Abatement Monitoring & Inspection Services, Inc.

**P.O. Box 26905**
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November 28, 2003

Daniel G. Mosher
Malcolm Pirnie, Inc.
701 Town Center Drive, Suite 600
Newport News, Virginia 23606-4296

Re: Asbestos and Lead-based Paint Inspection
Arlington County Water Pollution Control Plant
3402 South Glebe Road
Arlington, Virginia 22202
AMIS Job No. 701-2

Dear Mr. Mosher:

The following is a summary of the November 3rd through November 21st, 2003 asbestos and lead-based paint inspection at the Arlington County Water Pollution Control Plant in Arlington, Virginia. Asbestos and lead results are attached. Site diagrams are enclosed.

The following facilities located at the Arlington County Water Pollution Control Plant on South Glebe Road were inspected for both lead-based paint and asbestos containing materials:

- Operations Building
- Floatation Thickeners Building
- Gravity Thickeners Building
- Sludge Storage Tanks/Old Digester Tanks (& Associated Buildings)
- Primary Effluent Pump Station
- Biological Sludge Processing Building

AMIS is pleased to have had the opportunity to provide these services. Should you have any questions, please do not hesitate to contact us at (804) 276-6575.

Abatement Monitoring & Inspection Services, Inc.

**P.O. Box 26905**
**Richmond, Virginia 23261**

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Yours truly,

Sean Costello, CIH
Virginia-licensed Asbestos Inspector - #1274

Robert A. Worrell
Virginia-licensed Lead Inspector/Risk Assessor - #0118

Attachments
Enclosures

# Asbestos
# &
# Lead-based Paint Inspection
# Addendum

**Arlington County Water Pollution Control Plant**
**3402 South Glebe Road**
**Arlington, Virginia 22202**

Conducted by

**ABATEMENT MONITORING &**
**INSPECTION SERVICES, INC.**
P.O. Box 26905
Richmond, Virginia 23261
(804) 276-6575

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# Asbestos & Lead-based Paint Inspection Addendum
# Arlington County Water Pollution Control Plant
# Arlington County, Virginia

## EXECUTIVE SUMMARY

### Introduction

Malcolm Pirnie, Inc. (MPI) was contracted by Arlington County to conduct a Hazardous Materials Investigation of the Arlington County Water Pollution Control Plant (WPCP) facility. A Hazardous Materials Investigation was performed by Abatement Monitoring and Inspection Services, Inc. (AMIS) of Richmond, Virginia during the period May 5th through May 16th, 2003. The work consisted of identifying WPCP buildings, structures, machinery, equipment, piping and/or components that could reasonably be expected to contain asbestos and/or lead-based paint, with samples being collected and analyzed as necessary. The results were presented in the resulting report prepared by Malcolm Pirnie, Inc*. (Arlington County Water Pollution Control Plant, Hazardous Materials Survey, Asbestos and Lead-Based Paint Inspection, dated May 2003).*

During subsequent meetings, the County indicated that to minimize the coordination effort during removal and to assist the contractors with bid preparation, they would like to physically identify the places where hazardous materials were found in the field during the May 2003 investigation.

In addition, the County desired to investigate any remaining buildings at the site that were not inspected during the May 2003 investigation. MPI subcontracted AMIS to perform these additional tasks, which were completed during the period November 3rd through November 21st, 2003.

### Purpose

The facility is currently undergoing a major upgrade and expansion, resulting in extensive demolition, construction and reconstruction of buildings, structures, machinery, equipment and components within the facility. It is Arlington County's desire to locate, identify and quantify all hazardous materials at specific buildings and structures at the WPCP, plus a series of remote (i.e., off-site) pump stations.

### Site Description

The Arlington County WPCP facility is located on 35 acres of land in a residential/commercial neighborhood in South Arlington, Virginia. The original plant buildings were constructed in 1937 and were upgraded several times in the 1950's, 60's, 70's and 90's.

## Scope of Work

The tasks associated with this Asbestos and Lead-Based Paint Inspection Addendum are as follows:

- Investigate any remaining buildings at the site that were not inspected during the May 2003 investigation. The following facilities located at the Arlington County WPCP were identified as not having been previously investigated, and were inspected for both lead-based paint (LBP) and asbestos containing materials (ACM):

    - Operations Building
    - Flotation Thickeners Building
    - Gravity Thickeners Building
    - Sludge Storage Tanks/Old Digester Tanks (& Associated Buildings)
    - Primary Effluent Pump Station
    - Biological Sludge Processing Building

- Physically identify, by means of marking with fluorescent orange safety spray paint and/or paint markers, the places where hazardous materials were found in the field during the May 2003 investigation, as well as any additional locations found during subsequent investigations.

## Lead-based Paint Inspection

The lead-based paint inspection was conducted with a portable x-ray fluorescence (XRF) spectrum analyzer, NITON model 309. The above listed buildings' interior and exterior components and associated equipment and machinery were inspected for LBP. The Department of Housing and Urban Development (HUD) defines LBP as any paint, varnish, shellac or other coating that contains lead equal to or greater than 1.0 $mg/cm^2$ as measured by XRF, or 0.5 percent by weight as measured by laboratory analysis.

## Results of Lead-based Paint Inspection

Of a total of 791 XRF readings recorded during this inspection to determine the lead content of painted surfaces at the WPCP facility, the following information was determined:

- 43 readings (approximately 5.4% of the total number recorded) indicated a lead content level greater than the 1.0 $mg/cm^2$ limit that defines a lead-based paint.

- 21 of the 43 XRF readings (approximately 49%) were between 1.1 $mg/cm^2$ and 2.0 $mg/cm^2$.

- Ten readings (approximately 23%) were between 2.0 $mg/cm^2$ and 3.0 $mg/cm^2$.

- 2 of the 43 XRF readings (approximately 4.7%)

- Ten XRF readings (approximately 23%) indicated a lead content level greater than 5 mg/cm$^2$.

The majority of the XRF readings above 1.0 mg/cm$^2$ fell in the 1.1 mg/cm$^2$ to 3.0 mg/cm$^2$ range. A complete listing of the components analyzed for lead-based paint, along with their associated XRF values and locations, is included in **Attachment I - XRF Lead Results**. Readings greater than 1.0 mg/cm$^2$ are highlighted.

### Asbestos Inspection

The specified areas for site analysis were also evaluated for the presence of visible and physically accessible asbestos-containing materials (ACM). The Environmental Protection Agency (EPA) defines ACM as those materials containing asbestos greater than one percent by weight as measured by laboratory analysis. This inspection included the collection and laboratory analysis of suspect materials from the interior and exterior of selected buildings in compliance with Virginia regulations. The analytical values were compiled, and presented in Percent (%) Asbestos by weight in **Attachment II - Asbestos Analytical Results**. The type of asbestos, if applicable, was also identified. Some asbestos sample collection locations are indicated and highlighted in **Attachment III - Sample Location Drawings**, as available.

### Results of Asbestos Inspection

Of 15 bulk asbestos samples analyzed, 3 were found to contain asbestos. The definition of an asbestos containing material is any material containing asbestos greater than 1% by weight. Percentages contained in the samples ranged from 20% in a *transite* panel sample collected from the 2$^{nd}$ floor of the Operations Building, to 60% in both a boiler gasket sample and an incinerator door gasket sample collected from the Biological Sludge Processing Building. Though samples could not be obtained due to Plant operations, five expansion joints on piping located in the Primary Effluent Pump Station were presumed to contain asbestos. Chrysotile was the only type of asbestos encountered. All the asbestos containing materials identified during this inspection are presented in **Attachment IV, Table of Asbestos Containing Materials.**

### Physical Identification of Sample Locations

Each location where hazardous materials were found during both the initial (May 2003) and additional (November 2003) inspections was marked with fluorescent orange safety spray paint. Where applicable, a paint marker was used to mark the actual sample number at each asbestos sample location so it can easily be identified.

# Asbestos & Lead-based Paint Inspection Addendum
# Arlington County Water Pollution Control Plant
# Arlington County, Virginia

## 1.0 INTRODUCTION

### 1.1 Site Description

The Arlington County Water Pollution Control Plant (WPCP) facility is located on 35 acres of land in a residential/commercial neighborhood in South Arlington, Virginia. The original plant buildings were constructed in 1937 and were upgraded several times in the 1950's, 60's, 70's and 90's. The facility is currently undergoing a major upgrade and expansion, resulting in extensive demolition, construction and reconstruction of buildings, structures, machinery, equipment and components within the facility.

### 1.2 Background

It is Arlington County's desire to locate, identify and quantify all hazardous materials at specific buildings and structures at the WPCP, plus a series of remote (i.e., off-site) pump stations. Malcolm Pirnie, Inc. was contracted by Arlington County to conduct a Hazardous Materials Investigation of the Arlington County WPCP. A Hazardous Materials Investigation was performed by Abatement Monitoring and Inspection Services, Inc. (AMIS) of Richmond, Virginia during the period May 5th through May 16th, 2003. The work consisted of identifying WPCP buildings, structures, machinery, equipment, piping and/or components that could reasonably be expected to contain asbestos and/or lead-based paint, with samples being collected and analyzed as necessary. During these investigations, asbestos and lead paint were found to be present at multiple locations. Each of these locations is described in the resulting report prepared by Malcolm Pirnie, Inc*. (Arlington County Water Pollution Control Plant, Hazardous Materials Survey, Asbestos and Lead-Based Paint Inspection, dated May 2003).*

During subsequent meetings, the County indicated that to minimize the coordination effort during removal and to assist the contractors with bid preparation, they would like to physically identify the places where hazardous materials were found in the field during the May 2003 investigation.

In addition, the County desired to investigate any remaining buildings at the site that were not inspected during the May 2003 investigation.

AMIS performed these additional tasks during the period November 3rd through November 21st, 2003. Each location where hazardous materials were found during both the initial (May 2003) and additional (November 2003) inspections was marked with fluorescent orange safety spray paint. Where applicable, a paint marker was used to mark the actual sample number at each asbestos sample location so it can easily be identified.

The following additional facilities located at the Arlington County WPCP were inspected for both lead-based paint and asbestos containing materials:

- Operations Building
- Flotation Thickeners Building
- Gravity Thickeners Building
- Sludge Storage Tanks/Old Digester Tanks (& Associated Buildings)
- Primary Effluent Pump Station
- Biological Sludge Processing Building

## 2.0 HAZARDOUS MATERIALS INVESTIGATION

### 2.1 Lead-based Paint Inspection

The lead-based paint inspection was conducted with a portable x-ray fluorescence (XRF) spectrum analyzer, NITON model 309. The above listed buildings' interior and exterior components and associated equipment and machinery were inspected for lead-based paint (LBP). The XRF (lead content) values presented in column PbL of **Attachment I, XRF Lead Results**, are presented in milligrams per square centimeter (mg/ $cm^2$), and components testing positive for LBP are highlighted.

The Department of Housing and Urban Development (HUD) defines LBP as any paint, varnish, shellac or other coating that contains lead equal to or greater than 1.0 $mg/cm^2$ as measured by XRF, or 0.5 percent by weight as measured by laboratory analysis. All LBP discovered during this inspection was marked using fluorescent orange safety spray paint.

### 2.2 Asbestos Inspection

The specified areas for site analysis were also evaluated for the presence of visible and physically accessible asbestos-containing materials (ACM). Samples of suspect asbestos materials were collected from the interior and exterior of selected facilities. This inspection included the collection and analysis of suspect materials in compliance with Virginia regulations. At collection, the samples were placed in airtight containers with unique identification numbers for transport to the laboratory. All the samples were delivered under chain of custody to Environmental Hazards Services, LLC in Richmond, Virginia and analyzed for asbestos content by Polarized Light Microscopy (PLM). The analytical values are included as **Attachment II, Asbestos Analytical Results**, and are presented in Percent (%) Asbestos by weight. The type of asbestos, if applicable, is also identified. Asbestos sample collection locations are indicated and highlighted in **Attachment III – Sample Location Drawings**, as available.

The EPA defines *asbestos containing materials* as those materials containing asbestos greater than one percent by weight as measured by laboratory analysis. All ACM discovered by this inspection was marked using fluorescent orange paint. This inspection did not include sampling roofing systems.

## 3.0 RESULTS

The following is a summary of the asbestos containing materials and lead-based paint identified at the above-mentioned facilities during the November 2003 investigation:

### 3.1 Operations Building

**Asbestos Containing Materials** – The suspect asbestos materials observed and sampled within this building were ceiling tiles, lab counter tops, pipe insulation sealant, duct sealant and *transite* panels.

The following was the only asbestos containing material discovered in this facility:

- The *transite* panels located above doorways (and former doorways) on the 2nd and 3rd floors are asbestos containing (see sample #1105-6). Four panels were discovered on the 2nd floor and marked with fluorescent orange paint. Fourteen panels were discovered on the 3rd floor and likewise marked with orange paint. The panels are approximately 4ft. x 5ft. in size. An additional smaller but thicker *transite* panel is stored in the 3rd floor Electrical Closet and appears to have been used as lab equipment. This is non-friable ACM in good condition.

Refer to **Attachment II** for additional information.

All other suspect materials tested negative for asbestos content. Only materials that were visible and physically accessible were sampled. If additional suspect materials are discovered as the result of renovation or demolition, such materials must be analyzed for asbestos content before being disturbed.

**Lead-based Paint** – XRF Readings 1 to 183 (11/5/03)

The following components tested positive for lead-based paint:

- The brown exhaust pipe located outside in the back of the building (reading 172). See **Attachment I** for additional information.

- The black fence and gate located outside in the back of the building (reading 176). See **Attachment I** for additional information.

### 3.2 Flotation Thickeners Building

**Asbestos Containing Materials** – No suspect asbestos materials were observed in this building. If suspect materials are discovered as the result of renovation or demolition, such materials must be analyzed for asbestos content before being disturbed.

**Lead-based Paint** – XRF Readings 217 to 280 (11/19/03)

The following components tested positive for lead-based paint:

- The gray and green polymer pumps located in the 1st Floor/Main Room (readings 147 & 148). See **Attachment I** for additional information.

### 3.3 Gravity Thickeners Building

**Asbestos Containing Materials** – No suspect asbestos materials were observed in this building. If suspect materials are discovered as the result of renovation or demolition, such materials must be analyzed for asbestos content before being disturbed.

**Lead-based Paint** – XRF Readings 171 to 216 (11/19/03)

The following components tested positive for lead-based paint:

- The beige/white sludge pipe located in the basement (readings 187, 188 & 204).
- The light green foul air pipe located on the roof (readings 207 through 210).

### 3.4 Sludge Storage Tanks/Old Digester Tanks (& Associated Buildings)

**Asbestos Containing Materials** – No suspect asbestos materials were discovered in this facility. If suspect materials are discovered as the result of renovation or demolition, such materials must be analyzed for asbestos content before being disturbed.

**Lead-based Paint** – XRF Readings 26 to 129 (11/6/03), and 1 to 20 (11/20/03)

The following components tested positive for lead-based paint:

- The beige sludge pipe flanges located on the 1st floor in Room 1 (reading 39).
- The silver hand railing located on the 1st floor in Room 1 (readings 45 through 47).
- The yellow hand railing located on the 1st floor in Room 2 (readings 56, 57, 65, 66, 67, & 68).
- The yellow stair stringer (leading to the roof) located on the 1st floor in Room 2 (reading 69).
- The black drainpipe (next to Tank 2) located on the 1st floor in Room 2 (reading 71).
- The silver hand railing located in the basement level in Room 1 (reading 76).

- The red pipe located in the basement level in Room 2 (readings 97 through 99, 102 & 103).
- The black digester door located in the basement level in Room 2 (reading 109).
- The blue water pipe located on the basement level in Room 2 (readings 110 & 111).
- The silver tops of Digester Tanks #2 and #3 located on the roof (reading 117).
- The green control boxes associated with the tops of the #1, #2 and #3 Digester Tanks (readings 118, & 120).
- The silver pipe located on top of the #1 Digester Tank (reading 122).
- The light green foul air pipe and associated fan located on the roof (readings 125, 127 & 128).
- The blue water pipe flanges located in the Digester Building Mechanical/Boiler Room (reading 13). The yellow railing located inside around and along the channel, which runs down center of the room (readings 58, 66, & 73).

## 3.5 Primary Effluent Pump Station

**Asbestos Containing Materials** – The suspect asbestos materials observed within this building were 10-inch and 14-inch rubber expansion joints on piping. These fiber-reinforced, neoprene joints are presumed asbestos containing material (PACM). This material could not be sampled due to facility operation, but the five joints were marked with fluorescent orange paint. On drawing **DWG-1** of **Attachment III – Sample Location Drawings**, the joints are highlighted in fluorescent yellow. This is non-friable PACM in good condition.

If additional suspect materials are discovered as the result of renovation or demolition, such materials must be analyzed for asbestos content before being disturbed.

**Lead-based Paint** – XRF Readings 1 to 25 (11/6/03)

No lead-based paint is associated with this building.

## 3.6 Biological Sludge Processing Building

**Asbestos Containing Materials** – The suspect asbestos materials observed and sampled within this building were gaskets, ceiling tiles, pipe insulation, duct expansion joints and fireproofing.

The following asbestos containing materials were discovered in this building:

- The gasket located on the rear of the boiler in the Boiler Room (Elevation 18) is asbestos containing (see sample #1107-1). There is approximately 10 linear feet of this non-friable ACM that is in good condition.

- The incinerator door gaskets located on all access doors on both incinerators are asbestos containing (see sample #1107-2). There are 28 doors in total. This is non-friable ACM in good condition.

The boiler gasket and all of the incinerator doors were marked with fluorescent orange paint.

Refer to **Attachment II** for additional information.

All other suspect materials tested negative for asbestos content. Only materials that were visible and physically accessible were sampled. If additional suspect materials are discovered as the result of renovation or demolition, such materials must be analyzed for asbestos content before being disturbed.

**Lead-based Paint** – XRF Readings 1 to 179 (11/17/03) and 1 to 170 (11/19/03)

The following components tested positive for lead-based paint.

- The green condensate pump-stand located on the 4th floor in the main room (reading 31).

- The light green foul air pipe located on the 1st floor in the main room along the south wall (reading 173).

- The blue *Waterman* gate valve located on the ground floor in the main room along the south wall (reading 92).

## 4.0 CONCLUSIONS

### 4.1 Asbestos Containing Materials

Of 15 bulk asbestos samples analyzed, 3 were found to contain asbestos. The definition of an asbestos containing material is any material containing asbestos greater than 1% by weight. Chrysotile was the only type of asbestos encountered, and percentages contained in the samples ranged from 20% to 60% by weight. The materials found to contain asbestos consisted of several *transite* panels above doorways in the Operations Building, and several incinerator door gaskets and a boiler gasket in the Biological Sludge Processing Building. Though samples could not be obtained due to Plant operations, five expansion joints on piping located in the Primary Effluent Pump Station were presumed to contain asbestos. See **Attachment IV** for a complete listing of all asbestos containing materials identified during this inspection.

## 4.2 Lead-based Paint

Lead-based paint is defined as any paint, varnish, shellac or other coating that contains lead equal to or greater than 1.0 $mg/cm^2$ as measured by XRF. Of a total of 791 XRF (lead content) readings recorded during this inspection, there were 43 readings that indicated a level of lead greater than 1.0 $mg/cm^2$, and 10 XRF readings that indicated a lead content of greater than 5 $mg/cm^2$. The majority of readings fell in the 1.1 $mg/cm^2$ to 2.0 $mg/cm^2$ range. A complete listing of the components analyzed for lead-based paint and their associated locations is included in **Attachment I, XRF Lead Results**. The XRF values appear in column PbL of **Attachment I**, and are presented in milligrams per square centimeter ($mg/cm^2$). Readings greater than 1.0 $mg/cm^2$ are highlighted.

# ATTACHMENT I

XRF Lead Results

# ATTACHMENT II

Asbestos Analytical Results

# ATTACHMENT III

Sample Location Drawings

# ATTACHMENT IV

Table of Asbestos Containing Materials

**Asbestos & Lead-based Paint Inspection Addendum**
**Arlington County Water Pollution Control Plant**
**Arlington County, Virginia**
**December 2003**

## Asbestos Containing Materials

| Location | Material | Sample ID | Contained Asbestos by Weight (%) | Approx Qty | Asbestos Type |
|---|---|---|---|---|---|
| Operations Building | Transite Wall Panel | 1105-6 | 20 | 18 Panels (3ft x 4ft each) | Chrysotile |
| Biological Sludge Processing Building | Boiler Gasket | 1107-1 | 60 | 10 linear ft | Chrysotile |
| Biological Sludge Processing Building | Incinerator Door Gaskets | 1107-2 | 60 | 28 Doors | Chrysotile |

# ATTACHMENT V

Inspector Licenses