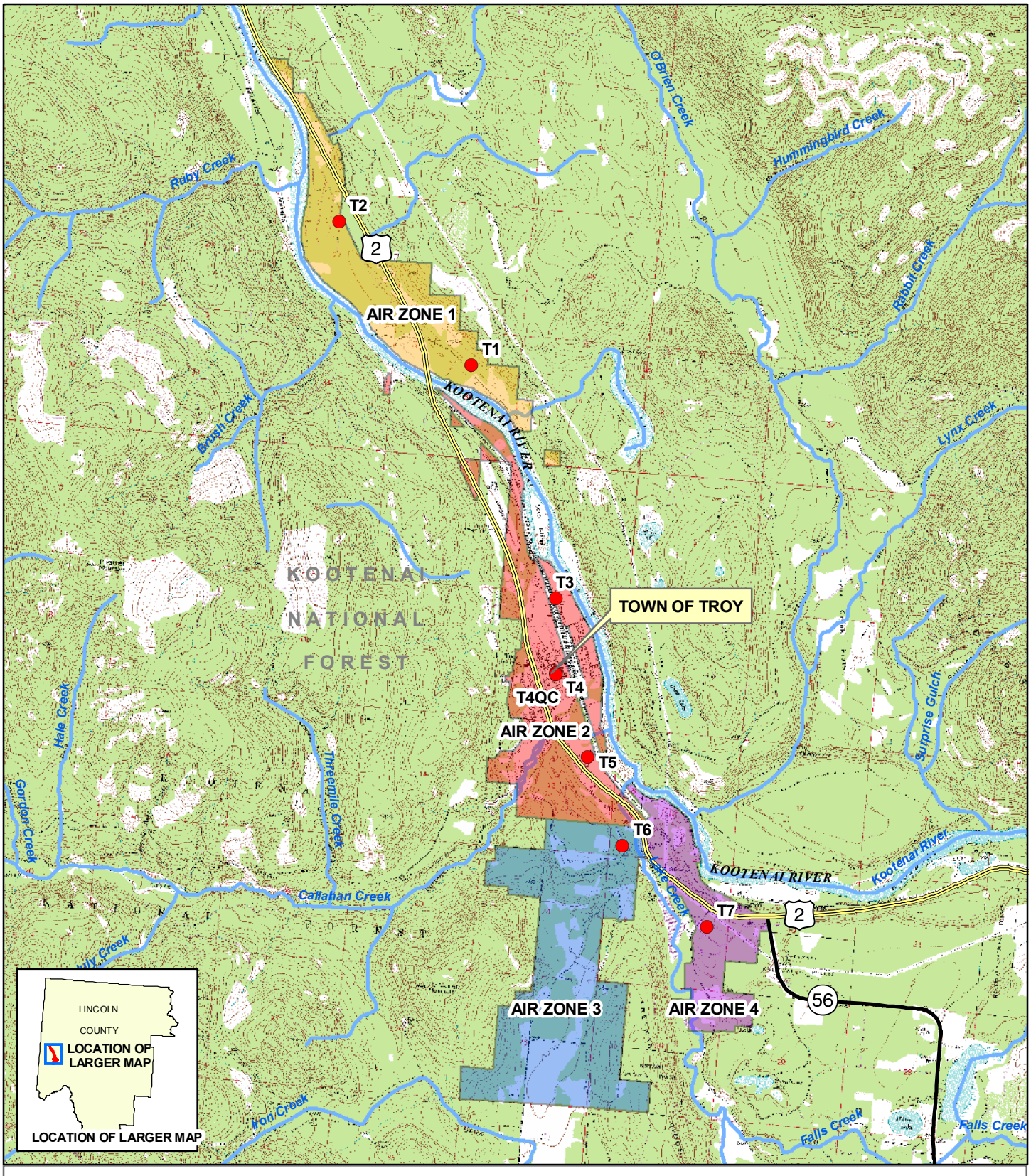
Quarter 2 OU7 outdoor ambient air monitoring was initiated on January 28, 2010 and Quarter 3 monitoring began on May 7, 2010. As Quarters 2 and 3 were an extension of monitoring initiated in October of 2009, initial field activities such as selection of site monitoring stations, and assembly and installation of monitoring equipment are described in the Quarter 1 Memorandum (Tetra Tech 2010). During monitoring Quarters 2 and 3, two of the seven stations were moved, servicing of some pumps was required, and two modifications to sampling protocol were instituted. The following sections provide a

summary of activities conducted during these two quarters in accordance with the Outdoor Ambient Air Study Work Plan (AASWP) (Tetra Tech 2009a).

2.1 AIR MONITORING STATION LOCATIONS

Seven ambient air sampling stations are located within four distinct outdoor ambient air sampling zones of OU7 **(Figure 2-1)**. The predominant winds in Troy tend to flow to the southeast and northwest, following the river corridor in which Troy is located; therefore, two sampling stations (one each) were placed in close proximity to the northwest and southeast boundaries of OU7. This ensures that there are upwind and downwind sample collection stations for both wind directions. Two stations (one each) were also located on the northwest and southeast borders of downtown Troy to have upwind and downwind sample stations in the area with the highest population density. A sample station was placed at the DEQ Troy Information Center in downtown Troy to measure the presence of LA in the city. One station was placed in the Kootenai Vista area in the northern portion of OU7 and the last station was placed along Iron Creek Road in the southwestern portion of OU7. One additional station was placed in tandem with the station at the DEQ Information Center to serve as the location for collection of co-located quality control samples. The four air sampling zones were defined based on geographic location and land use coverage. Original locations for the seven stations were determined during the first week of October 2009 based on site access, landowner approval, site security, and adequate spatial coverage of the study area.

During quarters 2 and 3 reporting periods, two of the stations were moved to new locations due to potential sampling interference related to site activities. Station T5 was moved, prior to Period 14, to a location north of the Highway Department Shop (within a fenced sewer lift station) in response to street sweeper operation witnessed immediately next to the station during Period 13. The street sweeping generated large volumes of dust that raised concerns regarding the potential to impact sample results. Station T5 had already exhibited filter cassette overloading earlier in the air monitoring program from unknown causes. Station T6 was also moved (approximately 50 feet west of its' original location) prior to the start of Period 14 due to construction of an electrical line that required digging near the original location. The move still allowed the station to remain within the water tank enclosure. Moving the two stations was approved by DEQ, will not alter the original rational for the placement of each station, and will allow for continued collection of representative ambient air data. **Table 2-1** provides the general and detailed locations and rationale for selecting the seven current station locations.



LEGEND

- OU 7 AMBIENT AIR SAMPLE STATION

AMBIENT AIR ZONES

- ZONE 1
- ZONE 2
- ZONE 3
- ZONE 4

0 1 Miles

N

TETRA TECH EM, INC.

LIBBY ASBESTOS SUPERFUND SITE

FIGURE 2-1
OPERABLE UNIT 7
AMBIENT AIR MONITORING
STATION LOCATIONS

GIS map by Ed Madej TTEMI-HE
TROY_AMBIENT_AIR3_081010.mxd

TABLE 2-1

OUTDOOR AMBIENT AIR SAMPLING LOCATIONS

Station Number	General Location*	Detailed Location	Purpose
T1	Community exposure site and upper-middle boundary of OU7, located at the small community area NE of the Kootenai River	Residential property at North River Road ***Long -115.9109194*** ***Lat 48.49736625***	This site is used to evaluate LA concentrations at the small community area and the upper-middle boundary of OU7
T2	Upwind/downwind site near the NW border of OU7	Fire station at Forest Drive at Vacation Rd in Kootenai Vista ***Long -115.9355267*** ***Lat 48.5124475***	This site is used to evaluate LA concentrations at the northern boundary of OU7
T3	City of Troy northern site	Water treatment station at north end of Roosevelt Park ***Long -115.893191033333*** ***Lat 48.47169145***	This site is used to evaluate LA concentrations north of the Troy community
T4	City of Troy population exposure site	DEQ Troy Information Center at 303 Third Street ***Long -115.89226045*** ***Lat 48.4631302166667***	This site is used to evaluate LA concentrations in the Troy community (specifically in the population center).
T4QC	City of Troy population exposure site	DEQ Troy Information Center at 303 Third Street ***Long -115.89226045*** ***Lat 48.4631302166667***	Co-located sample station of T4
T5	City of Troy southern site	North of Highway Department Shop within fenced sewer lift station enclosure on 11th Street ***Long -115.8855304*** ***Lat 48.45401671***	This site is used to evaluate LA concentration south of the Troy community
T6	Upwind/downwind site near the SW boarder of OU7	Water tower at Iron Creek Rd. ¾ mile south of Hwy 2 ***Long -115.878429133333*** ***Lat 48.4441892166667***	This site is used to evaluate LA concentrations at the southwestern boundary of the OU and confirm if any LA is entering or leaving OU7
T7	Upwind/downwind site near the SE boarder of OU7	Residential property at Hummingbird Way at Bighorn Way in Wilderness Plateau ***Long -115.862912383333*** ***Lat 48.4357253333333***	This site is used to evaluate LA concentrations at the southeastern boundary of the OU

Notes:

LA	Libby Amphibole	SE	Southeast	Lat	Latitude
NE	Northeast	SW	Southwest	Long	Longitude
NW	Northwest	OU7	Troy Operable Unit		

* Predominant winds in the area blow from the southeast and northwest. Stations on the southeast and northwest boundaries of OU7 will act as upwind and downwind receptors depending on wind direction.

2.2 EQUIPMENT SELECTION AND SETUP

Quarters 2 and 3 sampling was conducted using the same eight station boxes that were obtained from the OU4 air monitoring project in Libby. Station boxes included the following serial numbers: 3794-1, 3794-3, 3794-7, 3794-9, 3794-11, 3794-12, 3794-13, and 3794-14.

Two of the sampling stations were moved during quarter 2 and quarter 3 sampling. Station location coordinates are in **Table 2-1** and are shown on **Figure 2-1**.

Sampling station equipment (including the SKC AirChek200 pumps) remained unchanged from first quarter sampling and continued to use battery-power for air sampling and heating to work independent of on-site electrical sources (Tetra Tech 2010). Some mechanical and electrical issues were noted with the SKC pumps during the quarters 2 and 3 sampling. Equipment issues and resolutions are discussed in Section 2.4.

2.3 OUTDOOR AMBIENT AIR MONITORING

Quarters 2 and 3 ambient air sampling consisted of 18 five-day sampling periods generally separated by five off days between each period. Between some sampling periods, the five days was modified by one or two days to adjust for weather or pump issues, however, the overall sampling schedule was not impacted. Quarters 2 and 3 sampling began with Period 10 on January 28, 2010 and ended with Period 27 on July 30, 2010. **Table 2-2** provides a summary of sampling dates for periods 10 through 27.

2.4 OUTDOOR AMBIENT AIR MONITORING, ISSUES AND RESOLUTIONS

During sampling quarters 2 and 3, several issues arose including the delayed receipt of bench sheets and electronic data deliverables (EDD) from the laboratories, delayed upload of analytical data to the OU7 Ambient Air Database, the need for sampling protocol modifications, and the maintenance of pumps related to electronic and mechanical failures. Most of these issues were addressed during sampling periods 10 through 27 and are summarized below.

TABLE 2-2
OU7 OUTDOOR AMBIENT AIR SAMPLING
QUARTER 2 AND QUARTER 3 SAMPLE PERIOD DATES

QUARTER 2 SAMPLE PERIODS	
Sample Period 10	January 28, 2010 through February 1, 2010
Sample Period 11	February 7, 2010 through February 11, 2010
Sample Period 12	February 17, 2010 through February 21, 2010
Sample Period 13	March 6, 2010 through March 10, 2010
Sample Period 14	March 16, 2010 through March 20, 2010
Sample Period 15	March 28, 2010 through April 1, 2010
Sample Period 16	April 7, 2010 through April 11, 2010
Sample Period 17	April 17, 2010 through April 21, 2010
Sample Period 18	April 27, 2010 through May 1, 2010
QUARTER 3 SAMPLE PERIODS	
Sample Period 19	May 7, 2010 through May 11, 2010
Sample Period 20	May 17, 2010 through May 21, 2010
Sample Period 21	May 27, 2010 through May 31, 2010
Sample Period 22	June 6, 2010 through June 10, 2010
Sample Period 23	June 16, 2010 through June 20, 2010
Sample Period 24	June 26, 2010 through June 30, 2010
Sample Period 25	July 6, 2010 through July 10, 2010
Sample Period 26	July 16, 2010 through July 20, 2010
Sample Period 27	July 26, 2010 through July 30, 2010

2.4.1 Laboratory Data Receipt Issues

Validation of analytical results from quarter 1 was not completed at the time the quarter 1 Memorandum was delivered. The quarter 2 and 3 bench sheets and EDDs were not received from ESAT until late into quarter 2. Two issues occurred that impacted the timely validation of data: (1) analytical results from three samples collected during Period 1 were called into question based on ESAT's review of the electronic data deliverable (EDD), (2) delays in receiving the necessary bench sheets and EDDs from the laboratory. ESAT's review identified potential issues with the reporting of asbestos components that led to sample results being reanalyzed not only by Reservoirs Laboratory, but also by EMSL Laboratory and the ESAT laboratory. After the completion of the re-analysis, laboratory bench sheets were corrected and the revised bench sheets and EDDs were delivered to Tetra Tech. ESAT's final report, dated September 2, 2010, summarizing the interlab reanalysis of the round 1 samples is included as Attachment A to this report. During the re-analysis, ESAT instructed Tetra Tech to store ambient air samples being collected until a resolution on the first sample batch was reached. Once the Period 1 sample analysis was completed, samples were once again submitted to ESAT for analysis and EDDs were received on a regular basis. However, further delays in data validation occurred while awaiting bench sheets from the

labs that were necessary to complete data validation. EDDs and bench sheets have since been streamlined though communications with ESAT and complete data packages are being received on a regular basis.

Delays in data validation also resulted from the analytical data not being uploaded to Scribe in a timely manner. As a result, the chemist performing the data validation had to manually sort and record data and could not simply query data from Scribe.

2.4.2 Modifications to Ambient Air Sampling Protocol

During the study two circumstances arose where modification of the procedures described in the AASWP were necessary to complete project objectives. The Tetra Tech Project Manager requested modifications changing sample cassette filter size and pump flow rates.

TFO-00001 requested a change in sample cassette filter size from 0.45 μm to 0.8 μm to accommodate the high sampling pump air flows of up to 3 liters per minute. Changing to the larger filter opening was intended to prevent overloading of the filter media from the relatively high volume of air being passed through the filter (21,600 total liters at 3 liters per minute). Changing to the larger filter size was also consistent with the filter size employed during the OU4 sampling in Libby. TFO-00001 was completed on March 3, 2010 and was retroactive to the start of Period 1.

As periodic overloading of the sample filters was still being observed after increasing the filter opening size, TFO-00002 was requested to change the sampling pump air flow from 3 liters per minute to 2 liters per minute (21,600 liters to 14,400 liters total volume). Reducing the air flow resulted in elimination of the overloading episodes and still allowed for generation of high quality data that meets sensitivity analysis requirements without counting of excessive filter grid openings during transmission electron microscopy (TEM) analysis. This modification was implemented as a permanent procedural change beginning in Sample Period 13.

Both modifications were documented on a Troy Record of Modification form prior to initiation of the changes in procedure. Outdoor Ambient Air Record of Modification forms (TFO-00001 and TFO-00002) are in Appendix B. Record of Modification forms were submitted to the DEQ project manager for review and approval and signed copies are housed in the DEQ Troy Information Center office.

2.4.3 Pump Failures and Repairs

Infrequent sample pump failure was another issue noted during quarters 2 and 3 sampling. There were 5 pump failures during this period. Failures were generally attributed to pump faults related to hardware (diaphragm failures), not battery failures. When failures were identified, Tetra Tech was able to minimize data loss for these occurrences by reprogramming the pump and re-sampling with a new cassette and sample number. On one occasion, Tetra Tech exchanged the pump for a working backup pump using a new cassette and sample number. The Field Sampling Data Sheets (FSDS) were used to record the replacement samples and revised sample periods as necessary. Only three samples were lost during periods 10 to 27 from pump malfunctions (Period 10 Stations T1 and T7, and Period 12 StationT5). No samples have been lost due to pump malfunctions since Period 12.

To address mechanical or electrical pump malfunctions, Tetra Tech arranged for the pump manufacturer to perform repairs under warranty. During this reporting period, 9 of the 11 pumps were sent in for repairs that included reprogramming and upgrades to the pump diaphragms. Since being repaired, none of the pumps have failed. Two more pumps are scheduled to be returned for warranty servicing during Quarter 4.

3.0 QUARTER 2 AND QUARTER 3 OUTDOOR AMBIENT AIR MONITORING DATA

During this reporting period, samples from periods 10 through 27 were submitted for TEM analyses. All sample filter cassettes were shipped to ESAT Laboratory in Golden, Colorado, under chain-of-custody (COC) protocol, where they were stored in a desiccator to prevent the growth of mold.

During quarters 2 and 3, sample results for periods 1 to 18 were validated. As addressed in Section 2.4, a series of delays in receiving complete data packages from ESAT only allowed for the validation of the first 18 sample rounds prior to the writing of this document. The following sections provide a description of the data validation procedures used, data validation findings, and also provide a summary of LA detections noted during sample periods 1 to 18.

3.1 DATA VALIDATION PROCEDURES AND FINDINGS

Tetra Tech conducted data review and data entry verification of the outdoor ambient air TEM data in accordance with standard operating procedure (SOP) EPA-LIBBY-09 (revision 1) (SRC 2008). SOP EPA-LIBBY-09 describes a standardized method for review of raw TEM data and verification of TEM data entry into the project database. A copy of this SOP is in Appendix F of the AASWP (Tetra Tech 2009a). Since no OU7-specific SOP for data review and verification has been prepared, Tetra Tech has

followed the data review and verification procedures outlined in SOP EPA-LIBBY-09, with minor deviations for OU7. Examples of OU7-specific deviations include: 1) the SOP refers to the Libby 2 Database; however, for Troy, it's the OU7 Ambient Air Scribe Database, 2) the SOP describes the process for randomly selecting TEM records for review and verification. For OU7, 100 percent of the period 1-6 records, and only 25% of the subsequent period records underwent review and verification. For the latter, rather than random selection, as described in the SOP, records were selected for review and verification based on result type (detected LA) and sample type (field duplicate pairs and field blanks).

Tetra Tech's review and verification process has three steps: (1) the selection of data records for review and verification, (2) a review of the original laboratory bench sheets, and (3) verification of the transfer of results from the bench sheets onto the electronic data deliverables that will be uploaded to the OU7 Ambient Air Scribe Database.

Tetra Tech reviewed field and laboratory quality control (QC) sample results for adherence to minimum frequency requirements and procedures and QC limits in SOP LB-000029b (SRC 2008), and qualified the associated field data accordingly.

The data verification and validation process is described in detail in the subsections below.

3.1.1 Selection of TEM Records for Review

To ensure that a representative subset of the ambient air sample results were validated, Tetra Tech validated all 54 field samples collected during sampling rounds 1 through 6. Since the incidence of significant errors decreased during analysis of these early samples, only approximately 25 percent of the rounds 7 through 18 field samples were validated. Records reviewed were selected on the basis of result type (detected LA) and sample type (field duplicate pairs and field blanks).

3.1.2 Consistency Review of Laboratory Bench Sheets

Tetra Tech inspected the information recorded on the original hand-written laboratory bench sheets in accordance with the consistency review of laboratory bench sheets procedure outlined in Section 5 of SOP EPA-LIBBY-09 (revision 1) (SRC 2008); modified as needed for OU7. The bench sheets were reviewed to identify any data omissions, apparent inconsistencies, or potential errors in structure. The review entailed determining whether the raw structure data were recorded in accordance with ISO 10312 counting rules (as modified by all applicable Libby laboratory modifications).

Corrective Action – Tetra Tech summarized all apparent inconsistencies, omissions, and suspected errors, and provided them to ESAT, who forwarded them to the appropriate labs for response, as deemed appropriate. The ESAT laboratory determined which items were authentic errors that require correction. Aside from the period 1 samples (TA-0001, TA-0003, and TA-0004) that have undergone several reanalysis (see attachment), none of the inconsistencies, omissions, or suspected errors identified during data review and verification to date affect the outcome of interest to the investigation (i.e., the number of LA structures or the concentration of LA). Tetra Tech does anticipate that the analytical laboratories may still submit further revised bench sheets to ESAT. Tetra Tech will download the revised documents provided by ESAT, review them, and replace the previous ones as appropriate.

3.1.3 Verification of Data Transfer from Bench Sheet to Database

To ensure that data from laboratory bench sheets are transferred into the OU7 Ambient Air Scribe Database without error or omission, Tetra Tech compared the analysis-specific information in the laboratory bench sheets to that in the EDDs. Tetra Tech followed the verification of data transfer procedure outlined in Section 6.0 of SOP EPA-LIBBY-09 (revision 1) (SRC 2008), modified as needed for OU7. The bench sheets include the laboratory COC form, sample check-in form, preparation log, and hand-written data record sheets. This process entailed comparing analysis-specific information in the EDDs to the original lab job documentation (e.g., internal laboratory COC; preparation logs; bench sheets, etc.); and included verifying (by recalculation) the reported air sensitivities for amphibole and chrysotile; the area analyzed; and for indirect preparations, the indirect preparation dilution factor. Using the bench sheets, Tetra Tech also recounted the countable LA structures across all grid openings evaluated and compared this number (and the calculated concentrations) to the total number of LA structures in the EDD.

The final step in this process will be to verify the data are loaded to the OU7 Ambient Air Scribe Database without error or omission. Since the analytical data are not yet ready for use in the OU7 Ambient Air Scribe Database, this step has not been completed. Theoretically, the information in the EDDs matches that in the database; however, a final verification step is recommended and will be completed.

Corrective Action – Tetra Tech summarized all apparent inconsistencies, omissions, and suspected errors, and provided them to ESAT, who forwarded them to the appropriate labs for response, as deemed appropriate. The ESAT laboratory determined which items were authentic errors that require correction. Aside from the period 1 samples (TA-0001, TA-0003, and TA-0004) that have undergone several

reanalysis (see attachment), none of the inconsistencies, omissions, or suspected errors identified during data review and verification to date affect the outcome of interest to the investigation (i.e., the number of LA structures or the concentration of LA). Tetra Tech does anticipate that the analytical laboratories may still submit further revised bench sheets to ESAT. Tetra Tech will download the revised documents provided by ESAT, review them, and replace the previous ones as appropriate.

A similar corrective action process is expected for the final verification step (review of the uploaded analytical data in the OU7 Ambient Air Scribe Database).

3.1.4 Review of Field and Laboratory Quality Control Sample Results

Tetra Tech reviews field QC samples (including co-located samples and field blanks) and laboratory QC samples (including laboratory blanks, recounts, and repreparations) for adherence to the minimum frequency requirements in the work plan (Tetra Tech 2009a) and in SOP LB-000029b (SRC 2007).

Laboratory QC sample results are evaluated by the laboratory and field QC sample results are evaluated by Tetra Tech, for concordance with the QC limits specified in SOP LB-000029b (SRC 2007). For the co-located field samples, Tetra Tech will use the same statistical comparison test used for the Libby ambient air study (SRC 2009). Each co-located sample pair will be compared using the Poisson rate test (Nelson 1982) included as Attachment 4 to SOP LB-00029b (SRC 2007), to determine whether the results are statistically different from one other at the 95 percent confidence level. The Poisson rate test is suitable for this analysis because fiber counts on TEM grids are considered to be independent and random.

Corrective Action –For laboratory QC sample exceptions to QC criteria, the appropriate corrective actions are described in detail in LB-00029b (SRC 2007).

For co-located field sample pairs, Tetra Tech will review the Poisson rate test results and investigate the basis for any statistical differences and the need for any appropriate corrective actions. Poisson rate test results that indicate the co-located samples are similar at the 95 percent confidence interval will be considered good. Test results in the 90 to 95 percent confidence interval range will be considered acceptable, and test results that fall below the 90 percent confidence interval will be considered poor for similarity. If test results are below the 90 percent interval, Tetra Tech will investigate the basis for the discrepancy and take corrective action in sampling and/or analysis of the samples, as appropriate. Tetra Tech will, as a rule, report the result from the original sample (as opposed to co-located or laboratory recount results). A possible exception to this rule is an ESAT interlab recount result. If, during

validation, an interlab recount result is deemed to be more representative than the original result, Tetra Tech will discuss these findings with DEQ, and report whichever result is determined to be most representative.

Tetra Tech has reviewed and will continue to review the results for all field blanks for adherence to the QC limits specified in SOP LB-000029b (SRC 2007). All of the blank results received to date are within QC limits.

3.2 AMBIENT AIR LA DETECTIONS

LA fibers were detected in period 1 to 18 samples at all 7 stations. **Table 3-1** presents a summary of sample analytical results for these periods. LA detections by station are summarized below:

Station T1: Detection of LA fibers during Periods 12 and 17
Station T2: Detection of LA fibers during Periods 9, 10, 12, 15
Station T3: Detection of LA fibers during Period 12
Station T4: Detection of LA fibers during Periods 1, 13, and 18
Station T5: Detection of LA fibers during Period 1
Station T6: Detection of LA fibers during Period 14
Station T7: Detection of LA fibers during Periods 12 and 14

The remaining samples collected during periods 1 to 18 had no detectable LA fibers. Complete analytical results and a summary of validation findings for sample periods 1 to 18 are provided in Appendix C.

TABLE 3-1

OU7 OUTDOOR AMBIENT AIR ANALYTICAL RESULTS
LIBBY AMPHIBOLE DETECTIONS
(Sample Periods 1 to 18)

Sampling Station Location	LocationComment	Sample Number	Sample Date	SampleType	COC	LA Detected?	No of Structures Counted	LA Concentration (s/cc)	Field Notes
T4	Ambient Air Station – DEQ	TA-0004	10/30/2009	Field Sample	TAA0001	Y	4	1.56E-04	No Notes
T4	Ambient Air Station - DEQ	TA-0004	10/30/2009	Field Sample	TAA0001	Y	2	7.98E-05	No Notes
T5	Ambient Air Station – State Highway Department Sewer Lift Station	TA-0003	10/30/2009	Field Sample	TAA0001	Y	5	1.75E-04	No Notes
T5	Ambient Air Station – State Highway Department Sewer Lift Station	TA-0003	10/30/2009	Field Sample	TAA0001	Y	3	1.05E-04	No Notes
T2	Ambient Air Station – Kootenai Vista Truck Barn #2 TRFD	TA-0078	1/18/2010	Field Sample	TAA0009	Y	1	3.77E-05	No Notes
T2	Ambient Air Station – Kootenai Vista Truck Barn #2 TRFD	TA-0087	1/28/2010	Field Sample	TAA0010	Y	1	3.81E-05	Heater Battery Discharged Prior to Complete Sample Collection
T1	Ambient Air Station – Brown Rental	TA-0104	2/17/2010	Field Sample	TAA0012	Y	2	7.37E-05	Heater Battery Discharged Prior to Complete Sample Collection
T2	Ambient Air Station – Kootenai Vista Truck Barn #2 TRFD	TA-0105	2/17/2010	Field Sample	TAA0012	Y	1	3.77E-05	Heater Battery Discharged Prior to Complete Sample Collection
T3	Ambient Air Station – City Park Shop	TA-0106	2/17/2010	Field Sample	TAA0012	Y	1	3.68E-05	Heater Battery Discharged Prior to Complete Sample Collection
T7	Ambient Air Station – Jordan Residence	TA-0110	2/17/2010	Field Sample	TAA0012	Y	1	3.63E-05	Pump Stopped At 5846 Minutes
T4	Ambient Air Station – DEQ	TA-0115	3/6/2010	Field Sample	TAA0013	Y	1	3.74E-05	Street Sweeping Occurred During This Period
T6	Ambient Air Station – Iron Creek Road Water Tower	TA-0127	3/16/2010	Field Sample	TAA0014	Y	1	3.57E-05	Flow Reduced To 2L Per Minute During Period 14
T7	Ambient Air Station – Jordan Residence	TA-0128	3/16/2010	Field Sample	TAA0014	Y	1	3.63E-05	Flow Reduced To 2L Per Minute During Period 14
T2	Ambient Air Station – Kootenai Vista Truck Barn #2 TRFD	TA-0131	3/28/2010	Field Sample	TAA0015	Y	1	3.96E-05	No Notes
T1	Ambient Air Station – Brown Rental	TA-0148	4/17/2010	Field Sample	TAA0017	Y	1	3.96E-05	No Notes
T4	Ambient Air Station – DEQ	TA-0160	4/27/2010	Field Sample	TAA0018	Y	1	3.96E-05	4/28 High Wind, 4/29 Heavy Rain

Notes:

s/cc Structures per square centimeter

Original sample result as reported by Reservoirs Laboratory

Interlab reanalysis result as reported by ESAT

4.0 REFERENCES

Syracuse Research Corporation (SRC). 2007. Request for Modification to Laboratory Activities (LB-000029B). April.

SRC. 2008. Standard Operating Procedure for TEM Data Review and Data Entry Verification. March.

Tetra Tech EM Inc. (Tetra Tech). 2009a. Remedial Investigation Work Plan, Outdoor Ambient Air Study, Operable Unit 7 of the Libby Asbestos Superfund Site. October.

Tetra Tech. 2009b. Operable Unit 7 Ambient Air Study Health and Safety Plan. October.

Tetra Tech. 2010. First Quarter Memorandum, Outdoor Ambient Air Study, Operable Unit 7 of the Libby Asbestos Superfund Site. February.

APPENDICES

(Appendices are provided on the attached disk)

APPENDIX A

QUARTER 2 AND QUARTER 3 OUTDOOR AMBIENT AIR SAMPLING FIELD SAMPLING DATA SHEETS (FSDS) JANUARY 28, 2010 THROUGH JULY 30, 2010

APPENDIX B

OUTDOOR AMBIENT AIR MODIFICATIONS TFO-00001 AND TFO-00002

APPENDIX C

QUARTER 1 AND QUARTER 2 OUTDOOR AMBIENT AIR SAMPLING VALIDATED ANALYTICAL RESULTS

ATTACHMENT A

(Attachment is provided on the attached disk)

TROY AMBIENT AIR STUDY TEM INTER-LAB STUDY FOR SAMPLING ROUND 1
FINAL REPORT