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Environmental Services o Asbestos Collection & Testing o Consultation

# ASBESTOS

# MANAGEMENT PLAN

PREPARED FOR

BOURNE PUBLIC SCHOOLS ADMINISTRATION
36 SANDWICH ROAD
BOURNE, MA 02532

BOURNE PUBLIC SCHOOL SYSTEM

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Date: November 14, 1988

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Certification: Commonwealth of Massachusetts Certification as Inspector (I-00055) and Management Planner (MP-00098).

This management plan meets the requirements of the EPA "Asbestos Containing Materials in Schools" Rule, 40 CFR 763, as specified in the Asbestos Hazard Emergency Response Act (AHERA).

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Administration Building & Maintenance Buildings
Bourne, MA

SECTION 1 INSPECTION REPORT

This section provides a general description and overview of the school, its size, date of construction and/or modification, location, and student inspection/management plan detailing those locations where asbestos-containing building materials (ACBM) or suspect ACBM were identified by the inspector, as well as the friability, physical condition, potential for damage or disturbance of the ACBM.

1(A) GENERAL BUILDING DESCRIPTION

This management plan is written for the Bourne Public Schools Administration Building and three Maintenance Buildings, which support seven schools in the Bourne system. Two of the three maintenance buildings are located behind Peebles Elementary, while the third is a small storage shed located in Pocasset.

The Administration building is a two story single family house converted to use for offices. The exact date of construction is not known, however, it is believed to be approximately 1935 to 1940. The house has a conventional concrete foundation, with wood framing and a wood roof. The exterior of the building has wood shingle, and the interior walls are plasterboard on framing. There are two floors above ground, and a half floor below ground, all used for office or storage space. A small room behind the offices houses the boiler and mechanical systems for the building. The interior of the building was remodeled two years ago. Heat for the building is provided by a package oil-fired boiler to a continuous closed-loop hot water system. There are five zones, each with manual shutoff. There are approximately 3,830 square feet of usable floor space in the Administration Building.

The principal maintenance building is a three bay storage structure converted to shops and storage. The exact date of construction is not known. The building is one floor with an attic. It is built on a slab with a conventional foundation, and has roof framing and roof. Heat is supplied by an International oil-fired forced air furnace. All ductwork in the building was installed recently. The Maintenance Building has approximately 2,030 square feet of floor space on one floor.

A second storage building is located perpendicular to the maintenance building on a slight rise. The storage building is a converted raised ranch single-family house, used for garaging heavy equipment and surplus supplies. The building is two floors, and has a conventional concrete foundation with wood shingle over wood framing, and a wood

roof. The exact date of construction is not known. Heat is provided to the building by a oil-fired forced-air heating system. The front of the building has three garage bays where trucks and heavy equipment are stored. The upper floor is used for storage of equipment and surplus supplies. This building contains 2,400 square feet of usable floor space.

The third building is an older one-story building located in Cataumet, and was formerly in use as a school building. Today, it is used exclusively for surplus storage. The exact date of construction was not known, but it is believed to date to the turn of the century. This building contains 884 square feet of usable floor space.

A section of the Asbestos-Containing Materials in Schools Rule, 40 CFR 763.85 dealing with inspections states "... shall inspect each school building that they lease, own, or otherwise use as a school building to identify all locations of friable and nonfriable ACBM". In each case, these buildings are not physically part of a school building, are not used routinely for instructional purposes, and are not accessible to students on a routine basis. Our interpretation is that the Administration Building and Maintenance Builldings are not subject to the AHERA regulations, and would not require submission of the management plan by the LEA to the state. The inspection and management plan was performed voluntarily by the school system to identify any potential concerns which should be addressed.

1(B) SUMMARY OF INSPECTION REPORT

A comprehensive inspection of the Bourne Administration and Maintenance Buildings was performed on September 7, 1988 by Scott D. Herzog, CIH. Mr. Herzog is certified as an Asbestos Inspector and Management Planner by the Commonwealth of Massachusetts Department of Labor and Industries, and has met all the requirements for Inspector and Management Planner under the Asbestos-Containing Materials in Schools Rule (40 CFR 763), promulgated by the Environmental Protection Agency to comply with the requirements of The Asbestos Hazard Emergency Response Act (AHERA). Mr. Herzog attended and successfully completed a course for Inspector at Tufts University in January, 1988. Tufts University is recognized as one of five regional facilities which are included in the Asbestos Information Center. Mr. Herzog's Massachusetts Inspector certification is I-00055, and his Management Planner certification is MP-00098. A copy of the license and certificate from Tufts University, as well as a statement of qualifications is appended to this inspection/management plan.

The inspection report was reviewed, with special attention to physical damage, friability, potential for disturbance, and location of asbestos-containing building materials. The findings of the inspection are detailed by homogeneous area and functional space

(room, hallway, etc.) in Section 5. Section 1 summarizes the principal findings of the inspection, for purposes of the management plan. ACBM or suspect ACBM was observed in thermal system insulation as pipe lagging debris, and in miscellaneous materials ACBM as vinyl floor tile and Transite ceiling panelling. There were no surfacing material ACBM observed during the inspection process.

A. Thermal System ACBM

A(1)- Boiler Room Piping- Administration Building- Heat is supplied to the building through a package oil-fired furnace/boiler. The boiler operates on # 4 heating fule oil, and is supplied from a small storage tank. The boiler produces low-pressure steam, which is used as a part of the closed-loop continuous hot water system. The system has five zones, each with a manual shutoff valve. The piping currently is uninsulated, but ACM appears to have been removed. Clumps of ACM debris were readily visible on pipes and on the floor beneath the boiler. A sample of the debris contained 10% chrysotile asbestos.

A(2)- Boiler Room Breeching- Administration Building- The breeching from the furnace itself is not insulated. There is a small amount of hard cementitious material around the breeching at the chimney.

A(3)- Boiler- Storage Building- A new Fiberfrax liner was installed in the oil-fired furnace last year. Fiberfrax has a structure similar to that of asbestos. The liner was in good condition with no damage.

B. Miscellaneous Materials – maintenance

B(1) Transite panelling- The storage building contained a section of Transite panels as roofing material in the right hand bay. The sheets were nailed to the furring below the wood ceiling. The panels were in good condition, with no damage. There are 190 square feet of panelling involved.

B(2) Vinyl asbestos floor tile- Two areas were identified where ACBM or suspect ACBM was identified as vinyl asbestos floor tile (VAT). A small section of nine inch speckled tile was noted in the bathroom of the maintenance building. Nine-inch striated floor tile was in poor condition, and completely broken up. The tile shows damaged areas from both gasoline and water damage. A sample of the floor tile contained 20% chrysotile asbestos. There is approximately 160 square feet of ACBM in these areas.

Except as noted above, there are no other ACBM or suspect ACBM in these buildings.

A summary of damaged or significantly damaged ACBM or suspect ACBM using the categories defined by the EPA is as follows:

| Location | ----Significantly Damaged or Damaged---- Thermal System ACBM | Surfacing Material Friable ACBM | Miscellaneous Materials Friable ACBM |
|---|---|---|---|
| A(1) | 10 SQ. FT. | ---- | ---- |
| A(2) | ---- | ---- | ---- |
| B(1) | ---- | ---- | ---- |
| B(2) | ---- | ---- | 160 SQ.FT. |
| Total | 10 SQ.FT. | ---- | 160 SQ.FT. |

A summary of all ACBM or suspect ACBM in the Administration and Maintenance buildings is as follows:

| Location | Thermal System ACBM | Surfacing Material ACBM | Miscellaneous Materials ACBM |
|---|---|---|---|
| A(1) | 10 SQ.FT. | ---- | ---- |
| A(2) | 4 SQ.FT. | ---- | ---- |
| B(1) | ------- | ---- | 192 SQ.FT. |
| B(2) | ------- | ---- | 160 SQ.FT. |
| Total | 14 SQ.FT. | ---- | 352 SQ.FT. |

1(C) SUMMARY OF PREVIOUS INSPECTIONS AND RESPONSE ACTIONS

1) There is no record of any previous inspections, either by Commonwealth of Massachusetts or private consultant, in the buildings covered by this inspection and management plan.

2) New supply piping was installed in the Administration building. It appears that significant quantities of pipe lagging may have been removed during the project. Clumps of asbestos debris are readily seen on the pipes and on the floor area surrounding the furnace.

## SECTION 2 HAZARD ASSESSMENT

The objective of this section is to identify the potential for fiber release and prioritization of corrective measures, based on actual and potential damage, location, friability, and potential for disturbance. Hazard assessment involves an analysis of factors which might contribute to actual or potential exposure of building

occupants. The management planner reviews the findings of the facility inspection including but not limited to friability, deterioration, and physical or water damage to the ACBM. The potential for disturbance (accessibility which might lead to exposure), such as poking holes or scratching initials in surfacing ACBM, vibration, and the presence of air flow are considered.

There are several recognized rating or ranking schema used to make an assessment of the overall condition, in order to make "an informed, responsible recommendation to the LEA consistent with response action requirements". These rating systems include matrix stratification, algorithms which rank each factor numerically, tables and logic trees. All these systems are both objective and subjective to some degree, and depend upon the individual planner.

The method used in this management plan is a straightforward one. It is a "decision tree" or "logic tree", developed by the EPA, and published in "Guidance for Assessing and Managing Exposure to Asbestos in Buildings." It was selected as the most easily interpreted rating schema for the building owner, and one which could easily be reviewed or repeated by a management planner at three-year interval reinspections. The decision trees for surfacing materials and thermal system materials are found as Figures L-1 and L-2. Each "logic tree" routes the planner through a set of choices, to select one of eight response actions. The actions are numbered one through eight, with one representing the highest priority response. Each of the eight response actions is identified with a descriptive course of action which might include removal, repair, encapsulation, enclosure, or operations and maintenance. The corrective actions are defined in the Asbestos-Containing Materials in Schools Rule (40 CFR 763) as follows:

Removal: Taking out or stripping of substantially all ACBM from a damaged area, functional space, or homogeneous area in a school building.

Repair: Returning damaged ACBM to an undamaged condition or intact state. This action is normally limited to localized damage.

Encapsulation: The treatment of ACBM with a material that surrounds or embeds the fibers in a matrix to prevent release. There are two types of encapsulants- penetrating, and bridging. Penetrating encapsulants bind the fibers together to form a hard mass less susceptible to damage or friability. Bridging encapsulants are applied to the outer surface, forming a hard shell on the surface, which reduces the potential for further damage. Both types may be applied by brush or through the use of an airless sprayer.

Enclosure: Construction of an essentially airtight, impermeable, permanent barrier around ACBM to control the release of fibers to the air. For example, a solid metal or plywood wall would classify as an enclosure, however carpeting over vinyl-asbestos floor tile, or lay-in acoustical tile over spray-on insulation would not classify as enclosures.

Operations & Maintenance: A program of training, work practices, and periodic surveillance designed to maintain the condition of friable ACBM and to prevent further release by minimizing and controlling friable ACBM disturbance or damage. The O & M program is described in detail in Section 6.

2(A) PROPOSED RESPONSE ACTIONS

A. Thermal System Insulation ACBM

A(1) Boiler Room Piping- Administration- Damaged, High Disturbance. Debris from pipes is visible on piping and floor area surrounding piping. Response Action 2. Isolate area. Clean up debris using suitable techniques, and encapsulate piping to lock down any remaining fibers as soon as possible.

A(2) Boiler Room Breeching- Administration- No Damage, Moderate Disturbance. Suspect ACBM cement around breeching at entry to chimney. Response Action 6. Normally, corrective action would not be required. It may be advisable to remove the cement and replace it with non-ACBM at the same time cleanup is performed in the room for the debris.

B. Miscellaneous Materials

B(1) Transite panelling- No Damage, Low Disturbance- The ceiling material is in good condition with no damage or visible debris. Response Action 8. Maintain under O&M, and monitor condition. Remove as ACBM if demolition or renovation requires removal under NESHAPS.

B(2) Vinyl asbestos floor tile- Significant Damage, High Disturbance. The floor tile in the upstairs area of the storage building is completely broken up, with both water and gasoline damage. Response Action 2. Floor tile should be scheduled for removal and replacement with non-ACBM as soon as possible.

## SECTION 3 HAZARD PRIORITY RANKING AND RESPONSE ACTIONS

The ranking utilizes the response actions developed by the management planner, and assigned to the ACBM described above, and prioritizes the order of corrective measures to be undertaken by the LEA. Where funding is not available to implement the entire program of recommended measures at one time, a prioritization of those actions is required. This ranking is a forced ordering, and should only be used as a guideline, not as an absolute ranking. Where response actions are the same for two or more items, they are ranked in relative importance, based on the potential for exposure, and the

effort needed to implement controls.

Recommended response actions are developed by the management planner based on the assessment described above. The LEA has the final decision on the response actions and priorities to be undertaken. Table T-1 describes the relative advantages and disadvantages of each response action. Consideration should be given to the applicability of a particular response action for a particular building. In other words, no one response is correct for all buildings. Factors to be included in the decision are the current and future use of the affected school area, whether further damage could occur, and the availability of funding to implement one of the corrective actions.

3(A) PROPOSED RESPONSE ACTIONS

| Ranking | Response Action | Location/Description of Action |
|---|---|---|
| 1 | 2 | Boiler Room- Administration- This is the most widely frequented building, and is directly adjacent to offices and a supply room. Isolate the area of the boiler. Clean debris from piping and floor, and encapsulate piping around the boiler. |
| 2 | 2 | Vinyl asbestos tile- The tile in the storage building was severely broken with visible water and gasoline damage. The tile should be removed and replaced with non-ACBM. |
| 3 | 6 | Boiler Room- Breeching- The cement at the stack appears to be ACBM in good condition. Normally, no immediate corrective measures are recommended. You may wish to have the material removed at the same time as cleanup of the boiler room for some cost savings. |
| 4 | 8 | Transite panelling- Currently, the panelling is in good condition with no visible damage. Maintain under O&M. Schedule for removal on a lower priority when cost-effective to do so. |

### 3(B) STAGING OF ABATEMENT ACTIONS

Several considerations must be evaluated when scheduling abatement activities. These factors include:

(1) The potential for exposure to occupants of the building.
(2) The desirability of completing the work during the summer months when the school in not in session.
(3) The desirability of completing the project prior to the start of the heating season, even if school is in use at the time.
(4) The availability of funding to perform the work.
(5) The availability of contractors to perform the work.

Most of the corrective actions are relatively minor. Since they do not involve actual school buildings, they may be performed on demand. The cleanup in the basement of the Administration building should certainly be the first priority and performed as soon as practical. Based on these factors, the following schedule is recommended:

1) Basement area- Administration ..... 1Q, 1989
2) Vinyl floor tile- Storage area ..... 3Q, 1989
3) Transite panelling ..... 3Q, 1990

## SECTION 4 COST ESTIMATION AND CONTRACTOR SELECTION

This section describes the estimated costs of implementing the response action plans described above. These estimates are developed for budgeting purposes only, to evaluate the costs of different response actions. It may be considered on the order of an engineering estimate- that is +/- 25 percent. They do not constitute a firm bid for the abatement work, or a proposal to perform the work for the estimated amount. Two estimates are presented- the first based on implementation of the recommended corrective measures, and the second based on complete removal of ACBM from accessible areas of the building. The latter may be a desired approach in some circumstances, and will offer the LEA a range of costs associated with the two approaches, for planning and budgeting purposes.

One of the most important decisions to be made by the LEA is the choice of an asbestos abatement contractor. An experienced, knowledgeable contractor can make an abatement action proceed smoothly. Conversely, a poor contractor could potentially cause greater release of asbestos fibers in the school through improper work practices. This section reviews some of the considerations which should be included in the selection of an abatement contractor.

The use of an engineering firm to serve as "project monitor" during the abatement is highly recommended. The monitor serves as the "eyes and ears" of the building owner before, during, and after the

completion of an abatement response. The monitor provides quality assurance services including the collection of air samples and visual inspections. Air sampling might include the collection of pre-abatement samples to establish a background concentration, sampling during the abatement to assure that no asbestos is leaving the work area, and clearance samples to assure the project has been completed. The monitor also oversees the contractor to assure that all work is performed in accordance with the schedule and other contract documents, as well as in accordance with local, state and federal regulations pertaining to asbestos abatement projects. This section also describes some of the considerations which should be evaluated in the selection of an engineering firm.

4(A) COST ESTIMATE

| Location | Estimated Cost (Current $$) Recommendation | | Total Removal |
|---|---|---|---|
| A(1)/A(2) | $ 750.00 | | $ 750.00 |
| B(1) | $ 900.00 | | $ 900.00 |
| B(2) | ----- | | $ 1,200.00 |
| Total | $ 1,650.00 | to | $ 2,850.00 |

4(B) CONTRACTOR SELECTION SPECIFICATIONS

While bid cost is certainly an important consideration in the selection of an abatement contractor, it must not be the only consideration. Careful planning and preparation are the most important keys to a successful project. Adequate information must be provided to the contractor to permit a bid, and certain information must be obtained from the final bidder or bidders before an award is made.

(1) Previous experience with the contractor on similar projects at the facility which define the contractor's abilities. The contractor should demonstrate reliability through submission of a list of references. Preferably, the contractor should have a minimum of three years of experience, and be able to provide a list of ten references. At least three of these should be on projects of similar scope and size as the one proposed.

(2) The contractor should maintain and provide a copy of the comprehensive general liability and professional liability (errors & omissions) insurance policies, stating the insurewr, policy number, type of coverage, aggregate amount, and expiration date. Policies for worker compensation, and driver/vehicle insurance should be provided as well. Review the policies with your legal counsel.

(3) The contractor should provide a complete list of the training courses attended by the person who will serve as site supervisor for the project. The firm should provide evidence that all workers have completed the requirements for worker training, and that both workers and supervisor are certified/certifiable in the Commonwealth, in compliance with 453 CMR 6.0, as well as local, and federal regulations for asbestos abatement.

(4) The contractor should provide a copy of the written standard operating procedure, and work practices, including specific references to OSHA and EPA standards.

(5) The contractor should comply with all current and proposed asbestos abatement regulations in the Commonwealth of Massachusetts.

(6) The contractor should provide a description of all projects which have been terminated prematurely, and the circumstances surrounding the termination.

(7) The contractor should provide a list of any citations levied against the contractor by local, state, or federal agencies for violations related to asbestos abatement. The contractor should also provide a description of any legal proceedings, lawsuits, or claims in reference to asbestos abatement.

(8) The Bourne Public Schools and the selected contractor should take special care to assure that there is understanding and acceptance of the terms and conditions of the contract by both parties prior to the start of any work.

Most importantly, the Asbestos Program Manager should have effective communication and a sense of confidence in the ability of the contractor, and have a good working relationship with the primary contact at the firm.

4(C) ENGINEERING FIRM SELECTION

As with the contractor, there are several considerations in the selection of the engineering representative.

(1) As stated, the firm is the liason between the building owner and the abatement contractor, and will be in daily communication with the building owner on the status of the project. Effective communication, and a sense of confidence in the ability of the engineering firm should be the most important criterion.

(2) Persons involved with the project on-site should have attended approved training courses as a Project Monitor. Individual(s) must be certified by the Commonwealth of Massachusetts, Department of Labor and Industries as Project Monitor(s).

(3) Previous experience with the engineering firm on similar projects at the facility which define the firm's abilities. Firms should demonstrate reliability through submission of a list of references. Preferably, the engineering firm or principal assigned to the project should have a minimum of two years of experience in monitoring similar projects.

(4) The engineering firm should provide a copy of the comprehensive general liability, and professional liability (errors & omissions) insurance, stating the insurer, policy number, type of coverage, aggregate amount, and expiration date. Policies for worker compensations, and driver/vehicle insurance should be examined as well. Review all policies with your legal counsel.

(5) The laboratory used by the engineering firm should be licensed in the Commonwealth of Massachusetts to perform asbestos fiber counting. The laboratory should participate in the NIOSH Proficiency Analytical Testing program, and be accredited by the American Industrial Hygiene Association, or the individual performing the fiber counting be listed in the AIHA Asbestos Registry.

(6) The individual providing on-site support should be an industrial hygienist by training, or should be under the direction of a full-time industrial hygienist. All training shall comply with 40 CFR 763.

## SECTION 5 INSPECTION REPORT

This section details the findings of the inspector during the on-site inspection of the facility, as well as the results of the samples taken during the inspection. The details and general description of the building(s) are presented in Section 1, and so, are not repeated here. As a part of the physical inspection, the following segments were incorporated:

(1) A review of all maps, drawings, and figures which were available at the time of the inspection, and which might identify the presence of asbestos-containing building materials in the school building.

(2) A review of all reports, inspections, studies, and other douments by both private consultants, and representatives of state and federal agencies, which may have identified the location of ACBM.

(3) A review of documents pertaining to any previous abatement activities, available at the time of the inspection.

(4) Discussions with key maintenance and administrative personnel to identify locations of ACBM in the school buildings, or to obtain details on previous abatement activities.

(5) Comprehensive walk-through of the affected school building, including examination of all classrooms, hallways, closets, cabinets, bathrooms, basements, utility areas, mechanical areas, pipe tunnels and chases. The physical condition of all ACBM and suspect ACBM is examined by touching all affected surfaces. Samples are collected for analysis in accordance with the requirements of 40 CFR 763, and analyzed by polarized light microscopy, using the EPA-approved protocol ("Interim Procedure for the Analysis of Bulk Samples").

For purposes of clarity, LF refers to linear feet of insulation, usually as pipe lagging, regardless of the diameter of the pipe or duct. SF refers to square feet, usually as boiler covering, or surfacing insulation. Fittings may include elbows, tees and valves. Fittings are not included or calculated in the measurement of equivalent feet, but are generally expressed as the number of fittings. The term "friable" refers to the ability to crumble ACM using moderate hand pressure, and is used to express the likelihood that ACM can become airborne. Additional terms are described in the glossary to this report.

# KEY TO INSPECTION REPORT

## Materials of Construction

LAT- Lay-in Acoustical Tile (Drop Ceiling)
CB - Cinderblock
VAT- Vinyl asbestos tile
FG - Fiberglass insulation

## Heating System

CMR- Ceiling Mounted Radiator
WMR- Wall Mounted radiator
FMR- Floor Mounted Radiator
HW/CW- Hot Water/Cold Water Supply

## ACBM Condition

ND - No Damage
SLD- Slight Damage
D - Damage
SD - Significant Damage
PD - Potential Damage
PSD- Potential Significant Damage

## ACBM Quantities

LF - Linear feet
SF - Square feet

## KEY DEFINITIONS

Several key definitions are listed for the benefit of the reader. These definitions are taken from 40 CFR 763. For additional detail, the reader should refer to the Asbestos Containing Materials in Schools" Rule.

1) Asbestos-Containing Building Material (ACBM)- Thermal system ACM, surfacing ACM and miscellaneous ACM in or on interior parts of the school building. (For purposes of the standard, this is limited to items which are part of the structure of the building, exterior hallways, porticos, and mechanical systems.

2) Damaged or significantly damaged thermal system ACM- ACM on pipes, boilers etc. where the insulation has lost its structural integrity or its covering, is crushed, gouged, punctured, missing, or not intact. As a rule, local damage over 25 % of the surface, or damage over 10 % of the total surface would classify insulation in this category as significantly damaged.

3) Damaged friable surfacing ACM- ACM which has deteriorated or sustained physical injury such that it lacks adhesion to the substrate (underlying layer) or fiber cohesion (binding).

4) Miscellaneous ACM- Includes a variety of materials in buildings such as vinyl flooring, fire-resistant gaskets and seals, asbestos cement, Transite panelling.

5) Significantly damaged friable surfacing ACM- Surfacing material where the damage is extensive and severe. Again, local damage over 25 % of the surface, or damage over 10 % of the total surface would classify insulation as significantly damaged.

6) Friable- The material when dry, may become crushed, crumbled, pulverized, or damaged when moderate hand pressure is exerted.

7) Functional space- A room or group of rooms, or common area (such as a pipe tunnel, or air space above a drop ceiling), cafeteria, gymnasium, or common hallway.

8) Homogeneous area- An area of insulation which is uniform in color and texture. (i.e. pipe lagging which travels through several classrooms).

9) Surfacing material ACM- Material in a school building which is sprayed-on, trowelled-on or applied to wall or ceiling surfaces for acoustical or fireproofing purposes.

## SECTION 6 OPERATIONS AND MAINTENANCE PROGRAM

The Local Education Agency shall implement an operations, maintenance, and repair (O & M) program whenever any friable ACBM is present or assumed to be present in a building that it leases, owns, or otherwise uses as a school building ( Section 763.91(a)). The Operations & Maintenance Program is an integral part of the management plan in any school where asbestos-containing building materials are present. The goal of the O & M program is to establish a set of work practices and housekeeping procedures designed to minimize the potential for workers and occupants of the building to be exposed to asbestos. This program remains in effect as long as ACBM remains in the building, and will be updated to reflect any changes in the location, condition, damage, or potential for exposure to ACBM.

The specific objectives of the O & M program are to develop and provide worker training and work practices which minimize disturbance of asbestos during routine maintenance activities; a plan to perform emergency repair, encapsulation, and enclosure of ACBM, as well as to clean up small amounts of asbestos debris on floors, and other surfaces. The O & M programs generally focus on the maintenance and custodial staffs performing routine activities in the building, rather than large scale abatement projects which will be performed by abatement contractors.

In each school, all custodial employees will be included in the O & M program. One or more maintenance employees for the school system should be designated as emergency responders when asbestos debris is observed, or when emergency repairs are required. O & M work practices are tailored to four types of projects: (1) those which are unlikely to involve any contact with ACBM, (2) those which may cause accidental disturbance of ACBM, (3) those which involve small scale manipulation or removal of ACBM, and (4) those which involve large scale manipulation or removal of ACBM.

The O & M program contains eight major segments as follows:

(1) A written plan defining the objectives and goals of the program.
(2) All occupants of the building are notified of the presence of ACBM, and the results of the survey.
(3) Employee training and education
(4) Scheduling of O & M activities
(5) Establishment of good work practices and procedures for cleaning, maintaining, renovating, remodeling, and repairing buildings where ACBM is present.
(6) Development and implementation of a respiratory protection program
(7) Periodic surveillance of ACBM remaining in the building, noting any changes in conditions.
(8) Maintenance of accurate records of all activities involving ACBM.

## 6.1 WRITTEN PROGRAM:

Once asbestos is identified in the building, and the decision is made to leave ACBM in the building, the O & M program, under the direction of the Local Educational Agency's Asbestos Program Manager, identifies all asbestos-related activities.

The written program for the Bourne Public Schools are based upon a physical inspection of each school which occurred between July and September, 1988. The inspection report provides a historical documentation for the school, and identifies the location and condition of all ACBM, and records previously documented abatement activities.

Notification: All occupants of the building must be notified of the presence of ACBM. Administrators of primary and secondary schools are required to inform employees and parent-teacher groups about friable ACBM, and to distribute specified instructions on handling ACBM to custodial and maintenance workers. This training will take place through the use of signs, information sessions, and distribution of notices.

Training: All maintenance and custodial workers will be trained in special procedures and work practices designed to minimize disturbance of ACBM, as well as the potential for exposure during routine maintenance activities. Levels of training will depend upon the nature of the task and the potential for disturbing ACBM. Training sessions are identified as a two-hour "general awareness" session, and an additional fourteen hour comprehensive training session.

Reinspection: Periodic surveillance of all remaining ACBM is an important portion of any O & M program. This reinspection is performed semiannually, at a minimum, to assess whether any physical changes have occurred in the condition of ACBM.

### 6.1.1 IMPLEMENTATION

A successful O & M program requires support from all levels of school management. The Business Manager, Mr. Robert Watmouth, has been identified as the Asbestos Program Manager for the Bourne Public Schools. The Asbestos Program Manager serves as the lead administrative person in the control program, and serves as the representative for the LEA to make certain that requirements under this section are properly implemented. (Section 763.84 g(1) ).

The Asbestos Program Manager may also serve as the Asbestos Project Coordinator, or may delegate that responsibility to a member of the Maintenance Department or Buildings and Grounds Department. The Asbestos Program Coordinator handles the day-to-day responsibilities under 40 CFR 763. The Coordinator shall be responsible at a minimum, for the following tasks:

(1) Arrange and coordinate training of all custodial and maintenance staff, and arrange for annual updates for new personnel since the previous training program. Ensure that new custodial or maintenance personnel are trained within 60 days of starting employment.

(2) Arrange for abatement procedures identified in the abatement/response section.
(3) Comply with all applicable local, state, OSHA, and EPA regulations pertaining to removal, repair, or enclosure of asbestos.
(4) Coordinate routine maintenance activities by in-house maintenance personnel.
(5) Make a decision in conjunction with the Asbestos Program Manager, to retain outside contractors in the event of a major release episode, or major planned abatement activities. Coordinate all work by outside firms during these periods.
(6) Ensure that short-term workers (non-school employees) who may come in contact with asbestos are provided information regarding the locations of ACBM and suspect ACBM.
(7) Ensure that workers and building occupants are informed annually about inspections, response actions, and post-response actions. including periodic reinspection and surveillance activities.
(8) Establish and implement a respiratory protection program for all affected custodial and maintenance employees.
(9) Obtain and maintain all specialized equipment needed to implement this plan, including HEPA vacuums, disposable coveralls, respirators, etc.
(10) Monitor all remaining ACBM in the building, and maintain all required warnings, notifications, signs, labels, and records as required by the EPA and OSHA.

## 6.2 BUILDING OCCUPANT NOTIFICATION

One of the most important aspects provided under the O & M program, is the notification of affected persons, that ACBM is present in the school building. There are specific requirements on transfer of this information. Notification may take place through posting of signs and labels, through information sessions, and by providing written notification. (Section 40 CFR 763.84c)

(1) The EPA requires that administrators of primary and secondary schools notify employees and parent-teacher groups about the presence of friable ACBM, and to provide specific handling instructions to custodial and maintenance workers (Asbestos-Containing Materials in Schools; Identification and Notification Rule 40 CFR 763.100- 763.119)

(2) Both EPA and OSHA require the LEA to notify all building occupants, the parents of school children, and contractors working in the building of the presence of ACBM, any abatement plans, and the location of the management plan for the school.

(3) The OSHA Asbestos Construction Standard and Hazard Communication Standard require notification of all contractor employees and school custodial and maintenance personnel of the potential to come in contact with asbestos. (29 CFR 1923.58 and 29 CFR 1910.120). AHERA extends coverage of the EPA Worker Protection Rule (40 CFR 763) to maintenance and custodial personnel in schools which are not covered by the OSHA Construction Standard. New maintenance employees must be informed and/or trained within 60 days of beginning work. The Asbestos Program Manager should notify the contractor in writing, and receive written acknowledgement that all employees of the contractor have been informed.

If the contractor is involved with the asbestos abatement activities, the written notification from the contractor must include the training and licensing of the asbestos workers and supervisor.

(4) Warning labels must be placed on ACBM and suspected ACBM assumed to be ACM located in routine maintenance areas (such as boiler rooms) at each school building. The signs are placed in accessible locations to alert and remind building occupants not to disturb ACBM. The labels may be placed on entrance doors to utility and mechanical rooms. The labels must say:

CAUTION: ASBESTOS. HAZARDOUS. DO NOT DISTURB WITHOUT PROPER TRAINING AND PROTECTIVE EQUIPMENT. AUTHORIZED PERSONNEL ONLY. (40 CFR 763.95)

## 6.3 EMPLOYEE TRAINING AND EDUCATION

All custodial and maintenance staff, and contract employees who work in the school system must be trained to use special work practices and procedures in handling asbestos. Training for other school personnel who may occasionally pass through areas where asbestos is present, such as teachers, and office personnel, is voluntary but recommended. Interested parents or representatives of parent-teacher groups may also be invited at the discretion of the LEA.

(1) Training takes place on two levels. The first is a two-hour "general awareness" session which must be attended by all maintenance and custodial personnel regardless of whether they work with asbestos, and may include the other persons identified above. It is recommended that this session be given annually. The two-hour session includes the following topics:

(a) Information on the uses and forms of asbestos in the schools
(b) Health effects associated with asbestos exposure.
(c) The specific locations of ACBM in the work areas of each school.
(d) The presence of any damage or deterioration of ACBM.
(e) The name and telephone number of the Asbestos Program Manager, and the location of the Management Plan for the Bourne Public Schools. The administrative offices are located at 36 Sandwich Road, Bourne, MA. 02532. The telephone number is (617) 759-4514.

(2) The Bourne Public Schools should identify one custodial or maintenance employee for each school or for the school system whose activities may include assignments which affect the disturbance of ACBM, or who may be involved in emergency asbestos repairs. These employees must have an additional 14 hours of training. This training should be repeated at three-year intervals or when a new employee is involved. This session should include the following:

(a) The overall scope and direction of the asbestos program for the Bourne Public Schools
(b) The requirements of the Operations & Maintenance program.
(c) Methods and procedures for handling and disposing ACBM.
(d) Proper selection and use of respiratory protection and protective clothing.
(e) The availability and use of special cleaning equipment such as HEPA vacuums, steam cleaners etc.
(f) Hands-on training in the proper use of respirators, protective equipment, work practices, and control of asbestos fiber release.

(g) Recordkeeping requirements, and generation of Work Orders through the Asbestos Program Manager.
(h) Training and licensing requirements under Commonwealth 453 CMR 6.0. Records must be maintained for each employee's training, indicating the date, location, course content, trainer(s), and any certifications issued from the training.

The regulations only specify that the "responsible person" serving as Asbestos Program Manager (and/or Coordinator) be properly trained in the hazards of asbestos. Attendance at a 24 hour training program by the Asbestos Program Manager is strongly recommended.

## 6.4 WORK PRACTICES FOR CLEANING, MAINTENANCE AND RENOVATION

This section describes the special work practices and procedures which are used by the maintenance personnel. The training is important to minimize fiber release. Cleaning conducted carelessly may cause damage to ACBM, releasing more fibers.

Cleaning: Cleaning activities are described as initial cleaning, periodic cleaning, minor release episodes, and major release episodes.

Initial Cleaning: The initial cleaning is to remove all asbestos debris from floors, walls, and other surfaces in areas where asbestos may have settled. This includes HEPA vacuuming of carpets and floors and wet cleaning of walls and surfaces. This is performed once before the O&M program starts in schools where damaged or significantly damaged thermal insulation is present.

Periodic Cleaning: HEPA vacuuming of affected areas as described above should be performed semiannually in areas of buildings where damaged thermal insulation is present.

Minor release episodes occur when less than 3 square feet or 3 linear feet of ACBM falls or is damaged, or when small amounts of debris fall on the floor, walls, or pipes. These releases may be handled by the appointed maintenance staff. The following procedures should be used:

(1) Restrict access to the area during cleanup. Post signs and use stanchons or barriers to keep out others.
(2) The proper protective equipment should be used, including full length Tyvek coveralls and respiratory protection.
(3) Any asbestos debris on the floor, walls, or pipes should be thoroughly wetted, carefully shoveled up and placed in a 6 mil asbestos disposal bag.
(4) The area should then be HEPA-vacuumed or steam cleaned. All debris, cleaning supplies, vacuum bags, protective clothing etc. should be placed in the disposal bag.
(5) Any damaged areas must be cleaned and repaired with asbestos-free materials.
(6) Clean all surfaces, fixtures or other components in the immediate work area with HEPA vacuum, or wet cleaning.

Major release episodes occur when more than 3 square feet or linear feet of asbestos falls or is damaged, or when large amounts of debris fall on the floor, pipes, etc. The following procedures should be used

(1) Immediately restrict access or prevent entry, post warning signs, and block off access by means of stanchons or barriers.
(2) Notify the Asbestos Program Manager for the Bourne Public Schools.
(3) Shut off the air handling equipment in the area of the release, and cover or block air supply and air return vents to prevent spread of the asbestos.
(4) The Asbestos Program Manager will assess the situation, and design the complete response action including notification of an outside contractor, selection of proper personnel protective equipment, and if necessary, make arrangements for evacuation of the school or a portion of the school.

There may also be emergency major release episodes which occur before during, or after occupancy of the school building by students, such as a hallway ceiling falling during classroom change. Immediate evacuation of the school, notification of the Superintendent's office, as well as Massachusettes DLI and EPA Asbestos Program for Region I in Boston. The clean-up program would then be implemented, using an outside contractor. Actions to minimize student exposure would include showering or HEPA vacuuming of clothing, and covering the floor with plastic to prevent trampling. Heavily contaminated clothing would be disposed of as contaminated.

There are no locations in the Bourne Public Schools where an emergency release episode is likely to occur. Large areas of friable surfacing ACBM in occupied student areas have not been observed or have been removed through earlier abatement projects.

Maintenance: There are three levels of maintenance activities which might involve asbestos: accidental disturbance of ACBM; small scale repair or removal of ACBM; and large scale repair or removal of ACBM. All maintenance activities which might cause accidental disturbance of ACBM; small scale manipulation of ACBM; or large scale manipulation of ACBM should only be performed by the designated individuals having the 14 hour training course.

The small scale manipulation is considered a "small-scale, short-duration" project for purposes of AHERA. In the Commonwealth of Massachusetts, this is defined as 3 linear feet or 3 square feet of ACM. The intent of this type of project is to allow the trained custodial or maintenance person to perform the work while school remains in operation during a removal. Typical activities defined by AHERA to be "small-scale, short-duration" include removal of one glove bag of pipe lagging or fittings; replacement of ACM gaskets on a valve; installation or removal of a small section of asbestos-containing dry wall; using an abrasive pad on a floor polisher to clean a floor surface prior to waxing; drilling of holes through Transite panelling; replacement of lights near ACM; replacement of lay-in acoustical tile which either contains ACM or is underneath known or

suspect ACM; or installation of electrical conduits through or near ACBM. To meet the exemption, the project must be one of the acceptable removal techniques which include glovebag, mini-enclosure, entire structure removal, or enclosure. Before any small scale manipulation of ACBM is performed, the custodian or maintenance person will assure that the following steps are taken:

(1) All contaminated objects are wet-wiped or HEPA vacuumed, and the general area itself cleaned or HEPA vacuumed.
(2) All moveable objects should be removed from the work area, and non-moveable objects covered with 6 mil plastic.
(3) The floor, and if required, the walls covered with two layers of 6 mil plastic extending well beyond the repair area, and secured with duct tape or adhesive spray.
(4) During any removal or repair, the work area should be thoroughly and frequently wetted with amended water, except where water cannot be used for safety reasons, such as near live electrical equipment.

Glovebag use should be taught as part of the 14-hour course, including proper training in glovebag removal. Mini-enclosures are used on short lengths of pipe where glovebags cannot be used. The mini-enclosure is used for one worker, and is constructed of plastic sheeting around a frame, with a built-in changing area, built around the location of the work, such as a pipe or ceiling. Negative air may be maintained in the mini-enclosure by means of a HEPA vacuum. Protective equipment requirements, and proper work practices are taught in the 14 hour course.

The large-scale manipulation projects should not be performed by any custodial or maintenance employee who has had just the 14-hour course. It should be performed only by a licensed abatement contractor in the Commonwealth.

There are general work practices which apply to all schools in the school system.

(1) Several schools in the school system were identified as containing vinyl asbestos floor tile. In many cases the surface of the tile appears to be abraded. Often, custodial employees will use abrasives to clean floor surfaces prior to the application of floor wax. This practice should be strongly discouraged, as it wears away the top tile surface, exposing the underlying matrix which may contain asbestos. Where a dull white finish is observed through the top surface of the tile, indicates that damage to the tile has occurred.

(2) Hammering or drilling through floor tile to fasten carpeting or other materials should be prohibited.

(3) Chairs and desks should be equipped with rubber feet or gliders to reduce damage to the floor tile surfaces.

(4) Efforts should be made to minimize storage of maintenance supplies in the portions of boiler rooms nearby boilers, breeching, headers, or other areas which might be damaged. This applies specifically to items such as ladders, chairs, desks, and other large items which might damage the surface.

(5) The storage of desks, chairs and other school supplies in pipe tunnels or chases where there is ACM should be discouraged. In addition to limiting access, movement of these items may cause damage to the surface.

(6) Where ladders are required in areas where thermal system ACBM has been documented, hinged-type ladders should be used if possible. Custodial employees are discouraged from leaning extension ladders against boilers, breeching, or headers.

## 6.5 RESPIRATORY PROTECTION

A formal respiratory protection program is required for the school system as a part of the O & M program, since custodial and maintenance employees will be required to use air-purifying respirators under certain conditions for small-scale short-duration projects involving asbestos. The OSHA Construction Standard requires use of respirators whenever exposure exceeds, or may be reasonably expected to exceed the Permissible Expoure Limit (0.2 fibers per cubic centimeter of air as an eight-hour time-weighted average exposure).

The OSHA Respiratory Protection Standard defines a "minimally acceptable respiratory protection program" which includes requirements for a written program, selection of the proper respirator, restrictions and limitations, use, cleaning, maintenance and storage of the respirator. All employees who will be using respiratory protection shall be trained in its proper use, and shall have a chance to don the respirator, including qualitative fit-testing before any assignment in which the respirator is required. All employees using respiratory protection should complete a course with this minimum content. All employees who use air-purifying respirators should receive a medical clearance from their physician at least once per two years. EnviroScience Consultants, Inc. will work with the Asbestos Program Manager to assure these requirements are implemented.

## 6.6 ROUTINE PERIODIC SURVEILLANCE

The custodial and maintenance staff serves as the eyes and ears for the asbestos program. They are likely to be the first persons to observe asbestos debris or newly damaged ACBM. Once the initial inspection has been completed, periodic inspections must be made to assure that the condition of the ACM in the building has not subtantially changed.

Routine periodic surveillance shall be conducted at least twice per year by the Asbestos Program Manager as assisted by the custodial or maintenance person assigned to the task. Any individual performing the periodic reinspection must have completed an EPA-approved 16 hour training course or received equivalent training for O & M and periodic reinspection. The inspection includes a visual examination of all areas identified in the management plan. Any change in the condition of the insulation shall be noted on the Periodic Surveillance Report, signed, and returned to the Asbestos Program Manager for inclusion in the management plan. A copy of the Periodic Surveillance Report is shown.

The visual inspection may be supplemented by periodic air sampling in suspect areas to find whether there is an actual exposure. Air sampling provides data on exposures at that instant, and should be used in combination with the inspections to give a good assessment.

In addition to the scheduled semiannual inspections, custodial and maintenance personnel should frequently make visual checks in work areas, and immediately report any visible debris or newly damaged areas to the Asbestos Program Coordinator without waiting for the semi-annual survey.

## 6.7 RECORDKEEPING REQUIREMENTS

Another important part of the O & M program is the need to keep detailed and accurate records of program activities and procedures. The recordkeeping portion also sets up the procedure to notify the Asbestos Program Manager, and to initiate small-scale, short-duration abatement projects.

The recordkeeping system must track two types of data- information on the physical condition of ACBM remaining in the school, and any corrective measures taken on the ACBM, and the data associated with personnel involved in the asbestos program for the Bourne Public Schools.

General Building Work Authorization/Asbestos Work Order: The Asbestos Program Manager is responsible for overseeing the entire O & M program for the Bourne Public Schools. A General Building Work Authorization must be obtained from the Asbestos Program Manager before any non-routine maintenance activity which might involve asbestos is involved. This gives the Program Manager the chance to determine whether ACBM may be involved. The Program Manager will check the management plan and approve the work. If ACBM is involved, the Program Manager will issue an Asbestos Work Order. This work order will identify the work to be performed, and will have an order number, so that any work may be audited in the future by the EPA or DLI. Copies of the General Building Work Authorization and Asbestos Work Order are shown.

The Asbestos Work Order identifies where the work is to be performed, what work is to be done, and the types of controls used to prevent the spread of airborne asbestos fibers. Either the names of the school employees or contract employees performing the work are to be identified on the Work Order. All Asbestos Work Orders become part of the management plan for the school, and are reviewed during the three-year reinspection of each school.

Whenever an asbestos project is to be performed, the Asbestos Program Manager must complete an Asbestos Project Notice (40 CFR 763.124). A copy of the notice must be submitted to the EPA and DLI at least ten days before planned abatement occurs, and within 48 hours after emergency abatement occurs. A copy of the Asbestos Project Notice is shown.

If asbestos removal from the school takes place, the Asbestos Program Manager must complete an Asbestos-Containing Building Materials Disposal Document. This form includes the location of the landfill, the name of the transporter, the asbestos work order number, and establishes a "chain-of-custody" to follow the ACBM from the point in which it is removed from the school to the ultimate disposal location. The Asbestos-Containing Building Materials Disposal Document is shown.

It is the responsibility of the Asbestos Program Manager to assure that these forms are all completed for any abatement project undertaken during the life of the O & M program.

OSHA also requires that records of employee exposure and medical surveillance be maintained for the length of employment plus 30 years. Sampling results must be provided to the employee, and the employee must be notified of his(her) right to see the medical files. In addition, several of the AHERA requirements including the program plan, work practices, respiratory protection, fiber release episodes etc. require written documentation to some degree. The Asbestos Program Manager should become familiar with these requirements, and assure they have been met.

# SAMPLE LOG and SAMPLE NOTES

DOCUMENT NUMBER: SL-1

Building Number and Name: B08 ADMINISTRATION BLDG

Sample Area/Lot Number and Name:

Drawing/Sketch Number and Name:

THIS IS A CHAIN-OF-CUSTODY DOCUMENT. PLEASE FILL OUT COMPLETELY AND SIGN ACCORDINGLY

PAGE 01 OF 01

| Sample Number | Receiver's Initials | Photo. Number | Description of Sampled Material | Sample Site Location |
|---|---|---|---|---|
| SDH 09-07-88 -18 TS | | | White fibrous homogeneous | Boiler Room - Debris on floor - lagging from pipes |
| SDH 09-23-88 -01 MI | | | Brown Homogeneous | Storage Building Floor Tile |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Receiving Analyst's Name: J. McGill

Receiving Analyst's Firm: EMSL

Receiving Analyst's Signature:

Date Samples Received: 9/26/88

Inspector's Name: Scott D. Herzog

Inspector's Firm: Enviro Science Consult.

Inspector's Signature: Scott Herzog

Date Samples Collected: 9/23/88 9/7/88

EMSL ELECTRON-MICROSCOPY SERVICE LABORATORIES INC.

108 HADDON AVENUE
WESTMONT, N.J.
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1056 STELTON ROAD
PISCATAWAY, N.J.
08858
201-981-0550

1800 PEACHTREE STREET
ATLANTA, GEORGIA
30309
404-355-4046

Wednesday, October, 5, 1988

EnviroScience Consultants, Inc.
66 Cedar Street
Newington, Ct. 06111

POLARIZED LIGHT MICROSCOPY (PLM) EPA METHOD 600/M4-82-020, December, 1982

PROJECT: #88-208 Bourne Public Schools

| SAMPLE# | LOCATION | APPEARANCE | SAMPLE TREATMENT | ASBESTOS TYPE | % | NONASBESTOS FIBROUS | % | NONFIBROUS | % |
|---|---|---|---|---|---|---|---|---|---|
| SDH-09-23-88-08 | | Grey Fibrous Homogeneous | Teased Apart | Chrysotile | 50 | Cellulose | 40 | Gypsum | 10 |
| SDH-09-23-88-09 | | Brown Nonfibrous Heterogeneous | Crushed | None Detected | | Cellulose | < 1 | Quartz<br>Gypsum<br>Other | 30<br>30<br>40 |
| SDH-09-22-88-01 | | Brown Nonfibrous Heterogeneous | Crushed | Chrysotile | 5 | Cellulose | 5 | Quartz<br>Gypsum | 30<br>60 |
| SDH-09-22-88-02 | | Brown Nonfibrous Heterogeneous | Crushed | Chrysotile | 1 | Cellulose | 4 | Quartz<br>Gypsum | 30<br>65 |
| SDH-09-22-88-03 | | Brown Nonfibrous Heterogeneous | Crushed | Chrysotile | 5 | Cellulose | 5 | Quartz<br>Gypsum<br>er | 10<br>20<br>60 |
| SDH-09-22-88-04 | | Brown Nonfibrous Heterogeneous | Crushed | Chrysotile | 5 | | | Quartz<br>Gypsum<br>Other | 40<br>30<br>25 |

Comments:

Dirk Shelmire
Analyst

Peter Frasca, PH.D.
President

DISCLAIMER: PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed . Tiles and wipes should be testedwith either SEM or TEM .

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Wednesday, September, 21, 1988

EnviroScience Consultants, Inc.
66 Cedar Street
Newington, Ct. 06111

POLARIZED LIGHT MICROSCOPY (PLM) EPA METHOD 600/M4-82-020, December, 1982

PROJECT: Bourne Public School

| SAMPLE# | LOCATION | APPEARANCE | SAMPLE TREATMENT | ASBESTOS TYPE | % | NONASBESTOS FIBROUS | % | NONFIBROUS | % |
|---|---|---|---|---|---|---|---|---|---|
| SDH-09-07-88-15 | | Red Fibrous Homogeneous | Dissolved | Chrysotile | 15 | Cellulose | 5 | Quartz<br>Matrix | 40<br>40 |
| SDH-09-07-88-16 | | Grey Fibrous Homogeneous | Teased Apart & Crushed | Chrysotile | 80 | | | Gypsum | 20 |
| SDH-09-07-88-17 | | Grey Fibrous Homogeneous | Teased Apart | None Detected | | Cellulose<br>Other | 90<br>5 | Other | 5 |
| SDH-09-07-88-18 | | Brown Fibrous Homogeneous | Dissolved | Chrysotile | 10 | Cellulose | 10 | Quartz<br>Matrix | 20<br>60 |
| SDH-09-09-88-01 | | Green Fibrous Homogeneous | Dissolved | Chrysotile | 20 | | | Quartz<br>Matrix | 40<br>40 |
| SDH-09-09-88-02 | | Tan Fibrous Homogeneous | Dissolved | Chrysotile | 15 | Cellulose | 5 | Quartz<br>Matrix | 40<br>40 |

Comments:

Marty Mastovich
Analyst

Peter Frasca, PH.D.
President

DISCLAIMER: PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed . Tiles and wipes should be testedwith either SEM or TEM .

BOURNE 04 (B04)

PG 1.

ENVIROSCIENCE CONSULTANTS
66 CEDAR STREET
NEWINGTON, CT 06111

SCHOOL ADMINISTRATION
LOCATION _____

DATE _____

| ROOM/LOCATION | CEILING | WALLS (SURFACING) | FLOOR | THERMAL SYSTEM, MISCELLANEOUS |
|---|---|---|---|---|
| ADMINISTRATION BLDG HOUSE. IT HAS A CONVENTIONAL FOUNDATION WITH WOOD SHINGLE EXTERIOR AND CONVENTIONAL ROOF. THERE ARE TWO FLOORS ABOVE GROUND AND A HALF FLOOR BELOW GROUND PARTIALLY | | IS A TWO STORY CONVERTED SINGLE FAMILY | CONVERTED TO OFFICES. | |
| MENS ROOM | 2x4 LAT-FG UNDER CEMENTON LATHE | GLAZED TILE | CERAMIC TILE | 1 FMR- HOT WATER NO INSULATED LINES<br>1 ACCESS DOOR- TO WATER METER- NO INSULATED LINES |
| STOREROOM | 2x4 LAT F.G. UNDER CEMENTON LATHE | WALLBOARD | CEMENT | N/A |
| BOILER ROOM | CEMENTITIOUS ON LATHE | | FURN/ | 1 SMALL OIL FIRED BOILER TO A HOT WATER CLOSED LOOP CIRCULATING SYSTEM. |
| | | | | 5 ZONES EA. W/ MANUAL SHUT-OFF VALVE. PIPES ARE CURRENTLY |
| | | | | UNINSULATED BUT APPEAR TO HAVE ACM REMOVED. CLUMPS OF DEBRIS READILY |
| | | | 10% CHRYSOTILE | VISIBLE ON PIPING AND FLOOR BENEATH NEEDS TO BE CLEANED AND ENCAPSULATED |
| | | | 09-07-88-18 → | |
| | | | | BREECHING IS NOT INSULATED, SMALL AMT OF SUSPECT ACBM CEMENT AROUND CHIMNEY IS HARD AND CEMENTITIOUS |

ENVIROSCIENCE CONSULTANTS
66 CEDAR STREET
NEWINGTON, CT 06111

Pg 2

DATE _____

SCHOOL _____
LOCATION _____

| ROOM/LOCATION | CEILING | WALLS (SURFACING) | FLOOR | THERMAL SYSTEM, MISCELLANEOUS |
|---|---|---|---|---|
| WOMENS ROOM | 2x4 LAT-PG UNDER CEMENTITIOUS | GLAZED TILE | CERAMIC TILE | 1 FMR<br>1 HOT WATER HEATER-<br>ALL LINES RUBBER |
| | | | | INSULATED. NO ACM. |
| OFFICE AREA | SAME | WALLBOARD | CARPETING OVER CEMENT | FMR's - NO INSULATED LINES → |
| MR WATMOUTH. | PLASTER | BRICK. | SAME | SAME |
| HALLWAY | PLASTER/ CEMENTITIOUS | WALLBOARD | SAME | 1 FMR-NO INSULATED LINES- |
| 1ST FLOOR OFFICE AREA | PLASTER (ROUGH SURFACE) | WALLBOARD | CARPET OVER WOOD | FMR's-NO INSULATED LINES TO BASEMENT |
| | PANELING OVER WALLBOARD | | | |
| 2ND FLOOR CORRIDOR | SAME | SAME | CARPET OVER PLYWOOD | FMR-NO INSULATED LINES TO BASEMENT |
| BATHROOM | SAME | PANELING | CERAMIC TILE | |

ENVIROSCIENCE CONSULTANTS
66 CEDAR STREET
NEWINGTON, CT 06111

DATE _____

SCHOOL _____
LOCATION _____

Pg. 3

| ROOM/LOCATION | CEILING | WALLS (SURFACING) | FLOOR | THERMAL SYSTEM/ MISCELLANEOUS |
|---|---|---|---|---|
| FRONT OFFICE | SAME | WALLBOARD | CARPETING OVER WOOD | FMR - NO INSULATED LINES TO BASEMENT |
| MEETING ROOM | SAME | WALLBOARD | CARPET OVER PLYWOOD | 2 FMR's - NO INSULATED LINES TO BASEMENT |
| ATTIC | WOOD | WOOD | WOOD | BLOWN-IN FG. |
| REAR OFFICE | ROUGH PLASTER FINISH OVER WALLBOARD | WALLBOARD | CARPETING OVER WOOD | FMR - NO INSULATED LINES TO BASEMENT. |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

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NEWINGTON, CT 06111

SCHOOL STORAGE BUILDINGS - ① PEEBLES BROWN MAINTENANCE BLDG
LOCATION _____ ② STORAGE SHED
③ KATAMET FIELD-

| ROOM/LOCATION | CEILING | WALLS (SURFACING) | FLOOR | THERMAL SYSTEM/ MISCELLANEOUS |
|---|---|---|---|---|
| ① MAIN ROOM | CELLULOSE TILE/ WALLBOARD UNDER ROOF | WALLBOARD | CEMENT | N/A |
| BATHROOM | SAME | SAME | 9" TAN SPECKLED VINYL PLRTILE MED WEAR. A LITTLE WATER DAMAGE | |
| | | | | |
| FURNACE | INTERNATIONAL FURNACE - DUCTWORK NON INSULATED. VISIBLE ACBM. HAS FIBERFRAX LINER IN FURNACE | | #4 OIL FORCED AIR BREECHING TO STACK - NO | |
| ATTIC | ALL WATER PIPES UNINSULATED. WOOD RAFTERS | | FG BATTS - | |
| | 2-STORY BLDG W/ CONC. FOUNDATION AND SHINGLE EXTERIOR. AND WOOD ROOF | | | |
| ③ RIGHT BAY GARAGE: | 12'X16' SECT. TRANSITE PANELLING ON CEILING. | | | |
| | NAILED TO FIRRING BELOW WOOD CLNG. N.D. GOOD | | | |
| FURNACE: | CONDITION. OIL FIRED FURNACE W/ BECKETT BURNER INSTALLED NEW FIBERFRAX LINER LAST YEAR. ALL DUCTWORK GALVANIZED, NON INSULATED. FORCED AIR HEAT DUCTWORK ALUMINUM, NON INSULATED | | | |