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CAS
CONSOLIDATED ANALYTICAL SYSTEMS

Quality Assurance Project Plan

S. H. Bell Company

Chicago, Illinois

Revision 1

(April 24, 2017)

Prepared for:

S.H. Bell Company
10218 South Avenue O
Chicago, Illinois 60617

Prepared by:

Consolidated Analytical Systems, Inc.
201 S. Miami Avenue
Cleves, OH 45002

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Cleves, OH 45002

Approved by:

CAS Project Manager	04/24/2017 *Date*
S.H. Bell Company Representative	April 24, 2017 *Date*
USEPA Region 5 Representative	*Date*
CAS Quality Assurance Project Officer	04-24-2017 *Date*

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Distribution List

The following individuals have been provided a Project

Table Intro 1 Distribution List for QAPP

Personnel	Organization	Email Address	Business Address	Telephone Number
ohn Bede	Sck H Company	Bell	S H Bell Company Alpha Drive P O Box Pittsburgh PA	I
ames Langbehn	S H Company	jellangbehn m	Shbell co Bell Co South Avenue O Chicago IL	I
Nicole	CUaSnEtPeAl Roegaiotnello niv		USEPA Region Wackson Boulevard Chicago IL	I
Scott Dismukes	Eckert Seamans Cherin Mellott	sdismukes mans com LLC	Eckert Seamans Cherin Mellott LLC rant th Street Floor Pittsburgh PA	
Meredith Cloran	Consolidated Analytical Systems	mcloran cas	Consolidated Analytical Systems Inc S Miami Avenue Cleves Ohio	
Tomek Marchlewski	Consolidated Analytical Systems	tmarch cas	Consolidated Analytical Systems S Miami Avenue Cleves Ohio	

A PROECT MANAEMENT

This Quality Assurance Projectes Plaand prHoQcAePdPurIe implemented at the S H Beolis Cotompmaeneyt ftahceilUr Environmental Protection Agenncgy enHvUiSrEoPnAmeIntgauli dm programs This QAPP has beuiedanpcreepoaurteldnieid i *EPA Guidance for Quality Assurance Project Plans* HUSEPA *EPA Requirements for* I a *Quality Assurance Project Plans for Environmental Data Operations* HUSEPA of this document is to deschroidbse tthhaet swaimplibnegua monitoring data and the proceachudredsoceumpelnotyetche

Following this format thwistHQAtPhPeifsoldliovwidnegd cio

- **Section A – Project Management** – Provides a description organization administrativne ofvuenrcvtiieownsof project approach
- **Section B – Measurement and Data Acquisition** – Provaiddestailed desc of all the elements of the monitoring the metr for sampling sample handlingl ainnalytiu calibration and data management
- **Section C – Assessment and Oversight** Provaiddeesscription o procedures that will be used teoleamsesnetsss a employed in the project
- **Section D – Data Validation and Usability** Provaiddescription o methods that will be used floirdadtaitoan revainedw
- **Section E – References** – Provirdeferences to applicable method specific documents thatmeafsourmenthenet b data

A Project Task Organization

The organizational structurtehefor S tHe aiBrelmhorfiatc Illinois and a descriptionhionfittheareedpesncsriibieldi Figure A shows key personHnel Baenldl tPeraomjercotle CAS Project Manager the Ss HManaBgeerl Fiaenldd thIen Assurance Officer Key iandeiviidleuratlisfiaendd thehleiow

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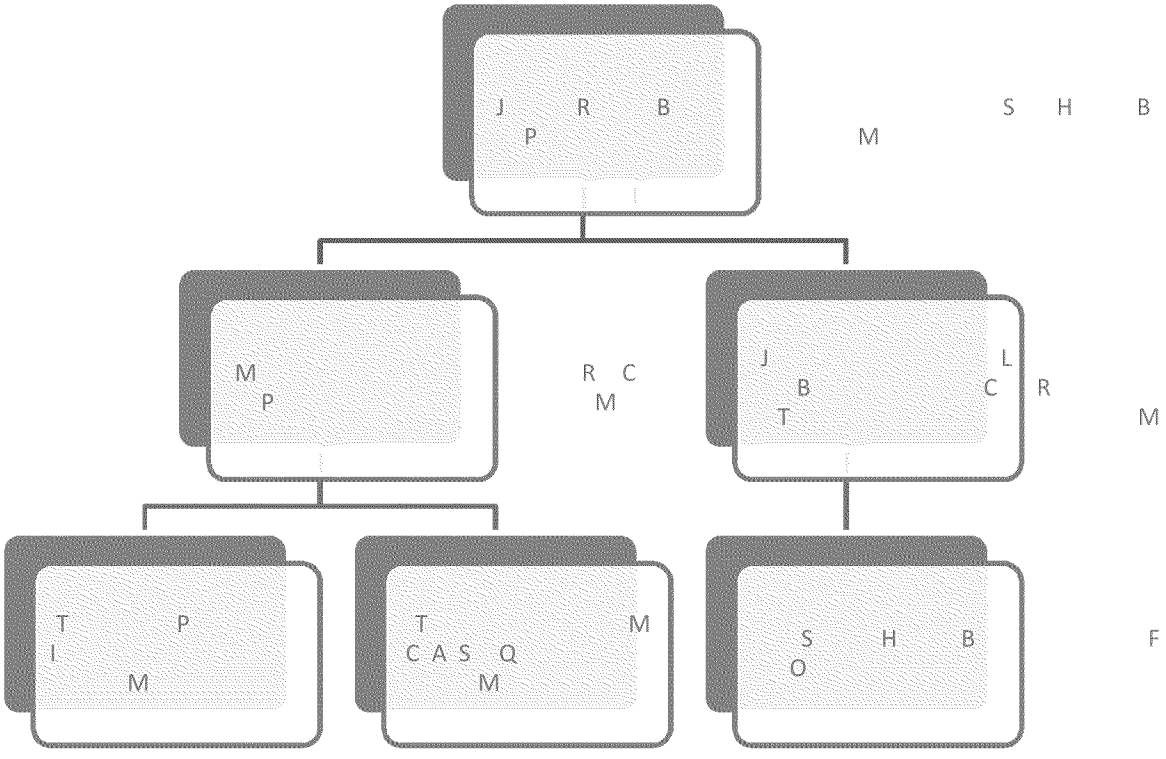
Figure A 1. Project Organizational Chart



S.H. Bell Project Manager – The principal contact person for S
Bedeck Hor Mhris Bedeck Ie sdeg ke es I responsibilities inc

- Provide direct oversight of the S H B
- Serve as USEPA s communicæti Son Hcont Bædt
  Illinois facility
- Any changes to the scope of the only with or
  written approval of the S HEPA Bel gi Proj
- Review and submit monthly monitoring rep

S.H. Bell Chicago, Illinois Terminal Manager – The S H Bell Chicago
Manager is Mr ames Langbehsn reHsopronhsiisbidleistiigense
following

- Provide oversight of monitorin Bgelalct Cihviictaig
  Illinois facility
- Coordinate on site record to keep activities
  monitoring system conditions and correct

- Report exceedences and corrective actions
- Maintain records of S H aBteilo ln oopfe rmaatti eorm unloading and processing I
- Notify USEPA of any barge undloiardoinng opera
- Record observations of possiiebsle interfere

CAS Project Manager – Ms Meredith Cloran is the CAS Proj responsibilities include the following

- Communicate with S H Bell tthoe eQnAsPuPreantdhe notification of general corrective actions
- Oversee day toitideasy prionjcelcutrdoiapnegtrievenxseucruitnigont h monitoring work and tracking the project bu
- Provide the primary leadershiapdofcotoheinCASiq with the contract laboratory
- Ensure QAPP objectives are mentenitns accordanc
- Develop and ensure QA QC proc**edures and** Sta followed
- Report non confirming condirectionsetacSioHs using appropriate documentation procedures
- Prepare monthly reports for USEPHA Bell s

CAS Field Installation/Operations Manager – Mr Tom Platter is the C and Operations Manager Heemsis responsible fo

- Integrate and install the monitoring equipm
- Perform site set up and calibration
- Oversee performance of monthlyaundaiitnstenance
- Train field staff to colleucdtinfgieflidltpearrsamfeotre analysis I
- Assemble data records from fieecltdiotneoolfnivcailaind measurement data
- Assemble data records from field technician

- Report non confirming conditions to CAS Pr actions taken using appropriate documentati

CAS Quality Assurance Manager – Mr Tomek Marchlewski is the He is responsible for the following tasks

- Oversee remote monitoring
- Perform data validation activities as neede
- Verify required QC activities are met as prescribed in this QAPP
- Verify data and flags from continuous monit
- Review laboratory analytical data packages
- Prepare report information in appropriate f
- Report non confirming conditions to CAS Pr actions taken using appropriate documentati

S.H. Bell Field Operators – Several S H Bell employees prov described below Heach have been trained by the and their activities are overseen by the S H

- Collect manual samples
- Record relevant field data

A Problem Definition and Backgro

S H Bell has been asked to Evnivdier oinnmfeonrtmaalt Agency HUSEPA I under Section S C of Setchtei oGnl I herein referred to as the Rhiqsuesrtequ has submitted and USEPA Regison approAvierd apnrdo p monitoring site locations for Federal Reference Method HFRMwell PMs wifnidl tsepre direction monitoring Per lthewirlelquicoremnent s P meteorological monitoring for oaf pienrsitoadl loaftioonne February I and wSiElPlA suHbSmitH repBoerlt Siting Pladn to Ithis AQ AcPoPpyf oorf Appendix D

In addition the RFI requirebse aoperatendetaetr tmhe facility to measure and recortdhewianrde as pdeuerdi nagn dt study period The meteorolengtiecralofstathieonS isH

facility as shown on Figure eBet the sTpheec infeitceaotrioolr
Quality Assurance Handbook for sAirVolPuorhelutliVo
Meteorological Measurements VeTrhseiommeteorologHiFcia
is equipped to record the following meteorolog

- Wind Speed
- Wind Direction
- Ambient Temperature
- Barometric Pressure

A Project Task Description and S

This project is conducted tiocaprovidea firomqufaluir
sites located around the S H Bell Chicago

The monitoring stations incomptoMaettehoodontHiFnEuMoulsf
PM monitors data loggers PM and fFieldteerral bRaes
as outlined in the Siting dPlaasn ApHpSendHix DBeolfl th
Continuous HFEMI monitors aoresoaperatgedtaotab
based FRM monitors are operatedtotriongolSlcohwedtuhee
Hincluded as Appendix C IfiltPeM basfeldtmonsitc
both gravimetric analysis andetdaeltsermHianrasteinoinc o
chromium manganese niatkoerly inanadcovradnaan
FRM FEM laboratory methods Hosneel SlecrtaitoonryBafoarl
meteorological conditions areeasltsooreconitinauonsoh
logger as five minute aveeroafgetshis QAPPPeasemer
equipment is operating separakelyufnrtoinhtshuechPMti
be integrated into the monnidtotrhiengQAnPePtwfoorlklowinS
of the meteorological data iomntosytshteemCAS Moepteer
equipment Hwind speed and wignedrdIrwatsionietquail
at the S H Bell facility eicnember Thteo
temperature and barometric prmesteroeolsogsonsidna

The commissioning of the palratcieculFeahtreuamoynitorin
first filter based FRM sampaledivtasioncallescatnepdleM
collected in accordance with USHESPeAe sAppendidax
Deliverables for the project include the follo

This QAPP

Hourly data from each continuous monitoring system ASCII comma delimited files sent as a complete laboratory reporting format I approved to E

Monthly data submittal of items to EPA by within days of the end of the month the above see Section B for additional detail

A Data Quality Objectives and Cri

The EPA has developed a Data Quality Objectives environmental measurement projects in the DQO this QAPP and in the planning for the DQO in Figure A The benefits of the DQO or issue identifies the decision to make and specifies a decision rule

Following the DQO process for the measurement this project those criteria are given in the accurate measurements of PM ic metals Hanisen chromium manganese nickel etaenodrolvaniadium measurements are patterned after the monitoring published by EPA HUSEPA I

A Special Training Certification

CAS Personnel assigned to the Horobuglh Field Installation Operation as Manager in the equipment to ensure contiantuievdecdalteaction Manager will document the type of training in was conc This documentation will be kept in the sheer CAS in Ohio facility CAS Personnel the assessing experience responsibility possaintdi otnrainiAngbireenq professionals with several yseiabrisliotfy efxoprerioemd significant quality controlsiatned quality assura

Upon delivery and start up of all the monitoring representatives including the Manager to Belulnd site functionality and perfouring measnitntaesnarnecqeuiorfed communicate with the S H Bteh el rpeeqrusiornendels uapnpd assistance when needed

A Documentation and Records

The dataset created for this monitoring program is a minimum of five years in the project database

- The hourly PM data from each FORM the four monitors I
- The laboratory analyses of manual samples fo gravimetric mass and select metals and
- The minute average wind speed and wind barometric pressure at the meteorological m

The following sources of information will supp

- Station log books Hin hard copy and electr
- Calibration and maintenance records for all
- Laboratory reports with quality control res
- Operational information collected internall
- Data validation and editing instructions
- QA audits of field operations and monitor p

Table A 1. DQO Process for S.H. Bell Company Chicago, IL Project

STEP	State the Problem	Program Bell conducts both time PM monitoring at four monito filter based monitoring at one moni site or off site Hwhethers upwiind any to themonitors dAditionl provide speciation data for metals a
STEP	Identify the Decision conducted at their area is by predominant wind flow and hpotentia speciation data will be used to ass PM sources	
STEP	Identify the Decision	Meaths are Inputs to PM concentrations locations as hour average wind Mete direction ambient temperature b collected on a minute basis at th located in the central aptoirotnion samples will be obtained from two monitoring station S HSee Figure B
STEP	Define the Study	The sampling location is Section B of the QAPP document

STEP	Develop a Decision Rule	S.H. Bell will use the reported meteorological data to help in assessing background
STEP	Specify the Decision	Calibrations of the monitoring equipment are specified in EPA guidance documents conform to guidance See Tables A
STEP	Optimize the Design	If the structure meets the quality set of protocols S H Bell will prioritize into conformance

S H Bell s Chicago Illinois Mobile Pty is program including all quality activities and relevant contains a list of the records programs maintain the electronic bound in notebooks and floor bookcase Electronic records will be stored on archived and Consolidated Analytical Systems in Google Books are Consolidated Analytical Systems as Project Manager specific file

Table A 2. Documentation and Records Retention for S.H. Bell Company Chicago, IL Project

Documentation Type	Frequency	Responsible Person	Archive	Retention Period
Monitoring	Hourly Down BAM Periodic Lab Filter Based samples	CAS Data Manager CAS Project Manager	CAS Server backup Manager	Hwy years
High Volume in PM filters	Interscheduled Inc	Internal Labs Inc	Labs Inc	years
BAM Filter	Replaced as approximately monthly	CAS Field Installations Manager Project Manager	CAS facility Operation and CAS Project Manager	
QAPP	Updated as	CAS Sheet Company	CAS	years
Copies of Logbooks	After the site	CAS Field Installations Manager Project Manager	CAS Operation and CAS Project Manager	years
Data Reports	Monthly	CAS S H Company	CAS	years

Table A 3. Quality Criteria for Measurement Data

1. Measurements of PM_{10} using EPA Federal Equivalent Method (FEM) Monitor (BAM 1020, EQPM 0798 122	
Sensitivity	Lower Detection Limit hour average
Accuracy	Meets EPA Class III FEM Standard for additive flow rate measurement accuracy at
Range	g m
Completeness	sample capture for a teacher monitor quarter a H with the exception of loss of power sche calibration audit events which on either site Su nor their monitoring contractor have con
Cycle Time	One hour
2. Measurements of Metals using EPA Method IO 3.5 (ICP MS)	
Accuracy	for analytical results abov
Precision	for analytical pairs above
Completeness	or by the requirements of the Acts the excep od loss of power or other situations ov the monitoring contractor have control I
3. Measurements of PM_{10} using EPA Federal Reference Method (FRM) Sampler (Tisch Environmental TE 6070 DV BL, Federal Reference Number RFPS 0202 141)	
Accuracy	Flow rate measurement accuracy M HUSEPA Af a I
Precision	N A
Completeness	sample capture for a teacher sampler quarter H with exception of loss of power or other situ neither S H Bell control nor their Hanover ict control
3. Measurements of Meteorological Parameters using weather instruments (Climatronics/MetOne Wind Speed, Wind Direction, Temperature, Barometric Pressure)	
System Accuracy	TBD T
Precision	EPA methodology does not prescribe
Completeness	or by the requirements of the Acts with minimum completeness of min hour average H with the exception of Acts calibration audit events or S other Bell the monitoring contractor have control I

TAs of the date of this QAPP ng meteorological parameters PM until such time as it can work integrated into the monitor integration of the meteorological data into system CAS ope

B MEASUREMENT DATA ACQUI

B Sampling Process Design

S H Bell will establish Illinois monitoring sint the requirements detailed in the USEPA of Section sampling methods sample handling Control and Quality testing and calibration and ed aftoal lnoawniangge nseenctt iaon

B Source Environment Descript

S H Bell s Chicago algblinaipprfoaximhtelyyis of the city center in thMeicchoimgmaunniatnydotfheE River The S H Bell fawceislti toyf ilsakeocaMtiecchia bordered to the west by thee Caarleuameits Raipvperroxima above sea level and terrain is relatively fl

The local land use categories in the decorefidon Calumet River Surroundimagrialryearesitoentthieal river ports and canals are spsretsoenLtakien Mihcehiagraena

The climate of the area wheareetetrhiezeTderbmyincaollsd awr warm summers with occasional rheaitnawnwarsy is and the average temperature immeruldyayiss are r uncommon

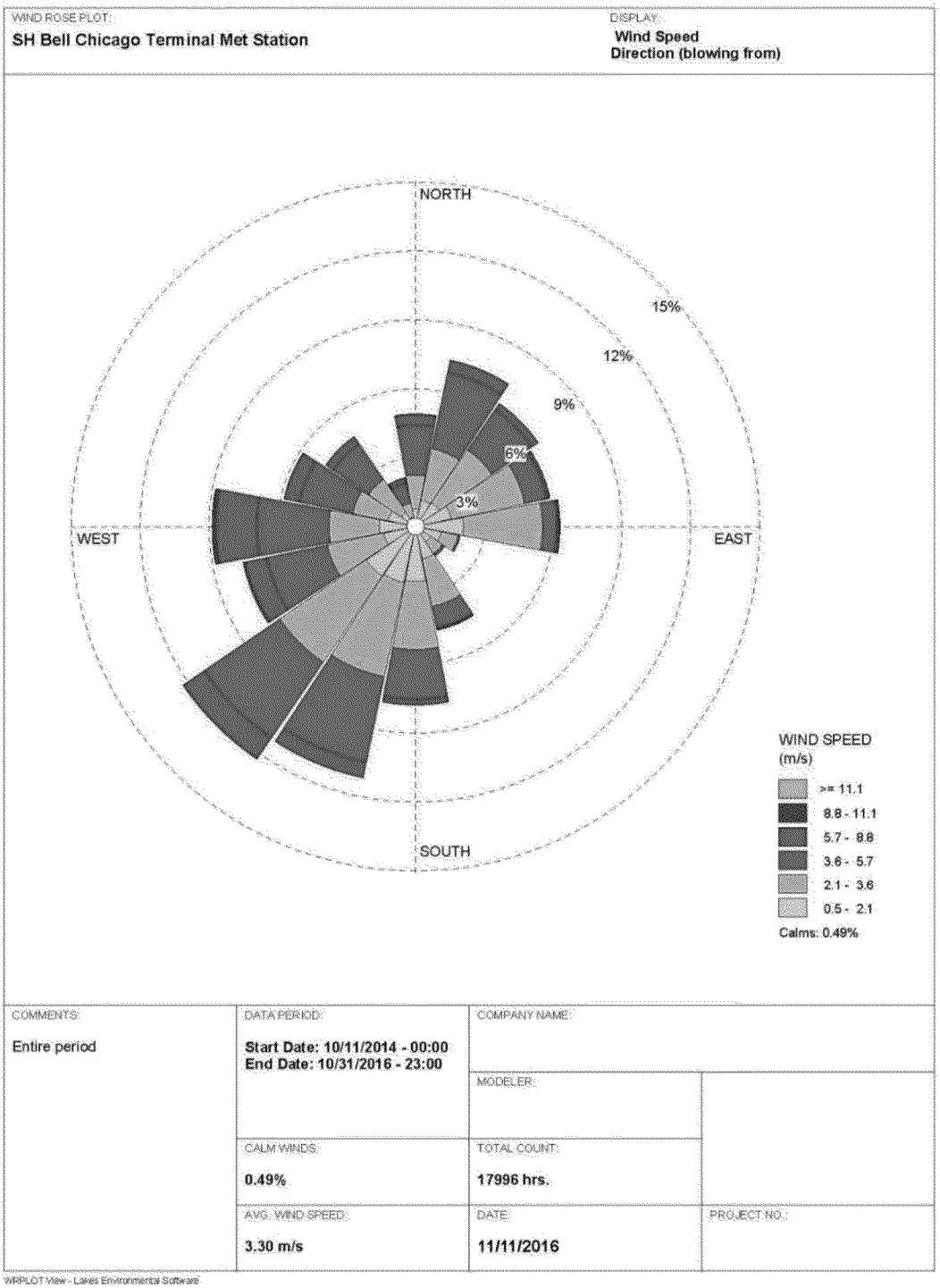
The annual average snowfallveirnagweinptreerciipsitati about the same The proximoiuttyheorfnmfiosstH tipBelbli effects year round Annualy windicatoseasfor component In general tiheinptyedoofmitnhaentsiv southwest to northeast HSee Figure B I

B Monitor Site Description

Figure B shows the locatBeolnswoflthoepemanietors program The yellow outline bionudnidcaartiees s the Aap historical wind rose plot ifnroFmigtuhree SB H BeTal monitoring network configuration by site

Figure B 1: Monitoring Site Locations for the S.H. Bell Chicago Facility

Figure B 2: Historical Wind Rose Data (October 2014 thru October 2016) for S.H. Bell Chicago Facility



B Sampling Methods Requirements

Sample collection methods a s a m p l e s d o n o t a c h i n a t h
control requirements that a r e y p p p l o f a b h e m p t i o n g
have been identified f o r d t h c e p i S e s d H f e q B i e
manuals are kept on s i t e a q t u i t p h m e e n S t s H h e l t B e e r l a t
and S E l e c t r o n i c c o p i e s o f C A S h e p r m j a n a l s s
maintained at C A S s C l e v e s O h i o f a c i l i t y

Table B 1. S.H. Bell Monitoring Network Configuration by Site

Monitoring Site ID	Approximate Location		Monitoring Equipment
	Northing	Easting	
S			B A M m o n i t H o C r o n f t o i r n u P o M u s
S			B A M m o n i t H o C r o n f t o i r n u P o M u s
S			B A M m o n i t H o C r o n f t o i r n u P o M u s A g i l a i r e D a t a l o g g e r
S			B A M m o n i t H o C r o n f t o i r n u P o M u s T w o H I T i s c h E n v i r o n m e n t B L F i l t e r P M B a s M e o d n i F t R o M t s
E M S H E x i s t i n g M o n i t o r i n g S t a t i o n I			d M e t e o r S p e e d W i n d D i r e c t i o n T e m P r e s s u r e D a t a L o g g e r I

B Sample Collection Methods

BAM 1020 FEM PM_{10}

T h e P M c o n t i n u o u s m o n i t o r s s a m p l e e t s a m b i o n g
s i z e s e l e c t i v e i n l e t t h a i t t h i s a n d e a s i r g o n d e y d n a t m i c a l d i
m t o p a s s t h r o u g h t o t h e m e æ s d u r u e s m i e n r g t a h p e p a M r e
I n s t r u m e n t s M o d e l B A M u i v H æ E l P e A n t d e M e i t g h n a d t e E
I

A t t h e b e g i n n i n g o f e a c h s a m p l e n t h e m i t s a e
s o u r c e o f h i g h e n e r g y e l e c t r s p o s t o H k r o v a n a s i b
T h e s e b e t a r a y s a r e d e t e c t e l d a t a i n o d n c d o e u t n e t c e t d o r b y t o a
a z e r o r e a d i n g T h e B A M o t h e s a m p h e a d v a n t
a v a c u u m p u m p p u l l s a m e a s u r e d a a i n r d t c l o m o n g h l e t d h
t a p e l o a d i n g i t w i t h a m b i e n t d u s h i s d A s t t s h p e
b a c k b e t w e e n t h e b e t a s o u r c a e n a a n t d t e t n h u e a t d i e o t n e c o t f o
r a y s i g n a l w h i c h i s u s e d t t o e d n e a t t e t r e m i o e n t h e f m

This mass is used to calculpaatretitchuel avtoel unmaetttreirc air

Specifications for the BAM operationone prcovid maintenance requirements of tthOeneBABMAMunit are BAM Particulate MonitorReOpeHrationHMet I A hard copy of thhee fBoAuMr monitorimagn buildings at S H Bell monSitorinSg siteasndwhSer an electronic copy of the mannumaelmbiersavainiltahbleT folder of the S H Bell cliTehnetsfamplderionlet approximately meters wiftihciantitohne met

Table B 2. BAM 1020 Specification

Parameter	Specification
Range	g m
Sensitivity Std	Deviation H hr I
Flow Rate	liters minute
Beta Source	Carbon Ci
Operating Temperature T	to C
Humidity Control	Active control inlet setpoint
Analog Output	VDC std select current ranges
Memory	days record hour

*Operating temperature inside the equipment shelter

Tisch Environmental HiVol 6070 DV BL Filter Based FRM PM10

The Tisch Environmental Hi Vol pPaMrticuFlRaMtes am samples through a size selewctoinvleyinplaertt itchalte aerodynamic dmiatmoetpearss through to the measurer measured using the Tisch EnvironmenstaamplModelH designated Federal Reference iMentshofdorRFtPhSe Mode DV BL are provided in Tablned Bmaintenanthe ofpetr in accordance with the Augustronmental Inrcev Manual for Series PM HiIgh VoAluhmerdAi Tisch Environmental Manual isikelptngsinatthS mh monitoring site S In adaltisonavaiahableectto team members in the Tech Ilndfeor foonldtehre oCfASthCeleS The sample inlet height wille bpeaatfpromximately

Table B 3. Tisch Environmental 6070 DV BL Specification

Parameter	Specification
Particle Size	PM
Flow Range	cubic feet per minute
Filter Size	x
Federal Reference	RFPS Method
Flow Control	Volumetric
Motor Type	Brushless
Timer	Digital day

Meteorological Measurements

An existing meter met Seor Holog Biec lal Cthi ow eg The tower is equi pmpe d rawti ut he wa i md bs apre pressure monitors The to wweirn dc os pte ie d ua on ud s l direction at one hour inte ervals hour S and H Bel PM measurements with wind spte e rd mi anned swoi unrdc direction and the effects of Wi hr ed m se pte e or d o o g PM also includes calibrated ambi u ment t a te i mo pr er ta ot ud re et corrected Hactual I PM co ms c entr As t i o fn st la es QAPP the meteorological equi p hm e nt PM is o p se ar ma network until such time as o ri it n g c a me t bw eo r ik n t e meteorological monitoring t o nw ge r ra en m lo t me o nd t a ht l ay cr will be performed monthly Ss QHAPP Bweil t lh a d d Si t i Ho regarding the meteorological t e d qui i n p m e nt t he o r PM e i network Table B lists so rs specifications fo

Each meteorological monitor io s g g wei r e d w i it n ht o a a n interface module at the meteo r po r lo o g g ri a c m a l f o t r o w te meteorological equipment is Lnog g g te or w Ne e rt r e m o M e et collection archiving and by re S p o r t H i n g Bweil l l b archived and edited as necessm ar ty e o r o l R e g p i o c r a t l s including wind speed and wE i Pn A d b d y i r Se c t H i o n Bweil l l Semi annual calibrations of m t w i e l l me b t e o p e r l o g i r o Murray and Trettel Inc Nu Is Se Td d t u r r a i c n e g a b d a e l i t Wind speed sensors will be s wa p m p o e n d t h a s n d b e W i r n i d n g sensors will be swapped and b C e o a m r p i l n e g t s e d r e c p a l l a i c b e r d a will be provided to S H Bell

Table B 4. Meteorological System Components

Components	Climatronics/MetOne* Part Number)
Wind Speed Sensor	H I S
Wind Direction	H I S
Platinum Temperature Probe	T A T
Six Plate Radiation Shield	T
Barometric Pressure Sensor	T
Crossarm	
External Heaters	
Heater AC Cable	
Wind Cable	
Data Logger in Enclosure	
Battery Back Up Power Supply	
AC Surge Protector	
Signal Line Surge Protector	
Network Link Interface	CNL
Windows Data Logger Software	LOERNET
Tower Kit	
Full Height rounding Kit	

*Denotes MetOne part number mbAelrls others are Climat

Additional measurements of amrbeisesnutr et ewmiplelr abteu rc
from each BAM unit usmi rtgo ocrabocaurlatseetnshe
flow rates for PM monitogritnog EPA Sgeunisoberlsi nweisl

Shelters

Temperature controlled shelteaarlsentHCiAnSsulation s
R will be installed at eSach ofS the faoudr Sm
equipped with a commercial ngtreadrealcliwimraitreg cmoe
exceeds National Electricaled Cowdieth HaNEsCample iEra
through which the BAM ailnsloe ta ctcuobmimogdaitse
BAM temperature pressure data signal c

Data Systems and Software

The BAM units have oonbsoiaxrdmodnatthas logsgoin
and diagnostic informatioAniraVriesioneasdoifltywaarcec
communicate with the BAM s

An Agailaire Model dtaeaSloggerItisislocca
other three monitoring sitaedsio HnSodems Sto recaen
from the BAM FEM monitoersunit Ttheatrardeic
communication from the other reSmote radDiaotamof

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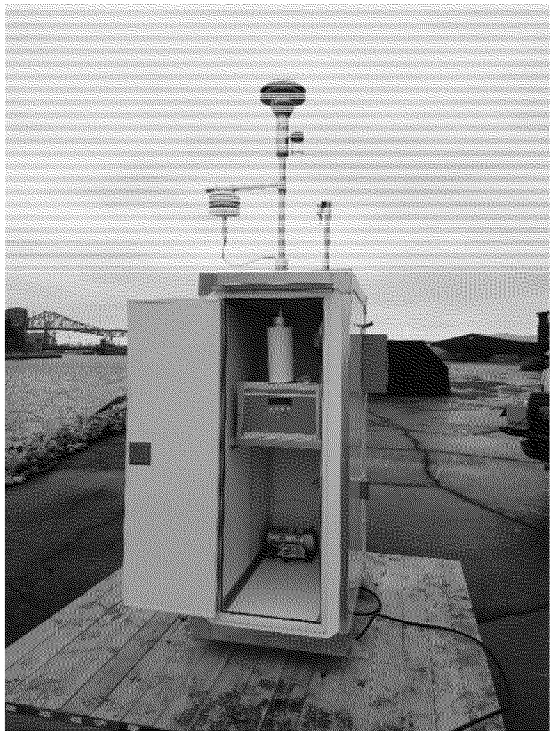
Agilaire data logger Air Vitrians mi Hthed Ag reporting and validation paecrkvaegre iIn Clwehviecsh is O B provides an overview mofnisherhtng sonfeisgur

Each meteorological monitor iosg gweirredwiitnhtoaan interface module at the meteorporloggriacmalfotrowte meteorological equipment is LoggerNet

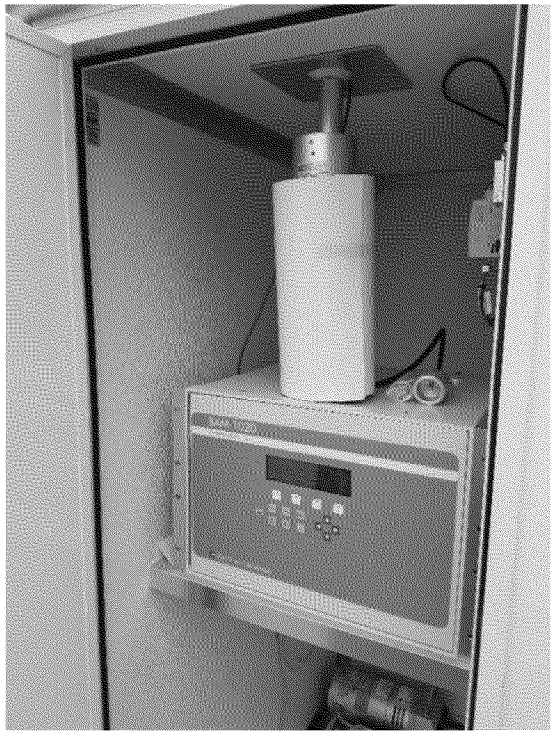
Access to Monitoring Sites

In the event of a natural ortomatnhemsaidteeevesnatmp suspended until it is safentgo oapcecreatsitohes stihtaet been impacted A record ofimtehteedeviemtthaendapipt site logbook and electronircioprojfecattfliedaesst and

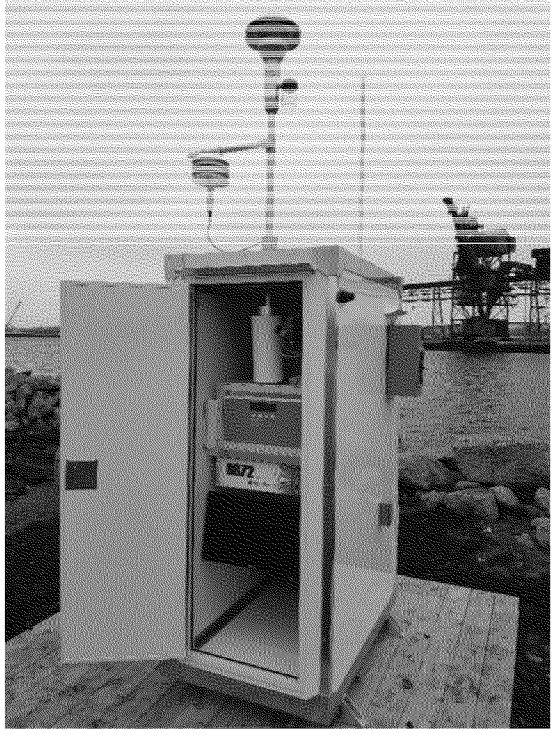
Figure B 3. Overview of Shelter Configurations



S1 (Monitoring Site 1)



S2 (Monitoring Site 2)



S3 (Monitoring Site 3)

S4 (Monitoring Site 4)

All datalogger monitor wátchisnampler tsienmeo nsde
technician s reference time wo brtka iamnedd cfhreocmk ead
once every days Instraunment csleoccdkrsd st hfar
reference clock shall be rcsenctet ol wictkhin Recos
will be recorded in the apphroopfritahtee nsointiet olroignbg

B Sample Documentation and Co

Field operation records includceh esciktlei svtiss it cahna
forms continuous monitor camhpilberra t dao lni bdroactuimoe
flow verification records ematnsd met Ælolr od fo gtihceas
in electronic form as sperreaatdisohne ertesc oorrd st eaxrte f
least monthly to the CAS prcoojjeecctt fmialreasger ffh
data polling systems for theaascsownotridn uporuost emcotneidt oa
CAS team members have accessn doc Suammepnltes cahreec kplri
in Appendix A and an examplerychsaaimmploefs ciuss tpordeys
Appendix B The chain of rcatusgcoudyl apnrcetoc fo S e
Volume II of the EPA QA Hatnsdb6ok sntdrsag
handling in each applicable analytical method

B Analytical Methods Requirement

The monitoring program will collfrcom the Thios
Environmental High Volume Filteirll Bnsedlrg FoR Mb
gravimetric analysis and determiTroatoipctni moifz el etah
schedule CAS will operate tWo HFLsRM Envsiarmpnlr
monitoring site S These tsoamplmdrsigvhitll oepv
days according to USEPA ss day sdamypl
schedule is included as Appendix fo C MarcThhe f
Particulate matter is collected ofni lntuemrbse rseudpp l
Mountain Labs Inc in Shrctdlnapp Wyoimmagely
after every sample eventcsulaes adnedt eSmi Hhe
operating hours and returnedn tSohetrhiedalnnterWyoMnoi
gravimetric analysis and determi Fiatten ofsmpleee
shipped to Inter Mountain Labwsith Iancsignind SChhe
Custody form Shipping etosatmpleesl aabrorriave e
laboratory the Chain of Cdustteody tiismemarkaend
Copies of completed Chain ofthCusabodyt6oymslat
archived in the electronic filyeesarast CAS for a

Inter Mountain Labs Inc anawiylslisimoiftitahlel yf
determine PM mass concentratioInOusing USEP

a I The mass concentration is indicative measurement agreement with the BAM of the Sco Chicago facility s four monitoring sites

Following gravimetric analysis to fix the cadmium chromium manganese extracted as microwave or hot acid then analyzed by HICP MS I Inter Mountain Labs in accordance USEPA s Inorganic Compendium Method Mo in Lab performs the determination of USEPA s by Compendium Method IO DUSEPA Detection Limit for each of the target metals is listed in Ta

Table B 5. Estimated Method Detection Limits for Target Metals

Metal	Method Detection Limit (in ng/m³)
Arsenic	
Cadmium	
Chromium	
Lead	
Manganese	
Nickel	
Vanadium	

Tng m nanograms per cubic meter

Laboratory records include field sample sucpaps or chain of custody forms matt chi fnigl ecsa sfsreotmt et hle QC check data analysis transmit tal to an the database The laboratory records resampl archival of records is accomplished using a w that the lab receives field cast a imp leiss s esnatmpt the management task leader as chasi manned cAud to body Ac

An important consideration of entheo fandaly ta ica concentrations near the method detection laboratory boundaries within its S HDet Bet ion reporting HM Reporting Limit HRL I Esatchhat s arget unique MDo The RL is typically five times reported within concentration range between eMDL reaction Rh and fa specifications are applicable the o Rmeasurement

concentration data are possoinbsl yanodutsshiouel dthee accordingly by data users suTchhe alsabsoramplorey oar volume can vary slightly frosm asraempnloet taobssoalmuptle

In accordance with Appendix B Incof twihlel RaFrich from the PM filter based insCtArSumweinltls afrocrhia tape from the PM continuous asmowneiltlors ffiolrt eart archived stored at the CAS facility in Cleves

B Quality Control Requirements

The quality control HQC I angeothmodnsiteompilnogyendetiv described in this section ectiFoinelBd QC efafnodrtlsa are described in Section B

B Field Quality Control

Field quality control encompatsassekss sreevqeuriarlea are technician to promote qualitayreardeisacsusfsoeldloiwns S

Documentation

The operator will maintain a ifnicllcudeof sisitteevi maintenance logs operatorlogbookkisntsd fanelldal kept in the monitoring eqeuilpfinleinctagsohemontie stations HS S S labnedfSorwlardeCopioest team at least monthly approjtehcetsefiiltesms wSi electronic mail is acceptabalesheetEsxaampdleospeorfattoh are presented in Appendix A

PM10 Continuous Monitor Checks (BAM 1020)

Monthly leak check quarterrleyssfulroew trraatnesdcuheeck and yearly hour zero checks willInbeadpeir checks and flow or temperaturemeprafsteurean maintenance as recommended inmatihnetebnAaMnce che are listed on the monthly QC Hsapnreexdasrhpeleetiussesd Appendix A I

High Volume PM10 Monitor Checks (TE 6070 DV BL)

Appendix B includes a sample mCphlaeinParotficuCluastteod Field Envelope for the contraictc hanaloryatisorya determination of lead and tocxic Imetal FsiveHInptoein calibrations will be performeadndonsitnhgeleTEpoint

verifications will be performed on a QC test prior to a
Additional maintenance checks and the elements used for
project Han example is shown in Appendix A I

Meteorological Equipment Checks

The field technician will visit equipment instrument at a
Happroximately weekly I for visit a message of wide tech
to Murray and Trettel Inc actor the meteorological
sensors will be calibrated with the NIWSiTl tbreacperaobv
S H Bell The field technician will take a look
reports or National Weather Service conditions

All sensors are initially uncrael nitbrmaatneudf aacntdurceerr ta
compared to a traceable standarsdi xunndoenrt hasmbwihe
deployed to the field

The ambient temperature and barrio metbreiccopmrpeasrseu
traceable temperature and pressure sensor is a mobant ds
meteorological system calinbbroatridotnemperTahtear
pressure sensors for the BAMs iinsced to the mteenrtpeedr
and pressure readings are criutliactailontso subsAeqsuu
service checks is proved inoftheheBAMamuanlual Hr

Shelter Checks

The shelter s role in qualriety controlleidsetnovi
which the monitoring equipmentcecan oMpoenriattoer sata
loggers must be housed in oallsohweilntgerrecqaupiarbelmee notf

- The shelter must protect the ainndsterxucmeesnstiavtei and dirt provide third wircodgersoundnieregtafse Occupational Safety and HeabtehcAdaminedstregtu to prevent a buildup of dust
- The shelter must protect the nitrasltrsutmeenstsatsiuc vibration corrosive chemicals intense

B Laboratory Quality Control

The following lists present prsomedurfetshreequimme
methods for each type of analysis are Specivfiled
laboratory SOP documents kepattoInntfeirle Monudntaaviar

EPA-R5-2018-000717_0000760

S.H. Bell Company – Chicago, Illinois
Quality Assurance Project Plan (REV 1)
April 24, 2017
Page 23

Gravimetric Analyses

Laboratory quarlaivtiymectornitcromlasfPoAraGaimpsensiby MSEh
IO includes the following

- Use media that meet the requliOreMeetnhtosd for s
IO Section
- Equilibrate media under the queimpementure an
of the Method before weighing
- Use the same microbalance forvepts and po
- Calibrate the microbalance using Class S s
- After every tenth weighing tandardzeweight
- Reweigh of the samples using a diffe

Metals Analyses

Laboratory quality control pErPoAceCdoumpesndfiourmMeta
IO includes the following

- Use at least two calibrationkwhinedpersforam
initial calibration
- While performing calibrationonsteinfiacdtsion
from a different vendor
- Analyze a calibration blank before each ru
- Run interference check standards though th
- Use continuing calibration hsetainndsatrrdusmetnot ch
required depending on the number of filt
- A reagent blank should be tested
- Laboratory control spikes srhpoluesd be used a
- Analyze a matrix spike during each run
- Test a duplicate or spike mdpulpelsicate after

Sample Naming Convention

CAS will be using the following sample naming identification HID I designation for the each monitoring study Samples will be identified

AABBB MMDDYY V

Where

- **AA** is the collection location Site for an Site
- **BBB** is the instrument HV for High Volume Sampler
- **MMDDYY** is the sample month day and year
- **V** is the type of sample R indicates a blank

For example S HV ed on R M represents High Volume Sampler at Monitoring Site

B Equipment Testing Inspect

Specific tasks for periodic testing equipment for sampling and monitoring equipment to be provided in the manufacturer s operating procedures for quality assurance Initial system integration testing and system performed at the CAS facility to the Cleveland setup tasks operational checks and commissioning the particulate monitoring stations are further summarized for each type of equipment to be followed site visit logbook kept at each location the operations task leader should be provided checks and technician Common consumable chemicals are at the S H Bell Chicago and firm CAS Adfdaict iiloi Cleves Ohio Less commonly available for delivery to site via common carrier

PM10 Continuous Monitor Maintenance (BAM 1020)

Each BAM PM monitor requires by the manufacturer Instrument Manual Bell Chicago sites and detail the required period maintenance manual I To assure proper maintenance schedule must be followed and operation

identified decrease in instrument input or PM Maintenance requires the following maintenance

- nozzle and vane cleaning
- leak check
- one point flow system check
- capstan shaft and pinch roller tire cleanin
- PM inlet particle trap cleaning
- inspection of filter tape
- checking error logs
- checking real time clock

High Volume PM10 Maintenance (TE 6070 DV BL)

Maintenance of the High Volume PM10 be Sampler or accordance with the procedures outlined in Reed Fern Maintenance Section I Manufacturer's recommendations for items Refer to Sampler Operation Section I for

- inspection of all gaskets and seals
- inspection of filter screen and removal of
- inspection of filter media holder
- inspect elapsed time indicator
- clean any excess dirt

Additional quarterly maintenance includes

- cleaning of the inlet and motor housing gas

Meteorological System Maintenance

The operator must perform a tendency to perform maintenance activities including verify functionality of the wind vane and temperature aspirator shield fin set is free of the sidebar fastening hardware should be conducted at the system calibration or audit

B Acceptance Requirements for

Instrument spare parts replacement equipment from the original equipment manufacturer for HOME equipment materials vendor when possible or of discussion is commonly available. Hi e visciel Deoprnar tgmreenat s of Ir and or consumables associated with the PM r

B Instrument Calibration and Fre

This section describes the cayl ifbor ratieon ch metyl po measurement conducted in the S H Bell PM

B Calibraftoiron PM Requi Croenmteinntusous HBAM I

Each BAM unit deployed at the Coeplide Certificate of Calibration at each of the S n Hh monitoring sites

During the first quarterly meadi nttoe ntahnec eBackt ghreo ul Test HBKD I The zero czoirnrge cat izoenr ochefcklitse in place of the PM samtpalielei ch l pertochee dautr completion of the BDK a he wmozneirtoor of sf sfeit Subsequent BKD tests are perifsoirtmse dorduarfitnegr tmaej but not less frequently than every months

Annual Three Point Flow Sys streenqu Cradiabrtart reference flow meter and mustmpienrcaltudree maenads uprreems one unit Each flow calibrat leakprcheeks shor cleaning final leak checakn d three LpPoMnIt afnldc required Refer to Manual Sections

The Filter Relative Humidity st HRHdI SmaFritl tHeera should be performed annually rocedRuerfeesr to Instr

Additional checks include the cBeutnat detsectcchrec background check span foilldhyeck and should

Factory recalibration is nfootr rmeaqjuoirrerdepeaxicrespt f

B Calibration Requirements for DV BLI

Flow Verification Calibration occurs at the upon TE initial installation then quarterly and after any mo

The TE is the preferred Meitrhoslatmoplcear simulates change in the resitsotpanocfe by ercotaaltiibnn infinite resolution lets therets eicshtnaincciean seThee calibration kit includes er plastleack tubepiwa and TE A orifice witnhnufallowcaclailbirbartaitoinonc five points of which three must be within

After calibration the carlscuslastemplerfdliowerraet within Refer to oSramTPEer ManualDV complete calibration procedkurreequiirnecmleundting the

B Calibration Procedures for

Meteorological sensors are cAalgiubirdaatnecdeiannda cpceon not less frequently than anonnusalwiyll beVeprerific accordance with the manufactnusroerrmparnoucaeldsures Aad calibrations will be perforempeldacfeonhelnotwing any s

B Data Acquisition Requirements

The BAM instruments produce Agilaire signals rew acquisition system via radio imodem and whoenrveert engineering units and stored inuneiltesctarroenipcolmlee by the Agilaire daTthae adcaqtuaisiistitohnensypsotlel the AirVision server houosed at the CAS faci

Data collected from S H CBoemlplutCehriiczaegdoiwnislplecb visual inspection of theseidaVtaiwnlsobtewperefo fall outside of prescribleldblei meivtasluaHtTeadb reviewer and corrections todadtaatavawliulels boerdpo will be reported as soon as wphoosswiiblllleitnoittihaete action and determine if a special site visit

Table B 6. Critical Criteria for PM10 Monitoring

Requirement	Frequency	Acceptance Criteria	Reference	Action
PM10 Continuous (BAM 1020)				
Sampling	Period hours of operation	Every minute of midnight to midnight standard	CFR App A Section	Verify prior to samp
One Point Flow Rate Verification	Flow month transfer standard		CFR App A Section	Half values outside ac criteria leak che flow Method Table
PM10 Filter Based (TE 6070 DV BL)				
Sampling	Period	All filters minute midnight to midnight standard	CFR App A Section	Verify prior to samp minutes
One Point Flow Rate Verification	Flow months transfer standard from design		CFR App A Section and Table	Half values outside ac criteria inspect r flow Method sec

Table B 7. Operational Criteria for PM10 Monitoring

Requirement	Frequency	Acceptance Criteria	Reference	Action
PM10 Continuous (BAM 1020)				
System Leak Check	Within PM days of beginning sampling month	Method Check O Rings sec Check Vacuum line pump Inspect Nozzle		
Multi Point Flow Rate Verification following points of startup	Yearly Air Pump and Meter Sec	Plant values outside acceptance criteria leak check reche	cal CFR Appendix Sec	
Semi Annual Flow Rate Audit	months	Clean Check O Rings Check Vacuum line pump Inspect Nozzle	CFR Appendix A and Method Sec	
Inlet Downtube Cleaning	months	Clean	Method	
PM10 Filter Based (TE 6070 DV BL)				
Multi point flow rate of Verification Calibration points of design	Yearly Method	Points outside acceptance criteria are repeated outside consult manufacturer s manual	cal and Method	
Field Temp Verification	At point installation then yr	Recommendation		and I
Semi Annual Flow Rate Audit	transfer standard design	Tighten CFVRFC device blow per A Check for leaks at the orifice plate	of and Part and Sec I Method Table	
Maintenance of Impactor Plate	month	Clean Manufacturer grease recommendation		
Manufacturer Recommended Maintenance	per manufacturer SOP	per manufacturers SOP	NA	

Table B 8. Systematic Criteria for PM10 Monitoring

Requirement	Frequency	Acceptance Criteria	Reference	Action
PM10 Continuous (BAM 1020)				
Sampler Monitor		NA requirem listed in FRM FEM designat	Meet CFR Part App C Section NA ARM CFR Part FRM FEM method list	
Siting		year criteria waiver document	Meet CFR Part App E sections Recommendation CFR Part App E sections	
Data Completeness	quarterly	hours	Recommendation CFR Part App K sec	
Reporting Units		standard temperature and pressure HSTP I	CFR Part App K	
Verification/Calibration Standards and Recertification		*All standards should have multi point certifications against NIST Traceable standards*		
Flow Rate Transfer		Std traceable	yr and Std	I NIST App sec
Field Thermometer		yr resolution accuracy	and section	I Method
Field Barometer		yr resolution mm Hg accuracy	and mm Hg section	Method
Clock timer Verification	mo		min day sec	and I

Table B 8. Systematic Criteria for PM10 Monitoring (Continued)

Requirement	Frequency	Acceptance Criteria	Reference	Action
PM10 Filter Based (TE 6070 DV BL)				
Sampler Monitor		NA requirement listed in FRM FEM designation	Meet CFR Part Apps C Section NA ARM CFR Part FRM FEM method list	
Siting		year criteria waiver documented	Meet CFR Part Siting App E sections Recommendation CFR Part App E sections	
Data Completeness		quarterly	Part sec	App K b c
Reporting Units		all filters and standard temperature and pressure	Part	g Im at CFR App K sec
Precision				
Single analyzer		Coefficient of variation mo and HCV I g m	Recommendation	I
Single analyzer		yr g m	CaVnd Recommendation	I
Verification/Calibration Standards and Recertification		*All stds should have multi point certifications against NIST Traceable stds*		
Flow Rate Transfer		Std traceable	yr CFR Part App Std sec Method CFR Part App sec	of NIST Sec
Field Thermometer		yr resolution C accuracy	and Sec	I Method
Field Barometer		yr resolution mm Hg accuracy	and mm Hg Sec	Method
Clock timer Verification	year	min mo		recommendation

B Data Management

The proper management of all uadlaitta yi sancdriutsiacbli monitoring results As suochensurperorcoebdsutr acquisition validation rledcutcrioninc dartepor monitoring data will be recorAgdlaindestMordedat logger PM data will boeurrleytrviieaveidntferromettth to the CAS AirVision file sseirtver can Ibneaddiltlie computer having the correct rsoftiwatre canedetmteia

All electronic calculations foramedstusatingtistcahdar HMicrosoft Excel I Air Vitshieon Agilaindret Modseo logger All project docuwmielnltabteiosntorerdecfor d years following project cseompelretaitonConsoTl Analytical Systems which are obnacaknedd oufpfsniitgehtly

PM data will be reviewed sriogunteidnetloy tbhyistherpero CAS Data Manager reports dirTehcetsleydtactathweilCASbeP to several levels of qualistuyracnocnetraosl disvcaulsisdead D Validated data arertchoempialnaeldysiinstcan preparation The final dataCoarseoliisdaptreodceAsnsae Systems server and then archiaviendtaoimevdariinoudsupsl more than one location for protection

The Data Manager will archiveed dAantaalyotnictahle Snyestt on secured servers which arandbaockfed suiptenightA BAM filter tape will be collectedifirtoynsintCla least years Inter Mcourntaaipnerliaobds of Iantcl their facility in Sheridan Wyoming

PM10 Continuous Monitor (BAM 1020) Data Reporting

The PM hourly concentrationsreportmedcontinuomo basis in accordance with the USEPUASEPAg Appendix B I within hitdawyassocfoltheect continuous data collected MAprchl

High Volume PM10 (TE 6070 DV BL) Data Reporting

Reporting of the data fromuntherPM gravi analysis and determination ofthe ad USEPA Region dated March HUSthPeAformat submiAppe contract laboratory

Below is an example timeline deep tariding processas based samples Please note olthmæt PsMamplserc apni cvk days He g if the sampling ghtfinitshee sficlotlelre be until Monday morning baseedraotnioSn lHoursBell

- Days Samples are caonkleewittehd tfhr USEPA day sampling schedule HAppendix
- Day On the first busihneessamdpalyinfgolelvoewit two samples are collected Hone from S HV
- Day Samples are shipperdidtaon IntWeyromiMnogu
- Day Transport to laboratory
- Day Laboratory check in
- Day Filter conditioning Hpre
- Day ICP MS analysis
- Day Report preparation by the l
- Day CAS receipt and review anc
- Day Reporting T

TNote Date trhewcielivedbeafitnecrltubed with the following month

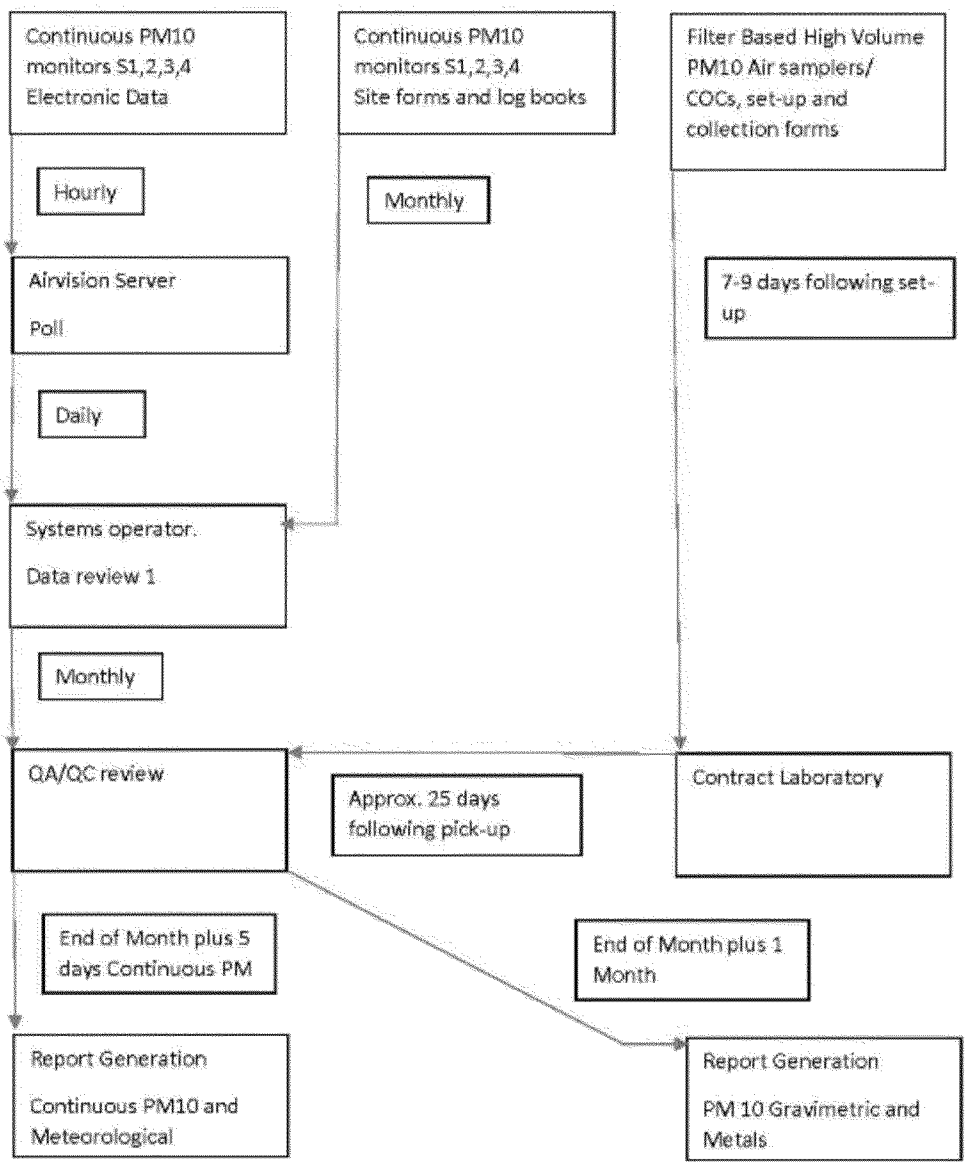
The appropriate reporting submittal schedule v

- April Continugouls PM data
- May High Volume PM data
- May Continuous PM data
- une High Volumle PM data
- une Continuous PM data
- une High Volume PM data

Data may also be marked with notaequalspecteroccide if necessary

Figure B presents the dataandflmowaginlg fabl generated in the network

Figure B 4. Data Management Tasks for S.H. Bell Chicago Monitoring Network



C ASSESSMENT AND OVERSI

C Assessment and Response Action

The project team includes a quality responsible independent assessment of the same corporate organization interests in the operation of Assessments conducted for the Audits and Performance Evaluation degree to which the procedures Performance evaluations acceptable results Both data collection efforts as audits are conducted following Handbook series Volumes I II and IV

C Technical Systems Audits

Technical Systems Audits equipment are functioning as examine facilities equipment validation data management employing a checklist as allot greater amounts of time advance of the audit and the EPA QA Handbook series H

From this assessment the specifications relating to includes traceability documentation quality control checks on specification appears incompleted guidance document information of the monitoring activity a BAM is presented in Figure C

Figure C 1. Example TSA Checklist for BAM 1020

CONSOLIDATED ANALYTICAL SYSTEMS

BAM-1020 Audit Report

Customer	
Instrument	
ID/Serial No.	

Audit Performed by	
Date	
Location	

Flow Audits

Standard Used	Model	Serial Number	Calibration Date
Flow Reference Standard			
Temperature Standard			
Barometric Pressure Standard			

	as found	*as left*
Leak Check Value		

	as found		*as left*		N/A
	BAM	Ref. Std.	BAM	Ref. Std.	
Ambient Temperature					
Barometric Pressure					
Flow Rate (Actual Volumetric)					
Flow Rate (EPA Standard)					

Mechanical Audits

Note: Mark as found and/or as left box to reflect actions performed.

	as found	*as left*	
Pump muffler unclogged			
Sample nozzle clean			
Tape support vane clean			
Capstan shaft clean			
Rubber pinch rollers clean			
Chassis ground wire installed			N/A
PM10 particle trap clean			
PM10 drip jar empty			
PM10 bug screen clear			
PM2.5 particle trap clean			
Inlet tube water-tight seal OK			
Inlet tube perpendicular to BAM			

Figure C 1. (continued)

CONSOLIDATED ANALYTICAL SYSTEMS

BAM-1020 Audit Report

Setup and Calibration Values

Parameter	Expected	Found
Clock Time/Date		
RS-232 Baud Rate	9600	
STATION #		
RANGE (mg)	0 - 1.000 mg	
BAM SAMPLE		
MET SAMPLE		
OFFSET		
CONC UNITS	mg/m3	
COUNT TIME (min)		
FLOW RATE		
CONC TYPE	STD	
FLOW TYPE	Actual	
Cv		
Qo		
ABS		
µ sw		
K Factor		
BKGD		
STD TEMP (°C)	-40 °C to 55 °C	
HEATER	Auto	
e1		
Errors	N/A	
AP		
FR1		
FRh		
Password	f1 f2 f3 f4	
Cycle Mode	Standard	
RH Control	yes	
RH Setpoint (%)		
Datalog RH	yes	
Delta-T Control	no	
Delta-T Setpoint (°C)		
Datalog Delta-T	no	

Figure C 1. (continued)

CONSOLIDATED ANALYTICAL SYSTEMS

BAM-1020 Audit Report

Analog Voltage Output Audit — Relevant? No

DAC Test Screen	BAM Voltage Output (Volts)	Logger Voltage Input (Volts)
0.000 Volts		
0.500 Volts		
1.000 Volts		

Membrane Audit

LAST m (mg)	
ABS (mg)	
Difference (mg)	0
% Difference	#DIV/0!

Flow Control Range

Flow Setpoint	BAM Flow
15.0 LPM	
16.7 LPM	
18.4 LPM	

Last Six Errors in BAM-1020 Error Log

	Error	Date	Time
1			
2			
3			
4			
5			
6			

Notes

Recommendations

Signatures		Date
Service Technician		
Reviewer		

C Performance Evaluation Audi

Continuous PM monitor and FRM ts aomfp lærl pa k f o
flow rate measurement accur aecnyp ecrhaetcukr e aanndd pvree
transducer measurement accuracy Hfor continuo

Performance audits for mete obryo ldoigri eccatl csoemmpsaorriss
an audit standard For tfh et h wi sn ed n sdoi rr ewci tt ih o
turned to a series of knownr ide m te ar tt ii om s o fi st la es s
respect to true north Thter awci enadb l sep ec ee d- t si f m se d
unit The ambient temperatu re a n d d ub ca tr eo dn e tu s
collocated audit standards if iAe d i g r a a e a b h e r m y s
temperature and a traceabl ep rbeasrsoumreet etrr ainss duusceedr

C QAPP Revisions

If revisions to the S H B e l l n C o m p a l n y G l m y c ang
will be approved by S H Behl Cofmpra n y e v i es w
comment and a revised epdriitai t e n i nwd i l vli d h u e l
distribution list presentS d H s t B e l l C o m
responsible for QAPP revision and distribution

C Reports to Management

Reports for field perfor ma nucdee aan ds tt ae tc eh m ei nc ta l o fs
of the audit summary p rsepse e in ft i act io b s a e rovfa
findings related to the sp e l a i fa i a a t l i o n a c u a h e r i t
for each audit standard e mp lu d y de d a l a w ra e y s i n p o r l o w d e l d e
technician and or the operati o n r r s y tf a i s n k d i n l g s a d e
recommendations during a debri o f n i n g f m e e h t e i n g u l
significant deficiencies a r e o f d e t h e m i s y e s d e t m h a t o
function the CAS Project Ma n T a h g e e r C A w S i l P r o b j e e n o
will notify S H Bell ra e l p r r e e s p e o n r t t a t s h v e a s d o b e t
the project team within two w l e f e k t s h e o r f e c a o m p l n e o i c
action items the audit o r o n m a i y s c r l e o q s u e i r t e h d e a u t d h i e t
classified as open pending o v n e r w i a f s i c a o t m i p d n e t t e h d a t a n
specification is being metto E P A i s a s i p f a o r t m a o t f i o t
reporting effort

The designated project team me f m b r e r f o w i l l o l w h a u p e
recommendations and provide a a n w d r i c t o n e m u n r i e c s a p t o e n s
outcome of the corrective F i a e l t d o I n n s e t f a f l d a t i o n
Manager for the field net w o a r k r e s p l o f n s t e h e o r a u t d h i e t o r
inadequate he must communin c a g t e r the situation

Accuracy precision and tcoodmpflcert eenaecshs mset aastuir applicable per the quality assAuprpaenncdei xg uAi dan laboratory detection limits ewirlelpobrtecdolnlumcttesd nominal values stated in thirsatQAPmPeasurTelmeenctomap are as described in Volume I Iogaincdalthmeeascompum accuracy are as described inUSVEPAme IV of thea respectively I

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- Reviewing all site visit logs other calrieblreavta information for indications of rummelnftunct maintenance calibration events
- Reviewing each laboratory report
- Reviewing all available BAM perforr
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D Data Quality Assessment

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Any potential limitations notfiftiheedvaanldidcaotmendundiact project team will present allthlenodvantaorwiptohteema submittal and will clearylydeftleargmianneyisfucthhedaa be used for a particular conclusion or decisio

E REFERENCES

Met One *BAM 1020 Particulate Monitor Operations Manual, BAM 1020 9800, Rev H* Met One Instruments Inc rants Pass OR

S H Bell Co *Response to Request to Provide Information Pursuant to the Clean Air Act, Appendix B, PM10 Monitors and Siting, Proposed Monitoring Sites and Locations", January 4, 2017.*

H Monitor *Amendments and revisions as noted below:*

- *01/11/2017 – USEPA Region 5 Email from Nicole Cantello "S.H. Bell Company Chicago, S. Avenue O Terminal – Monitoring and Siting" (request for clarification to proposed monitoring site selection)*
- *01/18/2017 – S.H. Bell Letter "Response to January 12, 2017 (sic) Email Request to Provide Justification for Monitor Site Selection"*
- *01/25/2017 – Conference Call between USEPA Region 5 and S.H. Bell (request for evaluation of PS2, PS2.1, PS2.2, and PS2.3)*
- *01/30/2017 – S.H. Bell S. Letter Response to January 12, 2017 (sic) Email Request to Provide Justification for Monitor Site Selection (Response to 01/25/2017 conference call requesting written evaluation of PS2, PS2.1, PS2.2, PS2.3)*
- *02/02/2017 – Conference Call between USEPA Region 5, the City of Chicago, S.H. Bell, Eckert Seamans Cherin & Mellot, LLC and Consolidated Analytical Systems, Inc. (request to re evaluated alternative proposed monitoring site PS2.2)*
- *02/06/2017 – S.H. Bell Letter "Response to January 12, 2017 (sic) Email Request to Provide Justification for Monitor Site Selection" (Re Evaluation of alternative proposed site PS2.2)*
- *02/07/2017 USEPA Region 5 Email from Nicole Cantello "S.H. Bell Company Chicago, S. Avenue O Terminal – Monitoring and Siting" (request to locate proposed monitoring site PS2.2)*
- *02/10/20117 – S.H. Bell Letter "Response to February 7, 2017 Email Request to Locate Proposed Monitoring Site PS2.2"*
- *02/13/2017 – USEPA Region 5 Email from Nicole Cantello "S.H. Bell Company Chicago, S. Avenue O Terminal – Monitoring and Siting" (request to resubmit S.H. Bell siting plan for approval)*
- *02/24/2017 USEPA Region 5 Email from Nicole Cantello "S.H. Bell Company Chicago S. Avenue O Terminal QAAP" (providing links to be researched in the development of the site specific QAPP)*
- *03/02/2017 USEPA Region 5 Email from Nicole Cantello "S.H. Bell Company Chicago S. Avenue O Terminal – Monitoring and Siting" (approval of the S.H. Bell Siting Plan)*
- *03/10/2017 – S.H. Bell Letter "Letter Updates to S.H. Bell's December 30, 2016 Response to: Request to Provide Information Pursuant to the Clean Air Act Appendix B, PM10 Monitors and Siting Proposed Monitoring Sites and Locations"*

H Tisch Environ *OPERATIONS MANUAL, TE 6000 Series TE 6070, TE 6070 BL, TE 6070D, TE 6070D BL TE 6070V, TE 6070V BL, TE 6070DV, TE 6070DV BL, PM10, Particulate Matter 10 Microns and less High Volume Air Sampler, U.S. EPA Federal Reference Number RFPS 0202 141"* Tisch Environmental Inc Village of Cleves

H USEPA I United *Quality Assurance Handbook for Air Pollution Measurement Systems, Volume 1 A Field Guide to Environmental Quality Assurance* EPA R a April

HUSEPA a I United States Environmental Development Compendium of Methods for the Determination of Inorganic Compounds in Ambient Air, Compendium Method IO 2.1, Sampling of Ambient Air for Total Suspended Particulate Matter (SPM) and PM10 Using High Volume (HV) Sampler EPA R

HUSEPA b I United States Environmental Development Compendium of Methods for the Determination of Inorganic Compounds in Ambient Air, Compendium Method IO 3.1, Selection, Preparation and Extraction of Filter Material EPA R a une

HUSEPA c I United States Environmental Development Compendium of Methods for the Determination of Inorganic Compounds in Ambient Air, Compendium Method IO 3.5, Determination of Metals in Ambient Particulate Matter Using Inductively Coupled Plasma/Mass (ICP MS) Spectroscopy EPA R a une

HUSEPA a I United States Environmental Guidance for Quality Assurance Project Plans and Related Assessments for Environmental Data EPA a anuary

HUSEPA b I United States Environmental Guidance for Regulatory Modeling Applications EPA R

HUSEPA I United States Environmental Requirements for Quality Assurance Project Plans EPA QA R March

HUSEPA I United States Environmental Guidance for Quality Assurance Project Plans EPA QA EPA R

HUSEPA I United States Environmental Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV –Meteorological Measurements Version 2.0 (Final) EPA B March

HUSEPA I United States Environmental Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II Ambient Air Quality Monitoring Program EPA B May

HUSEPA I United States Environmental Guidance for Information Pursuant to the Clean Air Act March

Appendix A Example Calibration Data Spreadsheets and Operator Checklists

CONSOLIDATED ANALYTICAL SYSTEMS

TE VS U G

Customer Co. / Org.	S. H. Bell
Customer Contact	Jim Langbehn
Project No.	17-3007
Insturment Model	TE-6070V
ID/ Serial No.	
Instrument Site	S4
Sample ID	
VFC G-Factor	0.0251890900

Date	
Technician Initials	
Location	Chicago, IL
Sample Start Date	
Sample End Date	
Service	Sample
Filter Number	

Ambient Conditions Set-up

Temp (deg F):		Clean Filter P	
Ta (deg K):	5.5	Barometric Press (in Hg):	
Ta (deg C):	17.8	Pa (mm Hg):	0.0

Ambient Conditions Sample

Temp (deg F):		Loaded Filter P	
Ta (deg K):	5.5	Barometric Press (in Hg):	
Ta (deg C):	17.8	Pa (mm Hg):	0.0

Calculate Total Air Volume Using G-Factor

Enter Average Temperature During Sampling Duration (Deg F)	
Average Temperature During Sampling Duration (Deg K)	255.22
Enter Average Barometric Pressure During Sampling Duration (In Hg)	
Average Barometric Pressure During Sampling (mm Hg)	0.00
Enter Clean Filter Sampler Inches of Water	
Enter Dirty Filter Sampler Inches of Water	
Average Filter Sampler (mm Hg)	#DIV/0!
Enter Total Runtime in Hours (xx.xx)	

Po/Pa #DIV/0!

Calculated Flow Rate (m3/min) #DIV/0!

Total Flow (m3) #DIV/0!

Calculations

Calibrator Flow (Qa) = 1/Slope(SQRT(H2O(Ta/Pa)) - Intercept)

Pressure Ratio (Po/Pa) = 1 - Pf/Pa

% Difference = (Look Up Flow - Calibrator Flow) / Calibrator Flow

NOTE: Ensure calibration orifice has been certified within 12 years

C I A S OH M A C

CONSOLIDATED ANALYTICAL SYSTEMS

TE VS U G F

Customer Co. / Org.	S. H. Bell
Customer Contact	Jim Langbehn
Project No.	17-3007
Instrument Model	TE-6070V
ID/ Serial No.	P10244BL
Instrument Site	S4
VFC G-Factor	0.0251890900

Date	March 1, 2017
Technician Initials	
Location	Chicago, IL
Time of arrival	8:00
Time of departure	17:00
Service	Calibration

Calibration Orifice

Make	Tisch
Model	TE-5028A
Serial #:	3303
Qa Slope (m):	0.93771
Qa Int (b):	0.00061
Calibration Due Date	03/01/17

Ambient Conditions

Temp (F)	44.2	**BP (in Hg)**	28.94
Ta (°K)	280	Pa (mm Hg)	734.3
Ta (°C)	6.8		

Calibration Information

Run Number	Orifice " H2O	Qa m3/min	Sampler " H2O	Pf mm Hg	Po/Pa	Calculated m3/min	% of Diff
1	1.50	0.806	2.80	5.226	0.9913	0.818	47.42
2	1.50	0.806	3.30	6.159	0.9912	0.816	47.30
3	1.50	0.806	3.40	6.345	0.9911	0.816	47.17
4	1.40	0.778	4.70	8.771	0.9888	0.812	51.91
5	1.40	0.778	6.00	11.198	0.9858	0.808	51.27

Calculate Total Air Volume Using G-Factor

Enter Average Temperature During Sampling Duration (Deg F)	62.00
Average Temperature During Sampling Duration (Deg K)	289.67
Enter Average Barometric Pressure During Sampling Duration (In Hg)	29.40
Average Barometric Pressure During Sampling (mm Hg)	746.76
Enter Clean Filter Sampler Inches of Water	13.30
Enter Dirty Filter Sampler Inches of Water	14.00
Average Filter Sampler (mm Hg)	25.47
Enter Total Runtime in Hours (xx.xx)	24.00
Po/Pa	0.966
Calculated Flow Rate (m3/min)	0.772
Total Flow (m3)	87.68

Calculations

Calibrator Flow (Qa) = 1/Slope(SQRT(H2O(Ta/Pa)) - Intercept)

Pressure Ratio (Po/Pa) = 1 - Pf/Pa

% Difference = (Look Up Flow - Calibrator Flow) / Calibrator Flow

NOTE: Ensure calibration orifices have been certified within 12 months of use

Appendix B Example Chain of Custody Form

Inter-Mountain Labs

Sheridan, WY and Gillette, WY

- CHAIN OF CUSTODY RECORD -

All shaded fields must be completed.

This is a legal document; any misrepresentation may be construed as a fraud.

#WEB 10101

Client Name	Project Identification	Sampler (Signature/Attestation of Authenticity)	Telephone #
Consolidated Analytical Systems (CAS)	S. H. Bell - Chicago, IL		513-542-1200

Report Address	Contact Name	
201 S. Miami Avenue Cleves, OH 45002	Meredith Cloran Email: mcloran@as-en.com Phone: 513-542-1200	
Invoice Address	**Purchase Order #**	**Quote #**
201 S. Miami Avenue Cleves, OH 45002	17-2507	CAS1702231

ANALYSES / PARAMETERS

ITEM	LAB ID (Lab Use Only)	DATE SAMPLED	TIME SAMPLED	SAMPLE IDENTIFICATION	Matrix	# of Containers	PM10 Gravimetric	IO3.1 for air filters	IO3.5 Metals						REMARKS
1		03/02/17		S4 HV1-030217-R		FT	x1	x	x						See Field Envelope
2		03/05/17		S4 HV2-030517-R		FT	x1	x	x						See Field Envelope
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															

LAB COMMENTS	Relinquished By (Signature/Printed)	DATE	TIME	Received By (Signature/Printed)	DATE	TIME

SHIPPING INFO	MATRIX CODES	TURN AROUND TIMES	COMPLIANCE INFORMATION	ADDITIONAL REMARKS
☒ UPS	Water WT	Check desired service	Compliance Monitoring? Y	Collected 03/07/17
☐ FedEx	Soil SL	☒ Standard turnaround	Program (SDWA, NPDES, CAA 114)	Field conditions at collection:
☐ USPS	Solid SD	☐ RUSH - 5 Working Days	PWSID / Permit #	
☐ Hand Carried	Filter FT	☐ URGENT - < 2 Working Days	Chlorinated? N	
☐ Other	Other OT	*Rush & Urgent Surcharges will be applied*	Sample Disposal: Lab x Client	

EPA-R5-2018-000717_0000760

INTER-MOUNTAIN LABS

IML Air Science
555 Absaraka
Sheridan, WY 82801
(307) 674-7506
www.imlairscience.com

Particulate Sampler Field Envelope

Network _____ Sampler ID _____

Filter Number _____

Sample Date _____

Time Off _____

Time On _____

Run Time _____

Tech. _____

P_{STG}

ΔP on	ΔP off

units

Comments:

_____

_____

_____

_____

_____

Appendix G: USEPA (3 day) Sampling Schedule, 2017

EPA Sampling Schedule 2017

Important Dates

Notes

3-Day schedule is shown in orange, green, and purple

6-Day schedule is shown in green and purple

12-Day schedule is shown in purple

January

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

February

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28				

March

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

April

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

May

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

June

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

July

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

August

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

September

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

October

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

November

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

December

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Appendix D
S.H. Bell Siting Plan

SH BELL CO
HANDLING WITH CARE • LME APPROVED

anuary

United States Protection Agency Region
Air and Radiation Division
Attn Katherine Owens Air Enforcement Section
George T Ozerman Jackson Blvd
Chicago IL

RE: **S.H. Bell Company**
10218 South Avenue O
Chicago, Illinois 60617
Response to: Request to Provide Information Pursuant to the Clean Air Act
Appendix B, PM_{10} Monitors and Siting
Proposed Monitoring Sites and Locations

Dear Ms Owens

S H Bell is pleased to submit the Radiation Division to Provide Information Pursuant to the Clean Air Act Appendix B Item Monitors and Siting

PM_{10} MONITORS AND SITING

Appendix B

Question Within days of SeHcBe is the lot of stuhbimsit monitoring site locations for the Federal PM monitoring and Federal Reference M monitoring at the facility establishing monitoring sites

Response A site location and vicinity map of Avenue O Chicago Illinois proposed monitoring locations for FEM real time PM based monitoring are shown on Figures detailed Historical wind rose data is included in At

Appendix B

Question Within days submitted to EPA of the property lines of the facility and the properties and proposed locations of monito

Response A site location antap of the SouHh ABel Illinois and the sdunces undainndg industrial properties I is aotrtiancghesdi taes lFoicgau for FEM real time PM monitoirtionrgi nagndarFeH shown on Figure

MONITORING SITE SELECTION RATIONALE

S H Bell has selected fourowprpropnosFeidgumonitorin monitoring locations are ideThtiefSiedHas PeSll faPcSili meteorological tower denotfeodurasprEoSpMsoend Fmiognuirteori HPS PS PS and PnSonitlorwsill hOave OfFEMthre monitoring sites PS wchilcohcaitsiolnocoantetdheaS tH will also havefialnteFRM PbMased monitor t tMeteo existing meteorological tower

Probe siting information anddsmiotneitcoornifnigguloactaitoinonfsorw accordance with CFR Part an natAuprpeendoifx tEhe SB particular attention is gisvietnintgoctrhietefroilalowing secti

- Horizontal and Vertical Placement
  Microscale PPbM aPnMsiPtMes are required to have s and meters above ground level

  The probe or at least peractenlteaosft the mmeotneirt or horizontally away from paentys suppentrhtoiunsgesst away from dusty or dirty aporetaison ofIfthtehemopnriotl is located near the side bofelaocbautieldidionngtohre wwailn of the building relative togthtehepr seevaasiolningf wh concentration potential for the pollutant bein

- Spacing From Obstructions
  a Buildings and other obstOaorlNaOndmacyn paocs restrict airflow for any pothetapntobe Toianvloeit percent of the monitoringwapnadthbemulsotcahtaevde from obstacles The distnlnte forrommotnhietoo must be at least twice the beivghthehaprobhe o monitoring path An exceptifoonr tmeatshuirsemreenqt taken in street canyons or iatngsoandeotherirestte are unavoidable
  b enerally a probe or monitvoerritnigcaplatwhalll undesirable because air moving palsoinglethreemoa mechanisms A probe inlettrictoerdmaoinriftloorwinig of at least degrees Whinsdaircemtsitonifi season of greatest pollutanitclceonscaemptlriantgion ap of meters of separation fiesmrwaqulsred foarap site placement

Table E 4 of Appendix E to Part 58 —Summary of Probe and Monitoring Path Siting Criteria (in particular Notes 3, 4, 5, and 8).

Pollutant	Scale (maximum monitoring path length, meters)	Height from ground to probe, inlet or 80% of monitoring path 1 (meters)	Horizontal and vertical distance from supporting structures 2 to probe, inlet or 90% of monitoring path1 (meters)	Distance from trees to probe, inlet or 90% of monitoring path 1 (meters)	Distance from roadways to probe, inlet or monitoring path 1 (meters)
S OB	Middle H m l Neighborhood Urban and Regional	H km l			N A
C O B	Micro L downtown or street canyon sites M micro L near road sites M middle H m l and Neighborhood H km l				for downto areas or street canyon microscale for near ro microscale see Table E of this appendix for middle and neighborhood scales
O B	Middle H m l Neighborhood Urban and Regional	H km l			*See* Table E of t appendix for all scales
N OB	Micro H L	Near road m M l	Hmicro l		for near ro micro scale
	Middle	H m l	Hall other scales l		
	Neighborhood Urban and Regional	H km l			*See* Table E of t appendix for all other scales
Ozone prec Hfor PAMS	Neighborhood and Urban H	km l			*See* Table E of t appendix for all scales
PM PbB	Micro Middle Neighborhood Urban and	Hmicro l Hmiddle l PMB for near road Regional Hall	horizontal distan Hall other scales l	scales Hal l	Hmi see Figure E scaloefs this appe for all other scal for near ro

N A Not applicable

B Monitoring path for open mpaltdhea ma ryzeighbiosr hoopl is cabloed C On lmyontiorin urban and rengoinointaolr isncgale aNnOd all applio ahplcee sucrasloerss for monitoring

B When probe is located onsainoof eopencehto sveplasatiofnrdipstanceor

B Should be greater than andmentusts bfeom tlmeterisplfirmoen ohthetrdcepllisnle obstruction

B Distance fromsamplerrcenthprotfcbenoobnsittaocrlieng psautch as a ebiugihltditnhge must obstacle protrudes above the saSmptleesr notprmoebeetingortlmiosnisctcrailtieenrgiopnathay sdl text l

B Must have unrestricted airrfslacmpler degreelse garreeusndgftoltrehcapnpvrahldeleo is

B The probe insgamppaltehr shoourlnmoobneisteaowrayesfromsmich as furnaicoen or incinen distance is dependent on theohepghntof Hslhehmiasoa fbuencdlethetehqeuatlsyiptey o of the fuel Hsulfur asehsignoerdlteoadavcooindteunntdule inTfhliuseneccreistefrrioonmiisnod

B For micro scale CO monitorisngfrsomtasstrelectpnoleersmucstattohoenand prefin

B Collocated monitors must bte wiethlin mmeteessapfareafmrofbowatandes least meter apart for samplleirtserhsavmiinngtfolopwrercaltuedse laeiissrsfiltrohwapliandcerafser approved by the Regional AdmiAnpipsetnrdaitxorA pursuant to section of

SUMMARY

S.H. Bell looks forward to USEPA's review and approval of responses to Appendix B questions 2 and 3 and to installing, operating, and maintaining ambient monitoring sites at the facility upon your approval of the proposed plan. Should you have any questions about the proposed monitoring locations, please let me know.

CERTIFICATION

> I certify under penalty of law that I have examined and am familiar with the information in the enclosed documents, including all attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are, to the best of my knowledge and belief, true and complete. I am aware that there are significant penalties for knowingly submitting false statements and information, including the possibility of fines or imprisonment pursuant to Section 1(c)(2) of the Clean Air Act and 18 U.S.C. §§ 1001 and 1341.

Respectfully submitted,

John R. Bedeck
Project Manager & Dir. Of Quality
S.H. Bell Company

Prepared by:
Consolidated Analytical Systems, Inc.

Figure

Site Location and Vicinity Map

S H Bell Facility Avenue O Chicago South Illinois

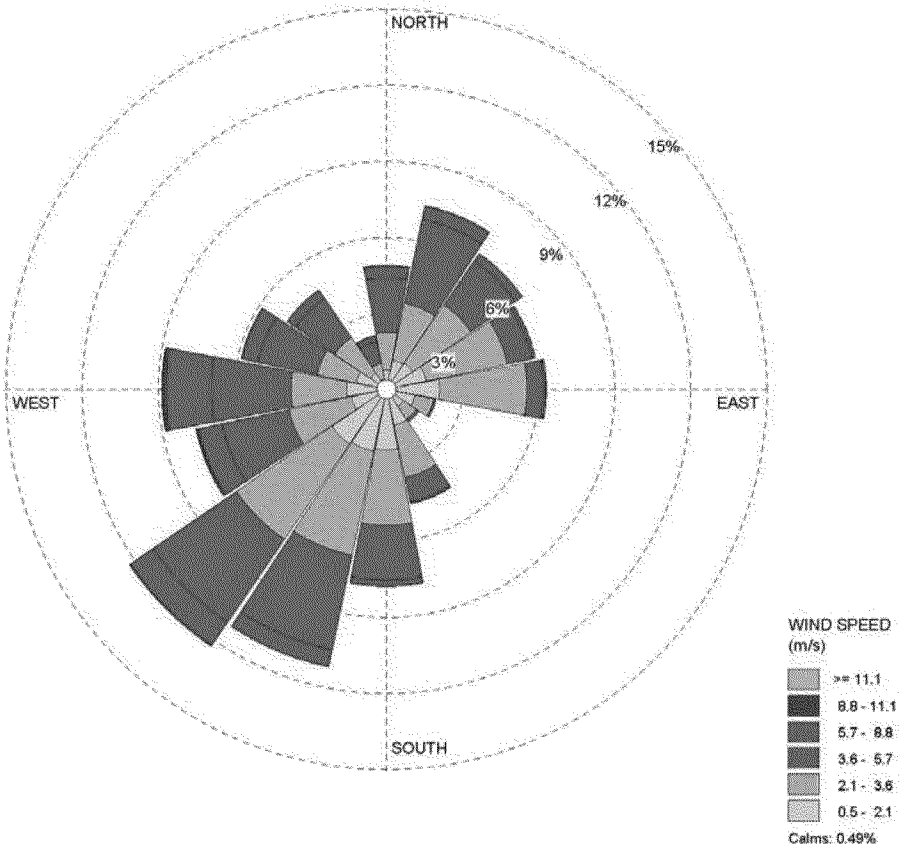
Figure
Proposed and Existing Monitoring Locat
S H Bell Facility South Av

Site ID	Latitude	Longitude
PS		
PS		
PS		
PS		
EMS		

Attachment
Historical Wind Rose Data HOctober
S H Bell Facility South Av

WIND ROSE PLOT:
SH Bell Chicago Terminal Met Station

DISPLAY:
Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
Entire period	**Start Date: 10/11/2014 - 00:00** **End Date: 10/31/2016 - 23:00**	MODELER:	
	CALM WINDS: **0.49%**	TOTAL COUNT: **17996 hrs.**	
	AVG. WIND SPEED: **3.30 m/s**	DATE: **11/11/2016**	PROJECT NO.:

WRPLOT View - Lakes Environmental Software

SHBELLCO
HANDLING WITH CARE • LME APPROVED

January 18, 2017

United States Environmental Protection Agency, Region 5
Air and Radiation Division
Attn: Nicole Cantello (Cantello.nicole@epa.gov), George T. Czerniak, and R5enforcement@epa.gov
77 W. Jackson Blvd
Chicago, IL 60604

RE: **S.H. Bell Company**
10218 South Avenue O
Chicago, Illinois 60617
Response to January 12, 2017 Email Request to Provide Justification for Monitor Site Selection

Dear Ms. Cantello:

S.H. Bell is pleased to submit this response to USEPA Region 5 Air and Radiation Division's Request for clarifications to proposed monitoring site selection dated January 12, 2017. This response addresses questions posed in your email "S.H. Bell Company Chicago S. Avenue O Terminal - Monitoring and Siting" dated January 12, 2017.

Question: Could you provide a justification for your choice of location for each monitor site?

Response: The monitoring locations proposed were selected with two goals in mind: 1) meet USEPA siting criteria (40 CFR Part 58, Appendix E), and 2) collect data that provides an accurate representation of particulate matter (PM) concentrations across the site, with respect to predominant wind direction. The predominant wind direction in the vicinity of the site is from southwest to northeast – see attached Site Location Maps and historical wind rose data from October 2014 – October 2016. Proposed Site 1 (PS1) is proposed to be located at the southwesternmost corner (upwind) of the property in order to determine concentrations of PM that may be entering the site from offsite sources. The site is surrounded by industrial properties along the Calumet River. PS4 is proposed for the northeasternmost corner (downwind) of the property to most accurately reflect PM concentrations in air mass leaving the site; thereby helping determine impact to adjacent and surrounding properties and receptors. PS2 is located at the southeast corner of the property, nearest adjacent residential areas to measure potential impact to offsite receptors. Site PS3 was selected to provide 360 degrees of data capture given the other three proposed site locations.

Question: We view the location of SH Bell's main office to be a prime siting location and would like to understand why SH Bell did not propose this location. Could you please indicate whether SH Bell considered the main office site (which already has an electricity source) as a siting location for monitors?

Response: The location near the main office does not provide 270 degrees of clearance required to meet USEPA siting criteria. Additionally, several trees are located in this area and would require removal. The height of the trees and effective drip line of the trees that are present both on and off SH Bell property would adversely affect air flow, which violates USEPA siting criteria. Also, a building is located near the main office building which would adversely affect representative air flow from reaching the inlet to the PM monitor.

Question: Did SH Bell consider a site between the two buildings on the southern facility border? EPA's preference would be to merge the two monitors on the southern border and locate one monitor there, and to use the main office location as the site for one FRM monitor and one FEM monitor.

Response: Please see response to #1 above. Based on site location and historical wind rose data, SH Bell believes the most representative locations to monitor PM concentrations in air mass entering and exiting the site are at locations PS1 and PS4. The location on the southern property boundary is also located adjacent to an active rail line; therefore, this location was omitted from consideration as a monitoring site.

SUMMARY

S.H. Bell looks forward to USEPA's review and approval of responses to questions regarding monitoring site selection. Should you have any additional questions about the proposed monitoring locations, please let me know.

CERTIFICATION

I certify under penalty of law that I have examined and am familiar with the information in the enclosed documents, including all attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are, to the best of my knowledge and belief, true and complete. I am aware that there are significant penalties for knowingly submitting false statements and information, including the possibility of fines or imprisonment pursuant to Section 1(c)(2) of the Clean Air Act and 18 U.S.C. §§ 1001 and 1341.

Respectfully submitted,

John R. Bedeck
Project Manager & Dir. of Quality
S.H. Bell Company

Prepared by:
Consolidated Analytical Systems, Inc.

Figure 1
Site Location and Vicinity Map
S.H. Bell Facility, 10218 South Avenue O, Chicago, Illinois 60617

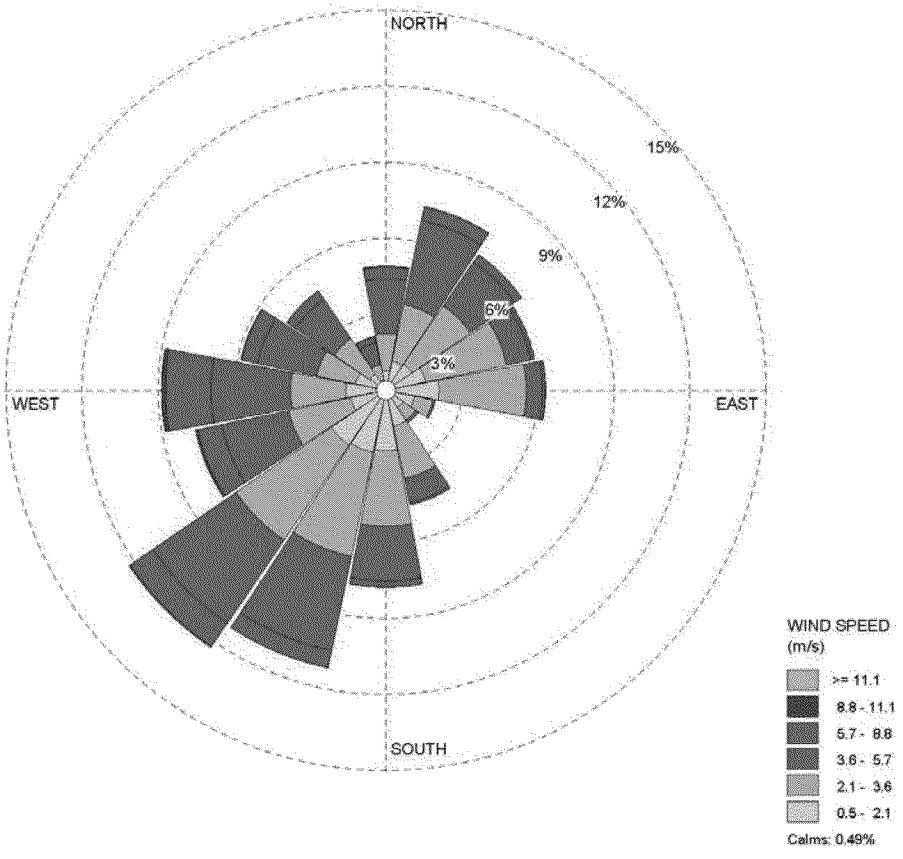
Figure 2
Proposed and Existing Monitoring Locations
S.H. Bell Facility, 10218 South Avenue O, Chicago, Illinois 60617

Site ID	Latitude	Longitude
PS1	41.708264	-87.544006
PS2	41.708291	-87.540184
PS3	41.710494	-87.542090
PS4	41.711527	-87.539628
EMS	41.709861	-87.539692

Attachment 1
Historical Wind Rose Data (October 2014 thru October 2016)
S.H. Bell Facility, 10218 South Avenue O, Chicago, Illinois 60617

WIND ROSE PLOT:
SH Bell Chicago Terminal Met Station

DISPLAY:
Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
Entire period	**Start Date: 10/11/2014 - 00:00** **End Date: 10/31/2016 - 23:00**	MODELER:	
	CALM WINDS: **0.49%**	TOTAL COUNT: **17996 hrs.**	
	AVG. WIND SPEED: **3.30 m/s**	DATE: **11/11/2016**	PROJECT NO.:

WRPLOT View - Lakes Environmental Software

SHBELLCO
HANDLING WITH CARE • LME APPROVED

January 30, 2017

United States Environmental Protection Agency, Region 5
Air and Radiation Division
Attn: Nicole Cantello (Cantello.nicole@epa.gov), George T. Czerniak, and R5enforcement@epa.gov
77 W. Jackson Blvd
Chicago, IL 60604

RE: **S.H. Bell Company**
10218 South Avenue O
Chicago, Illinois 60617
Response to January 12, 2017 Email Request to Provide Justification for Monitor Site Selection

Dear Ms. Cantello:

Per the conference call between USEPA Region 5 Air and Radiation Division and S.H. Bell on January 25, 2017, S.H. Bell and our contractors have completed an evaluation of the attributes of current Proposed Monitoring Site 2 (PS2) and three additional areas on the S.H. Bell property. Our evaluation is detailed below. Consideration was given to determine if a suitable monitoring site could be installed or developed at each of these sites consistent with USEPA siting criteria guidelines outlined in 40CFRPart 58, Appendix E. Alternative locations are named as follows, see attached Figure 1 for locations of the monitoring sites on the S.H. Bell property and Figures 2-5 for site layouts of each of the proposed sites :

1. PS2 is S.H. Bell's original proposed location for PS2
2. PS2.1 is the S.H. Bell site office
3. PS2.2 is an area north of the S.H. Bell high bay
4. PS2.3 is a bulk material storage area located approximately 100 feet west of the S.H. Bell site office. This site was not proposed as a monitoring location by Region 5, but was considered during our original evaluation of proposed site monitoring locations.

PS2.1 (Office Location/Figure 2):

The office location consists of an office trailer, asphalt parking lot and wooded area. A gravel parking area is located adjacent to the west of the building. The parking area is bound to the west by a vegetated earthen berm. A densely wooded area is located adjacent to the south of the building. The property boundary is located just east of the office building. A gated entrance and road deck are adjacent to the north of the office building.

In order to meet the USEPA siting requirements for spacing from obstruction and distance from a road surface, the only potential monitoring location at this site would be to the south of the office building, in the wooded area. S.H. Bell deemed this location unacceptable for several reasons:

1. Clearing of the site and the trees would be difficult due to the size of the trees as well as the location of the trees with respect to the road surface (S Ave N), which is located outside of the S.H. Bell property boundary. Additionally, the time required to complete the tree removal process would likely impact the operational date.
2. Based on the prevailing wind direction from the southwest, air into the inlet at this site would have to travel over the vegetated berm located west of the sand office causing uplift of particulate matter, potentially severe enough to travel over the intake of the continuous particulate analyzer.
3. A brick structure is located offsite south of the two-story that would restrict airflow from the primary wind direction.
4. The existing trees act as a vegetative barrier for particle matter exiting the property onto the surrounding receptors.

PS2.2 (North of High Bay/Figure 3)

The high bay is an approximately 40 foot high structure surrounded by parking and a road deck directly to the south, a road deck to the west, the property boundary to the east, trees directly to the north (on and off S.H. Bell property), and a narrow triangular mixed-use storage and parking area to the north.

S.H. Bell could not identify a location that meet the siting requirement for spacing from an obstruction and distance from a road surface. When evaluating this area, several key issues were considered, including:

1. The minimum site location distance from the building is approximately 68' (assuming 2 meter inlet height), assuming no additional obstructions
2. An offsite tree row parallel to S Ave N, runs north from the high bay to the facility entrance located near E 101st St. Tree heights in this area range 15 to 25 feet.
3. The exiting road deck runs from the Northwest corner of the high bay to the Northeast. Minimum site location would need to be 2 meters from this road surface.
4. An onsite berm parallel to S Ave N, runs north from the high bay to the facility entrance located near E 101st St.

PS2.3 (Bulk Material Storage Area/Figure 4):

The Bulk Material Storage Area location is a material storage area with a road deck directly to the west, a vegetated berm to the east, the S.H. Bell property boundary to the south, and a road deck to the north.

S.H. Bell could not identify a location that meets the siting requirement for spacing from an obstruction and distance from a road surface at this location. When evaluating this area, several key issues were considered, including:

1. The area is regularly used for bulk storage of materials being received, stored, and loaded.
2. The storage piles vary in height, affecting airflow, consistency, and direction
3. No reserved footprint for the siting location is present in the area

PS2 (Initial Proposed PS2/Figure 5):

S.H. Bell maintains the best cardinal point location for a southerly and easterly airflow is represented by the initially proposed PS2.

An additional site evaluation has confirmed this site has several key attributes that exceed minimum siting requirements, including:

1. The road surfaces near the site allow for a minimum clear distance of greater than 2 meters from the road deck located on S.H. Bell property, E 103rd, and S Avenue O.
2. The proposed location is approximately 60' from the nearby building which is approximately 20' high. Assuming a 2 meter inlet height, the site could be located approximately 28' from the building, assuming no additional obstructions.
3. No vegetative (i.e., vegetated berms or trees) or other obstr uctions are present that are not easily removed. (note: a small vegetative obstruction will be removed along the fence line).

SUMMARY

S.H. Bell looks forward to USEPA's review and approval of responses to questions regarding monitoring site selection. Should you have any additional questions about the evaluation, please let me know.

CERTIFICATION

I certify under penalty of law that I have examined and am fami liar with the information in the enclosed documents, including all attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are, to the best of my knowledge and belief, true and complete. I am aware that there are significant penalties for knowingly s ubmitting false statements and information, including the possibility of fines or imprison ment pursuant to Section 1(c)(2) of the Clean Air Act and 18 U.S.C. §§ 1001 and 1341.

Respectfully submitted,

John R. Bedeck
Project Manager & Dir. of Quality
S.H. Bell Company

Prepared by:
Consolidated Analytical Systems, Inc.

Figure 1
Proposed Site PS2 Locations
S.H. Bell Facility, 10218 South Avenue O, Chicago, Illinois 60617

Figure 2
PS2.1 (Office Area) Site Layout
S.H. Bell Facility, 10218 South Avenue O, Chicago, Illinois 60617

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February 6, 2017

United States Environmental Protection Agency, Region 5
Air and Radiation Division
Attn: Nicole Cantello (Cantello.nicole@epa.gov), George T. Czerniak, and R5enforcement@epa.gov
77 W. Jackson Blvd
Chicago, IL 60604

RE: **S.H. Bell Company**
10218 South Avenue O
Chicago, Illinois 60617
Response to January 12, 2017 Email Request to Provide Justification for Monitor Site Selection

Dear Ms. Cantello:

Per the direction of USEPA Region 5 during the conference call held February 2, 2017 between USEPA Region 5 Air and Radiation Division; The City of Chicago; S.H. Bell; S.H. Bell's counsel, Eckert Seamans Cherin & Mellott, LLC; and S.H. Bell's contractor, Consolidated Analytical Systems, Inc., S.H. Bell and its contractor have completed a re-evaluation of the attributes of alternative Proposed Monitoring Site 2.2 (PS2.2). This re-evaluation was completed because USEPA Region 5 stated that the initially proposed PS2 location was unacceptable to USEPA for this monitoring program. Key points from our re-evaluation are detailed below. Consideration was again given to determine if a suitable monitoring site could be installed or developed at PS2.2 that would be consistent with USEPA siting criteria guidelines outlined in 40CFR Part 58, Appendix E.

S.H. Bell maintains the best cardinal point location for a southerly and easterly airflow is represented by the initially proposed PS2. However, at the direction of USEPA Region 5 Air and Radiation Division S.H. Bell will move site location PS2 to USEPA Region 5's preferred alternative location of PS2.2 even though some deviations from USEPA siting guidance outlined in 40CFR Part 58, Appendix E will be required. Deviations are listed below in section PS2.2.

Please note, locations PS1, PS3, and PS4 have been determined to be unacceptable monitoring site locations by USEPA Region 5 and only the location of PS2.2 is being re-evaluated. See attached Figure 1 for locations of the proposed monitoring sites on the S.H. Bell property and Figures 2-4 for photographs of site attributes at PS 2.2. Alternative locations are named as follows,

1. PS2 is S.H. Bell's original proposed location for PS2
2. PS2.2 is an area north of the S.H. Bell high bay

<u>PS2.2 (North of High Bay/Figure 2)</u>

The high bay is an approximately 40 foot high structure with a paved parking and a road deck directly to the south, a road deck to the west, the property boundary to the east, trees directly to the

north (on and off S.H. Bell property), and a narrow triangular mixed-use storage and parking area to the north.

S.H. Bell could not identify a location that meets the complete siting requirements for spacing from an obstruction when evaluating this area and it is noting that USEPA will grant an exception to place the FEM instrumentation at this location – see Figure 3 for site features. In an email dated February 2, 2017 from Nicole Cantello at USEPA Region 5 to Eckert Seamens, USEPA Region 5 provided reference to 40CFR Part 58, Appendix E, Section 4 (Spacing from Obstructions) and highlighted the excerpt stating: "An exception to this requirement can be made for measurements taken in street canyons or at source-oriented sites where buildings and other structures are unavoidable." When placing a monitor at this location, the high bay will be considered an "unavoidable structure." When evaluating this area, several key issues were considered, including:

1. The minimum site location distance from the building is approximately 68' (assuming 2 meter inlet height), assuming no additional obstructions. S.H. Bell will place the monitor as far as physically possible from the high bay. However, because of site constraints in this area (detailed below), it may not be possible to place the monitor the full 68' away.
2. A row of trees bounds the S.H. Bell property to the east. The row of trees is located off of the S.H. Bell property and runs north-south, parallel to S. Ave N, extending from the high bay north to the facility entrance located near E 101st St. Trees in this area range 15 to 25 feet.
3. The exiting road deck runs from the Northwest corner of the high bay to the Northeast (see Figure 2). The road is heavily used during business hours, and trucks idle on the nearby scales. Minimum site location would need to be 2 meters from this road surface. S.H. Bell will place the monitor as far away as possible from the road deck and truck scales in order to avoid potential influence of particulate matter from the roadway and trucks.
4. Several large (approximately 60 foot high) trees are located adjacent to the north of the high bay building (Figure 4). These trees will need to be removed in order to site the monitor at PS2.2 without interference from the trees.

Additional Considerations

Following installation and start-up of the monitors, it is determined that the concentrations at location PS2.2 are not representative of site conditions due to the influence of airflow around the high bay (based on data collected from the other three monitoring sites) S.H. Bell reserves the right to move location PS2.2 to a more representative monitoring location area along the eastern border of the S.H. Bell property.

SUMMARY

S.H. Bell looks forward to USEPA's review and approval of responses to questions regarding monitoring site selection. Should you have any additional questions about the evaluation, please let me know.

CERTIFICATION

I certify under penalty of law that I have examined and am familiar with the information in the enclosed documents, including all attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are, to the best of my knowledge and belief, true and complete. I am aware that there are significant penalties for knowingly submitting false statements and information, including the possibility of fines or imprisonment pursuant to Section 1(c)(2) of the Clean Air Act and 18 U.S.C. §§ 1001 and 1341.

Respectfully submitted,

John R. Bedeck
Project Manager & Dir. of Quality
S.H. Bell Company

Prepared by:
Consolidated Analytical Systems, Inc.

Figure 1
Proposed Monitoring Site Locations
S.H. Bell Facility, 10218 South Avenue O, Chicago, Illinois 60617

Figure 2
Aerial View of Proposed Site PS2.2 (High Bay) Monitoring Location
S.H. Bell Facility, 10218 South Avenue O, Chicago, Illinois 60617

Figure 3
PS2.2 (High Bay) Site Layout
S.H. Bell Facility, 10218 South Avenue O, Chicago, Illinois 60617

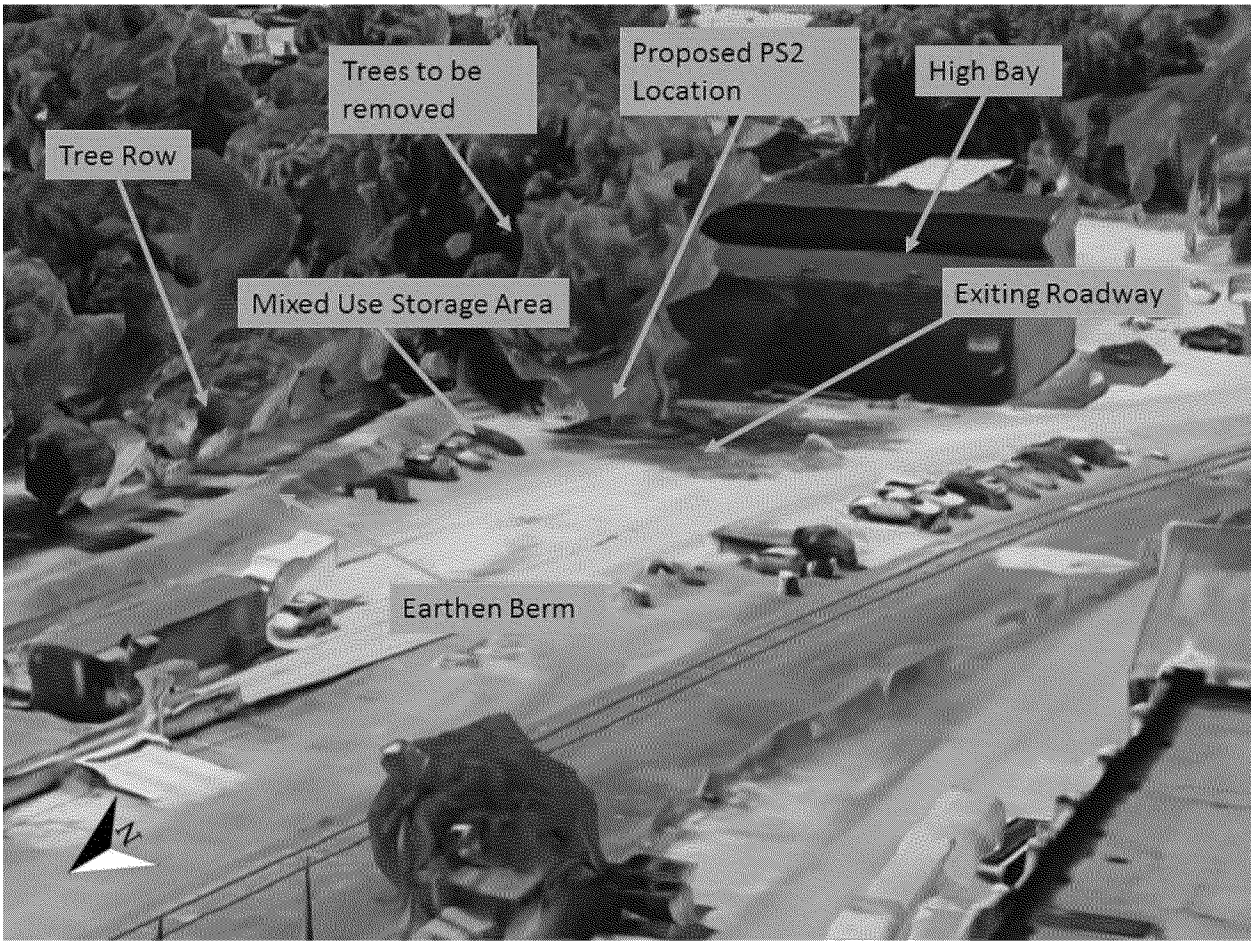
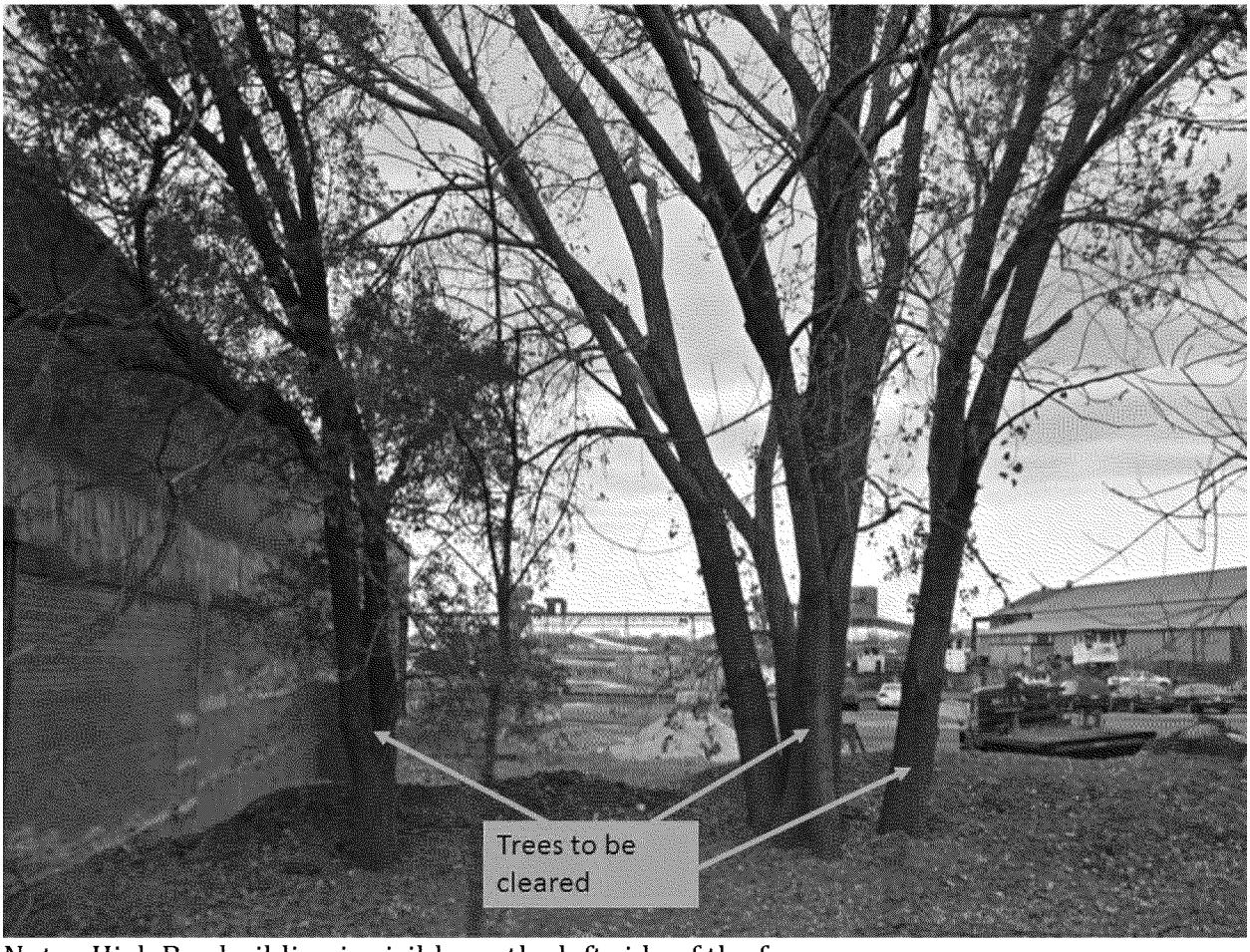


Figure 4
View to West of PS2.2 from S. Ave N on eastern property boundary.
S.H. Bell Facility, 10218 South Avenue O, Chicago, Illinois 60617



Note: High Bay building is visible on the left side of the frame

Figure 3
PS2.2 (North of High Bay) Site Layout
S.H. Bell Facility, 10218 South Avenue O, Chicago, Illinois 60617

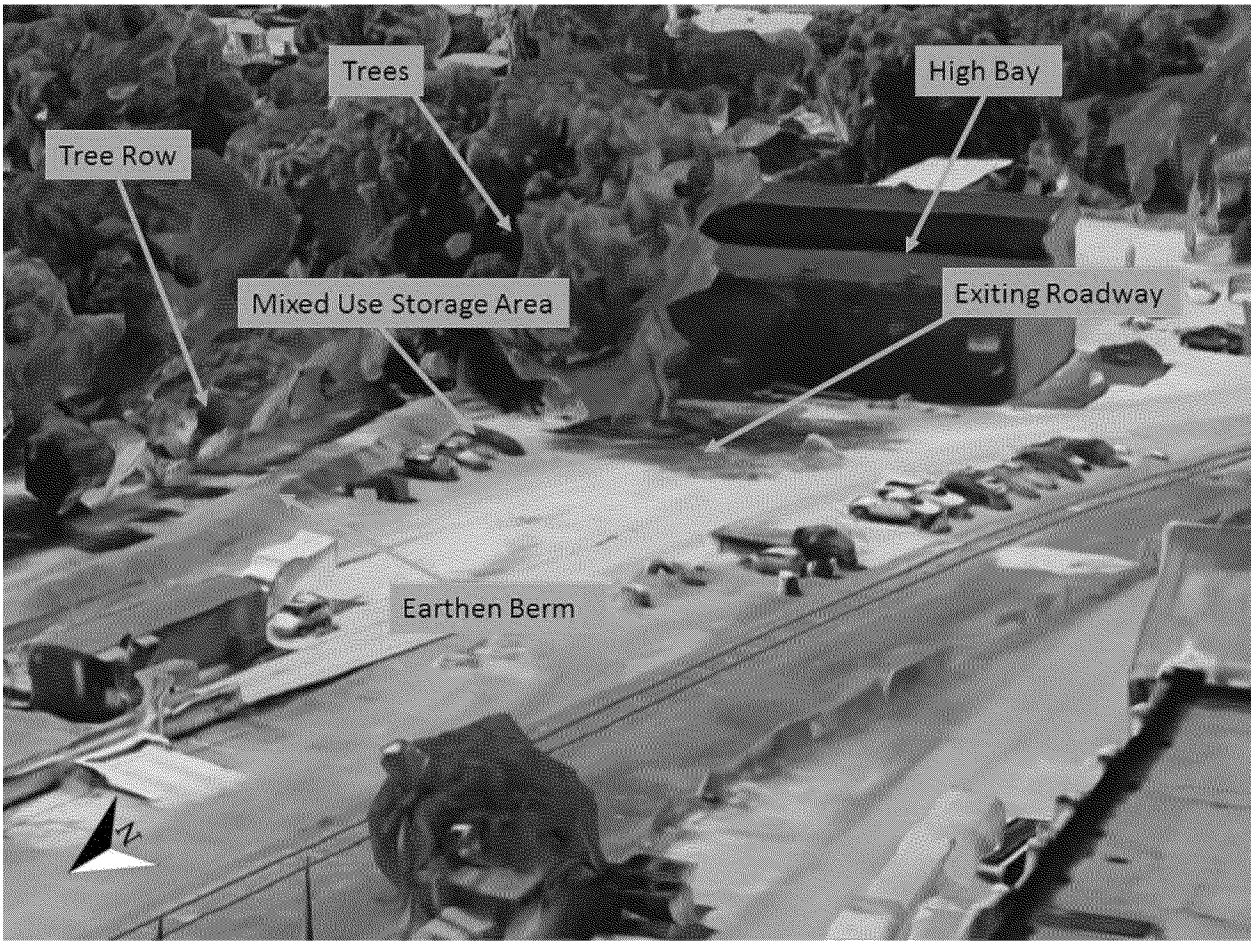


Figure 4
PS2.3 (Bulk Material Storage Area) Site Layout
S.H. Bell Facility, 10218 South Avenue O, Chicago, Illinois 60617

Figure 5
PS2 (Initial Proposed PS2) Site Layout
S.H. Bell Facility, 10218 South Avenue O, Chicago, Illinois 60617

SHBELLCO
HANDLING WITH CARE • LME APPROVED

February 10, 2017

United States Environmental Protection Agency, Region 5
Air and Radiation Division
Attn: Nicole Cantello (Cantello.nicole@epa.gov), George T. Czerniak, and R5enforcement@epa.gov
77 W. Jackson Blvd
Chicago, IL 60604

RE: **S.H. Bell Company**
10218 South Avenue O
Chicago, Illinois 60617
Response to February 7, 2017 Email Request to Relocate Proposed Monitoring Site PS2.2

Dear Ms. Cantello:

This letter is a response to USEPA Region 5's February 7, 2017 email request to relocate proposed monitoring site PS2.2.

Monitor Location

During the February 2, 2017 conference call between USEPA Region 5, the City of Chicago, and S.H. Bell and its counsel and contractor (Eckert Seamans Cherin & Mellot and CAS, respectively) to discuss the additional proposed PS2 monitoring locations PS2.1, PS2.2, and PS2.3, the following items were discussed in open conversation:

- PS2.1 and PS2.3 were deemed to be unsuitable monitoring locations.
- PS2.2 was determined to be the most suitable monitoring location, even though all USEPA siting criteria conditions (as outlined in 40 CFR Part 58 Appendix E) could not be met. Rationale for seeking exemptions to USEPA siting criteria was reviewed by all parties on the call. USEPA agreed to provide S.H. Bell with additional rationale for exemptions to siting criteria to use as rationale for placing the monitor at PS2.2.
- Parties discussed placement of the monitor within the general area of the proposed PS2.2 area.
    - Specifically, the area in the northern portion of the PS2.2 alternative location adjacent to the road deck and weigh station was discussed. After discussion (notably between Mr. Seth Cloran of CAS and Mr. Patrick Miller of USEPA Region 5), this area was determined to be unsuitable due to its proximity to the road deck and weigh station where bulk material haulers (primarily diesel-fuel vehicles) idle.

However, in its February 7, 2017 e-mail correspondence, USEPA Region 5 recommended placement of the monitor within a blue-shaded area in the northern portion of the PS2.2 alternative location adjacent to the road deck and weigh station.

S.H. Bell is seeking clarification regarding USEPA Region 5's intended monitor location. A summary of the rationale for locating PS2.2 in the orange outlined area rather than the blue outlined area identified in USEPA Region 5's email is presented below (see Figure 1 for reference). The western portion of the blue-shaded area would be located close to a road deck and weigh station where bulk material haulers (primarily diesel-fueled vehicles) idle at the approach to the scale house. Having a monitor this close has the potential to influence the monitor's a point source measurement, which would:

- Not be representative of the PM10 concentrations that nearby receptors would be potentially exposed to, and
- Not be representative of the S.H Bell PM10 contribution to the ambient air mass.
- Additionally, the blue-shaded area identified by USEPA Region 5 in its February 7, 2017 email is currently used as a parking lot for S.H Bell employees and contractors, and thus, placing the monitor in this location will negatively impact operations of the facility, which makes this area unsuitable as a monitor location.

Further, the eastern portion of the blue-shaded area recommended by USEPA Region 5 is located next to a vegetated berm and tree row (located off S.H. Bell property). These obstacles could potentially generate an inlet aspiration area which could result in PM concentrations which are not representative of the actual S.H Bell contribution to the particulate in the ambient air mass.

In summary, compounding the deviations from USEPA siting criteria will increase the negative impacts of the efficacy of the data produced from the monitoring locations.

Monitor Platform

During the February 2, 2017 conference call, no mention of placing the monitor on an elevated platform was made. However, in its February 7, 2017 email USEPA Region 5 recommended placing the monitor on a platform. In regards to the request for an "inn raised on a platform", S.H. Bell contends:

- Placing one (PS2.2) of the four Particulate monitor inlets on a platform with a higher distance from ground level, while the other three approved monitoring locations (PS1, PS3, PS4) are aspirating air at the same relative height from ground level is not advised. S.H Bell has selected our monitoring locations to provide uniformity across our facility; the placement of one of the particulate monitors on a significantly elevated platform has the potential to negatively influence the uniformity of data being collected by the monitor to determine the source/site contribution to the ambient air mass.

S.H. BELL RECOMMENDATION:

In order to collect the most representative and scientifically defensible data at the S.H. Bell facility, S.H. Bell proposes the particulate monitor at site PS2.2 be placed at an approximate location between 20' and 40' from the northern wall of the High Bay, at a location between 40' and 50' from the centerline of the tree row running north/south on the S.H Bell property side (west) of S Ave N. To provide uniformity of monitoring stations across the S.H. Bell facility, the monitor at PS2.2 should be placed at the same height from ground level as other monitors at the site.

SUMMARY

S.H. Bell looks forward to USEPA Region 5's clarification on this matter and to beginning monitoring.

INCORPORATION BY REFERENCE

Documentation of discussions held to date regarding monitoring site locations at the S.H. Bell facility are documented below. Previous communications are incorporated by reference.

By way of background, this is USEPA Region 5's fourth request to re-evaluate/re-locate the initially proposed PS2 monitoring site location, which were previously made in a January 12, 2017 e-mail from Nicole Cantello and in conference calls on January 25, 2017 and on February 2, 2017. S.H. Bell has promptly responded to all of USEPA Region 5's requests in regards. Notably, S.H. Bell's February 6, 2017 letter re-evaluated the alternative site location PS2.2 when USEPA stated that the initially proposed PS2 monitoring location was unacceptable as it did not meet its objective for this monitoring program. The initially proposed PS2 monitoring location is the only location that meets all USEPA siting criteria. At the direction of USEPA Region 5 during the February 2, 2017 conference call, S.H. Bell evaluated moving the monitor site location PS2 to USEPA Region 5's preferred alternative location of PS2.2 even though multiple deviations from USEPA siting criteria will be required. Notably, the PS2.2 alternative location was specified to USEPA in a letter dated January 30, 2017 that was in response to USEPA's request to evaluate alternative locations on the eastern site of the facility.

CERTIFICATION

> I certify under penalty of law that I have examined and am familiar with the information in the enclosed documents, including all attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are, to the best of my knowledge and belief, true and complete. I am aware that there are significant penalties for knowingly submitting false statements and information, including the possibility of fines or imprisonment pursuant to Section 1(c)(2) of the Clean Air Act and 18 U.S.C. §§ 1001 and 1341.

Respectfully submitted,

John R. Bedeck
Project Manager & Dir. Of Quality
S.H. Bell Company

Prepared by:
Consolidated Analytical Systems, Inc.

Figure 1
Proposed Monitoring Site Location
S.H. Bell Facility, 10218 South Avenue O, Chicago, Illinois 60617

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February 14, 2017

United States Environmental Protection Agency, Region 5
Air and Radiation Division
Attn: Nicole Contello (Cantello.nicole@epa.gov), George T. Czerniak, and R5enforcement@epa.gov
77 W. Jackson Blvd
Chicago, IL 60604

RE: **S.H. Bell Company**
10218 South Avenue O
Chicago, Illinois 60617
Letter Update to S.H. Bell's December 30, 2016 Response to:
Request to Provide Information Pursuant to the Clean Air Act
Appendix B, PM_{10} Monitors and Siting
Proposed Monitoring Sites and Locations

Dear Ms. Cantello:

S.H. Bell is pleased to submit this update to our December 30, 2016 response to USEPA Region 5 Air and Radiation Division's Request to Provide Information Pursuant to the Clean Air Act dated March 9, 2015. Specifically, this letter report documents the location change for proposed monitoring location PS2 determined during a series of telephone discussions, emails, and letter reports between USEPA Region 5, the City of Chicago, S.H. Bell, S.H. Bell's counsel Eckert, Seamans, Cherin & Mellott, LLC, and S.H. Bell's air monitoring consultant Consolidated Analytical Systems, Inc., as documented below. The final proposed monitoring locations PS1, PS2, PS3, and PS4 are shown on Figure 1.

INCORPORATION BY REFERENCE

- *12/30/2016 – S.H. Bell "Response to Request to Provide Information Pursuant to the Clean Air Act, Appendix B, PM10 Monitors and Siting, Proposed Monitoring Sites and Locations"*
- *01/11/2017 – USEPA Region 5 Email from Nicole Cantello "S.H. Bell Company Chicago, S. Avenue O Terminal – Monitoring and Siting" (request for clarification to proposed monitoring site selection)*
- *01/18/2017 – S.H. Bell Letter "Response to January 12, 2017 (sic) Email Request to Provide Justification for Monitor Site Selection"*
- *01/25/2017 – Conference Call between USEPA Region 5 and S.H. Bell (request for evaluation of PS2, PS2.1, PS2.2, and PS2.3)*
- *01/30/2017 – S.H. Bell S. Letter Response to January 12, 2017 (sic) Email Request to Provide Justification for Monitor Site Selection (Response to 01/25/2017 conference call requesting written evaluation of PS2, PS2.1, PS2.2, PS2.3)*
- *02/02/2017 – Conference Call between USEPA Region 5, the City of Chicago, S.H. Bell, Eckert Seamans Cherin & Mellot, LLC and Consolidated Analytical Systems, Inc. (request to re-evaluated alternative proposed monitoring site PS2.2)*

- *02/06/2017 – S.H. Bell Letter "Response to January 12, 2017 (sic) Email Request to Provide Justification for Monitor Site Selection" (Re-Evaluation of alternative proposed site PS2.2)*
- *02/07/2017 - USEPA Region 5 Email from Nicole Cantello "S.H. Bell Company Chicago, S. Avenue O Terminal – Monitoring and Siting" (request to locate proposed monitoring site PS2.2)*
- *02/10/20117 – S.H. Bell Letter "Response to February 7, 2017 Email Request to Locate Proposed Monitoring Site PS2.2"*
- *02/13/2017 – USEPA Region 5 Email from Nicole Cantello "S.H. Bell Company Chicago, S. Avenue O Terminal – Monitoring and Siting" (request to resubmit S.H. Bell siting plan for approval)*

SUMMARY

S.H. Bell looks forward to installing, operating, and maintaining ambient monitoring sites at the facility upon your approval of the proposed plan. Should you have any questions about the proposed monitoring locations, please let me know.

CERTIFICATION

I certify under penalty of law that I have examined and am familiar with the information in the enclosed documents, including all attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are, to the best of my knowledge and belief, true and complete. I am aware that there are significant penalties for knowingly submitting false statements and information, including the possibility of fines or imprisonment pursuant to Section 1(c)(2) of the Clean Air Act and 18 U.S.C. §§ 1001 and 1341.

Respectfully submitted,

John R. Bedeck
Project Manager & Dir. of Quality
S.H. Bell Company

Figure 1
Proposed and Existing Monitoring Locations
S.H. Bell Facility, 10218 South Avenue O, Chicago, Illinois 60617

Site ID	Latitude	Longitude
PS1	41.708264	-87.544006
PS2	41.710537	-87.539158
PS3	41.710494	-87.542090
PS4	41.711527	-87.539628
EMS	41.709861	-87.539692