

October 14, 2013

Ms. Janice Willoughby
CMC, Inc. Environmental Services
1151 Jessamine Station Road
Nicholasville, KY 40356

Re: ASTI Project #D8318

Dear Ms. Willoughby:

Attached you will find reports for air monitoring for ambient airborne Lead, Arsenic, and particulate during soil removal operations at 1612 Wilson Ave and 1632 Wilson Ave, Louisville, KY. The purpose of sampling was to verify the effectiveness of engineering controls used to minimize the exposure of workers and local neighbors to potentially-contaminated dust during excavation activities. Mr. Art Smith, PE, On-Scene Coordinator for the EPA, provided lab results from previously collected soil samples that indicated levels of lead and arsenic contamination.

Given the results of this monitoring (all results are below the laboratory limit of detection) and that these locations were selected as "worst case scenarios" we agree with Mr. Art Smith, PE, that no further air monitoring is needed at this time to verify the effectiveness of engineering controls. If, however, work practices change, additional monitoring may be needed.

Sincerely,



Bruce N. Fergusson, CIH, CIEC, PE (inactive)

Enclosures

**INDUSTRIAL HYGIENE
MONITORING**

**1632 Wilson Avenue
Louisville, Kentucky**

Performed By:



Christopher K. Adkins, MSIH

Reviewed by: Bruce Fergusson, CIH, PE (retired), CIEC

Air Source Technology, Inc.

**160 Prosperous Place
Lexington, Kentucky 40509**

Report Date: October 14, 2013

ASTI Project # D8318

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Executive Summary

Within the limits of testing conducted, and the analysis performed all ambient air samples were found to be below the laboratory limits of detection, which are well below OSHA Permissible Exposure Limits and the ACGIH Recommended 8 hr Threshold Limit Values for Lead and Arsenic, and also below the National Ambient Air Quality Standards (NAAQS) 24-hour limit for PM₁₀ particulates.

Introduction

Ms. Janice Willoughby of CMC Environmental Services contacted Air Source Technology, Inc. (ASTI) and requested measurements of ambient airborne Lead, Arsenic, and particulate during soil removal operations. Mr. Chris Adkins and Mr. Brian Leifeld of Air Source Technology, Inc. (ASTI) conducted the ambient air quality sampling on September 24, 2013. Excavation work was being conducted at 1632 Wilson Avenue, Louisville, KY on the day of sampling. The purpose of sampling was to verify the effectiveness of engineering controls used to minimize the exposure of workers and local neighbors to potentially-contaminated dust during excavation activities. Mr. Art Smith, PE, On-Scene Coordinator for the EPA, provided lab results from previously collected soil samples that indicated lead and arsenic contamination.

Background: The soil being removed has known levels of Lead and Arsenic.

Arsenic: “Arsenic in ambient air is usually a mixture of particulate arsenite and arsenate; organic species are of negligible importance except in areas of substantial methylated arsenic pesticide application or biotic activity (EPA 1984a).” (excerpted from ATSDR Toxicological Profile for Arsenic, Chapter 6 Potential for Human Exposure) Considering the nearby retired pesticide facility with findings of Arsenic content in soil samples (maximum concentration detected and reported in off-site surface soils was 51mg/kg), sampling for Arsenic is appropriate. Also considering the nature of the risk environment (temporary excavation activities), sample results are compared to personal exposure standards as defined by OSHA (10.0µg/m³) and ACGIH (10.0µg/m³).

Lead: “An EPA inhalation unit risk also is not available for lead (IRIS 2001). ACGIH (1998) classified lead and certain inorganic lead compounds as A3 carcinogens—carcinogenic in animals at relatively high doses not considered relevant to worker

exposure. Lead chromate, assessed on the basis of both lead and chromate, was classified by ACGIH (1998) as an A2 carcinogen—carcinogenic in animals at doses considered relevant to worker exposure, but with insufficient epidemiological data to confirm risk to humans.” (excerpted from ATSDR Interaction Profile for Metals, Appendix A: Background Information for Lead) Considering the nearby retired pesticide facility with findings of Lead content in soil samples (maximum concentration detected and reported in off-site surface soils was 1,200mg/kg), sampling for airborne Lead is appropriate. Considering the nature of the risk environment (temporary excavation activities), sample results are compared to personal exposure standards as defined by OSHA (50.0µg/m³) and ACGIH (50.0µg/m³).

Total Particulates: In this initial sample set, total particulates per NIOSH 0500 were collected. If total measurable particulates are detected above the National Ambient Air Quality Standards (NAAQS) PM₁₀ 24-hour standard (150.0µg/m³); then respirable dust (NIOSH 0600) would be collected at the next excavation site and an examination of engineering controls would be conducted. (The logic is that if all/total particulates are measured below the standard, then a subset of particulates is below the standard.) Also, the DataRam instrument readings would be examined for confirming readings.

General: The results of sampling are compared to applicable Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) and American Conference of Governmental Industrial Hygienist (ACGIH) Threshold Limit Value (TLV) standards. These particular exposure standards were selected to measure exposure during excavation activities. Excavation is considered a singular event versus a chronic, ongoing condition of the neighborhood environment, thus sampling for compliance to long-term environment as defined by the National Ambient Air Quality Standards (NAAQS) for Lead and Arsenic is not appropriate. However, considering NAAQS defines a 24-hour standard for PM₁₀ particulates, then that standard is used as an action limit for increased scrutiny.

Revision Notes: Not Applicable - Initial Issue.

Sampling Protocol

AIR SAMPLING (Lead, Arsenic, & Total Particulates)

The personal/area air samples taken were collected using intrinsically safe MSA Escort ELF[®] or SKC low volume sampling pumps. The sampling flow rate was pre and post calibrated with representative media in-line using a TSI 4046 Primary Calibrator. The pumps pulled air through match weighted mixed cellulose ester membrane cassettes. The flow rate was calibrated with the media connected to the pump. The filter/cassette assembly was then placed as close to the breathing zone as possible. The sampling time and flow rate were recorded when starting and finishing sampling. Upon completion, the cassette was separated from the pump and the media was sent for laboratory analysis. Galson Laboratories in Syracuse, New York and Environmental Hazards Services in Richmond, Virginia conducted the analysis.



The following table summarizes the methods and sampling media used:

Analyte	Media	Flowrate	Method
Lead & Arsenic	0.8 um MCE	2.0 L/min	NIOSH 7300M
Total Particulates	0.8 um MCE	2.0 L/min	NIOSH 0500

For this project sample locations were selected to capture ambient dust to be generated during excavation activities. The excavation work was generally oriented north-south as shown in the figure below. The EPA used two Thermo Scientific DataRAM 4000 Aerosol Monitor to continuously monitor conditions, one placed at the south end of the project and the other placed at the north end. Two sampling pumps were co-located with the two continuous monitors. The other four pumps were located at the north, south, east, and west sides of the excavation area. One additional sample was a field blank.



Figure 1: Sample Locations

Results

Lead, Arsenic & Total Dust

The results of sampling are compared to applicable Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) and American Conference of Governmental Industrial Hygienist (ACGIH) Threshold Limit Value (TLV) standards.

The results are shown in the tables that follow:

Table 1: Arsenic: September 24, 2013			
Sample ID	Description	Total Arsenic	Concentration
1632-1	North (co-located)	<0.50 µg	<0.53 µg/m ³
1632-2	East	<0.50 µg	<0.53 µg/m ³
1632-3	West	<0.50 µg	<0.52 µg/m ³
1632-4	South (co-located)	<0.50 µg	<0.52 µg/m ³
1632-5	Southwest	<0.50 µg	<0.52 µg/m ³
1632-6	Northwest	<0.50 µg	<0.52 µg/m ³
1632-7	Field Blank	<0.50 µg	N/A
OSHA Permissible Exposure Limit			10.0 µg/m³
ACGIH Recommended 8 hr Threshold Limit Value			10.0 µg/m³

Table 2: Lead: September 24, 2013			
Sample ID	Description	Total Lead	Concentration
1632-1	North (co-located)	<1.3 µg	<1.4 µg/m ³
1632-2	East	<1.3 µg	<1.4 µg/m ³
1632-3	West	<1.3 µg	<1.4 µg/m ³
1632-4	South (co-located)	<1.3 µg	<1.4 µg/m ³
1632-5	Southwest	<1.3 µg	<1.4 µg/m ³
1632-6	Northwest	<1.3 µg	<1.4 µg/m ³
1632-7	Field Blank	<1.3 µg	N/A
OSHA Permissible Exposure Limit			50.0 µg/m³
ACGIH Recommended 8 hr Threshold Limit Value			50.0 µg/m³

Table 3: Total Particulate: September 24, 2013			
Sample ID	Description	Total Particulate	Concentration
1632-1	North (co-located)	<100 µg	<0.11 mg/m ³
1632-2	East	<100 µg	<0.11 mg/m ³
1632-3	West	<100 µg	<0.11 mg/m ³
1632-4	South (co-located)	<100 µg	<0.11 mg/m ³
1632-5	Southwest	<100 µg	<0.11 mg/m ³
1632-6	Northwest	<100 µg	<0.11 mg/m ³
1632-7	Field Blank	<100 µg	N/A
OSHA Permissible Exposure Limit			15.0 mg/m³
ACGIH Recommended 8 hr Threshold Limit Value			10.0 mg/m³
National Ambient Air Quality Standards (NAAQS) PM10 24-hour			150.0 µg/m³ (0.15 mg/m³)

All ambient air samples measured below the laboratory limits of detection, which are well below OSHA Permissible Exposure Limits and the ACGIH Recommended 8 hr Threshold Limit Values for Lead and Arsenic, and also below the National Ambient Air Quality Standards (NAAQS) 24-hour limit for PM10 particulates.

Conclusions

Within the limits of testing conducted, and the analysis performed all ambient air samples were found to be below the laboratory limits of detection, which are well below OSHA Permissible Exposure Limits and the ACGIH Recommended 8 hr Threshold Limit Values for Lead and Arsenic and also below the National Ambient Air Quality Standards (NAAQS) 24-hour limit for PM10 particulates.

Appendix A: Laboratory Results



Environmental Hazards Services, L.L.C.
 7469 Whitepine Rd
 Richmond, VA 23237
 Telephone: 800.347.4010

Air Metals Analysis Report

Client: Air Source Technology Inc.
 131 Prosperous Pl. Unit 17
 Lexington, KY 40509

Report Number: 13-09-03832
 Received Date: 09/30/2013
 Reported Date: 10/02/2013

Project/Test Address: CMC D8318; 1632 Wilson Ave.; Louisville, KY

Client Number:
 18-4340

Fax Number:
 859-299-0494

Laboratory Results

Lab Sample Number	Client Sample Number	Analyzed Date	Analyte	Air Volume (L)	Total Metal (ug)	Concentration (ug/m ³)	Narrative ID
13-09-03832-001	1632-1	10/1/2013	Arsenic (As)	960	<0.50	<0.53	
			Lead (Pb)		<1.3	<1.4	
13-09-03832-002	1632-2	10/1/2013	Arsenic (As)	960	<0.50	<0.53	
			Lead (Pb)		<1.3	<1.4	
13-09-03832-003	1632-3	10/1/2013	Arsenic (As)	968	<0.50	<0.52	
			Lead (Pb)		<1.3	<1.4	
13-09-03832-004	1632-4	10/1/2013	Arsenic (As)	964	<0.50	<0.52	
			Lead (Pb)		<1.3	<1.4	
13-09-03832-005	1632-5	10/1/2013	Arsenic (As)	962	<0.50	<0.52	
			Lead (Pb)		<1.3	<1.4	
13-09-03832-006	1632-6	10/1/2013	Arsenic (As)	962	<0.50	<0.52	
			Lead (Pb)		<1.3	<1.4	
13-09-03832-007	1632-7	10/1/2013	Arsenic (As)	--	<0.50	---	
			Lead (Pb)		<1.3	---	

Environmental Hazards Services, L.L.C

Client Number: 18-4340

Report Number: 13-09-03832

Project/Test Address: CMC D8318; 1632 Wilson Ave.; Louisville, KY

Lab Sample Number	Client Sample Number	Analyzed Date	Analyte	Air Volume (L)	Total Metal (ug)	Concentration (ug/m ³)	Narrative ID
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Sample Narratives:

Method: NIOSH 7300M
Analyst: Aubrey Simonds



Reviewed By Authorized Signatory: _____

Julie Dickerson
Laboratory Administrator

Sample Results denoted with a "less than" (<) sign contains less than the reporting limit for each particular metal, based on a 25mL volume. The reporting limit is 0.25ug for Beryllium and Cadmium, 0.50ug for Arsenic, and 1.3 ug for all other metals.

The condition of the samples analyzed was acceptable upon receipt per laboratory protocol unless otherwise noted on this report. Results represent the analysis of samples submitted by the client. Sample location, description, area, volume, etc., was provided by the client. If the report does not contain the result for a field blank, it is due to the fact that the client did not include a field blank with their samples. EHS sample results do not reflect blank correction. This report shall not be reproduced except in full, without the written consent of the Environmental Hazards Service, L.L.C. California Certification #2319 NY ELAP #11714.

LEGEND ug = microgram ug/m³ = micrograms per cubic meter
 mL = milliliter L= Liters

7AS Pb Airs

13-09-03832



Due Date:
10/02/2013
(Wednesday)
AE



Environmental Hazards Services, LLC
www.leadlab.com 7469 Whitepine Rd
(800) 347-4010 Richmond, VA 23237
(804) 275-4907 (fax)

Metals Chain-of-Custody

Company Name: Air Source Technology, Inc. Address: 131 Prosperous Place, Suite 17 City/State/Zip: Lexington, KY 40509
Phone: (859) 299-0046 Fax: () 299-0494 E-mail: support@airsourcetechnology.com Acct. Number: 18-4340
Project Name / Testing Address: CMC D8318 / 1632 WILSON AVE City/State (Required): LOUISVILLE, KY
Collected by: Bruce Fergusson Certification Number: 106492 Purchase Order Number: 106492

Turn Around Times: If no TAT is specified, sample(s) will be processed and charged as 3 - day TAT.
1 - Day 2 - Day 3 - Day Same Day (Must Call Ahead) Weekend (Must Call Ahead)

No.	Client Sample ID	Date Collected	METALS				OTHER METALS	PARTICULATES					AIR		Comments					
			Pb TC/CP	TC/CP	RCRA 8	RCRA 8		Total Metals	Toxic Metal Profile	Welding Fume Profile	Total Nuisance Dust	Respirable Dust	TSP	Gravimetric		TSP Pb	PM-10	Flow Rate (L./min)	Total Time (minutes)	Volume (Total Liters)
1	1632-1	9/24/13									AS, PB	✓					2	480	960	NORTH SIDE-BY-SIDE
2	1632-2	9/24/13									AS, PB	✓					2	480	960	EAST
3	1632-3	9/24/13									AS, PB	✓					2	484	968	WEST
4	1632-4	9/24/13									AS, PB	✓					2	482	964	SOUTH SIDE-BY-SIDE
5	1632-5	9/24/13									AS, PB	✓					2	481	962	SE DOWNWIND
6	1632-6	9/24/13									AS, PB	✓					2	481	962	NW DOWNWIND
7	1632-7	9/24/13									AS, PB	✓					NA			FIELD BLANK
8																				
9																				
10																				

Released by: Bruce Fergusson Signature: [Signature] Date/Time: 9/27/13 4PM

Received by: Stone Signature: [Signature] Date/Time: 9/30/13



Environmental Hazards Services, L.L.C.
 7469 Whitepine Rd
 Richmond, VA 23237
 Telephone: 800.347.4010

Total Nuisance Dust Analysis Report

Client: Air Source Technology Inc.
 131 Prosperous Pl. Unit 17
 Lexington, KY 40509

Report Number: 13-09-03834
 Received Date: 09/30/2013
 Reported Date: 10/01/2013

Project/Test Address: CMC D8318; 1632 Wilson Ave.; Louisville, KY

Client Number:
 18-4340

Laboratory Results

Fax Number:
 859-299-0494

Lab Sample Number	Client Sample Number	Analyzed Date	Air Volume (L)	Total Particulate (mg)	Concentration (mg/m ³)	Narrative ID
13-09-03834-001	1632-1	10/01/2013	960	<0.100	<0.11	
13-09-03834-002	1632-2	10/01/2013	960	<0.100	<0.11	
13-09-03834-003	1632-3	10/01/2013	968	<0.100	<0.11	
13-09-03834-004	1632-4	10/01/2013	964	<0.100	<0.11	
13-09-03834-005	1632-5	10/01/2013	962	<0.100	<0.11	
13-09-03834-006	1632-6	10/01/2013	962	<0.100	<0.11	
13-09-03834-007	1632-7	10/01/2013	0.000	<0.100	---	

Environmental Hazards Services, L.L.C

Client Number: 18-4340

Report Number: 13-09-03834

Project/Test Address: CMC D8318; 1632 Wilson Ave.; Louisville, KY

Analyst: Aubrey Simonds

Method: NIOSH 0500

Reviewed By Authorized Signatory:



Tasha Eaddy
QA/QC Clerk

Sample Results denoted with a "less than" (<) sign contain less than 0.030mg total dust per filter for EHS Laboratory generated cassettes. All other cassettes have a reporting limit of 0.100mg total dust per filter.

The condition of the samples analyzed was acceptable upon receipt per laboratory protocol unless otherwise noted on this report. Results represent the analysis of samples submitted by the client. Sample location, description, area, volume, etc., was provided by the client. If the report does not contain the result for a field blank, it is due to the fact that the client did not include a field blank with their samples. EHS sample results do not reflect blank correction. This report shall not be reproduced except in full, without the written consent of the Environmental Hazards Service, L.L.C. California Certification #2319 NY ELAP #11714.

LEGEND

mg = milligram

mg/m³ = milligrams per cubic meter

L= Liters

7 Asbestos Airs
Nuisance Dust



EHS
Laboratories™

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www.leadlab.com 7469 Whitepine Rd
(800) 347-4010 Richmond, VA 23237
(804) 275-4907 (fax)

Metals Chain-of-Custody

13-09-03834



Due Date:
10/02/2013
(Wednesday)
AE

Company Name: Air Source Technology, Inc. Address: 131 Prosperous Place, Suite 17 City/State/Zip: Lexington, KY 40509
Phone: (859) 299-0046 Fax: () 299-0494 E-mail: support@airsourcetechnology.com Acct. Number: 18-4340
Project Name / Testing Address: CMC D8318 / 1632 WILSON AVE City/State (Required): LOUISVILLE, KY
Collected by: Bruce Fergusson Certification Number: 106492 Purchase Order Number: _____

Turn Around Times: If no TAT is specified, sample(s) will be processed and charged as 3 - day TAT.
1 - Day 2 - Day _____ 3 - Day _____ Same Day (Must Call Ahead) _____ Weekend (Must Call Ahead) _____

No.	Client Sample ID	Date Collected	METALS				OTHER METALS				PARTICULATES					AIR		Comments
			Pb TCLP	TCF P	RCRA 8	RCRA 8 Total Metals	Toxic Metal Profile	Welding Fume Profile	Total Nuisance Dust	Respirable Dust	TSP	TSP Pb	PM-10	Flow Rate (L/min)	Total Time (minutes)	Volume (Total Liters)		
1	1632-1	9/24/13							AS, PB	✓					2	480	960	NORTH SIDE-BY-SIDE
2	1632-2	9/24/13							AS, PB	✓					2	480	960	EAST
3	1632-3	9/24/13							AS, PB	✓					2	484	968	WEST
4	1632-4	9/24/13							AS, PB	✓					2	482	964	SOUTH SIDE-BY-SIDE
5	1632-5	9/24/13							AS, PB	✓					2	481	962	SE DOWNWIND
6	1632-6	9/24/13							AS, PB	✓					2	481	962	NW DOWNWIND
7	1632-7	9/24/13							AS, PB	✓				NA				FIELD BLANK
8																		
9																		
10																		

Released by: Bruce Fergusson Signature: [Signature] Date/Time: 9/20/13 4PM
Received by: Stone Signature: [Signature] Date/Time: 9/30/13

**INDUSTRIAL HYGIENE
MONITORING**

**1612 Wilson Avenue
Louisville, Kentucky**

Performed By:

Bruce Fergusson, CIH, PE (retired), CIEC

Air Source Technology, Inc.

**160 Prosperous Place
Lexington, Kentucky 40509**

Revised Report Date: September 19, 2013

ASTI Project # D8318

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Executive Summary

Within the limits of testing conducted, and the analysis performed all ambient air samples were found to be below the laboratory limits of detection, which are well below OSHA Permissible Exposure Limits and the ACGIH Recommended 8 hr Threshold Limit Values for Lead and Arsenic, and also below the National Ambient Air Quality Standards (NAAQS) 24-hour limit for PM10 particulates.

Introduction

Ms. Janice Willoughby of CMC Environmental Services contacted Air Source Technology, Inc. (ASTI) and requested measurements of ambient airborne Lead, Arsenic, and particulate during soil removal operations. Mr. Bruce Fergusson and Mr. Brian Leifeld of Air Source Technology, Inc. (ASTI) conducted the ambient air quality sampling on September 10, 2013. Excavation work was being conducted at 1612 Wilson Avenue, Louisville, KY on the day of sampling. The purpose of sampling was to verify the effectiveness of engineering controls used to minimize the exposure of workers and local neighbors to potentially-contaminated dust during excavation activities. Mr. Art Smith, PE, On-Scene Coordinator for the EPA, provided lab results from previously collected soil samples that indicated lead and arsenic contamination.

Background: The soil being removed has known levels of Lead and Arsenic.

Arsenic: “Arsenic in ambient air is usually a mixture of particulate arsenite and arsenate; organic species are of negligible importance except in areas of substantial methylated arsenic pesticide application or biotic activity (EPA 1984a).” (excerpted from ATSDR Toxicological Profile for Arsenic, Chapter 6 Potential for Human Exposure) Considering the nearby retired pesticide facility with findings of Arsenic content in soil samples (maximum concentration detected and reported in off-site surface soils was 51mg/kg), sampling for Arsenic is appropriate. Also considering the nature of the risk environment (temporary excavation activities), sample results are compared to personal exposure standards as defined by OSHA ($10.0\mu\text{g}/\text{m}^3$) and ACGIH ($10.0\mu\text{g}/\text{m}^3$).

Lead: “An EPA inhalation unit risk also is not available for lead (IRIS 2001). ACGIH (1998) classified lead and certain inorganic lead compounds as A3 carcinogens—carcinogenic in animals at relatively high doses not considered relevant to worker

exposure. Lead chromate, assessed on the basis of both lead and chromate, was classified by ACGIH (1998) as an A2 carcinogen—carcinogenic in animals at doses considered relevant to worker exposure, but with insufficient epidemiological data to confirm risk to humans.” (excerpted from ATSDR Interaction Profile for Metals, Appendix A: Background Information for Lead) Considering the nearby retired pesticide facility with findings of Lead content in soil samples (maximum concentration detected and reported in off-site surface soils was 1,200mg/kg), sampling for airborne Lead is appropriate. Considering the nature of the risk environment (temporary excavation activities), sample results are compared to personal exposure standards as defined by OSHA (50.0µg/m³) and ACGIH (50.0µg/m³).

Total Particulates: In this initial sample set, total particulates per NIOSH 0500 were collected. If total measurable particulates are detected above the National Ambient Air Quality Standards (NAAQS) PM₁₀ 24-hour standard (150.0µg/m³); then respirable dust (NIOSH 0600) would be collected at the next excavation site and an examination of engineering controls would be conducted. (The logic is that if all/total particulates are measured below the standard, then a subset of particulates is below the standard.) Also, the DataRam instrument readings would be examined for confirming readings.

General: The results of sampling are compared to applicable Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) and American Conference of Governmental Industrial Hygienist (ACGIH) Threshold Limit Value (TLV) standards. These particular exposure standards were selected to measure exposure during excavation activities. Excavation is considered a singular event versus a chronic, ongoing condition of the neighborhood environment, thus sampling for compliance to long-term environment as defined by the National Ambient Air Quality Standards (NAAQS) for Lead and Arsenic is not appropriate. However, considering NAAQS defines a 24-hour standard for PM₁₀ particulates, then that standard is used as an action limit for increased scrutiny.

Revision Notes: **Revision 1** issued to correct typographical errors and to add additional background information. **Revision 2** issued to further augment background information.

Sampling Protocol

AIR SAMPLING (Lead, Arsenic, & Total Particulates)

The personal/area air samples taken were collected using intrinsically safe MSA Escort ELF[®] or SKC low volume sampling pumps. The sampling flow rate was pre and post calibrated with representative media in-line using a TSI 4046 Primary Calibrator. The pumps pulled air through match weighted mixed cellulose ester membrane cassettes. The flow rate was calibrated with the media connected to the pump. The filter/cassette assembly was then placed as close to the breathing zone as possible. The sampling time and flow rate were recorded when starting and finishing sampling. Upon completion, the cassette was separated from the pump and the media was sent for laboratory analysis. Galson Laboratories in Syracuse, New York and Environmental Hazards Services in Richmond, Virginia conducted the analysis.



The following table summarizes the methods and sampling media used:

Analyte	Media	Flowrate	Method
Lead & Arsenic	0.8 um MCE	2.0 L/min	NIOSH 7300M
Total Particulates	0.8 um MCE	2.0 L/min	NIOSH 0500

For this project sample locations were selected to capture ambient dust to be generated during excavation activities. The excavation work was generally oriented north-south as shown in the figure below. The EPA used two Thermo Scientific DataRAM 4000 Aerosol Monitor to continuously monitor conditions, one placed at the south end of the project and the other placed at the north end. Two sampling pumps were co-located with the two continuous monitors. The other four pumps were located at the north, south, east, and west sides of the excavation area. One additional sample was a field blank.

Figure 1: Sample Locations



Results

Lead, Arsenic & Total Dust

The results of sampling are compared to applicable Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) and American Conference of Governmental Industrial Hygienist (ACGIH) Threshold Limit Value (TLV) standards.

The results are shown in the tables that follow:

Table 1: Arsenic: September 10, 2013			
Sample ID	Description	Total Arsenic	Concentration
001	Northwest (co-located)	<0.50 µg	<0.70 µg/m ³
002	North	<0.50 µg	<0.70 µg/m ³
003	West	<0.50 µg	<0.70 µg/m ³
004	Southwest (co-located)	<0.50 µg	<0.70 µg/m ³
005	South	<0.50 µg	<0.70 µg/m ³
006	East	<0.50 µg	<0.70 µg/m ³
007	Field Blank	<0.50 µg	N/A
OSHA Permissible Exposure Limit			10.0 µg/m³
ACGIH Recommended 8 hr Threshold Limit Value			10.0 µg/m³

Table 2: Lead: September 10, 2013			
Sample ID	Description	Total Lead	Concentration
001	Northwest (co-located)	<1.3 µg	<1.9 µg/m ³
002	North	<1.3 µg	<1.9 µg/m ³
003	West	<1.3 µg	<1.9 µg/m ³
004	Southwest (co-located)	<1.3 µg	<1.9 µg/m ³
005	South	<1.3 µg	<1.9 µg/m ³
006	East	<1.3 µg	<1.9 µg/m ³
007	Field Blank	<1.3 µg	N/A
OSHA Permissible Exposure Limit			50.0 µg/m³
ACGIH Recommended 8 hr Threshold Limit Value			50.0 µg/m³

Table 3: Total Particulate: September 10, 2013			
Sample ID	Description	Total Particulate	Concentration
001	Northwest (co-located)	<100 µg	<0.14 mg/m ³
002	North	<100 µg	<0.14 mg/m ³
003	West	<100 µg	<0.14 mg/m ³
004	Southwest (co-located)	<100 µg	<0.14 mg/m ³
005	South	<100 µg	<0.14 mg/m ³
006	East	<100 µg	<0.14 mg/m ³
007	Field Blank	<100 µg	N/A
OSHA Permissible Exposure Limit			15.0 mg/m³
ACGIH Recommended 8 hr Threshold Limit Value			10.0 mg/m³
National Ambient Air Quality Standards (NAAQS) PM10 24-hour			150.0 µg/m³ (0.15 mg/m³)

All ambient air samples measured below the laboratory limits of detection, which are well below OSHA Permissible Exposure Limits and the ACGIH Recommended 8 hr Threshold Limit Values for Lead and Arsenic, and also below the National Ambient Air Quality Standards (NAAQS) 24-hour limit for PM10 particulates.

Conclusions

Within the limits of testing conducted, and the analysis performed all ambient air samples were found to be below the laboratory limits of detection, which are well below OSHA Permissible Exposure Limits and the ACGIH Recommended 8 hr Threshold Limit Values for Lead and Arsenic and also below the National Ambient Air Quality Standards (NAAQS) 24-hour limit for PM10 particulates.

Appendix A: Laboratory Results



Environmental Hazards Services, L.L.C.
 7469 Whitepine Rd
 Richmond, VA 23237
 Telephone: 800.347.4010

Total Nuisance Dust Analysis Report

Client: Air Source Technology Inc.
 131 Prosperous Pl. Unit 17
 Lexington, KY 40509

Report Number: 13-09-01280
 Received Date: 09/11/2013
 Reported Date: 09/13/2013

Project/Test Address: Black Leaf; D8313; CMC; Louisville, KY

Client Number:
 18-4340

Laboratory Results

Fax Number:
 859-299-0494

Lab Sample Number	Client Sample Number	Analyzed Date	Air Volume (L)	Total Particulate (mg)	Concentration (mg/m ³)	Narrative ID
13-09-01280-001	72765	09/13/2013	720	<0.100	<0.14	
13-09-01280-002	72754	09/13/2013	720	<0.100	<0.14	
13-09-01280-003	72782	09/13/2013	720	<0.100	<0.14	
13-09-01280-004	72790	09/13/2013	720	<0.100	<0.14	
13-09-01280-005	72775	09/13/2013	720	<0.100	<0.14	
13-09-01280-006	72756	09/13/2013	720	<0.100	<0.14	
13-09-01280-007	72779	09/13/2013	0.000	<0.100	---	

Environmental Hazards Services, L.L.C

Client Number: 18-4340

Report Number: 13-09-01280

Project/Test Address: Black Leaf; D8313; CMC; Louisville, KY

Analyst: Aubrey Simonds

Method: NIOSH 0500

Reviewed By Authorized Signatory:



Tasha Eaddy
QA/QC Clerk

Sample Results denoted with a "less than" (<) sign contain less than 0.030mg total dust per filter for EHS Laboratory generated cassettes. All other cassettes have a reporting limit of 0.100mg total dust per filter.

The condition of the samples analyzed was acceptable upon receipt per laboratory protocol unless otherwise noted on this report. Results represent the analysis of samples submitted by the client. Sample location, description, area, volume, etc., was provided by the client. If the report does not contain the result for a field blank, it is due to the fact that the client did not include a field blank with their samples. EHS sample results do not reflect blank correction. This report shall not be reproduced except in full, without the written consent of the Environmental Hazards Service, L.L.C. California Certification #2319 NY ELAP #11714.

LEGEND

mg = milligram

mg/m³ = milligrams per cubic meter

L= Liters



Environmental Hazards Services, LLC

www.leadlab.com 7469 Whitepine Rd
 (800) 347-4010 Richmond, VA
 (804) 275-4907 (fax) 23237

Metals Chain-of-Custody

13-09-01280



Due Date:
 09/13/2013
 (Friday)
 AE

Company Name: Air Source Technology Inc.

Address: ~~400 Prosperous Pl Ste 201~~ ¹³¹ ~~Prosperous Pl~~

City/State/Zip: Lexington, KY 40509

Phone: (859)299-0046

Fax: 859-299-0494 E

E-mail: support@airsourcetechnology.com Acct. Number: 18-4340

Project Name/Testing Address: BLACK LEAF / DB313 / CMC

City/State(required): Lexington, KY

Collected by: BMF

Certification Number:

Purchase Order Number: 106479

Turn Around Times:

If no TAT is specified, sample(s) will be processed and charged as 3 - day TAT.

1 - Day 2 - Day 3 - Day Same Day (Must Call Ahead) Weekend (Must Call Ahead)

No.	Client Sample ID	Date Collected	METALS					OTHER METALS	PARTICULATES					AIR			Comments	
			TCLP	TCLP RCRA 8	RCRA 8 Total Metals	Toxic Metal Profile	Welding Fume Profile		Total Nuisance Dust	Respirable Dust	TSP Gravimetric	TSP Pb	PM-10	Flow Rate (L/min)	Total Time (minutes)	Volume (Total Liters)		
# 1	72769	9/10/13						Pb, As	X						2		720	2 Metals + tot dust
# 2	72794	✓							X									
# 3	72782	✓							X									
# 4	72790	✓							X									
# 5	72725	✓							X									
# 6	72756	✓							X									
# 7	72779	X							X									FIELD BLANK
# 8																		
# 9																		
# 10																		

Released by:

B Ferguson

Signature:

BMF

Date/Time:

9/10/13 6:30 PM

Received by:

Stone

Signature:

J Stone

Date/Time:

9/11/13

AE



Environmental Hazards Services, L.L.C.
 7469 Whitepine Rd
 Richmond, VA 23237
 Telephone: 800.347.4010

Air Metals Analysis Report

Client: Air Source Technology Inc.
 131 Prosperous Pl. Unit 17
 Lexington, KY 40509

Report Number: 13-09-01279
 Received Date: 09/11/2013
 Reported Date: 09/13/2013

Project/Test Address: Black Leaf; D8313; CMC; Louisville, KY

Client Number:
 18-4340

Fax Number:
 859-299-0494

Laboratory Results

Lab Sample Number	Client Sample Number	Analyzed Date	Analyte	Air Volume (L)	Total Metal (ug)	Concentration (ug/m ³)	Narrative ID
13-09-01279-001	72765	09/13/2013	Arsenic (As)	720	<0.50	<0.70	
			Lead (Pb)		<1.3	<1.9	
13-09-01279-002	72754	09/13/2013	Arsenic (As)	720	<0.50	<0.70	
			Lead (Pb)		<1.3	<1.9	
13-09-01279-003	72782	09/13/2013	Arsenic (As)	720	<0.50	<0.70	
			Lead (Pb)		<1.3	<1.9	
13-09-01279-004	72790	09/13/2013	Arsenic (As)	720	<0.50	<0.70	
			Lead (Pb)		<1.3	<1.9	
13-09-01279-005	72775	09/13/2013	Arsenic (As)	720	<0.50	<0.70	
			Lead (Pb)		<1.3	<1.9	
13-09-01279-006	72756	09/13/2013	Arsenic (As)	720	<0.50	<0.70	
			Lead (Pb)		<1.3	<1.9	
13-09-01279-007	72779	09/13/2013	Arsenic (As)	0	<0.50	---	
			Lead (Pb)		<1.3	---	

Environmental Hazards Services, L.L.C

Client Number: 18-4340

Report Number: 13-09-01279

Project/Test Address: Black Leaf; D8313; CMC; Louisville, KY

Lab Sample Number	Client Sample Number	Analyzed Date	Analyte	Air Volume (L)	Total Metal (ug)	Concentration (ug/m ³)	Narrative ID
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Sample Narratives:

Method: NIOSH 7300M
Analyst: Aubrey Simonds

Reviewed By Authorized Signatory:



Tasha Eaddy
QA/QC Clerk

Sample Results denoted with a "less than" (<) sign contains less than the reporting limit for each particular metal, based on a 25mL volume. The reporting limit is 0.25ug for Beryllium and Cadmium, 0.50ug for Arsenic, and 1.3 ug for all other metals.

The condition of the samples analyzed was acceptable upon receipt per laboratory protocol unless otherwise noted on this report. Results represent the analysis of samples submitted by the client. Sample location, description, area, volume, etc., was provided by the client. If the report does not contain the result for a field blank, it is due to the fact that the client did not include a field blank with their samples. EHS sample results do not reflect blank correction. This report shall not be reproduced except in full, without the written consent of the Environmental Hazards Service, L.L.C. California Certification #2319 NY ELAP #11714.

LEGEND ug = microgram ug/m³ = micrograms per cubic meter
 mL = milliliter L= Liters

7 As, Pb Airs



Laboratories

Metals Chain-of-Custody

13-09-01279



Due Date:
09/13/2013
(Friday)
AE

Environmental Hazards Services, LLC

www.leadlab.com 7469 Whitepine Rd
(800) 347-4010 Richmond, VA
(804) 275-4907 (fax) 23237

Company Name: Air Source Technology Inc.

Address: ~~400 Prosperous Pl Ste 201~~ 131 Unit 17

City/State/Zip: Lexington, KY 40509

Phone: (859)299-0046

Fax: 859-299-0494 E

support@airsourcetechnology.com Acct. Number: 18-4340

Project Name/Testing Address: BLACK LEAF / DB313 / CMC

City/State(required) Louisville, KY

Collected by: BNF

Certification Number:

Purchase Order Number: 106479

Turn Around Times:

If no TAT is specified, sample(s) will be processed and charged as 3 - day TAT.

___ 1 - Day 2 - Day ___ 3 - Day ___ Same Day (Must Call Ahead) ___ Weekend (Must Call Ahead)

No.	Client Sample ID	Date Collected	METALS					OTHER METALS	PARTICULATES					AIR			Comments	
			TCLP	TCLP RCRA 8	RCRA 8 Total Metals	Toxic Metal Profile	Welding Fume Profile		Total Nuisance Dust	Respirable Dust	TSP Gravimetric	TSP Pb	PM- 10	Flow Rate (L / min)	Total Time (minutes)	Volume (Total Liters)		
# 1	72769	9/10/13						Pb, As		X					2		720	2 metals + tot dust
# 2	72754	✓						✓		X					✓			✓
# 3	72782	✓						✓		X					✓			✓
# 4	72790	✓						✓		X					✓			✓
# 5	72725	✓						✓		X					✓			✓
# 6	72756	✓						✓		X					✓			✓
# 7	72779	✓						✓		X					✓			Field Blank
# 8																		
# 9																		
# 10																		

Released by: B Ferguson
Received by: T Stone

Signature: BNF
Signature: J Stone

Date/Time: 9/10/13 6:30 PM
Date/Time: 9/11/13

BNF