



Environmental Resources Group

Assessment • Remediation • Compliance • Risk Management

AIR MONITORING AND FINAL CLEARANCE AIR SAMPLING REPORT



**BASEMENT AIR HANDLING ROOM
KINAWA MIDDLE SCHOOL
1900 KINAWA DRIVE
OKEMOS, MICHIGAN 48864**

PREPARED FOR:

**OKEMOS PUBLIC SCHOOLS
4000 OKEMOS ROAD
OKEMOS, MICHIGAN 48864
ATTENTION: BRIAN LIEBER**

PREPARED BY:

**ENVIRONMENTAL RESOURCES GROUP, LLC
3125 SOVEREIGN DRIVE, SUITE 9B
LANSING, MICHIGAN 48911**

ERG PROJECT NO.: 240440

PROJECT DATE: AUGUST 27, 2024

FINAL REPORT DATE: SEPTEMBER 12, 2024

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APPENDIX A: Air Sample Data Sheet and Technician Notes

1.0 INTRODUCTION

Environmental Resources Group, LLC (ERG) was retained by Okemos Public Schools to conduct project oversight, representative exposure monitoring, work area perimeter and final clearance air sampling for an asbestos abatement project at the Kinawa Middle School in the basement Air Handling Room. The field sampling was conducted by Kyle Goosen, an industrial hygiene consultant (IHC), in accordance with federal and state regulations.

2.0 OVERVIEW OF THE PROJECT

Green For Life Environmental (GFL) was retained by Okemos Public Schools to patch less than 4 square feet of damaged pipe insulation and to remove a total of approximately 4 linear feet of asbestos-containing pipe insulation from the Air Handler Room in the basement in Kinawa Middle School, 1900 Kinawa Drive, Okemos, Michigan. The asbestos-containing material (ACM) was removed utilizing Class I work practices and the repair was executed using Class III work practices. The work was conducted to accommodate the repair or removal of damaged pipe insulation as part of the district's Asbestos Operations and Maintenance (O & M) Program.

3.0 DESCRIPTION OF ABATEMENT ACTIVITY

3.1 GLOVEBAG REMOVAL AND INSULATION REPAIR

The pipe insulation removal in Kinawa Middle School was conducted using a glovebag within an area regulated by using proper signage and banner tape. Work area perimeter and representative exposure monitoring were conducted by Mr. Kyle Goosen of ERG. Waste generated during the project was placed in a black, properly labeled asbestos waste disposal bag and the bag sealed using duct tape.

Asbestos waste generated during this project was stored in the locked cube truck of GFL during the project. After the project waste was transported to C & C Landfill in Marshall, Michigan for landfill disposal. Individual bags of waste were labeled with the required Michigan Occupational Safety and Health Administration (MIOSHA), Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP) and Michigan Department of Transportation (MDOT) labels.

Pipe insulation repair was conducted using a wettable fiberglass lag cloth. The lag cloth was wet and placed directly over the several small (less than 1 square foot each) areas of damaged pipe insulation.

3.2 PERSONAL PROTECTIVE EQUIPMENT

All workers involved in asbestos removal and repair wore half face, negative pressure, air purifying respirators equipped with P100 filters during all phases of the work except set-up and tear-down, where no personal protective equipment was needed or worn. All workers also wore rubber work boots and full body covering disposable coveralls during the abatement and repair work.

3.3 AIR SAMPLING EQUIPMENT

All work area perimeter and final clearance samples were collected using high-volume vacuum pumps. Representative exposure samples were collected using low-volume vacuum pumps. Each sample was calibrated at the cassette face using a rotometer, prior to and after sample collection. Twenty-five millimeter (25-mm) diameter air sample cassettes equipped with 25-mm, 0.8 micron pore size mixed cellulose ester filter (MCEF) membranes, backup pads and 50-mm long conductive cowls were used on this project.

3.4 SAMPLING METHOD

Air sampling was conducted during and following the abatement process. Work area perimeter and representative exposure samples were collected to verify no detrimental impact to air outside the regulated area and to document worker exposure to airborne fibers (asbestos), respectively.

Work area perimeter monitoring was conducted pursuant to MIOSHA requirements.

Final clearance sampling was conducted to document airborne fiber concentrations after the abatement was complete.

Field blank cassettes were collected and analyzed to confirm that sample handling and processing were not sources of fibrous contamination of samples.

3.5 SAMPLE ANALYSIS METHOD

Laboratory analysis of all PCM air samples was conducted by a trained microscopist from ERG. The PCM sample analysis was performed according to the Modified NIOSH 7400 Method, Issue #3 for determining the concentration of airborne (asbestos) fibers. ERG is a proficient participant in the American Industrial Hygiene Association (AIHA) Proficiency Analytical Testing (PAT) Program (Lab Code 101009).

4.0 SAMPLE RESULTS

Representative exposure samples were determined to be below the MIOSHA Permissible Exposure Limit (PEL) of 0.10 fibers per cubic centimeter of air (f/cc) and the MIOSHA Excursion Limit (EL) of 1.0 f/cc.

Although final clearance sampling is not required following O & M activities, given the nature of the room where the work occurred, ERG collected final clearance samples. Clearance sample fiber concentrations were determined to be below the State of Michigan mandated clearance value of 0.05 f/cc and the AHERA clearance value of 0.01 f/cc. Additionally, the visual inspection revealed no damaged ACM in the work area. As such, the work area is safe to reoccupy and the air handlers may be turned on.

5.0 CONCLUSION

This abatement project was conducted in accordance with applicable laws and current industry standards. For additional information, review the attached information and data or contact ERG at 3125 Sovereign Drive, Suite 9B, Lansing, Michigan 48911, telephone (517) 999-6020.

 for Kyle Goosen

Kyle Goosen
Industrial Hygiene Technician



Phillip A. Peterson
Senior Project Manager

Air Sample Data Sheet and Technician Notes





Project Number: 240440

Date: 8/27/24

Date Collected: 8/27/24

Project: Kinawa Middle School

Sampled by: Kyle Goosen

Client: Okeemos Public Schools

Analyzed by: Kyle Goosen

Air Sample Data Sheet

Sample #	Type	Description (Name, Task, Location)	Time On Time Off	Sample Time (MIN)	Flow On Flow Off (L/MIN)	Average Flow	Volume (Liters)	Fibers	Fields	F/MM ²	Conc. Fibers/cc
1	EL	Gerald Rewerts, A12450, Pipe Insulation Removal	18:26	29	2.3	2.3	66.7	5.5	100	6	0.033
			18:55		2.3						
2	P	Outside of the banner tape in the air handler room	18:26	49	2.3	2.3	112.7	3.5	100	3	< 0.02
			19:15		2.3						
3	RE	Gerald Rewerts, A12450, Pipe Insulation Removal	18:55	20	2.3	2.3	46	3	100	3	< 0.048
			19:15		2.3						
4	PF	Entrance of regulated area	19:22	83	16.0	16	1328	6.5	100	7	< 0.005
			20:45		16.0						
5	PF	Center of regulated area	19:22	83	16.0	15.9	1319.7	6	100	6	< 0.005
			20:45		15.8						
6	PF	Back of regulated area	19:22	83	16.0	16	1328	8	100	9	< 0.005
			20:45		16.0						

* "<" = The f/cc concentration is calculated based on the method detection limit of 5.5 fibers or the ERG reporting limit of 0.005 f/cc.

Sample Types: AF - Aggressive Final Clearance

AM - Area Monitoring, During Removal / Setup

BL - Baseline

CR - Clean Room

EL - Excursion Limit

HE - HEPA Exhaust

IE - Inside Enclosure

P - Perimeter

PA - Post Abatement Area

PF - Passive Final Clearance

RE - Representative Exposure

* - Sample Occluded

- Sample Damaged

DC - Duplicate

FB - Field Blank

QC - Quality Control

Quality Control Data

Type		Fibers	Fields	F/MM ²
FB	Field blank	0	100	0
FB	Field blank	2	100	3
QC	Sample 3, Passed	3.5	100	4

Analyst: _____



Technician Notes

Project #240440

Date: 8/27/24

17:50 – I, Kyle Goosen of Environmental Resources Group, LLC. (ERG) arrive on site at Kinawa Middle School, 1900 Kinawa Drive, Okemos, MI 48864. I meet with Vincent Gonzales as he shows me where he and Gerald Rewerts will be removing pipe insulation and repairing damaged insulation. I get my equipment set up while I let Mr. Gonzales and Mr. Rewerts get their area set up, including placing a critical barrier over the air intake grilles on each air handler. The air handlers have been shut off.

18:26 – I begin an excursion limit sample on Gerald Rewerts (A12450) as well as a perimeter sample outside of the banner tape.

18:55 – I swap out the excursion limit sample and replace it with a representative exposure sample.

19:15 – Mr. Rewerts is finished in the regulated area, so I collect the representative exposure sample from him as well as the perimeter sample. I get ready to enter the regulated area. The work area looks clean.

19:22 – I start three passive clearance samples inside of the regulated area.

20:45 – I collect the passive clearance samples and begin preparing them for analysis.

21:05 – The clearances are all below 0.005 fibers/cc. I text Mr. Gonzales to let him know. I begin packing up my equipment.

21:24 – I leave the site for the night.