

**AMBIENT AIR MONITORING/SAMPLING
PLAN**

Ithaca Gun Company Site

ITHACA, TOMPKINS COUNTY, NEW YORK

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July 2002

Earth Tech Project No. 51187

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Site Information

This document serves as the Ambient Air Monitoring/Sampling Plan (the Plan) for the Ithaca Gun Company Site, located in the City of Ithaca, County of Tompkins in the State of New York (the "Site"). The purpose of the **Plan** is to evaluate potential emissions generated during remediation activities to be performed at the Site. The remediation at the Site will include excavation and off-site disposal of lead and arsenic contaminated soils. During the soil excavation activities, there is a potential for release of lead and arsenic contaminated dust. **The Plan** is designed specifically for the protection of the surrounding community from risks posed by these potential releases. Action levels for contaminants in air are based on current recommendations issued by the National Institute for Occupational Safety and Health (NIOSH).

The Plan has been developed to monitor the effectiveness of dust suppression methods (see Work Plan), and with respect to the most sensitive receptors adjacent to the Site. The results of the air monitoring/sampling program stipulated by the plan will be reviewed daily and to assess the effectiveness of the dust suppression methods with respect to the most sensitive off-site receptors. If the dust suppression systems are found to be ineffectively containing emissions from remedial activities based upon the results of the sampling protocols contained within the Plan, the engineering controls set forth in the WORK PLAN will be reviewed and modified. If necessary an amended work plan will be submitted to EPA for their review, comment and approval.

This Ambient Air Monitoring/Sampling Plan only addresses Air Monitoring/Sampling at the site for purposes of determining potential off-site emissions. Air monitoring for worker health and safety is covered under the site-specific Health and Safety Plan (HASP). The Ambient Air Monitoring/Sampling Plan is presented in the following sections:

Section 1.0	Introduction
Section 2.0	Real-Time Field Screening
Section 3.0	Action-Level Program
Section 4.0	Time-Averaged Sampling
Section 5.0	Quality Assurance/Quality Control
Section 6.0	Ambient Air Monitoring/Sampling Data Report

1.0 INTRODUCTION

In order to demonstrate that there is no off site migration of contaminants EPA will employ both REAL TIME Particulate monitoring along with air sample collection media. The REAL TIME particulate monitors will analyze a sample of whole air 60 times an hour for the presence of particulate matter. This will be done for the duration of the work day. This data will then be downloaded and graphed. In the same proximity to the particulate monitors air sampling pumps will be placed. These pumps will also be run for the duration of the work day. Unlike the particulate monitors, these will be running continuously drawing air across the sample collection media. The sample media will be sent off for laboratory analysis for lead. The National Institute of Occupation Safety and Health (NIOSH) has issued a Relative Exposure Limit (REL) for lead. The NIOSH REL for lead (8-hour TWA-time weighted average) is 0.050 mg/m^3 . This is an occupational exposure limit. Currently, there is no residential exposure limit.

The real-time field monitoring will include the following:

- (1) dust (or total airborne particulate) analysis using a portable aerosol meter.

The time-averaged sampling will include laboratory analysis of air samples for the following:

- (2) lead and arsenic (Collected and analyzed in accordance with NIOSH METHOD 7300)

The ambient air sampling will be used to characterize any potential fugitive emissions that may be leaving the Site during the remediation activities. The results of the real-time field monitoring will be used to determine when implementation of additional engineering controls is necessary to reduce emissions from the Site.

Air sampling in general and especially particulate sampling is very dependent upon weather conditions. Rain and wet weather tends to wash particulate matter out of the air. The sampling locations that tend to be most impacted by the weather conditions are the fence-line (or site perimeter) sampling locations. The combinations of an atmospheric concentration gradient, distance from the source and the washing action of precipitation have the greatest affect at these locations.

One to three days of background (baseline) sampling will be conducted prior to initiation of remedial activities. Baseline sampling will consist of both real-time monitoring and time-averaged sampling activities. This data will be used to compare air quality data generated during the removal activities against non-activity times.

Our safety protocols are that the action limit is one-half of the most conservative level. In this case, it is 0.025 mg/m^3 .

2.0 REAL-TIME FIELD SCREENING

Real-time field screening will be conducted using direct-reading instruments that are designed to monitor ambient air quality on a real-time basis. The real-time ambient air measurements will be taken in the “breathing zone” (approximately 6 feet above ground surface). During the workday, a real time sample will be collected for 1 second out of each minute worked. The instrument’s data logger will capture the results of the real-time readings. At the end of each workday, this information will be downloaded and reviewed.

Emission control procedures, up to and including work stoppage, will be instituted if concentrations exceed the actions levels for more than 5 minutes at any location along the perimeter. The site action levels are established in section 3.0 of this plan.

The types of direct-reading instrumentation to be used during the project are described below:

- Σ Particulate Meter: The particulate meter measures ambient concentrations of dust (or airborne particulates). The meter draws air at a known flow rate continuously through the instrument. Using a photometric light reflecting process, particle size and concentrations can be measured. The instrument sensitivity to extremely small particle sizes is very high. It is the smallest particle sized materials, which pose the greatest potential health threat. These particles are easily transported deep into the lungs and at the point can become very hazardous.

3.0 ACTION LEVEL PROGRAM

The results of the real time particulate monitoring will be compared to action levels developed for lead contaminated sites according to the Community Air Monitoring Plan (CAMP) from the New York State Department of Health (NYSDOH). The following table includes the action levels recommended by the NYSDOH.

Action Level for Perimeter Monitoring Locations	Actions Initiated
100 $\mu\text{g}/\text{m}^3$ total airborne particulate (above background)	Cease site activities Reevaluate dust suppression measures

The Response Manager will be notified if dust, concentrations exceed the applicable action levels noted above at any site perimeter monitoring location. The Response Manager will completely stop the work, as necessary, until the dust, readings fall below the action levels. Ambient emission control measures that will be implemented for this project (contaminant dust controls) are described in the Site Work Plan.

4.0 TIME-AVERAGED SAMPLING

Time-averaged air monitoring and sampling will be performed daily for an 8-hour period during remediation activities to measure site perimeter concentrations. Baseline time-averaged ambient air sampling will be conducted for one to three days, prior to beginning remediation activities. The baseline data will consist of particulate monitoring information, and air sampling for the potential contaminants. While work is in progress, time-averaged air sampling will be conducted at the upwind, downwind along the site perimeter (duplicate samples will be obtained from one of the stations). These samples will be analyzed for the potential contaminants as per NIOSH methodologies.

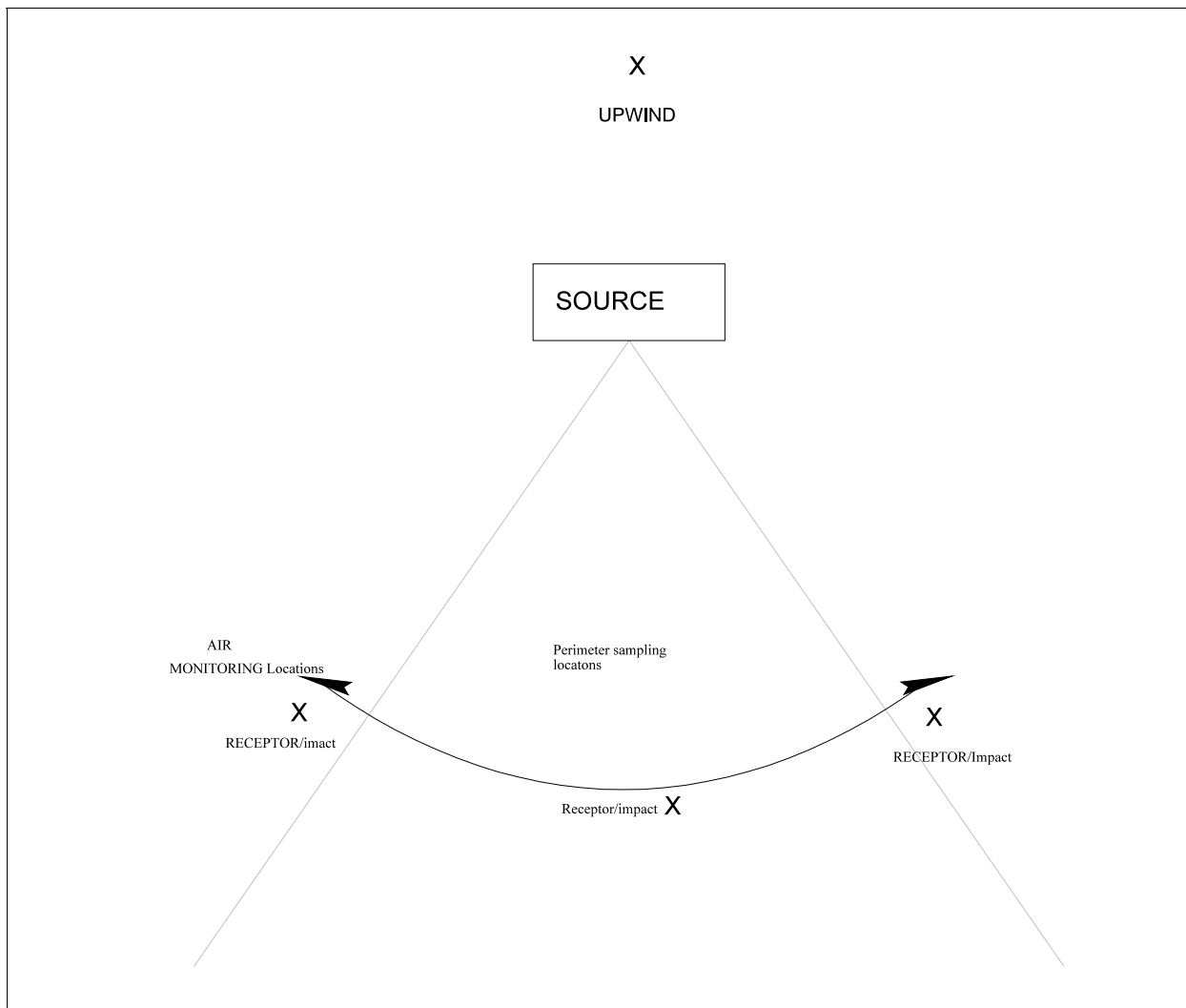
The air monitoring and sampling efforts will result in the collection of approximately 260 sets of samples (assuming the remediation lasts for 260 days). Each day the samples will be transported to an AMERICAN INDUSTRIAL HYGIENE ASSOCIATION (AIHA) certified laboratory for metals analysis as per the condition established in the NIOSH 7300 methodology. Verbal results will be provided by the laboratory within 24 hours of their receiving the samples. Hard copy data from the laboratory will follow within 48 hours.

The Occupational Safety and Health Agency (OSHA) establish action levels for workers in the directly involved with the remediation. A discussion of these levels can be found in the site health and safety plan.

5.0 SAMPLING STRATEGY

Provided that the local meteorological conditions do not change, four sampling locations deployed generally as per Figure 1 are the recommended optimum number. If there are known diurnal changes in wind direction, it is essential to add up to three additional locations to insure 180 degree coverage downwind from the source. Such changes would be on shore and off shore breezes, and the advent of a weather front. Once the wind direction and any changes that can be reasonably anticipated are identified, the sampling locations require to be free of obstructions.

FIGURE 1



Trees, buildings and other items can produce atmospheric eddies and can potentially bias sampling results. The upwind sampling location is the reference location. Provided that there is no change in wind direction, this sample location demonstrates the “normal” amounts of materials present in a give amount of air that the time of sampling. Air sampling in general and especially particulate is very dependent upon weather conditions. Rain and wet weather tends to

wash particulate matter out of the air. The sampling locations that tend to be most impacted by the weather conditions are the fence-line (or site perimeter) sampling locations. The combination of an atmospheric concentration gradient, distance from the source and the washing action of precipitation have the greatest affect at these locations.

6.0 QUALITY ASSURANCE/QUALITY CONTROL

Quality Assurance:

Quality assurance will be provided through equipment calibration and maintenance as follows:

- Σ Particulate Monitor: Perform a zero check at the beginning of each day and calibration of the unit as per the manufacturers' direction.
- Σ Air Sampling Pumps: Calibration of sampling pumps will be performed prior to baseline sampling and daily during remediation activities. A calibrated rotometer or a primary flow device will be used to insure accurate pump flows during the sampling.

Quality Control:

Quality control will be ensured for (lead and arsenic) air samples by providing field blanks, and duplicate samples as follows:

Data will also be evaluated to assess potential risks to human health and the environment from exposure to hazardous substances attributable to the site.

Data QA Objectives

The overall Quality Assurance (QA) objective for chemical measurement data associated with this sampling event is to provide analytical results that are legally defensible in a court of law. The QA program will incorporate Quality Control (QC) procedures for field sampling, chain of custody, laboratory analyses, and reporting to assure generation of sound analytical results.

QA Objectives

The following requirements apply to the respective QA Objectives for the parameters identified.

1. Sample documentation in the form of field logbooks, appropriate field data sheets, and chain of custody records
2. Calibration of all monitoring and/or field-portable analytical equipment prior to collection and analyses of samples with results and/or performance check

procedures/methods summarized and documented in a field, personal, and/or instrument log notebook.

3. Field or laboratory determined method detection limits (MDLs) will be recorded along with corresponding analytical sample results, where appropriate.

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- Σ Field or laboratory determined method detection limits (MDLs) will be recorded along with corresponding analytical sample results, where appropriate.
- Σ Analytical holding times as determined from the time of sample collection through analysis. These will be documented in the field logbook or by the laboratory in the final data deliverable package.
- Σ Initial and continuous instrument calibration data.
- Σ QC blank results (rinsate, trip, method, preparation, instrument, etc.), as applicable.
- Σ Collection and analysis of blind field duplicate and MS/MSD QC samples to provide a quantitative measure of the analytical precision and accuracy, as applicable.
- Σ Field Blank: One sample media item will be opened in the field and shipped to the laboratory for every day of sampling or one per 20 samples collected for lead and arsenic analysis; and
- Σ Duplicate Sample: One duplicate sample will be collected and shipped to the laboratory for each sampling event for lead and arsenic.

All instrumentation will be maintained, field-tested, and operated by professionals who have been trained on the technical aspects of the instruments used, and of Air Monitoring and Sampling procedures in general. These professionals have the ability to directly contact equipment manufacturer representatives for expert advice and remote troubleshooting.

7.0 AMBIENT AIR MONITORING/SAMPLING DATA REPORT

The final ambient air monitoring/sampling data report for the project will include the sections outlined below:

- Σ Introduction;
- Σ Executive Summary;
- Σ Methodology;
- Σ Study Results;
- Σ Conclusions;
- Σ Data Logging Results for Each Sampling Location;
- Σ Table Detailing Results and Comparisons to Relevant Standards For Each Constituent-Specific Compound Measured; and
- Σ Field logbook, chains of custody, and all data sheets will be maintained and submitted as an appendix; the field notes should contain such information as equipment serial numbers, equipment maintenance, daily activities, corrective action, etc.