RESPONSE ACTION WORK PLAN

REVISION 6.0

LIBBY ASBESTOS SITE
LIBBY, MONTANA
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Prepared for:

U. S. ENVIRONMENTAL PROTECTION AGENCY REGION 8

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APPENDICES

Appendix A RAWP Modifications

LIST OF ABBREVIATIONS

A&E	Architect and Engineering Contractor
ACM	Asbestos Containing Material
ACS	Asbestos Contaminated Soil
APP	Accident Prevention Plan
ASTM	Association Society of Testing Material
ARM	Administrative Rules of Montana
ARP	Lincoln County Asbestos Resource Program
AHA	Activity Hazard Analysis
BGS	Below Ground Surface
BNSF	Burlington Northern Santa Fe
BZ	Breathing Zone
CIC	Community Involvement Coordinator
CFR	Code of Federal Regulations
CMT	Construction Management Team
CRZ	Contamination Reduction Zone
DOT	Department of Transportation
EPA	U. S. Environmental Protection Agency Region 8
ERS	Environmental Resource Specialists
HDPE	High Density Polyethylene
HEPA	High Efficiency Particulate Air
HVAC	Heating, Ventilation and Air Conditioning
IAG	Interagency Agreement
LA	Libby Amphibole
LACS	Libby Amphibole Contaminated Soil
Landfill	Lincoln County Class 4 Asbestos Landfill
LO/TO	Lock-out/Tag-out
MCA	Montana Code Annotated
MDEQ	Montana Department of Environmental Quality
Mine	Former W.R. Grace Rainy Creek Mine Site
NESHAP	National Emissions Standard for Hazardous Air Pollutants
NPE	Negative Pressure Enclosure
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PCT	Property Coordination Team
POC	Property Operations Coordinator
PPE	Personal Protective Equipment

PRE	Preparatory Removal Evaluation
QAR	Quality Assurance Report

LIST OF ABBREVIATIONS (cont.)

QC	Quality Control
QCR	Quality Control Repesentative
R-value	Thermal Resistance Value
RAWP	Response Action Work Plan Revision 3.0
RC	Removal Contractor
ROW	Right of way
RRA	Removal and Restoration Agreement
Site	Libby Asbestos Superfund Site
SSHO	Site Safety and Health Officer
SOP	Standard Operating Procedure
TQA	Third Party Quality Assurance
USACE	United States Army Corps of Engineers Rapid Response Program
WSR	Waste Shipment Record

1.0 Introduction

The purpose of the Response Action Work Plan (RAWP) is to provide the step-by-step process for removing sources and possible sources of Libby Amphibole asbestos (LA) from residences and businesses within the boundaries of the Libby Asbestos Superfund Site (Site) once they are identified at levels exceeding current action levels. Other guidance documents exist on this site and will be utilized via reference in the RAWP and as stand-alone standard operating procedures (SOP) or criteria documents. Property specific deviations will be documented in the Removal and Restoration Agreement or site specific design drawings approved by the EPA and USACE. These drawings will be kept in the site specific property folder located in the onsite records management center.

The Libby Asbestos Superfund Site is managed by the US Environmental Protection Agency (EPA) with field execution and site management conducted by the US Army Corps of Engineers Rapid Response Program (USACE) through an Interagency Agreement (IAG). Two principal contractors will be utilized for site work under the current removal action implementation process: the removal contractor (RC) and the architect and engineering contractor (A&E). The RC is responsible for implementing removal, transportation and disposal activities as described in this RAWP as well as in site-specific work plans. The A&E is responsible for independent third-party quality assurance (TQA) inspection of removal and restoration performed by the RC.

Operable Unit 7 will be managed in accordance with this RAWP.

1.1 Modification to the Response Action Work Plan

This plan is intended to be a living document. As process changes that increase the efficiency and efficacy of the project are agreed upon by the EPA and USACE, these changes will be incorporated into this plan. Changes will be documented in the RAWP Modification form and will become part of Appendix A. When this plan is modified, official copies of the Modification form will be distributed to the EPA, USACE, the A&E and the RC.

Any one-time deviation from this document will require a signed change order from a USACE representative.

1.2 Background and History

Vermiculite was discovered 7 miles northeast of Libby, Montana in 1881 by gold miners. In the early 1920s, Mr. Edward Alley began initial mining operations on the vermiculite ore body located approximately 7 miles northeast of Libby. Full-scale operations began later that decade under the name of the Universal Zonolite Insulation Company. This ore body contains a solid solution series of amphibole asbestos fibers with compositions including tremolite, actinolite, richterite, and winchite (herein referred to as LA). Unlike chrysotile asbestos, LA was not used commercially on a wide scale. During the mine's operation, while vermiculite was used in a variety of products (including insulation and construction materials, as a carrier for fertilizer and other agricultural chemicals, and as a soil conditioner), LA was considered a byproduct of little or no value.

The vermiculite ore was mined using standard strip mining techniques and conventional mining equipment. The ore was then processed in an onsite dry mill to remove waste rock and overburden material. Once processed, the ore was transported from the mine to the former screening plant, where the ore was sorted into five size ranges. After the sorting process, the material was shipped to various locations across the United States, for either direct inclusion in products or for "expansion" prior to use in products. Expansion (also known as "exfoliation" or "popping") was accomplished by heating the ore, usually in a dry kiln, to approximately 2,000 degrees Fahrenheit. This process explosively vaporizes the water contained within the phyllosilicate structure causing the vermiculite to expand by a factor of 10 to 15. This produces the vermiculite material most commonly sold as a soil amendment for gardens and greenhouses.

1.2.1. Former LA Operations in Libby

In Libby, operations handling this material occurred at four main locations: the mine and mill located on Rainy Creek Road on top of Zonolite Mountain; the former screening plant and railroad loading station located at the intersection of Highway 37 and Rainy Creek Road and directly across the Kootenai River, respectively; the former expansion/export plant (the former export plant) located immediately west of Highway 37 where it crosses the Kootenai River; and at the former expansion plant located at the end of Lincoln Road, near 5th Street. The Lincoln Road Expansion Plant went offline sometime in the early 1950s. In 1963, W.R. Grace purchased Zonolite and continued vermiculite mining operations in a similar fashion. In 1975, a wet milling process was added that operated in tandem with the dry mill until the dry mill was taken offline in 1985. The wet milling process was added to reduce dust generation of the milling process. Expansion operations at the former W. R. Grace export plant ceased in Libby sometime prior to 1981, although the area was still used

to bag and export milled ore until mining operations were stopped in 1990. Before the mine closed in 1990, Libby produced about 80 percent of the world's supply of vermiculite.

1.2.2. EPA Activities

Since 1999, the EPA has been conducting sampling and cleanup activities to address highly contaminated areas in the Libby Valley. The EPA inspection was initiated in response to media articles, which detailed extensive asbestos-related health problems in the Libby population. While at first the situation was thought limited to those with direct or indirect occupational exposures, it soon became clear that there were multiple exposure pathways and many persons with no link to mining-related activities were affected.

Typically, the LA contamination found in the Libby Valley comes from one or some combination of "primary" sources: vermiculite mining wastes, vermiculite ores, vermiculite processing wastes, bulk residuals from vermiculite processing, "LA-containing rocks," or LA-containing vermiculite insulation. Asbestos from these primary sources has been found in interior building dust samples and local soils, which in turn act as secondary sources. To date, the EPA’s goal has been to find and identify areas with elevated levels of LA (the primary sources) and to remove them. The EPA has conducted removal of Asbestos Containing Soil (ACS) at the former export plant location, the former screening plant and adjacent properties, and residential properties with LA source materials present. Removal actions have also been performed at four schools in Libby.

Cleanup work in Libby is ongoing and includes the removal of LA-containing media that include: vermiculite-containing materials (including vermiculite insulation and building materials with vermiculite additives), soil, and dust from residential, commercial, and industrial properties.

The vermiculite encountered in structures is typically found in attics and exterior walls where it was used for insulation. In some cases, vermiculite insulation is found in interior and exterior walls due to sifting from the attic. In rare cases, vermiculite is found as an additive in building materials such as plaster, mortar, and concrete. The LA-contaminated soil encountered is generally due to vermiculite used as a soil amendment in flowerbeds and gardens, for leveling of low spots, and for backfilling of utility trenches.

The Site has been divided by the EPA into 8 Operable Units (OU) to facilitate clean-up activities as follows:

- **OU1.** The former Export Plant is situated on the south side of the Kootenai River, just north of the downtown area of the City of Libby, Montana. OU1 includes the embankments of Highway 37, the former Export Plant, and Riverside Park. The property is bounded by the Kootenai River on the north, Montana Highway 37 (forthwith referred to as Highway 37) on the east, the Burlington Northern Santa Fe (BNSF) railroad thoroughfare on the south, and State of Montana property on the west;
- **OU2.** OU2 includes areas impacted by contamination released from the former Screening Plant. These areas include the former Screening Plant (Subarea 1), the Flyway property (Subarea 2), a privately-owned property (Subarea 3), and the Rainy Creek Road Frontage and Highway 37 right-of-way (ROW) adjacent to Rainy Creek Road (Subarea 4);
- **OU3**. The mine OU includes the former vermiculite mine and the geographic area (including ponds) surrounding the former vermiculite mine that has been impacted by releases from the mine, including Rainy Creek and the Kootenai River. Rainy Creek Road is also included in OU3. The geographic area of OU3 is based primarily upon the extent of contamination associated with releases from the former vermiculite mine;
- **OU4.** OU4 is defined as residential, commercial, industrial (not associated with former W.R. Grace Company operations), and public properties, including schools and parks in and around the City of Libby, or those that have received material from the mine not associated with Grace operations. OU4 includes only those properties not included in other OUs. Removal activities conducted adjacent or within state and local ROWs as part of an OU4 removal are documented in accordance with subsection 3.4.7;
- **OU5.** OU5 includes all properties that were part of the former Stimson Lumber Mill and that are now owned and managed by the Kootenai Business Park Industrial Authority.
- **OU6**. The rail yard owned and operated by BNSF is defined geographically by the BNSF property boundaries and extent of contamination associated with BNSF rail operation. Railroad transportation corridors are also included in this OU and have not been geographically defined;
- **OU7**. The Troy OU includes all residential, commercial, and public properties in and around the Town of Troy, approximately 20 miles west of downtown Libby.
- **OU8**. OU8 is comprised of the US and Montana State Highways and secondary highways that lie within the boundaries of OU4 and OU7.

2.0 Property Selection and Coordination

Properties within the Libby Asbestos Site will become eligible for the removal process at the discretion of the EPA. Once directed, the EPA/USACE contractors will initiate the removal process on these eligible properties beginning with the initial contact of the property owner, followed by an investigation and sampling of the property (Section 3.0). If warranted by the investigation, properties will have contamination removed (Section 4.0 and 5.0) and restored (Section 4.0 and 6.0) in accordance with the *Libby Asbestos Site Residential/Commercial Cleanup Action Level and Clearance Criteria Technical Memorandum* (EPA 2003) and its revisions. The process from initial contact until final close-out will be coordinated with the property owner and the EPA/USACE by project personnel as detailed in this section.

2.1 Property Eligibility

Properties eligible for investigation and possible removal actions will have their status updated in the EPA Response Manager Database (RM). Current eligible properties are generated from various sources. A property's eligibility for inclusion in the removal process is as directed by the EPA.

2.2 Geounits

Geounits are geospatial polygons that are employed by the EPA to track investigation and removal activities at properties within the Site. Each E911 address is assigned a property identification number, called the AD number, which corresponds to a geounit. The A&E and RC will attempt to perform complete removals by geounit.

2.3 Geographic Removal Zones

When possible, property selection will be based on geographic grouping of geounits within the OU4 and OU7 property boundaries. Geographic grouping will be managed on layers created in the EPA LibbyGeo database (LibbyGeo) that outline the boundaries of Geographic Removal Zones (GRZs). Scheduling of removals within a geographic area will accommodate property owner needs to the extent possible. All geounits are currently grouped into one of the GRZs illustrated in Figure 2- Geographic Removal Zones Locator Map, which was revised in January 2014 and can be found in the A&E and RC offices.

Property owners within OU4 and OU7 will be notified of the process of

executing removals in Libby by geographic area and that the removal teams will cycle through those areas until removals are complete.

2.4 Property Coordination Team

2.4.1. Roles and Responsibilities

The PCT is comprised of community involvement coordinators (CIC) and the Property Specialist. The primary role of CICs is to work with individual property owners and tenants of residential and commercial buildings, (hereafter referred to collectively as "property owners"), to facilitate the removal process. The role of the property coordination manager is to ensure a sufficient number of properties are ready for removal and to assist CICs with any problems that might arise during the removal process. The CIC initializes and manages the interaction with property owners during the removal process. The CIC represents the property owner while coordinating the removal action with the Construction Management Team (CMT). From the initial contact to the delivery of property completion forms, the CIC serves as a property owner's point-of-contact for questions, requests, or concerns regarding the removal process.

The CIC performs day-to-day tasks required to support, document, communicate and resolve removal issues. These tasks may include but are not limited to: tending to plants and animals in a relocated resident's home, tracking waste manifest to determine the quantities of contaminated materials removed from a property, processing claim forms, uploading property removal action photos, and coordinating for site security. Members from the PCT are responsible for fulfilling the EPA's data management requirements for the RC, as required by the EPA.

2.4.2. Property Status Updates

The property status and updates to property status will be maintained by the Property Operations Coordinator (POC). Supporting documents are maintained by the PCT.

Documents are routinely transferred from their working binders or RC files into the property's original file folders that are maintained in the onsite Records Center. These document transfers occur either upon the close-out for properties that undergo a removal action, or when they come to a definable end point such as a property owner refusal. Changes to property status will be communicated to the POC by the PCT.

2.4.3. Property Operations Tracking System Database

The PCT utilizes the Property Operations Tracking System Database (POTS), currently a MS Access database, to facilitate tracking the data, documentation and other activities that take place at a property during a removal action. This database contains queries that can be used to assess the status of properties and to assign tasks to personnel necessary to facilitate the removal process.

2.4.4. Record of Communication

Contact with property owners will be documented in a ROC in POTS. After the removal action at a property has been completed, all records will be compiled and the complete ROC will be delivered to the Records Center Manager as part of the property folder transfer that occurs after the removal action is complete at each property.

2.4.5. Consent for Access

The Consent for Access form will be signed by the property owner prior to the initiation of any on-site property investigation. This form will be signed when the property owners are initially contacted by the VRP, or prior to the commencement of investigation activities when the Investigation Team arrives on site. If the property is a rental property, the property owner will be responsible for informing the tenants that consent has been granted. The PCT and other project personnel may also obtain signed Consent for Access forms prior to the start of removal activities, especially when changes in ownership or tenancy have occurred since initial solicitation.

The original Consent for Access form will be delivered to the POC to use in updating property access information in RM. Upon completion it will be submitted to the Onsite Records Center manager for archiving in the property folder. Any incorrect information related to the owner or tenant name or phone numbers identified by project personnel will be relayed to A & E for input into Response Manager.

2.4.6. Initial Contact with Property Owners

Property owners and tenants are initially contacted and asked about their willingness to participate in investigation and removal activities as part of the Voluntary Recruitment Program. The information will be collected as required by the *Voluntary Recruitment Program Communication and Information Collection Strategy for Operable Unit 4 and Operable Unit 7 of the Libby Asbestos Site* (MDEQ 2011). No removals will be offered as part of this effort until after an investigation has been performed at the property by the

Investigation Team.

2.4.7. Properties that Agree to an Investigation

If the property owner accepts the offer of inclusion into the investigation process, VRP will coordinate scheduling in accordance with the General Property Investigation Sampling and Analysis Plan/Quality Assurance Project Plan (GPI SAP/QAPP), Revision 2 (CDM Smith, 2013) or current revision.

The VRP will begin putting property data into the POTS.

2.4.8. Property Owner Status Updates

Owners of all properties that give consent to perform an investigation and/or removal will be contacted by the VRP or CIC, depending on status in removal process, to provide them with a status update during the planning stages leading up to a removal action. The frequency of contact will be determined by the EPA. Property owners may choose to forgo the status notification calls and may give consent to only be notified upon significant milestones that require their input. These communications must be documented in the ROC for the property. Property status updates cease upon completion of the removal action at a property.

2.4.9. Deferring Properties

Property owners who are not ready for project participation, such as in cases involving elderly occupants, or properties in legal disputes may elect to place their property on a deferral list. The deferment status will be recorded in a Property Owner Deferment Form, original documents will be transferred to the onsite Records Center. The POC will update the access status of the property in Response Manager. The removal process will be offered to the property owner the next time removal activities are scheduled to occur in their GRZ.

2.4.10. Refusal Properties

Property owners refusing clean-up activities will have their information updated by the POC. The PCT will make a note in the property folder that access for removal activities is currently not allowed and complete a Property Owner Refusal Form. The original documents will be transferred to the onsite Records Center. Property owners may

remove themselves from the Refusal Property List by contacting the VRP, the PCT, or the EPA information center, to place them back into eligibility for investigation or removal.

2.4.11. Property Coordination for Investigation

Coordination of investigation activities will occur as specified in the GPI SAP/QAPP, Revision 2 (CDM Smith 2013) or current revision.

2.4.12. No Current Trigger Determination

No removal will be required if a current removal trigger (as determined by the EPA criteria) is not discovered at a property during the investigation. A status letter and investigation results will be provided to the owner in accordance with the GPI SAP/QAPP, Revision 2 (CDM Smith, 2013) or current revision.

2.4.13. Removal Action Required

When contamination is identified at a property and a removal action is required, the PCT calls the property owner to inform them that a removal action is necessary on their property. The property owner is notified that a field review and PRE will be necessary prior to the Removal and Restoration Agreement (RRA) meeting, and that the RC representative will contact the property owner prior to the property visit. If the property owner has requested to be present during all property visits, the foremen will be notified to coordinate with the property owner. On some properties, the request may be made to have the property owner present as a resource of additional information on his property during the evaluation. The call is documented in the property's ROC in POTS.

The investigation team, with the assistance of the drafters, prepares a drawing using the investigation data and submits a copy for use during the PRE. Before the PRE is performed the drawing will be reviewed in the field by an assigned CMT person for accuracy. A CIC will also be present at this field review to document owner requests regarding restoration. The markup from the field review visit will be used for the PRE. A PRE consists of a RC representative visiting the property to identify issues that may affect the removal action and to estimate the time and resources required to perform the removal as discussed in Section 4 and Section 5.

2.5 Removal and Restoration Agreement and Meeting

The purpose of the RRA meeting is to ensure that property owners fully understand and agree with the proposed removal action that is planned for their property. The agreement documents the removal and restoration conditions agreed upon during the meeting. During the meeting, the CIC assigned to the property explains the results of the investigation, presents the final site-specific work plan to the property owner and answers any questions that they have. If the CIC is uncertain of some of the property owner's concerns their questions may be directed to the applicable person.

During the RRA meeting the CIC also discusses other applicable topics specific to the property, such as relocation arrangements, and generates other applicable documents that record the agreed upon terms of the removal action. The RRA meeting should result with a RRA signed by the property owner and a RC representative. Documents generated from this meeting are maintained in the property file.

2.5.1. Mutual Compromise

Any agreement made with the property owner where the property owner gives up restoration or compensation in one area for an increase, of lesser or equal value, in another must be approved by USACE and/or EPA. Approval must be indicated by a government representative's signature on the site-specific work plan.

2.5.2. ERS Coordination

Beginning in 2014, the Lincoln County Asbestos Resource Program (ARP) will respond to initial calls and will coordinate any necessary response with the Environmental Resource Specialists (ERS) program. The ARP is a Lincoln County grant-funded program to provide property owners/residents with information related to Libby vermiculite and guidance on safely working with material potentially containing LA, or LA source materials. If it is determined that a property requires immediate response actions by the EPA and USACE, the property will be referred to as an ERS quick response property. For ERS quick response work, a complete RRA will not be utilized. Instead, an ERS Quick Response Scope of Work (QR SOW) will be generated by the ERS team and submitted to the PCT. The ERS team and PCT will coordinate with the property owner to set up a meeting to discuss the removal action proposed in the QR SOW. The CIC assigned to the ERS quick response will be responsible for ensuring that a Consent for Access Agreement

and the QR SOW has been signed prior to removal activities. During the meeting the CIC will also discuss and document any relocation or other removal and restoration issues for the property and collect photo and video documentation of the pre and post removal site conditions. The CIC will create a property folder to maintain the original documents and the events will be recorded in the property's ROC in POTS.

2.5.3. Removal Activity General Policies

Removal and restoration activities will be conducted in accordance with the following General Policies:

- Only government-authorized personnel will be permitted to perform work on site or enter the work exclusion zone during the removal and restoration activities.
- Removal start dates are subject to change based on crew and equipment availability that cause fluctuations within the construction schedule. Removal dates are not guaranteed, however the RC will try to accommodate scheduling requests.
- If relocation is required and the resident returns to their property without prior approval, their relocation agreement with the government will be nullified and per diem and hotel costs will not be paid. Nullification of the relocation agreement under these conditions does not allow for re-occupancy of the property if removal or restoration activities are still ongoing.
- Any cost incurred in addition to pre-approved lodging arrangements will be reimbursed directly to the hotel by the resident. Unpaid costs will be deducted from the per diem allowance. In the event the resident is asked to leave the accommodations for non-compliance with hotel rules, the EPA will not provide alternate lodging. The resident will be responsible for procuring their own lodging for the duration of the removal and restoration activities.
- Construction and restoration work will carry a one year warranty after the removal action is complete. This warranty is limited to work performed during the removal action. This will exclude any pre-existing features of the property, activities conducted by the property owner, or activities conducted by contractors solicited by the property owner. Unless prior arrangements are made with the EPA, this warranty is extended to the original property owner and is non- transferrable should the property be sold.
- The EPA representatives need to be notified of any future interior or exterior remodeling or exterior landscaping changes at the property.
- If the property owner chooses to relocate, change, or make improvements within areas affected by the removal action and those changes are not previously documented in the RRA, any change or damage that arise within those areas will become the liability and responsibility of the property owner.
- The EPA may choose to leave contaminated materials in place if they are located in inaccessible areas or in areas not likely to be disturbed.
- Excavation boundaries are subject to change based on the presence of vermiculite. No excavation will occur beneath sidewalks or intact concrete pads. An exception may be made, with approval of the government, in cases where contamination extends beneath a severely damaged or degraded sidewalk and where removal and replacement of the sidewalk facilitates more efficient and cost effective removal activities.
- The landscaping contractor will restore plants and hydro-seed after the backfilling is complete. It will then become the property owner's responsibility to maintain

these areas.

- Replacement for plant materials removed from the property can be reinstalled by the government's contractor or landscape vouchers may be issued to a pre-approved vendor. Vouchers issued must be redeemed within one year of the issue date unless prior arrangements are made.
- If a sprinkler system exists at the property, the property owner will be required to provide proof that the system functions properly at the start of the removal to receive compensation or restoration.
- If excavation is necessary around a propane system, the system may be shut off during the removal action. It is the responsibility of the property owner to ensure that the system meets current building or other regulatory codes prior to re-pressurization of the system.
- The EPA and its contractors will not be responsible for the death of a tree if death is caused by bark or pine beetles or anything other than deaths caused by removal activities.
- If interior restoration is performed, some doors and windows may be left open as part of the removal activities. Non-secured entrances will be sealed to the extent possible with poly to prevent rain penetration and entrance of animals into the work space. Security will be provided whenever the RC is not working for all properties that cannot be secured.
- Backfill material will be provided according with the specification for those materials with no special allowances made for property owner dissatisfaction with the material. Restoration material specifications and material samples may be provided upon the request of the property owner during the RRA meeting. Backfill will be compacted to meet project specifications and grading will performed to drain away from structures when site conditions permit. However, minor grading undulations caused by normal settlement, frost heave, or owner activities are not warranty items.

The removal guidelines will be explained to the property owner by the CIC during the RRA meeting and are documented in the RRA.

2.5.4. Interior Removal Policies

The RRA that is presented to the property owner does not specify the exact actions taken to perform the interior removals, if required. When contamination is found within buildings, the property owner is informed of the guidelines regulating interior removal actions and notified that the detailed construction steps required for interior removal at their property will be determined during the course of the removal action as the full extent of the contamination and the most effective abatement options become apparent. An Interior PRE will be performed by the Interior Foreman and the TQA to document the initial removal action strategy. However, since the mechanisms implemented are developed in the field in real-time through a process operated jointly by the Interior Foreman and the TQA, changes made in the field will be documented by the TQA in the

Quality Assurance Report (QAR) for the property. The interior removal guidelines outlined in Section 4.6.2 will be explained to the property owner and included in the RRA.

2.5.5. Tree Protection Policies

Property owners will be informed of the tree removal and protection policies detailed in Section 5.6.1.

2.5.6. Marking the RRA Drawing

As part of the RRA meeting, the final site-specific work plans will be explained to the property owner. Any changes or additions to the removal and restoration drawings will be marked on the drawing. The property owner, the PCT, and USACE will sign the marked-up work plans. The signed drawing(s) becomes part of the RRA. With USACE approval, if changes are significant the property drawings will be delivered to the drafters for revision.

2.5.7. Filling out the Removal and Restoration Agreement

The CIC will fill out each page of the RRA with the property owner, and ensure that the property owner initials each page and signs on the last page of the RRA. Any blank cells in the RRA will be marked in with pen by the CIC in the presence of the property owner prior to the property owner initialing the page.

The RRA will be filed in the property folder until the property is closed out. Upon completion of the removal action at the property, the original RRA will be submitted to the Record Center Manager.

2.5.8. Property Owner Relocation

If it is determined by the CMT that the residents must be temporarily relocated during removal action activities, they may be required to leave their homes and/or property preceding the start of work. The government will be responsible for the cost of any approved relocation and will reimburse the resident(s) the government's per diem allowance for the duration of their relocation at the end of removal activities. Relocation activities and support will be the responsibility of the CIC assigned to the property. The CIC will provide all information regarding relocation to the property owner at the RRA meeting. Any keys necessary for accessing the property during the removal action are

collected by the CIC. Applicable reminders (e.g., firearm safety, mail delivery hold, instructions for feeding animals and watering plants) are reviewed with the property owner and/or noted in the RRA.

Per diem rules and hotel accommodations will be explained to the property owner during the RRA meeting. Relocation information such as temporary housing options and reimbursable expenses are explained to residents who require relocation during the removal action. If relocation is required, visits to the property by the property owner during the removal action will be discouraged. If a property owner accesses their property after being relocated, they may forfeit their per diem allowance. If property owners choose to stay at pre-arranged government-contracted lodging facilities, the PCT will make all the necessary reservations on the property owner's behalf. Otherwise property owners are informed that they are responsible for their own arrangements.

If a property owner is expelled from government provided temporary housing finding replacement housing and payment for that housing will be the responsibility of the property owner. Expulsion from government provided housing will in no circumstances result in the property owner being allowed to re-occupy their property prior to completion of the removal process and attainment of a negative clearance sample results for the removal.

2.5.9. Business Closure

Businesses may be closed during removal actions. Minimization of adverse impacts to the business is a priority for removal scheduling and may include working at nights, on weekends, or during holiday closures. This schedule will be determined by the RC with approval from the USACE. No costs for loss of business will be provided by the EPA. However, relocation assistance may be provided upon approval by USACE and the EPA if removal actions would result in unreasonably long business closure or if any shutdown of the business activities is unallowable.

2.5.10. Coordinating Contact for Removal Questions

At the end of the RRA meeting, property owners are encouraged to contact their CIC with any questions or concerns. Contact information is exchanged and the CIC will request a contact number that will work if the property owner is relocated during the removal action (i.e. cell number or a number for the place where they will be staying).

2.6 Pre-removal Property Coordination

2.6.1. Landscape Inventory

After the RRA has been signed, the landscape contractor is contacted and tasked to perform a landscape inventory. When possible, the landscape contractor will be on-site at the end of the RRA meeting. Once onsite, the landscape contractor performs a landscape inventory to identify and quantify vegetation in and near the removal areas that will require replacement. The landscape inventory is submitted to the PCT for inclusion into the property folder. . The CIC will meet with the property owner and an agreement will be reached as to the exact list of plants on the inventory list.

USACE, or delegate, will perform field review of 10% of landscape inventories.

2.6.2. Pre-removal Documentation

Each property is extensively documented by the PCT prior to the removal action. Photos and videos are collected to document site conditions including, but not limited to, existing feature damage, existing structure material damage, operability of utility systems within designated work zones, and all interior and exterior areas that require removal action. This documentation will be used to reproduce features during the site's restoration.

Pre-existing conditions of the interior of structures, including, but not limited to, foundations and existing water damage, will be documented on all removals. Project personnel will collect digital photographs and record visual observations of current conditions of the interior structure. If the property owner denies access, the CIC will attempt to obtain a signed access refusal document for property files. If the owner refuses signature of the document and refuses access the USACE will be notified. No associated work will be performed without USACE approval.

Any damaged items discovered by or caused by the RC that will be repaired will be photo documented before, during, and at completion of the repair work.

Project personnel will utilize measuring tape or other instruments of measurement to document the dimensions of intricate or complicated landscape features such as flower

beds. Interiors that require removal action are to be documented after the residents have vacated the structure and before RC crews have commenced removal activities. Digital images should be shot at a resolution of three to five megapixels and date codes will be stamped on the photos to document when they were taken. Significant damage or other notable complications observed during the documentation will result in a Pre-existing Conditions letter being generated and the property owner being notified of the conditions prior to the start of the removal action.

If excavation is anticipated near a propane tank, the volume of fuel in the tank will be documented.

If roads leading to an excavation area are badly damaged, reasonable attempts will be made to document the extent of the damage.

2.6.3. Documentation for ERS Quick Response

For cases involving a time-critical ERS Quick Responses, the activities mentioned above can be altered and expedited according to need. However when possible reasonable effort will be made to obtain adequate pre and post photos and the interior crew will obtain photos during the cleanup activities. For time-critical removals or emergencies, any or all of this documentation can be re-addressed upon the completion of field activities.

2.6.4. Documentation of Contaminated Interior Areas

CICs are not to access interior confined spaces where contamination has been identified. However, pre and post documentation of these contaminated areas (attics, crawlspaces, etc) is still required and will be performed by personnel from the removal crew or other qualified personnel, as directed by the CIC. The CIC assigned to the property will be responsible for acquiring this documentation.

2.6.5. Utility Locate Request

If an exterior soil removal will be performed, the PCT will contact U-Dig to order a utility locate on the property no later than three business days before the commencement of the removal action. The CIC will review call in dates to insure U-Digs are current during removal activities and have not expired. This documentation is maintained in

the property's file folder and in the POTS database.

2.6.6. Scheduling the Removal Action

The CMT is responsible for generating a removal action schedule. Economic, County road closures, time and personal considerations of business and property owners will be considered when scheduling removal actions, though changes to the schedule are ultimately at the discretion of the CMT.

When a property is scheduled for a removal action, the CIC will inform the property owner of the estimated removal start date. The conversation will be documented on the property's ROC in the communication tab in POTS.

The CIC will contact property owners with increasing frequency to update them of the expected start date as their removal date approaches. The day before the removal action is planned to begin, the CIC will inform the property owner of the actual start of the removal activities.

2.6.7. Coordinating Relocation

If relocation of the property owner is required, the CIC will make the appropriate arrangements for hotels, pet care, etc., as necessary on behalf of the property owner. Any access to the property after relocation by the property owner is not allowed until the property has been cleared for the residents to reoccupy. In the case that items are accidently left behind after relocation has occurred, the CIC will coordinate the retrieval of such items as requested by the property owner until the property has been cleared for the residents to reoccupy.

2.7 Property Coordination during Removal Actions

2.7.1. Pets and Plants

The RRA documents the need to care for plants and/or animals of relocated property owners. Since CICs are not allowed full access to the properties during the removal actions, under some circumstances they may ask other personnel qualified to enter the site to perform these tasks. It is the responsibility of the CIC assigned to the property to ensure that these tasks are performed during the removal action.

2.7.2. Tracking Waste Shipment Records

Waste shipment records (WSR) document the transportation and disposal of impacted soil and materials from work sites. Removal of impacted material is tracked by a property's E911 address and property ID. The sum of the WSRs is utilized as the official count used to determining the removal volume of impacted materials from a property. During removals, original WSRs are filed within the property folder by the PCT. CICs input the data to create the Waste Shipment Log and the Removal Volume Form. The Waste Shipment Log and Removal Volume Form are submitted to the appropriate Record Center manager upon close out of the property's folder. The RC contractor retains the original WSRs as a back-up for disposal verification purposes.

2.7.3. Tracking Quality Assurance Reports

TQA personnel generate QARs for each property that they oversee on days that they undergo removal or restoration activities. The property QARs are electronically submitted daily to the CMT for integration into the site DQCR. The original property QARs are submitted to the PCT. The PCT is responsible for filing the original signed QARs in the appropriate property folder during the removal action. The QARs will be

Submitted by the PCT to the appropriate Record Center Manager upon completion of the removal action.

2.7.4. Tracking Changes to the Site-specific Work Plan

A signed change on the site-specific work plan or punch-list tracking sheet documents a property's owner concordance with the RC for changes to the removal and restoration agreement at their property. Changes may be generated by the CMT, TQA, or the PCT. Significant changes which carry cost impacts to the project, other than removal boundary expansion driven by the presence of contamination, must be reviewed and approved by a USACE representative. Where changes suggested by the property owner may have negative impacts on the protectiveness of the remedy or on other portions of the property not immediately affected by the removal action, the property owner must be informed in writing of the possible adverse impacts.

The original forms and site-specific work plans are submitted to the PCT following removal activities for filing in the property folder. Documentation of the change must remain on site as part of the QC site-specific work plan for reference to anybody performing work on the site. All changes to the work plan are documented in the QAR of the property from which it originated. The QC site-specific work plan is submitted to the

appropriate Record Center Manager upon completion of the removal action.

2.7.5. Daily Close-out Meeting

A representative of the PCT will attend the Daily Close-out Meeting (DCOM). The DCOM supplies the PCT with updates on the progress of the removal action at each property.

2.7.6. Security Schedule Updates

The PCT is responsible for coordinating the overnight security for the surveillance of properties where residents have been relocated and the property cannot be secured or locked-up overnight, as detailed is section 5.10. Security requirements will be determined every day at the DCOM.

2.7.7. Notifying Property Owners of the Progress of the Removal

The PCT will be notified by the CMT when a removal action is complete, when the property is accessible to property owners, or when residents may return to their properties. Property owners will be notified of the expected completion date, and be kept informed of any changes to that date. At a minimum, all property owners will receive a courtesy call at a frequency determined by the EPA to update them on their current removal status. Conversations with property owners will be documented in the property's ROC.

2.7.8. Retrieving Items for Property Owners

Because of the hazardous nature of the removal action work, access to properties for relocated residents or business owners may not be allowed until the results of the clearance samples meet the clearance criteria established by the EPA. All restoration work that could significantly impact the resident's or business owner's health and safety must be completed prior to the homeowner being allowed access to the work areas. Only under emergency situations will items be retrieved for property owners and/or tenants. Retrieval of items will be coordinated by the PCT.

2.7.9. Anticipating Completion of a Removal Action

The CMT will notify the PCT upon the completion of a removal action at a property. Upon notification of completion, the PCT will ensure that the following tasks are performed: documenting the restoration of the property, informing property owners that

they may return to the property, cancelling security, and notifying the landscape contractor that vegetation may be restored. Property owners are informed that minor restoration work (e.g., landscaping and small repairs) may still need to be performed at their property and that they may continue to see project personnel until all restoration activities are complete. Conversations with property owners are documented in the property's ROC in the communication tab in POTS.

2.8 Property Coordination Post-removal

2.8.1. Collection of Photo and Video Documentation

The PCT collects photos and videos of all properties following the completion of restoration activities and the final inspection. This task documents the condition of the property as it was left by the RC crews and helps identify any outstanding restoration issues. Interior restorations are to be photo and video documented before the property owner returns. If property owners are relocated, exterior restoration may be documented before the property owner returns or directly thereafter.

Documentation of difficult to access areas (attics, crawlspaces, etc) will be performed by the RC and TQA. Any restoration videos or photos collected by the removal crews will be submitted to the PCT upon completion of removal activities. The CIC assigned to the property is responsible for ensuring that all video and photographs have been collected and uploaded.

All photos and videos will be transferred to the Record Center Manager for the appropriate OU.

2.8.2. Property Owner Reimbursements

After the completion of a removal action, the CIC will meet with residents to attain signatures on the Reimbursement Claim for Superfund Temporary Relocation Assistance form, the Plant Material Replacement Certificate, and/or other claim forms for other compensated materials as applicable.

This meeting is documented on the property's ROC. Any signed reimbursement forms are updated and tracked and maintained in the property folder.

For relocations, the CIC will generate a Reimbursement Claim for Superfund Temporary Relocation Assistance Form based on the dates that the property owner was relocated. After verification of the correct amount, it will be presented to the property owner for

their signature. The Head of Household (HOH) will be required to sign the form. The form is then submitted to the RC's cost accounting for processing. Once the HOH form is signed no additional names will be allowed to be added to the form without USACE approval.

All other claim forms will include justification for the amounts that are reimbursed. The Plant Material Replacement Certificate will document what vegetation was removed and the amount allotted for restoring vegetation that is not restored by the contractor. The Other Compensated Materials Claim form will be accompanied by back up documentation of compensation volume or amount and the justification for the compensation. Sprinkler System Compensation Claim Forms will be accompanied by the minimum bid that documents the compensation amount from a sprinkler installation contractor. Water Reimbursement Claim Forms will be justified with statements from the utility provider and are calculated based on the difference in water usage when compared to the same time frame the previous year.

After the property owner signature is obtained, the form is submitted to the RC's cost accounting department for processing. The RC will generate a check for the property owner. Upon receipt of the check, the CIC will deliver the check to the HOH. The HOH will sign for the check at the bottom of the original claim form, verifying that the check has been received. This form is then filed in the property folder. These meetings are documented on the property's ROC. Delivery of reimbursements is updated in the POTS database and original claim forms and back up documentation is transferred to the appropriate records center at close-out.

2.8.3. Landscaping

Hydro-seeding will be performed after seeding by the RC is complete. The PCT will notify the hydro seed sub-contractor immediately after the completion of an exterior removal action. In rare instances, sod may be placed in areas with government approval. If a property owner requests a credit for hydro seeding or wants to delay hydro seeding to facilitate other activities, the property owner will be accommodated for a period of 30 days following completion of removal activities after which time the property will be hydro seeded to protect the remedy. The 30 day period may be delayed at the RC's discretion for seasonal considerations. Any credit for hydro seeding will be rescinded once the hydro seed has been installed. Property owners that voluntarily postpone hydro seeding or other landscaping activities will assume responsibility for ensuring that conditions at their property are suitable for the landscape sub-contractor, for examples:

the RC will not revisit a property to rake up leaves or re-grade areas that the owner changed.

After the removal action, a determination will be made by the landscape sub-contractor to verify the final quantity of vegetation that was removed by the RC and the replacement price of that vegetation and its installation. This budget may be used by the property owner to replant the yard themselves, or can be used to have the plants installed by the landscape sub-contractor. Areas containing plants that have not been maintained by property owners are subject to no or partial reimbursement of plants. USACE will review documentation to make this determination.

The CIC will coordinate the restoration of vegetation after removal actions between the property owner, the RC cost accounting, and the landscape sub-contractor.

2.8.4. Property Completion Documentation

The PCT will track the receipt of Property Close-out Checklist. The PCC packet will include a draft red-line sketch and sampling map, both will be submitted to the drafters who will prepare a Final Removal As-built. The CIC assigned to the property will utilize the Property Completion Checklist (PCC), Final Removal As-built, QARs, and clearance sample results to prepare the Removal and Restoration Completion Form for the property. All Removal and Restoration Completion forms are to be reviewed by the PCT QC designee for accuracy and by a technical reviewer if any contamination is left remaining on the property. A copy of the Final Removal As-built will be attached to the back of the Removal and Restoration Completion Form when it is presented to the property owner.

2.8.5. Property Close-out Meeting

After the completion of the Removal and Restoration Completion Form, the CIC will conduct a meeting with the property owner to summarize the removal action that took place. The property owner will receive documentation of the results of the removal action on their property and the final status of their property will be explained in the Property Completion Letter. If the removal was an ERS Quick Response, the final status after the ERS work will be explained in the ERS Property Completion Letter. CICs will deliver any reimbursement checks, a High Efficiency Particulate Air (HEPA) vacuum, and acquire required signatures on close-out documentation. During this meeting any unaddressed restoration issues brought up by the property owner will be documented in a

Punch List form that is used to track that the items are carried out to completion.

2.8.6. HEPA Vacuum

A HEPA vacuum will be provided to each residential and commercial property where a removal action has occurred, if one has not already been issued to the property. Under some circumstances, properties may have already received a HEPA vacuum and will not be issued another. Prior approval will be needed from the EPA for commercial properties if they are to be issued an industrial HEPA vacuum. The property owner will be informed that the vacuum is to remain with the property in all cases. The property owner will sign the HEPA Vacuum Receipt form signifying that the vacuum was received and instruction in its use was given by the CIC. The serial number from the vacuum will be secured to the HEPA Vacuum Receipt form. The form will be filed in the property folder, information updated in the POTS database, and a copy will be delivered to the EPA Info Center..

Properties where a demolition was performed and/or where no habitable structure remains will not be issued a HEPA vacuum. If a structure is built in the future and the property owner wishes to participate in the HEPA vacuum program, they may request a vacuum from the EPA Information Center.

3.0 ERS Quick Response, Investigation and Drafting

3.1 Roles and Purpose

The role of the ERS team is to assist in the development of any statement of work (SOW) for quick responses to address interior or exterior pathways of exposure at properties within the Site's boundaries. The ERS team will only develop and provide a SOW to the RC once approval has been given by the EPA and USACE.

3.2 ERS

All ERS investigations will be performed as directed by the *Environmental Resource Specialist Plan* (CDM 2010a) or current revision.

Excavation of ACS will be in accordance with Section 5.0 or as stated in the government approved SOW. Replacement of clean fill material will be in accordance with Section 6.0, with exceptions as determined on the ERS SOW. For interior ERS removal actions, a removal will be performed in accordance with Section 4.0 with exceptions as determined on the ERS SOW.

Integration of ERS quick responses into the removal schedule will be a priority of the CMT.

3.2.1. ERS Restoration

Compensation will not be offered for materials removed during renovation-driven interior ERS since those materials would have been replaced as part of the renovation if it had proceeded without needing a removal action.

3.2.2. Documentation of ERS Removals

Documentation, drafting and property coordination will be conducted in accordance with the applicable performance standards and requirements for properties requiring a complete removal, whether interior or exterior.

An ERS Completion Letter will be prepared by the PCT to document the ERS removal

action. Copies will be delivered to the property owner and placed in the RC property folder. The original document will be submitted to the Records Center Manager for the applicable OU, upon completion of removal activities.

3.2.3. Winter ERS

All attempts will be made to facilitate any removal action during the normal construction season (generally April through November). In situations when a quick response statement of work has been drafted, the EPA will make the final determination on whether a quick response will be completed outside of the normal construction season. The RC will ensure that the needed equipment is procured quickly to facilitate a quick response during the winter months.

3.3 Investigation

3.3.1. General Property Investigation

All property investigations will be performed in accordance with the *GPI SAP/QAPP, Revision 2* (CDM 2013) or the current revision.

3.4 Drafting

Drafting personnel are responsible for providing prepared surveys to the investigation team to form the basis for site-specific work plans; for preparing preliminary work plans for use in property owner RRA meetings; for preparing final site-specific work plans for contamination removal and property restoration activities; and preparing the EPA deliverables that graphically depict the results of the removal action. Drafters are also responsible for checking the results of the survey against the geounit polygons in LibbyGeo, and for notifying the EPA when geounits need to be altered to match surveyed property boundaries. After receipt of surveys, and prior to preparation of site-specific work plans, all surveys will be reviewed in the field for accuracy of feature location by appointed RC personnel.

3.4.1. Surveys

Upon discovery of a removal trigger, a property survey will be ordered from the survey subcontractor by the PCT. Before any survey is ordered, the drafters will determine that a survey has not been previously performed for the property by coordinating with

the PCT. If a survey already exists, the existing survey will be utilized unless the survey does not accurately depict the property as determined during the property investigation by drafters or the investigation team.

Land surveys will include topographic information for determining grades during restoration activities, and property boundaries to determine the limits of the property where the removal is being conducted. The surveys will also include all physical and geographic features of the property (e.g., structures/buildings, trees, individual land use areas). Additionally the surveys will include adequate elevations which will help determine if there are any existing drainage issues at the property. The survey contractor will be a registered and licensed land surveyor in the State of Montana.

The survey subcontractor is required to contact the property owner prior to arriving on the property or to notify the PCT of the date and approximate time of surveying activities.

3.4.2. Preparation of the Survey for Investigation Activities

Upon receipt of the property survey from the survey sub-contractor, the drafters will develop scaled drawing sheets for the investigation teams and deliver the drawing to the investigation team for use during the DI process. The survey sheets will include:

- The correct last name of the property owner
- Correct E911 address
- Property geounit and AD
- Drawing date
- A scale and north arrow
- A 10-foot grid overlay for the property exterior (for sampling use)

After a DI has been completed, the investigation team will submit the marked up survey, showing the location of sampling areas to the drafters for placement of the sampling locations within the survey. The drafters will then submit a table of the sample location points in a lat-long format to the data management team. The drafters will also generate the DI Visible and Analytical drawing based on the field sketch created by the investigation team.

3.4.3. Comparing Surveys to the Geounit

The drafters will prepare projection files of the surveyed property boundaries for use by LibbyGeo managers for the correction and identification of geounits. The projected property boundaries will be compared against the geounit in the LibbyGeo. Based on the comparison, the drafters, with assistance from the investigation team and Property Operations Coordinator, will determine if the geounit needs to be split or multiple geounits are to be merged. The projection files will be submitted to the EPA accompanying documentation detailing splits, merges, and corrections to current geounit locations.

3.4.4. Draft Site-Specific Work Plan

The drafters will compile appropriate information collected from all previous investigations performed at a property to produce a removal and restoration drawing for the property. For exterior removals, the draft site-specific work plans will include:

- The correct last name of the property owner
- Correct E911 address
- Associated geounit, AD numbers, BD numbers
- A scale and north arrow
- Removal areas, hatched in a pattern corresponding with associated excavation depths and restoration materials as shown within the legend of the removal or restoration drawing
- A table showing estimated removal areas and volumes
- A restoration drawing to return the property to its pre-removal condition
- Drawing date
- Construction notes and specifications unique to the property
- Drafter's name

Upon completion of draft work plans, the drafters will review them for accuracy and consistency with other drawings.

3.4.5. QC of the Draft Site-Specific Work Plan by the Investigation Team

The drafters will submit all preliminary removal drawings for review to the investigation team. The investigation team will check that the draft work plan indicates removal in areas where investigation data meet EPA action levels as described in the *Action Level/Clearance Criteria Technical Memorandum* (EPA 2003) and associated amendments. Once the drawing has been checked, the investigation team will submit it to the drafters. Revisions to the drawing will be made by the drafters and back-checked by the investigation team.

3.4.6. Field Review

Once the draft work plan is complete, the drafters will submit it to the PCT for field review. An assigned CMT person will review the work plan in the field for accuracy. A CIC will also be present at this field review to document owner requests regarding restoration. The markup from the field review visit will be used for the PRE.

3.4.7. Preparatory Removal Evaluation

Once the field review is complete, the PCT will prepare a PRE package for delivery to the CMT. The CMT will evaluate the property for staging areas, access areas, hazards and crew/equipment loads, making notes on the form and the work plans as necessary. The CMT will note on the draft work plan the decontamination areas, and access routes. The CMT will gain USACE approval for the marked-up drawing, which will include field review and PRE notes, then submit the PRE form and marked-up sketch to the drafters upon completion of the evaluation. The drafters will use this information to update the draft site-specific work plans.

3.4.8. Final Site-Specific Work Plan Preparation

Drafters will incorporate notes from the field review and PRE. This will be considered the draft final work plan. A member of the investigation team will review the draft final work plan for incorporation of comments and conformance to work plan templates. Once the drawing has been checked, the investigation team will submit it to the drafters. Revisions to the drawing will be made by the drafters and back-checked by the investigation team. Upon completion of the review process, the work plan is final and will be indicated in the Title Block with the Revision # as “0”, the date the drawings became Revision 0, and “Issued for Construction” as the description.

Controlled copies of the site-specific work plan will be made available to the CMT. A copy designated to stay on-site at all times will be marked as the QC copy. Except for the signed site-specific work plan, all previous drafts of the drawing will be archived or discarded. Only the signed final site-specific work plan and the original DI Visible and Analytical drawing will be used in the field during the removal process. The CICs will be responsible for ensuring that the CMT has the most current site-specific work plan. Each crew pack assembled by the CIC will include a RRA, DI Visible and Analytical drawing, and the final site-specific work plan(s).

The final site-specific work plans will include:

- The correct last name of the property owner
- Correct E911 Address
- Associated Geounit, AD numbers, BD numbers
- A scale and north arrow
- Removal areas and restoration materials as shown within the legend
- Required site controls specific to the site including, but not limited to, location of decontamination equipment and designated break areas
- A table showing estimated removal areas and volumes
- Drawing date
- Construction notes and specifications unique to the property
- Drafter's name
- QC reviewer's name
- Signature lines for the CIC, owner, and USACE

3.4.9. RRA Plans

The property owner and the CIC will meet to discuss and sign the final site-specific work plans. Any changes or additions to the removal and restoration drawings will be marked on the drawing. The property owner, the PCT, and USACE will sign the marked-up work plans. The signed plan(s) becomes part of the RRA. With USACE approval, if changes are significant the property drawings will be delivered to the drafters for revision. If revision is required, the revised drawing will be reviewed by a member of the investigation team. The revised drawing will be submitted to the CIC to obtain signatures from the owner and USACE. The original will be kept in the RC property folder until it is submitted to the Records Center manager.

3.4.10. PreCon Plans

Approximately 10 days prior to start of removal activities a PreCon meeting will be held at the property to clarify all details of the removal activities with the appropriate personnel attending. Any identified changes will be reported to the CIC and submitted to USACE for approval. Minor changes are hand entered and initialed and dated by USACE and the property owner. Final site-specific work plans will include removal areas based on visual inspection and analytical results as well as notes collected by the CMT during the removal evaluation and by the CIC during the RRA Meeting with the property owners. The site-specific work plans will also depict the locations and volumes of LACS in the removal areas as identified in the investigation process.

3.4.11. Draft Red-line Sketch and Final As-built

The draft red-line sketch will be generated by TQA as part of the clearance sampling process and then submitted to the PCT as part of the PCC package. Removal area will be calculated by the drafter.

Draft red-line sketches submitted by TQA to the PCT will be utilized to produce the final As-built that depicts the location and boundaries of removal areas and clearance sample locations, areas not excavated due to constructability concerns, and other changes to the removal drawing due to conditions encountered during the removal process.

The drafters will place the clearance sample locations on the final as-built(s) and prepare a sample location table for incorporation. The drafters will submit a table of the sample location points in a lat-long format to the data management team. The drafters will submit completed Final As-built(s) to the PCT.

3.4.12. Interior Post-removal Sketch

After interior removal actions, TQA is responsible for the generation of an interior draft red-line sketch. Upon request, the drafters will provide TQA with a footprint of the structure for documenting the removal. The Interior draft red-line sketch will be submitted to the PCT after the completion of the interior removal as part of the PCC package. The drafters will ensure that the removal is accurately communicated on the Final As-built drawing before submitting it to the PCT.

4.0 Interior Removal and Restoration

4.1 Roles and Purpose

The RC will remove vermiculite and LACS from residential, commercial, and industrial properties in accordance with the removal and clearance criteria established by the EPA. Removal requirements will be detailed in site-specific work plans. If the vermiculite contaminated area may be accessed and disturbed under normal conditions, such as in attics, it will generally be removed. If the insulation is well contained and will not be disturbed under normal conditions, such as in walls, it will generally be left in place. If vermiculite is left in place in an area, any openings through which the vermiculite may enter the living space, such as electrical outlets or light fixtures, will be sealed off to prevent exposure. The Quality Control Representative (QCR) will relay to the TQA all areas where VCI has been observed and sealed in place. The TQA will document the finding on the interior draft red line.

The RC will furnish all labor, supervision, materials, equipment, tools, and incidentals necessary to perform all vermiculite and LACS removal activities.

If a resident or business owner indicates to the EPA that they will remodel a portion or all of a structure immediately following a removal, and have specific plans in place to do so, the EPA may decide to remove vermiculite from certain areas of the structure planned to be remodeled, that would not usually qualify for a removal, in order to facilitate the remodeling effort without risking additional contamination of the property due to improper demolition. Property owners may also contact the EPA about future plans to remodel an area and request an inspection and potential removal of vermiculite from walls even if no other interior removal has been scheduled or may be required. Vermiculite will only be removed from those areas impacted by the remodeling and no compensation will be given nor restoration performed (e.g., walls will be removed down to the studs, cleaned, and cleared, then the property owner will complete the remodeling, including the replacement of all wall material).

4.1.1. Subcontractor Activities

The RC is responsible for any project work performed by its subcontractors, if any, including pre-work activities, site preparation, site removal, and site restoration activities. The RC is responsible for ensuring that its subcontractors adhere to all applicable federal,

state, and project requirements and guidance documents, including the Accident Prevention Plan (APP), site-specific work plans and this plan.

4.2 Pre-Work Activities

Before beginning any site preparation activities, the interior foreman is responsible for:

- Conducting an Interior Preparatory Removal Evaluation (PRE) along with TQA personnel and thoroughly documenting the site's existing conditions, including but not limited to: existing feature damage, existing structure material damage and operability of utility systems within designated work zones. The interior foreman is to complete the Interior PRE form and submit completed forms to the property coordination team (PCT). Modified level C personal protective equipment (PPE) may be utilized when the inspector enters interior areas known or suspected to be impacted with vermiculite or LACS.
- As part of the Interior PRE, TQA and the interior foreman will determine the plan for removing vermiculite.
- The interior foreman will inspect equipment pathways and placement areas, changes in conditions that could result in the presence of LA after prior investigations were completed, an inspection of all interior areas and exterior areas that surround those areas and an inspection of access points to removal areas. Foremen are to complete an Interior PRE form to assess the number of days, material, and equipment to be used for the removal activities and supply the TQA with a completed copy to be attached with the QAR.

Pre-existing conditions identified and documented by TQA and/or the interior foreman will be discussed with the USACE on-site representative, the construction management team (CMT), and the PCT to determine the need to modify removal activities and site specific work plans. Any significant restoration plan changes or existing site conditions that may require a Hold Harmless Agreement will be coordinated by the PCT with the property owner, USACE and the EPA (if necessary), prior to proceeding with the removal activities.

4.3 Documentation

Photo and video documentation of the interior living space is the responsibility of the PCT. The removal areas will be photo-documented by removal crews and TQA prior to, during and after the removal activities, as well as after restoration. The interior living spaces will be documented by the PCT. Photos taken by the removal crews will be delivered to the PCT upon completion of the removal and restoration.

TQA is responsible for photo-documenting the work activities of the RC interior removal and restoration crews and will provide photos to the PCT with the PCC. The assigned

CIC will check that proper naming convention has been used and the photos have been uploaded to the proper location on the server.

4.4 Site Preparation

4.4.1. Preparatory Phase Inspection

No inspections or work activities will be performed without a finalized site-specific work plan on-site. A finalized work plan includes a copy of the interior investigation data, signed Removal and Restoration Agreement (RRA) and the Interior PRE.

Prior to the start of any work activities at the site, TQA, quality control personnel (QCR) and the interior foreman will hold a preparatory phase inspection to review site removal activities and to ensure that interior removal personnel and TQA personnel have consistent and current site-specific work plans. Additionally, imminent hazards identified will be evaluated to determine if corrective actions are necessary, and will be noted on the activity hazard analysis (AHA). The site will be inspected by TQA and QC personnel to ensure that the requirements presented in this section are upheld.

4.4.2. Removal Contractor Site Preparation Requirements

The RC will be responsible for maintaining these aspects of site preparation, and all appropriate safety precautions, throughout the duration of removal and restoration activities. A complete list of site preparation details are described as follows:

- Implementing safety precautions, including use of appropriate PPE;
- Using appropriate engineering controls to prevent contaminant migration as a result of removal actions;
- Implementing and maintaining dust control to a standard of no visible dust emissions from the site throughout the duration of site activities, from site preparation through restoration, in accordance with Montana Code Annotated (MCA) Title 75 (Environmental Protection), Administrative Rules of Montana (ARM) Title 17, and National Emissions Standard for Hazardous Air Pollutants (NESHAP) asbestos regulations (40 Code of Federal Regulations (CFR) Part 61);
- Ensuring that all vacuums used on the project have high efficiency particulate air (HEPA) filters that meet the definition as stated in Occupational Safety and Health Administration (OSHA) Standard 29 CFR 1926.1101(b). The RC will provide HEPA filter documentation for each manufacturer's model of vacuum. The RC will document the regular maintenance (e.g., changing of HEPA filters) performed on all vacuums, making this documentation available upon request;
- Ensuring that all attic accesses are of adequate size (i.e., a minimum of 18 inches by 18 inches) for personnel and equipment ingress/egress and that all access systems (ladders, scaffolds, etc) are in compliance with USACE EM 385-1-1 (2008);

- Providing temporary electric power and potable water for the duration of site activities;
- Ensuring that all appropriate lock-out/tag-out (LO/TO) procedures, in accordance with project, OSHA requirements, including OSHA Standards 29 CFR 1926.416 and 29 CFR 1926.417, and USACE EM 385-1-1 Section 12 Control of Hazardous Energy, are implemented for a structure's electrical sources throughout the duration of site activities;
- Ensuring electrical safety throughout the duration of site activities as required in all applicable OSHA Standards, including 29 CFR 1926 Subpart K and USACE EM 385-1-1, Section 11, Subpart E. All activities with the potential to be performed within 10 feet of energized electrical lines must be evaluated as part of the site AHA by the RC, and appropriate precautions must be implemented before removal action work may begin;
- No upgrading of pre-existing substandard wiring will be performed. If substandard conditions exist, the property owner will be notified of the need to make the required improvements. If conditions are identified prior to the start of removal activities the property owner will be notified before starting work to ensure that they know they may face the cost of potential upgrades to the system if it is disturbed by the removal or restoration activities and to ensure that they wish to proceed with the removal action. If substandard conditions are encountered during work that pose a risk to the contractor or potentially to the structure and the property owner, the contractor will terminate work prior to disturbing the wiring and will notify the USACE on-site representative;
- Ensuring that only licensed electricians perform electrical repair work or disconnections and reconnections of all electrical circuits. Electrical repair safety requirements are to be performed in accordance with USACE EM 385-1-1 Section 11 Electrical (2008);
- Ensuring that only licensed plumbers or qualified persons perform plumbing repair work at a site;
- Ensuring that only licensed personnel perform repair work on gas, propane, or oil lines at a site;
- Identifying and posting residential traffic and pedestrian points of hazard with legible traffic signs, in accordance with OSHA Standard 29 CFR 1926.200(g)(1), throughout the duration of removal and restoration activities as applicable;
- Providing site signage in compliance with Department of Transportation (DOT) regulations, including temporary stop signs when necessary;
- Identifying and evaluating any existing residential mechanical equipment within the work zones, isolating or removing any potential hazards;
- Placing/staging removal equipment such as, but not limited to, vacuum machines, vacuum boxes, decontamination trailers, and water storage tanks in a manner that minimizes inconvenience and risk to the public;
- Keeping all sidewalks and other public access pathways free of equipment during non-work hours, or providing a sufficiently permanent barrier to prevent pedestrian or vehicle access. Blocked pedestrian or vehicle access pathways will require rerouting by the RC in accordance with OSHA Standard 29 CFR 1926.200(g)(2);
- Securing sites to prevent non-project personnel from accessing work areas during work and non-work hours;
- Demarcating exclusion zone boundaries and posting ingress/egress points with appropriate asbestos and PPE signage, in accordance with OSHA Standard 29 CFR 1926.1101(k)(7)(i) and USACE EM 385-1-1, Section 28. All removal activities will be conducted within an appropriately designed exclusion zone. The exclusion zone containment may only be removed after final clearance sampling has been performed and non-detect results have been received;

- Ensuring that proper work zone containment, negative air control and air monitoring required under OSHA Standard 29 CFR 1926.1101(g)(5) and OSHA Standard 29 CFR 1926.1101(g)(5)(i)(A)(2), are employed (With the EPA and USACE approval, negative air machines may on secondary structures may be powered down over nights and weekends, except on Class I abatements);
- Demarcating support zone boundaries with orange fencing and yellow caution tape;
- Demarcating waste load out, personnel, and equipment pathways as part of the exclusion zone;
- Protecting all areas of the property where work activities are performed from inclement weather by implementing any reasonable safeguards necessary during removal and restoration activities;
- Ensuring that uninterrupted power is supplied to any refrigerators, freezers, or other items identified in the site-specific work plan or as directed by the USACE on-sight representative;
- Ensuring that all flammables are properly containerized and stored and that proper flammable, no-smoking, and other required signage is in place
- Providing fire extinguishers, in accordance with OSHA Standard 29 CFR 1926.150(c)(1)(VI), throughout the site's work areas including, but not limited to, the exclusion zone, decontamination facility, at any flammable liquid or fuel use area, and on each piece of construction equipment;
- Using all necessary precautions to ensure the structural integrity of the building is maintained during removal action activities;
- Repairing, replacing in kind, or providing compensation for all items damaged during removal action activities.
- Protecting site utility piping from freezing conditions and sensitive property features against weather elements. If freezing temperatures are expected, negative air machines may be turned off during non-work hours once bulk removal is complete, with prior approval of TQA, the Site Safety and Health Officer (SSHO), and USACE;
- Adhering to all transportation and disposal requirements stated. All asbestos containing material (ACM) generated during removal activities, with the exception of soil, will be disposed of as ACM. Reasonable precautions will be taken to ensure that no polyethylene sheeting or PPE of any kind is to be disposed of at the mine site repository;
- Developing a handling plan for the collection, storage, transportation, and disposal of liquid waste generated at removal action properties;
- Implementing pollution control measures throughout all the site's activities during all phases of the project;
- Inspect soffits, particularly those components adjacent to any external vents, to determine the presence of vermiculite;
- Providing adequate lighting within the work areas, in accordance with OSHA Standard 29 CFR 1926.56(b);
- Addressing any potential fall hazards within the work areas, in accordance with OSHA Standard 29 CFR 1926.501 and USACE EM385-1-1 Section 21.

4.4.3. Protection of Existing Features

The RC will protect existing wiring, plumbing, and mechanical features existing in the residence or structure of the property. The RC will be responsible for protecting existing features and systems of the property that are left in place. The heating, ventilating, and air

conditioning (HVAC) system should be rendered inoperable, sealed, and isolated to protect it from contamination during removal and restoration activities, in accordance with OSHA Standard 29 CFR 1926.1101(g)(4)(III). All appropriate LO/TO procedures are to be implemented for HVAC, other mechanical systems, and electrical systems before the start of site work and throughout the duration of removal activities.

The RC will protect electrical wiring located in the site's work areas throughout the duration of removal action action activities.

4.4.4. Containment Setup

The RC will construct an exclusion zone inside the designated work area to ensure the health and safety of the workers and public. Prior to installation of the containment, the contractor will perform additional investigation of the space to determine if additional vermiculite not noted on the initial investigation is present. The contractor's asbestos competent person and/or TQA will evaluate the exclusion zone and critical barrier construction during the initial inspection and will approve it prior to the start of removal activities. No adjustment to the exclusion zone will occur without the prior approval of TQA and/or RC competent person. Any adjustment to the containment will be documented in the TQA quality assurance report (QAR) and QC documentation.

The RC is responsible for inspecting the designated containment areas to ensure that any penetrations that vermiculite or other contaminated materials may escape from or leak into as a result of removal action action activities are identified and permanently sealed prior to the start of bulk removal. The contractor will also inspect below any knee walls, subfloors, and/or soffits accessible from the attic, addition tie-ins, etc., to ensure that no additional vermiculite is present in those areas.

If vermiculite is found in the soffit, and the soffit is inaccessible, the integrity of the soffit system and the potential for leakage from the venting will be evaluated to determine if soffit demolition is necessary for the removal of vermiculite. Non-leaking soffits, determined to be in good condition without the potential for a release of vermiculite, will be treated as a sealed system equivalent to a wall. The presence of vermiculite will be noted by TQA, with no additional action other than potentially sealing portions of the system. If the soffit is deteriorated and it is likely that failure and release of vermiculite will occur at some time in the future, USACE will be notified to determine the course of action which may include demolition of the soffit with possible replacement.

TQA will document areas to be removed. The RC will also inspect the area for any un-documented pre-existing moisture or other damage, inadequate wiring, etc. The RC will photo-document all pre-existing damage, problems and potential problems and will offer potential solutions to any problem observed during removal.

The RC will construct a negative pressure enclosure (NPE) encompassing the exclusion zone to isolate the removal activities and prevent unwanted structure migration. The NPE will be constructed according to OSHA requirements, including OSHA Standard 29 CFR 1926.1101(g)(5). All critical barriers such as, but not limited to, exposed vents, grilles, and windows inside of the work area must be HEPA vacuumed before being sealed.

The RC will place the NPE under negative pressure by installing HEPA-equipped negative air filtration units. HEPA air filtration units are to achieve a minimum of four air exchanges per hour, in accordance with OSHA Standard 29 CFR 1926.1101(g)(5)(i)(A)(2), and are to be placed in a manner that pulls contamination away from the worker's breathing zone. HEPA air filtration units will be exhausted to outside air rather than into another part of the building, unless otherwise approved by RC Project Manager. .

Asbestos warning and PPE requirement signs, in accordance with OSHA Standard 29 CFR 1926.1101(k)(7)(ii)(B), will be posted by the RC at all ingress and egress points of the exclusion zone so that site personnel may read the signs and be aware of necessary protective steps before entering the exclusion zone.

The RC will install an overlapping entrance feature at ingress and egress points using two layers of 6-mil fire-retardant polyethylene sheeting (Note: Three layers of 6-mil fire-retardant polyethylene sheeting shall be required for all commercial and or school building) to allow passage into the NPE while minimizing migration of contaminants to the outside. Designated protective suit change-out stations will be required to prevent cross-contamination if accessing the designated containment area through a clean living space or loading out ACM waste.

The RC will build containments of sufficient size to allow for proper work safety practices (e.g., use of Tyvek change-out stations), extending the containment beyond the contaminated area if necessary.

The RC competent person is responsible for inspecting and maintaining the designated containment areas to ensure they are of sound construction and functioning as intended until final clearance criteria are met. The TQA is also responsible for regular inspection and documentation of the condition and proper functioning of the containment areas.

The RC is responsible for ensuring that all appropriate ACM handling procedures are implemented and in accordance with OSHA Standard 29 CFR 1926.1101(l)(2).

Once the exclusion zone has been approved by all responsible parties, all personnel entering the exclusion zone must wear the appropriate Level C PPE for their assigned task or in accordance with APP.

In the event that a building is not intend to be re-occupied (e.g. lived in, worked in) a NPE and final air clearance is not required, RC will insure that the BMPs set forth in this section are followed while preforming removal actions on buildings slated for demolition.

4.4.5. Personnel Decontamination

The RC will establish a properly demarcated, HEPA-filtered, 3-stage decontamination trailer or equivalent consisting of an equipment room (dirty room), shower area, and a clean room for personnel decontamination, in accordance with OSHA Standard 29 CFR 1926.1101(g). Personnel decontamination procedures must be posted in the clean and dirty rooms so that personnel may read and take necessary steps to ensure their safety. The RC must perform regular housekeeping duties within all decontamination facility rooms to ensure and maintain their cleanliness. Documentation of such housekeeping will be posted in the clean room of the decontamination facility and made available to USACE or the EPA upon request.

The RC is responsible for maintaining a 3-stage decontamination facility onsite until clearance results meet removal clearance criteria.

The RC will use potable water for all personnel decontamination, in accordance with OSHA Standard 29 CFR 1910.141(b)(1)(i). All potable water delivery systems must be disinfected on a regular schedule, with greater frequency during the summer months. The RC will include disinfection of its potable water systems in their weekly schedule. Documentation of potable water equipment inspections and disinfections must be maintained by the RC, made visible to personnel using a particular water source, and provided to USACE and the EPA upon request. Wastewater generated from personnel

decontamination may be used to wet contaminated site soils on properties where a combined exterior and interior removal is being performed. Otherwise wastewater must be disposed of at the Lincoln County Class 4 Asbestos Landfill (Landfill), Former W.R. Grace Rainy Creek Mine Site (Mine), in an exterior removal zone or passed through a 20- and 5-micron filter and disposed of as sanitary waste. The RC will set up one decontamination facility for each property or group of properties if the properties are contiguous.

4.4.6. Equipment Decontamination

The RC will be responsible for decontaminating or disposing of any equipment or materials used for removal activities within the exclusion zone. Items undergoing decontamination will be hosed off, wet wiped and/or HEPA vacuumed and inspected by QC before leaving the exclusion zone. The inspection will be documented. Items to be disposed of will be bagged and handled as ACM before leaving the exclusion zone.

At the end of the construction season or before being taken off use from the project, the RC will remove, replace, and dispose of any air filters (e.g. air-intake, cab, etc.) from the industrial vacuum as ACM. Filter removal will be performed at the Landfill. Filter removal and disposal will be documented by the RC on the Decontamination Checklist. The Decontamination Checklist will be verified and signed by TQA. USACE will be notified by the RC before any heavy equipment is removed from project service and by TQA when its decontamination is completed.

Negative-air machines and all portable equipment (pumps, pressure washer, etc.) that enters the exclusion zone will have their air filters replaced at the time of normal maintenance or the end of the construction season. The RC will document the filter removal and replacement and dispose of the old filter as ACM.

USACE reserves the right to verify decontamination activities and standards before moving the equipment between properties or before demobilization of a piece of equipment.

4.4.7. Moving/Cleaning of Household Items

The RC shall HEPA vacuum and wet wipe all items within the designated containment areas identified in the site specific work plan. In addition, items may be disposed of at the request of the property owner. If the RC chooses to dispose of items with the owner's consent they shall be disposed of as ACM, unless those items are made of wood, metal

or glass. Items made of wood, metal or glass may be HEPA vacuumed and wet wiped. Once items made of wood, metal or glass have been cleaned they may be deposed of at a sanitary landfill. All items removed from the containment and not being disposed of, will ether require being placed back into the containment or placed in separate NPE to archive final air clearance and documented by TQA personnel including photo documentation of all items if appropriate.

4.5 Vermiculite Removal from Attics

4.5.1. Planning Interior Removals

Interior removals will be performed using an on-site real-time program. When vermiculite is observed or LA is detected in an interior, the investigation team will document its location and determine if a removal is warranted. The remedy will be determined in the field by the interior foreman and TQA, using the guidelines in Section 2.5.2. If an area is not called out for removal by the investigation team, but the interior foreman and TQA believe that the area should be addressed, the interior foreman and TQA will discuss the area with the investigation team. The investigation team may add areas for removal at that time. Instances of changes and/or disagreement between the investigation team, the interior foreman and the TQA will be resolved by the CMT and the USACE representative. The final remedies will be documented by TQA in the daily QARs and after the removal in the draft red-line sketch.

4.5.2. Interior Removal Guidelines

The following are the interior removal guidelines:

- Dust samples above the action level will result in an interior clean of the living space (Collection of interior dust samples is no longer part of the interior sampling protocol);
- Areas where removals are anticipated will be sealed off from other areas and from the exterior prior to performing removal activities;
- Vermiculite in the attic area will result in the cleaning of items that shared airspace with the vermiculite. Items removed from interior spaces will be protected until they can be returned;
- Vermiculite in the attic area will result in the removal of all insulation that shared airspace with the vermiculite;
- Vermiculite in the attic area will result in a detailed clean and encapsulation application to all areas that shared airspace with the vermiculite;
- Gaps from areas of contamination to other areas such as utility corridors, living spaces and outside will be sealed with caulk, spray foam insulation, concrete or other appropriate material. A detailed cleaning will be performed in these areas as needed;
- Contamination in inaccessible areas will be left in place. A knee wall may be constructed around these areas to ensure that contamination remains in place. In tight spaces, such as eaves, foam may be used to seal those areas where contamination cannot be removed;

- If attic insulation is removed in houses, it will be replaced with insulation with an R49 insulation factor or to an insulation factor equivalent to what was in place prior to the removal (if greater than R49) unless the property owner has requested an lower R value or a credit for replacing insulation material;
- An 18" x 18" access is the minimal dimensions required for ingress/egress to interiors. A second, smaller access is required for the negative air hose. Property owner approval will be obtained prior to enlarging existing access or for creating a new access;
- Minor demolition work is often required to access contamination. If visible demolition work is necessary, approval from the property owner will be obtained specifically for that demolition;
- After removal activities, the areas will be sampled to ensure that the exposure pathway was eliminated. The property owner may return only after the analytical results show that the contamination has been removed and the presence of exposure pathways within the area have been eliminated;
- Shotcrete may be applied to contaminated areas that are not horizontal (i.e. walls with vermiculite building aggregate);
- Pre-existing damages may be encountered before and during the removal process. The community involvement coordinator (CIC) will be made aware of these conditions as they are discovered. Some conditions may impede restoration activities, such as poor or not to code wiring, poor ventilation or mold in areas where insulation will be installed. The property owner will be allowed to address these issues before insulation is installed. USACE and its contractors will not be responsible for problems arising from pre-existing conditions.

4.5.3. Sealing of Penetrations

In structures undergoing removal action actions, the RC must inspect all living space areas to determine if vermiculite has leaked into outlets, switches, light fixtures, ceiling fans, electrical boxes, vents, and any other penetrations. The RC must provide results of the inspection to TQA personnel for inclusion in the QAR and redline draft.

If any vermiculite was observed in an area, all penetrations of that area's air space must be cleaned and sealed by the RC with flame-retardant, project-approved foam sealant or caulk that provides a colorless or clear finish. The RC will seal all penetrations that are in direct contact with source material. Vermiculite observed within the penetrations will be cleaned prior to sealing.

All penetration covers are to be removed by the RC and will remain off until TQA has inspected the areas.

4.5.4. Bulk Removal

The RC will perform bulk removal of vermiculite in attics, as identified in the site-specific work plans, using a HEPA-equipped vacuum. All bulk removal activities will be

conducted with proper engineering controls and work practices to ensure personnel safety and removal success. Adequate dust suppression must be maintained throughout the duration of bulk removal activities. Dust suppression may be achieved by using adequate amounts of potable water through automatic misters, airless sprayers, or Hudson sprayers. Amended water may also be used if necessary. Water usage will be carefully controlled by the RC to ensure that property damage does not occur. Water usage will be documented by QC personnel.

The RC will use proper work practices such as good housekeeping, strategic cleaning from clean to dirty, and proper planning to create a safe and productive work environment during bulk removal activities. The RC will also employ administrative controls, such as limiting the number of personnel and the amount of unnecessary vacuum hose in the NPE, to minimize particulate levels. The RC will remove other insulation, such as, but not limited to, fiberglass or cellulose, if it is in contact or shares airspace with existing vermiculite.

Once the interior foreman determines that bulk removal is complete, work will proceed to detail cleaning. The interior foreman is responsible for ensuring that appropriate respiratory protection and engineering controls are maintained when transitioning between bulk removal, blocking, encapsulation, and detail cleaning activities.

4.5.5. Detailed Cleaning

The purpose of the detail cleaning is to remove any remaining insulation from cracks and crevices. All visible vermiculite and dust should be removed from the containment area prior to the application of encapsulant.

If TQA personnel identify through a visual inspection of the removal area that removal activities have not been completed to acceptable levels for collection of clearance samples, additional detailing will be performed by the RC.

Once the interior foreman performs a quality control inspection of the work area and determines detailing activities are complete, and that all cleaning activities have been performed according to project removal criteria, the RC will inform the QCR and TQA that the area is ready for a pre-encap inspection. The RC may implement encapsulation on non-finished areas (or finished areas where the property owner has agreed to it and there is QA/QCR consensus on the application process).

If the interior foreman has repeated problems attaining the proper level of detailing prior to calling for TQA sampling, TQA may be tasked with inspecting interior detailing prior to encapsulation until deficiencies are rectified.

4.5.6. Blocking

Blocking activities are to be performed only with prior approval from TQA and the interior foreman.

If there is vermiculite in a particular area that is determined by TQA and the interior foreman to be inaccessible through non-destructive abatement activities, the RC may construct a suitable permanent barrier or blocking to prevent future access to vermiculite contaminated areas. Blocking is to be installed in a manner such that moisture does not build up in insulated areas.

Blocking material in non-living areas may consist of 1-inch closed cell polystyrene insulation, foam, plywood, or an equivalent, as determined by TQA and the interior foreman. Blocking materials in living space areas will consist of replacement-in-kind materials or rigid sheeting (i.e., ½-inch plywood or equivalent).

Existing ventilation pathways will not be completely blocked. If ventilation pathways must be blocked, alternative methods of ventilation will be evaluated and agreed on by TQA and the interior foreman.

USACE approval will be necessary for blocking or knee-walls that may affect ventilation. Additionally, the CIC will be notified of the change in conditions.

TQA personnel will verify and document that the appropriate blocking was performed by the RC as described in Section 2.2.

4.5.7. Encapsulation

The RC may apply colorless encapsulant in non-living space removal areas when detail cleaning is completed as determined by TQA and the interior foreman.

The RC will use a project-approved encapsulant. The encapsulant will be applied aggressively to all accessible removal area surfaces by using an airless sprayer, and may be performed in conjunction with a 1-horesepower leaf blower to ensure proper dispersal.

The purpose of the encapsulant is to lock down any remaining asbestos structures and prevent them from becoming airborne should they be disturbed at a later date. The RC will ensure that sufficient encapsulant is used to adequately lock down any remaining asbestos structures.

If vermiculite or other material becomes dislodged during the application of encapsulant, the RC will remove this material before the encapsulant dries and before final air clearance samples are collected.

The RC is responsible for using sufficient care during application of encapsulant to prevent any damage to areas of the structure.

4.5.8. Ventilation and Pre-Existing Damage Inspections

Pre-existing damage identified during removal by TQA or the RC resulting from ventilation issues, sub-standard construction, water damage, or infestation, such as mold, rotting, or termite damage, will be documented by the RC and notify the property's CIC to contact the property's owner of these findings.

USACE approval will be necessary for blocking or knee-walls that may affect ventilation. Additionally, the CIC will be notified of the change in conditions.

4.5.9. Interior Building Material Demolition

Prior to the start of interior demolition activities, if required by the local municipality, the property owner will be required to obtain a building permit.

Interior building material demolition to facilitate construction activities will require authorization by USACE.

The property owner will sign documentation authorizing interior building material demolition. The RC will ensure that the property owner marks all areas to be demolished with paint. TQA and QCR will confirm that the areas marked by the owner are indicated for removal on the work plans. TQA and QCR will document, using photographs, the areas marked by the owner prior to commencing demolition. The RC will also inform TQA personnel of any demolition requirements that are identified during the course of the removal. TQA will document the demolition activities on the QAR and the final interior redline sketch.

The interior foreman and SSHO will evaluate demolition work to ensure that the required engineering controls and work practices necessary to perform the job in a safe manner have been properly implemented. Engineering controls to minimize particulate levels may be incorporated.

All interior demolition activities must be performed with point-of-cut ventilated power tools. All tools and equipment used by the RC to perform demolition activities must be approved by the SSHO and USACE.

Building materials removed during demolition will be disposed of as ACM.

4.5.10. Hazardous Materials Encountered During Removal

Before demolition and transporting impacted building materials for disposal, the RC will prescreen the waste for oil, other contaminants, and any other criteria that may affect acceptability at the facility. Any unacceptable material found during the prescreening process will be removed from the waste stream by the RC and documented.

Disposal of household hazardous wastes and other hazardous materials is the responsibility of the property owner. If any hazardous materials are noted during site preparation, the property owner will be required to remove it from the work area prior to establishment of the exclusion zone. The CIC will be notified if these materials are encountered.

The USACE on-site representative will be notified in the rare case where hazardous material(s) are encountered during a demolition that must be addressed by the project team. Proper waste characterization and documentation will be prepared and submitted to USACE for approval before any hazardous waste is manifested and transported off-site. Disposal of hazardous waste and materials will take place only at facilities licensed to accept such wastes in accordance with state and federal regulations. The government will sign any hazardous waste manifests prepared by the RC.

Upon approval by USACE, non-contaminated building materials comprised of wood, glass, and/or metal removed during the removal activity will be transported for disposal at the Lincoln County Landfill solid waste facility. Loads will be documented for tipping fee reconciliation. Other building materials will require asbestos sampling before disposal at the solid waste facility.

The RC will process demolition debris for disposal at the Landfill into relatively small pieces, such that the debris passes through the tailgate of a dump truck, can be covered with 6 inches of daily cover soil, and can be compacted in place by the Landfill operator.

4.6 Vermiculite and LACS Removal from Understructures

4.6.1. Characterization of Understructures

Contaminated material removal to be performed in understructures will be evaluated in the Interior PRE.

Removal action in understructures will be based on the guidance determined by the EPA, as outlined below. However, an alternative removal approach may be necessary in special circumstances as determined jointly by the interior foreman and TQA, and must be approved by a government representative prior to implementation.

The understructure of a building includes the substructure or foundation of the building, and is typically enclosed. Building understructures may be habitable or inhabitable, and in general at least partially below the surrounding ground surface (except in the case of a mobile home). Understructures may be comprised of one, or a combination of the following items:

- Basement (finished, partially finished, or unfinished)
- Cellar
- Crawlspace
- Area below a mobile home
- Decks and porches

The area below small, mobile structures (e.g. shed) is not considered an understructure. Understructures require special consideration as they often contain low headspace and their utilization is highly variable. The primary consideration for determining the protocol for understructures is the frequency of access and type of activities conducted in the area.

The investigation team will determine the type of understructure and frequency of access/use. Frequency of use will be determined by how often an understructure is accessed, and the type of activity being conducted during each use. In general, understructures will be considered infrequently accessed if they are accessed on average no more than once monthly, and the activities being conducted involve minimal soil

disturbance. Understructures that are accessed on average more than once monthly, or if activities during access include significant soil disturbance (e.g., digging), will be considered frequently accessed.

4.6.2. Planning / Removal Action Criteria

Understructures with no exposed soil surface will be considered part of the building living space. Removal Actions will be handled similar to all other living spaces (e.g. interior cleaning and clearance if vermiculite is observed), regardless of frequency of use.

The removal action approach for building understructures with exposed soil surfaces will be based on the understructure type and frequency of use as outlined below.

1. The following criteria will be used for understructures that are accessed on a frequent basis, and contamination is due to significant quantities of vermiculite leaking from the attic/walls, evidence of vermiculite on the surface of or contained in the soil matrix, or soil results indicating detectable levels of LA:

- All areas where vermiculite insulation is leaking from will be cleaned and sealed.
- All significant quantities of vermiculite insulation on the surface of the soil will be removed.
- All exposed soil areas will be encapsulated with hard surface capping material or high-density polyethylene (HDPE) sheeting with a minimum thickness of 20 mils until no potentially impacted soil or vermiculite is visible.
- As an alternative to encapsulation, areas with exposed soil surfaces may be isolated from other areas of the understructure when possible. Isolation will consist of permanent barriers (e.g. plywood walls) including designated access points (e.g. hatch/door) to accommodate limited maintenance that may be required within the isolated areas. A government representative must approve the isolation of understructure areas prior to installation.
- All work will be performed under full containment and will require a full interior cleaning with final air clearance. Areas of the understructure that have been isolated, as described above, will not require cleaning and clearance.

2. The following criteria will be used for understructure areas that are accessed on a frequent basis, and contamination is limited to small amounts of vermiculite insulation leaking from the attic/walls:

- All areas where vermiculite insulation is leaking from will be cleaned and sealed.
- Vermiculite insulation that has leaked onto the surface of the soil will be removed.

3. The following criteria will be used for understructure areas that are accessed on an infrequent basis:

- All areas where vermiculite insulation is leaking from will be cleaned and sealed.
- Vermiculite insulation that has leaked onto the surface of the soil will be removed by excavation, vacuuming or other government approved method.
- If soil sample results indicate greater than trace amounts of LA or if widespread vermiculite is observed throughout the understructure, poly or HDPE sheeting may be installed over safely accessible areas of the soil floor that are used for access, storage, and maintenance activities. The determination to install poly sheeting will be made jointly by TQA and the interior foreman, and will be based on access.
- If the understructure is an area beneath a mobile home, solid skirting (e.g. vinyl, plastic, wood, etc) may be installed to limit access to the area.
- No further removal actions will take place at this time. All inspection information will be documented.

"Small amounts" of vermiculite insulation will be defined as vermiculite insulation leaking from no more than 3 distinct locations, with vermiculite distributed over no more than 9 square feet below each leak. Vermiculite insulation observed in amounts exceeding the aforementioned standard will be considered a "significant amount/quantity".

The RC will ensure that planned removal efforts protect and maintain the integrity of all foundation and support system features within crawlspaces.

4.6.3. Application of Concrete or Shotcrete

The RC may be required to apply concrete or shotcrete as a means of encapsulating remaining LA contamination within soils or walls that are difficult to access or remove. Such applications will be documented by TQA in the QAR and performed by the RC.

4.6.4. Confirmation Soil Sampling

Once the RC has completed removal of all gross visible vermiculite, all soil contaminated with visible vermiculite, and all LACS, TQA will be notified to facilitate inspection and collection of confirmation samples. Confirmation sampling will be conducted in accordance with the *Response Action Sampling and Analysis Plan* (CDM 2011b, or current revision).

Details regarding action levels and clearance criteria are found in the *Libby Asbestos Site Residential/Commercial Cleanup Action Level and Clearance Criteria Technical*

Memorandum (EPA 2003) and its revisions. Action levels and clearance criteria are subject to revision by the EPA.

4.7 Vermiculite and LACS Removal from Secondary Buildings and Structures

4.7.1. Definitions

Secondary buildings are defined by having four walls and a roof, a fully-enclosed design, and designed for continued human occupancy. Examples of secondary buildings may include, but are not limited to, garages, shops, barns.

Secondary structures are defined by being designed to be open or by being small and/or mobile (not large enough for human entry). Examples of secondary structures may include, but are not limited to, sheds, enclosed lean-tos, pump houses, carports, open lean-tos, dog houses, or other small animal housing.

Once the RC has completed removal of all gross visible vermiculite, all soil contaminated with visible vermiculite, and all LACS to planned depth, TQA will be notified to facilitate inspection and collection of confirmation samples. Confirmation sampling will be conducted in accordance with the *Response Action Sampling and Analysis Plan* (CDM 2011b, or current revision).

VCI removals within enclosed secondary structures will follow interior removal process as stated in section four of this document.

Details regarding action levels and clearance criteria are found in the *Libby Asbestos Site Residential/Commercial Cleanup Action Level and Clearance Criteria Technical Memorandum* (EPA 2003) and its revisions. Action levels and clearance criteria are subject to revision by the EPA.

4.7.2. Planning and Removal Process

Finished secondary buildings with solid-construction floors (e.g., concrete, wood, etc.) will undergo removal actions similar to a primary building.

Secondary buildings often include unfinished, soil floors. Contaminated soil within a building presents unique removal challenges. In general, removal will be completed with a combination of interior and exterior techniques. The following steps will be followed

for addressing the soil floor of a secondary building in which detectable levels of LA or vermiculite insulation is present.

1. Complete vermiculite insulation removal (attic) in accordance with Section 2
2. Remove and clean or dispose of all items within the building
3. Complete a bulk/gross cleaning of the interior
4. Excavate soil floor to a depth of 6-inches below ground surface
5. Contain interior of building (negative pressure enclosure/containment).
6. Detail clean interior of building
7. Collect soil clearance samples
8. Backfill the floor of the excavated area (area will still be considered within the exclusion zone)
9. Return all items back into the structure
10. Collect air clearance samples
11. Remove NPE after clearance has been achieved
12. Complete backfilling, if necessary

Areas within or under secondary structures are treated as exterior areas. If detectable levels of LA or visible vermiculite are observed within the soil below a mobile secondary structure, the structure will be moved and the area will be excavated to the depth specified in the site-specific work plan. If analytical results are greater than Trace or co-located trace and vermiculite within the soil floor of a fixed secondary structure, the area will be excavated with the structure in-place. Negative pressure enclosure and final air clearance will not be required. Due to potential for undermining the foundation, excavation within secondary structures will typically be limited to a minimum of 6-inches below ground surface. All excavation and restoration will be conducted in accordance with Section 3 and Section 4.

4.8 Final Removal Inspection and Clearance Air Samples

Upon completion of the removal, the QC will ensure that the removal has been performed according the plans and specifications. TQA is then notified and a final inspection is scheduled. TQA and QC will come to agreement that the removal appears to be complete. The final inspection will be documented on the QAR and QC documentation.

Final air clearance sampling will be coordinated by TQA personnel in accordance with the *Response Action Sampling and Analysis Plan* (CDM 2011b, or current revision). Once the clearance criteria have been met, the RC may remove the containment, and restoration of the removal area can begin.

Details regarding action levels and clearance criteria are found in the *Libby Asbestos Site Residential/Commercial Cleanup Action Level and Clearance Criteria Technical Memorandum* (EPA 2003) and its revisions. Action levels and clearance criteria are subject to revision by the EPA.

During clearance sampling activities, TQA personnel will identify, document, and note the locations of clearance samples, blocking, encapsulation, and removal areas in a redline sketch.
When a NPE is required and constructed to complete work on the exterior of a building final air clearance will not be required. QCR and TQA will visually inspect the NPE. All visible VCI will be removed. Once they are in agreement that the NPE passes visual inspection, photograph will be taken and the NPE can be dismantled and disposed of ACM. If the NPE will remain onsite for owner use, clearance is required.

4.9 Interior Restoration Preparatory Inspection

No inspections or work activities will be performed without a finalized work plan on-site.

Prior to the start of any work activities at the site, TQA, QCR and the interior foreman will hold a preparatory phase inspection to review site removal action activities and to ensure that RC interior restoration personnel and TQA personnel have consistent finalized work plans. Additionally, imminent hazards identified will be evaluated to determine if corrective actions are necessary, and will be noted on the AHA.

The RC will begin interior restoration upon the verification that all clearance samples collected meet the project-specific clearance criteria for vermiculite removal, interior cleaning, and/or interior demolition activities performed at a property

4.9.1. Property Owner Repair of Pre-existing Conditions

If a pre-existing condition is discovered during the course of the removal action, the property owner may request that restoration wait until the condition can be repaired. The property owner may perform repairs and required upgrades in a timely manner (typically two weeks) prior to restoration being completed by the RC.

4.9.2. Attic Accesses

Modifications performed by the RC as part of interior abatement activities to interior or exterior attic accesses (e.g. vents, hatches, puppet holes, etc.) will be restored to a condition equal to the original state, or a modified state approved by the property owner.

4.9.3. Insulation

Insulation removed will be replaced with either blown-in or batt insulation to meet the thermal resistance value (R-value) requirements (unless the property owner has requested a lower R value or a credit for replacing insulation material) as established by the 2006 International Energy Conservation Code (IECC), or its future revised requirements, adopted by the State of Montana. If the home had insulation in excess of this standard, then the insulation will be replaced to the R-value equivalent to that present prior to removal activities. Insulation types and R-values will be specified in the Interior PRE. Installed insulation will allow proper ventilation throughout the attic. Baffles and other accessories will be installed to allow continuous ventilation from the soffit to the roof ridge, even if soffit vents do not exist.

The RC will install rigid foam baffles between all floor joists and rafters at all eave bays. The rigid foam baffles will be placed according to the manufacturer's specifications. Also, prior to installing insulation in removal areas, the RC will cover the top plate of the exterior walls with insulation batting in a manner so as to prevent the escaping of blown-in insulation beneath rigid foam baffles.

Upon completion of rigid baffle installation and/or applicable insulation batting installation, the RC will contact TQA. TQA personnel will perform an insulation inspection to ensure all baffles and insulation batting are installed in accordance to manufacturer's specifications and/or construction standards. Inspection results will be noted in the QAR. Inspection deficiencies will be brought to performance standards.

If the property owner is remodeling portions of an attic impacted by the removal action, a credit for replacement insulation materials may be provided to the property owner. If installation of the insulation by the RC is not required, it will be stated on the site-specific work plan that installation is not required.

4.9.4. Interior Furnishing or Miscellaneous Items

All household items removed or staged from the residence will be returned to their original place (unless otherwise specified by the property owner). Any holes or access points in the walls and/or ceilings created as part of insulation removal or accidentally made during cleanup operations will be repaired and returned to their original condition. The RC will utilize tarps, drop clothes, etc. to prevent or minimize potential damage to carpet and floorings in the residence. If a flooring component is damaged by the RC, it will be professionally cleaned or disposed of and replaced as directed by USACE.

If the carpeting is grossly contaminated by vermiculite prior to removal activities or pre-existing conditions are noted prior to the removal activity, and the carpet cannot be cleaned, USACE will be notified. Removal and compensation will be determined by USACE. Following removal of a contaminated carpet, the flooring will be appropriately cleaned and a clearance sample will be collected.

4.9.5. Electrical Repairs and Pre-existing Conditions

The RC will test all electrical circuits for continuity and operation to confirm that no damage was caused to electrical wiring and system components during removal work prior to the completion of interior restoration activities. All electrical repair work exceeding continuity verification and lockout procedures must be performed by a licensed electrician.

4.10 Government Inspection

Throughout the restoration effort, TQA will provide restoration oversight to ensure restoration efforts are being performed in accordance with this document and the site-specific work plan.

Once the RC and TQA personnel have agreed that all restoration activities are complete in accordance with the site-specific work plan, the following inspections will be performed:

4.10.1. Final Inspection

The final inspection walkthrough will be performed by the interior foreman, TQA and CIC.

During the final inspection, inspectors will review the site-specific work plan to ensure all removal and restoration items noted in the site-specific work plan are completed to performance standards. The walkthrough inspection will include a thorough documentation of the property's existing conditions so that, if necessary, final conditions can be compared to pre-removal conditions.

Damages or deficiencies observed during the final inspection will be included on the punch-list of items to be completed by the RC prior to the removal final inspection. Documentation such as photographs, field notes, and pre-cleanup checklists will be referenced to determine if damages are pre-existing or a result of the removal activities.

4.11 Changes to the Site-specific Work Plan

4.11.1. Changes Involving Added Cost

For changes that may result in significant cost (total cost of $100 or more) to the government, USACE approval to the change will be required prior to implementation. Approval will be noted on the QC site-specific work plan and in the QAR. Lower value changes or no-cost changes required to complete the project may be implemented at the RC's discretion and documented on QC report, the site-specific work plan, punch-list tracking sheet and the QAR.

4.11.2. Interior Work Plan Changes during Interior Removals

Documentation of changes to the work plan is required during an interior removal if any change occurs. The change will be initialed by the property owner and the USACE representative on the site-specific work plan. The initialed change is submitted with the QC site-specific work plan to the PCT after completion of removal activities and documented on the QAR.

4.12 Property Security

For removal actions that require the relocation of the residents, the RC will supply personnel to provide security whenever the RC is not on-site and the property cannot be locked. The level of security may vary from periodic patrols to on-site full-time based on

the location of the property and whether it is adjacent or close to other properties under security. This will be evaluated and determined by the RC.

The RC is responsible for site security during regular working hours.

4.13 Callbacks

Interior callbacks will be addressed by the RC after approval from USACE. Callbacks will be coordinated and documented by the PCT.

5.0 Contaminated Soil Removal

5.1 Purpose and Roles

The RC will remove ACS from residential, commercial, and industrial properties in accordance with the removal and clearance criteria established by the EPA and the site-specific work plan. Details regarding action levels and clearance criteria for soil are found in the *Libby Asbestos Site Residential/Commercial Cleanup Action Level and Clearance Criteria Technical Memorandum* (EPA 2003) and its revisions. Action levels and clearance criteria are subject to revision by the EPA.

The RC will furnish all labor, supervision, materials, equipment, tools, permits, and incidentals necessary to perform all ACS removal activities. Removal crews and equipment will be coordinated around appropriate equipment allocations to address very small, tight quartered properties, average properties and very large properties that require larger excavators. Properties will be scheduled within a GRZ so as to optimize both the use of the different size crews as well as optimizing the use of haul trucks among the crews working in a given area.

5.1.1. Subcontractor Activities

The RC is responsible for any project work performed by its subcontractors, including pre-work activities, site preparation, site removal, and site restoration activities. The RC is responsible for ensuring that its subcontractors adhere to all applicable federal, state, and project requirements and guidance documents, including the APP, site-specific work plans, and this plan.

5.2 Pre-Worksite Activities

Upon completion of an investigation and prior to the meeting with the property owner about the RRA, the superintendent or foreman will visit the property and complete the Exterior PRE. They will estimate the necessary crew, the equipment load and timetable for completion. Any hazards or access issues will be noted on the Exterior PRE. A mechanism for addressing propane tanks and systems within the removal zone will be determined and documented on the form. If possible, septic systems and drain field locations and/or similar structures will be identified. All trees that are susceptible to the bark beetle epidemic and are in or near a planned removal area will be noted on the form, and their location will be marked on the drawing. Any signs of beetle blight in the area

will be noted on the form. The PRE will be submitted no later than one business day after the visit.

Before beginning any site preparation or excavation, the RC will perform due diligence to verify the location of underground utilities or installations, in accordance with OSHA Standard 29 CFR 1926.651(b)(2). These will include, but are not limited to, sewer/septic lines, drain fields, telephone/cable lines, gas and water lines, electrical connections, and irrigation systems.

Upon completion of the removal and restoration drawings and prior to finalizing the drawings the CIC will coordinate a onsite, preconstruction meeting (PRECON). The PRECON attendees are to include the CIC, Excavation and Restoration Foremen, TQA, Health and Safety Officer, Quality Control, USACE and others deemed necessary. The property owner shall be advised of the meeting and provided the opportunity to attend. The CIC will record any questions that might arise and information provided by the property owner during the meetings and coordinate with the appropriate parties to resolve questions and recommendations. The CIC will provide the USACE approved modifications to the drafting team for inclusion into the final site specific documents. Any identified changes may or may not need to be incorporated by the drafters depending on the significance of the change as determined by USACE. Minor changes are hand entered and initialed by USACE and the property owner.

5.3 Site Preparation

5.3.1. Preparatory Inspection

No inspections or work activities will be performed without a finalized work plan on-site.

Prior to the start of any excavation activities at the site, TQA and QCR will hold a preparatory phase inspection to review site removal action activities and to ensure that RC and TQA personnel have consistent and final site-specific work plans. Additionally, imminent hazards identified on-site will be evaluated to determine if corrective actions are necessary, and will be noted on the AHA. TQA and QCR will discuss the continued need for the decontamination facility for sampling personnel after the excavation crews have already left the site, and will plan the use and demobilization of the facility accordingly.

5.3.2. Site Set-up

The RC is responsible for the following during site set-up:

- Implementing safety precautions, including use of appropriate PPE, if contaminated materials are expected to be disturbed;

- Using appropriate engineering controls to prevent contaminant migration as a result of removal action activities;
- Implementing and maintaining dust control throughout the duration of site activities, from site preparation through restoration, in accordance with MCA Title 75 (Environmental Protection), ARM Title 17, and NESHAP asbestos regulations (40 CFR Part 61).
- Ensuring that all vacuums used by project personnel on the project have HEPA filters that meet the definition as stated in OSHA Standards 29 CFR 1926.1101(b). The RC will maintain HEPA filter documentation for each manufacturer's model of vacuum as well as filter change-out records for each piece of equipment;
- Maintaining a copy of the site-specific work plan at each work site throughout setup, removal, and restoration activities;
- Providing temporary electric power and potable water for the duration of site activities;
- Ensuring electrical safety throughout the duration of site activities as by all applicable OSHA Standards, including 29 CFR 1926.400 Subpart K and USACE EM 385-1-1, Section 11, Subpart E. All activities with the potential to be performed within 10 feet of energized overhead electrical lines must be evaluated as part Exterior PRE, and appropriate precautions must be implemented before removal actions work may begin;
- Ensuring that all appropriate LO/TO procedures are performed in accordance with project and OSHA requirements, including OSHA Standards 29 CFR 1926.416 and 29 CFR 1926.417 and USACE EM 385-1-1 Section 12 Control of Hazardous Energy, are implemented for a structure's electrical sources throughout the duration of site activities;
- Ensuring that only licensed electricians perform physical disconnections and reconnections of all electrical circuits. Breaker management and LO/TO procedures not requiring circuit alteration and continuity checks may be done by competent field personnel. Electrical repair safety requirements are to be performed in accordance with USACE EM 385-1-1 Section 11 Electrical (USACE, 2008);
- No upgrading of pre-existing substandard wiring will be performed. If substandard conditions exist the CIC will be notified of the need to make the required improvements. If substandard conditions exist that pose a risk to the contractor or potentially to the structure and the property owner, the contractor will terminate work prior to disturbing the wiring and will notify the USACE on-site representative;
- Ensuring that only licensed plumbers or qualified persons perform plumbing repair work at a site. Plumbing repair that would normally be performed by an average property owner may be performed by a qualified RC competent person (e.g., fixture removal and replacement, plumbing of threaded pipe, sprinkler system repair, etc.). The qualifications of the proposed person must be approved by the CMT prior to each repair;
- Ensuring that only licensed personnel perform repair work on gas, propane, or oil lines at a site;
- Identifying and posting residential traffic and pedestrian points of hazard with legible traffic signs, in accordance with OSHA Standard 29 CFR 1926.200(g)(1), throughout the duration of removal and restoration activities;
- Providing site traffic signage in compliance with DOT regulations, including, but not limited to, temporary stop signs when necessary;
- Identifying and evaluating any existing residential mechanical equipment within the work zones, isolating or removing any potential hazards;
- Placing/Staging removal equipment such as, but not limited to, loaders, excavators, decontamination trailers, and water storage tanks in a manner that minimizes inconvenience and risk to the public;

- Numbering water storage tanks so that they can be properly identified during water sampling activities;
- Removing all non-permanent matting or flooring from heavy equipment before its use in exclusion zones to assist with proper decontamination procedures;
- Keeping all sidewalks and other public access pathways free of equipment during non-work hours, or providing a sufficiently permanent barrier to prevent pedestrian or vehicle access. Blocked pedestrian or vehicle access pathways will require traffic flow rerouting by the RC, in accordance with OSHA Standard 29 CFR 1926.200(g)(2);
- Securing sites to prevent non-project personnel from accessing work areas during work and non-work hours;
- Demarcating exclusion zone boundaries with orange fencing and/or asbestos tape, based on the size and type of removal activities to be performed, and posting ingress/egress points with appropriate asbestos and PPE signage, in accordance with OSHA Standard 29 CFR 1926.1101(k)(7)(i). All removal activities will be conducted within an appropriately marked exclusion zone. The exclusion zone boundaries may only be removed after clearance samples have been collected;
- Demarcating break areas and specific non-smoking areas, flammable storage areas, asbestos hazard areas, hardhat areas etc. with proper signs;
- Demarcating support zone boundaries with orange fencing and yellow caution tape;
- Demarcating waste load out, personnel, and equipment pathways as part of the exclusion zone;
- Protecting all areas of the property where work activities are performed from inclement weather by implementing any reasonable safeguards necessary during removal and restoration activities;
- Ensuring that power is supplied to any refrigerators, freezers, or other items identified in the site-specific work plan;
- Providing fire extinguishers, in accordance with OSHA Standard 29 CFR 1926.150(c)(1)(VI), and the requirements of USACE EM 385-1-1 throughout the site's work areas including, but not limited to, the exclusion zone and decontamination facility, adjacent to all gasoline powered equipment (pumps or generators) and gasoline storage cans, and within each piece of equipment;
- Repairing or replacing in kind all items damaged during removal action activities.
- Ensuring that skid-mounted sheds and other movable support structures located in areas identified for excavation are decontaminated where in contact with ACS, relocated to a non-contaminated area, and returned to their former location after restoration is complete;
- Moving automobiles, trailers, campers, or other similar items, if necessary, before cleanup activities, but only after the appropriate owner's permission is granted and a Hold Harmless Agreement is signed. These items will be returned to their original location by the RC after restoration activities are complete unless otherwise noted. If fragile or items in questionable condition need to be moved the contractor will obtain a signed Hold Harmless letter from the owner prior to moving the item. The existing condition of the item will be fully photo-documented prior to moving it;
- Documenting pre-existing damage and/or conditions of properties encountered before or during removal activities;
- Adhering to all transportation and disposal requirements. All ACM generated during removal activities, with the exception of soil, will be disposed of at the Landfill. No polyethylene sheeting or PPE of any kind is to be disposed of at the mine site repository; Implementing pollution control measures throughout all site activities;

- Ensuring that all appropriate ACM handling procedures are implemented and in accordance with OSHA Standard 29 CFR 1926.1101(l)(2) and all transportation on public streets in accordance with all applicable DOT regulations;
- Addressing any potential fall hazards within the work areas, in accordance with OSHA Standard 29 CFR 1926.501 and USACE EM385-1-1 (2008).

The RC will be responsible for maintaining these aspects of site preparation, and all appropriate safety precautions, throughout the duration of removal and restoration activities.

5.3.3. Containment Setup

The RC will arrive on-site prior to commencement of removal activities to construct an exclusion zone inside the designated work area to ensure the health and safety of the workers and the public. TQA and QC/competent person will evaluate the exclusion zone construction during the preparatory inspection and must approve it prior to the commencement of excavation activities. The exclusion zone is also subject to inspection and approval by the USACE on-site representative. Exclusion zone boundaries will be demarcated with orange fencing and/or asbestos tape and proper warning signs, based on the size and type of removal activities to be performed**.** The exclusion zone will encompass the entire contaminated area, including selected non-contaminated areas adjacent to the excavation area. These non-contaminated areas will be used as a contamination reduction zone (CRZ) for personnel and heavy equipment ingress/egress, and for staging of waste bags and other necessary equipment. In some circumstances, the exclusion zone may be moved (i.e., sliding exclusion zone) during a removal activity to facilitate the cleanup. No adjustment to the exclusion zone will occur without the prior approval of TQA. Adjustments will be documented by TQA and QCR.

QCR and TQA are responsible for inspecting and maintaining the designated containment areas to ensure they are of sound construction and functioning as intended until after clearance samples have been collected. Both parties are also responsible for ensuring that temporary access roads are built from clean areas into contaminated areas, so that trucks dumping material for access roads do not drive on contaminated areas.

Asbestos warning and PPE requirement signs, in accordance with OSHA Standard 29 CFR 1926.1101(k)(7)(ii)(b), will be posted by the RC at all ingress and egress points of the exclusion zone so that Site personnel may read the signs and be aware of necessary

protective steps before entering the exclusion zone. The signs will also serve to warn the public of the exclusion zone's hazards.

All contaminated material load out and storage areas are considered extensions of the exclusion zone. They must be fully demarcated and lined with polyethylene sheeting to ensure that clean areas adjacent to the exclusion zone are not cross-contaminated. The RC will ensure that each haul truck's windows are up, drivers remain in the cab, positive-pressure units are on, and air conditioning units are off or set to recycle when inside the extension of the exclusion zone. If possible, a cordoned-off access to the CRZ will be constructed so that the truck driver may get out of the truck into the CRZ without entering into the exclusion zone. If the zones are constructed in this manner, gate management may be the responsibility of the truckers and not a separate person.

In the rare case of night work, the RC will provide adequate lighting within the work areas, in accordance with OSHA Standard 29 CFR 1926.56(b). In most cases soil removals will be limited to the hours between sunrise and sunset or soon enough after sunset that lights are not needed.

5.3.4. Survey Markers

The RC will ensure that a property's pre-existing survey markers are maintained. If it is necessary to remove the markers (only to be done with prior approval from USACE) to perform contractual work and the location cannot be reinstalled, the RC will be responsible for ensuring that the markers are reinstalled by a professional land surveyor.

Once the exclusion zone has been approved by QC personnel, all personnel entering the exclusion zone must wear the appropriate level of PPE for their assigned task.

5.3.5. Protection of Existing Features

The RC will protect existing utilities, structures, outbuildings, foundations, and improvements (i.e., selected trees, sidewalks, driveways, and other items) during all work phases at the site.

All soil removal work around sidewalks and roads will be performed so that a 1:1 slope away from the base is maintained at all times during excavation. All soil removal around foundations of structures will be performed so that a 1:1 slope is maintained from a point 6" below existing grade. Additional excavation by hand may be required to completely

remove ACS, particularly in flowerbeds, play areas, etc. located directly adjacent to residential structures and immobile outbuildings. All foundations with questionable integrity will be inspected and documented prior to any further removal activities. As determined by USACE, hand excavation of limited depth followed by immediate backfill may be sufficient to protect inadequate or deteriorating foundations. In severe cases, no excavation around the house will be permitted. Another means of capping or otherwise isolating the ACS will be approved by the USACE on-site representative. If removal is not performed, the location will be documented and noted as an area where contamination was left in place. In cases where vermiculite-containing soil is left in place behind a 1:1 slope adjacent to structures, a physical non-porous barrier will be left to demarcate the extent of the possible contamination.

Propane systems may be addressed as part of the removal action. The RC may use concrete to cap the area around the base of the propane tank or move the tank based on the recommendation of the PRE, approval of USACE and agreement by the property owner. Propane tanks will not be brought up to code as part of the removal action. Reconnection of any disconnected, out-of-code tanks will be the responsibility of the property owner unless otherwise agreed to by the property owner and the project. No backfilling will be performed around propane infrastructure until the propane tank is operational if the deficiency is caused by the underground lines. The excavation around propane infrastructure will be sloped and left open. The appropriate CIC will be notified.

If sidewalks are present in the removal zone, the site-specific work plan will detail what sections will be removed and what sections will remain in place. The RC will perform the removal accordingly. The site-specific work plan will also detail the restoration requirements for these areas.

5.3.6. Personnel Decontamination

The RC will establish a properly demarcated, HEPA-filtered, 3-stage decontamination trailer or equivalent, hereafter referred to as a facility, consisting of an equipment room (dirty room), shower area, and a clean room for personnel decontamination, in accordance with OSHA Standard 29 CFR 1926.1101(g). A designated route from the exclusion zone to the facility entrance will be maintained. The designated route may include use of the decontamination bus that transports personnel from the removal site to a decontamination trailer. Personnel decontamination procedures must be posted in the clean and dirty rooms so that personnel may read and take necessary steps to ensure their safety.

The RC must perform regular housekeeping duties within all decontamination facility rooms to ensure and maintain their cleanliness. Documentation of such housekeeping will be posted in the clean room of the decontamination facility and made available to USACE or the EPA upon request.

The RC is responsible for maintaining a 3-stage decontamination facility onsite until after clearance samples have been collected.

The RC will use potable water for all personnel decontamination, in accordance with OSHA Standard 29 CFR 1910.141(b)(1)(i). All potable water delivery systems must be disinfected on a regular schedule, with greater frequency during the summer months. The RC must include disinfection of its potable water systems in their weekly schedule. Documentation of potable water equipment inspections and disinfections must be maintained by the RC, made visible to personnel using a particular water source, and provided to USACE and the EPA upon request. Wastewater generated from personnel decontamination must be disposed of at the Landfill, the Mine, the floor of the excavation or passed through a 20- and 5-micron filter and disposed of as sanitary waste. The RC may also use the wastewater without filtering to pre-wet areas of the property still needing soil removal if that is seen to be cost effective and beneficial. The RC will set up one decontamination facility for each property or group of properties if the properties are in acceptably close proximity to one another, as determined jointly by QCR and TQA.

The RC may perform small-scale, short-duration removals in modified level C PPE and without a 3-stage decontamination facility at the site upon approval from the USACE on-site representative, SSHO, and TQA. If permission is granted for modified level C PPE the RC must maintain a suitable means on-site for PPE, equipment, and personnel decontamination, as approved by USACE and the EPA. This means of decontamination will be maintained on-site by the RC until after clearance samples have been collected.

5.3.7. Equipment Decontamination

The RC is responsible for implementing heavy equipment decontamination procedures when transporting equipment from site to site, and when equipment is removed from the project.

Heavy equipment will be rinsed off with water to remove all visible soil before transport. The RC will ensure that all appropriate controls of decontamination water are implemented to prevent releases of material outside of the exclusion zone.

The RC may use the following alternative measure to ensure worker safety and public protection during all contaminated equipment transportation: once gross material has been removed, the RC may wrap contaminated areas of the heavy equipment with polyethylene sheeting and duct tape to prevent material release during transport. Sheeting may not be removed outside of an exclusion zone.

In addition, the RC is responsible for ensuring that all haul truck and haul vehicle exteriors are protected during loading by draping with polyethylene sheeting and decontaminated, as necessary, before leaving the exclusion zone, including extensions of the exclusion zone.

Before being taken off use from the project or before use in a clean area, all heavy equipment must undergo a full interior and exterior decontamination by the RC. Use in a clean area does not include use of a machine bucket to install topsoil around tree roots. In this case, the bucket will be sufficiently decontaminated prior to installing topsoil. The dump buggy does not constitute heavy equipment. Use of the dump buggy between removal and restoration activities requires removing/washing visible soil from the machine.

Full decontamination includes removing protective plating (skid plates), pressurized washing of all surfaces, cleaning the interior of the engine compartment, cleaning of the undercarriage, cleaning of the track adjusters, removing floor mats, and an extensive cleaning and wipe-down of the cab. The RC will notify TQA for inspection and documentation of the decontamination before moving or using the equipment. The RC will fill out a Decontamination Checklist. TQA will verify the decontamination and note it in their QAR. The RC will retain the original form in their files.

At the end of the construction season or before being taken off use from the project, the RC will remove, replace, and dispose of any air filters (air-intake, cab, etc.) from equipment that has been inside an exclusion zone. All filters from equipment that has been in an exclusion zone will be disposed of as ACM. Filter removal and disposal will be documented by the RC on the Decontamination Checklist. USACE will be notified by

the RC before any heavy equipment is decontaminated and removed from project service and by TQA when its decontamination is completed.

All subcontracted haul trucks (day use) that enter exclusion zones shall have their cab and intake air filter changed out by the RC at the time of normal maintenance or end of service with no additional cost to the subcontractor. The RC will document the filter change out on the Decontamination Checklist and dispose of the old filter as ACM.

When subcontracted trucks used to haul contaminated soils are temporarily transitioning off of the project, the truck bed will be decontaminated and documented by the RC on the decontamination checklist. Full decontamination inspection and documentation by TQA will not be required.

Portable equipment (pumps, pressure washer, etc.) that enters the exclusion zone will have their air filters replaced at the time of normal maintenance or the end of the construction season. The RC will document the filter removal and replacement and dispose of the old filter as ACM.

USACE reserves the right to verify decontamination activities and standards before moving the equipment between properties or before demobilization of equipment.

5.3.8. Equipment Pathways

Paths the equipment will traverse during the work will be controlled to prevent cross-contamination. These controlled pathways are intended to minimize contamination of equipment during soil load-out, to facilitate simultaneous excavation work in more than one area on larger properties, and to facilitate backfill in one part of the property concurrent with the completion of excavations in another part, if feasible. These controls will consist of, but are not limited to, covering driving pathways within removal areas with clean fill and covering truck dump boxes with 6-mil thick polyethylene sheeting or a layer of clean fill to prevent cross-contamination during ACS load-out.

Controlled pathways will be constructed over non-contaminated property areas so trucks or trailers can be driven to the area(s) requiring excavation with minimal disruption to the existing vegetation.

The RC will remove any such approved haul pathway material before final clearance sampling. With owner and USACE approval, pathway material may be left in place. If

soil used for access roads will be removed along with other contaminated site soil, it will be disposed of at the Mine. Plastic used for clean haul roads or to otherwise control the spread of contaminated material will be disposed of as ACM.

5.3.9. Equipment Transport

All transport of heavy equipment by the RC will be performed in accordance with all applicable DOT regulations.

5.3.10. Trees, Shrubs, and Other Debris

Any vegetation (e.g., trees, shrubs) to be removed will be identified in the site-specific work plan and will be disposed of at an approved site (e.g., Mine or Landfill). Tree and shrub removal will be performed as defined in the site-specific work plan. Chainsaw operations are a recognized safety hazard and are to be performed in accordance with OSHA Standard 29 CFR 1910.266(e)(2) and requirements of the USACE EM385-1-1 (2008). The RC will ensure that all personnel performing tree removal activities are adequately trained and equipped to perform the task in a safe manner in accordance with Tree Removal and Maintenance Section 31 of the USACE EM 385-1-1 (USACE, 2008).

5.3.11. Concrete, Decks, and Other Items

Items located in yards such as concrete, decks, fencing, and other site improvements that require demolition to access ACS and the removal action approach will be identified in the site-specific work plan. The items to be demolished, disassembled, cut, uprooted, or otherwise removed will be done so with appropriate equipment and procedures.

Upon approval by USACE, non-contaminated building materials comprised of wood, glass, and/or metal removed during the removal activity will be transported for disposal at the Lincoln County Landfill solid waste facility. Loads will be documented for tipping fee reconciliation. Other building materials will require asbestos sampling before disposal at the solid waste facility.

The following items will be removed as indicated, if removal is required:

- **Pavement**: Bituminous pavement, asphalt, and/or concrete to be removed will be demolished using a walk-behind concrete saw, or cutoff saw (as required), with appropriate dust suppression measures taken. Items that are removed will be considered

contaminated and will be properly disposed. The RC will perform all cutting activities in accordance with all applicable project APP, and OHSA requirements, including OSHA Standard 29 CFR 1926.702(i)(1)-(2) and USACE EM385-1-1 (2008).

- **Piping**: If necessary, underground piping that interferes with soil removal, such as sprinklers, storm drains, water lines, or sewer/septic lines will be cut with appropriate tools. Use of such equipment will be in compliance with USACE EM385-1-1 (2008). Any sewer piping or miscellaneous debris to be removed will be excavated using an appropriate sized hydraulic excavator and disposed of as ACM.

The RC will be responsible for ensuring that hazardous and non-hazardous materials are removed from work areas by the property owner prior to setting up the property for removal activities. If for some reason a property owner cannot be contacted and potentially hazardous materials are identified which must be disposed of they will be properly characterized and segregated. These activities will be performed only by qualified personnel and as approved by USACE. These materials will be staged and left for the property owner.

All items not scheduled to be demolished will be protected during the removal phase. Safe work practices will be employed by all personnel to prevent damage to remaining structures, other items, or personnel.

Excavation beneath decks and/or porches will not be performed unless otherwise directed on the site-specific work plan. As a general rule, the RC will cover the area with HDPE sheeting and cover it with sufficient ballast so that it remains in place. Skirting or lattice may then be installed to block entry into the area. Skirting and/or lattice will be reinforced when appropriate.

5.3.12. Cleaning of Yard Items

The RC will wash and/or wipe clean miscellaneous items, including, but not limited to, yard ornaments, bicycles, and outdoor grills, that are in contact with ACS and are located within the designated removal areas. Decontaminated items will be moved to an uncontaminated part of the property or a designated storage area, stored in a Connex-type temporary storage box, given to the property owner for safekeeping, or disposed of by the RC in accordance with the site-specific work plan. For stacked items such as lumber and firewood, the layer in contact with the ACS will be disposed of by the RC in accordance with the site-specific work plan. If sprinkler parts (heads, pipe, valve box, etc.) within the removal zone will be used in restoration, those parts will be thoroughly decontaminated and then staged. Sprinkler heads will be staged in water.

5.3.13. Stumps

Stumps will be removed as specified in the site-specific work plan unless there are physical restrictions prohibiting their removal. The RC will ensure that all personnel performing tree removal or stump grinding activities are adequately trained and equipped to perform the task in a safe manner in accordance with Tree Removal and Maintenance Section 31 of the USACE EM 385-1-1 (USACE, 2008), and are trained and qualified for work within an asbestos removal work zone potentially with level C PPE.

5.3.14. Mutual Compromise

Any agreement made with the property owner where the property owner gives up restoration or compensation in one area for an increase, of lesser or equal value, in another must be approved by USACE and/or EPA. Approval must be indicated by a government representative's signature on the site-specific work plan.

5.4 Soil Excavation

5.4.1. Tree Protection

The following policies address removal work within the drip-line of trees. When property owners request trees to remain that meet the criteria for removal the CIC will discuss the details with USACE for direction.

- Measurement of the tree will be performed by CICs with calipers for diameter at breast height. The industry standard for breast height is 54". The calipers may be slid in vertically 12" in each direction from the 54" height. If any portion of the trunk within one foot of the 54" height meets or exceeds the parameters below, then the tree is eligible for retention.
- Non-fruiting trees in the removal zone under 6" diameter at breast height and shrubs will automatically be removed. Fruiting trees under 4" diameter at breast height will automatically be removed.
- Trees larger than 6" diameter at breast height will be left in place and the "Procedure for Soil Removal around Trees" will be followed.
- If trees need to be removed and are located near structures, a bonded tree cutter will be contracted to remove the tree.
- Excavations around the trees will remove as much soil as possible from around the roots without severely damaging the root system or the structural integrity of the tree.
- Intrusive digging into the root system will not be performed. Visible vermiculite in the root mat may be noted and left in place if it is sampled and results do not indicate the presence of LA greater than or equal to 1%. A physical barrier may be placed above the roots prior to completion of the backfill if significant vermiculite is left in the root zone. If LA greater than 1% is detected within close proximity to the root mat the tree will be re-excavated or removed and compensation will be in the form of nursery stock.

5.4.2. Procedure for Soil Removal around Trees

The following procedure will be followed by removal crews excavating soil from around trees to minimize the stress put on the tree:

- Trees to be removed will be properly marked with bright colored safety paint. Those trees will be removed during the site set-up. No remaining tree will be removed without a property owner's specific approval.
- Excavation in root zones will begin at the base of the tree with hand tools and move outward to locate the major roots. Major roots will be carefully exposed, taking precautions to avoid damaging the root. An excavator may be gently used for excavating soils two feet away from the trunk once the major roots have been located and can be avoided taking precautions to avoid damaging the root. Operators must demonstrate an ability to dig surgically around the tree or they will be removed from the task.
- When using an excavator, precautions will be taken to protect the tree trunk and branches from scrapes from the excavator and/or hand tools. This may include tying the trees back with straps to create access.
- Exposed roots will be kept wet once they are exposed until after backfilling is complete. Water will simultaneously be used for wetting the roots and as an engineering control to prevent dust.
- Any scrapes to the tree trunks or major roots will be cut cleanly with a utility knife to minimize the amount of damaged surface area. Roots that are severely damaged will be cut-off cleanly above the damaged area. The assigned CIC will be informed when this occurs and record same in the file. Note: the tree will likely die if the bark is removed most of the way around the trunk.
  TQA/QCR will ensure that unnecessary digging is not performed. In areas where the impacted soils are believed to have been removed or excavation comes in contact with primary root zones, excavation in those areas will cease. The RC will inspect the excavation area to make sure easily accessible soil has been removed. TQA will confirm excavation depths and coordinate confirmation sampling.
- Directly after sampling has been performed by TQA, all roots will be backfilled by the end of the day. Backfilling will be up to the root collar, or where the soil line appears near the root collar. The RC will keep topsoil on-site for this purpose when anticipating digging around trees.
- If an area cannot be backfilled and the roots will remain open overnight, the roots will be covered in soaked burlap until backfilling can occur.
- Backfilled areas around trees will be soaked frequently (more frequently in hot, summer months) in the first days after excavation. Any settling of the topsoil around the roots will be corrected by adding more soil.
- If analytical results are greater than or equal to 1% LA, the EPA will determine whether the tree and/or stump shall be removed. The property owner will be notified of the decision..

5.4.3. Vermiculite Quality Control Inspections

The RC will inspect areas near excavation zones for vermiculite. Any vermiculite discovered outside the excavation zone will be brought to the TQA's attention and addressed in the field. Once the additional area of contamination is delineated, the area

may be included in the exclusion zone as determined by use area and removal criteria. Additional removal will adhere to use area designations determined by the investigation team or directed by USACE. Extensive expansion of the removal zone will require consent from USACE as indicated by a signature on the QC's site-specific work plan and notification of the property owner. Extensive expansion is defined by chasing contamination into a separate use area, chasing contamination into an area with intricate landscaping or vegetation, or an increase in the size of the removal zone greater than 300 square feet. All removal zone expansions will be documented by TQA in the QAR and by the QCR on the CQC plan.

5.4.4. Contaminated Soil Removal

The RC will be responsible for selecting the appropriate equipment for conducting the excavation based on the Exterior PRE. The equipment may include an appropriate sized hydraulic excavator, a vacuum truck, hand tools, and dust control equipment, depending on the size and complexity of the removal. Soil will be removed according to the site-specific work plan.
With USACE and property owner approval, excavation depths of ACS within designated removal areas may be lessened provided that existing elevations of the area will allow the increase in elevation after backfill and the work does not create a drainage issue .

All excavations, embankments, stockpiles, haul roads, permanent and temporary access roads, waste staging and storage areas, stabilization materials handling areas, and other work areas may cause a dust hazard. Dust suppression will be maintained throughout the duration of all removal activities, including restoration, in a manner to prevent visible dust emissions on-site in addition to preventing dust emissions from migrating off-site.

The use of water, generally via water hoses and water trucks, will be the primary method of dust suppression. Pre-wetting properties during dry periods of the year will also be performed to aid in dust suppression and contribute to the excavation efficiency. Additional dust suppression methods include, but are not limited to, covering haul pathways with gravel, and working methodically and with care when handling soil.

If there is no water source available, adequate, and/or ready at the site for dust suppression, the RC is not permitted to perform excavation or soil handling of any kind.

During the excavation of ACS within designated removal areas to specified depths, the excavation will be inspected by the RC QCR to confirm meeting removal criteria with

confirmation by TQA once inspection is complete. The TQA will sample the excavation as detailed in the *Response Action Sampling and Analysis Plan* (CDM 2011b, or current revision).

Following collection of the confirmation samples, the excavation may be backfilled. If the sample results indicate that the remaining soils comply with the clearance criteria, the excavation will be considered complete. If the sample results indicate that soils on the floor of the excavation are found to contain LA in quantities greater than 1%, the RC will remove the clean material (to the extent practicable for re-use without removing non-backfill material), and will excavate an additional 6 inches below ground surface (bgs) until soil clearance criteria are expected to be met or the maximum excavation depth of 3 feet bgs is reached. Removal actions will not be considered complete until all the confirmation soil sampling results have been received

If contamination is still visible at 3 feet bgs, the RC will stop excavating and place a physical marker on the bottom of the excavation. Contamination deeper than 3 feet bgs will only be excavated with approval of USACE.

Final excavation depths, boundaries and sample locations will be documented by the TQA.

A physical marker barrier will be placed on the sidewall of an excavation whenever there is known impacted soil in the area beyond the sidewall. This may include excavations adjacent to impacted LUAs, sidewalks, or paved driveways. If visible vermiculite is apparent in the sidewalls along the boundary of the property, a physical barrier will be secured along the sidewall. At the direction of USACE, the RC may attempt to pursue removal of contamination on the adjacent property once proper access has been granted.

5.4.5. Excavation of Raised Planter Beds

Excavation of planter beds will be detailed on the site-specific work plan, and will generally remove all soil within the planter bed to a depth 12” below the grade that surrounds the raised bed, unless otherwise directed by USACE.

Raised gardens will be excavated to a minimum of 18” below surrounding grade.

5.4.6. Excavation Floors Greater than One Percent LA

The RC will excavate beyond the depth detailed on the site-specific work plan if the analytical result of the confirmation sample is greater than 1%. If backfill material has already been placed over the excavation, all the material except the bottom four inches may be re-used. The remainder will be disposed of as ACS.

5.4.7. Stockpiling Contaminated Soils

Stockpiling of wetted soil may be utilized to optimize the use of haul trucks and reduce the time a truck waits to be loaded. Stockpiles will be prevented from drying out prior to being loaded. To the extent possible, all stockpiles will be loaded out by the end of the work day. Any remaining soil stockpiles at the end of the work day will be limited to less than a few cubic yards of total material, and will be covered to prevent dust and contamination migration out of the site's exclusion zone.

5.4.8. Damage to Curb Stops and Frost-free Spigots

Curb stops and frost free spigots within the removal zone will be inspected for damage prior to confirmation sampling. Any excavation necessary for the repair of damaged curb stops or frost free spigots will be performed prior to confirmation sampling.

5.4.9. Confirmation Soil Sampling

Once the contractor has completed removal of each area authorized by the site specific work plan, TQA personnel will be notified to initiate inspection and collection of confirmation samples.

Confirmation soil sampling may be performed simultaneously with the excavation of ACS at the same property. That is, if the excavation is large enough, confirmation samples may be collected in areas of the excavation that are completed, while the RC completes excavation in other areas. If confirmation sampling is performed simultaneously with the excavating activity and areas of the excavation are deemed complete, the RC will ensure that that there is no significant cross-contamination between the excavation and sampled areas. Sampled areas will be demarcated from none sampled zones.

Confirmation sampling will be conducted in accordance with the *Response Action Sampling and Analysis Plan* (CDM 2011b) or latest version.

Details regarding action levels and clearance criteria are found in the *Libby Asbestos Site Residential/Commercial Cleanup Action Level and Clearance Criteria Technical Memorandum* (EPA 2003) and its revisions. Action levels and clearance criteria are subject to revision by the EPA.

5.4.10. Changes to the Site-specific Work Plan

Extensive expansion of the removal zone will require a signature from USACE and notification to the property owner. Extensive expansion is defined by chasing contamination into a separate use area, chasing contamination into an area with intricate landscaping or vegetation not included in the site-specific work plan, or an increase in the size of the removal zone greater than 300 square feet.

Mark-ups on the QC's site-specific work plan will be required for documentation of any changes made to the site-specific work plan whether originating from QC, TQA, the property owner, USACE or the EPA.

The site-specific work plan will be initialed by the USACE, the property owner and/or a power of attorney, as appropriate.

Punch-list tracking will be maintained by QC personnel and will remain on-site during the removal and be available for review during the course of the excavation. Following the completion of the excavation the punch-list and QC site-specific work plan are submitted to restoration foreman.

5.4.11. Transportation and Disposal

Contaminated material will be excavated and loaded into trucks or trailers. Polyethylene sheeting will be placed over the side of the truck or trailer bed to prevent any contaminated material from spilling on the truck. The utmost care will be given during loading to ensure that the truck or trailer exterior remains clean. However, trucks or trailers will be cleaned with water should the decontamination be warranted. No visible dust will be permitted during loading operations. Each load will be wetted prior to tarping and transport. USACE, the EPA, QC or TQA will ensure that the proper procedures are being followed. TQA will document at least once a day per exterior removal property that the RC personnel are following proper wetting and tarping requirements. Observations will be noted in the QAR.

There will be zero tolerance of soil migration from trucks during transportation from the removal site to the Mine.

Truck and trailer beds should be sealed watertight any trucks and/or trailers with damaged or inadequately sealed beds observed by USACE, the EPA, the CMT, QC, or TQA will be immediately removed from service until the necessary repairs or corrections are made. Damaged tarps or seals on trucks that are loaded with ACM or ACS and are in transit will be required to stop until direction from USACE is received.

Soils will be sufficiently wetted after they are loaded into trucks to ensure that dust will not be created during transport. Trucks and trailers will have tarps secured over the beds to ensure "dust-tight" enclosure of the load before departing the property. The tarp must be pulled down over the bed in the exclusion zone. The act of tying down the tarp to the bed of the truck may be performed directly outside of the exclusion zone if it facilitates the removal process. Any trucks and/or trailers with damaged or inadequate tarps observed will be immediately removed from service until the necessary repairs or corrections are made.

Trucks transporting ACS will be equipped with positive air pressure HEPA filter systems. The RC will ensure that all operators are fully trained in usage of the air filtration systems. All positive pressure units used by the RC must have an identification number. The RC will supply this identification number to USACE upon request.

Materials arriving at the amphitheater area of the Mine will be sufficiently wetted during off-loading activities to ensure that no visible dust is generated. If soils arriving at the amphitheater are dry or dusty, the competent person at the Mine will relay that information to the associated removal area and the process will be corrected. The RC will regularly perform maintenance and safety inspections for all trucks and will ensure that all haul trucks used to transport contaminated material undergo annual DOT certification inspections. Copies of the inspection reports will be made available to USACE upon request. All trucks having safety or maintenance deficiencies will be immediately pulled from service until repaired. TQA will periodically observe off-loading activities, the condition of truck tarping and tailgate seals and document these observations on the daily QAR.

5.4.12. Control of Surface Water

Responsibility for the care of surface water will be borne by the RC until completion of restoration work. The RC will provide the materials, equipment, and personnel needed to control surface water and to protect the removal work from damage by water. Using temporary control measures, the RC will be responsible for preventing surface water from running into and out of the exclusion zones.

If necessary, portable pumps will be used to remove any ponded water. Any water removed from an excavation will be treated as contaminated fluids and used to moisture-condition ACS still to be excavated or be disposed of at the Mine or Landfill.

5.4.13. Pollution Prevention

Material will not be allowed to enter and pollute any surface water or groundwater in the Site. Vehicles and equipment will be lubricated or fueled in a controlled manner. All RC personnel and subcontractors will comply with applicable federal, state, and local laws concerning pollution of surface and groundwater. Special measures, with approval from the EPA, may be implemented to prevent chemicals, fuels, oils, greases, and other materials from entering public waters.

5.5 Structure Demolition

All structure demolitions will be evaluated separately, done in accordance with the site-specific work plan, and will require approval of USACE and the EPA. The RC will produce a structure demolition vs. interior demolition cost comparison prior to any removal activities being conducted. The cost comparison will be reviewed and approved by USACE prior the start of removal activities. A demolition cost comparison will not be required for structures that are deemed structurally unsound by the RC and USACE. This decision will be documented by the RC and placed in the property folder.

No structure demolition work may proceed until demolition-specific air monitoring and video documentation are in progress.

Prior to demolition, the structure will be inspected by TQA and QC to ensure that household hazardous wastes and other hazards (e.g., physical) have been removed from the structure.

5.5.1. Documentation

In addition to the QAR, TQA will be responsible for the video-documentation of the demolition and the load-out of the demolition debris. The video file will be submitted to the PCT after the demolition is complete.

5.5.2. Disposal of Demolition Debris

Structure demolition materials will be disposed of as ACM. Before transporting this ACM for disposal, the RC will prescreen the waste for acceptability at the facility. Prescreening will involve visual inspection of residential, commercial, industrial, and public buildings to be demolished. Any liquid materials such as paint cans, cleaners, solvents, petroleum products, and pesticides will be removed from the building by the property owner before the vermiculite removal action, ACM removal or demolition. In addition, the property owner will remove glues, resins, dyes, oils, pesticides, and any other household hazardous wastes from the building and inspect the building for polychlorinated biphenyl-containing light fixtures.

If necessary and upon approval by USACE, non-contaminated building materials comprised of wood, glass, and/or metal removed during the removal activity will be transported for disposal at the Lincoln County Landfill solid waste facility. Loads will be documented for tipping fee reconciliation. Other building materials will require asbestos sampling before disposal at the solid waste facility.

Sampling demolition materials for lead content will not be required.

The RC will process demolition debris for disposal into relatively small pieces, such that the debris passes through the tailgate of a dump truck, can be covered with 6 inches of daily cover soil, and can be compacted in place by the Landfill operator.

5.6 Final Inspection

Upon completion of the removal, the QCR will ensure that the removal has been performed according the plans and specifications. TQA is then notified and a final inspection is scheduled. TQA and QCR must agree that the removal is complete. The final inspection will be documented on the QAR.

5.7 Property Security

For removal actions that require the relocation of the residents, the RC will supply personnel to provide security whenever the RC is not on-site and the property cannot be locked. The level of security may vary from periodic patrols to on-site full-time based on the location of the property and whether it is adjacent or close to other properties under security. This will be evaluated and determined by the RC.

The RC is responsible for site security during regular working hours.

6.0 Restoration Activities

6.1 Roles and Purpose

Following the completion of removal activities, a property will be restored to a condition equal or similar to that which existed before the removal work. Aspects of work include, but are not limited to the backfill, grading, and compaction of replacement soil, and the replacement, installation, or repair of borders, fencing, insulation, and miscellaneous items associated with the removal activity.

The RC will submit product samples, product data, and descriptions of the materials proposed for use in restoration to USACE upon request. All materials require approval by the USACE and, in instances of property specific materials such as landscape rock, approval from the property owner may be required. In addition, all new materials used in restoration will be new, free of LA, and comply with local building codes.

During the construction season, the RC in conjunction with a TQA will perform monthly scale checks of the primary soils provider's delivery trucks weights. The purpose of the checks is to confirm the reasonableness of the charges of the materials delivered to the project. The trucks scale checks are to be performed in accordance with quality control standard operating procedures.

6.2 Restoration Preparatory Inspection

No inspections or work activities will be performed without a finalized site-specific work plan on-site.

Prior to the start of any work activities at the site, TQA and QC will hold a preparatory phase inspection to review site removal action activities and to ensure that the RC and TQA have consistent finalized site-specific work plans. Additionally, imminent hazards identified during this inspection will be evaluated to determine if corrective actions are necessary. Identified hazards will be noted on the AHA.

The RC will decontaminate and demobilize the equipment used for the removal of ACS or ACM from the immediate area prior to the commencement of restoration activities. Property restoration will be conducted in Level D PPE provided that workers and equipment are only in contact with clean fill and will adhere to the requirements outlined in the APP.

Dust control on-site will be maintained by the RC at all times. Dust control will be employed during restoration activities to minimize generation of nuisance dust emissions. The RC will provide all water necessary to control dust on the property and adjacent roadways, all water necessary for thorough compaction of backfill materials, and all other water necessary to complete restoration activities.

Restoration activities will comply with the site-specific work plan with primary construction QC performed by the RC and supported by TQA personnel. The RC will also ensure the QC of any landscaping subcontractors. Following completion of excavation activities and prior to the start of restoration activities, the restoration QC designee, the TQA and the restoration foreman, or designee, will conduct a preparatory restoration inspection. During restoration, USACE and/or TQA personnel will perform and document inspections at least once per day per property to ensure compliance.

6.3 Exterior Restoration

Once excavation activities are complete and all necessary confirmation sampling is performed in a sampling area at a property, the RC will initiate property restoration activities using the specifications in the following sections.

6.3.1. Mutual Compromise

Any agreement made with the property owner where the property owner gives up restoration or compensation in one area for an increase in another, a practice referred to as “horse-trading,” must be approved by a government representative. Approval must be indicated by a government representative’s signature on the site-specific work plan.

6.3.2. Fill Material Type and Specification

Specific backfill material to be used for restoration is included in the site-specific work plan. Fill material may consist of, but is not limited to, the following:

- Common fill
- Structural fill (¾-inch & 1.5” minus)
- Gravel (e.g., ¾-inch washed gravel, pea gravel)
- Topsoil
- Sand
- Potting soil

Fill material shall be provided by contracted vendors in accordance with contract specifications and after USACE approval of the material. All fill material supplied by the

RC will be inspected for vermiculite and sampled for LA and environmental contaminants as detailed in the *Fill Material Sampling Technical Memorandum, Libby Asbestos Site* (CDM 2011c, or its current revision). No fill material will be utilized prior to the receipt of the visual and analytical data and the clearance of the material. The RC is responsible for ensuring that all fill material has been cleared prior to use.

All fill material for the restoration will originate from outside the Libby Valley and will meet the specifications outlined in the *Fill Material Sampling Technical Memorandum, Libby Asbestos Site* (CDM 2011c)

6.3.3. Placement of Backfill

Before backfilling, the excavation area will be examined by the RC for any conditions detrimental to restoration. If any unfavorable conditions exist (e.g. saturated areas, snow, ice), backfilling will not begin until conditions change or the unacceptable material is removed, as directed by USACE.

Backfilling and grading will be performed by the RC in a manner and sequence that will avoid damage to properties, houses, garages, utility poles, fences, decks, sprinkler systems, streets, or other features near the work areas. Where existing topography limits drainage options, those limitations will be addressed on a case by case basis and will be documented on the QC report and the QAR. If additional excavation is needed, it will be done by the excavation crew before the backfill crew begins placement of backfill material.

If a physical barrier has been installed by excavation crews, restoration crews will ensure that the barrier remains in place during backfill activities.

6.4 Sub-grade Installation Requirements

Sub-grade fill material will be placed by the RC using “clean-to-dirty” techniques. Sub-grade fill material will be end-dumped from a clean area and spread to make a path for subsequent loads ensuring the haul trucks do not drive over any possibly contaminated areas.

Grade stakes will be utilized to ensure that the proper thickness of each material is installed to the minimum total design depth (typically 12”) unless otherwise noted.

6.4.1. Placement Grading

The RC will grade newly placed fill material in a manner to replicate or improve the former contours of the property. Improvement of the former topography will be performed only to provide positive-runoff away from structures and outbuildings. Changes in grade directed by the property owner may be implemented provided the changes and any potential adverse impacts from the grade changes are documented, and the property owner signs a Hold Harmless document for those potential impacts.

The RC is responsible for ensuring that fill material of any type will meet requirements listed below:

- All placed and compacted common fill sub-grade material, topsoil, and other fill material (e.g., structural fill and gravel) is sloped away from building foundations, regardless of original grade, to allow for proper water drainage. Positive drainage will be required for the first three feet away from the foundation. The USACE on-site representative will be notified when existing property conditions prevent attainment of positive drainage. TQA will document grading in the QAR report.
- All original site topography not adjacent to property structures, not interfering with the proper drainage requirements for structures, will be restored to the original grade or as indicated on the site-specific work plan. Survey control to re-attain prior topography will not be required.
- Original site drainage conditions are not altered in any way that negatively impacts or damages site materials or buildings.

6.4.2. Compaction of Graded Materials

Compaction equipment will be of suitable type and adequate to obtain the soil densities specified and will provide satisfactory breakdown of materials to form a dense fill. Acceptable compaction equipment includes pneumatic tire, tamping foot, sheep's foot, drum roller, or vibratory plate compactor. The use of other types of compaction equipment by the RC requires prior approval by USACE.

The RC will be responsible for modifications to the moisture content of all materials required to achieve the specified compaction.

The RC will be responsible for the quality of work and materials during restoration and for any settlement of backfill materials. All work found unsatisfactory to the USACE on-site representative will be corrected.

Common fill material will be used to backfill the excavated area to within 4" below final grade in yard areas, within 18" below final grade in pre-existing gardens, or within 12" in

flowerbeds, as indicated in the site-specific work plan. Modifications to this criterion may be directed by the EPA, or USACE.

Common fill material will be placed and compacted with a moisture content that produces a relatively uniform finish, free from irregular surface changes. The RC will not place fill over frozen sub-grade, snow, ice, saturated soil, or ponded water. Common fill will be placed in layers (lifts) that result in compacted soil not exceeding 6'" in thickness.

The RC will construct a performance specification (suitable equipment and specified compaction effort) for that material. Performance specifications will be required for variances in fill material source. Fill lifts for common fill material will be compacted to at least 85 percent of the maximum dry density, within 3 percent of optimum moisture, as determined by laboratory test American Society for Testing Materials (ASTM) D698 (standard Proctor). Fill lifts for structural fill on roadways will be compacted to at least 95 percent of maximum dry density. Density testing will be performed as required by USACE. Once a performance specification is developed, all common fill and structural fill will be placed in accordance with that specification. USACE will direct changes in the compaction procedure in writing as needed if problems meeting compaction are identified.

6.4.3. Topsoil Compaction and Placement

Topsoil will be used to backfill the top 4" of the excavation in yard areas, the top 12" of the excavation in flowerbeds, and the top 18" of the excavation in gardens, as indicated on the site-specific work plan. Modifications to these criteria may be directed by USACE with approval of the EPA.

The RC will not place topsoil over frozen sub-grade, snow, ice, saturated soil, or ponded water. The topsoil will be placed so that haul trucks do not repeatedly drive over newly placed topsoil.

The RC will begin placing topsoil opposite from the truck entry. The RC will be responsible for correction or removal of any fill material not placed in accordance to USACE and TQA inspection standards.

In yard areas, the topsoil will be left un-compacted or loosened after placement if necessary, in a manner that facilitates growth of groundcover. In gardens and flowerbeds,

the topsoil will be placed and moderately compacted with hand-tools. The top 4" of topsoil will be left un-compacted or loosened after placement, so that the topsoil will properly accept growth media. To account for settling, topsoil will be mounded above borders in gardens, flowerbeds, and planters.

All depressions caused by settlement will be filled with additional topsoil, and re-graded to match existing contours. Prior to the placement of hydro-seed, the finish grade of the topsoil will be inspected and approved by the USACE on-site representative or TQA.

6.4.4. Seeding of Restored Areas

After the restoration of a property is near completion (i.e. no more anticipated foot traffic over areas that will be seeded), soil preparation and seeding will proceed in accordance with 2013 Fertilization and seeding procedure (PRI-ER July 2013) or most current version..

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6.4.5. Fences, Decks, and Other Exterior Items

Any fences, decks, or other items temporarily removed during site set-up will be reassembled or replaced in kind by the RC, as stated in the site-specific work plan. These items will be reassembled or replaced before the installation of landscaping. Any damages incurred during disassembly will be repaired or replaced by the RC.

Damage to portions of fencing, decorative borders, or enclosed areas incurred during the removal process will be repaired or replaced, and will not justify replacement of the materials to match former colors that may have been affected by weathering or state of material degradation.

Upon completion, structures that were disassembled or removed during the removal activity and then reassembled will be inspected by QCR, TQA and/or the USACE representative for quality of work and durability. If sheds or other structures were removed during site preparation, they will be returned to their original locations or to locations specified in the site-specific work plan.

6.4.6. Pre-existing Damage to Propane Systems

Propane systems will not necessarily be brought up to code as part of the removal action. Reconnection of any disconnected out-of-code systems will be the responsibility of the property owner. No backfilling will be performed around propane infrastructure until the propane system is operational if the deficiency is caused by the underground lines. The excavation around propane infrastructure will be sloped and left open. The CIC will be notified.

6.4.7. Landscaping

All landscaping elements will be replaced back to the original condition of the property by the RC, or as required by the site-specific work plan.

6.4.8. Changes to the Site-specific Work Plan

Changes during restoration will be documented any time there is a deviation from the site-specific work plan. Any changes to the restoration plan will be documented by the quality control person by marking the change on the site-specific work plan, and must be initialed by USACE. Changes will be communicated to the appropriate CIC. Changes will be maintained by QCR and TQA and in their respective site-specific work plans, and will be available for review during the course of the restoration. Following the completion of the restoration, the QC site-specific work plans with its changes are submitted to the PCT.

6.5 Restoration Final Inspection

Damages or deficiencies observed during the post-removal inspection will be included on the punch list of items to be completed by the RC prior to the restoration final inspection. Documentation such as photographs, field notes, and pre-cleanup checklists will be referenced to determine if damages are pre-existing or a result of the removal activities. If deficiencies are noted, the RC will address punch-list items in a timely fashion.

Once all punch-list items have been addressed, the restoration final inspection will be performed by TQA and QC personnel. The USACE on-sight representative may also be present.

During the restoration final inspection, inspectors will review the site-specific work plan to ensure all removal and restoration items noted in the site-specific work plan are completed to performance standards, with the exception of landscaping. The walkthrough

inspection will include a thorough documentation of the property's existing conditions so that, if necessary, post-cleanup conditions can be compared to pre-removal conditions.

Unless significant punch list items remain, the restoration final inspection is complete.

6.5.1. Landscaping Quality Control and Quality Assurance

The RC and CIC will perform regular inspections of landscaping activities that are performed by the landscape subcontractor. A final inspection will also be performed by the CIC. If the completion of landscaping activities will be delayed due to planting requests of the property owner (i.e. waiting until Spring) or unavailability of landscape materials, the reason for the delay, the remaining items to be completed, and the intended schedule for completion will be documented in the QAR and QC documentation.

6.5.2. Call Backs

Call backs will be addressed on a case-by-case basis to determine the legitimacy of the claim made by the property owner. If direction is received from USACE, the call back will be addressed.

7.0 Former W.R. Grace Rainy Creek Mine Operations

7.1 Roles and Purpose

The RC will dispose of all ACS from removal activities at the former W.R. Grace Rainy Creek Mine site (Mine) in accordance to the requirements described herein. The RC will operate, maintain, and conform to all requirements and guidelines as described in the *Libby Asbestos Superfund Site Operable Unit 3 Soil Disposal Plan* (CDM 2011a, or its current revision). The RC will furnish all labor, supervision, materials, equipment, tools, permits, and incidentals necessary to perform all mine operation activities at the Mine.

QC personnel will be responsible for regular inspections of Mine activities.

TQA will be responsible for air monitoring, environmental sampling, and quality assurance of mine operation activities.

7.2 Mine Personnel Training Requirements

RC mine operations personnel are to comply with all health and safety training requirements as described in the APP and Section 4 of the *Libby Asbestos Superfund Site Operable Unit 3 Soil Disposal Plan* (CDM 2011a, or its current revision).

7.2.1. Personal Air Monitoring Requirements

TQA will coordinate collection and analysis of task-based breathing zone (BZ) air samples on RC personnel conducting Mine operations to document that the level of respiratory protection is adequate for the task being conducted. All BZ sampling will be conducted in accordance with Section 4 of the *Response Action Sampling and Analysis Plan* (CDM 2011b, or its current revision).

TQA will supply BZ sample results to the RC to satisfy OSHA requirements. The RC is responsible for posting these results in a location readily available to its employees.

7.3 Mine Site Disposal Operations

ACS arriving at the Mine will be coordinated by the RC. The RC will direct each load to the proper disposal location (usually the amphitheater).

The RC will maintain security at the junction of Rainy Creek Road and Montana Highway 37 when the green gate is open for operations.

7.3.1. Traffic Control Plan

The RC will ensure that hauling practices are in accordance with Mine traffic control requirements below:

- All vehicles proceeding up the road past the decontamination trailer will be equipped with a positive pressure HEPA filtration system in the passenger compartment. In addition, all occupants of the vehicle will have available at least a half-face respirator with p-100 filters and a protective suit. These will be for exiting purposes should the vehicle become inoperable.
- Loaded trucks exiting MT Highway 37 to proceed up the Mine road will use caution. Speed will not exceed15 MPH when passing the guard station and the decontamination trailer.
- Loaded trucks on the road between the amphitheater and the Mine will follow the posted speed limit of 30 MPH.
- Traffic exit downhill toward the guard station will follow the posted speed limit.
- Loaded haul trucks have the right-of-way. Empty trucks will slow to less than 10 MPH when approaching/passing loaded trucks.
- Vehicle operators will be aware of the runaway truck ramp, and will use it in case of an emergency.
- Passing (over-taking) of any moving vehicle on any part of the Mine road is prohibited.
- Dumping operations will halt when the road becomes slick with rain or snow and during electrical storms.
- All visitors to the Mine must be accompanied by project personnel in appropriate positive air equipped vehicles with back up PPE, and will sign-in at the guard station.
- When hauling from the amphitheater is in operation, all vehicles proceeding past the amphitheater are required to follow a haul truck up the road to the Mine and down from the Mine to the amphitheater.

7.3.2. Transportation Requirements

All truck drivers and RC mine operations personnel are to be trained in accordance to *Libby Asbestos Superfund Site Operable Unit 3 Soil Disposal Plan* (CDM 2011a, or it current revision).

Trucks hauling soil from the amphitheater to the Mine are not required to tarp their trucks.

7.3.3. Equipment Decontamination

The RC is responsible for implementing heavy equipment decontamination procedures when moving out of the exclusion zone or transporting equipment away from the Mine.

The RC will thoroughly decontaminate any vehicle prior to leaving the Mine. The RC will unlock the tailgate lock on haul trucks, and pressurize wash all exterior components of disposal vehicles with water in accordance with Section 10.3 of the *Libby Asbestos Superfund Site Operable Unit 3 Soil Disposal Plan* (CDM 2011a, or its current revision). Haul trucks will be rinsed off with water to remove all visible soil before transport. RC competent person will inspect decontaminated vehicles prior to leaving the decontamination pad.

Before being taken off use from the project or before use in a clean area, all heavy equipment must undergo a full interior and exterior decontamination by the RC. Any heavy equipment used at the Mine beyond the asphalt at the amphitheater must receive full decontamination prior to being taken off use for that task even if the equipment would be used on another removal task.

Full decontamination includes removing protective plating (skid plates), pressurized washing of all surfaces, cleaning the interior of the engine compartment, cleaning of the undercarriage, cleaning of the track adjusters, removing floor mats, and an extensive cleaning and wipe-down of the cab. The RC will notify TQA for inspection and documentation of the decontamination before moving or using the equipment. The RC will fill out a Decontamination Checklist. TQA will verify the decontamination and note it in their QAR. The RC will retain the original form in their files.

At the end of the construction season or before being taken off use from the project, the RC will remove, replace, and dispose of any air filters (air-intake, cab, etc.) from equipment and vehicles that have been inside an exclusion zone. All filters from equipment that has been in an exclusion zone will be disposed of as ACM. Filter removal and disposal will be documented by the RC on the Decontamination Checklist. USACE will be notified by the RC before any heavy equipment is decontaminated and removed from project service and by TQA when its decontamination is completed.

Portable equipment (pumps, pressure washer) that enters the exclusion zone will have their air filters replaced at the time of normal maintenance or the end of the construction

season. The RC will document the filter removal and replacement and dispose of the old filter as ACM.

Positive-pressure unit pre-filters will be replaced at least once a year. The primary HEPA filter will be replaced as per the manufacturer's recommendations. Filters will be disposed as ACM. Filter change out will be documented on the Decontamination Checklist.

USACE reserves the right to verify decontamination activities and standards before moving the equipment between properties or before demobilization of a piece of equipment.

7.3.4. Personnel Decontamination

The RC will establish a properly demarcated, HEPA-filtered, 3-stage decontamination trailer or equivalent consisting of an equipment room (dirty room), shower area, and a clean room for personnel decontamination, in accordance with OSHA Standard 29 CFR 1926.1101(g). Personnel decontamination procedures will be posted in the clean and dirty rooms so that personnel may read and take necessary steps to ensure their safety. The RC must perform regular housekeeping duties within all decontamination facility rooms to ensure and maintain their cleanliness. Documentation of such housekeeping will be posted in the clean room of the decontamination facility and made available to USACE upon request.

The RC will use potable water for all personnel decontamination, in accordance with OSHA Standard 29 CFR 1910.141(b)(1)(i). All potable water delivery systems must be disinfected on a regular schedule, with greater frequency during the summer months. The RC must include disinfection of its potable water systems on the weekly schedule. Documentation of potable water equipment inspections and disinfections must be maintained by the RC, made visible to personnel using a particular water source, and provided to USACE upon request.

7.3.5. Water Use and Supply

The RC is responsible for supplying an adequate quantity and source of water for mine operations and disposing of decontamination wastewater in accordance with Section 10 of the *Libby Asbestos Superfund Site Operable Unit 3 Soil Disposal Plan* (CDM 2011a, or its current revision).

7.3.6. Dust Control Procedures

The RC will implement dust control measures to maintain haul and disposal roads free from detectable and visible dust emissions at all times as detailed in Section 10.2 of the *Libby Asbestos Superfund Site Operable Unit 3 Soil Disposal Plan* (CDM 2011a, or its current revision).

7.4 Waste Shipment Records

All materials transported for disposal to the Mine will be accompanied by an asbestos Waste Shipment Record (WSR) that will document the following information:

- Property address from which the material is originating from (E911 address)
- Property AD number
- RC name and mailing address
- RC telephone number
- Waste disposal site information (i.e., Rainy Creek Mine)
- Name and address of responsible agency (the EPA, USACE,)
- Description of materials and quantity
- Applicable handling instructions
- Signature and name of RC personnel from the removal site
- Transporter name and signature
- Disposal site operator or security officer name and signature
- Disposal time
- Approximate volume of soil

7.5 Debris Removal

The RC will take reasonable measures against transporting non-soil debris from removal actions to the Mine.

Debris that has been transported to the Mine in the past will be segregated from the soils and removed from the Mine. The debris will be transported for disposal at the Landfill as ACM.

7.6 Site Security

The RC will provide security at the Mine entrance during all operational hours. Security will maintain an accurate record of entrance and exit of all traffic during the operational hours. Security personnel will notify the public that they are not allowed past the gate, inform authorized personnel of the mine road rules, and receive WSRs for contaminated

soil disposed of at the Mine. WSRs will remain at the security station until the end of the day when they will be delivered to the CMT.

8.0 Landfill Operations

8.1 Roles and Purpose

Removal-derived waste, including ACM, vermiculite, demolition debris, and rubbish, is to be disposed of at the Lincoln County Class IV Asbestos Landfill (Landfill) or another qualified waste disposal facility. This section details what is required for operation of the Landfill. This section does not apply to the operations of waste disposal facilities other than the Landfill. If disposal occurs at an off-site location, all local, state and federal regulations for transportation of the waste will be followed.

The RC is responsible for the operations and maintenance of the Landfill for project-related activities. The RC will furnish all labor, supervision, materials, equipment, tools, permits, and incidentals necessary to perform all Landfill operation activities at the Landfill.

TQA will be responsible for inspections, air monitoring, environmental sampling, and general oversight of Landfill operation activities.

8.2 Health and Safety Requirements

RC and TQA Landfill operations personnel will comply with the health and safety requirements of the appropriate APP and EM 385-1-1.

8.2.1. Landfill Personnel Protection Requirements

The RC and TQA landfill operations personnel will comply with PPE requirements as listed in the appropriate APP.

Only RC personnel, TQA and visitors trained in accordance to the health and safety requirements as described in the appropriate APP are permitted within the active disposal cell area of the landfill.

8.2.2. Personal Air Monitoring Requirements

TQA will coordinate the collection and analysis of task-based BZ air samples on RC personnel conducting Landfill operations to document that the level of respiratory protection is adequate for the task being conducted. All BZ sampling will be conducted in accordance with the *Response Action Sampling and Analysis Plan* (CDM 2011b, or its current revision).

8.3 Site Disposal Operations

The RC will ensure the compliance of state and federal regulations regarding the disposal of waste and landfill operations including ARM 17.50.511(3) which regulates the design and maintenance of Landfill operations. During all phases of Landfill operations or construction, the RC will comply with OSHA 29 CFR 1910.120.

8.3.1. Zone Delineation

With the exception of the initial entrance and support zone inside the northeast gate, the Landfill's fence line will also serve as the exclusion zone boundary. The decontamination pad will serve as the CRZ.

8.3.2. Traffic Control Plan

All trucks entering the Landfill will pass the guard station at the Landfill's entry on the right side. The driver will be acknowledged by the Landfill security prior to entering the Landfill. The driver will not pass any cars waiting at the guard station.

8.3.3. Transportation Requirements

Haul vehicles, trailers, and roll-off trucks arriving to dispose of ACM debris will be equipped with positive air pressure HEPA filter systems prior to arriving at the Landfill entrance. The RC will ensure that all operators are fully trained in usage of the air filtration systems. All positive pressure units used by the RC will have an identification number. The RC will supply this identification number to USACE upon request. Drivers will not be allowed to exit their trucks while in the exclusion zone.

The RC will ensure that all haul trucks used to transport ACM undergo annual DOT certification inspections. Copies of the inspection reports will be submitted to USACE upon request.

All trucks equipped with dump beds and dump trailers will be equipped with weather tight canvas tarps or roll roofs that are placed in a manner to prevent the release of visible

or detectable dust emissions prior to entering the Landfill. Truck bed covers will be inspected prior to entrance to the Landfill by a competent person or TQA. Damaged or defective covers will be replaced or repaired prior to re-use and re-entry into Landfill service.

Roll-off trucks with vacuum boxes will be equipped with a sealed, watertight locking mechanism for the containment of ACM upon arrival at the entrance gate of the Landfill site. Any damaged or inadequately sealed boxes observed by the RC or TQA will be immediately removed from service until the necessary repairs or corrections are made.

8.3.4. Equipment Decontamination

The RC is responsible for implementing heavy equipment decontamination procedures when moving out of the exclusion zone or transporting equipment away from the Landfill.

The RC will construct and maintain a decontamination facility at the Landfill in an area of the designated exclusion zone and bordering the clean zone of the Landfill. The QCR will inspect decontaminated vehicles prior to leaving the decontamination area. Mechanized equipment dedicated for use in Landfill operations will be decontaminated in the same manner prior to exiting the exclusion zone.

The RC will thoroughly decontaminate the exterior of any vehicle prior to leaving the Landfill. The RC will unlock the tailgate lock, and pressure-wash all exterior components of disposal vehicles with clean water. Heavy equipment will be rinsed off with water to remove all visible soil before transport. RC competent person will inspect decontaminated vehicles prior to leaving the decontamination area.
The RC will notify TQA for inspection and documentation of the decontamination before moving or using the equipment. The RC will fill out a Decontamination Checklist. TQA will verify the decontamination and note it in their QAR. The RC will retain the original form in their files.
The RC will ensure that all appropriate controls of decontamination water are implemented to prevent releases of material outside of the exclusion zone.

Before being taken off use from the project or before use in a clean area, all heavy equipment must undergo a full interior and exterior decontamination by the RC.

Full decontamination includes removing protective plating (skid plates), pressurized washing of all surfaces, cleaning the interior of the engine compartment, cleaning of the undercarriage, cleaning of the track adjusters, removing floor mats, and an extensive cleaning and wipe-down of the cab. The RC will notify TQA for inspection and documentation of the decontamination before moving or using the equipment. The RC will fill out a Decontamination Checklist. TQA will verify the decontamination and document it in their QAR. The RC will retain the original form in their files.

At the end of the construction season or before being taken off use from the project, the RC will remove, replace, and dispose of any air filters (air-intake, cab, etc.) from equipment that has been inside an exclusion zone. All filters from equipment that has been in an exclusion zone will be disposed of as ACM. Filter removal and disposal will be documented by the RC on the Decontamination Checklist. USACE will be notified by the RC before any heavy equipment is decontaminated and removed from project service and by TQA when decontamination is completed.

Portable equipment (pumps, pressure washer, etc.) that enters the exclusion zone will have their air filters replaced at the time of normal maintenance or the end of the construction season. The RC will document the filter removal and replacement and dispose of the old filter as ACM.

Positive-pressure unit pre-filters will be replaced at least once a year. The primary HEPA filter will be replaced as per the manufacturer's recommendations. Filters will be disposed of as ACM. Filter change out will be documented on the Decontamination Checklist.

USACE reserves the right to verify decontamination activities and standards before moving the equipment between properties or before demobilization of a piece of equipment.

8.3.5. Personnel Decontamination

The RC will establish a properly demarcated, HEPA-filtered, 3-stage decontamination trailer or equivalent consisting of an equipment room (dirty room), shower area, and a clean room for personnel decontamination, in accordance with OSHA Standard 29 CFR 1926.1101(g). Personnel decontamination procedures will be posted in the clean and dirty rooms so that personnel may read and take necessary steps to ensure their safety. The RC must perform regular housekeeping duties within all decontamination facility

rooms to ensure and maintain their cleanliness. Documentation of such housekeeping will be posted in the clean room of the decontamination facility and made available to USACE upon request.

The RC will provide a first aid station, fire extinguishers of proper size and type for use in Landfill operations, fencing, traffic signs, traffic tape, and all sundries for the use in Landfill operations.

The RC will use potable water for all personnel decontamination, in accordance with OSHA Standard 29 CFR 1910.141(b)(1)(i). All potable water delivery systems must be disinfected on a regular schedule, with greater frequency during the summer months. The RC must include disinfection of its potable water systems on the weekly schedule. Documentation of potable water equipment inspections and disinfections must be maintained by the RC, made visible to personnel using a particular water source, and provided to USACE upon request.

8.3.6. Decontamination Pad Maintenance and Inspection

The RC will periodically clean-out sediment and water from the decontamination pad sumps. Wastewater and sediment derived from the cleaning activities will be disposed of at the active Landfill cell. QC and TQA will determine the cleanliness of the decontamination pad prior to re-use.

8.3.7. Water Use and Supply

The RC is responsible for supplying an adequate quantity and source of water for Landfill operations.

The RC will use water from a USACE approved source for vehicle and equipment decontamination activities. No water source is present at the Landfill site. Water will be stored in a storage tank of appropriate size so as not to disrupt Landfill operations.

Water used for use at the Landfill in decontamination activities will be periodically sampled for the presence of LA by TQA as detailed in the *Response Action Sampling and Analysis Plan* (CDM 2011b, or its current revision). Water not meeting project standards, regardless of the source, will be rejected for project use. Landfill operations will cease until the matter is corrected to project standards.

8.3.8. Decontamination Derived Waste Water

The RC will ensure that all waste water from decontamination activities will be controlled in a manner so that it is contained prior to disposal at the active disposal site. In the event that the QC or TQA observes an uncontrolled release of decon-water, the RC will correct the matter immediately.

8.3.9. Spill Prevention Measures

The RC will control the release of pollutants derived from the lubrication, repair, maintenance, or accidental release from equipment or vehicles at the Landfill. The RC will not allow pollutants (e.g. hazardous chemical, oils, fuels, etc.) to enter the soil, surface water, or groundwater at the Landfill. The RC will comply with all applicable federal, state, and local regulations regarding the pollution of soils, surface water, and groundwater. Special measures, with approval from USACE, may be implemented to prevent chemicals, fuels, oils, greases, and other materials from entering public waters.

8.3.10. Dust Control Procedures

The RC will implement dust control measures to maintain haul and disposal roads within the confines of the designated asbestos cell free from detectable and visible dust emissions at all times. The RC will use water or the application of a chemical (non-water) dust suppressant for use as required. The use of a chemical dust suppressant will be used only after approval from the USACE.

8.4 Waste Disposal Operations

8.4.1. Vacuum Units and Roll-off Vacuum Boxes

After entering the Landfill, vacuum units and vacuum boxes will be placed in the misting tent. The dumping of waste stored in vacuum units and vacuum boxes will occur inside the misting tent. Waste will be dumped into the 3-sided concrete loading bin within the misting tent, located on the unloading ramp. The RC will activate the misting system within the tent during all off-loading activities inside the tent. Care will be taken to minimize the amount of waste material that becomes airborne.

After the vacuum unit or vacuum box has been dumped, the RC will transport the waste into the asbestos cell using the appropriate equipment.

8.4.2. Dump Trucks

Dump trucks or dump trailers with double-bagged ACM, demolition debris, and/or small amounts of asbestos containing soil will proceed directly to the working face of the asbestos cell and bypass the misting tent. The RC will implement dust-control measures during this operation.

8.4.3. Temporarily Stored ACM

The RC may temporarily store ACM outside of the Landfill perimeter. Properly bagged ACM will be placed in a roll-off box or stored in a designated location. The roll-off box or designated location will be properly marked according to OSHA regulations. Properly bagged ACM may also be stored in the misting tent awaiting the next landfill event.

8.4.4. Cover Material

Prior to placement of cover material, equipment will undergo decontamination to remove gross material from the exterior of the machine.

The RC will use appropriate equipment for the placement, compaction, and distribution of waste. Waste will be distributed in uniform, compressible lifts. RC will perform due diligence to keep lifts to less than 3 ft. in depth, when possible, prior to the placement of cover material. Cover material will be placed at a minimum of once per day per dump event at minimum thickness of 12”. Placement will be performed in a uniform manner to prevent sinking and allow landfill equipment and haul vehicles to enter the disposal area for future operations. No waste material will be left exposed overnight.

Cover material volumes will be calculated and documented by survey control of cover material stockpiles. Total landfill waste placement and USACE tipping fee liability will be determined by survey methods where cover material fill volumes are subtracted from total fill volumes to arrive at placed waste volumes.

8.5 Waste Shipment Records

All materials transported for disposal to the Landfill site will be accompanied by a WSR that will contain information as follows:

- Property address (E911) and AD number from the site where the material originates
- RC name, telephone number and mailing address
- Waste disposal site information (i.e., Lincoln County Landfill)

- Name and address of responsible agency (EPA, USACE, or MDEQ)
- Description of materials and quantity
- Applicable handling instructions
- Name and signature of RC person at the removal site
- Transporter name and signature
- Disposal site operator or QC name and signature

Materials hauled to the Landfill by the RC without an appropriate WSR will be rejected for disposal until the WSR is properly submitted. WSRs will be retained by the Landfill QCR until the end of the day when the records will be delivered to the CMT.

The conversion rate of bags of ACM to CY used for the purpose of documentation of is 10:1.

8.6 Site Security

The RC will provide security at the Landfill entrance during all operational hours. The RC will ensure that the Landfill is properly locked daily upon completion of Landfill activities.

9.0 References

CDM. 2010a. Environmental Resource Specialist Plan Libby Asbestos Site, Operable Unit 4. May.

CDM. 2011 Comprehensive Accident Prevention Plan, Libby, Montana. Revision 0, May.

CDM. 2011a. Libby Asbestos Superfund Site Operable Unit 3 Soil Disposal Plan. June.

CDM. 2011b. Response Action Sampling and Analysis Plan. June.

CDM. 2011c. Fill Material Sampling Technical Memorandum, Libby Asbestos Site. June.

CDM Smith. 2013. General Property Investigation Sampling and Analysis Plan/Quality Assurance Project Plan, Libby Asbestos Site, Operable Unit 4. April.

EPA. 2003. Draft Final Residential/Commercial Cleanup Action Level and Clearance Criteria Technical Memorandum, Libby Asbestos Project. December 15.

PRI. 2012. Accident and Prevention Plan. June.

USACE. 2008. EM 385-1-1 Safety and Health Requirements Manual. September

APPENDIX A

RAWP MODIFICATIONS

Record of Modification

to the

Response Action Work Plan (RAWP) Revision 6.0

Modification Number: 050114-01

Date: 5-1-14

Section to be Modified: 6.3.1 Mutual Compromise

6.3.1 Mutual Compromise

Any agreement made with the property owner where the property owner gives up restoration or compensation in one area for an increase ~~in another, a practice referred to as "horse-trading,"~~ of lesser or equal value, in another must be approved by a government representative. Approval must be indicated by a government representative's signature on the site-specific work plan.

	Signature	Name	Date
EPA Approval:		Mike Cirian, PE	5-12-14
USACE Approval:	Digitally signed by WOSCYNA.LAWRENCE.J.1228855541 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=WOSCYNA.LAWRENCE.J.1228855541	Lawrence J. Woscyna	5/8/14
A&E Approval:		THOMAS E COOK	5/2/14
RC Approval:		CHUCK JACKSON	5-2-2014

Record of Modification

to the

Response Action Work Plan (RAWP) Revision 6.0

Modification Number: 050214-01

Date: 5-2-14

Section to be Modified: **5.2 Pre-Worksite Activities** (paragraph 3)

Upon completion of the removal and restoration drawings, ~~and prior to finalizing the drawings~~ the CIC will coordinate an onsite, PRECON. The PRECON attendees ~~are to~~ may include the CIC, ~~excavation and restoration~~ Site Superintendent, Foreman, TQA, SSHO, QCR, USACE, and others deemed necessary. The property owner shall be advised of the meeting and provided the opportunity to attend. The CIC will record any questions that might arise and information provided by the property owner during the meetings and coordinate with the appropriate parties to resolve questions and recommendations. The CIC will ~~provide~~ incorporate the USACE approved modifications ~~to the drafting team for inclusion~~ into the final site-specific documents.

	Signature	Name	Date
EPA Approval:		Mike Cirian, PE	5-12-14
USACE Approval:	Digitally signed by WOSCYNA.LAWRENCE.J.1228855541 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=WOSCYNA.LAWRENCE.J.1228855541	Lawrence J. Woscyna	5/8/14
A&E Approval:		DAMON Repine	5-7-2014
RC Approval:		CHUCK JACKSON	5-5-2014

Record of Modification
to the
Response Action Work Plan (RAWP) Revision 6.0

Modification Number: 052914-03
(six-digit date code – sequential number)

Date: 05/29/2014

Section to be Modified:

4.7 Vermiculite and ACS Removal from Secondary Buildings and Structures

4.7.1 Definitions

~~Secondary buildings are defined by having four walls and a roof, a fully enclosed design, and designed for continued human occupancy. Examples of secondary buildings may include, but are not limited to, garages, shops, and barns.~~

~~Secondary structures are defined by being designed to be open or by being small and/or mobile (not large enough for human entry). Examples of secondary structures may include, but are not limited to, sheds, enclosed lean-tos, pump houses, carports, open lean-tos, dog houses, or other small animal housing.~~

Secondary buildings and secondary structures are fully defined in CDM-Libby-06 Site-specific Procedure for Semi-Quantitative Visual Estimation of Vermiculite. This procedure is provided in Appendix B of the *General Property Investigation Quality Assurance Project Plan* (CDM Smith 2014, or current revision).

Once the RC has completed removal of all ~~gross visible vermiculite, all~~ ~~visible vermiculite, and~~ ~~all~~ ACS to planned depth, TQA will be notified to facilitate inspection and collection of confirmation samples. Confirmation sampling will be conducted in accordance with the *Response Action Sampling and Analysis Plan* (CDM 2011b, or current revision).

VCI removals within enclosed secondary structures will follow interior removal process as stated in section four of this document.

Details regarding action levels and clearance criteria are found in the *Libby Asbestos Site Residential/Commercial Cleanup Action Level and Clearance Criteria Technical Memorandum* (EPA 2003) and its revisions. Action levels and clearance criteria are subject to revision by the EPA.

4.7.2Planning and Removal Process

Finished secondary buildings with solid-construction floors (e.g., concrete, wood, etc.) will undergo removal actions similar to a primary building.

Secondary buildings often include unfinished, soil floors. Contaminated soil within a building presents unique removal challenges. In general, removal will be completed with a combination of interior and exterior techniques. The following steps will be followed for addressing the soil floor of a secondary building in which ~~detectable levels of~~ greater than or equal to one percent LA is detected. ~~or vermiculite insulation is present.~~

1. Complete vermiculite insulation removal (attic) in accordance with Section 2
2. Remove and clean or dispose of all items within the building
3. Complete a bulk/gross cleaning of the interior
4. Excavate soil floor to a depth of 6-inches below ground surface (bgs)
5. Contain interior of building (negative pressure enclosure/containment)
6. Detail clean interior of building
7. Collect soil clearance samples
8. Backfill the floor of the excavated area (area will still be considered within the exclusion zone)
9. Return all items back into the structure
10. Collect air clearance samples
11. Remove NPE after clearance has been achieved
12. Complete backfilling, if necessary

If a secondary buildings has only soil contamination with analytical results of less than one percent or trace LA and is called out on the work plan for removal, the removal will follow the process listed above except negative pressure enclosure and final air clearance is not required. Negative pressure enclosure and final air clearance may be conducted at the direction of USACE/EPA.

Soil areas within secondary structures will be treated as normal excavation. No additional cleaning is required. ~~Areas within or under secondary structures are treated as exterior areas. If detectable levels of LA and or visible vermiculite are observed within the soil below a mobile secondary structure, the structure will be moved and the area will be excavated to the depth specified in the site-specific work plan. If analytical results are greater than Trace or co-located trace and vermiculite within the soil floor of a fixed secondary structure, the area will be excavated with the structure in place~~. Negative pressure enclosure and final air clearance will not be required. Due to potential for undermining the foundation, excavation within secondary structures will typically be limited to a minimum of 6-inches bgs. All excavation and restoration will be conducted in accordance with Section 3 and Section 4.

Attach the referenced section to this record. Strike the language to be removed. Underline additions to existing language.

	Signature	Name	Date
EPA Approval:		Michael Cirian	6/24/14
USACE Approval:	Digitally signed by WOSCYNA.LAWRENCE.J.1228855541 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=WOSCYNA.LAWRENCE.J.1228855541	Lawrence J. Woscyna	6/24/14
A&E Approval:		Thomas E. Cook	6-19-14
RC Approval:		CHUCK JACKSON	6-19-14