



Air Monitoring Plan

Century Aluminum 1627 State Route
3542 Hawesville, KY 42348

PREPARED FOR
Justified DataPower LLC

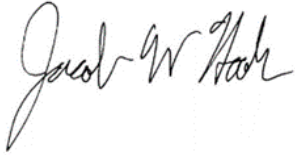
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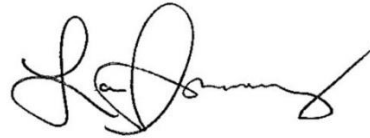


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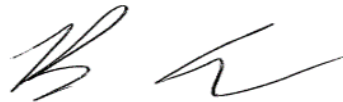
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ACRONYMS AND ABBREVIATIONS

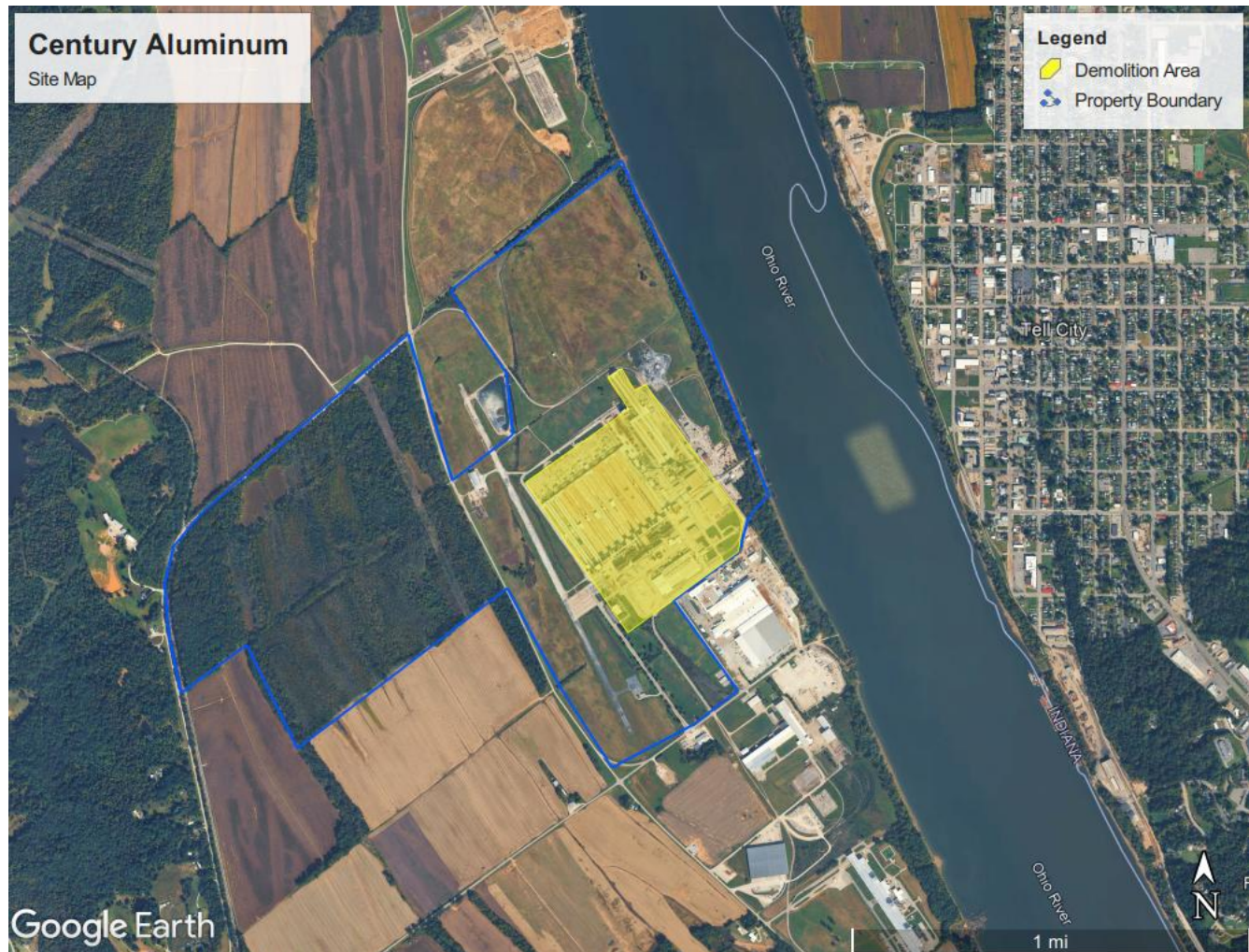
Acronym	Description
AIO2	MetOne AIO2 Weather Station
AMP	Air Monitoring Plan
AMOs	Air monitoring objectives
CM	Demolition Manager
ERM	Environmental Resources Management, Inc.
FSO	Not defined in document
HASP	Health and Safety Plan
KY	Kentucky
LPM	Liters per minute
NIST	National Institute of Standards and Technology (as in "NIST-traceable")
PAMs	Perimeter Air Monitoring Stations
PM ₁₀	Inhalable particulate matter less than 10 microns in equivalent aerodynamic diameter
QA/QC	Quality assurance / quality control
RBSLs	Risk-based screening levels
RI/FS	Remedial Investigation / Feasibility Study
RSL	(USEPA) Regional Screening Level(s)
U.S.A.	United States of America
USEPA	United States Environmental Protection Agency
XRF	X-ray fluorescence

1. INTRODUCTION

Justified DataPower, LLC (the "Client") retained Environmental Resources Management, Inc. (ERM) to prepare this Air Monitoring Plan (AMP) for use during demolition activities of the Century Aluminum Site located at 1627 State Route 32348 in Hawesville, Hancock County, Kentucky, U.S.A (the "Property"). Following the acquisition of the Property, the Client is undertaking demolition activities to prepare the Property for future data center development. The demolition activities to be conducted include the structures within the limits of demolition on the Property (the "Site").

This AMP was prepared to guide efforts for monitoring ambient air quality at the perimeter of the demolition activities for the protection of onsite workers conducting demolition activities and data center development activities, as well as the Southwire facility to the southeast and residence to the south. The air monitoring program will consist of real-time perimeter monitoring and composite (confirmatory) sampling (with subsequent laboratory analysis) at stationary locations adjacent to the Site fence line. Ambient air monitoring will occur throughout the demolition process. Additionally, on-site meteorological data will be collected to supplement the air quality data.

The Site map is shown in Figure 1.

FIGURE 1 SITE MAP

1.1 AIR MONITORING OBJECTIVES

Planned demolition activities at the Site include the removal of hazardous materials from buildings, building/structure demolition, and removal of demolition debris.

The air monitoring objectives (AMOs) of the AMP are to provide real-time air concentration measurements to guide operational dust control efforts, and to document air quality at the Site perimeter during the planned demolition activities. ERM proposes installing seven (7) Perimeter Air Monitoring Stations (PAMs) that will employ both real-time air monitoring and confirmatory sampling instrumentation. PAMs will be placed within the perimeter fenceline of the Site to monitor impacts from the site in all cardinal directions and near the sensitive receptors. Inhalable particulate matter less than 10 micron in equivalent aerodynamic diameter (PM_{10}) will be continuously monitored at each PAM and compared to action levels established in Section 6. The real-time PM_{10} data will be collected to assess short-term (hourly) exposures, identify when measured parameters exceed action levels, and determine potential offsite impacts resulting from demolition activities.

The data will be telemetered to a database server that will automatically issue alerts via email and/or text message to ERM staff at the Site, in the event that an action level is exceeded. The ERM Demolition Manager (DM) or FSO will inform the on-site subcontractors of elevated dust observations/readings so that appropriate demolition dust control measures can be implemented, as appropriate.

In addition to the real-time air monitoring described above, confirmatory air samples will be collected at each PAM location for subsequent laboratory analysis for metals listed in the AMP. Samples will be collected twice a week.

A meteorological monitoring station will be installed to monitor weather conditions for the duration of the air monitoring program. Wind speed, wind direction, ambient temperature, relative humidity, and barometric pressure will be monitored and recorded continuously.

The objectives of the AMP during active Site operations are to support safe execution of site activities, protect off-site receptors, and generate a defensible air quality record through real-time monitoring and quality-assured data collection.

The specific tasks to be completed to achieve the AMOs of the air monitoring program include:

- Operational Control and Worker Protection—Provide real-time air monitoring data during active site operations to support operational decision-making and worker protection. Monitoring results will be used to identify elevated air contaminant concentrations that may require adjustments to work practices, or implementation of additional engineering or administrative controls.
- Evaluation of Perimeter Conditions and Potential Off-Site Impacts— Monitor air quality conditions at and around the site perimeter during active operations to evaluate the potential for off-site migration of site-related air pollutants and to support protection of nearby receptors. Perimeter monitoring data will be used to assess whether site activities are influencing ambient air conditions beyond the site boundary.
- Action Level Comparison and Response Triggering—Compare monitored air concentrations to established action levels to provide a structured framework for triggering responsive measures. Monitoring results will be used to document exceedances, initiate appropriate corrective actions, and verify the timely implementation of response measures during active site operations.
- Verification of Dust Control Effectiveness—Use air monitoring results to evaluate the effectiveness of dust control measures implemented during active site activities. Monitoring data will inform whether controls are functioning as intended and whether additional or modified controls are necessary to minimize dust generated by site operations.
- Generation of a Defensible Air Quality Record—Generate a defensible record of air quality conditions during active site operations through the use of calibrated instrumentation, established quality assurance and quality control procedures, routine data review, and appropriate documentation. The collected data will support stakeholder communication and future evaluation of site activities, if necessary.

During air monitoring, air quality and meteorological monitoring will be performed with the following suite of continuous and confirmatory sampling methods.

- Real-time Air Monitoring – PM₁₀ measurements will be made at the PAM locations during demolition activities to document air concentrations. Additionally, this data will inform operations staff of any potential off-site impacts so that additional dust control measures can be employed, as necessary.
- Air Confirmatory Sampling – Ambient air quality confirmatory samples will be collected for subsequent laboratory analysis for metals. These will be 72-hour samples to determine the ambient air impacts during demolition activities.
- Meteorological Monitoring – A meteorological station will be established to monitor weather conditions for the duration of the project. Real-time continuous measurements for wind speed, wind direction, ambient temperature, relative humidity, and barometric pressure will be monitored.

2. AIR MONITORING PROGRAM

Perimeter air monitoring will be conducted throughout the duration of on-site demolition activities. Fixed monitoring locations on the Site perimeter will employ instrumentation to collect real-time PM₁₀ concentrations and ambient air confirmatory metals samples. Real-time monitoring will continuously monitor (24/7) from the start of demolition activities until on-site activities cease. Confirmatory sampling will consist of 72-hour samples conducted twice a week during site activities. Table 1 lists the target air analytes and how they will be measured. The target air analytes list may be amended based on results.

TABLE 1 TARGET AIR ANALYTES

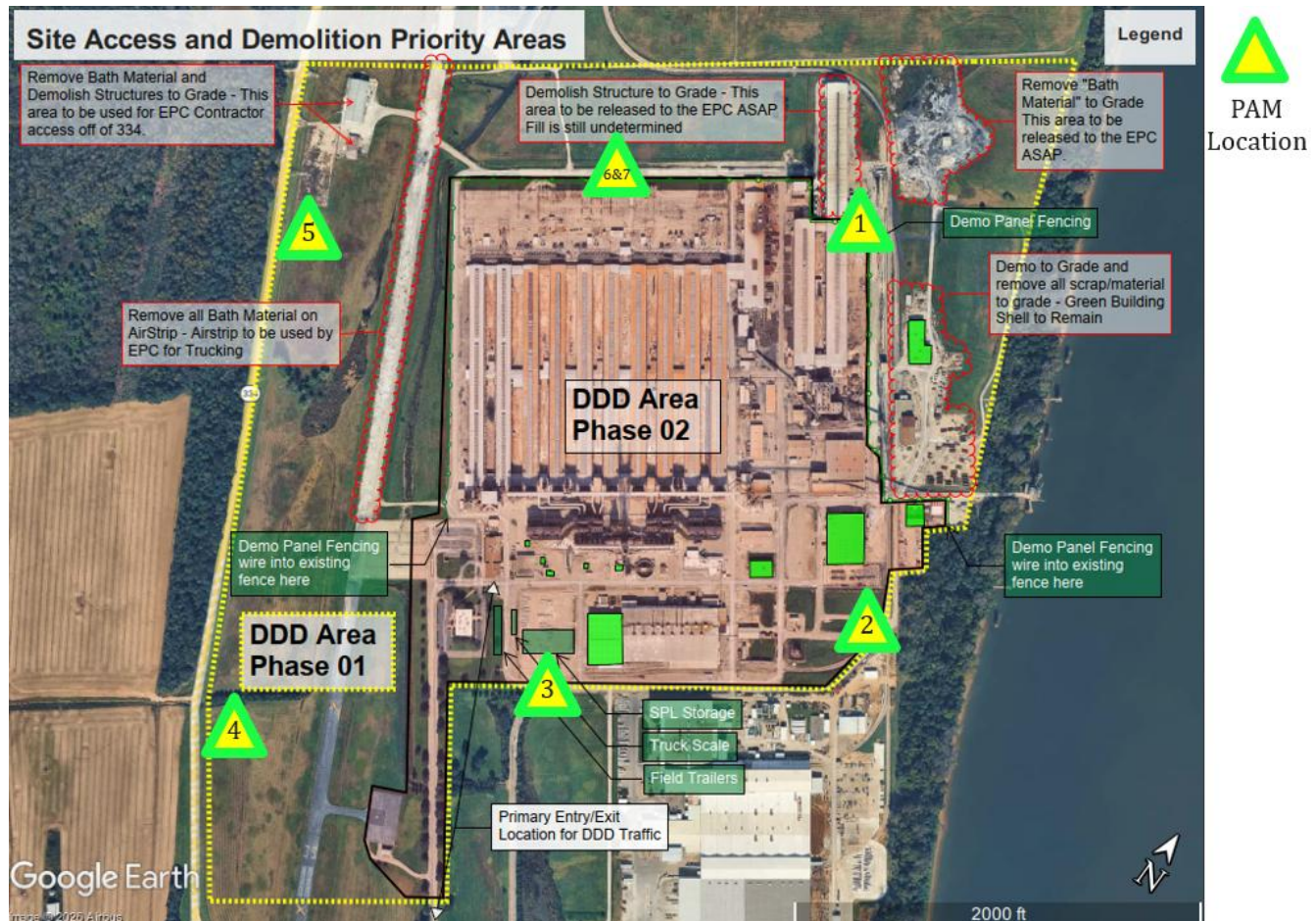
Constituent	Real-Time Monitoring Method	Sampling Method
PM ₁₀	Nephelometer	-
Aluminum	-	47mm Filter - XRF
Antimony	-	47mm Filter - XRF
Arsenic	-	47mm Filter - XRF
Barium	-	47mm Filter - XRF
Cadmium	-	47mm Filter - XRF
Calcium	-	47mm Filter - XRF
Chromium	-	47mm Filter - XRF
Cobalt	-	47mm Filter - XRF
Copper	-	47mm Filter - XRF

Constituent	Real-Time Monitoring Method	Sampling Method
Iron	-	47mm Filter - XRF
Lead	-	47mm Filter - XRF
Magnesium	-	47mm Filter - XRF
Manganese	-	47mm Filter - XRF
Mercury	-	47mm Filter - XRF
Nickel	-	47mm Filter - XRF
Potassium	-	47mm Filter - XRF
Selenium	-	47mm Filter - XRF
Silver	-	47mm Filter - XRF
Sodium	-	47mm Filter - XRF
Vanadium	-	47mm Filter - XRF
Zinc	-	47mm Filter - XRF

2.1 AIR MONITORING LOCATIONS

Seven (7) PAMs will be placed along the perimeter fence line of the Site. The target locations for placement of the PAMs are shown in Figure 2, though on-site operations may require periodic adjustment. The PAM locations will be utilized for the real-time PM₁₀ analyzers capable of collecting confirmatory ambient air sampling.

FIGURE 2 PERIMETER AIR MONITORING STATION LOCATIONS



2.2 SETUP OF AIR MONITORING EQUIPMENT

Locations and setup of the PAMs will be finalized during setup at the Site using the guidelines found below. PAM locations will be selected to minimize interference from obstructions. Satisfying all criteria below may not be possible at all PAM locations as this is dependent on the Site configuration mobile equipment, and obstruction of demolition activities. If PAMs interfere with excavation or other remedial activities, the PAMs and air sampling equipment may be temporarily relocated. Any relocations of PAMs or air sampling equipment will be explained and documented by field personnel.

Specific guidelines used for selecting PAM locations to achieve representative conditions are:

- Air sampling equipment will be located within boundary of the Site.

- The most desirable height for the air sampler inlet is approximately four to six feet above ground level, near the breathing zone.
- Air sampling equipment will be located a minimum of six feet away from flow obstacles, and where possible at least twice the height that the obstacle extends above the sampler inlet, where feasible.
- Air sampling equipment will be located to permit unrestricted airflow in an arc of at least 270° arc around the sampler, with the predominant wind direction included in the 270° arc, where conditions permit.
- Where possible, the air sampling equipment and nearby roadways will be separated to avoid effects of dust re-entrainment and vehicle emissions on measured air concentrations. If it is observed that nearby roads or vehicle traffic is affecting the air monitor, the position of the air sampling equipment will be adjusted as possible and documented on daily air monitoring forms.
- Unpaved areas lacking vegetative ground cover will be avoided in positioning air sampling equipment, so that the effect of locally re-entrained or fugitive dust will be kept to a minimum. If locating air sampling equipment in an unpaved area, dust control measures such as wetting unpaved areas or covering the immediate surrounding area will be utilized to minimize the effect of locally re-entrained or fugitive dusts to the extent practical.
- The air sampling equipment will be located away from combustion or fuel sources, when possible.
- Air sampling equipment will be provided with 24-hour security and electrical power. Wireless communication will be provided for reporting and data collection of the continuous real-time PM₁₀ monitors.

3. AIR MONITORING OPERATIONS AND SAMPLING PROCEDURES

Air monitoring operations will serve to inform Site management of potential action level exceedances, the need for additional dust control, and assess potential offsite air quality impacts. An upwind/background monitoring location will be designated in real-time to provide contextual information regarding regional particulate levels and prevailing wind conditions, but action level alerts will be based on measured concentrations without accounting for upwind/background data.

3.1 DEMOLITION AIR MONITORING

Real-time air monitoring will be conducted continuously for dust (PM₁₀) throughout the demolition process (including nights and weekends). If a perimeter PM₁₀ measurement exceeds the action level, the onsite FSO or DM will immediately report the exceedance to site contractors who will determine the appropriate control measures to be implemented.

The Air Monitoring Site Check Form will be used to document calibrations, maintenance, and instrument integrity of the PAMs. The air monitoring site check form will be scanned and forwarded to the air monitoring operations manager for review.

3.2 CONFIRMATORY AIR SAMPLES

Air samples will be collected regularly during the demolition phase for laboratory analysis of metals. Using 47mm particulate filters placed within each real-time PM₁₀ analyzer, 72-hour particulate samples will be collected twice per week on Thursdays and Saturdays. These filter samples will be sent weekly to an accredited laboratory for x-ray fluorescence (XRF) analysis. Laboratory results will be available within seven (7) days of receiving the samples.

Following review of the initial baseline results, twice-weekly filter collection will continue in accordance with this plan; however, routine laboratory submission may be reduced if metals concentrations remain below applicable RSLs and do not indicate a Site-related impact. Collected filters will be retained under appropriate chain-of-custody and storage controls. A retained filter may be submitted for laboratory analysis when the corresponding real-time PM₁₀ data indicate an action-level exceedance, when field observations or demolition activities warrant confirmation, or when otherwise requested by the project team. The routine submission frequency may be reinstated if analytical results, real-time data, or Site conditions indicate that additional metals characterization is warranted.

3.2.1 CHAIN OF CUSTODY DOCUMENTATION AND PROCEDURES

Confirmatory metals samples collected in the field will be labeled and stored in accordance with the method requirements under the possession of project staff or designee until ready to be shipped to the laboratory for analysis. Prior to shipping air samples, a laboratory-supplied Chain of Custody form will be completed for each batch of samples. The Chain of Custody form will contain information such as company name, contact information, project name, project number, purchase order number, lab sample ID, site location name, sample date, particle size, requested analysis and special request comments. The completed form will be signed and dated by the shipper before samples are shipped. A copy of the form will be retained in ERM's secured project folder. The samples will be shipped to the laboratory overnight on an appropriate shipping day as requested by the lab to ensure proper delivery and receipt within temperature threshold.

Laboratory personnel will sign and date the Chain of Custody form as acknowledgement of receiving samples and include the document in their report. A laboratory report will be provided within ten business days of sample receipt to ERM which includes the results of their analysis. The laboratory will also retain a copy of the Chain of Custody form for their own records.

3.3 METEOROLOGICAL MONITORING

Meteorological monitoring will be conducted throughout the demolition process (including nights and weekends). Meteorological monitoring will consist of real-time wind speed, wind direction, ambient temperature, relative humidity, and barometric pressure. The meteorological data will be used to support identify upwind/background concentrations interpretation of action level alerts and inform appropriate corrective actions.

4. INSTRUMENTATION

The air quality and meteorological monitoring instruments, and ancillary equipment are described in the following subsections. Each instrument will be calibrated at the beginning of the monitoring period. Verifications and recalibration, if necessary, will be performed daily by the air monitoring technician. A final calibration of all equipment will bookend the monitoring program.

4.1 REAL-TIME PM₁₀

The real-time air quality measurements will be monitored using a MetOne E-Sampler (or equivalent instrument) capable of measuring real-time optically based PM₁₀ measurements by diode laser particle detection. The real-time measurements will be telemetered to a secure database for automated processing and data reporting. In the event of an action level exceedance, the database server will automatically issue an alert via email and/or text message.

4.2 METALS SAMPLING

Confirmatory air quality sampling for metals will be conducted utilizing 47mm particulate filters (filter samples) to collect ambient air particulate for subsequent laboratory analysis by XRF. Filter samples will be installed inside the real-time PM₁₀ monitors to collect 72-hr samples. Samples will be shipped to the laboratory the following day for XRF analysis. Sample results are anticipated to be received by ERM within 7 days of laboratory receipt of samples.

4.3 METEOROLOGICAL MONITORING

Real-time continuous meteorological monitoring will be conducted on site with an MetOne AIO2 Weather Station. This meteorological sensor will monitor 1-minute averaged wind speed, wind direction, air temperature, barometric pressure, and relative humidity.

5. QUALITY ASSURANCE/QUALITY CONTROL

The following sections provide a description of the quality assurance/quality control (QA/QC) procedures to be implemented for the AMP.

5.1 QA/QC SAMPLES

A single field blank sample will be collected on a weekly basis and submitted for laboratory analysis alongside field collected samples. Field blanks consist of clean filters that are handled, transported, and exposed to site conditions in the same manner as active samples, but without drawing air through them. The purpose of the field blank is to identify any potential contamination introduced from filter media through handling, transport, or ambient exposure during deployment. Evaluating field blank results allows for verification that detected metals are attributable to airborne particulate matter rather than artifacts of the sampling process, thereby supporting data validity and defensibility.

5.1.1 DUPLICATE MEASUREMENTS

A second set of monitoring equipment will be collocated at one of the PAM locations to acquire duplicate measurements for quality control purposes. Duplicate sampling will follow the same

schedule as the rest of the monitoring program. Data from the collocated instruments will be used to evaluate the precision of the measurement system, which indicates the reproducibility and consistency of sampling and laboratory analysis.

5.1.2 FIELD BLANKS

Trip blanks will be submitted to the laboratory for analysis with each outgoing shipment. One PM₁₀ field blank will be submitted with each shipment of PM₁₀ filter samples. Field blanks will be handled the same as other samples: removed from packaging, momentarily installed in sampler, removed from sampler, repackaged, and shipped back to the laboratory for analysis with the rest of the submitted samples. The only difference is that field blanks will not be exposed to the atmosphere longer than necessary to accomplish the above steps. The intent of the field blank is to quantify any positive or negative bias introduced by shipping and sample handling.

5.2 INSTRUMENT CALIBRATION AND VERIFICATION

Periodic calibrations and checks are required to ensure the reliability and accuracy of the ambient air and meteorological monitoring equipment. Calibrations will be performed at the commencement of monitoring, and at the conclusion of monitoring. This includes calibration of flow, pressure, and temperature as well as instrument maintenance (such as leak checking and inlet cleaning). Daily verification checks will be conducted in accordance with the recommendations of each instrument's vendor. Subsequent flow calibrations will be conducted if the E-Sampler is found to be outside of the limits of 1.9-2.1 LPM. The calibration and verification results will be recorded in the Calibration/Verification Log Form. The following sections provide a brief description of the calibration and verification checks required for each type of instrument.

5.2.1 E-SAMPLER

The real-time PM₁₀ measurements will be performed with seven (7) MetOne E-Sampler monitors, using an optical technique that is relatively insensitive to volumetric flow rate. However, it can be sensitive to aerosol characteristics such as reflectivity, color, and roughness. Therefore, verification is essential to ensure the internal instrument pump is operating within flow range provided by the vendor specifications.

It is important that the volumetric flow rate of the sampler be accurately calibrated. Each such sampler undergoes a calibration when installed, at least once every three months, and prior to project demobilization. In addition, the field technician will perform a one-point flow verification prior to commencing each 72-hour sampling period. In all cases, calibrations and verifications will employ NIST-traceable flow transfer standards (MetOne Swift 6.0, or equivalent). If a monitor is found to be out-of-tolerance (5% deviation from target flow), a re-calibration will be performed. Initial (as-found) flow verifications, calibrated as-left) flow verifications, date, and time will be documented on the Calibration/Verification Log Form. If flow was found to be in tolerance, as-found verification will equal the as-left verification, and no adjustment will be necessary.

5.2.2 METEOROLOGICAL MONITORING SYSTEM

The MetOne AIO2 weather station will be certified by the vendor for 1 year and will not require routine verification or calibration. In the event of instrument failure, an equivalent instrument will be installed in its place.

6. DETERMINATION OF AIR ACTION LEVELS

Action levels were developed for real-time monitoring and confirmatory air sampling at the site.

The risk-based screening levels (RBSLs) were developed using USEPA regional screening levels (RSL) calculator for inhalation and were based on a projected 10-hour day, 6-days/week, 15-month project duration. These were used to develop acceptable exposure concentrations to receptors at the site perimeter.

Real-time action levels are used to inform operations staff of potential off-site impacts and when to implement additional dust control measures. The purpose of these real-time action levels is to maintain perimeter air quality at an acceptable level during demolition activities. These real-time action levels will be used in evaluating real-time measurements of PM₁₀.

6.1 RISK-BASED SCREENING LEVELS

The overall approach and methods for calculating ambient air RBSLs for use in the air monitoring program during the project are summarized below. Confirmatory sampling results will be compared against the RSL values to assess on-site activity air impacts and implement appropriate mitigation measures. The RSLs utilize standard USEPA risk assessment guidance, relevant project and site-specific information as well as conservative default assumptions for other input parameters.

6.1.1 SELECTION OF ANALYTES OF CONCERN

ERM derived RSLs and RBSLs for metals which have been determined to be on site during demolition activities.

6.1.2 RECEPTORS

The immediate Site vicinity consists of agricultural land to the north and west, the Ohio River to the east, Southwire facility to the southeast and nearby residential areas to the south. Resident, indoor worker (Southwire facility employees), and outdoor worker (on-site project workers) receptors were considered during the calculation of the RSLs for the project, and the lower of the three RSLs was selected. On-site workers conducting demolition activities and data center development activities would be the closest receptors to the point of exposure, therefore the project worker receptor RSL was utilized for this project.

Demolition activities will be conducted up to 10 hours per day from Monday through Saturday. For the calculations in this document, residential and outdoor worker receptors are assumed to be exposed as follows:

- Resident – This would be representative of an adult who is home during the hours of demolition at the Site operation and directly exposed to a continuous stream of air from the

direction of the Site for the entirety of work project – 4 hours per day on Monday through Saturday for 64 weeks (Table 2);

- Commercial Worker – This would be representative of an adults who may work in the immediate area of the Site and be exposed to a continuous stream of air from the direction of the Site – 8 hours per day six days per week for 64 weeks (Table 3).
- Outdoor Worker - This would be representative of an adult who working in the immediate area of the Site and be exposed to a continuous stream of air from the direction of the Site – 10 hours per day six days per week for 64 weeks (Table 4).

TABLE 2 RESIDENT EXPOSURE PARAMETERS

Parameter	Abbrev.	Value	Units	Reference
Averaging Time - resident	AT _{out}	365	days	USEPA
Exposure Duration - resident	ED _{out}	1.25	years	Project Specific
Exposure frequency - resident	EF _{out}	312	days/year	Project Specific
Exposure Time - resident	ET _{out}	4	hour	USEPA
Target Hazard Quotient	THQ	1	-	Project Specific
Lifetime	LT	70	year	USEPA
Target Cancer Risk	TR	0.00001	-	USEPA

TABLE 3 COMMERCIAL WORKER EXPOSURE PARAMETERS

Parameter	Abbrev.	Value	Units	Reference
Averaging Time - commercial worker	AT _{out}	365	days	USEPA
Exposure Duration - commercial worker	ED _{out}	1.25	years	Project Specific
Exposure frequency - commercial worker	EF _{out}	312	days/year	Project Specific
Exposure Time - commercial worker	ET _{out}	8	hour	USEPA
Target Hazard Quotient	THQ	1	-	Project Specific
Lifetime	LT	70	year	USEPA
Target Cancer Risk	TR	0.00001	-	USEPA

TABLE 4 OUTDOOR WORKER EXPOSURE PARAMETERS

Parameter	Abbrev.	Value	Units	Reference
Averaging Time - outdoor worker	AT _{out}	365	days	USEPA

Parameter	Abbrev.	Value	Units	Reference
Exposure Duration - outdoor worker	ED _{out}	1.25	years	Project Specific
Exposure frequency - outdoor worker	EF _{out}	312	days/year	Project Specific
Exposure Time - outdoor worker	ET _{out}	10	hour	USEPA
Target Hazard Quotient	THQ	1	-	Project Specific
Lifetime	LT	70	year	USEPA
Target Cancer Risk	TR	0.00001	-	USEPA

6.2 REAL-TIME ACTION LEVELS

The real-time action levels were developed to serve as an indicator of acceptable short-term air quality for each analyte and to identify when supplemental dust control responses are necessary. These are based on the most conservative “outdoor worker” scenario. The calculations used to derive the action levels are intentionally conservative. They assume that short-term concentrations meeting or exceeding the action levels persist continuously over the duration of the Project, rather than occurring intermittently, and that exposures occur at the fenceline. A more detailed discussion of the action level derivation is provided below.

Guidelines for the real-time action level exceedances are provided in Table 5. Recommended dust control response actions for action level exceedances are discussed in Section 7.3.

TABLE 5 OUTDOOR WORKER RBSLs

Analyte	Soil Concentration (mg/kg)	RSL (µg/m³)	Action Level Outdoor Worker RBSL (µg/m³)
Aluminum	101,000	14.000	139
Antimony	1.20	0.842	701,667
Arsenic	48	0.035	738
Barium	14.9	0.056	3,772
Cadmium	2.9	0.028	9,690
Calcium	255,000	-	-
Chromium	56	0.014	245
Cobalt	17.7	0.017	949
Copper	35	-	-
Iron	53,300	-	-

Analyte	Soil Concentration (mg/kg)	RSL ($\mu\text{g}/\text{m}^3$)	Action Level Outdoor Worker RBSL ($\mu\text{g}/\text{m}^3$)
Lead	56	-	-
Magnesium	21,800	-	-
Manganese	1,540	0.140	91
Mercury	0.07	0.842	12,202,899
Nickel	194	0.084	434
Potassium	4,840	-	-
Selenium	-	56.200	-
Silver	0.71	-	-
Sodium	12,900	-	-
Vanadium	251	0.281	1,120
Zinc	316	-	-

6.2.1 INHALABLE PARTICULATE MATTER (PM_{10})

The lowest RBSL among all analytes is driven by manganese, corresponding to a particulate concentration in soil of 1,540 mg/kg. Based on this value, a conservative 1-hour average PM_{10} action level of 91 $\mu\text{g}/\text{m}^3$ was established for the monitoring program, as PM_{10} concentrations would need to reach 91 $\mu\text{g}/\text{m}^3$ to meet the 0.14 $\mu\text{g}/\text{m}^3$ RSL for manganese. For comparison, the National Ambient Air Quality Standard (NAAQS) for PM_{10} is 150 $\mu\text{g}/\text{m}^3$, averaged over a 24-hour period. The project action level is therefore conservative relative to the NAAQS, as it is both lower in concentration and applied over a shorter (1-hour) averaging period. Figure 3 presents the equation used to derive the particulate matter action level.

FIGURE 3 PARTICULATE ACTION LEVEL EQUATION

$$\text{Action Level} = \text{RSL} * \frac{10^6}{\text{Soil Concentration}}$$

7. ACTION LEVEL AND RESPONSES

7.1 REAL-TIME ACTION LEVELS IMPLEMENTATION

The real time action levels were developed to serve as an indicator of acceptable real-time air quality and to identify when supplemental dust control responses are necessary. Real-time action levels were developed for PM_{10} . The real-time action levels were developed using air quality

workplace and ambient air standards, the capability of the field screening and analytical instruments, and knowledge of on-site contaminants.

Continuous measurements of PM₁₀ concentrations will be collected at each PAM. The measurements will be recorded as fifteen-minute averages by each PAM datalogger.

Real-time action level exceedances are provided in Table 6 below. Recommended dust control response actions for action level exceedances are discussed in Section 7.3.

TABLE 6 REAL-TIME ACTION LEVELS

Parameter	Instrument	Action Tier	Action Levels, Average Time	Responses
PM ₁₀	PM ₁₀ Monitor (Nephelometer)	1	< 75 µg/m ³ , 15 min.	None needed.
		2	≥ 91 µg/m ³ , 30 min.	1. Initiate additional dust control – notify supervisor(s)
		3	≥ 91 µg/m ³ , 1 hour	1. Initiate shut down procedures until concentration drops below Level 1. 2. Air Monitoring Lead notifies ERM DM and PM. 3. ERM DM notifies demolition contractor Superintendent. ERM Project Manager notifies Justified Data Power, LLC Project Manager.

7.2 REAL-TIME RESPONSES

Action levels developed for PM₁₀ will be used to gauge the air quality at the site perimeter. Supplemental dust control measures will be implemented at the Site, as necessary, to maintain acceptable air quality perimeter of the Site. Supplemental control measures may include application of water for control dust migration, reduction in site activity, or other methods as determined by Site team. Supplemental dust controls will be implemented in the event action levels are exceeded. The response actions taken to control off-site dust will be proportional to the severity of the measured perimeter fence line real-time concentrations.

The Site team will be notified of each exceedance and available actions for reducing off-site impacts will be discussed. Supplemental dust control measures will be applied to the areas or tasks being completed in the order which maximizes effectiveness and least impedes the demolition activities. Action levels apply to measured concentrations at worker-receptor locations regardless of background conditions. However, a review of upwind/background data will be considered during an action level alert to guide response actions.

7.3 RESPONSE ACTIONS

Response actions have been determined to address elevated concentrations measured in the field. Particulate emissions may be controlled by wetting working surfaces and haul roads, or by covering exposed material in inactive work areas. If the action level is exceeded for more than 1-hour, work activities will be suspended until an effective remedy can be implemented. Additional dust control measures will be continued until air quality at the Site perimeter no longer exceeds action levels.

The designated air monitoring technician will monitor air quality at each perimeter location to verify that action levels are not being exceeded before leaving the Site.

7.4 REAL-TIME DOCUMENTATION

Each period of PM₁₀ concentrations will be digitally recorded and documented in ERM's server. Information recorded during the period of elevated concentrations should include the following:

- Time of elevated concentration;
- Location of elevated concentrations;
- Cause or suspected cause for elevated concentration;
- Current meteorological conditions;
- Relevant site activities;
- Response action taken.

The ERM field technician should provide notification to Site team and take appropriate action(s) if action level is exceeded while on site.

7.4.1 REAL-TIME MONITORING DATA

The real-time, continuous PM₁₀ and meteorological data will be telemetered via cellular modem to a secure dedicated database server where the raw data will be archived, data processing will be performed, and results used to trigger action level email and text message alerts as appropriate. These data will also be fed into a secure website for access by authorized individuals. Field data including calibration records, maintenance, sampling irregularities, and repairs will be recorded on data sheets and in the field logbook for the real-time air monitoring.

The real-time sampling results will be routinely reported to the demolition manager to allow prompt evaluation and response to potential dust problems when action levels have been approached or exceeded.

7.4.2 DATA REVIEW

Methods for reviewing the quality of air and meteorological data are discussed below. The data review process begins with a visual review and screening by an air quality monitoring technician. Specific tasks are:

- Screening the data for missing data or power interruptions;

- Initial screen of the data for anomalies – with particular attention to the extreme values (i.e., daily minimum and maximum);
- Assess instrument diagnostics and alarm status for data in the expected ranges;
- Review all field logs for consistency in equipment operation;
- Review the results of any instrument calibrations; and
- Review of laboratory results and laboratory QA/QC reports.

8. CONFIRMATORY AIR SAMPLING

XRF laboratory analysis is utilized to quantify compound-specific metals during demolition activities. 72-hour samples will be collected daily at each PAM location. The samples collected (7 total) will be shipped once a week to the laboratory for analysis. On a weekly basis a field blank will be collected and sent to the laboratory for XRF analysis.

The laboratory results will be tabulated to present the average air concentrations for selected analytes detected for each sampling event. The air concentrations of each measured individual compound for each PAM will be compared to real-time PM₁₀ concentrations, program averages to date, and RSLs.

8.1 CONFIRMATORY SAMPLING RBSLs

The RBSLs outlined in Section 6 were developed for selected metals for a 15-month exposure frequency. Should the duration of the project extend beyond the anticipated period, the air quality standards may require adjustment.

8.2 CONFIRMATORY SAMPLING RESULTS

If the lab results from a confirmatory air sample exceeds the RSL for any of the metals, an evaluation of field measurements, activity logs, field observations, and quality control information will be investigated to provide an evaluation on the contribution from Site activities. If these factors indicate that exceedances may be attributable to the Site, a determination of potential, additional control measures will be conducted and relayed to project staff and contractors will be notified. Additional measures will be implemented and documented, as practicable. While confirmatory sampling is not a tool for real-time detection and response, it can provide additional information to improve onsite dust management.

Sample results will be available 7 days after the laboratory receives the sample media for analysis. RSLs will be compared to the laboratory data and will be used for diagnostic purposes and, in conjunction with the real-time data, determine if additional control measures are warranted.

8.3 CONFIRMATORY SAMPLING DOCUMENTATION

8.3.1 FIELD DOCUMENTATION

Field data, including equipment calibration, sample identification, equipment maintenance, sampling irregularities, and shipments will be recorded in air monitoring data sheets and the field

logbook. Air Monitoring Site Check Forms will be maintained for the time-integrated sampling network to log daily information of the nature described above, pertinent to documenting the time-integrated sampling program.

8.3.2 CONFIRMATORY SAMPLING DATA

Preliminary laboratory results will be reported to the project team to assess potential air quality concerns due to Site activities. ERM will review the preliminary laboratory results for comparison to field measurements. Following ERM's review of the laboratory reports, ERM will notify the laboratory if clarifications or additional documentation is needed to the reports. Upon completion of ERM's QA/QC review and, if needed, any clarifications or additional documentation added, the reports will be considered as "final".

9. AIR MONITORING PROGRAM REPORTING

Following the conclusion of the project, ERM will prepare a final report for the Justified DataPower, LLC containing a complete summation of the QA/QC-processed data for the entire project. The final reporting will include PM₁₀, meteorological, and confirmatory sampling laboratory reports that has been verified by an ERM air quality specialist. Additionally, this report will include all calibration forms, field forms, instrument certifications, and chains of custody.



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