BMI COMPLEX VEHICLE EMISSION MONITORING WORKPLAN

Prepared for:

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1.0 INTRODUCTION

Basic Remediation Company (BRC) tasked Converse Consultants (Converse) and Tetra Tech EM Inc. (Tetra Tech) to complete a vehicle emission monitoring project to evaluate air pollutant emissions from the types of main types of vehicles that travel and transport waste on and between the Eastside and Corrective Area Management Unit (CAMU) areas at Basic Materials Incorporated (BMI) Industrial Complex, located in Henderson, Nevada. This air sampling project is a follow-up workplan associated with air monitoring currently being conducted according to the BRC *Perimeter Air Monitoring Plan* (PAMP) (October 2008) and *Revised Draft BMI Complex Air Quality Monitoring Project – Phase III – Summary of Sampling Approach and Chemicals of Concern at Eastside and CAMU Areas* (Tetra Tech October 2008).

The goal of this air monitoring sub-project is to evaluate pollutant emissions from the following three vehicle types: 1) Diesel-powered Caterpiller, Inc. (Cat) 40-ton haul truck, 2) Diesel-powered John Deere Inc. (John Deere) 40-ton haul truck, and 3) Gasoline-powered passenger truck. The proposed sampling approach is collect one set of approximately 1 to 2-minute "grab" samples from each of the three vehicles during idling. Each set of samples will be collected and analyzed for organochlorine pesticides, dioxins/furans, volatile organic compounds, total suspended particulate (TSP), and metals.

Data from the sampling will be used to verify if vehicle emissions are impacting off-site and perimeter air sampling stations at the Eastside and CAMU areas and once a determination has been made, current air quality monitoring program parameters at the Eastside and CAMU areas may be modified.

2.0 AIR SAMPLING APPROACH

The proposed vehicle emission sampling will consist of collecting samples from a Cat, a John Deere, and a passenger truck that travel on and between the Eastside and CAMU areas of the BMI Complex remediation site. The proposed sampling approach is collect one set of "grab" samples from each of the three vehicles during idle. Due to the temperature of the diesel exhaust, short duration samples of approximately 1 to 2-minutes will be collected for each analytical parameter.

Tetra Tech staff will be on-site for approximately one day to set up and collect the samples. At the completion of the sampling effort, Tetra Tech staff will disassemble and remove the sampling equipment.

2.1 SAMPLING EQUIPMENT SPECIFICATIONS AND OPERATION

Samples will be collected, handled, stored, and analyzed using U.S. Environmental Protection Agency (EPA) Compendium Methods for total organics (TO)-4A TO-9A, TO-13A (all TO methods modified for low volume sampling), and Inorganic Methods I.O. 2.1/3.3. After receipt of laboratory results, Tetra Tech will prepare a technical memorandum of results and findings. The report will be submitted to NDEP within four weeks of receiving all laboratory results. All samples will be submitted to respective laboratories with the standard turn around time (TAT) of 10 working days.

Each sampling system will be configured with the following air sampling equipment and sample media:

- Three identical SKC Inc. low volume sample pumps configured and connected to low-volume Polyurethane Foam (PUF) cartridge configured to collect in-line exhaust samples that will be analyzed for EPA Methods TO-4A, TO-9A, and TO-13A (TO methods modified for low volume sampling)
- One BGI Inc. PQ100 Low-Volume sampler configured to collect in-line exhaust samples for TSP and metals using EPA Methods I.O. 2.3 and 3.3

All samplers will be calibrated and operated according to U.S. Environmental Protection Agency (EPA) guidance, National Institute of Occupational Safety and Health (NIOSH), or Occupational Safety and Health (OSHA) methods. All samplers are outfitted with timers to document sample flow and elapsed time conditions during sample collection.

Air samples will be collected for the analysis of site related chemicals including organochlorine pesticides, Polychlorinated Dibenzo-p-dioxins (PCDDs), Polychlorinated Dibenzo-p-furans (PCDFs), Polychlorinated biphenyls (PCBs), VOCs/SVOCs, TSP, and particulate metals using the EPA methods described above. Field blanks will be collected on a frequency of 10 percent (one in 10 samples) for quality control purposes. Upon completion of the 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 parameter, sample time, beginning and ending flow rate (to calculate sample volume) and the required analysis. A summary of sample collection, sample handling, and analysis specifications procedures is provided in Table 1.

TABLE 1

BMI COMPLEX VEHICLE EMISSION SAMPLING SUMMARY

Analytical Parameter	Equipment Manufacturer/ Model	Sample Media	Sample Duration/Total volume	Sample Handling Temperature/ hold time	Laboratory/ Analytical Method
Organochlorine Pesticides (TO-4A)	SKC Inc./Model 224 PCXR8 low volume pump	Glass low-volume PUF cartridge	Continuous 1-2 minute sample/ approx. 10 L	<4°C/7 days	Air Toxics Ltd./Modified Method TO-4A
PCDDs/PCDFs (TO-9A)	SKC Inc./Model 224 PCXR8 low volume pump	Glass low-volume PUF cartridge	Continuous 1-2minute sample/ approx. 10 L	<4°C/7 days	Frontier Ltd./ Modified Method TO-9A
VOCs/SVOCs (TO-13A)	SKC Inc./Model 224 PCXR8 low volume pump	Glass low-volume PUF cartridge/ Tenax-TA mesh	Continuous 1-2 minute sample/ approx. 10 L	<4°C/7 days	Air Toxics Ltd./ Modified Method TO-13A
TSP/Metals	BGI, Inc./PQ100	47mm Teflon fiber filter	Continuous 1-2 minute sample/ approx. 30 L	None/30 days	Chester Labnet/ Method IO-2.1; Method IO-3.3

Notes:

< = less than
°C = degree Celsius
approx. = approximately
cont. = continuous
hr = hour
mm = millimeter
PUF = polyurethane foam
N/A =not applicable

2.3 SAMPLE NOMENCLATURE

All vehicle exhaust samples collected will be given a sample ID according to the vehicle type and sample date as follows:

- CAT-052109 (where CAT denotes a Caterpillar truck, and 052109 denotes that sample was collected on May 21, 2009)

- JD-052109 (where JD denotes a John Deere truck, and 052109 denotes that sample was collected on May 21, 2009)

- PTK-052109 (where PTK denotes a passenger truck, and 052109 denotes that sample was collected on May 21, 2009)

3.0 SUMMARY OF ANALYTICAL RESULTS

All sample data will be compared to chemical compounds as presented in the PAMP 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). In most cases the RBC, PRG, and MSSL were either identical or very close in chemical concentration.

A summary of results will be presented in a technical memorandum. Each analytical method and associated chemical compounds will be presented for each of the three vehicles and results will be compared to the appropriate screening criteria to determine potential impacts on off-site air monitoring results.

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.

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.