Emergency Asbestos Abatement Project Monitoring

September 21, 2013
Peebles Elementary School
Bourne, Massachusetts

Bourne Public Schools

Bourne, Massachusetts

February 5, 2014

Fuss & O'Neill EnviroScience, LLC
50 Redfield Street
Suite 100
Boston, MA 02122

20121141.A6E

FUSS & O'NEILL
EnviroScience, LLC

February 5, 2013

Mr. Edward Donoghue
Director of Business Services
Bourne Public Schools
36 Sandwich Road
Bourne, Massachusetts 02532

RE: Emergency Asbestos Abatement Project – September 2013
Bourne Public Schools
Bourne, Massachusetts
Fuss & O'Neill EnviroScience, LLC No. 20121141.A6E

Dear Mr. Donoghue:

Enclosed please find the final summary closeout report for the emergency asbestos abatement project completed at the Peebles Elementary School located in Bourne, Massachusetts. Fuss & O'Neill EnviroScience, LLC provided full-time asbestos project monitoring services during the asbestos abatement.

Additionally, this report is important documentation that must be recorded within the Asbestos Management Plan (AMP) that was generated for the Peebles Elementary School. A copy of the AMP should be kept at the School, as well as the central filing location where the schools' AMPs are stored.

If you have any questions regarding the enclosed report, please do not hesitate to contact me at (617-282-4675), extension 4703. Thank you for this opportunity to have served your environmental needs.

Sincerely,

Dustin A. Diedricksen
Project Manager

DD/ftc

Enclosure

50 Redfield Street
Suite 100
Boston, MA
02122
t 617.282.4675
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www.fando.com

Connecticut
Massachusetts
Rhode Island
South Carolina

FUSS & O'NEILL
EnviroScience, LLC

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Bourne Public Schools

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FUSS & O'NEILL
EnviroScience, LLC

1 Introduction

Fuss & O'Neill EnviroScience, LLC (EnviroScience) was retained by the Town of Bourne (the "Client") to provide full-time asbestos abatement project monitoring services for the Peebles Elementary School located at 70 Trowbridge Road in Bourne, Massachusetts. Emergency asbestos abatement was performed in response to damaged asbestos-containing skim-coat ceiling plaster observed in Classroom 9. Emergency asbestos abatement began and was completed on September 21, 2013.

EnviroScience prepared and submitted an Emergency Asbestos Abatement Work Plan to the Commonwealth of Massachusetts Department of Environmental Protection (MassDEP) and Massachusetts Department of Labor Standards (MADOLS) for review and issuance of an emergency asbestos abatement waiver of the damaged skim-coat plaster (refer to *Appendix A*).

Mr. Dustin Diedricksen prepared the Asbestos Abatement Work Plan. Mr. Diedricksen is a MADOLS-certified Asbestos Project Designer (refer to *Appendix B*). New England Surface Maintenance (NESM) of Weymouth, Massachusetts was the Asbestos Abatement Contractor who conducted the work. A copy of the asbestos notification form is included in *Appendix C*.

2 Scope of Work/Methodology

The scope of asbestos abatement work included repair and removal of approximately six square feet (SF) of asbestos-containing skim-coat ceiling plaster in Classroom 9. Following abatement, the surface area was encapsulated and repaired with similar (non-asbestos-containing) materials.

Mr. Christopher McIntyre conducted the asbestos project monitoring. Mr. McIntyre is a MADOLS-certified Asbestos Project Monitor (refer to *Appendix B*). Prior to the start of the work, EnviroScience conducted a pre-abatement visual inspection to ensure the work area was constructed in accordance with the written work plan. Background air samples were collected outside the regulated work area. Refer to *Appendix D* for the EnviroScience Daily Monitoring Data forms.

The Project Monitor also performed a final visual inspection at the abatement completion to inspect for visible suspect debris (refer to *Appendix E*). EnviroScience then collected five clearance air samples inside the regulated work area in accordance with United States Environmental Protection Agency (EPA) Asbestos Hazards Emergency Response Act (AHERA) regulations. The air samples were analyzed on site using Phase Contrast Microscopy (PCM). PCM air samples were analyzed on site by a trained Asbestos Project Monitor listed on the Asbestos Analysts Registry (AAR) maintained by the American Industrial Hygiene Association (AIHA). The analytical results of the clearance sampling indicated total airborne fiber concentrations are below the acceptable clearance level of 0.010 fibers per cubic centimeter of air (fibers/cc). Refer to *Appendix F* for the air monitoring analytical results.

EnviroScience informed the Client and NESM of these results. NESM removed the regulated work area; EnviroScience conducted a visual inspection to ensure no visible suspect debris migrated behind containment barriers. At that time, the emergency asbestos abatement project was completed in accordance with federal and state regulations and the written emergency asbestos abatement work plan. Refer to *Appendix G* for a copy of the asbestos Waste Shipment Record (WSR).

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EnviroScience, LLC

3 Conclusion

The emergency asbestos abatement project performed at the Peebles Elementary School to abate damaged skim-coat plaster in Classroom 9 was conducted in accordance with federal and state regulations as well as the written emergency asbestos abatement work plan. The asbestos abatement project was conducted on September 21, 2013 by NESM. EnviroScience provided full-time asbestos abatement. The final visual inspection and analytical results indicate the space is suitable for re-occupancy.

Report prepared by Project Monitor, Christopher McIntyre.

Reviewed by:

Dustin A. Diedricksen
Project Manager

Timothy M. Downey
Senior Project Manager

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EnviroScience, LLC

Appendix A

Asbestos Response Action Work Plan/Design

100%

FUSS & O'NEILL
EnviroScience, LLC

September 20, 2013

Mr. Ed Donoghue
Director of Business Services
Bourne Public Schools
36 Sandwich Road
Bourne, MA 02532

Re: Emergency Asbestos Abatement Work Plan
Peebles Elementary School: Classroom 9
Bourne, Massachusetts
Fuss & O'Neill EnviroScience, LLC. No. 20121141.A6E

Dear Mr. Donoghue:

Attached please find the "Emergency Asbestos Abatement Work Plan" to perform emergency removal of six (6) square feet damaged asbestos-containing skim-coat ceiling plaster at Peebles Elementary School.

The Asbestos Abatement Contractor shall file a notification and provide the submittals to the Commonwealth of Massachusetts Department of Environmental Protection (MassDEP) and to the Commonwealth of Massachusetts Department of Labor Standards (DLS), formerly known as the Department of Occupational Safety (DOS).

Should you have any questions regarding this procedure, please do not hesitate to call Dustin Diedricksen at (617) 282-4675, extension 4703.

Sincerely,

50 Redfield Street
Suite 100
Boston, MA
02122
t 617.282.4675
f 617.282.8253

www.fando.com

Connecticut
Massachusetts
Rhode Island
South Carolina

Dustin A. Diedricksen
Project Manager

DAD:ftc

Attachments

FUSS & O'NEILL
EnviroScience, LLC

WORK PLAN
FOR REMOVAL AND DISPOSAL
OF ASBESTOS-CONTAINING MATERIALS FOR
PEEBLES ELEMENTARY SCHOOL
BOURNE, MASSACHUSETTS

BACKGROUND

A. Asbestos abatement activities shall include repair and/or removal of approximately six (6) square feet of damaged skim-coat ceiling plaster within Classroom 9 at Peebles Elementary School located at 70 Trowbridge Road in Bourne, Massachusetts.

B. Abatement activities shall occur on September 20, 2013, and have been awarded to New England Surface Maintenance (Weymouth, Massachusetts), a licensed Asbestos Abatement Contractor within the Commonwealth of Massachusetts.

DESCRIPTION OF WORK

A. The scope of abatement work shall include removal of approximately six (6) square feet of damaged (i.e. delaminating) skim-coat plaster ceiling within Classroom 9 at Peebles Elementary School.

B. Work shall be performed by a licensed Asbestos Abatement Contractor with certified Asbestos Workers and Supervisor(s) (the "Contractor"). Training shall be in accordance with the Commonwealth of Massachusetts Department of Labor Standards (DLS) Regulation 453 CMR 6.00.

C. The Owner shall retain the services of Fuss & O'Neill EnviroScience, LLC (EnviroScience), or other consulting firm at their discretion, who will be responsible for conducting project monitoring, final visual inspection, and final air clearance sampling. Clearance samples shall be conducted using Polarized Light Microscopy (PLM) or Transmission Electron Microscopy (TEM) as required.

D. Interior abatement of asbestos shall be performed (as appropriate) under full containment as established herein.

E. The following tables summarize the locations of work with estimated material quantities.

Asbestos Containing Material	Location	Quantity Damaged	Recommended Repair/Removal Method
Peebles Elementary School			
Skim-Coat Ceiling Plaster	Classroom 9	6 SF	The Asbestos Abatement Contractor shall remove all damaged asbestos-containing skim-coat ceiling plaster (to include all delaminating surfaces) until skim-coat layer is intact. Removal shall occur within full containment under negative air pressure. One coat of new skim-coat layer (i.e. non-asbestos joint compound) shall be applied to exposed rough-coat ceiling plaster to match level of ceiling. An asbestos bridging (or lockdown) encapsulant shall be sprayed on entire ceiling area within containment. A contiguous three-chamber decontamination unit shall be established as part of the containment. Signage shall be posted, and workers may only enter area wearing appropriate Personal Protective Equipment (PPE) (i.e. protective coveralls and respirator). All asbestos-containing debris shall be removed wet, and double-bagged as asbestos-containing waste. A final air-clearance will be performed (by PCM analysis) by a licensed Asbestos Project Monitor to clear the containment area in accordance with AHERA regulations. A finish (paint) coat (i.e. Kilz2® Later Primer) may be applied with an airless sprayer at a later date; this shall be completed by custodial personnel with 16-Hour Asbestos Awareness Training as an operation and maintenance activity.

SF = Square Feet

WORK PROCEDURES

A. The Asbestos Abatement Contractor shall file an emergency notification to the Commonwealth of Massachusetts, MassDEP Bureau of waste Prevention (BWP) on standard form BWP AQ 06 "Notification Prior to Construction or Demolition" and asbestos work start notifications to the MassDEP and DLS on Asbestos Notification Form ANF-001.

B. A licensed Asbestos Abatement Contractor shall be retained to perform asbestos removal activities.

C. Workers work will utilize disposable clothing and varied Personal Protective Equipment (PPE) as required to the work task including respiratory protection as required by selection chart established in OSHA regulation 29 CFR 1926.1101 and DLS regulation 453 CMR 6.00.

D. The Contractor shall perform personal monitoring of workers as required by OSHA regulation 29 CFR 1926.1101. Personal air monitoring, at a minimum, shall include monitoring for twenty five percent

(25%) of the work personnel or a minimum of 2 workers per work shift.

E. Ensure no electrical equipment is energized during decontamination work and power shall be obtained from external power source from the work areas or with proper GFI installation. All electrical work shall be responsibility of asbestos contractor and be performed by licensed electrician. Observe all OSHA lock out tag out procedures.

WORK AREA PREPARATIONS

A. Seal off all openings including, but not limited to, windows, doors, ventilation openings, drains, grilles, diffuser grates, and any other penetration of the work areas, with polyethylene sheeting (minimum six (6) mils thick) sealed with tape. Doorways and openings that will not be used for passage during work must be sealed with critical barriers as required for separation of work area and occupied areas.

B. Heating, cooling, and ventilation air systems shall remain off in area of containment to prevent contamination and fiber dispersal to other areas of the building. During the work, vents within the work area shall be "sealed" with duct tape and two layers of 6-mil polyethylene sheeting as critical barriers.

C. Create pressure differential to obtain a minimum of four air changes per hour within the work areas by use of acceptable Negative Air Filtration Units (NFAUs) rated for at least 1,000 cubic feet per minute (CFM). The number of NFAUs required for the containment area is shown in calculation below.

Volume (Total ft^3) of Classroom 9 proposed containment = 50 ft^2 x 12'h = 600 ft^3
Calculation for Negative Air Filtration Units (NFAUs) required for Classroom 9 containment=

$$\frac{600\ ft^3}{15\ X\ 1{,}000\ ft^3/min} = 0.04$$

One (1,000 CFM) NFAUs shall be used for Classroom 9 containment.

D. Post warning signs in accordance with 29 CFR 1926.1101 at all approaches to the work area. Signs shall be conspicuously posted to permit a person to read signs and take precautionary measures to avoid exposure to asbestos.

E. Maintain emergency and fire exits from the work area, or establish alternative exits satisfactory to fire officials.

F. Clean and remove ceiling-mounted objects, such as recessed lights at drop ceiling and other items not sealed off that may interfere with asbestos abatement. Use hand-held water spraying or HEPA vacuum equipment during fixture removal to reduce fiber dispersal.

G. Pre-clean floor and all horizontal surfaces (e.g. window sills, etc.) within containment areas. Cover floors with two layers of 6-mil polyethylene sheeting to be used as a drop cloth to facilitate removal and repair of damaged skim-coat ceiling plaster. Windows shall be sealed as critical barriers with two layers of 6-mil polyethylene sheeting after appropriate pre-cleaning (as determined by Asbestos Project Monitor).

DECONTAMINATION SYSTEM

A. The Contractor shall establish contiguous to the full-containment work area, a three-chamber decontamination enclosure consisting of equipment room, shower room, and clean room in series. The only access between contaminated and uncontaminated areas shall be through this decontamination

enclosure. If it is not feasible to set-up a contiguous decontamination unit, the Contractor shall establish a remote decontamination unit. A single change-out unit shall be utilized for the two mini-enclosure containments where removal/repair is less than 3 square feet.

B. Access between rooms in the decontamination system shall be through double-flap curtain openings.

C. Occupied areas and/or building space not within the work areas shall be separated from asbestos abatement work areas by means of airtight barriers.

D. Construct the decontamination system with wood or metal framing, 3/8" sheathing and cover both sides with a double layer of six (6) mil polyethylene sheeting, spray glued or taped at the joints. Caulk joints watertight at floor, walls, and ceiling.

E. The Contractor shall visually inspect barrier several times daily to assure effective seal and the Contractor shall repair defects immediately.

ASBESTOS REMOVAL (Interior Asbestos)

A. The Contractor shall have a competent and qualified designated person on the project at all times to ensure establishing a proper enclosure system, and proper work practices, throughout the project.

B. Clean all movable objects within the proposed work areas using HEPA vacuum equipment and/or wet cleaning methods as appropriate, and remove such objects from work areas to a temporary location (if necessary).

C. Clean all fixed objects within the work areas; using HEPA vacuum equipment and/or wet- cleaning methods as appropriate, and enclose with a minimum of six (6) mil plastic sheeting sealed with tape. (Examples include electronic equipment).

D. Spray asbestos materials with amended water using airless spray equipment or apply approved removal encapsulant to reduce the release of fibers during removal operation. Fill disposal containers as removal proceeds. Seal filled containers and clean containers before removal to wash area. Wet clean each container thoroughly, double bag, and apply proper labels before moving to Holding Area. Ensure that workers do not enter from uncontaminated areas into the Washroom or the Work Area.

E. After completion of removal work, all surfaces from which asbestos has been removed shall be HEPA vacuumed and wet wiped, or cleaned by an equivalent method, to remove all visible material (wire brushes are not permitted). During this work the surfaces being cleaned shall be kept wet.

F. If at any time during asbestos removal, should the Owner's on-site Project Monitor suspect contamination of areas outside the work area, he/she shall stop all abatement work until the Contractor takes steps to decontaminate these areas and eliminate causes of such contamination. Unprotected individuals shall be prohibited from entering contaminated areas until air sampling and visual inspections certify decontamination.

G. Remove and containerize all visible accumulations of asbestos-containing and/or asbestos-contaminated debris.

H. Sealed disposal containers, and all equipment used in the work area, shall be included in the cleanup and shall be removed from work areas. All asbestos waste shall be placed in six (6) mil polyethylene disposal bags, outside of bags shall be cleaned and they shall be placed in a second disposal bag (double-bagged)

before removal for disposal. Clean all surfaces with HEPA filter vacuum equipment before wet cleaning all surfaces within regulated area.

I. The Owner's on-site Project Monitor shall conduct a post-abatement visual inspection with the critical barriers and covering of doors and windows in place. If visible accumulations or any dust or bulk asbestos containing materials are found in the work area, the Contractor shall repeat the cleaning until the area is in compliance, at the Contractor's expense. The visual inspection will detect incomplete work, damage caused by the abatement activity, and inadequate cleanup of the work site. In addition, the on-site Project Monitor shall conduct a post-abatement visual inspection after the containment is removed to confirm that no visible debris became trapped behind critical barriers during ceiling abatement.

DISPOSAL OF WASTE

A. The disposal of asbestos-containing and/or asbestos-contaminated material, supplies, rags, disposable clothing, respirator cartridges, etc., shall be in compliance with requirements of and authorized by the Commonwealth of Massachusetts (DEP) and USEPA.

B. Disposal approvals shall be obtained prior to commencing asbestos removal.

C. A copy of approved disposal authorization shall be provided to the Owner and Owner's Authorized Representative.

D. Copies of all landfill receipts shall be retained by the Owner's Authorized Representative as part of the project file. The receipts shall be signed by the landfill operator upon receipt, and the quantity of asbestos debris leaving the work site and arriving at the landfill acknowledged.

E. All wash water and shower water shall be collected and filtered through a five micron filter to remove any asbestos debris.

F. All asbestos debris shall be transported in covered sealed vans, boxes, or dumpsters which are physically isolated from the driver by an airtight barrier. All vehicles must be properly licensed to meet Commonwealth of Massachusetts DOT requirements.

END OF PLAN

Work Procedure Prepared by:

Fuss & O'Neill EnviroScience, LLC.
50 Redfield Street, Suite 100
Boston, MA 02122

Project Designer: Dustin A. Diedricksen
Designer License No. AD000037

FUSS & O'NEILL
EnviroScience, LLC

Appendix B

EnviroScience Project Certifications & Accreditations

100%

Commonwealth of Massachusetts

Department of Labor Standards

Heather E. Rowe, Director

Asbestos Designer

DUSTIN A. DIEDRICKSEN

Eff. Date 08/22/13

Exp. Date 08/22/14

AD000037

Member of C.O.N.E.S.

NBR

14



NB-RENEW

Commonwealth of Massachusetts

Department of Labor Standards

Heather E. Rowe, Director

Asbestos Project Monitor

CHRISTOPHER MCINTYRE

Eff. Date 07/25/13

Exp. Date 07/25/14

AM900483

Member of C.O.N.E.S.

NBN

14



NB-NEW

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Appendix C

State Asbestos Notification Form

100%

Paperwork to be provided by
Asbestos Abatement Contractor.

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Appendix D

Daily Monitoring Data

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EnviroScience, LLC

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50 Redfield Street, Suite 100, Boston, MA 02122

(617) 282-4675 Fax (617) 282-8253

Asbestos Daily Monitoring Data

Date: 9/21/13 Project Number: 20121141.A6E

Technician: Chris McIntyre AAR Number: _____

Building: Peebles Elementary School

Area: Classroom #9

Inspections*	Work Area	Time
1. PC	Containment Class #9	0900
2. PR	"	0930
3. ~~FV~~	"	1030
4. TD	"	1230
5.		

* Inspection Key: PC = Pre-commencement, PR = Progress, FV = Final Visual, TD = Teardown

Sample Number	Location**	Activity ***	Results (F/CC)
1. 921cm-01	FB	----------	----------
2. -02	SB	----------	----------
3. -03	Hallway - #9	BG	<0.002
4. -04	OCB - #9	BG	
5. -05	IWA - #9	FAC	
6. -06			
7. -07			
8. -08			
9. -09			
10			
11			
12			

** Location Key: NAE = Negative Air Exhaust, DECON: OCB = Outside Critical Barrier, IC = Inside Containment, FB = Field Blank, SB = Sealed Blank

*** Activity Key: BG = Background, SU = Setup, DR = During Removal, FC = Final Cleaning, FAC = Final Air Clearance

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Appendix E

Certificates of Final Visual Inspection

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Certificate of Final Visual Inspection

Asbestos/PCB Abatement

Date: 9/21/13 ☒ Removal ☐ Encapsulation ☐ Enclosure ☒ Repair ☐ Cleanup

PROJECT NAME:	Bourne Public Schools	PROJECT NO.:	20121141.A6E
BUILDING:	Peebles Elementary School	☐ PASS ☐ FAIL	
CONTAINMENT:	Classroom # 9		
CONTRACTOR:	NESM		

☒ Standard Containment ☐ AWP Containment ☐ Mini-Enclosure ☐ Glovebag ☐ None

MATERIALS REMOVED

1. 6SF Skim coat	QTY:	6SF	2.	QTY:	
3.	QTY:		4.	QTY:	
5.	QTY:		6.	QTY:	
7.	QTY:		8.	QTY:	
9.	QTY:		10.	QTY:	

SUSPECT MATERIALS REMAINING IN CONTAINMENT NOT SPECIFIED FOR REMOVAL

1.	QTY:		2.	QTY:	
3.	QTY:		4.	QTY:	

SURFACES INSPECTED

Instructions: Check surfaces that pass. Circle surfaces that fail. Strike through N/A.

☐ Floor	☐ Horizontal Surfaces	☐ Pipes	☐ Mechanical Equipment
☐ Duct Work	☑ Vertical Surfaces	☐ Decon Unit	☐ Contractor's Equipment
☐ Fixtures	☑ Enclosed Items	☐ Other:	

FIELD NOTES

AIR CLEARANCE: ☑ PCM ☐ TEM ☐ None performed

CERTIFICATION

I certify that this containment was inspected by me this day.

EnviroScience Inspector: [signature] (PRINTED) Christopher McIntyre (SIGNATURE)

I have read and understand these results.

Contractor's Supervisor: _____ (PRINTED) _____ (SIGNATURE)

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EnviroScience, LLC

Appendix F

Analytical Results

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FUSS & O'NEILL EnviroScience, LLC

Area Air Monitoring Worksheet For Asbestos Field Analysis

Form 7400-05
Edition September 2012
Supersedes previous editions

50 Redfield Street, Suite 100, Boston, MA 02122 (617) 282-4675

Project Name: Bourne Public Schools
Project Number: 20121141.A6E
Project Manager: Dustin Diedricksen
Project Location: Bourne, MA

Rotometer Number: 101402
Rotometer Cal. Date: 6/6/13
Microscope Number: 100094

Sampler Name Chris McIntyre
Analyst Name: CM AAR#_____
Sample Date 9/21/13 Analysis Date: 9/21/13
Reviewed By:_____
Reviewer's Title:_____

Sample ID Number	Sample Location	Activity Code/ Comment	Sample Time On	Sample Time Off	Sample Duration Minutes	Flow Rate (LPM) Pre	Flow Rate (LPM) Post	Flow Rate (LPM) Ave	Total Volume Liters	Fiber Count Fibers/fields	Concentration Fibers/mm²	Concentration Fibers/cc
921CM-01	Field Blank									0/100	0	
-02	Sealed Blank									0/100	0	
-03	Hallway outside #9	2	0825	1000	95	8	8	8	760	3/100	3.8	<0.002
-04	OCB #9	2	0825	1000	95	8	8	8	760	1/100	5.1	<0.002
-05	IWA → Class #9	2	1015	1135	80	15	15	15	1200	0/100	7.4	<0.002
-06	IWA → Class #9	2	1015	1135	80	15	15	15	1200	1/100	1.3	<0.002
-07	IWA → Class #9	2	1015	1135	80	15	15	15	1200	0/100	0	<0.002
-08	IWA → Class #9	2	1015	1135	80	15	15	15	1200	1/100	1.3	<0.002
-09	IWA → Class #9	2	1015	1135	80	15	15	15	1200	2/100	2.5	<0.002
	Duplicate Count											

Submit at least 2 blanks or 10% of the number of samples.

Reference Method: NIOSH 7400 Issue 2, 8/15/94 Limit of Detection: 0.055 fibers/field

Sample Type: 25 mm 3 piece 0.8μ mixed cellulose ester PCM Air Monitor

CONCENTRATION (Fibers/mm2) = (SAMPLE fibers/field) – (BLANK fibers/field) / (0.00785mm²/field)

CONCENTRATION (fibers/cc) = (SAMPLE fibers/field) – (BLANK fibers/field) x (385) mm²/filter / (0.00785mm/field) x liters x 1000 cc/liter

Range	Intra Lab Sr	Inter Lab Sr
1 (5-20 fibers/100 fields)	0.34	0.57
2 (>20-50 Fibers/100 fields)	0.28	0.52
3 (>50 Fibers/100 fields)	0.27	0.43

Project Activity:

Code	Type
1	Background
2	During
3	Clearance
4	Environmental
5	Personal
6	Other

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EnviroScience, LLC

Appendix G

Waste Shipment Records

100%

Paperwork to be provided by
Asbestos Abatement Contractor.