

AIR MONITORING PLAN

BNSF SANGAMON RIGHT-OF-WAY CHICAGO, COOK COUNTY, ILLINOIS

March 2016

Prepared for:



Minneapolis, Minnesota

Prepared by:



Chicago, Illinois

Air Monitoring Plan

BNSF SANGAMON RIGHT-OF-WAY CHICAGO, COOK COUNTY, ILLINOIS

Prepared for:



**BNSF Railway Company
Minneapolis, Minnesota**

Prepared by:



**230 W. Monroe Street
Suite 2300
Chicago, IL 60606**

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Figure 1: Air Monitoring Locations Map

1.0 INTRODUCTION

This Air Monitoring Plan (AMP) addresses air monitoring activities to be conducted as part of the removal activities at the BNSF right-of-way (ROW) located along South Sangamon Street between 18th Street to 21st Street in Chicago, Cook County, Illinois (the Site). A Site Layout Map is provided in the *Removal Action Work Plan*. Although the Site does also include the BNSF ROW between 16th and 18th Streets, the only activities that will be conducted on this portion of the Site at this time is limited chain link fence installation, for which air monitoring is unnecessary.

This AMP describes the design, setup and operation of the systems to be implemented during the Site removal activities. The purpose of this AMP is to provide early detection in the field of fugitive dust. The early detection of fugitive dust and associated contingency measures is intended to expedite any necessary mitigation measures, and to reduce the potential for the community to be exposed to constituents at levels above accepted and recommended guidelines. This AMP and any subsequent addenda will apply to all TRC personnel and subcontractors who are involved with activities at the Site. Air monitoring will also be conducted for the purposes of on-site worker safety; however, the worker safety air monitoring program is described in and will be implemented in accordance with the site-specific Health and Safety Plan (HASP). Air monitoring data collected under the purview of this AMP for purposes of community protection will be used to supplement construction worker safety air monitoring data collected and evaluated as required by the HASP, and vice versa.

All work will be conducted in compliance with applicable Occupational Safety and Health Administration (OSHA) regulations, including 29 CFR 1910 (General Industry Standards), and 29 CFR 1926 (Construction Industry Standards) as well as the U.S. Environmental Protection Agency (USEPA) Air Quality Planning and Standards.

1.1 Site Description and Removal Activities

The Site is located in Section 20, Township 39N, Range 14E in Chicago, Cook County, Illinois. The Site is located in a predominantly residential area with outlying industrial properties east of the BNSF ROW.

The Site is the BNSF ROW that runs parallel to South Sangamon Street between 18th Street to 21st Street. Initial activities at the Site will include the installation of traffic controls, temporary fencing and the removal of existing railroad track and ties as well as other limited structures. Excavation of lead-impacted soil will be completed to approximately 2 feet below ground surface (bgs), directly loaded into trucks and disposed of off-site at licensed facilities. While excavation activities are taking place, TRC will be conducting air monitoring, evaluating the need for fugitive dust management, and

coordinating dust control when necessary. In addition, TRC will coordinate traffic and road control at the Site. Following excavation activities, geotextile will be installed as well as a clean soil cap. The clean soil cap will be seeded with grass.

1.2 Plan Organization

The AMP is organized into the following sections:

- **Section 1 – Introduction** provides an overview and background of the project and describes the purpose and objectives of the AMP.
- **Section 2 – Monitoring Activities** presents an overview of the AMP and the nature of fugitive dust that may occur as a result of these activities. In addition, a discussion of air monitoring equipment and techniques, as well as Action Levels are included in this section.
- **Section 4 – Reporting** summarizes how the results from the air monitoring activities will be collected and recorded.
- **Section 5 – References** the documents used to develop this AMP.

The AMP will be implemented and overseen by TRC personnel. During the removal activities, TRC will direct the assessment of perimeter air monitoring concentrations. TRC will communicate any alert conditions or near alert conditions to personnel including the subcontractors so that appropriate preemptive or response measures can be implemented. The results of the air monitoring and laboratory data will be reported directly from TRC to the client.

1.3 Air Monitoring Objectives and Approach

The objectives of the AMP are as follows:

- Establish background ambient air concentrations for use as a baseline when removal activities are initiated.
- Provide details for response procedures and communication to reduce the off-site migration of airborne contaminants if established Action Levels are approached or exceeded.
- Determine whether construction controls are effective in reducing ambient air concentrations of specific compounds to below Action Levels, and make appropriate and necessary adjustments.
- Develop a permanent record that includes a database of perimeter air monitoring results and meteorological conditions, equipment maintenance, calibration records, and other pertinent information.

The general approach to meet the objectives outlined above is two-fold:

1. *Utilize a real-time system to monitor target compounds.* Real-time monitoring data will be used as an early warning system so TRC can alert the Remediation Contractor that concentrations of target compounds are approaching Action Levels. Under this scenario, the subcontractor can then begin to evaluate and implement appropriate site controls to maintain below the Action Levels.
2. *Develop comprehensive data management and analysis procedures.* Data will be generated from a variety of sources, including real-time station analytical monitoring and meteorological monitoring. These data must be reduced, evaluated, verified, and presented to representatives of the client and the Remediation Contractor to facilitate timely decision-making.

2.0 MONITORING ACTIVITIES

Real-time air monitoring will be conducted at the Site during removal activities with the purpose of protecting local populations. The general plan for the AMP at the Site consists of the following:

- Two perimeter air monitoring stations will be deployed as shown on Figure 1. Mobilization and air monitoring equipment preparation for the Site will be initiated prior to the start of removal activities. The perimeter air monitoring stations will monitor ambient air continuously while removal activities are being conducted. Bulk material stockpiles will not be maintained at the Site. Small stockpiles will only be temporarily formed when pulling soil within the reach of the excavator while loading a truck; therefore, continuous 24/7 air monitoring will not be necessary.
- Three days of baseline air monitoring will be conducted at the Site before any removal activities begin to evaluate background conditions.
- In addition to the air monitoring stations, a dedicated weather station will be established at the Site and operated to continuously monitor meteorological conditions during the removal activities.

2.1 Nature of the Fugitive Dust

The Site is an out-of-use ROW in a mixed residential / formerly heavy industrial area. The investigation of the ROW was initiated based on a request from the USEPA in conjunction with investigation and remediation of the former Loewenthal Metals property that is adjacent to the BNSF ROW at the southwest corner of W. Cullerton Street and S. Sangamon Street. Subsequent soil sampling discovered lead-impacted soil along the length of the ROW between West 18th Street, to the north, and West 21st Street, to the south. This AMP was developed to compliment upcoming remedial activities including excavation and off-site disposal of impacted soil and restoration of the Site (e.g., backfilling excavations and seeding disturbed areas).

Based on the nature of the impacts, the nature of the dust principally contains inorganic constituents, such as lead-containing respirable particulate matter (PM_{2.5}).

2.2 Air Monitoring Methodology

This section presents a detailed description of the perimeter air monitoring and methods, including data management that will be used during the Site removal activities. In general, real-time monitoring methods will be utilized to determine ambient air concentrations during the removal activities. Real-time continuous monitoring for respirable particulate matter (PM_{2.5}) will occur at two locations along the Site perimeter

(Figure 1). Given the layout of the Site, the two locations will not be static; instead, they will be moved in conjunction with the removal activities. Locations of the air monitoring stations will be modified based on site conditions and on where actual removal activities are taking place at that time. An Air Monitoring Plan is provided as Figure 1 of this plan. Meteorological conditions including wind speed and direction, temperature, and relative humidity will be monitored in real time.

2.3 Baseline Monitoring

Pre-remediation monitoring will be completed to establish baseline ambient air concentrations prior to the start of removal activities. Baseline conditions will be developed for respirable particulate matter (PM_{2.5}) in ambient air using real-time stations over 3 days. On each day of the baseline monitoring, conditions will be monitored for an 8-hour period similar to the planned work days at the Site (e.g., between 7 a.m. and 3 p.m.).

2.4 Real-time Air Monitoring

TRC will use tripods equipped with DataRAM dust meters to measure ambient air conditions at the Site remediation boundaries while removal activities are taking place. Two tripods will be placed at the property boundaries; one in the upwind direction and the other in the downwind direction.

Real-time measurements for particulate matter will be collected on a 15-minute interval during the work periods. The location of the tripods will be adjusted, as required, throughout the removal activities to evaluate potential dust from specific site activities/areas.

A DataRAM dust meter or the equivalent will be used to provide respirable particulate matter (PM_{2.5}) screening results for ambient concentrations of dust. Fugitive dust controls will be instituted if particulate levels are determined to be greater than the action level for periods longer than 15 minutes at the temporary fence line of the Site (i.e., if two consecutive measurements exceed action level).

In addition to the two monitoring stations, a meteorological monitoring system will be set up on the Site. The meteorological system will be set at a height of approximately 3 meters (approximately 10 feet) aboveground and centrally located on the Site in an area that is clear of buildings, trees, or other obstructions. The meteorological system will continuously monitor temperature, barometric pressure, relative humidity, wind speed, and wind direction. 15-Minute average values for each meteorological parameter will be stored in the central computer database.

The following sampling and analysis methods will be used to meet the data requirements:

Parameter	Sample Type	Sample Method	Analysis Method	Detection Limit
Respirable Particulate Matter (PM _{2.5})	Real-Time	DataRAM	Light Scattering	35 ug/m ³
		Observation	Visual	Visible Dust
Meteorological Conditions	Real-Time	Meteorological Tower	N/A	N/A

2.5 The Decision Rule

The parameter used in the decision making process will be the 15-minute real-time monitoring results collected and analyzed as stated above. The following decision-making Action Levels have been established for the Site during removal activities. Site Condition 1 Action Levels represent a threshold value equal to 75 percent of the Action Level.

Parameter-Units	Site Condition 1 Action Level	Site Condition 2 Action Level	Detection Limit
Respirable Particulate Matter (PM _{2.5})	Visible Dust or 26 ug/m ³	Visible Dust or 35 ug/m ³	TBD based on equipment

The following decision rules have been developed.

1. *If the 15-minute average of respirable particulate matter (PM_{2.5}) in ambient air at the downwind perimeter exceeds the Site Condition 1 Action Level, then a response action determined by TRC and the Remediation Contractor will be implemented AND respirable particulate matter (PM_{2.5}) monitoring will continue. If the 15-minute average is less than the Site Condition 1 Action Level, then respirable particulate matter (PM_{2.5}) monitoring will continue.*
2. *If the 15-minute average respirable particulate matter (PM_{2.5}) in ambient air at the downwind perimeter exceeds the Site Condition 2 Action Level, then a response action determined by TRC and the Remediation Contractor will be implemented AND respirable particulate matter (PM_{2.5}) monitoring will continue.*

2.6 Fugitive Dust Management Plan

In the event that respirable particulate matter (PM_{2.5}) fugitive dust exceed the established Action Levels, a management plan will be in place to provide a course of action. The Fugitive Dust Management Plan will:

- Establish procedures and mitigation options in the event that respirable particulate matter (PM_{2.5}) concentrations exceed the action levels.
- Establish procedures and mitigation options for controlling particulate dust.

The *Fugitive Dust Management Plan* will accompany the AMP in the finalized Work Plan for removal activities.

2.7 Quality Assurance Project Plan

TRC will establish a record of quality for the AMP. The *Quality Assurance Project Plan* (QAPP) describes in detail the project organization, data quality objectives, documentation and records, measurement data, quality control measures, and data validation. The QAPP will be included as a separate plan in the *Removal Action Work Plan*.

3.0 REPORTING

Results of the real-time air monitoring, will be provided to document Site conditions and evaluate the effectiveness of fugitive dust controls. Perimeter monitoring will be performed for the determined constituents as discussed above.

3.1 Real-Time Screening Results

Daily summaries of the data will be prepared and recorded daily using a particulate monitoring data log. The summaries will be supplemented with notations of any exceedances of Action Levels and associated control responses. A summary report detailing the time-weighted averages and maximum values recorded during the program to date will be developed on a weekly basis and provided to BNSF in the final report.

3.2 Constituent-Specific Results

The results from the real-time screening evaluation (Section 3.2) will also be summarized on a weekly basis. The summary will include the average fence line concentrations of the selected constituents of interest.

4.0 REFERENCES

City of Chicago. Department of Public Health, Article II. Air Pollution Control, Proposed Rules and Regulations for the Handling and Storage of Bulk Material Piles, December 19, 2013.

USEPA. *National Ambient Air Quality Standards for Particulate Matter*, Final Rule, 40 CFR Parts 50, 21, 52 et al.

USEPA. *National Exposure Research Laboratory, Human Exposure & Atmospheric Sciences Division (MD-D205-03)*, List of Designated Reference and Equivalent Methods for Particulate Matter, June 18, 2015.

USEPA. *EPA Guidance for Quality Assurance Project Plans*, EPA QA/G-5, EPA/600/R-98/018, February 1998.

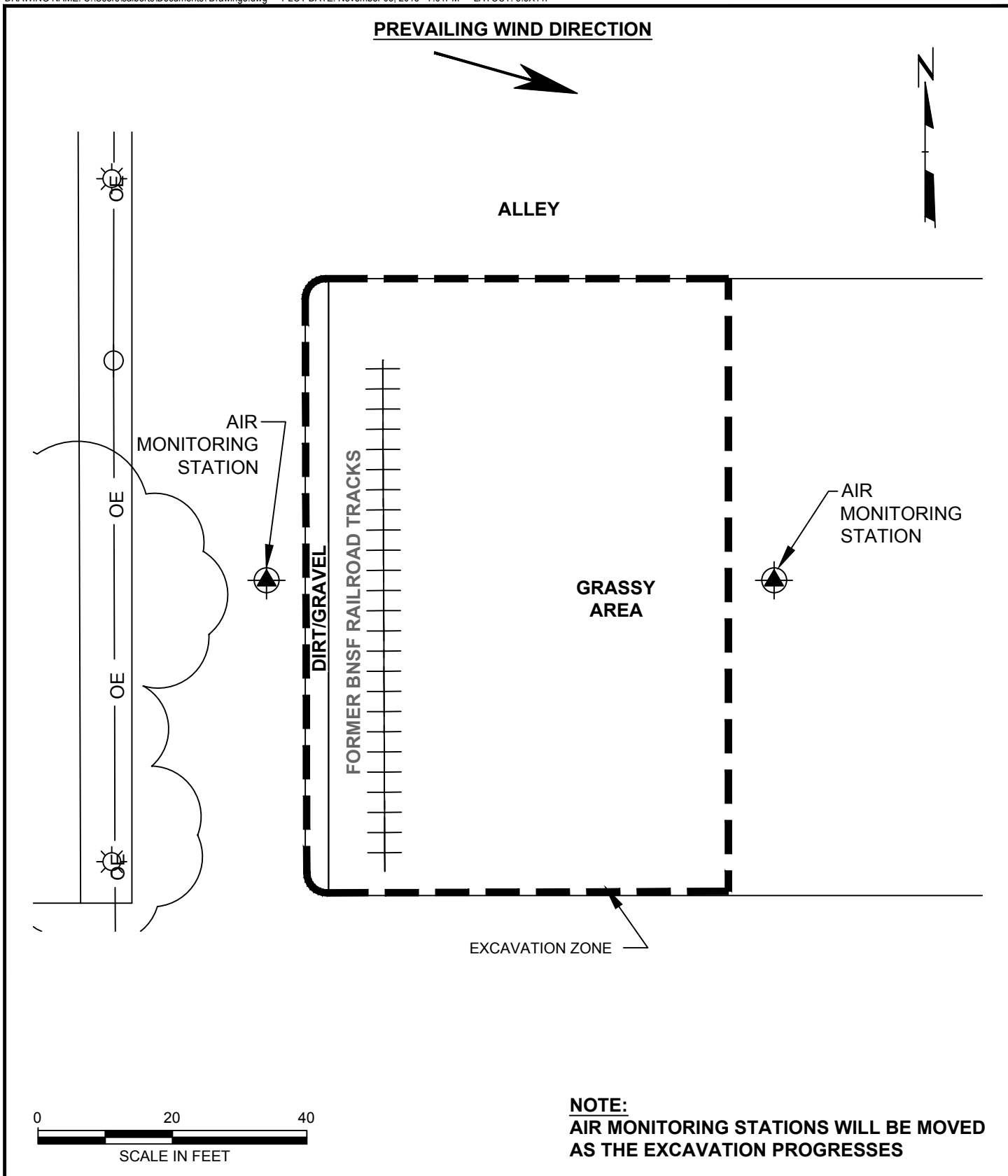
USEPA. *Guidance for the Data Quality Objectives Process*, EPA QA/G-4, EPA/600/R-96/005, August, 2000.


USEPA. *Guidance for the Data Quality Objectives Process for Hazardous Waste Sites*, EPA QA/G-4HW EPA/600/R-00/007, January 2000.

USEPA. *Guidance on Systematic Planning using the Data Quality Objectives Process*. EPAQA/G-4, EPA/240/B-06/001, February 2006.

USEPA. Integrated Risk Information System, October, 2009

FIGURE



 <p>230 West Monroe St. Suite 2300 Chicago, IL 60606 Phone: 312.578.0870</p>	PROJECT:	BNSF RAILWAY SANGAMON RIGHT OF WAY EXCAVATION CHICAGO, COOK COUNTY, ILLINOIS	DRAWN BY:	SPA
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			APPROVED BY:	LM
			DATE:	NOVEMBER 2015
			PROJ. NO.:	230807
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	FIGURE 1			

APPENDIX A
AIR MONITORING FORM

AIR MONITORING RECORD

RAM/MiniRAM MEASUREMENTS

[illegible]