BMI COMPLEX
INDUSTRIAL PLANT SITE
AIR MONITORING SUMMARY REPORT

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 short-term 4-week air sampling project to evaluate air pollutant emissions from the Basic Management Incorporated (BMI) plant sites located at the BMI Industrial Complex, located in Henderson, Nevada. This air sampling project is a follow-up work plan 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 was to evaluate air quality impacts from nearby chemical plants located at the BMI industrial complex. Due to the close proximity of the plants and potential chemically-tainted material stockpiles at these plants, air quality monitoring stations currently operating at the Eastside and Corrective Unit Management Area (CAMU) areas may be impacted by the plant emissions. The purpose of conducting this task is to determine if plant emissions are in-fact impacting air samples collected at the Eastside and CAMU areas. This work plan scope is to collect air samples from two locations, one upwind and one downwind of the plants. The upwind site was located at the Basic Water Company (BWC) reservoirs, approximately 1 mile southeast of the BMI industrial complex. The downwind site was located on the south-west side of Boulder Highway between Warm Springs Road and Water Street. These two locations have been selected due to their location with respect to the plants and prevailing wind patterns. In addition, the proposed downwind location was set away from the BMI haul roads and city streets to minimize these impacts.

Data from air sampling was used to verify if in-fact plant emissions are impacting the Eastside and CAMU area air monitoring results. The data collected during this air monitoring project show the following general data characteristics with respect to air quality emissions near the BMI Complex Industrial Plant Sites:

1. Cobalt was detected in 4 out of 8 upwind air samples; no detections were recorded in the downwind samples.
2. Cadmium was detected in all samples at levels above screening criteria with minimal differences between upwind and downwind samples (average difference of 0.003 $\mu g/m^3$)

3. Alpha-BHC was detected in 4 out of 8 downwind samples; all detections were above screening criteria
4. Dioxins/Furans were detected in all 8 samples; Toxic equivalent values (TEQs) were significantly higher at the downwind site; 7 out of 8 downwind samples exceeded screening criteria.
5. No other chemicals of concern (COCs) were detected in measureable concentrations at typically more than 1 detection at either the upwind or downwind site.

Tetra Tech set up the two temporary air-monitoring stations at the upwind and downwind sites and collected air samples for 8 sample events over a 4-week period from June 17, through July 9, 2009. Equipment was set up at each of the stations to collect ambient air samples over a ten hour (hr) period from approximately 7:00 A.M. to 5:00 P.M. In addition, meteorological data was collected during each sample event.

The sampling parameters were based on 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) reviewed and approved by the Nevada Division of Environmental Protection (NDEP). Two identical air-sampling stations were constructed and the sampling equipment at each site of the sites consisted of the following:

- 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 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)

This report summarizes sample collection, analyses methodology, and analytical data collected for the 8 sample events from June 17, through July 10, 2009. Sampling approach, methodology, and summary of activities are presented in Section 2.0. The upwind/downwind analysis is presented in Section 3.0. The analytical data results are presented in Section 4.0. Copies of field documentation sheets are provided in

Appendix A; laboratory analytical data reports are provided in Appendix B (on CD); calibration and sample volume calculation worksheets are provided in Appendix C; a CD containing an electronic copy of the report and tables is provided in Appendix D.

2.0 SAMPLING APPROACH

Air quality monitoring consisted of air monitoring upwind and downwind of the BMI Complex Industrial Plant Sites to evaluate plant emissions. The air monitoring schedule resulted in two sets of 10-hour samples twice per week for 4 weeks, resulting in 16 total air samples. Each set of samples was collected and analyzed for organochlorine pesticides, dioxins/furans, volatile organic compounds, total suspended particulate (TSP), metals, and asbestos using methods described above. The 16 sets of air samples consisted of 8 pairs of upwind and downwind samples.

2.1 SITE SELECTION AND LOCATIONS

The upwind site was located at the Basic Water Company reservoir approximately 1 mile southeast of the BMI industrial complex. The downwind site was located on the south-west side of Boulder Highway between Warm Springs Road and Water Street. These two locations were selected based on their location with respect to the plants and prevailing wind patterns. In addition, the proposed downwind location was set away from the BMI haul roads and city streets to minimize those impacts. The air monitoring station locations are presented in Figure 1.

Quality assurance samples were also collected and consisted of one trip blank sample to be analyzed for all analytical parameters discussed above.

2.2 SAMPLING EQUIPMENT CALIBRATION AND OPERATION

Tetra Tech assembled and calibrated the PUF, PQ100, and SKC air samplers prior to sample collection and after equipment had been serviced (battery changes). All samplers were calibrated using National Institute of Standards and Testing (NIST) or other authoritative reference certified equipment.

The initial calibrations on the PUF, BGI PQ100, and SKC samplers only required minor adjustments to set correct flow rates, but no major adjustments or equipment failures were observed. All equipment was checked again before sample collection began to ensure the correct flow rate(s) and timer operation. Copies of the BMI Complex air sample field documentation sheets are provided in Appendix A.

Tetra Tech performed all calibrations according to EPA reference methods and all equipment was found to be within the calibration acceptance criteria prior to sample collection and equipment was operating within project goals. Equipment calibration and sample volume calculation worksheets are provided in Appendix C.

All downwind PUF samplers were powered by portable gas-powered generators and upwind PUF sampler were powered by AC power for each sample event. Samplers were set up and programmed at each station prior to sampling. Each station consisted of a sampling platform and air samplers were secured to the platforms during the sample events. The sampling approach proposed by BRC and Tetra Tech and approved by NDEP was to collect 10-hr samples twice per week from approximately 7:00 A.M. to 5:00 P.M. to collect 8 events over a 4-week period.

The first sample event occurred on June 17, 2009 and sampling continued through July 9, 2009. All sample parameters were documented on BMI Complex air sample field documentation sheets before and after each sample event. In total, 8 sample events were completed on the following dates:

- June 17, 18, 23, 25, and 30, 2009
- July 2, 7, and 9, 2009

2.3 SAMPLE NOMENCLATURE

All samples collected at the upwind and downwind sites were given a sample ID according to the sample location and sample date as follows:

- OFF03-061709 (where OFF03 denotes upwind/BWC reservoir site location, and 061709 denotes that sample was collected on June 17, 2009)
- OFF04-061709 (where OFF04 denotes downwind/plant site location, and 061709 denotes that sample was collected on June 17, 2009)

This sample nomenclature was used for all samples and allows the reader to easily identify the location and date of the sample collection parameters.

2.4 SAMPLE PARAMETERS

Air samples were collected at the established monitoring stations 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, metals, and asbestos

fibers. Upon completion of each sample event, the samples and associated information was recorded on field documentation sheets and subsequently transcribed to chain-of-custody (COC) sheets which were submitted with samples to the respective laboratories for analysis. The COC included the sample identification number, sample location, sample time, beginning and ending flow rate (to calculate sample volume) and the required analysis. For all samples collected at the upwind and downwind sites, field blanks were collected on a frequency of 10 percent (one in 10 samples) for quality control purposes. The sampling and analysis procedures are summarized below. In addition, a summary of sample collection, sample handling, and analysis specifications procedures is provided in Table 1.

2.4.1 ORGANIC COMPOUNDS

At each sampling station, three PUF samplers were used to collect PUF samples for the analysis of organochlorine pesticides, PCDDs, PCDFs, PCBs, and VOCs/SVOCs using EPA Compendium Methods TO-4, TO-9, and TO-13. The PUF samplers draw approximately 0.2 cubic meters per minute of ambient air onto a 102 millimeter (mm) diameter quartz glass filter followed by a polyurethane foam plug and XAD resin contained in a glass cartridge. The TO-9 and TO-13 samples were analyzed using gas chromatography and mass spectrometry (GC/MS) and the TO-4 samples were analyzed using GC/Multi-Detector Detection (GC/MD). All PUF (organic) samples were submitted with COC form(s) to Air Toxics Ltd. Laboratory and Frontier Ltd. Laboratory for analysis. A summary of sample collection, sample handling, and analysis specifications procedures is provided in Table 1.

2.4.2 TOTAL SUSPENDED PARTICULATE MATTER AND METALS

At each sampling station, one PQ100 sampler was used to collect samples for TSP and metals. The PQ100 sampler draws approximately 0.0167 cubic meters per minute (approximately 10 total cubic meters) of ambient air onto the filter media. The TSP and metals samples were collected using 47 mm Teflon filter media and analyzed using USEPA Compendium Method IO-2.1 (gravimetric analysis). The TSP samples underwent additional analysis for metals using USEPA Compendium Method IO-3.3 X-Ray Fluorescence (Protocol number 6). All TSP and metals samples were submitted with COC form(s) to Chester Labnet Laboratory for analysis. A summary of sample collection, sample handling, and analysis specifications procedures is provided in Table 1.

2.4.3 ASBESTOS

At each sampling location, one SKC low volume sampler was used to collect samples for asbestos analysis using NIOSH Method 7400. The sampling system consisted of a low-flow pump attached to a 25-millimeter MCE filter. The SKC samplers draw approximately 1 liter per minute (lpm) (approximately 720 total liters) of ambient air onto the MCE filter. The samples were analyzed using NIOSH Method 7400 (Phase Contrast Light Microscopy). All asbestos samples were submitted with COC form(s) to AESL Laboratory for analysis. A summary of sample collection, sample handling, and analysis specifications procedures is provided in Table 1.

2.5 SIGNIFICANT SITE-RELATED EVENTS AND SAMPLING ANOMALIES

During the implementation of the off-site/plant site air monitoring program, one sample anomaly was recorded by Tetra Tech personnel and was documented on field documentation sheets as follows:

- The TO-4 sample at site OFF04 on June 18, 2009 was not collected due to an incorrect sample cassette supplied by Air Toxics, Inc.

3.0 WIND DATA ANALYSIS

Tetra Tech developed an approach for the analysis of the upwind and downwind air quality monitoring data collected during this air monitoring project. The objective of the downwind data analysis was to evaluate if the downwind/BMI Plant air monitoring station was in-fact downwind of the plants. The distance of the upwind site from the BMI Complex in conjunction with the prevailing wind patterns allocates this site to serve as an upwind or background site and will be confirmed using meteorological data. These analyses were performed with a meteorological dataset of 8 sample events and meteorological conditions measured during the sample events from June 17 through July 9, 2009 are presented in Table 2.

3.1 METEOROLOGICAL DATA SUMMARY

The upwind/downwind analysis was conducted using meteorological data and COC data collected at sites OFF03, and OFF04. Meteorological data including wind speed and direction were measured continuously at the on-site meteorological monitoring station operated by Tetra Tech near the Eastside entrance gate.

3.2 APPROACH

The general approach for conducting the upwind/downwind analysis for the BMI Complex Industrial Plant Site air monitoring consists of the following steps:

- Determine predominant/average wind directions
- Verify that background/upwind stations is in-fact upwind
- Determine if average wind direction is within the southwest quadrant (180 – 270 degrees) and downwind station is in-fact downwind of the BMI Complex Industrial Plant Sites
- Compare upwind/downwind results
- Determine those air sample results that exceeded either the RBC or PRG screening criteria
-

3.3 ASSIGN UPWIND/DOWNWIND STATIONS

Meteorological data was recorded for the duration of the four week sample event and the prevailing wind direction was generally from the southwest and southeast. A summary of meteorological data during the sample events is presented in Table 2.

3.5 COMPARE UPWIND/DOWNWIND RESULTS

To meet objectives the upwind concentrations were confirmed to be in-fact upwind and the downwind concentrations were compared to sample events when site OFF04 was directly downwind or crosswind of the plant sites. Those sample events identified as directly downwind were June 17 and 18, 2009 and July 2 and 7, 2009 (4 total events). Sample events identified as crosswind to the BMI Complex Industrial Plant Sites were identified as June 23, 25, and 30, 2009 and July 9, 2009 (4 total events). These two subsets of downwind classifications will be analyzed to verify if any trends exists with respect to ambient air concentration of COCs.

4.0 ANALYTICAL RESULTS

All air quality sample data was 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 exceeded criteria. In most cases the RBC, PRG, and MSSL were either identical or very close in chemical concentration.

The sample results demonstrate that TSP, metals, and airborne asbestos fibers were detected. However, the majority of organic (PUF) compounds were not detected in measurable concentrations. Those COCs warranting further discussion are presented below.

Differences in chemical concentration (upwind-downwind) were also evaluated (where appropriate) for all samples and a summary of laboratory and statistical comparisons for each subset of COCs is provided below.

4.1 TSP AND METALS RESULTS

TSP was detected in all upwind samples and concentrations ranged from 11.4 µg/m^3 to 47.2 µg/m^3. The average upwind concentration was 20.69 µg/m^3. TSP was also detected in all downwind samples and concentrations ranged from 13.3 µg/m^3 to 115.2 µg/m^3. The average downwind concentration was 38.2 µg/m^3. An analysis of the average difference between the upwind and downwind site demonstrated an average difference of 17.6 µg/m^3. The two highest downwind TSP concentrations occurred on June 23 and June 25, 2009 and site OFF04 during these sample events was designated as crosswind from the BMI Complex Industrial Plant Sites. This does not demonstrate a strong correlation with TSP emissions from the BMI Complex Industrial Plant Sites. It should be noted that site OFF04 was located near the Titanium Metals, Inc. (TIMET) east fence line and fugitive dust emissions from nearby access roads could be impacting the TSP results. No screening criteria or federal standards currently exist for TSP, but the PAMP action level is 50 µg/m^3. Therefore, an average increase of 17.6 µg/m^3 is not overly concerning. A complete summary and statistical analysis of all TSP results are presented in Table 3 (Excel file on CD).

Metals were detected in a majority of the upwind and downwind TSP samples and concentrations were reported with an uncertainty of plus/minus 3 standard deviations. The XRF detection method identifies concentrations in extremely low concentration ranges (of less than 0.001 µg/m^3)**.** The results were compared to the RBC, PRG, and MSSL screening criterion (of those available) and four metals exceeded the criterion: Magnesium, Cobalt, Arsenic, and Cadmium. Over the duration of air quality monitoring at the various locations at the Eastside and CAMU areas, these four metals are almost always present in upwind and downwind samples at concentrations above screening criteria. Therefore, the results as presented here take into account the overwhelming presence of these metals and evidence that suggests they exist as background or from emissions at the BMI Complex Industrial Plant Sites without the influence of the BMI Complex excavation activities or material handling.

Upwind Manganese concentrations ranged from 0.0014 µg/m^3 to 0.0847 µg/m^3 and the average upwind concentration was 0.0288 µg/m^3. Downwind Manganese concentrations ranged from 0.0084 µg/m^3 to 0.5601 µg/m^3 and the average downwind concentration was 0.1972 µg/m^3, an average increase of 0.168 µg/m^3 over upwind samples. The Manganese PRG and MMSL of 0.051 µg/m^3 (RBC of 0.052 µg/m^3) was exceeded by 2 upwind samples and 5 downwind samples**.** All downwind air sample concentrations exceeded upwind samples and in several cases significantly. The two highest downwind manganese concentrations occurred on July 7 and June 3, 2009 and site OFF04 during these sample events were designated as directly downwind and crosswind of the BMI Complex Industrial Plant Sites, respectively. The consistent increase in downwind concentrations and wind data does provide tangible evidence that Manganese emissions from the BMI Complex Industrial Plant Sites are impacting the downwind samples. A complete summary and statistical analysis of all Manganese results are presented in Table 3 (Excel file on CD).

Upwind Cobalt concentrations ranged from 0.0011 µg/m^3 to 0.0041 µg/m^3 and the average upwind concentration was 0.0021 µg/m^3. All Downwind Cobalt samples were below detection limit. The Cobalt PRG and MMSL of 0.001 µg/m^3 was exceeded by 4 upwind samples**.** The fact that all downwind samples were below detection limit and 4 out of 8 upwind sample events had detections above the screening criteria makes a compelling argument that ambient air concentrations of Cobalt are a result of background sources in the Henderson area. Furthermore, the two highest upwind Cobalt concentrations occurred on July 2 and 7, 2009 when winds were out of the southeast and southwest, in the opposite direction of the BMI Complex Industrial Plant Sites. A complete summary and statistical analysis of all Cobalt results are presented in Table 3 (Excel file on CD).

Upwind Arsenic concentrations ranged from 0.0001 µg/m^3 to 0.001 µg/m^3 and the average upwind concentration was 0.0005 µg/m^3. The downwind site only recorded one detection for Arsenic of 0.0016 µg/m^3. The Arsenic PRG and MMSL of 0.00041 µg/m^3 (RBC of 0.052 µg/m^3) was only exceeded by 2 samples – both during the same sample event on June 17, 2009**.** 4 out of 8 sample events recorded Arsenic concentrations at the upwind site. The fact that Arsenic was detected in only one downwind sample and 4 out of 8 upwind sample events had detections (one above the screening criteria) makes an argument that ambient air concentrations of Arsenic may be a result of background sources in the Henderson area. A complete summary and statistical analysis of all Arsenic results are presented in Table 3 (and Excel file on CD).

Upwind Cadmium concentrations ranged from 0.0002 µg/m^3 to 0.0149µg/m^3 and the average upwind concentration was 0.0064 µg/m^3. Downwind Cadmium concentrations ranged from 0.0050 µg/m^3 to 0.0162µg/m^3 and the average downwind concentration was 0.0098 µg/m^3, an average increase of 0.003 µg/m^3 over upwind samples. The Cadmium RBC, PRG, and MMSL of 0.001 µg/m^3 was exceeded by all downwind samples and 6 out of 7 upwind samples and at 7 out of 8 sample events. The only sample event without detections occurred on July 9, 2009 with both upwind and downwind samples below detection limit. All 8 sample events had similar upwind and downwind Cadmium concentrations suggesting that Cadmium concentrations were possibly a result of background source in the Henderson area and also may be impacted from emissions at the BMI Complex Industrial Plant Sites. A complete summary and statistical analysis of all Cadmium results are presented in Table 3 (Excel file on CD).

It must be noted that a majority of the Manganese, Cobalt, Arsenic, and Cadmium concentrations were reported at less than three times the XRF analytical uncertainty and have been flagged.

4.2 ORGANIC COMPOUND RESULTS

Only two out of twenty seven Organochlorine pesticides (TO-4) chemical compounds were detected above laboratory detection limits and included alpha-BHC and gamma-BHC (Lindane) Alpha-BHC was detected in 2 out of 8 upwind samples and 2 out of 8 downwind samples. Gamma-BHC (Lindane) was detected in 1 out of 8 upwind samples and 2 out of 8 downwind samples. The detection limit for all alpha-BHC samples was above the RBC, PRG, and MMSL screening criteria of 0.001 µg/m^3, so all four samples exceeded the criteria. None of the 3 gamma-BHC detections were above the RBC screening

criteria of 0.0048 µg/m^3 samples. The distinct lack of detection makes a compelling argument that Alpha-BHC and gamma-BHC concentrations were not a result of background or BMI Complex Industrial Plant Site emissions. A complete summary and statistical analysis of Organochlorine pesticides (TO-4) results are presented in Table 3 (and Excel file on CD).

Twenty five PCDDs/PCDFS (TO-9) chemical compounds were detected above laboratory detection limits, ranging from 0.0091 picograms (pg)/m^3 (0.0000000091 µg/m^3) to 11.90pg/m^3 (0.000019 µg/m^3). The total toxic equivalent value (TEQ) was calculated from toxicity equivalence factors (World Health Organization 2005) for each of the upwind and downwind samples and compared to the 2,3,7,8-TCDD screening value of 0.045 pg/m^3**.** The upwind versus downwind statistical analysis completed for the PCDDs/PCDFS data appears to show a consistent increase in concentrations from upwind to downwind. Only 2 out of 8 upwind samples exceeded the TEQ screening criteria; yet 7 out of 8 downwind samples exceeded the TEQ screening criteria. TEQ downwind concentrations had an average increase of 0.028 pg/m^3 with all downwind samples having higher concentrations than respective upwind samples. The consistent increase in downwind concentrations and wind data does provide tangible evidence that TEQ concentrations were a result of BMI Complex Industrial Plant Site emissions. A complete summary and statistical analysis of all PCDDs/PCDFS (TO-9) results are presented in Table 3 (Excel file on CD).

Seven VOCs/SVOCs (TO-13) chemical compounds were detected above laboratory detection limits. Of the seven detected compounds, only one compound exceeded RBC, PRG, or MSSL screening criteria and included Hexachlorobenzene during one sample event on July 2, 2009. All remaining six compounds (Benzoic Acid, Naphthalene, 2-Methyl naphthalene, Phenanthrene, bis(2-Ethylhexyl) phthalate, and Di-n-Butylphthalate) were all well below and screening criteria and with the exception of Di-n-Butylphthalate, all samples were detected on a limited number of upwind and downwind samples (typically 2 or less detections). Based on the factors presented above and a comprehensive data review it cannot be concluded VOCs/SVOCs concentrations were a result of background or BMI Complex Industrial Plant Site emissions. A complete summary and statistical analysis of all VOC/SVOC results are presented in Table 3 (Excel file on CD).

4.3 ASBESTOS RESULTS

The asbestos samples were analyzed using NIOSH Method 7400 PCM. The PCM method gives a number index of airborne fibers. It is primarily used for estimating asbestos concentrations, though PCM

does not differentiate between asbestos and other fibers. Asbestos fibers include chrysotile, cummingtonite-grunerite asbestos (amosite), anthophyllite asbestos, tremolite asbestos, crocidolite, and actinolite asbestos and any of these minerals which have been chemically treated or altered. The precise chemical formulation of each species varies with the location from which it was mined. Therefore, the use of PCM is a generally accepted method for screening airborne fibers. The Occupational Safety and Health Administration (OSHA) has set an exposure limit of 0.1 fiber per cubic centimeter (cc) of air as an 8-hour time-weighted average (TWA) and a limit of 1.0 fiber per cc averaged over a sampling period of thirty (30) minutes.

The upwind asbestos samples ranged in concentration from 0.0013 fibers per cc to 0.0093 fibers per cc and the average upwind concentration was 0.0049 fibers per cc. The downwind asbestos samples ranged in concentration from 0.0026 fibers per cc to 0.0082 fibers per cc and the average downwind concentration was 0.0053 fibers per cc. The average increase in asbestos concentrations from upwind to downwind was 0.000 fibers per cc. The OSHA TWA limit of 0.1 fibers per cc was not exceeded in any samples. Based on the factors presented above and a comprehensive data review it cannot be concluded asbestos concentrations were a result of background or BMI Complex Industrial Plant Site emissions. A complete summary of all asbestos results are presented in Table 3 (Excel file on CD).

5.0 REFERENCES

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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

FIELD DOCUMENTATION FORMS

APPENDIX B

LABORATORY ANALYTICAL RESULTS AND ECVP REPORTS

(ON CD)

APPENDIX C

CALIBRATION AND SAMPLE VOLUME CALCULATION WORKSHEETS

APPENDIX D

CD CONTAINING ELECTRONIC COPY OF APPENDIX B, TABLE 3, AND COMPLETE REPORT

FIGURES

FIGURE 1 INSERTED HERE

TABLES

TABLE 1

SAMPLE COLLECTION SAMPLE HANDLING AND ANALYSIS SPECIFICATIONS FOR BMI COMPLEX INDUSTRIAL PLANT SITE

AIR MONITORING STATIONS

HENDERSON, NEVADA

Analytical Parameter	Equipment Manufacturer/ Model	Sample Media	Sample Frequency/ Sample Events	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. cont. sample/every 3 days/10 events	<4°C/7 days	Air Toxics Ltd./Method TO-4A
PCDDs/PCDFs (TO-9A)	Tisch Environmental/ TE-1000	Polyurethane foam cartridge/102 mm quartz fiber filter	24hr. cont. sample/every 3 days/10 events	<4°C/7 days	Frontier Ltd./Method TO-9A
VOCs/SVOCs (TO-13A)	Tisch Environmental/ TE-1000	Polyurethane foam cartridge/102 mm quartz fiber filter	24hr. cont. sample/every 3 days/10 events	<4°C/7 days	Air Toxics Ltd./Method TO-13A
TSP/Metals	BGI, Inc./PQ100	47mm Teflon fiber filter	24hr. cont. sample/every 3 days/10 events	None/30 days	Chester Labnet/ Method IO-2.1; Method IO-3.3
Asbestos	SKC, Inc. 224-PCXR8	25mm mixed cellulose ester filter	24hr. cont. sample/every 3 days/10 events	None/N/A	AES Laboratory/ NIOSH 7400

Notes:

< = less than
°C = degree Celsius
cont. = continuous
hr = hour
PM_{10} = particulate matter less than 10-microns
N/A = not applicable
$\mu g/m^3$ = microgram per cubic meter

TABLE 2

METEOROLGICAL DATA RECORD BMI COMPLEX INDUSTRIAL PLANT SITE AIR MONITORING

JUNE 17 –JULY 9, 2009

HENDERSON, NEVADA

Sample Date	Average Wind Direction (Degrees)	Average Wind Speed (m/s)	Quadrant Wind Blowing From	OFF03 Site Designation with Respect to BMI Complex Industrial Plant Sites	OFF04 Designation with Respect to BMI Complex Industrial Plant Sites
June 17, 2009	246.23	1.52	Southwest	Upwind	Direct downwind
June 18, 2009	181.49	2.01	Southwest	Upwind	Direct downwind
June 23, 2009	101.27	2.24	Southeast	Upwind	Crosswind
June 25, 2009	102.63	3.17	Southeast	Upwind	Crosswind
June 30, 2009	114.90	2.15	Southeast	Upwind	Crosswind
July 2, 2009	159.44	2.44	Southeast	Upwind	Downwind
July 7, 2009	197.53	5.97	Southwest	Upwind	Direct downwind
July 9, 2009	137.70	3.81	Southeast	Upwind	Crosswind

Notes:

m/s meters per second

TABLE 3

BMI COMPLEX INDUSTRIAL PLANT SITE AIR QUALITY MONITORING SUMMARY

JUNE 17, 2009 THROUGH JULY 9, 2009

(Excel File on Attached CD)