

FIELD MODIFICATION APPROVAL FORM
LFM-OU3-1
Libby OU3 Phase III Sampling & Analysis Plan

Requested by: Bonnie Lavelle

Date: July 1, 2009

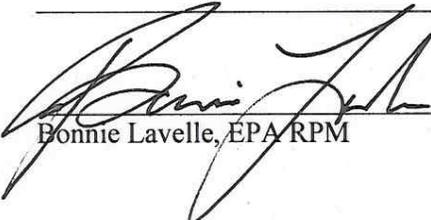
Description of Deviation:

Based on a field reconnaissance trip to OU3 on June 16-17, 2009, the script for the activity based sampling is modified to better represent likely activities under a current and future recreational use scenario. The revised script, Attachment A to the Phase III SAP, is attached to this field modification form.

EPA Region 8 has reviewed this field modification and approves as proposed.

EPA Region 8 has reviewed this field modification and approves with the following exceptions:

EPA Region 8 has reviewed this field modification and does not agree with the proposed approach for the following reasons:



Bonnie Lavelle, EPA RPM

7/1/09
Date

REVISION 1

LIBBY SUPERFUND SITE
OPERABLE UNIT 3
PHASE III SAP ATTACHMENT A

SCRIPT FOR COMPOSITE ABS FOR RECREATIONAL VISITOR SCENARIO

Each ABS sample will span a time period of 140 minutes. Each ABS sample will be a composite of activities that are considered to be representative of activities that are likely to be performed by recreational visitors to OU3 currently and in the future. This includes individuals who visit the area to hike, hunt, or camp. Two participants will participate in each ABS event. Table A-1 summarizes the activities and the timing. A more detailed description is provided below.

Activities

1. ATV Riding

The first activity to be performed is ATV riding. The vehicles will be Polaris Ranger 500® 4WD "side by side" or alternate vehicles of similar size and design. The total duration is 40 minutes. Riding should occur primarily on USFS roads or trails in the designated area, but should include off-trail riding if the terrain and forest density is suitable. Speed should be about 3-10 mph, depending on terrain and safety considerations. For the first 20 minutes, Person 1 should be in the lead position, with Person 2 following at a safe distance (about 5-10 meters, depending on terrain). After 20 minutes, Person 2 should take the lead, and Person 1 should follow at a safe distance.

2. Hiking

The second activity to be performed is hiking. The total duration is 40 minutes. Hiking should occur on trails (if present), and should also occur off-trail if the terrain is suitable. For the first 20 minutes, Person 1 should be in the lead position, with Person 2 following at a distance of about 3-5 meters, depending on terrain. After 20 minutes, Person 2 should take the lead, and Person 1 should follow.

3. Collecting Firewood

The third activity is collecting firewood for a campfire. This includes picking up dead wood small enough to start a campfire and also wood in the 2-8 inch size range that is lying on the forest floor, breaking the wood into pieces suitable for a campfire, and stacking the wood in a pile. Each participant will harvest firewood 20 minutes total.

4. Digging to prepare a campfire site

The fourth activity is digging. This is intended to simulate activities that bring a person into direct contact with soil and duff such as when preparing a campfire area. This activity may be

REVISION 1

performed in a clearing in the forest or in a meadow area, depending on the local conditions and terrain.

For digging, each participant shall use a small camp shovel to dig a fire pit in the center of a suitable area. Both individuals shall be digging at the same time. If the area is mainly rock or meadow rather than forest, each individual shall collect rocks and use these to build a rock fire circle in the center of the area. Total time spent in this activity shall be 10 minutes.

5. Building and Sitting Near a Campfire

The final activity in the ABS script is building and sitting near a campfire. For safety reasons, this component of the script will not be performed in the ABS study area in the forest, but rather will be performed on W.R. Grace-owned property near Rainy Creek Road and Highway 37 (the area formerly known as the Flyway) in an area that has been specifically prepared to accommodate safe fire burning. In order to achieve this final element of the ABS script, the following steps are needed:

1. A representative set of firewood, collected in Step 3 (above), will be placed into a bag.
2. Each person shall turn off their air monitoring pump.
3. The collected firewood shall be transported by truck to the specified burning area.
4. Both individuals shall turn their air monitoring pumps back on. Then, both individuals should participate in building and lighting the fire. Once the fire is lit, both individuals should stand near the fire, simulating the activities of recreational campers. Each individual should move about the fire, including brief intervals of passing through the downwind direction, so that exposures from all wind angles are included in the composite sample.

After a total of 30 minutes, the fire will be thoroughly extinguished with water. This will end the ABS script and both air monitoring pumps shall be turned off.

Equipment decontamination. All non-disposable equipment, including ATVs, saws, rakes and shovels used during the investigation will be decontaminated between each ABS event using a pressurized water to remove accumulated material.

Each fire will be built in a steel pan that can be decontaminated between fires by thorough rinsing with water.

Health and Safety. Each person who participates in ABS sampling shall wear sufficient personal protective equipment to ensure that unacceptable exposure to asbestos does not occur. In addition, all ABS related activities must be performed in fashion that ensures the safety of both individuals in the ABS team.

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TABLE A-1
SUMMARY OF ABS AT OU3

Time (min)		Person	
Start	Stop	No. 1	No. 2
0	20	ATV (lead)	ATV (follow)
20	40	ATV (follow)	ATV (lead)
40	60	Hike (lead)	Hike (follow)
60	80	Hike (follow)	Hike (lead)
80	100	Collect wood for campfire	
100	110	Dig	Dig
110	140	Build and stand near campfire (a)	

(a) This activity is not performed in the ABS study area in the forest, but in a special area located in the Flyway.

FIELD MODIFICATION APPROVAL FORM

LFM-OU3- 2

Libby OU3 Phase III Sampling & Analysis Plan

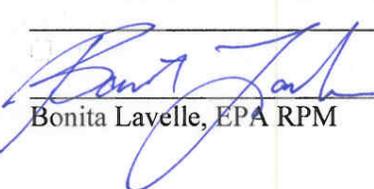
Requested by: John Garr, MWH Date: 7-13-09

Description of Deviation: As learned during the first round of ABS at OU3 during the week of July 6 through 10, 2009, the SKC QT-30 air sampling pumps maintain the set flow rate to within 2.5 % of the initial calibrated rate. In most instances, the flow rate at the beginning of the 110-minute forest script was identical to that at the end of the script. The greatest deviation observed was 0.2 LPM (2.5%), well within the +/- 5% specified in the SAP. To reduce interruptions to measure flow rate after each component activity of the script and to reduce the burden on those performing the script in Level C Modified, MWH suggests the flow rates be measured only at the beginning and end of the forest script and at the beginning and end of the wood-burning activity.

EPA Region 8 has reviewed this field modification and approves as proposed.

EPA Region 8 has reviewed this field modification and approves with the following exceptions:

EPA Region 8 has reviewed this field modification and does not agree with the proposed approach for the following reasons:


Bonita Lavelle, EPA RPM

7-13-09
Date

FIELD MODIFICATION APPROVAL FORM
LFM-OU3-3
Libby OU3 Phase III Sampling & Analysis Plan

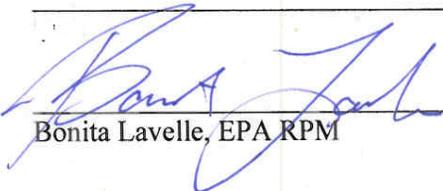
Requested by: John Garr, MWH Date: July 15, 2009

Description of Deviation:

Attached is a revised FSDS for activity based sampling personal air monitoring. It has been simplified to match the revised flow rate measurements and a space has been added for calculating volumes. The form indicates the sample time for the forest script and the fire script. If actual times deviate from these it will be noted in the volume calculation on the form.

- EPA Region 8 has reviewed this field modification and approves as proposed.
- EPA Region 8 has reviewed this field modification and approves with the following exceptions:

- EPA Region 8 has reviewed this field modification and does not agree with the proposed approach for the following reasons:



Bonita Lavelle, EPA RPM

7-15-09
Date

LIBBY OU3 FIELD SAMPLE DATA SHEET ACTIVITY-BASED SAMPLING (ABS) PERSONAL AIR MONITORING

ABS Area: **ABS-**_____ Sampling Date: _____ Sampling Team: **MWH**

Person #1 Name: _____ Index ID: AFFIX LABEL HERE

Person #2 Name: _____ Index ID: AFFIX LABEL HERE

Field Blank Index ID: AFFIX LABEL HERE

Cassette Lot Number: **17826**

Field Logbook Number: _____ Field Logbook Pages: _____

Activity	Activity Sample Time (hh:mm)		Rotameter Flow Rate			
	Start	Stop	Person #1		Person #2	
			Start	Stop	Start	Stop
ATV	#1 Lead					
	#2 Lead					
Hiking	#1 Lead					
	#2 Lead			____ LPM	____ LPM	____ LPM
Wood Gathering						
Digging						
Fire			____ LPM	____ LPM	____ LPM	____ LPM

Person #1 Pump ID No.: _____ Rotameter ID: _____ GPS ID: _____

Person #2 Pump ID No.: _____ Rotameter ID: _____ GPS ID: _____

Field Comments:

Weather Description--

Other--

VOLUME CALCULATION

#1 Ave. Flow Rate (Forest Script) = _____ LPM x 110 Min. = _____ L #1 Ave. Flow Rate (Fire) = _____ LPM x 30 Min. = _____ L **SUM=_____ L**

#2 Ave. Flow Rate (Forest Script) = _____ LPM x 110 Min. = _____ L #2 Ave. Flow Rate (Fire) = _____ LPM x 30 Min. = _____ L **SUM=_____ L**

NOTE: USE ACTUAL TIMES FOR VOLUME CALCULATIONS

Field Data Entered by: _____ Field Entries Checked by: _____

Database Entry: _____ Database QC: _____

FIELD MODIFICATION APPROVAL FORM

LFM-OU3-4

Libby OU3 Phase III Sampling & Analysis Plan

Requested by: Bonita Lavelle, EPA Remedial Project

Date: July 24, 2009

Description of Modification:

To minimize the possibility of overloading the filters during ABS, the ABS script has been modified to require collecting separate samples during the ATV riding activity and the remaining activities. The revised script is attached to this modification form.

In addition:

- The **target sensitivity** described in Section 3.1.4, page 20 of the final Phase III Sampling and Analysis Plan (Phase III SAP) is modified to **0.006 cc⁻¹**; and
- The **target pump flow rate** described in Section 3.1.5, page 23 of the Phase III SAP is modified to **6.5 liters per minute for the ATV riding activity** and the target pump flow rate is maintained at **8 liters per minute for the remaining ABS activities**; and
- The stopping rules for asbestos analysis described in Section 3.1.6, page 25 of the Phase III SAP are modified as follows:

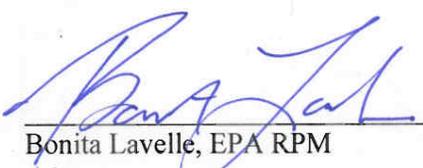
For field samples, evaluate each sample until one of the following is achieved:

- A minimum of 2 grid openings (GOs) in each of 2 grids has been examined.
- The target sensitivity (0.006 cc⁻¹) is achieved. Assuming that the sample volumes will be between 260 liters (sample collected during ATV riding) and 800 liters (sample collected during remaining activities), that the sample may be analyzed using direct preparation, and that the area of a GO is 0.01 mm², it is expected that the target analytical sensitivity can be achieved by counting 25 GOs (sample collected during ATV riding) and 9 GOs (sample collected during remaining activities).
- 50 LA structures are observed.
- An area of 0.5 mm² has been examined (approximately 50 GOs).

EPA Region 8 has reviewed this field modification and approves as proposed.

EPA Region 8 has reviewed this field modification and approves with the following exceptions:

EPA Region 8 has reviewed this field modification and does not agree with the proposed approach for the following reasons:



Bonita Lavelle, EPA RPM

7/24/09

Date

**LIBBY SUPERFUND SITE
OPERABLE UNIT 3
PHASE III SAP ATTACHMENT A**

SCRIPT FOR COMPOSITE ABS FOR RECREATIONAL VISITOR SCENARIO

Each ABS event will span a time period of 140 minutes. Each ABS scenario consists of several activities that are considered to be representative of activities that are likely to be performed by recreational visitors to OU3 currently and in the future. This includes individuals who visit the area to hike, hunt, or camp. Two participants will participate in each ABS event. Tables A-1 and A-2 summarize the activities and the timing. For each ABS event at each location, two samples will be collected during the ATV riding activity and a separate set of two samples will be collected during the remaining activities. A more detailed description is provided below.

Activities

1. ATV Riding

The first activity to be performed is ATV riding. The vehicles will be Polaris Ranger 500[®] 4WD “side by side” or alternate vehicles of similar size and design. The total duration is 40 minutes. Riding should occur primarily on USFS roads or trails in the designated area, but should include off-trail riding if the terrain and forest density is suitable. Speed should be about 3-10 mph, depending on terrain and safety considerations. The ATVs should be ridden on the longest stretch of road possible within the designated ABS locations. The stretch of road may include up to ½ mile outside the designated ABS locations in either direction. For the first 20 minutes, Person 1 should be in the lead position, with Person 2 following. Distance between riders will be maintained based on terrain, visibility, and safety considerations. The trailing rider should be at a safe distance from the lead rider, close enough to be in the dust cloud of the lead rider, but not so close as to experience unreasonably high dust exposures. The objective is to simulate reasonable maximum exposure to ATV riders. After 20 minutes, Person 2 should take the lead, and Person 1 should follow at a safe distance. After 40 minutes of ATV riding, the air sampling pumps should be turned off and the samples submitted for analysis in accordance with the Phase III Sampling and Analysis Plan (SAP).

2. Hiking

The second activity to be performed is hiking. Collection of new air samples will begin at the start of the hiking activity. Sampling pumps should be fitted with new sample cassettes and turned on at the start of hiking. The total duration of hiking is 40 minutes. Hiking should occur on trails (if present), and should also occur off-trail if the terrain is suitable. For the first 20 minutes, Person 1 should be in the lead position, with Person 2 following at a distance of about 3-5 meters, depending on terrain. After 20 minutes, Person 2 should take the lead, and Person 1 should follow.

3. *Collecting Firewood*

The third activity is collecting firewood for a campfire. This includes picking up dead wood small enough to start a campfire and also wood in the 2-8 inch size range that is lying on the forest floor, breaking the wood into pieces suitable for a campfire, and stacking the wood in a pile. Each participant will harvest firewood 20 minutes total.

4. *Digging to prepare a campfire site*

The fourth activity is digging. This is intended to simulate activities that bring a person into direct contact with soil and duff such as when preparing a campfire area. This activity may be performed in a clearing in the forest or in a meadow area, depending on the local conditions and terrain.

For digging, each participant shall use a small camp shovel to dig a fire pit in the center of a suitable area. Both individuals shall be digging at the same time. If the area is mainly rock or meadow rather than forest, each individual shall collect rocks and use these to build a rock fire circle in the center of the area. Total time spent in this activity shall be 10 minutes.

5. *Building and Sitting Near a Campfire*

The final activity in the ABS script is building and sitting near a campfire. For safety reasons, this component of the script will not be performed in the ABS study area in the forest, but rather will be performed on W.R. Grace-owned property near Rainy Creek Road and Highway 37 (the area formerly known as the Flyway) in an area that has been specifically prepared to accommodate safe fire burning. In order to achieve this final element of the ABS script, the following steps are needed:

1. A representative set of firewood, collected in Step 3 (above), will be placed into a bag.
2. Each person shall turn off their air monitoring pump.
3. The collected firewood shall be transported by truck to the specified burning area.
4. Both individuals shall turn their air monitoring pumps back on. Then, both individuals should participate in building and lighting the fire. Once the fire is lit, both individuals should stand near the fire, simulating the activities of recreational campers. Each individual should move about the fire, including brief intervals of passing through the downwind direction, so that exposures from all wind angles are included in the composite sample.

After a total of 30 minutes, the fire will be thoroughly extinguished with water. This will end the ABS script and both air monitoring pumps shall be turned off and the air samples submitted for analysis in accordance with the Phase III SAP.

REVISION 2
July 24, 2009

Equipment decontamination. All non-disposable equipment, including ATVs, saws, rakes and shovels used during the investigation will be decontaminated between each ABS event using a pressurized water to remove accumulated material.

Each fire will be built in a steel pan that can be decontaminated between fires by thorough rinsing with water.

Health and Safety. Each person who participates in ABS sampling shall wear sufficient personal protective equipment to ensure that unacceptable exposure to asbestos does not occur. In addition, all ABS related activities must be performed in fashion that ensures the safety of both individuals in the ABS team.

TABLE A-1
SUMMARY OF ABS AT OU3
FIRST TWO SAMPLES FOR EACH EVENT

Time (min)		Person	
Start	Stop	No. 1	No. 2
0	20	ATV (lead)	ATV (follow)
20	40	ATV (follow)	ATV (lead)

TABLE A-2
SUMMARY OF ABS AT OU3
SECOND TWO SAMPLES FOR EACH EVENT

Time (min)		Person	
Start	Stop	No. 1	No. 2
0	20	Hike (lead)	Hike (follow)
20	40	Hike (follow)	Hike (lead)
40	60	Collect wood for campfire	
60	70	Dig	Dig
70	100	Build and stand near campfire (a)	

(a) This activity is not performed in the ABS study area in the forest, but in a special area located in the Flyway.

FIELD MODIFICATION APPROVAL FORM

LFM-OU3-5

Libby OU3 Phase III Sampling & Analysis Plan

Requested by: Bonita Lavelle, EPA Remedial Project

Date: August 31, 2009

Description of Modification:

A. The script for the activity based sampling has been modified to better represent activities under a current and future recreational user scenario and to minimize the potential for overloading sample filters. The revised script, Revision 3 of Attachment A to the Phase III SAP, is attached to this field modification form.

B. In addition, the stopping rules for asbestos analysis of filters collected under the activity based sampling program portion of the Phase III Sampling and Analysis Plan are modified as follows:

- The **target sensitivity is 0.006 cc⁻¹**;
- For field samples, evaluate each sample until one of the following is achieved:
 - A minimum of 2 grid openings (GOs) in each of 2 grids has been examined.
 - The target sensitivity (0.006 cc⁻¹) is achieved. (Assuming that the sample volumes will be between 40 liters and 80 liters for samples collected during ATV riding, 160 liters and 320 liters for samples collected during hiking, and 70 liters and 140 liters for samples collected during fire building and burning, that the samples may be analyzed using direct preparation, and that the area of a GO is 0.01 mm², it is expected that the target analytical sensitivity can be achieved by counting between 20 GOs and 160 GOs.)
 - 50 LA structures are observed.

C. This modification also institutes the following sample handling procedures:

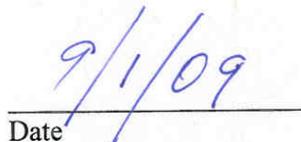
- Sample cassettes will be stored in the boxes they were shipped in to maintain them in an upright position and will not be stored in plastic bags (which may be electrostatically charged).
- Exposed sample cassettes will be stored and transported with the open end of the cowl facing up and will be cushioned against vibration during transport. The cassettes will be shipped to the analytical laboratory in a cooler with a handle on top. The handle will prevent the cooler from being shipped upside down and will help ensure the cassettes remain vertical with the open end of the cowl facing up.

EPA Region 8 has reviewed this field modification and approves as proposed.

EPA Region 8 has reviewed this field modification and approves with the following exceptions:

EPA Region 8 has reviewed this field modification and does not agree with the proposed approach for the following reasons:


Bonita Lavelle, EPA RPM


Date

LIBBY SUPERFUND SITE
OPERABLE UNIT 3
PHASE III SAP ATTACHMENT A

REVISED SCRIPT FOR COMPOSITE ABS SCENARIO

Each ABS event will span a sampling time period of 135 minutes. Each ABS scenario consists of several activities that are considered to be representative of activities that are likely to be performed by recreational visitors to OU3 currently and in the future. This includes individuals who visit the area to hike, hunt, or camp. Two participants will participate in each ABS event. Two pumps will be worn by each participant. Target flow rate for the first pump is 2 liters per minute (LPM) and the target flow rate for the second pump is 4 LPM. For each ABS event at each location, samples will be collected separately during the ATV riding activity, the hiking activity, and the combination of collecting firewood, digging to prepare a campfire site, and building and sitting near a fire. Table A-1 summarizes the activities and the timing. A more detailed description is provided below.

Activities

1. *ATV Riding*

The first activity to be performed is ATV riding. The vehicles will be Polaris Ranger 500[®] 4WD “side by side” or alternate vehicles of similar size and design. The total duration is 20 minutes. Riding should occur on USFS roads or trails in the designated area. Speed should be about 3-10 mph, depending on terrain and safety considerations. For the first 10 minutes, Person 1 should be in the lead position, with Person 2 following at a safe distance. The following distance should be far enough to be safe and should be approximately that which an ATV rider *without* PPE would follow (i.e., far enough behind the lead ATV that dust generated by the lead ATV has cleared sufficiently that the following rider is comfortable without respiratory protection). After 10 minutes, Person 2 should take the lead, and Person 1 should follow at a safe and appropriate distance.

2. *Hiking*

The second activity to be performed is hiking. The total duration is 80 minutes. Hiking should occur on trails (if present), and should also occur off-trail if the terrain is suitable. For the first 40 minutes, Person 1 should be in the lead position, with Person 2 following at a distance of about 3-5 meters, depending on terrain. After 40 minutes, Person 2 should take the lead, and Person 1 should follow.

3. *Collecting Firewood*

The third activity is collecting firewood for a campfire. This includes picking up dead wood small enough to start a campfire and also wood in the 2-8 inch size range that is lying on the

REVISION 3
August 31, 2009

forest floor, breaking the wood into pieces suitable for a campfire, and stacking the wood in a pile. Each participant will harvest firewood 10 minutes.

4. Digging to prepare a campfire site

The fourth activity is digging. This is intended to simulate activities that bring a person into direct contact with soil and duff such as when preparing a campfire area. This activity may be performed in a clearing in the forest or in a meadow area, depending on the local conditions and terrain.

Each individual shall dig a separate fire pit (i.e., 2 pits will be dug, one by person 1 and one by person 2). Each participant shall use a small camp shovel to dig their fire pit in the center of a suitable area. The digging rate shall be such a realistic amount of dust generated will be generated (i.e., participants would feel comfortable digging without respiratory protection). If the area is mainly rock or meadow rather than forest, each individual shall collect rocks and use these to build a rock fire circle in the center of the area. Total time spent in this activity shall be 5 minutes.

5. Building and Sitting Near a Campfire

The final activity in the ABS script is building and sitting near a campfire. For safety reasons, this component of the script will not be performed in the ABS study area in the forest, but rather will be performed on W.R. Grace-owned property near Rainy Creek Road and Highway 37 (the area formerly known as the Flyway) in an area that has been specifically prepared to accommodate safe fire burning. In order to achieve this final element of the ABS script, the following steps are needed:

1. A representative set of firewood, collected in Step 3 (above), will be placed in a bag and placed onto the ATV.
2. Each person shall turn off their air monitoring pump.
3. The collected firewood shall be transported by ATV to the specified burning area.
4. Both individuals shall turn their air monitoring pumps back on. Then, both individuals should participate in building and lighting the fire. This is expected to take about 5 minutes. Once the fire is lit, both individuals should sit a safe distance from the fire, simulating the activities of recreational campers. Each individual should move about the fire periodically so as to simulate activities of recreational campers.

After a total of 20 minutes, the fire will be thoroughly extinguished with water. This will end the ABS script and both air monitoring pumps shall be turned off.

Equipment decontamination. All non-disposable equipment, including ATVs, saws, rakes and shovels used during the investigation will be decontaminated between each ABS event using a pressurized water to remove accumulated material.

REVISION 3
August 31, 2009

Each fire will be built in a steel pan that can be decontaminated between fires by thorough rinsing with water.

Health and Safety. Each person who participates in ABS sampling shall wear sufficient personal protective equipment to ensure that unacceptable exposure to asbestos does not occur. In addition, all ABS related activities must be performed in fashion that ensures the safety of both individuals in the ABS team.

Scenario 1: ATY Rinsing

Person		Time (min)	
No. 2	No. 1	Start	Stop
(follow) ATY	(lead) ATY	0	10
(lead) ATY	(follow) ATY	10	20

Scenario 2: Hitting

Person		Time (min)	
No. 2	No. 1	Start	Stop
(follow) Hita	(lead) Hita	0	40
(lead) Hita	(follow) Hita	40	80

Scenario 3: Fire Building

Person		Time (min)	
No. 2	No. 1	Start	Stop
Collect wood for campfire		0	10
Dig	Dig	10	12
Build and light fire		12	20
Build and start all new campfire		20	22

**TABLE A-1
SUMMARY OF ABS AT OU3**

Scenario 1: ATV Riding

Time (min)		Person	
Start	Stop	No. 1	No. 2
0	10	ATV (lead)	ATV (follow)
10	20	ATV (follow)	ATV (lead)

Scenario 2: Hiking

Time (min)		Person	
Start	Stop	No. 1	No. 2
0	40	Hike (lead)	Hike (follow)
40	80	Hike (follow)	Hike (lead)

Scenario 3: Fire Building/Burning

Time (min)		Person	
Start	Stop	No. 1	No. 2
0	10	Collect wood for campfire	
10	15	Dig	Dig
15	20	Build and light fire	
20	35	Build and stand/sit near campfire	

FIELD MODIFICATION APPROVAL FORM
LFM-OU3-6

Libby OU3 Phase III Sampling & Analysis Plan

Requested by: Lynn Woodbury, SRC

Date: 8/28/09

Description of Deviation:

A procedure for disinfecting vials containing small mammal tissues has been added.

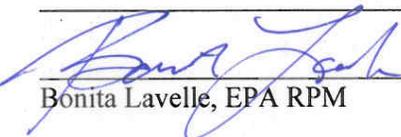
In SOP MAMMAL-LIBBY-OU3 (Rev. 1), the first paragraph of page 11 of 17, Section 4.10 *Collection and Preparation of Tissue Samples* is replaced with the following:

For each sample collected for potential future asbestos tissue burden analysis, the sample will be placed in a pre-numbered and pre-weighed (by EMSL) glass scintillation vial. The vial will contain no fluid. The vial number, the field ID number for the source animal, and the tissue type placed into each numbered vial will all be recorded on the FSDS. **After the tissue sample has been placed into the vial, tighten the cap, and immerse the vial in a 10% solution of bleach. Rinse the vial in clean water.** All vials with tissue samples will be maintained on wet ice until delivered to EMSL in Libby, MT for final weighing and storage for potential future tissue analysis.

EPA Region 8 has reviewed this field modification and approves as proposed.

EPA Region 8 has reviewed this field modification and approves with the following exceptions:

EPA Region 8 has reviewed this field modification and does not agree with the proposed approach for the following reasons:



Bonita Lavelle, EPA RPM

9/1/09

Date

FIELD MODIFICATION APPROVAL FORM
LFM-OU3-7
Libby OU3 Phase II Sampling & Analysis Plan

Requested by: John Garr, MWH

Date: August 26, 2009

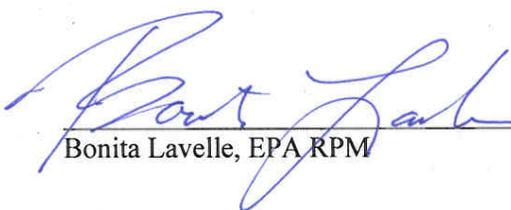
Description of Deviation:

The field sample data sheet (FSDS) for activity based sampling (ABS) personal air monitoring samples has been revised to be consistent with the latest revision of the ABS script (see field modification LFM-OU3-5 for the ABS script).

The revised FSDS is attached to this field modification form.

- EPA Region 8 has reviewed this field modification and approves as proposed.
- EPA Region 8 has reviewed this field modification and approves with the following exceptions:

- EPA Region 8 has reviewed this field modification and does not agree with the proposed approach for the following reasons:



Bonita Lavelle, EPA RPM

9/4/09
Date

LIBBY OU3 FIELD SAMPLE DATA SHEET

ACTIVITY-BASED SAMPLING (ABS) PERSONAL AIR MONITORING

ABS Area: ABS-_____ Sampling Date: _____ Sampling Team: MMWH Field Logbook: _____ Pgs: _____

ATV

HIKING

WG/FP/BU

Person #1: _____ (4.0 Lpm)

AFFIX ATV LABEL HERE	AFFIX HIKING LABEL HERE	AFFIX WG/FP/BU LABEL HERE
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(2.0 Lpm)

AFFIX ATV LABEL HERE	AFFIX HIKING LABEL HERE	AFFIX WG/FP/BU LABEL HERE
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Person #2: _____ (4.0 Lpm)

AFFIX ATV LABEL HERE	AFFIX HIKING LABEL HERE	AFFIX WG/FP/BU LABEL HERE
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(2.0 Lpm)

AFFIX ATV LABEL HERE	AFFIX HIKING LABEL HERE	AFFIX WG/FP/BU LABEL HERE
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AFFIX LABEL HERE

Field Blank ID: _____

Cassette Lot Number: _____

Activity		Activity Sample Time (hh:mm)		Rotameter Flow Rate (Lpm)							
				Pump		Pump		Pump		Pump	
		Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop
ATV	#1 Lead										
	#2 Lead										
Hiking	#1 Lead										
	#2 Lead										
Wood Gathering											
Digging											
Fire											

Person #1: 4.0 Lpm Pump ID: _____ 2.0 Lpm Pump ID: _____ Rotameter ID: _____ GPS ID: _____

Person #2: 4.0 Lpm Pump ID: _____ 2.0 Lpm Pump ID: _____ Rotameter ID: _____ GPS ID: _____

Field Comments:

Weather Description--

Other--

VOLUME CALCULATION Person #1

4L Ave. Flow Rate (ATV) = _____ LPM x _____ Min. = _____ L 2L Ave. Flow Rate (ATV) = _____ LPM x _____ Min. = _____ L

4L Ave. Flow Rate (Hiking) = _____ LPM x _____ Min. = _____ L + 4L Ave. Flow Rate (WG/FP/BU) = _____ LPM x _____ Min. = _____ L

2L Ave. Flow Rate (Hiking) = _____ LPM x _____ Min. = _____ L + 2L Ave. Flow Rate (WG/FP/BU) = _____ LPM x _____ Min. = _____ L

VOLUME CALCULATION Person #2

4L Ave. Flow Rate (ATV) = _____ LPM x _____ Min. = _____ L 2L Ave. Flow Rate (ATV) = _____ LPM x _____ Min. = _____ L

4L Ave. Flow Rate (Hiking) = _____ LPM x _____ Min. = _____ L + 4L Ave. Flow Rate (WG/FP/BU) = _____ LPM x _____ Min. = _____ L

2L Ave. Flow Rate (Hiking) = _____ LPM x _____ Min. = _____ L + 2L Ave. Flow Rate (WG/FP/BU) = _____ LPM x _____ Min. = _____ L

Field Data Entered by: _____

Field Entries Checked by: _____

Database Entry: _____

Database QC: _____