

**BMI COMPLEX CAMU/PLANT SITE
AIR QUALITY MONITORING WORK PLAN
For CAMU Excess Capacity Filling
*Revision 1***

Prepared for:

**BASIC REMEDIATION COMPANY
HENDERSON, NEVADA**



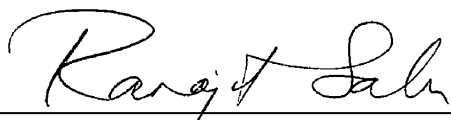
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I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state and local statutes, regulations and ordinances. I hereby certify that all laboratory analytical data was generated by a laboratory certified by the NDEP for each constituent and media presented herein.



1/7/10

Dr. Ranajit Sahu, C.E.M. (No. EM-1699, Exp. 10/07/2010)

Date

BRC Project Manager

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1.0 INTRODUCTION

Basic Remediation Company (BRC) anticipates that it will accept compatible wastes from potential third parties (such as Syngenta, Tronox, or TIMET) into its Corrective Area Management Unit (CAMU) Phases IV and V. This waste is considered compatible since it will be accepted into the CAMU, meeting BRC specifications of the CAMU. This air monitoring work plan will be used to assess any off-site impacts due to such waste placement into the CAMU. Source companies will prepare and implement their own work plans associated with gathering, loading, and hauling activities.

This activity is anticipated to begin in February 2010 and will last for an indeterminate amount of time. The general chemical profile of the waste material that will be received from each facility is known and this work plan proposes to collect air quality data using U.S. Environmental Protection Agency (EPA)-approved and other authoritative methods for all chemicals of concern (COCs) collected during the CAMU excess capacity filling operations. The chemical waste is expected to be received from the Syngenta, Tronox and TIMET facilities. The list of known chemicals for each facility is as follows:

- Syngenta – organochlorine pesticides, semi-volatile organic compounds (SVOCs), volatile organic compounds (VOCs), and metals
- Tronox – SVOCs, VOCs, metals, dioxins, and asbestos
- TIMET – organochlorine pesticides, metals, and dioxins

The purpose of conducting this task is to determine if the waste material placement activities from potential waste sources to the CAMU Phases IV and V are in-fact releasing emissions and consequently impacting the ambient air in the vicinity of the activities. This work plan scope is to collect ambient air samples from two locations, one upwind and one downwind of the CAMU Phases IV and V where the waste material will be deposited. The proposed primary upwind site is located at the southwest corner of the CAMU area, with a secondary location proposed at the southeast corner of the CAMU site. The secondary site has been proposed due to site activities that may limit access to the primary location during the waste material placement. The proposed downwind site is located on the northern-most boundary of the CAMU site. These three locations have been selected due to their location with respect to the waste material storage locations and prevailing wind patterns.

Data collected from the monitoring sites will be used to determine if waste material placement activities are impacting ambient air quality and will be evaluated against the EPA Region 3 risk-based concentrations (RBC) (April 2006), EPA Region 9 preliminary remediation goals (PRG) (October 2004), and EPA Region 6 human health medium-specific screening levels (MSSL) (March 2008). Additionally, an upwind/downwind statistical analysis will be conducted using on-site meteorological data to confirm upwind/downwind locations and corresponding data from each location to evaluate if hauling and placement of waste material are releasing chemical emissions and impacting air quality.

This work plan was initially submitted to the Nevada Division of Environmental Protection (NDEP) on December 18, 2009 and has been revised based on comments submitted by the NDEP to BRC on December 23, 2009. BRC response comments are provided in Appendix A.

2.0 AIR SAMPLING APPROACH

The proposed air quality monitoring will consist of air monitoring upwind and downwind of the CAMU Phases IV and V to evaluate emissions from waste material hauling activities. The proposed air monitoring schedule will be to collect two sets of 24-hour samples twice per week for as many weeks as the waste placement activities continue. If waste placement activities are conducted on a less-than 24-hour schedule, the air sample collection time will be adjusted to conform to the time of waste placement, in order to represent potential exposures during the activities. Each set of samples will be collected and analyzed for organochlorine pesticides, dioxins, volatile organic compounds, total suspended particulate (TSP), particulate metals, and asbestos. Based on the known chemical profile, air monitoring will be conducted that will specifically target each facility. The following methods will be utilized: EPA Compendium Methods TO-4, TO-9, TO-13, IO-3.3, and National Institute of Occupational Safety and Health (NIOSH) Method 7400. Each of the third party's facility chemical profile and associated air monitoring method are presented in Table 1.

TABLE 1
SUMMARY OF THIRD PARTY FACILITY CHEMICAL PROFILE AND ASSOCIATED AIR MONITORING METHOD

Third Party Facility	Associated Chemical Profile	Air Monitoring Method
Syngenta	Organochlorine pesticides	EPA Compendium Method TO-4
	SVOCs	EPA Compendium Method TO-13
	VOCs	EPA Compendium Method TO-13
	Metals	EPA Compendium Method IO-3.3
Tronox	SVOCs	EPA Compendium Method TO-13
	VOCs	EPA Compendium Method TO-13
	Metals	EPA Compendium Method IO-3.3
	Dioxins	EPA Compendium Method TO-9
	Asbestos	NIOSH Method 7400
TIMET	Organochlorine pesticides	EPA Compendium Method TO-4
	Metals	EPA Compendium Method IO-3.3
	Dioxins	EPA Compendium Method TO-9

Notes:

EPA U.S. Environmental Protection Agency
NIOSH National Institute of Occupational Safety and Health
SVOCs Semi-volatile organic compounds
VOCs Volatile organic compounds

2.1 SITE SELECTION AND LOCATIONS

The proposed upwind sites are located at southwest corner (primary) and southeast corner (secondary) of the CAMU area. Primary and secondary locations have been identified due to the potential site access issues. If the primary upwind site becomes inaccessible it will be relocated to the secondary site. The proposed downwind site is located near the northern boundary of the CAMU area. These two locations have been selected due to their location with respect to waste material placement, site access and safety, and prevailing wind patterns.

Each monitoring station will be configured to collect ambient air samples for a continuous sample period whose duration will be consistent with waste placement activities, not to exceed 24-hours for any sampling event.



L. Niell Tetra Tech 12/2009

CAMU Area Air Monitoring Locations

- CWH-01P (Upwind) Primary
- CWH-01S (Upwind) Secondary
- CWH-02 (Downwind)

Source: <http://www.terraserver.com>
 Date of image: March 2009



BMI Complex Henderson, NV

Figure 1

CAMU Area
 Material Waste Hauling
 Air Monitoring Locations

2.2 SAMPLING EQUIPMENT SPECIFICATIONS AND OPERATION

Each of the two identical air-sampling stations will be installed and the sampling equipment at each of the two stations will consist of:

- Three identical polyurethane foam (PUF) hi-volume federal reference method (FRM) samplers designed to collect samples on three PUF cartridges for analysis of organic compounds contained in the U.S. Environmental Protection Agency (EPA) compendium methods TO-4, TO-9 and TO-13
- One portable BGI PQ100 low-volume FRM (PQ100) sampler designed to collect samples on 47mm Teflon filters for analysis of total suspended particulate (TSP) and total particulate metals contained in the U.S. EPA compendium methods IO-3.3 X-Ray Florescence
- One SKC Model 224-PCXR8 (SKC) low-volume sample pump designed to collect samples on mixed cellulose ester (MCE) filters for analysis of asbestos using National Institute for Occupational Safety and Health (NIOSH) Method 7400 for phase contrast microscopy
- One Honda EB 6500 gasoline-powered generators (or equivalent)

Tetra Tech will assemble and calibrate the PUF, PQ100, and SKC air samplers prior to sample collection and after equipment had been serviced or rechargeable batteries have been changed. All samplers will be calibrated using National Institute of Standards and Testing (NIST) or other authoritative reference certified equipment.

As previously described samples will be collected, handled, stored, and analyzed using EPA Compendium Methods TO-4A, TO-9A, TO-13A, I.O. 2.1/3.3, and NIOSH Method 7400. All sample collection and handling will be performed by qualified Tetra Tech air monitoring personnel.

Tetra Tech staff will be on-site for approximately one to two days to install the temporary monitoring stations and program samplers. After the initial sample collection event, Tetra Tech staff will be onsite to remove the samples. This process will be repeated for all collection events over the duration of the sampling period. At the completion of the monitoring effort, Tetra Tech staff will disassemble and remove the stations and all sampling equipment.

Air samples will be collected at the established monitoring stations for the analysis of third party facility chemicals and include: organochlorine pesticides, dioxins, VOCs, SVOCs, TSP, metals, and asbestos

fibers using EPA and NIOSH methods listed above. Field blanks will be collected on a frequency of 10 percent (one in 10 samples) for quality control purposes. Upon completion of each sample event, the samples and associated information will be recorded on chain-of-custody (COC) sheets and submitted to the respective laboratories for analysis. The COC will include the sample identification number, sample location, sample time, beginning and ending flow rate (to calculate sample volume) and the required analysis.

A summary of sample collection, sample handling, and analysis specification procedures is provided in Table 2.

2.3 SAMPLE NOMENCLATURE

All samples collected at the BMI Complex will be given a sample ID according to the sample location and sample date as follows:

- CMH-01P-011810 (where WMH denotes CAMU Material Hauling location, 01 denotes primary upwind site, and 011810 denotes that sample was collected on January 18, 2010)
- CMH-01S-011810 (where WMH denotes CAMU Material Hauling location, 01 denotes secondary upwind site, and 011810 denotes that sample was collected on January 18, 2010)
- CMH-02-011810 (where WMH denotes waste Material Hauling location, 02 denotes downwind site, and 011810 denotes that sample was collected on January 18, 2010)

TABLE 2
BMI COMPLEX CAMU/ PLANT SITE AIR QUALITY MONITORING PARAMETER SUMMARY

Air Quality Analytical Parameter	Equipment Manufacturer/ Model	Air Sample Media	Sample Frequency/ Sample Events	Sample locations	Sample Handling Temperature / hold time	Laboratory/ Analytical Method
Organochlorine Pesticides (TO-4A)	Tisch Environmental/ TE-1000	Polyurethane foam cartridge/102 mm quartz fiber filter	24hr. (or less) cont. sample/twice per week/indeterminate	Upwind/OFF-03 Downwind/OFF-04	<4°C/7 days	Air Toxics Ltd./EPA Method TO-4A
PCDDs/PCDFs (TO-9A)	Tisch Environmental/ TE-1000	Polyurethane foam cartridge/102 mm quartz fiber filter	24hr. (or less) cont. sample/twice per week/indeterminate	Upwind/OFF-03 Downwind/OFF-04	<4°C/7 days	Frontier Ltd./EPA Method TO-9A
VOCs/SVOCs (TO-13A)	Tisch Environmental/ TE-1000	Polyurethane foam cartridge/102 mm quartz fiber filter	24hr. (or less) cont. sample/twice per week/indeterminate	Upwind/OFF-03 Downwind/OFF-04	<4°C/7 days	Air Toxics Ltd./EPA Method TO-13A
TSP/Metals	BGI, Inc./PQ100	47mm Teflon fiber filter	24hr. (or less) cont. sample/twice per week/indeterminate	Upwind/OFF-03 Downwind/OFF-04	None/30 days	Chester Labnet/ EPA Method IO-2.1; EPA Method IO-3.3
Asbestos	SKC, Inc. 224-PCXR8	25mm mixed cellulose ester filter	24hr. (or less) cont. sample/twice per week/indeterminate	Upwind/OFF-03 Downwind/OFF-04	None/N/A	AES Laboratory/ NIOSH 7400

Notes:

<	=	less than	NIOSH	=	National Institute of Safety and Health
°C	=	degree Celsius	N/A	=	not applicable
cont.	=	continuous	OFF-03	=	off-site/upwind location 03
EPA	=	U.S. Environmental Protection Agency	OFF-04	=	off-site/downwind location 04
hr	=	hour			

3.0 SUMMARY OF ANALYTICAL RESULTS

The air quality monitoring data collected will be compared to EPA Region 3 risk-based concentrations (RBC) table (April 2006), EPA Region 9 preliminary remediation goals (PRG) table (October 2004), and EPA Region 6 human health medium-specific screening levels (MSSL) table (March 2008) to determine if ambient concentrations exceed criteria. In most cases the RBC, PRG, and MSSL were either identical or very close in chemical concentration.

3.1 UPWIND AND DOWN WIND ANALYSIS

Tetra Tech has developed an approach for the quantification of upwind versus downwind air quality monitoring data collected during prior air monitoring at the CAMU area. The objective of the upwind/downwind evaluation is to determine and confirm which sample is representative of the upwind location and which sample is representative of the downwind location. The corresponding sample results will be evaluated to determine if downwind concentrations exceed upwind concentrations.

The upwind/downwind evaluation will be conducted using meteorological data and data collected at sites CMH-01P (or CMH-01P) and CMH-02. Meteorological data including wind speed and direction will be measured continuously at the on-site meteorological monitoring station operated by Tetra Tech near the Eastside entrance gate.

The general approach for conducting the upwind/downwind evaluation consists of the following steps:

- Determine predominant wind directions
- Assign upwind/downwind stations
- Compare upwind/downwind results
- Determine those air sample results that exceeded either the RBC or PRG screening criteria
- Conduct a statistical analysis using a parametric (t-test) and nonparametric (Wilcoxon signed-rank test) paired difference tests to determine if downwind concentrations are significantly greater than upwind concentrations

A summary of results will be presented in an air quality data summary report. The report will contain the following information:

- Summary of monitoring activities
- Significant site-related events and sampling anomalies

- Summary of each analytical method used and associated chemical compounds for each of the sample locations
- analytical results and upwind/downwind analysis
- Evaluation of COC concentrations to appropriate RBC, PRG, or MSSL screening criteria

4.0 REFERENCES

- Basic Remediation Company 2006. “*Perimeter Air Monitoring Plan for Soil Remediation Activities, BMI Upper and Lower Ponds and Ditches, Clark County, Nevada.*” August 2006. Revised 2008.
- Occupational Safety and Health Administration. 1994. “*Asbestos and Other Fibers by PCM.*” August 1994
- U.S. EPA 1999. “*Compendium Method TO-4A Determination of Pesticides and Polychlorinated Biphenyls in Ambient Air Using High Volume Polyurethane Foam (PUF) Sampling Followed by Gas Chromatographic/Multi-Detector Detection (GC/MD)*”
- U.S. EPA 1999. “*Compendium Method TO-9A Determination Of Polychlorinated, Polybrominated And Brominated/Chlorinated Dibenzo-p-Dioxins And Dibenzofurans In Ambient Air.*” January 1999.
- U.S. EPA 1999. “*Compendium Method TO-13A Determination of Polycyclic Aromatic Hydrocarbons (PAHs) in Ambient Air Using Gas Chromatography/Mass Spectrometry (GC/MS.*” January 1999.
- U.S. EPA 1999. “*Compendium Method IO-3.3 Determination of Metals in Ambient Particulate Matter Using X-Ray Fluorescence (XRF) Spectroscopy.*” June 1999.

APPENDIX A

NEVADA DIVISION OF ENVIRONMENTAL PROTECTION COMMENTS AND BRC RESPONSES TO COMMENTS

BRC Response to Nevada Division of Environmental Protection Response to:
BMI Complex CAMU / Plant Site Air Quality Monitoring Work Plan For CAMU Excess Capacity Filling
dated December 18, 2009
NDEP Facility ID# H-000688

1. Section 1.0, page 1, please clarify what is meant by compatible waste and how it will be determined what this includes.

Response: Compatible waste is waste that will be accepted into the CAMU, meeting the BRC specifications of the CAMU.

2. Section 1.0, page 1, NDEP disagrees that the chemical waste profiles are unknown. NDEP requests that the revised Deliverable identify the analytical suites at this time for each of the non-BMI entities that may be hauling waste to the BRC CAMU.

Response: The chemical waste is expected to be received from the Syngenta, Tronox and TIMET facilities. The list of known chemicals for each facility is as follows:

- Syngenta – organochlorine pesticides, SVOCs, VOCs, and metals
- Tronox – SVOCs, VOCs, metals, dioxins, and asbestos
- TIMET – organochlorine pesticides, metals, and dioxins

Each of these classes of compounds will be monitored using the following EPA and NIOSH air monitoring methods:

- TO-4 (organochlorine pesticides and VOCs)
- TO-9 (dioxins)
- TO-13 (SVOCs and VOCs)
- I.O. 3.3 (particulate metals)
- NIOSH 7400 (asbestos)

These methods have been used for Phase I (background) and Phase III (A, B, and C), and BMI Industrial Plant Site air monitoring tasks and have proven effective for evaluating off-site impacts from BMI Eastside and CAMU site waste material hauling and placement activities.

The work plan has been revised to include a table presenting the waste material profile, facility it will be received from, and appropriate air monitoring method used to evaluate air quality impacts from hauling and placement operations.

3. Section 2.0, page 3, please change the sentence “If waste placement activities are conducted on a less-than 24-hour schedule, the air sample collection time will be adjusted to conform to the time of waste placement, so as to avoid downward bias of the results due to dilution” to “If waste placement activities are conducted on a less-than 24-hour schedule, the air sample collection

BRC Response to Nevada Division of Environmental Protection Response to:
BMI Complex CAMU / Plant Site Air Quality Monitoring Work Plan For CAMU Excess Capacity
Filling
dated December 18, 2009
NDEP Facility ID# H-000688

time will be adjusted to conform to the time of waste placement, in order to represent potential exposures during the activities.”

Response: Section 2.0, page 3 has been revised to, “If waste placement activities are conducted on a less-than 24-hour schedule, the air sample collection time will be adjusted to conform to the time of waste placement, in order to represent potential exposures during the activities.”