BASIC REMEDIATION COMPANY
STANDARD OPERATING PROCEDURES
BMI COMMON AREAS
CLARK COUNTY, NEVADA

SOP-12

SURFACE SOIL SAMPLING FOR ASBESTOS

Deleted: December 2008

STANDARD OPERATING PROCEDURES

SOP-12
SURFACE SOIL SAMPLING FOR ASBESTOS

TABLE OF CONTENTS

Deleted: Composite
Field Code Changed
Field Code Changed
Field Code Changed
Field Code Changed
Field Code Changed
Field Code Changed

Deleted: 03
Deleted: 3

Deleted: December 2008

DISCLAIMER

THE FOLLOWING STANDARD OPERATING PROCEDURE PROVIDES GENERAL GUIDANCE FOR BRC CONTRACTORS FOR TECHNICAL ISSUES ADDRESSED DURING ENVIRONMENTAL SITE INVESTIGATION AND REMEDIATION ACTIVITIES. IT IS NOTED, HOWEVER, THAT EACH SITE IS UNIQUE AND THESE GUIDELINES ARE NOT A SUBSTITUTE FOR COMMON SENSE AND GOOD MANAGEMENT PRACTICES BASED ON PROFESSIONAL TRAINING AND EXPERIENCE. IN ADDITION, INDIVIDUAL CONTRACT TERMS MAY AFFECT THE IMPLEMENTATION OF THIS STANDARD OPERATING PROCEDURE. BRC CONTRACTORS RESERVE THE UNRESTRICTED RIGHT TO CHANGE, MODIFY OR NOT APPLY THESE GUIDELINES IN THEIR SOLE, COMPLETE, AND UNRESTRICTED DISCRETION TO MEET CERTAIN CIRCUMSTANCES, CONTRACTUAL REQUIREMENTS, SITE CONDITIONS, OR JOB REQUIREMENTS.

Deleted: *03*

Deleted: *3*

Deleted: December 2008

1.0 SAMPLE COLLECTION PROCEDURES

Each selected sampling location is to serve as the center of a 50 feet by 50 feet sampling grid, which is to be further divided into four quadrant grid squares that are each 25 feet on a side. Samples to be collected for determination of asbestos, silt, and moisture content are to be composites constructed from four component samples with one component collected from a pre-selected, random location from within each of the four grid squares (quadrants) of the sampling grid. The manner in which each sample type is to be collected, prepared, labeled, and packaged is described below.

Surface samples shall be collected by:

1. At each defined (random) location within each of the four grid squares, the surface to be sampled (a square area that is approximately 1 foot on a side) is first to be cleared of vegetation, biological debris, stones, and any construction debris that is obviously non-asbestos containing material [ACM]). Gently hand pick these materials and remove them from the sampling area. If the area to be sampled is heavily vegetated, it may first be cleared using a scythe or other cutting tool;

2. Once cleared, use a clean trowel in a reproducible manner to scrape material from a one-inch depth centered on the identified sampling location, until the trowel is sufficiently full to satisfy Step 3;

3. Gently pour the material from the trowel into a clean Ziploc bag. If the presence of a large piece of debris, rock, or other solid object is picked up by the trowel but is too large to reasonably include within the indicated sample volume (i.e. if it comprises more than one half of the volume of the sample), remove the object, characterize it as potential ACM or non-ACM and note the modification to the sample in the field log. Also, continue filling the sample container to replace the volume removed. If the object is not ACM, it may be discarded. It the object is ACM, it should be separately bagged, labeled, and shipped to the laboratory as an object associated with the particular sample;

4. Combine all four component samples of a particular composite into the same sample Ziploc bag. Once filled, it is important to create an air-tight seal on the sampling container. Thus, be sure to seal the Ziploc bag completely and to test it to be sure that the seal is air tight, then mix the contents of the bag;

5. Place the contents of the Ziploc bag into two 8-ounce jars and seal tightly. Two containers (A/B split) are collected for quality control (QC) purposes; and

6. Prepare the sealed containers for shipment.

Importantly, it is generally unlikely that so much of a 144 square-inch area (demarcated by the template) around a selected sampling location would be comprised of rocks, construction debris,

Deleted: Grab samples for determination of moisture and silt content are to be collected from the center of the overall sampling grid.

Deleted: ¶

Deleted: <#>**Procedure for Collection of Grab Samples for Determination of Moisture and Silt Content** ¶
¶
A minimum of 1 Liter (2 kilogram) of material is to be collected for determination of moisture and silt content. As currently planned, the material from the samples collected are to be sealed in a 1-gallon Ziploc bag. Note: The use of Ziploc bags for soil moisture content samples can result in poor moisture content estimates. It is difficult to verify that the bags are completely sealed and stay sealed. In addition, the bags can be easily punctured. Normally, moisture content samples are placed in plastic or metal containers with tight fitting lids.¶

Deleted: <#>Placing a 12-inch template on the ground so that it is centered over the selected sampling location; ¶
<#>Using a trowel to scope dirt from within the template to a depth of one inch. The material collected is to be placed in a (pre-weighed) 1-gallon Ziploc bag; ¶
<#>Specifically for these samples, once filled, it is important to create an air-tight seal on the sampling container. Thus, be sure to seal the Ziploc bags completely and to test them to be sure that the seal is air tight; and ¶
<#>Weigh (to the nearest 0.2 g), label, and prepare the sealed containers for shipment to the laboratory. ¶
Importantly, it is generally unlikely that so much of a 144 square-inch area … [1]

Deleted: container with a mark indicating a volume of 125 cubic centimeters (cm^3; approximately one-half cup, English units).

Deleted: . Note; be sure that the container indicating the sample volume can be filled from a single trowel scoop.

Deleted: Quantitatively transfer the component sample from the container indicating the sample volume to a clean, pre-weighed sample container and … [2]

Deleted: ;

Deleted: Weigh (to

Deleted: nearest 0.2 gram), label,

Deleted: prepare

Deleted: 3

Deleted: December 2008

or other materials that make collection of a sample impossible. However, in the rare case the sampling is found to be impossible, the sampling location is to be moved 12 inches to the due south and the fact that the sampling location had to be moved is to be noted in the field log. In the remote possibility that sampling at this first-alternate location is also impossible, the sample location may be moved an additional 12-inches due south, as long as this second change is also noted in the field log. Such modifications may be repeated up to four times, if absolutely necessary, until a suitable location for sampling is encountered. However, any such modification of location must only be because more than half of the template area of a previous location is impossible to sample.

2.0 QUALITY CONTROL SAMPLING

Material for QC samples need to be collected in the field, in addition to the project samples already discussed. These are field duplicates.

Deleted: quality control (
Deleted:)
Deleted: composite

2.1 Field Duplicates

Deleted: Composite

At all sampling sites from which a field duplicate is to be collected, a second set of four randomly selected sampling locations (one within each of the four grid squares of the sampling grid) needs to be identified. These locations need to be selected in addition to (and in a manner assuring that they are entirely independent of) the locations originally identified at the same sampling site for the project sample.

Deleted: composite

This second set of random sampling locations is then to be treated as it is for a unique sampling site. Thus, both a set of surface and sub-surface composite samples for the determination of asbestos need to be constructed from samples collected at these locations (for packaging, labeling, and shipment to the laboratory) and a set of surface and sub-surface composite samples for the determination of ACM content need to be collected and processed in the field.

3.0 OTHER PROCEDURES

Following are procedures to be followed for sample labeling, documentation, decontamination, and chain-of-custody.

Deleted: 3

Deleted: December 2008

3.1 Sample Labeling

Each sample to be shipped for laboratory analysis will be labeled with a unique number that will include the sample site identification number, an indication as to whether the sample is a surface or sub-surface sample, an indication as to whether the sample is an original sample or a composite duplicate, an indication of whether the sample is intended for silt/moisture content analysis or asbestos analysis, and the date that the sample is collected. It is thus suggested that sample numbers be constructed with 11 digits as follows:

QQ-YZ-mm-dd-yy

where:

QQ is the two digit code indicating the sampling site from which the sample was collected;

Y is either a 0 or a 1 indicating whether the sample is a project sample or a composite duplicate, respectively;

Z is either an A or an M indicating whether the sample is intended for asbestos or moisture/silt analysis, respectively; and

the last set of digits represents the date in standard format.

3.2 Decontamination of Field Equipment

Prior to use in the field, all sampling equipment (e.g. trowels and templates) will be decontaminated by washing with biodegradable soap, rinsing with asbestos-free water, and drying either with asbestos-free cloth rag or forced air. If forced air is used, it must be High Efficiency Particulate Air (HEPA) filtered to assure that it remains asbestos-free. Sampling equipment will be similarly decontaminated prior to removing it from the site.

Between collections of individual soil samples, sampling equipment may be wiped clean with a clean, asbestos-free cloth rag.

Deleted: 3

Deleted: December 2008

Wash and rinse water will be collected and containerized, and handled with the contractor's decontamination unit wastewater. Any disposable materials used for decontamination (e.g. rags) will be disposed with ACM waste.

3.3 Chain of Custody

The Project Coordinators representative will manage sample handling, transport and storage with appropriate Chain-of-Custody documentation.

3.4 Documentation

The following information will be recorded for each soil sample collected during this project:

1. The sample identifier (including the grid square number and the date that the sample was collected);
2. The times that the sample were collected;
3. The Global Positioning System (GPS) location of the sample;
4. Any required modifications to the location initially selected for sample collection along with the reasons (i.e. the nature of any field obstructions) for needing such modification;
5. any changes or modifications required to the above-indicated procedures for sample collection;
6. relevant observations concerning the condition (presence of vegetation, color and condition of soil, relative apparent moisture content, etc.) of the location from which the sample is collected (to be supplemented with photographs);
7. Documentation of any ACM (size, nature, color, type, etc.) observed at the sample location; and
8. Any other, potentially relevant information concerning the conditions under which the sample is collected (e.g. any required weights or similar information).

Deleted: 3

Page 1: [1] Deleted ERM 8/28/2009 2:42:00 PM

Placing a 12-inch template on the ground so that it is centered over the selected sampling location;

Using a trowel to scope dirt from within the template to a depth of one inch. The material collected is to be placed in a (pre-weighed) 1-gallon Ziploc bag;

Specifically for these samples, once filled, it is important to create an air-tight seal on the sampling container. Thus, be sure to seal the Ziploc bags completely and to test them to be sure that the seal is air tight; and

Weigh (to the nearest 0.2 g), label, and prepare the sealed containers for shipment to the laboratory.

Importantly, it is generally unlikely that so much of a 144 square-inch area (demarcated by the template) around a selected sampling location would be comprised of rocks, construction debris, or other materials that make collection of a sample impossible. However, in the rare case the sampling is found to be impossible, the sampling location is to be moved 12 inches to the due south and the fact that the sampling location had to be moved is to be noted in the field log. In the remote possibility that sampling at this first-alternate location is also impossible, the sample location may be moved an additional 12-inches due south, as long as this second change is also noted in the field log. Such modifications may be repeated up to four times, if absolutely necessary, until a suitable location for sampling is encountered. However, any such modification of location must only be because more than half of the template area of a previous location is impossible to sample.

Procedure for Collection of Composite Samples for Determination of Asbestos

As previously indicated, composites for determination of asbestos are to be constructed by combining material from four component samples each collected from a preselected, random location within one of the four grid squares (quadrants) of the sampling grids:

Page 1: [2] Deleted ERM 8/28/2009 2:42:00 PM

Quantitatively transfer the component sample from the container indicating the sample volume to a clean, pre-weighed sample container and combine