

# Perimeter Air Monitoring Report

BMI Beta Ditch/Northwestern Ditch  
Titanium Metals Corporation  
BMI Common Areas  
Henderson, Nevada

**Submitted to:**

Nevada Division of Environmental Protection  
Bureau of Corrective Actions  
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November 2013  
Project # 1323080



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# 1. Introduction

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Titanium Metals Corporation (TIMET) retained GEI Consultants, Inc. (GEI) to prepare and implement a Perimeter Air Monitoring Plan (PAMP) during intrusive excavation activities as part of the Remedial Action Work Plan (RAWP) in the Beta Ditch/Northwestern Ditch at the TIMET Plant Site in Henderson, Nevada. The purpose of the PAMP was to provide control measures to minimize potential fugitive emissions and to protect human health during remedial activities.

GEI conducted air monitoring in accordance with the July 2013 PAMP, which was submitted to the Nevada Division of Environmental Protection (NDEP) prior to implementation of remedial operations. A copy of the PAMP is provided for reference in Appendix A.

Remedial activities were conducted from August 2013 through October 2013 and consisted of the excavation of impacted soils, loading of excavated soils into trucks, and the transportation of soils over haul roads. The project team consisted of Envirocon as the contractor, GEI as the air monitoring contractor and engineer, Walker Specialty Construction, Inc. as the asbestos contractor, and Broadbent & Associates, Inc. as the asbestos monitoring and oversight consultant.

This Perimeter Air Monitoring Report (PAMR) documents the results of air monitoring activities conducted during remediation activities from August 5, 2013 through October 18, 2013.

## 2. Results

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### 2.1 Perimeter Air Monitoring

Remedial perimeter air monitoring was conducted from August 5, 2013 through October 18, 2013. Throughout the duration of the project, four air monitoring stations monitored the total particulate concentration in air throughout the work day. The air monitoring stations were placed between the work areas and the perimeter of the site, with at least one upwind and one downwind location to monitor off site emissions of dust. Station locations are identified as AMS (air monitoring station) 1 through 4 on Figure 1.

A Pine Environmental C.A.M.P. telemetry system was used to monitor particulates during remedial activities on site. The sets provided real-time storage of data and alerts to the air monitor technician. Each air monitoring station was composed of an all-weather enclosure that housed a DataRAM 4 that measured particulates. Each station operated on battery power and operated during working hours, approximately 6am to 6pm, Monday through Saturday.

### 2.2 Particulate Monitoring

Daily maximum 60-minute average particulate values are summarized in Table 1.

Prior to remedial activities, Envirocon laid down a clean stone road base around the excavation and installed a water tank with piping to a fire hydrant on site. Additionally an irrigation system as well as a 2,000-gallon water truck and 6,000-gallon water pull ran throughout the day spraying water on roadways and around the excavation. When the contingency plan (see Appendix A, July 2013 PAMP ) was triggered, actions taken included the following: continued excavation with a hose, water truck, or water pull wetting down the area and stopping work in the area and wetting down the work area until levels subsided.

AMS 4 experienced durations of data loss from August 9, 2013 to August 14, 2013 due to internal battery issues on the DataRAM. No off site emissions of visible dust were noted during this period.

AMS 1, AMS 3, and AMS 4 experienced data loss on September 18, 2013. The DataRAMs were calibrated but did not enter run mode. No offsite emissions of visible dust were noted during this period.

The perimeter air monitoring data are provided in Appendix B.

## **2.3 Meteorological Monitoring**

A meteorological tower was erected on site to measure wind speed and direction, temperature, and precipitation. A wind rose showing the prevailing wind directions during the project is shown in Figure 2.

## **2.4 Reporting**

Daily reports are provided as Appendix C and discuss weather conditions and site activities for the day. Weekly summaries were submitted to the contractor and NDEP representative.

### 3. Conclusions

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GEI implemented the PAMP to measure and mitigate fugitive emissions of potentially impacted dust generated during construction activities in the BMI Beta Ditch/Northwestern Ditch excavation. Air monitoring was conducted in accordance with the PAMP, dated July 2013 and in accordance with Clark County Air Quality Regulations.

There were no measurements of particulates above the action level of 150 micrograms per cubic meter averaged over 60 minutes throughout the duration of the project. Visible dust was not observed migrating from the work area.

The perimeter air monitoring program was successful at providing early detection of particulate levels so that off-site emissions of site-related contaminants could be avoided. The perimeter air monitoring program also provided the framework to monitor concentrations of particulates, along with weather data and site activities, in order to determine if readings were related to site activities and if needed rapidly implement mitigation techniques.

The perimeter air monitoring program data demonstrated that the excavation methods and soil management practices implemented by Envirocon and its subcontractors were effective in controlling off-site emissions of particulates for the duration of the remedial activities. The perimeter air monitoring program was successful and fulfilled its goal of protecting human health and the environment during remedial activities.

## 4. Limitations

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This report was prepared for TIMET. The conclusions presented in this PAMR are based solely on the information and data presented in this PAMR. This PAMR has been prepared with data collected in accordance with generally accepted air monitoring practices.

## 5. References

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CDC, 2007. NIOSH Manual for Analytical Methods, Fifth Edition, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, Atlanta, GA. 2007.

GEI, 2013. Removal Action Work Plan –Rev-2, BMI Beta Ditch / Northwestern Ditches Located on the Titanium Metals Corporation Plant Site, BMI Common Areas, Clark County, Nevada. Revised June 26, 2013.

# Tables

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Table 1  
Highest Daily 60-Minute Time Weighted Average Particulate Values  
BMI Beta Ditch/Northwestern Ditch  
Titanium Metals Corporation  
Henderson, Nevada

Date	AMS-1	AMS-2	AMS-3	AMS-4
8/5/2013	1	10	5	5
8/6/2013	8	22	3	35
8/7/2013	43	14	2	27
8/8/2013	16	9	5	6
8/9/2013	66	22	12	13
8/10/2013	79	5	4	9
8/11/2013	NO WORK PERFORMED			
8/12/2013	63	33	14	21
8/13/2013	57	14	16	17
8/14/2013	28	25	15	34
8/15/2013	14	9	7	9
8/16/2013	17	11	9	17
8/17/2013	NO WORK PERFORMED			
8/18/2013				
8/19/2013	9	8	1	3
8/20/2013	9	22	17	5
8/21/2013	8	16	15	21
8/22/2013	28	31	34	11
8/23/2013	6	14	14	36
8/24/2013	37	67	26	26
8/25/2013	NO WORK PERFORMED			
8/26/2013	8	40	4	6
8/27/2013	13	13	27	58
8/28/2013	14	19	15	12
8/29/2013	17	25	21	8
8/30/2013	14	13	13	18
8/31/2013	NO WORK PERFORMED			
9/1/2013				
9/2/2013				
9/3/2013	5	27	5	32
9/4/2013	9	26	25	17
9/5/2013	21	25	21	37
9/6/2013	27	27	19	18
9/7/2013	15	14	11	8
9/8/2013	NO WORK PERFORMED			
9/9/2013	18	14	15	19
9/10/2013	5	7	11	7
9/11/2013	10	15	9	13
9/12/2013	7	21	3	8
9/13/2013	16	40	15	19
9/14/2013	11	12	11	14

Table 1  
Highest Daily 60-Minute Time Weighted Average Particulate Values  
BMI Beta Ditch/Northwestern Ditch  
Titanium Metals Corporation  
Henderson, Nevada

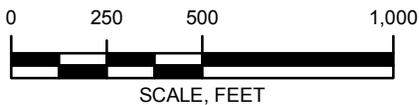
9/15/2013	NO WORK PERFORMED			
9/16/2013	23	25	20	2
9/17/2013	12	24	21	20
9/18/2013	ND	38	ND	ND
9/19/2013	13	25	31	10
9/20/2013	16	52	21	11
9/21/2013	16	37	23	78
9/22/2013	NO WORK PERFORMED			
9/23/2013	12	18	14	35
9/24/2013	13	18	21	8
9/25/2013	10	7	24	15
9/26/2013	5	2	9	65
9/27/2013	1	1	3	3
9/28/2013	13	39	15	41
9/29/2013	30	34	41	32
9/30/2013	NO WORK PERFORMED			
10/1/2013	35	40	33	38
10/2/2013	9	8	11	12
10/3/2013	9	12	10	4
10/4/2013	3	13	3	2
10/5/2013	4	4	5	3
10/6/2013	NO WORK PERFORMED			
10/7/2013	25	29	27	20
10/8/2013	22	33	35	24
10/9/2013	13	35	25	32
10/10/2013	4	6	4	98
10/11/2013	15	24	19	79
10/12/2013	14	17	18	1
10/13/2013	NO WORK PERFORMED			
10/14/2013	17	32	13	3
10/15/2013	6	30	11	14
10/16/2013	23	48	19	8
10/17/2013	17	6	24	8
10/18/2013	11	1	22	7

# Figures

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SOURCE:  
1. 2011 ESRI WORLD IMAGERY



**LEGEND**

-  **AMS1** APPROXIMATE AIR MONITORING STATION LOCATION
-  APPROXIMATE PROPERTY BOUNDARY

PERIMETER AIR MONITORING MAP  
BMI BETA DITCH / NW DITCHES - TIMET PLANT SITE  
HENDERSON, NEVADA

TITANIUM METALS CORPORATION  
HENDERSON, NEVADA

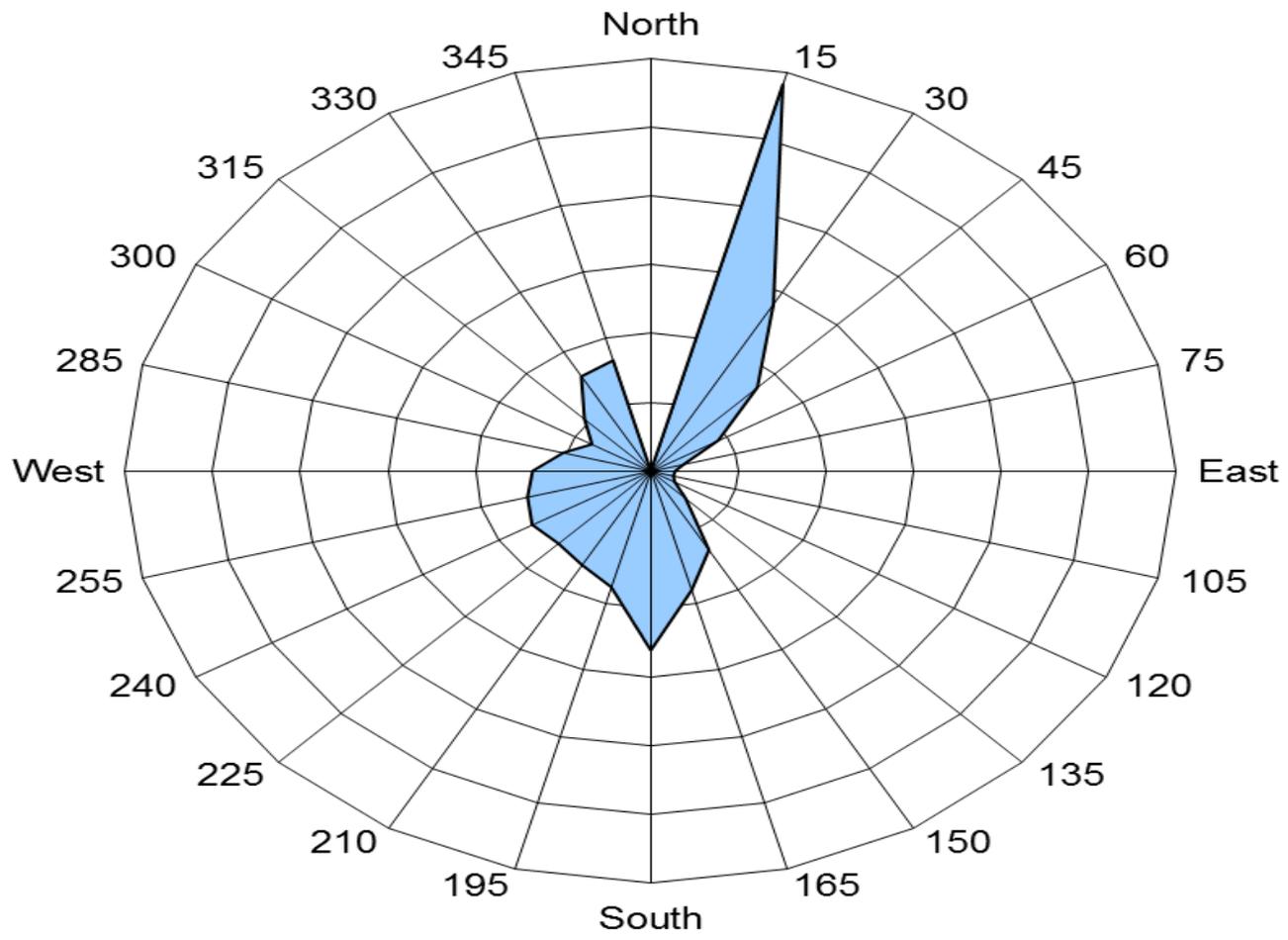


**SITE MAP AND APPROXIMATE  
AIR MONITORING STATION  
LOCATIONS**

Project 1323080-3-1350

November 2013

Figure 1



BMI BETA/ NW DITCHES  
 TIMET PLANT SITE  
 HENDERSON, NEVADA

TITANIUM METALS CORPORATION  
 HENDERSON, NEVADA



**Meteorological Wind Rose**

1323080-3-1350

November 2013

Figure 2

# Appendix A

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## Perimeter Air Monitoring Plan



Geotechnical  
Environmental and  
Water Resources  
Engineering

## Perimeter Air Monitoring Plan

BMI Beta Ditch / Northwestern Ditches  
Titanium Metals Corporation Plant Site  
BMI Common Areas  
Henderson, Nevada

**Prepared for:**

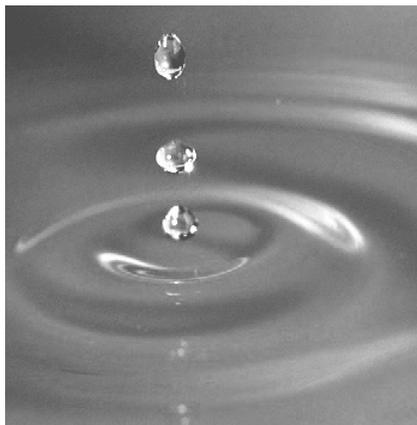
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July 2013 (revised August 21, 2013)  
Project # 1323080-3-1303



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## Figure

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- 1 Site Map and Proposed Air Monitoring Station Locations

# List of Acronyms and Abbreviations

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ACM	Asbestos Containing Material
AQR	Air Quality Regulation
BCA	Bureau of Corrective Actions
BCL	Basic Comparison Levels
bgs	below ground surface
CDC	Centers for Disease Control
CFR	Code of Federal Regulations
COC	Chain Of Custody
COI	Constituent Of Interest
Contractor Engineer	selected remediation contractor on-site representative of GEI
GEI	GEI Consultants, Inc.
hr	hour
mg/kg	milligrams per kilogram
$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
lpm	liters per minute
mo.	Month
NAAQS	National Ambient Air Quality Standard
NIOSH	National Institute for Occupational Safety and Health
PAMP	Perimeter Air Monitoring Plan
PCB	Polychlorinated biphenyl
PCM	Phase Contrast Microscopy
PEL	Permissible Exposure Limit
RAWP	Remedial Action Work Plan
sec	second
TIMET	Titanium Metals Corporation
TEM	Transmission Electron Microscopy
USEPA	United States Environmental Protection Agency

# 1. Introduction

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## 1.1 Overview

The Titanium Metals Corporation (TIMET) has prepared this Perimeter Air Monitoring Plan (PAMP) to limit the emission of particulate matter into the ambient air during intrusive excavation activities as part of the Remedial Action Work Plan (RAWP) in the BMI Beta / Northwestern Ditches at the TIMET Plant Site in Henderson, Nevada (Site). TIMET will implement a perimeter air monitoring program and fugitive emissions control measures to minimize potential fugitive emissions and to protect human health of the community during the performance of the remedy. Air monitoring and air sampling will be conducted during intrusive excavation activities in accordance with Clark County Air Quality Regulation (AQR) and overseen by Nevada Division of Environmental Protection (NDEP) Bureau of Corrective Actions (BCA).

This document describes the requirements of the air monitoring program and the associated fugitive emissions mitigation control measures. The PAMP will be submitted to the NDEP for review and approval prior to implementation.

## 1.2 Background

The TIMET facility is located in Clark County, Nevada. The BMI Beta / Northwestern Ditches sub-area encompasses an area of approximately 5.3 acres. For practical purposes, the BMI Beta / Northwestern Ditches may be thought of as the portion of the BMI Common Areas Beta Ditch that passes through the TIMET Plant Site with flow to the north and east which discharged to the off-site parcels known as Parcel 9 North and South. The Site represents one of several sub-areas of the BMI Common Areas and is located on the TIMET Plant Site to the west and across Boulder Highway from the BMI Common Areas Eastside property and to the east of the Tronox plant site.

The Site is bordered to the south by the TIMET Plant Site former Pond SW-1, which is no longer used for disposal and receives only rainfall, and active TIMET Plant Site Pond HP-6 which covers a segment of historical drainage bypass.

The goal of the remediation is to remove soils with Polychlorinated biphenyls (PCB) concentrations greater than 1 mg/kg, and soil containing asbestos. There are currently no NDEP Basic Comparison Levels (BCLs) for asbestos in soil, therefore, asbestos soil is defined as visually identifiable asbestos debris as determined by a Nevada licensed asbestos inspector.

### 1.3 Air Monitoring Objectives and Approach

This PAMP describes how to measure and mitigate fugitive emissions of dust (potentially containing PCBs and asbestos) generated during construction activities in the BMI Beta / Northwestern Ditches excavation. The objectives of the PAMP are to:

- Identify a site-specific action level for dust concentrations in air at the perimeter fence line.
- Describe fugitive emission mitigation procedures to be used during the performance of the work to reduce and suppress dust generation, and list the criteria for when these procedures must be employed.
- List the required actions and notifications for GEI and contractor personnel when the action level for dust is approached or exceeded.
- Describe how dust concentrations and meteorological conditions will be monitored during the performance of the work, and how the data will be analyzed to protect human health.
- Create a permanent record of perimeter air monitoring results and meteorological conditions, equipment maintenance, calibration records and other pertinent information.

The general approach to meet the objectives outlined above is to:

1. *Monitor perimeter fence line dust concentrations during excavation activities.*  
Instantaneous and time-averaged readings from portable hand-held and perimeter fence-mounted dust meters will be used to determine whether dust concentrations at the site perimeter are approaching the action level. If the action level is approached or exceeded, fugitive emissions mitigation measures will be employed.
2. *Develop and implement comprehensive data management and analysis procedures.*  
Data will be generated from a variety of sources, including instantaneous-read dust meters, data-logging dust meters, laboratory analysis of ambient dust samples collected on filter media and meteorological monitoring. These data will be reduced, evaluated and presented to TIMET and the excavation contractor to facilitate timely fugitive emission mitigation and related decision making.

## **2. Remediation Processes and Potential Sources for Emissions**

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### **2.1 Excavation, Loading and Transporting**

Impacted material excavation, loading, stockpiling, and transporting will occur within the shaded areas shown on Figure 1. Construction equipment, tools and techniques used in the construction of the remedy will be standard and conventional and of the kind commonly used in developed and populated areas. Potential sources of fugitive dust emissions are the operations associated with active excavations and stockpiles:

- Excavation using operated equipment
- Loading excavated soils into trucks
- Transporting soils by trucks over haul roads

Excavated soils will be loaded directly into trucks for transport off site, or stockpiled on site. Loading of excavated material into trucks, stockpiling, and transporting material across on-site haul roads are short-term, high intensity activities that can generate fugitive dust emissions.

### **2.2 Stockpile Management**

Temporary stockpiles at the site will be managed in such a way as to minimize the potential for fugitive dust emissions. Best management practices for stockpiles may include water spray, dust suppressors or tackifiers, temporary seeding and temporary covers such as soil or plastic sheeting.

## 3. Site-Specific Action Levels

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### 3.1 Site-Specific Action Levels

An action level is a short-term airborne contaminant concentration that triggers a fugitive emission mitigation response. Action levels are set for contaminants that can be quickly measured in the field and that act as surrogates for constituents of interest (COI). Dust (total particulates) is the airborne contaminant that is appropriate for monitoring during the excavation.

The USEPA's National Ambient Air Quality Standard (NAAQS) for dust as PM-10 is 150  $\mu\text{g}/\text{m}^3$  averaged over 24 hours. The action level for dust at the perimeter fence line for BMI Beta / Northwestern Ditches excavation is **150  $\mu\text{g}/\text{m}^3$  averaged over 60 minutes.**

Detections of dust concentrations approaching or in excess of the action level will trigger the fugitive emissions mitigation responses described in Section 4.

## 4. Fugitive Emissions Mitigation Response

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### 4.1 Site Conditions, Notifications and Requirements

GEI has established four tiered dust concentration conditions to serve as triggers for escalating mitigation responses during the air monitoring program. Detections of airborne dust concentrations that meet the criteria for each condition trigger required notifications and emissions mitigation responses. The four tiered conditions are based on 15- and 30-minute average dust concentrations in order to allow time for mitigation before the site action level ( $150 \mu\text{g}/\text{m}^3$  averaged over 60 minutes) is exceeded.

- **Condition 1:** All monitoring stations  $< 100 \mu\text{g}/\text{m}^3$  averaged over 15 minutes.
  - Required Actions: None
- **Condition 2:** One or more monitoring stations  $\geq 100 \mu\text{g}/\text{m}^3$  but  $< 150 \mu\text{g}/\text{m}^3$  averaged over 15 minutes.
  - Required Actions: Air Monitoring Technician notifies Engineer and Contractor. Contractor is required to prepare to perform fugitive emissions suppression.
- **Condition 3:** One or more monitoring stations  $\geq 150 \mu\text{g}/\text{m}^3$  averaged over 15 minutes. (Dust concentrations above the action level persist for 15 minutes)
  - Required Actions: Air Monitoring Technician notifies Engineer and Contractor. Contractor is required to immediately perform fugitive emissions suppression.
- **Condition 4:** One or more monitoring stations  $\geq 150 \mu\text{g}/\text{m}^3$  averaged over 30 minutes. (Dust concentrations above the action level persist for 30 minutes)
  - Required Actions: Air Monitoring Technician notifies Engineer and Contractor. Contractor is required to immediately suspend work at the source of the emissions and perform fugitive emissions suppression.

### 4.2 Action Level Exceedance

If the action level for dust ( $150 \mu\text{g}/\text{m}^3$  averaged over 60 minutes) is exceeded, the Air Monitoring Technician is required to immediately notify the Engineer and the Contractor. The Contractor is required to immediately suspend work at the source of the emissions and to perform fugitive emissions suppression. The Engineer is required to notify the GEI Project Manager. The contractor will not be allowed to recommence work until fugitive emission

mitigation measures have been deployed to the satisfaction of the Engineer and the dust concentrations at all monitoring stations meet the Condition 1 or Condition 2 criteria.

### **4.3 Visible Dust**

In addition to measured dust concentrations, visible dust conditions will also be monitored. If visible airborne dust is observed leaving the site, then the Contractor is required to deploy fugitive emissions mitigation measures. Work may continue with dust suppression techniques provided that fence line dust levels meet the criteria for Condition 1 or 2, and no visible dust is migrating from the work area.

### **4.4 Recommended Mitigation Measures**

The Contractor will apply for a Dust Control Permit and produce a Dust Mitigation Plan that will outline control measures for controlling dust during construction activities.

Additionally, GEI recommends that the contractor deploy the following dust mitigation measures:

- Water spray from hose nozzles onto excavation areas, equipment and stockpiles
- Application of water or other dust suppression products onto haul roads
- Covering of stockpiles and inactive disturbed areas with plastic sheeting and sandbags
- Temporary stabilization/seedling of disturbed areas
- Temporary suspension of emissions-generating work
- Restrict vehicle speeds to 10 miles per hour

### **4.5 Accounting for Upwind Dust Concentrations**

The dust concentrations that trigger the tiered responses described in Section 4.1 are intended to be concentrations measured in excess of upwind (background) conditions. It is the responsibility of the Air Monitoring Technician to determine, based on meteorological monitoring data and his own observations and judgment, whether detected dust concentrations are a result of fugitive site emissions, off-site sources or other factors such as dust meter interference (e.g., humidity and fog in some climates). These observations will be logged and documented.

## 5. Field Data Collection and Quality Assurance

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The field data collection program consists of three primary elements:

- Instantaneous measurements using data-logging electronic dust meters
- Meteorological monitoring of weather and wind conditions

This section provides details on each element of field data collection and describes how data quality will be assured.

### 5.1 Dust Monitoring with Aerosol Meters

Portable data-logging aerosol meters (TSI Inc. DUSTTRAK™ or equivalent) will be used for instantaneous measurements of total particulate concentrations in air. These instruments measure total particulate matter in air. Aerosol meters will be calibrated daily in accordance with manufacturer's instructions. Calibration checks will be conducted and documented in the Air Monitoring Technician's electronic project notebook at the start and end of daily work activities.

The Air Monitoring Technician will monitor the total particulate concentration in air throughout the work day at each of five on-site air monitoring stations. One configuration of the on-site air monitoring stations is presented in Figure 1. Locations may be adjusted with concurrence of the Engineer and the GEI Project Manager if site conditions warrant based on a change in work areas or potential fugitive emissions sources. Air monitoring station locations will be placed between the work areas and the perimeter of the site, with at least one upwind and one downwind location. Total particulate measurements will be compared to the criteria described in Section 4.1 to determine whether fugitive emissions mitigation measures should be deployed.

### 5.2 Meteorological Monitoring

A meteorological tower will be erected at the site following the installation guidelines established by the USEPA for meteorological monitoring systems. The tower will be equipped with sensors to measure wind speed and direction, temperature, relative humidity, and precipitation on a continuous basis during remedial activities. The meteorological station will be installed at the start of remedial activities and will be operational during the entire remedial period.

### **5.3 Background Monitoring**

Prior to the start of emissions-generating activities on the site (e.g., excavation of BMI Beta / Northwest Ditches) GEI will perform up to 1 week of background/baseline monitoring for dust at the site perimeter using aerosol monitors and record observations of visible dust sources in the vicinity of the excavation and from adjacent properties.

### **5.4 Asbestos Monitoring**

Asbestos will be monitored by daily during the management of Asbestos Containing Material (ACM) by a Nevada licensed asbestos professional. Air will be sampled for asbestos in accordance the National Institute for Occupational Safety and Health (NIOSH) 7400 at four locations around the excavation area, and four locations at the perimeter of the site. The four locations at the perimeter of the site will be collocated with the perimeter real-time dust air monitoring stations as shown in Figure 1.

Air sampling pumps will be calibrated as necessary in accordance with manufacturers' instructions. Per NIOSH 7400, pump flow rates can be set to a flow rate between 0.5 and 16 liters per minute (lpm). GEI recommends using 3 lpm as the average flow rate during sampling. The flow rate of the sampling pumps will be measured twice daily: prior to and at the completion of each day's sampling event. The average flow rate will be used to estimate the total air sample volume collected.

Samples will be submitted for analysis using phase contrast microscopy (PCM). The PCM samples will be submitted on a 24-hour turnaround time. These results shall be compared the permissible exposure limit (PEL) of 0.1 fibers/cc. Exceedances of the PEL will result in the use of additional engineering controls in the work zone. In addition to engineering controls, if a sample exceeds the PEL, the sample will then be analyzed by transmission electron microscopy (TEM) to determine if the fibers detected were asbestos.

### **5.5 Data Recording and Preservation**

Field notes regarding air monitoring field screening and visual observations will be documented electronically and archived daily. Any observations, measurements or notes that are transcribed into computer spreadsheets will be archived in the electronic project directory.

## **6. Reporting**

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The Air Monitoring Technician will summarize the air monitoring results on a daily and weekly basis and transmit these data to the Engineer, the Contractor and other stakeholders in a mutually agreed-upon format.

### **6.1 Field Screening Results**

The Air Monitoring Technician will prepare daily summaries of field screening data that include a list of all action level exceedances, tiered response conditions and the associated notifications made and mitigations performed.

### **6.2 Closure Reporting**

At the conclusion of the project, GEI will include in the project close-out report a summary of relevant meteorological information (e.g., wind rose). All air monitoring data will be included in an appendix to the project close-out report.

## 7. References

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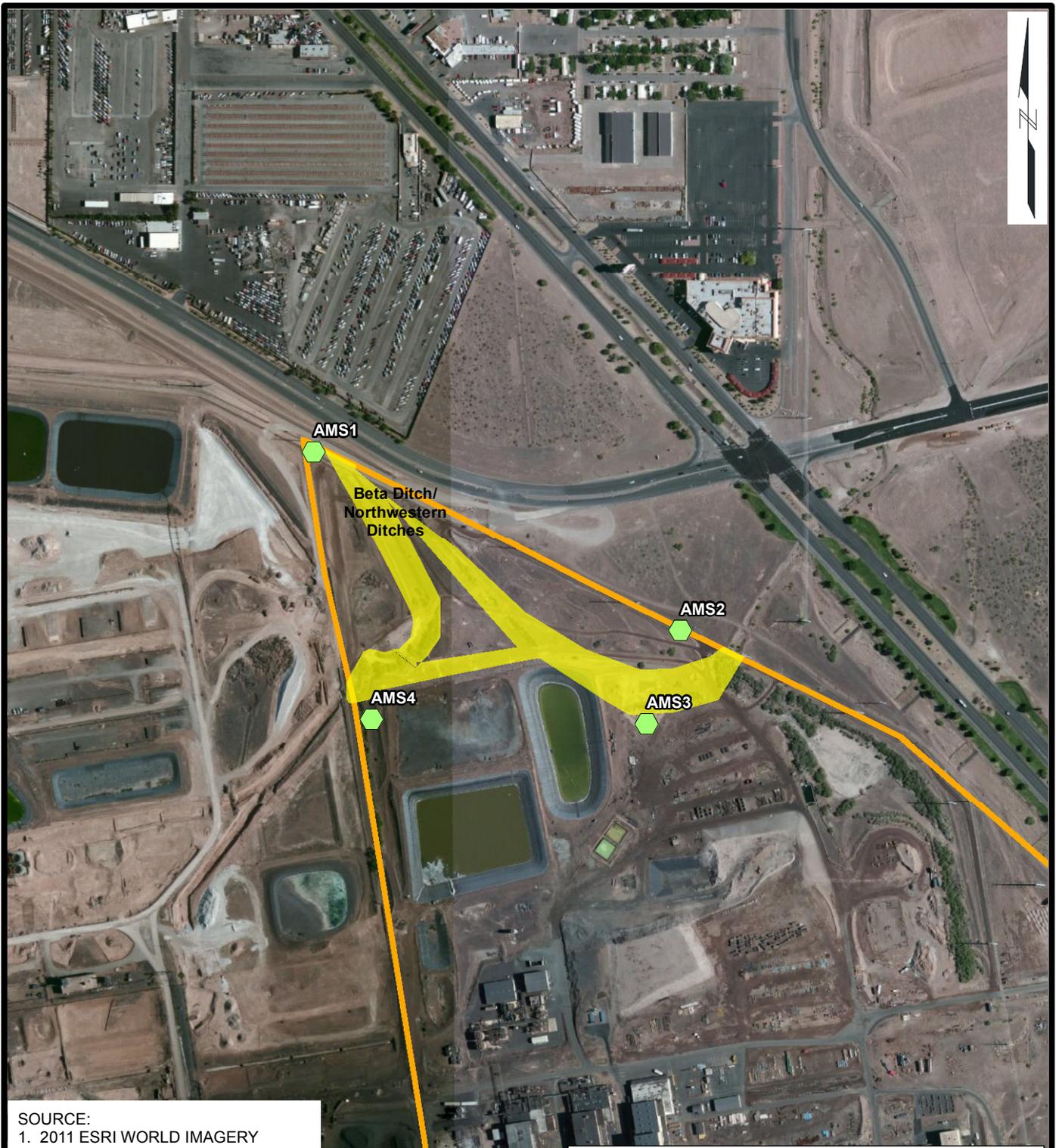
CDC, 2007. NIOSH Manual for Analytical Methods, Fifth Edition, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, Atlanta, GA. 2007.

GEI, 2013. Removal Action Work Plan –Rev-2, BMI Beta Ditch / Northwestern Ditches Located on the Titanium Metals Corporation Plant Site, BMI Common Areas, Clark County, Nevada. Revised June 26, 2013.

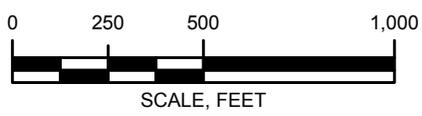
PERIMETER AIR MONITORING PLAN  
BMI BETA DITCH / NORTHWESTERN DITCHES  
TITANIUM METALS CORPORATION PLANT SITE  
BMI COMMON AREAS  
HENDERSON, NEVADA  
JULY 2013

## Figure

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SOURCE:  
1. 2011 ESRI WORLD IMAGERY



**LEGEND**

-  AMS1 PROPOSED AIR MONITORING STATION
-  APPROXIMATE PROPERTY BOUNDARY

PERIMETER AIR MONITORING PLAN  
BMI BETA DITCH / NW DITCHES - TIMET PLANT SITE  
HENDERSON, NEVADA



**SITE MAP AND PROPOSED  
AIR MONITORING STATION  
LOCATIONS**

TITANIUM METALS CORPORATION  
HENDERSON, NEVADA

Project 1323080-3-1303

July 2013

Figure 1

# Appendix B

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## Air Monitoring Data

# Appendix C

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## Daily Reports













































































**Perimeter Air Monitoring  
Daily Field Report  
TIMET - Henderson, Nevada**

System Operations	General Observations
Sampling Date <u>9/21/2013</u>  System Calibrations <u>Ok</u>	General Weather Conditions _____ <u>clear ~95 °F Winds 15-20 SW</u>  General Description of Site Activities _____ <u>excavation of non ACM soil</u> _____ <u>non ACM material load out</u> _____ <u>backfill delivery</u> _____ <u>Backfill of excavated areas</u> _____

System Alarm Log												
Alarm Level	Time	Station No.	Alarm	Location	Work Being Performed On-Site						Site Person/Time Notified	

Notes: No exceedances of particulate action level

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*Day Totals: Air Mon. Use Only*  
 Particulate Action Limit: >150 µg/m<sup>3</sup> averaged over 60-minutes

Field Representative: Mike Quinlan

**Perimeter Air Monitoring  
Daily Field Report  
TIMET - Henderson, Nevada**

System Operations	General Observations
Sampling Date <u>  9/23/2013  </u>  System Calibrations <u>  Ok  </u>	General Weather Conditions _____ clear ~90 °F Winds 5-10 SW _____  General Description of Site Activities _____ excavation of non ACM soil _____ non ACM material load out _____ backfill delivery _____ Backfill of excavated areas _____

System Alarm Log												
Alarm Level	Time	Station No.	Alarm	Location	Work Being Performed On-Site						Site Person/Time Notified	

Notes: No exceedances of particulate action level

**Day Totals: Air Mon. Use Only**  
 Particulate Action Limit: >150 µg/m<sup>3</sup> averaged over 60-minutes

Field Representative:                     Mike Quinlan

**Perimeter Air Monitoring  
Daily Field Report  
TIMET - Henderson, Nevada**

System Operations	General Observations
Sampling Date <u>9/24/2013</u>  System Calibrations <u>Ok</u>	General Weather Conditions <u>clear ~95 °F Winds 10-15 SW</u>  General Description of Site Activities <u>excavation of non ACM soil</u> <u>non ACM material load out</u> <u>backfill delivery</u> <u>Backfill of excavated areas</u>

System Alarm Log											
Alarm Level	Time	Station No.	Alarm	Location	Work Being Performed On-Site						Site Person/Time Notified

Notes: No exceedances of particulate action level

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*Day Totals: Air Mon. Use Only*  
 Particulate Action Limit: >150 µg/m<sup>3</sup> averaged over 60-minutes

Field Representative: Mike Quinlan









**Perimeter Air Monitoring  
Daily Field Report  
TIMET - Henderson, Nevada**

System Operations	General Observations
Sampling Date <u>9/30/2013</u>  System Calibrations <u>Ok</u>	General Weather Conditions _____ clear ~90 °F Winds 5-10 SW  General Description of Site Activities _____ <u>backfill delivery</u> _____ <u>Backfill of excavated areas</u> _____ _____ _____

System Alarm Log												
Alarm Level	Time	Station No.	Alarm	Location	Work Being Performed On-Site						Site Person/Time Notified	

Notes: No exceedances of particulate action level

*Day Totals: Air Mon. Use Only*  
 Particulate Action Limit: >150 µg/m<sup>3</sup> averaged over 60-minutes

Field Representative: Mike Quinlan























**Perimeter Air Monitoring  
Daily Field Report  
TIMET - Henderson, Nevada**

System Operations	General Observations
Sampling Date <u>10/14/2013</u>  System Calibrations <u>Ok</u>	General Weather Conditions _____ <u>clear ~75 °F Winds 5-10 S</u>  General Description of Site Activities _____ <u>backfill delivery</u> _____ <u>Backfill of excavated areas</u> _____ _____ _____

System Alarm Log											
Alarm Level	Time	Station No.	Alarm	Location	Work Being Performed On-Site	Site Person/Time Notified					

Notes: No exceedances of particulate action level

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**Day Totals: Air Mon. Use Only**  
 Particulate Action Limit: >150 µg/m<sup>3</sup> averaged over 60-minutes

Field Representative: Jaeson Pieretti







