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ASBESTOS CONTAINING MATERIAL RE-INSPECTION BUILDING 34 VOLUME 6 CNC CHARLESTON SC

2/15/2000

BAT ASSOCIATES, INC.

Volume 6

Asbestos-Containing Material Re-inspection For Building 34 Charleston Naval Shipyard Charleston, South Carolina

Contract No. N2467-96-D-0998
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Prepared for:

Department of the Navy
Southern Division
NAVFACENGCOM
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1.0 EXECUTIVE SUMMARY

BAT Associates, Inc. (BAT) was retained by the U.S. Department of the Navy, Southern Division (SouthDiv), Naval Facilities Engineering Command (NAVFACENGCOM) to perform an asbestos-containing material (ACM) re-inspection of Building 34 located at the Charleston Naval Shipyard (CNS) in Charleston, South Carolina.

A list of ACM identified in Building 34 is summarized in Table 1.0.

Table 1.0
Summary of Identified ACM

HA No.	Material Description	Sample Analysis Results	Approx. Quantity of ACM	NESHAP Category
1	Floor Tile, 9" x 9" black w/ black mastic	Tile= 7% chrysotile, Mastic= 2% chrysotile	21,000 SF	Category I, non-friable
2	Floor Tile, 9" x 9" red w/ black mastic	Tile= NAD, Mastic= 3% chrysotile	90 SF	Category I, non-friable
3	Floor Tile, 12" x 12" off-white with beige streaks w/ black mastic	Tile= 5% chrysotile, Mastic= 5% chrysotile	14,240 SF	Category I, non-friable
4	Floor Tile, 12" x 12" dark blue with white streaks w/ black mastic	Tile= 2% chrysotile, Mastic= 10% chrysotile	5,600 SF	Category I, non-friable
5	Floor Tile, 12" x 12" yellow w/ black mastic	Tile= 2% chrysotile, Mastic= 10% chrysotile	460 SF	Category I, non-friable
6	Floor Tile, 12" x 12" red w/ black mastic	Tile= NAD, Mastic= 5% chrysotile	510 SF	Category I, non-friable
7	Floor Tile, 12" x 12" black w/ black mastic	Tile= 5% chrysotile, Mastic= 3% chrysotile	630 SF	Category I, non-friable
8	Floor Tile, 12" x 12" green with white streaks w/ black mastic	Tile= 5% chrysotile, Mastic= 5% chrysotile	225 SF	Category I, non-friable
9	Floor Tile, 12" x 12" off-white with white streaks w/ black mastic	Tile= 10% chrysotile, Mastic= 1-2% chrysotile	7,000 SF	Category I, non-friable
12	Sheet Flooring, brown with dark brown pattern	Flooring= NAD, Mastic= 10% chrysotile	170 SF	Category I, non-friable
20	Pipe Fitting Insulation, 3" white with canvas wrap on domestic water	Assumed to contain asbestos due to the inaccessibility of the material in walls	375 EA	Regulated, Friable
21	Pipe Fitting Insulation, 3" white with canvas wrap on steam	15-20% chrysotile, 15-20% amosite	300 EA	Regulated, Friable
22	Pipe Insulation, 12" with metal wrap	Layer 1= 15% amosite, Layer 2= NAD	160 LF	Regulated, Friable

NOTES: HA = Homogeneous Area SF = Square Feet LF = Linear Feet
EA = Each

1. One percent or less asbestos content is considered a non-asbestos-containing material by EPA and the State of South Carolina.
2. Federal and state regulations require a minimum of three non-asbestos-containing analysis results per homogeneous area (material) to classify that material as being a non-asbestos-containing material.

However, one "positive" asbestos-containing analysis result would classify that material as being an asbestos-containing material.

3. No Quality Control discrepancies were noted.

BAT recommends the following management actions for the identified ACM in Building 34 in Table 2.0.

Table 2.0
Recommended Response Actions

HA No.	Material Description	Recommended Response Action
1	Floor Tile, 9" x 9" black w/ black mastic	Remove prior to renovation or demolition
2	Floor Tile, 9" x 9" red w/ black mastic	Remove prior to renovation or demolition
3	Floor Tile, 12" x 12" off-white with beige streaks w/ black mastic	Remove prior to renovation or demolition
4	Floor Tile, 12" x 12" dark blue with white streaks w/ black mastic	Remove prior to renovation or demolition
5	Floor Tile, 12" x 12" yellow w/ black mastic	Remove prior to renovation or demolition
6	Floor Tile, 12" x 12" red w/ black mastic	Remove prior to renovation or demolition
7	Floor Tile, 12" x 12" black w/ black mastic	Remove prior to renovation or demolition
8	Floor Tile, 12" x 12" green with white streaks w/ black mastic	Remove prior to renovation or demolition
9	Floor Tile, 12" x 12" off-white with white streaks w/ black mastic	Remove prior to renovation or demolition
12	Sheet Flooring, brown with dark brown pattern	Remove prior to renovation or demolition
20	Pipe Fitting Insulation, 3" white with canvas wrap on domestic water	Remove prior to renovation or demolition
21	Pipe Fitting Insulation, 3" white with canvas wrap on steam	Remove prior to renovation or demolition
22	Pipe Insulation, 12" with metal wrap	Remove prior to renovation or demolition

Other suspect ACM not identified could be present in areas of the building inaccessible to the asbestos building inspectors. For example, materials could exist in walls and other locations where access could only be gained by demolition of the building. Also, other materials currently not recognized by the asbestos building inspection industry could exist.

The total estimated cost for the removal of the identified and/or assumed ACM in Building 34 is approximately $157,000. See Section 10.0 for a break down of the preliminary cost estimate for the removal of the identified or assumed ACM.

2.0 BUILDING INSPECTION INFORMATION FORM

Building Name:	Barracks
Building Number:	34
Facility:	Charleston Naval Shipyard
Building Area (square footage):	35,880
Year Built:	1959
Building Type:	Living Quarters
No. of Floors in Building:	Three
Purpose of ACM Survey:	Re-Inspection
Facility Unit Identification Code (UIC):	N/A

Building Contact:	Mr. Matthew Humphrey
Contact's Telephone No.:	(843) 743-9985
Building Survey Date(s):	November 22, 1999 and January 28, 2000

Asbestos Inspector's Name:	Mr. Jason McGlashan and Mr. Foshie Bell
Asbestos Inspector's Accreditation No:	GA2900
Inspection Company:	BAT Associates, Inc.
Company Telephone No.	(770) 242-3908

3.0 INTRODUCTION

BAT Associates, Inc. (BAT) was retained by the U.S. Department of the Navy, Southern Division (SouthDiv), Naval Facilities Engineering Command (NAVFACENGCOM) to perform an asbestos-containing material (ACM) re-inspection of all buildings located at the Charleston Naval Shipyard in Charleston, South Carolina. The purpose of this re-inspection was to:

1. Perform a comprehensive ACM re-inspection of 34 buildings in accordance with Federal and U.S. Navy requirements;
2. Assess the condition of previously identified friable and non-friable ACM; and
3. Provide a preliminary cost estimate for the removal of identified ACM.

The re-inspection was performed in accordance with the Navy's Asbestos Facility Inventory/Assessment Protocol (NEESA 70.2-010) and the U.S. Environmental Protection Agency's (USEPA) Asbestos Hazard Emergency Response Act (AHERA) and the Asbestos School Hazard Abatement Reauthorization Act (ASHARA).

The results of the re-inspection survey are presented in 24 separate volume reports. This report describes the results for Building 34.

This re-inspection survey was performed by Mr. Jason McGlashan and Mr. Foshie Bell, under the direct supervision of Mr. Douglas J. Milton, CIH, on November 22, 1999 and January 28, 2000. Mr. McGlashan is an accredited building inspector. Mr. Bell is an accredited asbestos building inspector and management planner. Mr. Milton, a Certified Industrial Hygienist, is an accredited asbestos inspector, management planner, and project designer.

This report discusses the sampling methodology used during the re-inspection and assessment (Section 4.0); a list of all identified suspect materials (Section 5.0); a summary of the bulk sample analysis results (Section 6.0); results of quality control sampling; (Section 7.0); physical assessments of the identified ACM (Section 8.0); a hazard assessment of the identified ACM (Section 9.0); preliminary cost estimates for removal (Section 10.0); and conclusions (Section 11.0). Appendix A contains drawings identifying the location of collected bulk samples and the locations of identified ACM. Appendix B contains photographic documentation of identified ACM. Appendix C contains personnel and laboratory accreditations. Appendix D contains laboratory analysis results.

The assessment protocol for ACM involved three distinct steps:

1. Performed preliminary walk-though of the building to identify suspect ACM and to determine the amount of suspect ACM, to define the number of samples to be collected, to identify access problems (e.g., collection of samples in a limited access pipe chase below the building), and to determine the degree of personal protection necessary for the bulk sample collection.

2. Visually inspected the building for ACM to identify the location of the suspect ACM and to determine if the material was friable or non-friable. Suspect materials were then categorized according to the EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) for asbestos as: Category I non-friable materials, Category II non-friable materials, and Regulated (friable) Asbestos-Containing Materials (RACM).

3. Collected bulk samples for the analysis for asbestos content (see Section 4.0, *Sampling Methodology*, for details).

4.0 SAMPLE METHODOLOGY

Representative, randomly selected bulk samples were collected in accordance with the Navy's and AHERA sampling protocol, as described in 40 CFR 343.34, and in accordance with BAT's contract requirements. Bulk samples were collected from homogenous areas (materials) in a manner that minimized any release of airborne asbestos fibers. A homogeneous area (material) is defined as a material uniform in size, color and texture.

The minimum number of samples collected from each homogeneous area was as follows:

1. *Friable Spray-Applied or Trowel-Applied Material* (including plaster)

   a. Less than or equal to 1,000 Square Feet (S.F.) = 3 samples
   b. Greater than 1,000 S.F and less than or equal to 5,000 S.F.= 5 samples
   c. Greater than 5,000 = 7 samples

2. *Pipe and Duct Insulation*

   a. Three samples per homogeneous area of insulation.

3. *Elbows, Valves, Fittings, and Connection Mud*

   Three representative samples from each type of insulated elbow, valve, fitting, and connection mud.

4. *Boiler, Tanks, and Furnaces*

   A minimum of 3 samples per unit.

5. *Patchwork*

   Patchwork is defined as a patch or repair to existing material based on the following quantities:

a. Surfacing material patches are limited to a maximum of 6 S.F.
b. Pipe and duct insulation patches are limited to a maximum of 6 Linear Feet (L.F.) or 6 S.F.
c. Boiler, tank, and furnace patches are limited to 6 S.F.

If the patchwork exceeded the limits prescribed above, it was sampled according to the homogeneous area protocol in items 1 to 4 above. If a material qualifies as patchwork, a single sample was collected per patch.

6. *Ceiling or Acoustical Tile*

3 samples

7. *Miscellaneous Friable Material*

3 samples

8. *Non-Friable Material*

Non-friable materials for purpose of this survey included Transite-type panels, floor tiles, floor tile mastic, and other miscellaneous materials.

Minimum of 3 samples.

The procedures followed for collection of each bulk sample is outlined briefly below:

1. The accredited inspector collecting the sample was equipped with the appropriate personal protective equipment. This included a half-mask air-purifying respirator, protective gloves and protective eyewear.

2. The surface of the material being sampled was wetted with amended water (containing a surfactant to aid penetration) mist to lessen the risk of fiber release during sampling.

3. Each sample was extracted using the appropriate equipment, (e.g., a sample container, knife, core borer). Care was taken to insure that all layers of the suspect materials, down to the substrate, were included in the sample.

4. Each sample was placed in an individual container, which was then sealed and labeled with a unique identification number which was also recorded on the sample data log-in sheet.

5. After each sample was collected, the area immediately surrounding the sampling location was inspected for debris and wet-cleaned as necessary to lessen the risk of an airborne fiber release.

6. All necessary data were recorded on the BAT Suspect Material Inventory Form including sample number, sample location, type of suspect material, name of inspector collecting the sample and other relevant information.

7. Samples were then transported to Cape Environmental Management Inc. (CAPE) Asbestos Laboratories in Atlanta, Georgia, for Polarized Light Microscopy (PLM) analysis. The CAPE Asbestos Laboratory participates in the National Voluntary Laboratory Assurance Program (NVLAP) for the analysis of asbestos content in suspect materials. CAPE's NVLAP Laboratory Code is 102111-0.

8. BAT collected duplicate samples during the collection of primary bulk sampling for quality control (QC) purposes. QC samples were collected at ten percent of the bulk sample locations. They were assigned unrelated sample identification numbers and analyzed by Analytical Environmental Services, Inc. (AES). AES participates in the National Voluntary Laboratory Assurance Program (NVLAP) for the analysis of asbestos content in suspect materials. AES's NVLAP Laboratory Code is 102033-0.

9. Upon receipt by the laboratory, the samples were logged in and assigned a unique laboratory identification number. The laboratory analyzed the samples in accordance with 40 CFR 343.87 subpart F. Copies of the laboratory accreditations for both laboratories may be found in Appendix C.

5.0 ASBESTOS INVENTORY AND ASSESSMENT

Table 3.0 describes the suspect ACM identified in and around Building 34.

Table 3.0
Summary of Identified Suspect ACM

HA No.	Description of Suspect ACM	Location of Suspect ACM	AHERA Category of Material
1	Floor Tile, 9"x 9" black w/ black mastic	Throughout the building, under HA # 3, 8, 9, and 10	Misc.
2	Floor Tile, 9" x 9" red w/ black mastic	First floor, stairwell # 1	Misc.
3	Floor Tile, 12"x 12" off-white with beige streaks w/ black mastic	First floor, rooms and corridors; second floor, scrub room and one west wing room; third floor, rooms and corridors (over HA # 1)	Misc.
4	Floor Tile, 12" x 12" dark blue with white streaks w/ black mastic	First floor, corridor; second floor, scrub room and one west wing room	Misc.
5	Floor Tile, 12" x 12" yellow w/ black mastic	First floor, two east wing rooms	Misc.
6	Floor Tile, 12" x 12" red w/ black mastic	Second floor, corridor	Misc.
7	Floor Tile, 12" x 12' black w/ black mastic	First floor, bag room; third floor, corridor	Misc.
8	Floor Tile, 12" x 12" green with white streaks w/ black mastic	First floor, room east of scrub room (over HA # 1)	Misc.
9	Floor Tile, 12" x 12" off-white with white streaks w/ black mastic	Second floor, rooms and corridors (over HA # 1)	Misc.
10	Floor Tile, 12" x 12" beige with brown streaks w/ black mastic	Second and third floors, janitor closet	N/A
11	Floor Tile, 12" x 12" off-white w/ black mastic	First floor, day room	N/A
12	Sheet Flooring, brown with dark brown pattern	First floor, office	Misc.
13	Drywall, on walls	Throughout the building	N/A
14	Joint Sealer Compound, on drywall	Throughout the building	N/A
15	Mastic on Sink, black	Second floor, writing room	N/A
16	Spray-Applied Ceiling Finish	First floor, office	N/A
17	Ceiling Tile, 2' x 4' white suspended groove and pinhole (new)	Third floor, writing room	N/A
18	Ceiling Tile, 2' x 2' white suspended groove and pinhole (old)	All floor corridors	N/A
19	Ceiling Tile, 2' x 2' white suspended groove and pinhole (new)	All floor corridors	N/A
20	Pipe Fitting Insulation, 3" white with canvas wrap on domestic water	All floors, in walls behind all water fixtures	TSI
21	Pipe Fitting Insulation, 3" white with canvas wrap on steam	Piping to all wall mounted radiators	TSI

HA No.	Description of Suspect ACM	Location of Suspect ACM	AHERA Category of Material
22	Pipe Insulation, 12" with metal wrap	In crawl space and between buildings 34 and 35	TSI
23	Window Glazing, interior	On all interior windows	N/A
24	Tank Insulation	In exterior mechanical room	N/A
25	Roof, built-up	Roof	N/A

Notes: Misc. = Miscellaneous Material N/A = Not Applicable

6.0 SUMMARY OF SAMPLE ANALYSIS RESULTS

Table 4.0 contains a summary of the bulk sample analysis results for suspect ACM identified in this building. Sample identification numbers do not necessarily match the building number since barracks 31, 32, 33, 34, 35, and 36 are of similar construction, have the same square footage, and the same construction date and were inspected as one unit.

All thermal system insulation (TSI), if present, was classified as friable material. As long as the outer covering remains intact and is in good condition the TSI can be considered non-friable (29 CFR 343.85). Ceiling tile, if asbestos is present was considered a friable material. However, if non-friable materials are drilled, sawed, ground or otherwise physically or mechanically disturbed, they may release asbestos fibers to the environment and therefore would be considered a friable material.

According to AHERA protocol, all samples within a homogeneous area must have an asbestos content of one percent or less by weight using Polarized Light Microscopy (PLM) analysis before the material can be categorized as non-asbestos-containing. If one sample is determined as asbestos-containing using PLM analysis, the entire homogeneous area must be classified asbestos-containing.

Table 4.0
Summary of Sample Analysis Results

HA No.	Sample ID No.	Suspect Material Description	Asbestos Content	Friability
1	31-5-1	Floor Tile, 9"x 9" black w/ black mastic	Tile= 7% chrysotile, Mastic= 2% chrysotile	Non
2	32-6-1, 32-6-2, 32-6-3	Floor Tile, 9" x 9" red w/ black mastic	Tile= NAD, Mastic= 3% chrysotile	Non
3	34-3-1, 34-3-2	Floor Tile, 12"x 12" off-white with beige streaks w/ black mastic	Tile= 5% chrysotile, Mastic= 5% chrysotile	Non
4	34-4-1	Floor Tile, 12" x 12" dark blue with white streaks w/ black mastic	Tile= 2% chrysotile, Mastic= 10% chrysotile	Non
5	34-5-1	Floor Tile, 12" x 12" yellow w/ black mastic	Tile= 2% chrysotile, Mastic= 10% chrysotile	Non
6	34-6-1, 34-6-2, 34-6-3	Floor Tile, 12" x 12" red w/ black mastic	Tile= NAD, Mastic= 5% chrysotile	Non

HA No.	Sample ID No.	Suspect Material Description	Asbestos Content	Friability
7	32-8-1, 32-8-2, 32-8-3	Floor Tile, 12" x 12' black w/ black mastic	Tile= 5% chrysotile, Mastic= 3% chrysotile	Non
8	34-8-1, 34-8-2	Floor Tile, 12" x 12" green with white streaks w/ black mastic	Tile= 5% chrysotile, Mastic= 5% chrysotile	Non
9	31-2-1	Floor Tile, 12" x 12" off-white with white streaks w/ black mastic	Tile= 10% chrysotile, Mastic= 1-2% chrysotile	Non
10	34-10-1, 34-10-2, 34-10-3	Floor Tile, 12" x 12" beige with brown streaks w/ black mastic	Tile= NAD, Mastic= NAD	N/A
11	34-11-1, 34-11-2, 34-11-3	Floor Tile, 12" x 12" off-white w/ black mastic	Tile= NAD, Mastic= NAD	N/A
12	34-12-1, 34-12-2, 34-12-3	Sheet Flooring, brown with dark brown pattern	Flooring= NAD, Mastic= 10% chrysotile	Non
13	31-10-1, 31-10-2, 31-10-3	Drywall, on walls	NAD	N/A
14	31-11-1, 31-11-2, 31-11-3	Joint Sealer Compound, on drywall	NAD	N/A
15	35-24-1, 35-24-2, 35-24-3	Mastic on Sink, black	NAD	N/A
16	33-11-1, 33-11-2, 33-11-3	Spray-Applied Ceiling Finish	NAD	N/A
17	31-7-1, 31-7-2, 31-7-3	Ceiling Tile, 2' x 4' white suspended groove and pinhole (new)	NAD	N/A
18	31-6-1, 341-6-2, 31-6-3	Ceiling Tile, 2' x 2' white suspended groove and pinhole (old)	NAD	N/A
19	34-19-1, 34-19-2, 34-19-3	Ceiling Tile, 2' x 2' white suspended groove and pinhole (new)	NAD	N/A
20	Assumed	Pipe Fitting Insulation, 3" white with canvas wrap on domestic water	Assumed to contain asbestos due to the inaccessibility of the material in walls	Friable
21	33-3-1, 33-3-2, 33-3-3	Pipe Fitting Insulation, 3" white with canvas wrap on steam	15-20% chrysotile, 15-20% amosite	Friable
22	Exterior Pipe-32	Pipe Insulation, 12" with metal wrap	Layer1= 15% amosite, Layer 2= NAD	Friable
23	36-4-1, 36-4-2, 36-4-3	Window Glazing, interior	NAD	N/A
24	B34-S1, B34-S2, B34-S3	Tank Insulation	NAD	N/A
25	36-15-1, 36-15-2, 36-15-3	Roof, built-up	NAD	N/A

Notes: NAD = No Asbestos Detected N/A = Not Applicable

7.0 RESULTS OF QUALITY CONTROL SAMPLING

The purpose of quality control (QC) sampling was to ensure reproducibility of the primary laboratory analysis results. Duplicate samples were collected for ten percent of the total building samples for QC purposes.

Table 5.0
Validation of Quality Control Sampling

Sample I.D. No.	Primary Laboratory Analysis Results	QC Laboratory Analysis Results
34-4-1QC	Tile= 2% chrysotile, Mastic= 10% chrysotile	Tile= 4% chrysotile, Mastic= 6% chrysotile
34-6-1QC	Tile= NAD, Mastic= 5% chrysotile	Tile= NAD, Mastic= 7% chrysotile
34-5-1QC	Tile= 2% chrysotile, Mastic= 10% chrysotile	Tile= 5% chrysotile, Mastic= 3% chrysotile

Notes: QC = Quality Control NAD = No Asbestos Detected

No discrepancies between primary laboratory and quality control laboratory bulk sample analysis were noted.

8.0 PHYSICAL ASSESSMENT OF IDENTIFIED ACM

The following sections contain a summary of the methodology BAT specialists used to conduct the physical assessment for this building. This methodology was developed in accordance with USEPA AHERA re-inspection requirements contained in 40 CFR Part 343.85.

1. Physical Assessment for Friable ACM.

   A. **Condition.** Friable ACM were assigned to one of the following categories based on a visual inspection and touch test:

      1) **Significantly Damaged Condition.** Material which met one or both of the following characteristics:

         a. Ten percent (10%) or more of the material in the functional space is crumbled, blistered, or is hanging from the surface, deteriorated, showing adhesive failure, water stained, gouged or marred, and the damage is evenly distributed.

         b. Twenty-five percent (25%) or more of the material in the functional space is crumbled, blistered, or is hanging from the surface, deteriorated, showing adhesive failure, water stained, gouged or marred, and the damage is localized.

      2) **Damaged Condition.** Material which met one or both of the following characteristics:

         a. The surface is crumbling, blistered, water stained, gouged or marred, or otherwise damaged on less than ten percent (10%) of the material in the functional space (but material is too damaged to be characterized as good condition) and the damage is evenly distributed.

         a. The surface is crumbling, blistered, water stained, gouged or marred, or otherwise damaged on twenty-five percent (25%) or more of the material in the functional space (but material is too damaged to be characterized as good condition) and the damage is localized.

      3) **Good Condition.** Material with very limited, or no visible damage or deterioration.

   B. **Potential for Disturbance.** Friable ACM were assigned to one of the following categories based on a visual inspection and assessment of surroundings:

1) **Potential for Significant Damage.** Material which met one or more of the following conditions:

   a. High potential for Contact. Service workers are in the vicinity of the material more than once each week or the material is in a public area and is accessible to building occupants.

   b. High Potential for Vibration. Loud motors or engines present in the vicinity of the material or there are intrusive noises or easily sensed vibrations from surrounding area, such as nearby highways or airports.

   c. High Potential for Air Erosion. High velocity air moving across or against materiai.

2) **Potential for Damage.** Material which met one or more of the following conditions for potential for significant damage:

   a. Moderate Potential for Contact. Service workers are in the vicinity of the material at least once each month, but less than once each week or the material is in a room or office and is accessible to the occupants.

   b. Moderate Potential for Vibration. Motors or engines present but not obtrusive or occasional loud noise in the vicinity of the material.

   c. Moderate potential for Air Erosion. Noticeable movement of air across or against material, but not high in velocity.

3) **Low Potential for Damage.** Material which met one or more of the following conditions and met none of the conditions for potential for significant damage or potential for damage:

   a. Low Potential for Contact. Service workers are in the vicinity of the material less than once each month or the material is visible but not accessible to the building occupants in the course of normal activity.

   b. Low Potential for Vibration. None of the conditions for high or moderate potential for vibration are met.

   c. Low Potential for Air Erosion. None of the conditions for high or moderate potential for air erosion are met.

2. Physical Assessment for Thermal ACM.

A. **Condition.** Thermal ACMs were assigned to one of the following categories based on a visual inspection:

1) **Significantly Damaged Condition.** Material which met one or both of the following characteristics:

a. Missing jackets, crushed, heavily gouged, or punctured insulation on equal to or greater than ten percent (10%) of the material in the functional space, and the damage is evenly distributed.

b. Missing jackets, crushed, heavily gouged, or punctured insulation on equal to or greater than twenty-five percent (25%) of the material in the functional space, and the damage is localized.

2) **Damaged Condition.** Material which met one or both of the following characteristics:

a. Missing jackets, crushed, heavily gouged, or punctured insulation on less than ten percent (10%) of the material in the functional space, and the damage is evenly distributed.

b. Missing jackets, crushed, heavily gouged, or punctured insulation on greater than twenty-five percent (25%) of the material in the functional space, and the damage is localized.

3) **Good Condition.** Material with very limited, or no visible damage or deterioration.

B. **Potential for Disturbance.** Thermal ACMs were assigned to one of the following categories based on a visual inspection and assessment of surroundings:

1) **Potential for Significant Damage.** Material which met one or more of the following conditions:

a. High Potential for Contact. Service workers are in the vicinity of the material more than once each week or the material is in a public area and is accessible to building occupants.

b. High Potential for Vibration. Loud motors or engines present in the vicinity of the material or there are intrusive noises or easily sensed vibrations from surrounding area, such as a nearby highway or airport.

c. High Potential for Air Erosion. High velocity air moving across or against the material.

2) **Potential for Damage.** Material which met one or more of the following conditions and met none of the conditions for potential for significant damage.

a. Moderate Potential for Contact. Service workers are in the vicinity of the material at least once each month but less than once each week or the material is in a room or office and is accessible to the occupants.

b. Moderate Potential for Vibration. Motors or engines present but not obtrusive or occasional loud noise in the vicinity of the material.

c. Moderate Potential for Air Erosion. Noticeable movement of air across or against material, but not high in velocity.

3) **Low Potential for Damage.** Material which met one or more of the following conditions and met none of the conditions for potential for significant damage or potential for damage:

a. Low Potential for Contact. Service workers are in the vicinity of the material less than once per month or the material is visible but not accessible to the building occupants in the course of normal activity.

b. Low Potential for Vibration. None of the conditions for high or moderate potential for vibration are met.

c. Low Potential for Air Erosion. None of the conditions for high or moderate potential for air erosion are met.

PHYSICAL ASSESSMENT DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): 31-5-1

HOMOGENEOUS AREA No.: 1

TYPE OF MATERIAL: Surfacing TSI X Other

Description: **Floor Tile, 9" x 9" black w/ black mastic**

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): **21,000 SF**

CONDITION:

Percent Damage:	<1	% Damage	Localized	Distributed
Type of Damage:		Deterioration	Water	Physical

DESCRIPTION:

Overall Rating:	X	Good	Fair	Poor

POTENTIAL FOR DISTURBANCE:

Frequency of Potential Contact:	X	High	Moderate	Low

Description: **Material is located in high traffic areas.**

Influence of Vibration:		High	Moderate	X Low

Description: **None identified.**

Potential for Air Erosion:		High	Moderate	X Low

Description: **None identified.**

OVERALL RATING:	X	Potential for Significant Damage	Potential for Damage	Low Potential for Damage

COMMENTS: **Material should be removed prior to renovation or demolition.**

PHYSICAL ASSESSMENT DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): 32-6-1, 32-6-2, and 32-6-3

HOMOGENEOUS AREA No.: 2

TYPE OF MATERIAL: Surfacing TSI X Other

Description: **Floor Tile, 9" x 9" red w/ black mastic**

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): **90 SF**

CONDITION:

Percent Damage:	<1	% Damage	Localized	Distributed
Type of Damage:		Deterioration	Water	Physical

DESCRIPTION:

Overall Rating:	X	Good	Fair	Poor

POTENTIAL FOR DISTURBANCE:

Frequency of Potential Contact:	X	High	Moderate	Low

Description: **Material is located in high traffic areas.**

Influence of Vibration:		High	Moderate	X Low

Description: **None identified.**

Potential for Air Erosion:		High	Moderate	X Low

Description: **None identified.**

OVERALL RATING:	X	Potential for Significant Damage	Potential for Damage	Low Potential for Damage

COMMENTS: **Material should be removed prior to renovation or demolition.**

PHYSICAL ASSESSMENT DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): 34-3-1 and 34-3-2

HOMOGENEOUS AREA No.: 3

TYPE OF MATERIAL: Surfacing TSI X Other

Description: Floor Tile, 12" x 12" off-white with beige streaks w/ black mastic

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): 14,240 SF

CONDITION:

Percent Damage:	≤1	% Damage	Localized	Distributed
Type of Damage:		Deterioration	Water	Physical

DESCRIPTION:

Overall Rating:	X	Good	Fair	Poor

POTENTIAL FOR DISTURBANCE:

Frequency of Potential Contact:	X	High	Moderate	Low

Description: Material is located in high traffic areas.

Influence of Vibration:		High	Moderate	X Low

Description: None identified.

Potential for Air Erosion:		High	Moderate	X Low

Description: None identified.

OVERALL RATING:	X	Potential for Significant Damage	Potential for Damage	Low Potential for Damage

COMMENTS: Material should be removed prior to renovation or demolition.

PHYSICAL ASSESSMENT DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): 34-4-1

HOMOGENEOUS AREA No.: 4

TYPE OF MATERIAL: Surfacing TSI X Other

Description: **Floor Tile, 12" x 12" dark blue with white streaks w/ black mastic**

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): **5,600 SF**

CONDITION:

Percent Damage:	<1	% Damage	Localized	Distributed
Type of Damage:		Deterioration	Water	Physical

DESCRIPTION:

Overall Rating:	X	Good	Fair	Poor

POTENTIAL FOR DISTURBANCE:

Frequency of Potential Contact:	X	High	Moderate	Low

Description: **Material is located in high traffic areas.**

Influence of Vibration:		High	Moderate	X Low

Description: **None identified.**

Potential for Air Erosion:		High	Moderate	X Low

Description: **None identified.**

OVERALL RATING:	X	Potential for Significant Damage	Potential for Damage	Low Potential for Damage

COMMENTS: **Material should be removed prior to renovation or demolition.**

PHYSICAL ASSESSMENT DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): 34-5-1

HOMOGENEOUS AREA No.: 5

TYPE OF MATERIAL: Surfacing TSI X Other

Description: **Floor Tile, 12" x 12" yellow w/ black mastic**

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): **460 SF**

CONDITION:

Percent Damage:	<1	% Damage	Localized	Distributed
Type of Damage:		Deterioration	Water	Physical

DESCRIPTION:

Overall Rating:	X	Good	Fair	Poor

POTENTIAL FOR DISTURBANCE:

Frequency of Potential Contact:	X	High	Moderate	Low

Description: **Material is located in high traffic areas.**

Influence of Vibration:		High	Moderate	X Low

Description: **None identified.**

Potential for Air Erosion:		High	Moderate	X Low

Description: **None identified.**

OVERALL RATING:	X	Potential for Significant Damage	Potential for Damage	Low Potential for Damage

COMMENTS: **Material should be removed prior to renovation or demolition.**

PHYSICAL ASSESSMENT DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): 34-6-1, 34-6-2, and 34-6-3

HOMOGENEOUS AREA No.: 6

TYPE OF MATERIAL: Surfacing TSI X Other

Description: Floor Tile, 12" x 12" red w/ black mastic

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): 510 SF

CONDITION:

Percent Damage:	<1	% Damage	Localized	Distributed
Type of Damage:		Deterioration	Water	Physical

DESCRIPTION:

Overall Rating:	X	Good	Fair	Poor

POTENTIAL FOR DISTURBANCE:

Frequency of Potential Contact:	X	High	Moderate	Low

Description: Material is located in high traffic areas.

Influence of Vibration:		High	Moderate	X Low

Description: None identified.

Potential for Air Erosion:		High	Moderate	X Low

Description: None identified.

OVERALL RATING:	X	Potential for Significant Damage	Potential for Damage	Low Potential for Damage

COMMENTS: Material should be removed prior to renovation or demolition.

PHYSICAL ASSESSMENT DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): 32-8-1, 32-8-2, and 32-8-3

HOMOGENEOUS AREA No.: 7

TYPE OF MATERIAL:		Surfacing	TSI	X Other
Description:	Floor Tile, 12" x 12" black w/ black mastic			
Approximate Amount of Asbestos-Containing Material (Linear or Square Foot):	630 SF			
CONDITION:				
Percent Damage:	<1	% Damage	Localized	Distributed
Type of Damage:		Deterioration	Water	Physical
DESCRIPTION:				
Overall Rating:	X	Good	Fair	Poor
POTENTIAL FOR DISTURBANCE:				
Frequency of Potential Contact:	X	High	Moderate	Low
Description:	Material is located in high traffic areas.			
Influence of Vibration:		High	Moderate	X Low
Description:	None identified.			
Potential for Air Erosion:		High	Moderate	X Low
Description:	None identified.			
OVERALL RATING:	X	Potential for Significant Damage	Potential for Damage	Low Potential for Damage

COMMENTS: Material should be removed prior to renovation or demolition.

PHYSICAL ASSESSMENT DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): 32-8-1, 32-8-2, and 32-8-3

HOMOGENEOUS AREA No.: 8

TYPE OF MATERIAL: Surfacing TSI X Other

Description: **Floor Tile, 12" x 12" green with white streaks w/ black mastic**

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): **225 SF**

CONDITION:

Percent Damage:	<1	% Damage	Localized	Distributed
Type of Damage:		Deterioration	Water	Physical

DESCRIPTION:

Overall Rating:	X	Good	Fair	Poor

POTENTIAL FOR DISTURBANCE:

Frequency of Potential Contact:	X	High	Moderate	Low

Description: **Material is located in high traffic areas.**

Influence of Vibration:		High	Moderate	X Low

Description: **None identified.**

Potential for Air Erosion:		High	Moderate	X Low

Description: **None identified.**

OVERALL RATING:	X	Potential for Significant Damage	Potential for Damage	Low Potential for Damage

COMMENTS: **Material should be removed prior to renovation or demolition.**

PHYSICAL ASSESSMENT DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): 31-2-1

HOMOGENEOUS AREA No.: 9

TYPE OF MATERIAL: Surfacing TSI X Other

Description: **Floor Tile, 12" x 12" off-white with white streaks w/ black mastic**

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): **7,000 SF**

CONDITION:

Percent Damage:	<1	% Damage	Localized	Distributed
Type of Damage:		Deterioration	Water	Physical

DESCRIPTION:

Overall Rating:	X	Good	Fair	Poor

POTENTIAL FOR DISTURBANCE:

Frequency of Potential Contact:	X	High	Moderate	Low

Description: **Material is located in high traffic areas.**

Influence of Vibration:		High	Moderate	X Low

Description: **None identified.**

Potential for Air Erosion:		High	Moderate	X Low

Description: **None identified.**

OVERALL RATING:	X	Potential for Significant Damage	Potential for Damage	Low Potential for Damage

COMMENTS: **Material should be removed prior to renovation or demolition.**

PHYSICAL ASSESSMENT DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): 34-12-1, 34-12-2, and 34-12-3

HOMOGENEOUS AREA No.: 12

TYPE OF MATERIAL: Surfacing TSI X Other

Description: **Sheet Flooring, brown with dark brown pattern**

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): **170 SF**

CONDITION:

Percent Damage:	<1	% Damage	Localized	Distributed
Type of Damage:		Deterioration	Water	Physical

DESCRIPTION:

Overall Rating:	X	Good	Fair	Poor

POTENTIAL FOR DISTURBANCE:

Frequency of Potential Contact:	X	High	Moderate		Low
Influence of Vibration:		High	Moderate	X	Low
Potential for Air Erosion:		High	Moderate	X	Low

Description: **Material is located in high traffic areas.**

Description: **None identified.**

Description: **None identified.**

OVERALL RATING:	X	Potential for Significant Damage	Potential for Damage	Low Potential for Damage

COMMENTS: **Material should be removed prior to renovation or demolition.**

PHYSICAL ASSESSMENT DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): Assumed to contain asbestos

HOMOGENEOUS AREA No.: 20

TYPE OF MATERIAL: Surfacing | X | TSI | Other

Description: **Pipe Fitting Insulation, 3" white with canvas wrap on domestic water**

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): **375 EA**

CONDITION:

Percent Damage:	UNK	% Damage	Localized	Distributed
Type of Damage:		Deterioration	Water	Physical

DESCRIPTION:

Overall Rating:	UNK	Good	Fair	Poor

POTENTIAL FOR DISTURBANCE:

Frequency of Potential Contact:	High	Moderate	X	Low

Description: **Material is located in walls.**

Influence of Vibration:	High	Moderate	X	Low

Description: **None identified.**

Potential for Air Erosion:	High	Moderate	X	Low

Description: **None identified.**

OVERALL RATING:	Potential for Significant Damage	Potential for Damage	X	Low Potential for Damage

COMMENTS: **Material should be removed prior to renovation or demolition.**

PHYSICAL ASSESSMENT DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): 33-3-1, 33-3-2, and 33-3-3

HOMOGENEOUS AREA No.: 21

TYPE OF MATERIAL: Surfacing | X | TSI | Other

Description: Pipe Fitting Insulation, 3" white with canvas wrap on steam

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): 300 EA

CONDITION:

Percent Damage:	<1	% Damage		Localized		Distributed
Type of Damage:		Deterioration		Water		Physical

DESCRIPTION:

Overall Rating:	X	Good		Fair		Poor

POTENTIAL FOR DISTURBANCE:

Frequency of Potential Contact:		High	X	Moderate		Low

Description: Material is located near the walls.

Influence of Vibration:		High		Moderate	X	Low

Description: None identified.

Potential for Air Erosion:		High		Moderate	X	Low

Description: None identified.

OVERALL RATING:	Potential for Significant Damage	X	Potential for Damage		Low Potential for Damage

COMMENTS: Material should be removed prior to renovation or demolition.

PHYSICAL ASSESSMENT DATA FOR IDENTIFIED ACM

BUILDING: **Charleston Naval Shipyard, Building Number 34**

SAMPLE NUMBER(S): **Exterior Pipe-32**

HOMOGENEOUS AREA No.: **22**

TYPE OF MATERIAL: Surfacing **X** TSI Other

Description: **Pipe Insulation, 12" with metal wrap**

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): **160 LF**

CONDITION:

Percent Damage:	**10**	% Damage	Localized	**X**	Distributed
Type of Damage:	**X**	Deterioration	Water		Physical

DESCRIPTION:

Overall Rating:		Good	**X**	Fair	Poor

POTENTIAL FOR DISTURBANCE:

Frequency of Potential Contact:		High		Moderate	**X** Low

Description: **Majority of material is located above head level.**

Influence of Vibration:		High	**X**	Moderate	Low

Description: **Weathering.**

Potential for Air Erosion:	**X**	High		Moderate	Low

Description: **Weathering.**

OVERALL RATING:	**X**	Potential for Significant Damage		Potential for Damage	Low Potential for Damage

COMMENTS: **Material should be removed prior to renovation or demolition.**

9.0 HAZARD ASSESSMENT OF IDENTIFIED ACM

AHERA describes a hazard assessment as "the means of collecting and considering whatever data were necessary for the management planner to make an informed, responsible recommendation to the LEA [Local Education Agency] consistent with response action requirements". As stated in AHERA, there is no single assessment method that is required in the regulations.

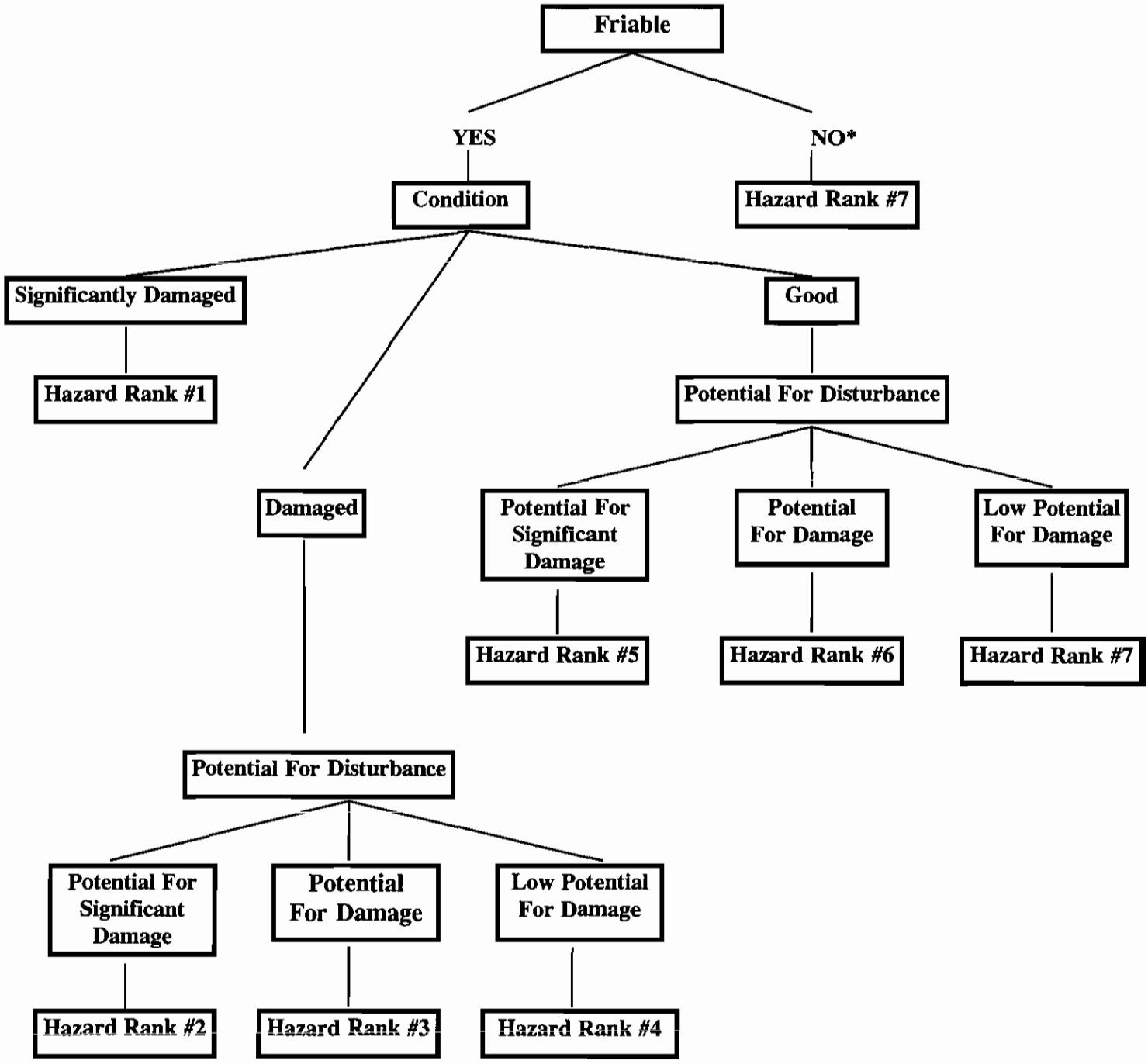
BAT adopted for this re-inspection one of the four general classes of hazard assessment models considered during the AHERA rule-making process. This method for hazard assessment is a modified decision tree as detailed in the USEPA, *Guidance for Assessing and Managing Exposure to Asbestos in Buildings*, or the *Pink Book*. Based on the physical assessment responses documented in the field, the BAT Management Planner proceeded through the decision tree process depicted in Figure 1.0 on the following page.

Only the identified and/or assumed asbestos-containing materials were assessed for hazards.

All of the identified and/or assumed asbestos-containing materials observed in this building were in good condition on the day of the survey.

Figure 1.0 Decision Tree Diagram For Hazard Assessment

Hazard rank #1 are materials of highest concern, and hazard rank #7 are the materials least likely to release asbestos fibers to the work area.



*Miscellaneous materials that are considered non-friable were placed in the Hazard Rank #8 category, which is in good condition with a low potential for damage.

HAZARD ASSESSMENT AND RESPONSE ACTION DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): 31-5-1

HOMOGENEOUS AREA No.: 1

TYPE OF MATERIAL: Surfacing TSI X Other

Description: **Floor Tile, 9" x 9" black w/ black mastic**

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): **21,000 SF**

Approximate Recommended Response Action Cost:

HAZARD ASSESSMENT

(1) Significantly damaged
(2) Damaged plus potential for significant damage
(3) Damaged plus potential for damage
(4) Damaged plus low potential for damage
(5) ACM (good condition) with potential for significant damage
(6) ACM (good condition) with potential for damage
(7) Any remaining friable ACM or friable suspect ACM
X (8) Non-friable ACM

RESPONSE ACTION RECOMMENDATION

X (1) Removal
(2) Encapsulation
(3) Enclosure
(4) Repair
(5) Operations and Maintenance Program

COMMENTS: Material should be removed prior to renovation or demolition.

HAZARD ASSESSMENT AND RESPONSE ACTION DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): 32-6-1, 32-6-2, and 32-6-3

HOMOGENEOUS AREA No.: 2

TYPE OF MATERIAL: Surfacing TSI X Other

Description: **Floor Tile, 12" x 12" red w/ black mastic**

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): **90 SF**

Approximate Recommended Response Action Cost:

HAZARD ASSESSMENT

(1) Significantly damaged
(2) Damaged plus potential for significant damage
(3) Damaged plus potential for damage
(4) Damaged plus low potential for damage
(5) ACM (good condition) with potential for significant damage
(6) ACM (good condition) with potential for damage
(7) Any remaining friable ACM or friable suspect ACM
X (8) Non-friable ACM

RESPONSE ACTION RECOMMENDATION

X (1) Removal
(2) Encapsulation
(3) Enclosure
(4) Repair
(5) Operations and Maintenance Program

COMMENTS: Material should be removed prior to renovation or demolition.

HAZARD ASSESSMENT AND RESPONSE ACTION DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): 34-3-1 and 34-3-2

HOMOGENEOUS AREA No.: 3

TYPE OF MATERIAL: Surfacing TSI X Other

Description: **Floor Tile, 12" x 12" off-white with beige streaks w/ black mastic**

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): **14,240 SF**

Approximate Recommended Response Action Cost:

HAZARD ASSESSMENT

(1) Significantly damaged
(2) Damaged plus potential for significant damage
(3) Damaged plus potential for damage
(4) Damaged plus low potential for damage
(5) ACM (good condition) with potential for significant damage
(6) ACM (good condition) with potential for damage
(7) Any remaining friable ACM or friable suspect ACM
X (8) Non-friable ACM

RESPONSE ACTION RECOMMENDATION

X (1) Removal
(2) Encapsulation
(3) Enclosure
(4) Repair
(5) Operations and Maintenance Program

COMMENTS: Material should be removed prior to renovation or demolition.

HAZARD ASSESSMENT AND RESPONSE ACTION DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): 34-4-1

HOMOGENEOUS AREA No.: 4

TYPE OF MATERIAL: Surfacing TSI X Other

Description: **Floor Tile, 12" x 12" dark blue with white streaks w/ black mastic**

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): **5,600 SF**

Approximate Recommended Response Action Cost:

HAZARD ASSESSMENT

(1) Significantly damaged
(2) Damaged plus potential for significant damage
(3) Damaged plus potential for damage
(4) Damaged plus low potential for damage
(5) ACM (good condition) with potential for significant damage
(6) ACM (good condition) with potential for damage
(7) Any remaining friable ACM or friable suspect ACM
X (8) Non-friable ACM

RESPONSE ACTION RECOMMENDATION

X (1) Removal
(2) Encapsulation
(3) Enclosure
(4) Repair
(5) Operations and Maintenance Program

COMMENTS: Material should be removed prior to renovation or demolition.

HAZARD ASSESSMENT AND RESPONSE ACTION DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): 34-5-1

HOMOGENEOUS AREA No.: 5

TYPE OF MATERIAL: Surfacing TSI X Other

Description: **Floor Tile, 12" x 12" yellow w/ black mastic**

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): **460 SF**

Approximate Recommended Response Action Cost:

HAZARD ASSESSMENT

(1) Significantly damaged
(2) Damaged plus potential for significant damage
(3) Damaged plus potential for damage
(4) Damaged plus low potential for damage
(5) ACM (good condition) with potential for significant damage
(6) ACM (good condition) with potential for damage
(7) Any remaining friable ACM or friable suspect ACM
X (8) Non-friable ACM

RESPONSE ACTION RECOMMENDATION

X (1) Removal
(2) Encapsulation
(3) Enclosure
(4) Repair
(5) Operations and Maintenance Program

COMMENTS: Material should be removed prior to renovation or demolition.

HAZARD ASSESSMENT AND RESPONSE ACTION DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): 34-6-1, 34-6-1, and 34-6-3

HOMOGENEOUS AREA No.: 6

TYPE OF MATERIAL: Surfacing TSI X Other

Description: Floor Tile, 12" x 12" red w/ black mastic

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): 510 SF

Approximate Recommended Response Action Cost:

HAZARD ASSESSMENT

(1) Significantly damaged
(2) Damaged plus potential for significant damage
(3) Damaged plus potential for damage
(4) Damaged plus low potential for damage
(5) ACM (good condition) with potential for significant damage
(6) ACM (good condition) with potential for damage
(7) Any remaining friable ACM or friable suspect ACM
X (8) Non-friable ACM

RESPONSE ACTION RECOMMENDATION

X (1) Removal
(2) Encapsulation
(3) Enclosure
(4) Repair
(5) Operations and Maintenance Program

COMMENTS: Material should be removed prior to renovation or demolition.

HAZARD ASSESSMENT AND RESPONSE ACTION DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): 32-8-1, 32-8-2, and 32-8-3

HOMOGENEOUS AREA No.: 7

TYPE OF MATERIAL: Surfacing TSI X Other

Description: **Floor Tile, 12" x 12" black w/ black mastic**

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): **630 SF**

Approximate Recommended Response Action Cost:

HAZARD ASSESSMENT

(1) Significantly damaged
(2) Damaged plus potential for significant damage
(3) Damaged plus potential for damage
(4) Damaged plus low potential for damage
(5) ACM (good condition) with potential for significant damage
(6) ACM (good condition) with potential for damage
(7) Any remaining friable ACM or friable suspect ACM
X (8) Non-friable ACM

RESPONSE ACTION RECOMMENDATION

X (1) Removal
(2) Encapsulation
(3) Enclosure
(4) Repair
(5) Operations and Maintenance Program

COMMENTS: Material should be removed prior to renovation or demolition.

HAZARD ASSESSMENT AND RESPONSE ACTION DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): 34-8-1 and 34-8-2

HOMOGENEOUS AREA No.: 8

TYPE OF MATERIAL: Surfacing TSI X Other

Description: **Floor Tile, 12" x 12" green with white streaks w/ black mastic**

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): 225 SF

Approximate Recommended Response Action Cost:

HAZARD ASSESSMENT

(1) Significantly damaged
(2) Damaged plus potential for significant damage
(3) Damaged plus potential for damage
(4) Damaged plus low potential for damage
(5) ACM (good condition) with potential for significant damage
(6) ACM (good condition) with potential for damage
(7) Any remaining friable ACM or friable suspect ACM
X (8) Non-friable ACM

RESPONSE ACTION RECOMMENDATION

X (1) Removal
(2) Encapsulation
(3) Enclosure
(4) Repair
(5) Operations and Maintenance Program

COMMENTS: Material should be removed prior to renovation or demolition.

HAZARD ASSESSMENT AND RESPONSE ACTION DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): 31-2-1

HOMOGENEOUS AREA No.: 9

TYPE OF MATERIAL: Surfacing TSI X Other

Description: **Floor Tile, 12" x 12" off-white with white streaks w/ black mastic**

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): **7,000 SF**

Approximate Recommended Response Action Cost:

HAZARD ASSESSMENT

(1) Significantly damaged
(2) Damaged plus potential for significant damage
(3) Damaged plus potential for damage
(4) Damaged plus low potential for damage
(5) ACM (good condition) with potential for significant damage
(6) ACM (good condition) with potential for damage
(7) Any remaining friable ACM or friable suspect ACM
X (8) Non-friable ACM

RESPONSE ACTION RECOMMENDATION

X (1) Removal
(2) Encapsulation
(3) Enclosure
(4) Repair
(5) Operations and Maintenance Program

COMMENTS: Material should be removed prior to renovation or demolition.

HAZARD ASSESSMENT AND RESPONSE ACTION DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): 34-12-1, 34-12-2, and 34-12-3

HOMOGENEOUS AREA No.: 12

TYPE OF MATERIAL: Surfacing TSI X Other

Description: **Sheet Flooring, brown with dark brown pattern**

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): **170 SF**

Approximate Recommended Response Action Cost:

HAZARD ASSESSMENT

- (1) Significantly damaged
- (2) Damaged plus potential for significant damage
- (3) Damaged plus potential for damage
- (4) Damaged plus low potential for damage
- (5) ACM (good condition) with potential for significant damage
- (6) ACM (good condition) with potential for damage
- (7) Any remaining friable ACM or friable suspect ACM
- X (8) Non-friable ACM

RESPONSE ACTION RECOMMENDATION

- X (1) Removal
- (2) Encapsulation
- (3) Enclosure
- (4) Repair
- (5) Operations and Maintenance Program

COMMENTS: Material should be removed prior to renovation or demolition.

HAZARD ASSESSMENT AND RESPONSE ACTION DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): Assumed to contain asbestos

HOMOGENEOUS AREA No.: 20

TYPE OF MATERIAL: Surfacing X TSI Other

Description: **Pipe Fitting Insulation, 3" white with canvas wrap on domestic water**

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): **375 EA**

Approximate Recommended Response Action Cost:

HAZARD ASSESSMENT	RESPONSE ACTION RECOMMENDATION
(1) Significantly damaged	X (1) Removal
(2) Damaged plus potential for significant damage	(2) Encapsulation
(3) Damaged plus potential for damage	(3) Enclosure
(4) Damaged plus low potential for damage	(4) Repair
(5) ACM (good condition) with potential for significant damage	(5) Operations and Maintenance Program
(6) ACM (good condition) with potential for damage	
(7) Any remaining friable ACM or friable suspect ACM	
(8) Non-friable ACM	

COMMENTS: Material should be removed prior to renovation or demolition.

HAZARD ASSESSMENT AND RESPONSE ACTION DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): 33-3-1, 33-3-2, and 33-3-3

HOMOGENEOUS AREA No.: 21

TYPE OF MATERIAL: Surfacing X TSI Other

Description: **Pipe Fitting Insulation, 3" white whith canvas wrap on steam**

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): **300 EA**

Approximate Recommended Response Action Cost:

HAZARD ASSESSMENT

- (1) Significantly damaged
- (2) Damaged plus potential for significant damage
- (3) Damaged plus potential for damage
- X (4) Damaged plus low potential for damage
- (5) ACM (good condition) with potential for significant damage
- (6) ACM (good condition) with potential for damage
- (7) Any remaining friable ACM or friable suspect ACM
- (8) Non-friable ACM

RESPONSE ACTION RECOMMENDATION

- X (1) Removal
- (2) Encapsulation
- (3) Enclosure
- (4) Repair
- (5) Operations and Maintenance Program

COMMENTS: Material should be removed prior to renovation or demolition.

HAZARD ASSESSMENT AND RESPONSE ACTION DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 34

SAMPLE NUMBER(S): Exterior Pipe-32

HOMOGENEOUS AREA No.: 22

TYPE OF MATERIAL: Surfacing X TSI Other

Description: **Pipe Insulation, 12 whith metal wrap**

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): **160 LF**

Approximate Recommended Response Action Cost:

HAZARD ASSESSMENT

(1) Significantly damaged
(2) Damaged plus potential for significant damage
(3) Damaged plus potential for damage
X (4) Damaged plus low potential for damage
(5) ACM (good condition) with potential for significant damage
(6) ACM (good condition) with potential for damage
(7) Any remaining friable ACM or friable suspect ACM
(8) Non-friable ACM

RESPONSE ACTION RECOMMENDATION

X (1) Removal
(2) Encapsulation
(3) Enclosure
(4) Repair
(5) Operations and Maintenance Program

COMMENTS: Material should be removed prior to renovation or demolition.

10.0 PRELIMINARY COST ESTIMATE FOR REMOVAL OF IDENTIFIED ACM

The following is a preliminary cost estimate for the abatement (removal) of identified ACM in Building 34. This estimate is based on removing all of the materials during the same project. It does not include the cost of replacement materials. The cost estimate includes, project surveillance, air monitoring, and disposal of materials. These costs are estimates only; BAT made no attempt to obtain bids from removal contractors for this work, however, the average unit costs of three asbestos abatement contractors were used to develop the preliminary removal costs. Additionally, quantities noted are based upon engineering measurements. BAT recommends the use of architectural measurements for more accurate quantification.

Material Description	Unit Cost ($)	Quantity	Total Abatement Cost ($)
Floor Tile (multi-layers) with Mastic	2.78	27,320 SF	75,950
Pipe Insulation (25-30 feet above ground)	5.25	160 LF	840
Pipe Fitting Insulation (including demolition of walls)	32.59	675 EA	21,998
Handling Cost	25.00	174 EA	4,350
Mobilization	300.00	3 EA	900
Waste Disposal Cost	50.00	10 CY	500
Removal Subtotal			104,538
1H Supervision and Monitoring			13,500
Project Subtotal			118,038
Contingency (33%)			38,953
Project Total			**156,991**

SF = Square Feet EA = Each CY = Cubic Yard

11.0 CONCLUSIONS

Inspection of Building 34 and confirmatory laboratory bulk sample analysis of selected samples identified the following materials with asbestos concentrations greater than one percent.

Identified ACM	Quantity	NESHAP Category
Floor Tile, 9" x 9" black w/ black mastic	21,000 SF	Category I, non-friable
Floor Tile, 9" x 9" red w/ black mastic	90 SF	Category I, non-friable
Floor Tile, 12" x 12" off-white with beige streaks w/ black mastic	14,240 SF	Category I, non-friable
Floor Tile, 12" x 12" dark blue with white streaks w/ black mastic	5,600 SF	Category I, non-friable
Floor Tile, 12" x 12" yellow w/ black mastic	460 SF	Category I, non-friable
Floor Tile, 12" x 12" red w/ black mastic	510 SF	Category I, non-friable
Floor Tile, 12" x 12" black w/ black mastic	630 SF	Category I, non-friable
Floor Tile, 12" x 12" green with white streaks w/ black mastic	225 SF	Category I, non-friable
Floor Tile, 12" x 12" off-white with white streaks w/ black mastic	7,000 SF	Category I, non-friable
Sheet Flooring, brown with dark brown pattern	170 SF	Category I, non-friable
Pipe Fitting Insulation, 3" white with canvas wrap on steam	300 EA	Regulated, friable
Pipe Insulation, 12" with metal wrap	160 LF	Regulated, friable

The following materials were not sampled in order to avoid disrupting their integrity, and they were assumed to contain asbestos:

Assumed ACM	Quantity	NESHAP Category
Pipe Fitting Insulation, 3" white with canvas wrap on domestic water	375 EA	Regulated, friable

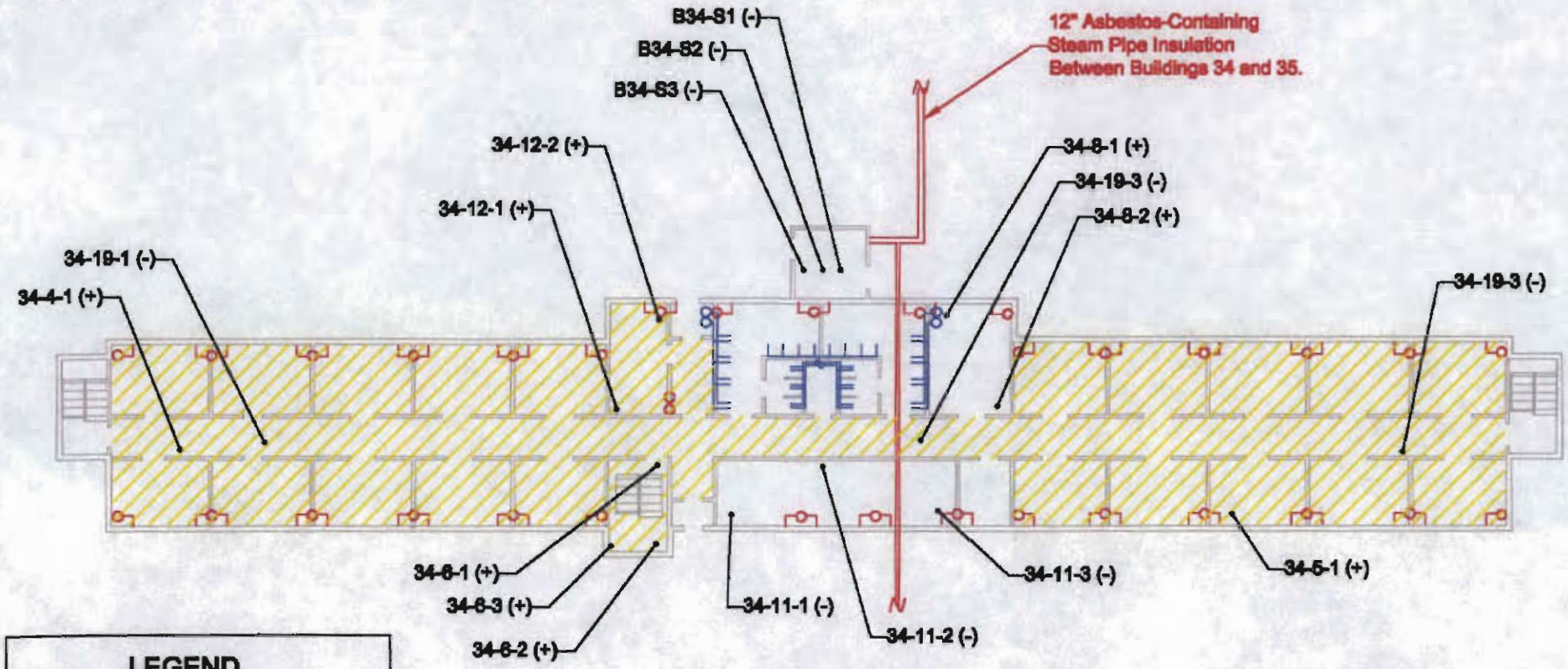
Other suspect ACM not identified could be present in areas of the building inaccessible to the asbestos-building inspectors. For example, material could exist in walls and other locations where access could only be gained by demolition of the building. Also, other materials currently not recognized as ACM by the asbestos building inspection industry could exist.

Rooms that were inaccessible to the asbestos-building inspectors have been identified on the drawings of the building in Appendix B, *Sample and ACM Location Drawings.*

EPA rules governing the application, removal and disposal of ACM were promulgated under NESHAP [40 CFR 61 Part M]. NESHAP requires the building owner or asbestos removal contractor to notify EPA when a building containing ACM is to be renovated, ACM is to be removed, or the building is to be demolished. At least 20 days notification is required "...if less than 260 linear feet of asbestos pipe covering or 160 square feet of asbestos material are removed during building renovation". Ten days notification is required when the amount is greater than 260 linear feet or 160 square feet of friable ACM.

APPENDIX A

SAMPLE AND ACM LOCATION DRAWINGS



LEGEND

- • - Sample Location
- (-) - Non-Asbestos-Containing Sample Location
- (+) - Asbestos-Containing Sample Location
- - Asbestos-Containing Floor Tile and Mastic
- - Asbestos-Containing Pipe Fitting Insulation on Riser and Branches to Radiator
- - Asbestos-Containing Pipe Fitting Insulation on Domestic Water (Inaccessible in Walls)

BUILDING 34

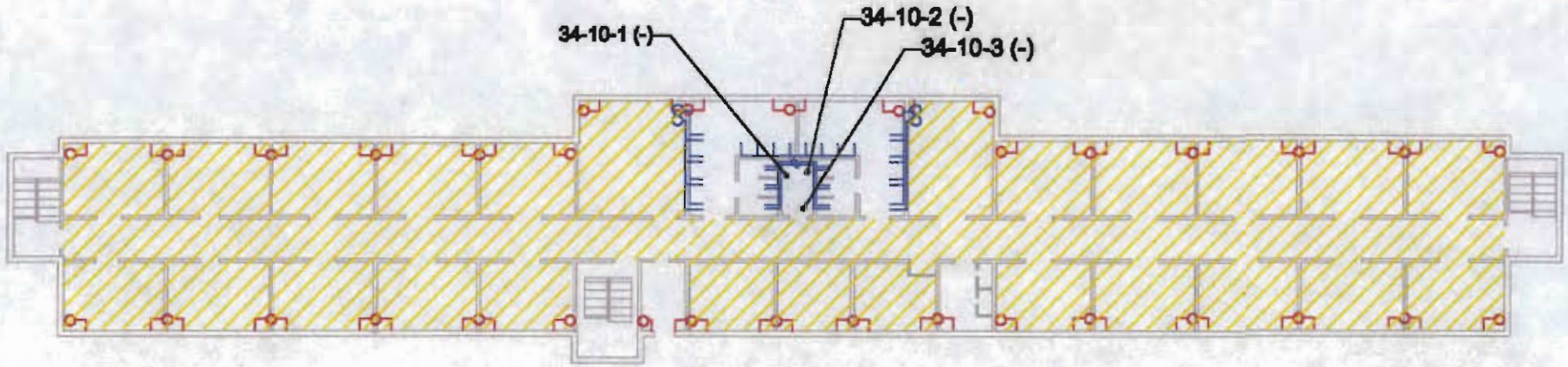
FIRST FLOOR

Sample and Asbestos-Containing Material Locations

N

0' 25' 50'

BAT Associates, Inc.
ENVIRONMENTAL, HEALTH & SAFETY SERVICES
5151 BROOK HOLLOW PARKWAY, SUITE 250
NORCROSS, GA 30071



LEGEND

- • - Sample Location
- (-) - Non-Asbestos-Containing Sample Location
- (+) - Asbestos-Containing Sample Location
- - Asbestos-Containing Floor Tile and Mastic
- - Asbestos-Containing Pipe Fitting Insulation on Riser and Branches to Radiator
- - Asbestos-Containing Pipe Fitting Insulation on Domestic Water (Inaccessible in Walls)

BUILDING 34

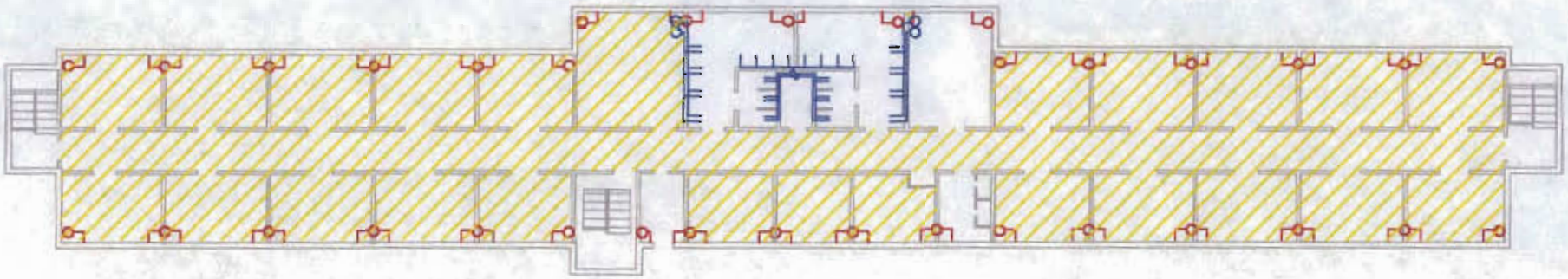
SECOND FLOOR

Sample and Asbestos-Containing Material Locations

N

0' 25' 50'

BAT Associates, Inc.
ENVIRONMENTAL, HEALTH & SAFETY SERVICES
5151 BROOK HOLLOW PARKWAY, SUITE 250
NORCROSS, GA 30071



LEGEND

- Asbestos-Containing Floor Tile and Mastic
- Asbestos-Containing Pipe Fitting Insulation on Riser and Branches to Radiator
- Asbestos-Containing Pipe Fitting Insulation on Domestic Water (Inaccessible in Walls)

BUILDING 34

THIRD FLOOR

Asbestos-Containing Material Locations

N

0' 25' 50'

BAT Associates, Inc.
ENVIRONMENTAL, HEALTH & SAFETY SERVICES
5151 BROOK HOLLOW PARKWAY, SUITE 250
NORCROSS, GA 30071

APPENDIX B

PHOTOGRAPHIC DOCUMENTATION OF IDENTIFIED ACM

SEE PHOTOGRAPHIC DOCUMENTATION FOR HA # 4

Floor Tile, 9" x 9" black w/ black mastic, HA # 1

Floor Tile, 12" x 12" red w/ black mastic, HA # 2

SEE PHOTOGRAPHIC DOCUMENTATION FOR HA # 2

Floor Tile, 12" x 12" off-white with beige streaks w/ black mastic, HA # 3

Floor Tile, 12" x 12" dark blue with white streaks w/ black mastic, HA # 4

Floor Tile, 12" x 12" yellow w/ black mastic, HA # 5

SEE PHOTOGRAPHIC DOCUMENTATION FOR HA # 2

Floor Tile, 12" x 12" red w/ black mastic, HA # 6

Floor Tile, 12" x 12" black w/ black mastic, HA # 7

Floor Tile, 12" x 12" green with white streaks w/ black mastic, HA # 8

SEE PHOTOGRAPHIC DOCUMENTATION FOR HA # 7

Floor Tile, 12" x 12" off-white with white streaks w/ black mastic, HA # 9

Sheet Flooring, brown with dark brown pattern, HA # 12

INACCESSIBLE IN WALLS

Pipe Fitting Insulation, 3" white with canvas wrap on domestic water, HA # 20

Pipe Fitting Insulation, 3" white with canvas wrap on steam, HA # 21

Pipe Insulation, 12" with metal wrap, HA # 22

APPENDIX C

PERSONNEL AND LABORATORY ACCREDITATIONS

The Georgia Institute of Technology

This is to certify that

Foshie Bell

has attended an EPA-approved half-day Continuing Education Course entitled:

Inspecting Buildings for Asbestos Containing Materials (Annual Refresher Course for Building Inspectors)

as required by the Federal EPA AHERA Model Accreditation Plan for re-accreditation as a Building Inspector for Asbestos (TSCA Title II).

Georgia Tech Research Institute
Electro-Optics, Environment and Materials Laboratory
Atlanta, GA 30332
Phone: (404) 894-7430; FAX: (404) 894-1267

August 26, 1998
Dates of Attendance

August 26, 1999
Expiration Date

149-64-0385
Social Security Number

Myrtle I. Turner, CET
Course Director

2900
Certificate Number

The Environmental Institute

Douglas J. Milton

Social Security Number - 266-55-7179

Has completed coursework and satisfactorily passed

an examination that meets all criteria required for

EPA/AHERA/ASHARA (TSCA Title II) Approved Reaccreditation

and NESHAP Regulations Training

Asbestos in Buildings: Inspector & Management Planner Refresher

December 15, 1999
Course Date

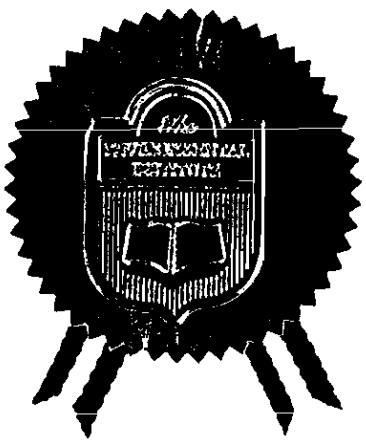
6398
Certificate Number

December 15, 1999
Examination Date

December 14, 2000
Expiration Date

Tod A. Dawson - Course Director

Rachel G. McCain - Exam Administrator



TEI - 1300 Williams Drive, Suite E - Marietta, Georgia 30066 - (770) 427-3600

The

American Board of Industrial Hygiene®

ABIH®

organized to improve the practice of Industrial Hygiene
proclaims that

Douglas J. Milton

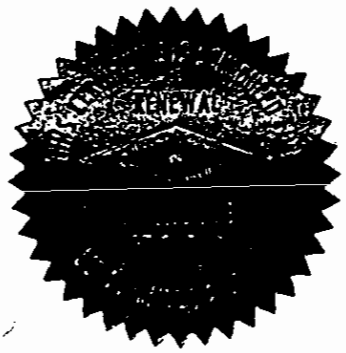
having met all requirements through
education, experience and examination,
is hereby certified in the

COMPREHENSIVE PRACTICE
of
INDUSTRIAL HYGIENE

and has the right to use the designations

CERTIFIED INDUSTRIAL HYGIENIST

CIH



November 12, 1997
date

J. Kenneth Conner
Chair ABIH

CP 7612
certificate
number

Secretary ABIH

D H E C

PROMOTE PROTECT PROSPER

South Carolina Department of Health and Environmental Control

ASBESTOS ABATEMENT LICENSE

No. *22860*

This certifies that

Douglas J Milton

266-88-7179

doing business as *B A T Associates, Inc*

has satisfactorily completed the training required by South Carolina Regulation No. 61-86.1 and the EPA Model Accreditation Plan, 40 CFR 763 Subpart E Appendix C, for the category of

Consultant/Management Planner

The holder of this license shall comply with all the requirements of said Regulation.

This License, License Number, or any Representation thereof, is not transferable to any other licensee or company. Use of this License is only authorized for the licensee and Company whose name appears hereon and shall expire one year from *09/28/98.*

The holder of this license is qualified in accordance with requirements of the Asbestos Hazard Emergency Response Act of 1986 (AHERA) to perform as an abatement Building Inspector.

07/28/99

Richard D. Sharpe

Richard D. Sharpe, Director
Air Compliance Management Division
Bureau of Air Quality
South Carolina Department of Health & Environmental Control

CR-001126

ORIGINAL

07/28/99 14:31

Bureau of Air Quality

D H E C

PROMOTE PROTECT PROSPER

South Carolina Department of Health and Environmental Control

ASBESTOS ABATEMENT LICENSE

No. *22859*

This certifies that

Douglas J Milton

266-80-7179

doing business as *B A T Associates, Inc*

has satisfactorily completed the training required by South Carolina Regulation No. 61-86.1 and the EPA Model Accreditation Plan, 40 CFR 763 Subpart E Appendix C, for the category of

Consultant/Building Inspector

The holder of this license shall comply with all the requirements of said Regulation.

This License, License Number, or any Representation thereof, is not transferable to any other licensee or company. Use of this License is only authorized for the licensee and Company whose name appears hereon and shall expire one year from *09/23/98.*

07/28/99

Richard D. Sharpe

Richard D. Sharpe, Director
Air Compliance Management Division
Bureau of Air Quality
South Carolina Department of Health & Environmental Control

CR-001126

ORIGINAL

07/28/99 14:28

Bureau of Air Quality

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

ISO/IEC GUIDE 25:1990
ISO 9002:1987

Certificate of Accreditation

ANALYTICAL ENVIRONMENTAL SERVICES, INC.
ATLANTA, GA

is recognized under the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO/IEC Guide 25 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987) as suppliers of calibration or test results. Accreditation is awarded for specific services, listed on the Scope of Accreditation for:

BULK ASBESTOS FIBER ANALYSIS

September 30, 2000
Effective through

For the National Institute of Standards and Technology

NVLAP Lab Code: 102033-0

NVLAP-01C (11-95)

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

ISO/IEC GUIDE 25:1990
ISO 9002:1987

Certificate of Accreditation

DEPARTMENT OF COMMERCE * UNITED STATES OF AMERICA *

CAPE ENVIRONMENTAL MANAGEMENT, INC.
ATLANTA, GA

is recognized under the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO/IEC Guide 25 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987) as suppliers of calibration or test results. Accreditation is awarded for specific services, listed on the Scope of Accreditation for:

BULK ASBESTOS FIBER ANALYSIS

June 30, 2000
Effective through

For the National Institute of Standards and Technology

NVLAP Lab Code: 102111-0

APPENDIX D

LABORATORY ANALYSIS RESULTS

CERTAPRO ENVIRONMENTAL MANAGEMENT INC

2302 PARKLAKE DRIVE, SUITE 200, ATLANTA, GA 30345
TEL: (770) 908-7200 FAX: (770) 908-7219

NVLAP ®
ACCREDITED
LAB CODE - 102111

POLARIZED LIGHT MICROSCOPY (PLM)
BULK SAMPLE ANALYSIS REPORT

CLIENT NAME:	BAT ASSOCIATES	LAB JOB NO:	B9334-2
PROJECT NAME:	CHARLESTON NSY / 971001-13.03	DATE RECEIVED:	12/16/99
PROJECT NO:	L802Z.000	REPORT ISSUED:	1/13/00
SAMPLE FIELD ID:	**31-5-1**	LAB ID:	928071
SAMPLE INFO:		DATE ANALYZED:	1/10/00

SAMPLE DESCRIPTION

LAYERED: NO

APPEARANCE: BLACK HARD SILTY TO GRANULAR (FT) WITH FIBERS AND BROWN MASTIC

RESULT OF ANALYSIS IN VOLUME PERCENTAGE (BY VISUAL ESTIMATE)

ASBESTOS FIBERS		NONASBESTOS FIBERS		NONFIBROUS COMPONENTS		OTHER COMPONENTS	
CHRYSOTILE	7	CELLULOSE		VERMICULITE/MICA		BITUMEN/TAR	
AMOSITE		GLASS FIBERS		PERLITE		SAND/AGGR.	20
CROCIDOLITE		SYNTHETICS		EXPANDED GLASS		GLUE/CAULK	5
TREMOLITE		WOLLASTONITE		SYNTHETIC FOAM		VINYL	
ACTINOLITE		TALC		ALUMINUM/METAL		CORK	
ANTHOPHYLLITE				FOAM RUBBER		LATEX/RUBBER	
						PAINT/OTHER	68

COMMENTS: **2% CHRYSOTILE IN MASTIC**

SAMPLE WAS ANALYZED BY PLM USING DISPERSION STAINING TECHNIQUES IN ACCORDANCE WITH U.S. EPA METHOD 40CFR Ch. I (7-1-92) PT. 763, SUBPT. F, APP. A. LAST CALIBRATION OF EQUIPMENT WAS PERFORMED ON: 1/10/00
FOR ALL HETEROGENEOUS AND LAYERED SAMPLES EASILY SEPARATED INTO SUBLAYERS, EACH LAYER IS ANALYZED SEPARATELY.
REPORT 1 OF 1

ANALYST

ALEKSEY REZNIK

QUALITY CONTROL

STEVE JARVIS

ANALYTICAL ENVIRONMENTAL SERVICES, INC.
3125 Marjan Drive
Atlanta, GA 30340
Tel: (770) 457-8177
Fax: (770) 457-8188

NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	32-6-1	AES Lab ID:	3450
Location:	Not given		

Sample Description: Red hard compact partly granular with fibers, bitumen and glue.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	<1
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	3
Mineral Wool:	
Fiberglass:	
Cellulose:	2
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	40
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	2
Resilient Material:	
Glue:	2
Binders:	51

COMMENTS: Bitumen contains 3% chrysotile. Floor tile and glue do not contain asbestos.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: J. Arkhipov — Svetlana Arkhipov

QCAnalyst: Andrew Pittman — Andrew Pittman

All percentages given are by volume visually estimated. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993." This report must not be reproduced except in full with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested. The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.

ANALYTICAL ENVIRONMENTAL SERVICES, INC.
3125 Marjan Drive
Atlanta, GA 30340
Tel: (770) 457-8177
Fax: (770) 457-8188

NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	32-6-2	AES Lab ID:	3451
Location:	Not given		

Sample Description: Red hard compact partly granular with fibers, bitumen and glue.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	<1
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	3
Mineral Wool:	
Fiberglass:	
Cellulose:	2
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	40
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	2
Resilient Material:	
Glue:	2
Binders:	51

COMMENTS: Bitumen contains 3% chrysotile. Floor tile and glue do not contain asbestos.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: J. Arkhipov — Svetlana Arkhipov

QCAnalyst: Andrew Pittman — Andrew Pittman

All percentages given are by volume visually estimated. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993." This report must not be reproduced except in full with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested. The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.

ANALYTICAL ENVIRONMENTAL SERVICES, INC.
3125 Marjan Drive
Atlanta, GA 30340
Tel: (770) 457-8177
Fax: (770) 457-8188

NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	32-6-3	AES Lab ID:	3452
Location:	Not given		

Sample Description: Red hard compact partly granular with fibers, bitumen and glue.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	<1
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	3
Mineral Wool:	
Fiberglass:	
Cellulose:	2
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	40
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	2
Resilient Material:	
Glue:	2
Binders:	51

COMMENTS: Bitumen contains 3% chrysotile. Floor tile and glue do not contain asbestos.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: J. Arkhipov — Svetlana Arkhipov

QCAnalyst: Andrew Pittman — Andrew Pittman

All percentages given are by volume visually estimated. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993." This report must not be reproduced except in full with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested. The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.

ANALYTICAL ENVIRONMENTAL SERVICES, INC.
3125 Marjan Drive
Atlanta, GA 30340
Tel: (770) 457-8177
Fax: (770) 457-8188

NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	34-3-1	AES Lab ID:	3527
Location:	Not given		

Sample Description: Tan hard compact partly granular with fibers and bitumen.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	1
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

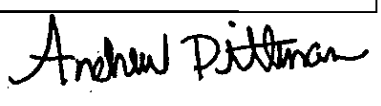
NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	45
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	3
Resilient Material:	
Glue:	
Binders:	50

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: 
Svetlana Arkhipov

QCAnalyst: 
Andrew Pittman

ANALYTICAL ENVIRONMENTAL SERVICES, INC.
3125 Marjan Drive
Atlanta, GA 30340
Tel: (770) 457-8177
Fax: (770) 457-8188

NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	34-3-2	AES Lab ID:	3528
Location:	Not given		

Sample Description: Tan hard compact partly granular with fibers and bitumen.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	5
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	1
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	45
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	3
Resilient Material:	
Glue:	
Binders:	45

COMMENTS: Floor tile contains 5% chrysotile. Bitumen contains 5% chrysotile.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: Svetlana Arkhipov

QCAnalyst: Andrew Pittman

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ANALYTICAL ENVIRONMENTAL SERVICES, INC.
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Tel: (770) 457-8177
Fax: (770) 457-8188

NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	34-4-1	AES Lab ID:	3530
Location:	Not given		

Sample Description: Blue hard compact partly granular with fibers and bitumen.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	2
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	45
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	1
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	3
Resilient Material:	
Glue:	
Binders:	48

COMMENTS: Floor tile contains 2% chrysotile. Bitumen contains 10% chrysotile.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: J. Arkhipov — Svetlana Arkhipov

QCAnalyst: Andrew Pittman — Andrew Pittman

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BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	34-5-1	AES Lab ID:	3533
Location:	Not given		

Sample Description: Light brown hard compact partly granular with fibers and bitumen.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	2
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	45
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	1
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	3
Resilient Material:	
Glue:	
Binders:	48

COMMENTS: Floor tile contains 2% chrysotile. Bitumen contains 10% chrysotile.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: Svetlana Arkhipov

QCAnalyst: Andrew Pittman

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BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	34-6-1	AES Lab ID:	3536
Location:	Not given		

Sample Description: Red hard compact partly granular with fibers and bitumen.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	<1
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	45
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	2
Mineral Wool:	
Fiberglass:	
Cellulose:	3
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	3
Resilient Material:	
Glue:	
Binders:	47

COMMENTS: Bitumen contains 5% chrysotile. Floor tile does not contain asbestos.

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Microanalyst: Svetlana Arkhipov

QCAnalyst: Andrew Pittman

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BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	34-6-2	AES Lab ID:	3537
Location:	Not given		

Sample Description: Red hard compact partly granular with fibers and bitumen.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	<1
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	45
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	2
Mineral Wool:	
Fiberglass:	
Cellulose:	3
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	3
Resilient Material:	
Glue:	
Binders:	47

COMMENTS: Bitumen contains 5% chrysotile. Floor tile does not contain asbestos.

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Microanalyst: J. Arkhipov — Svetlana Arkhipov

QCAnalyst: Andrew Pittman — Andrew Pittman

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BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	34-6-3	AES Lab ID:	3538
Location:	Not given		

Sample Description: Red hard compact partly granular with fibers and bitumen.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	<1
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	45
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	2
Mineral Wool:	
Fiberglass:	
Cellulose:	3
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	3
Resilient Material:	
Glue:	
Binders:	47

COMMENTS: Bitumen contains 5% chrysotile. Floor tile does not contain asbestos.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: Svetlana Arkhipov

QCAnalyst: Andrew Pittman

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BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	32-8-1	AES Lab ID:	3456
Location:	Not given		

Sample Description: Gray hard compact partly granular with fibers, glue and bitumen.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	5
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	45
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	1
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	3
Resilient Material:	
Glue:	2
Binders:	43

COMMENTS: Floor tile contains 5% chrysotile. Bitumen contains 5% chrysotile. Glue does not contain asbestos.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: S. Arkhipov — Svetlana Arkhipov

QCAnalyst: Andrew Pittman — Andrew Pittman

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BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	34-8-1	AES Lab ID:	3539
Location:	Not given		

Sample Description: Green hard compact partly granular with fibers and bitumen.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	<1
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	1
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	45
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	3
Resilient Material:	
Glue:	
Binders:	50

COMMENTS: Floor tile contains <1% chrysotile. Bitumen contains 5% chrysotile.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: Svetlana Arkhipov

QCAnalyst: Andrew Pittman

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BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	34-8-2	AES Lab ID:	3540
Location:	Not given		

Sample Description: Olive hard compact partly granular with fibers and bitumen.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	5
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	1
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	45
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	3
Binders:	45

COMMENTS: Floor tile contains 5% chrysotile. Bitumen contains 5% chrysotile.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: S. Arkhipov — Svetlana Arkhipov

QCAnalyst: Andrew Pittman — Andrew Pittman

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BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	31-2-1	AES Lab ID:	3503
Location:	Not given		

Sample Description: Red hard compact partly granular with fibers and glue.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	10
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	45
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	1
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	3
Binders:	40

COMMENTS: Floor tile contains 10% chrysotile. Glue contains 1-2% chrysotile.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: S. Arkhipov — Svetlana Arkhipov

QCAnalyst: Andrew Pittman — Andrew Pittman

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BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	34-10-1	AES Lab ID:	3542
Location:	Not given		

Sample Description: Tan hard compact partly granular with fibers and bitumen.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	1
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	45
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	3
Resilient Material:	
Glue:	
Binders:	50

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: S. Arkhipov — Svetlana Arkhipov

QCAnalyst: Andrew Pittman — Andrew Pittman

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BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	34-10-2	AES Lab ID:	3543
Location:	Not given		

Sample Description: Tan hard compact partly granular with fibers and bitumen.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	1
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	45
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	3
Resilient Material:	
Glue:	
Binders:	50

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: S. Arkhipov — Svetlana Arkhipov

QCAnalyst: Andrew Pittman — Andrew Pittman

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BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	34-10-3	AES Lab ID:	3544
Location:	Not given		

Sample Description: Tan hard compact partly granular with fibers and bitumen.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	45
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	1
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	3
Resilient Material:	
Glue:	
Binders:	50

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: Svetlana Arkhipov

QCAnalyst: Andrew Pittman

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BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	34-11-1	AES Lab ID:	3545
Location:	Not given		

Sample Description: Tan hard compact partly granular with fibers and bitumen.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	45
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	1
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	3
Resilient Material:	
Glue:	
Binders:	50

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: Svetlana Arkhipov

QCAnalyst: Andrew Pittman

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NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	34-11-2	AES Lab ID:	3546
Location:	Not given		

Sample Description: Tan hard compact partly granular with fibers and bitumen.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	45
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	1
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	3
Resilient Material:	
Glue:	
Binders:	50

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: S. Arkhipov — Svetlana Arkhipov

QCAnalyst: Andrew Pittman — Andrew Pittman

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Tel: (770) 457-8177
Fax: (770) 457-8188

NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	34-11-3	AES Lab ID:	3547
Location:	Not given		

Sample Description: Tan hard compact partly granular with fibers and bitumen.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	1
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	45
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	3
Resilient Material:	
Glue:	
Binders:	50

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: 
Svetlana Arkhipov

QCAnalyst: 
Andrew Pittman

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NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	34-12-1	AES Lab ID:	3548
Location:	Not given		

Sample Description: Layered: 1) Dark gray semi-hard resilient; 2) Gray semi-hard silty to fibrous with bitumen.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	<1
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	10
Mineral Wool:	
Fiberglass:	10
Cellulose:	
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	3
Resilient Material:	50
Glue:	
Binders:	27

COMMENTS: Layer #2: Bitumen contains 10% chrysotile. Silty does not contain asbestos. Layer #1 does not contain asbestos.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: J. Arkhipov — Svetlana Arkhipov

QCAnalyst: Andrew Pittman — Andrew Pittman

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NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	34-12-2	AES Lab ID:	3549
Location:	Not given		

Sample Description: Layered: 1) Dark gray semi-hard resilient; 2) Gray semi-hard silty to fibrous with bitumen.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	<1
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	10
Mineral Wool:	
Fiberglass:	10
Cellulose:	
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	3
Resilient Material:	50
Glue:	
Binders:	27

COMMENTS: Layer #2: Bitumen contains 10% chrysotile. Silty does not contain asbestos. Layer #1 does not contain asbestos.

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Microanalyst: S. Arkhipov — Svetlana Arkhipov

QCAnalyst: Andrew Pittman — Andrew Pittman

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NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	34-12-3	AES Lab ID:	3550
Location:	Not given		

Sample Description: Layered: 1) Dark gray semi-hard resilient; 2) Gray semi-hard silty to fibrous with bitumen.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	<1
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	10
Mineral Wool:	
Fiberglass:	10
Cellulose:	
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	3
Resilient Material:	50
Glue:	
Binders:	27

COMMENTS: Layer #2: Bitumen contains 10% chrysotile. Silty does not contain asbestos. Layer #1 does not contain asbestos.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: Svetlana Arkhipov

QCAnalyst: Andrew Pittman

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BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	31-10-1	AES Lab ID:	3512
Location:	Not given		

Sample Description: Gray soft fibrous to perlitic with paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	35
Fiberglass:	
Cellulose:	25
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	30
Aggregates:	
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	10

COMMENTS: Paint included as binder. -

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Microanalyst: J. Arkhipov — Svetlana Arkhipov

QCAnalyst: Andrew Pittman — Andrew Pittman

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BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	31-10-2	AES Lab ID:	3513
Location:	Not given		

Sample Description: Gray soft fibrous to perlitic with paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	35
Fiberglass:	
Cellulose:	25
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	30
Aggregates:	
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	10

COMMENTS: Paint included as binder. -

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: Svetlana Arkhipov

QCAnalyst: Andrew Pittman

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BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	31-10-3	AES Lab ID:	3514
Location:	Not given		

Sample Description: Gray soft fibrous to perlitic.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	30
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	35
Fiberglass:	
Cellulose:	25
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	10

COMMENTS:

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Microanalyst: J. Arkhipov — Svetlana Arkhipov

QCAnalyst: Andrew Pittman — Andrew Pittman

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BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	31-11-1	AES Lab ID:	3515
Location:	Not given		

Sample Description: Gray soft fibrous to perlitic with paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	35
Fiberglass:	
Cellulose:	25
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	30
Aggregates:	
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	10

COMMENTS: Paint included as binder. -

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: Svetlana Arkhipov

QCAnalyst: Andrew Pittman

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BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	31-11-2	AES Lab ID:	3516
Location:	Not given		

Sample Description: Gray soft fibrous to perlitic with paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	30
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	35
Fiberglass:	
Cellulose:	25
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	10

COMMENTS: Paint included as binder. -

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: Svetlana Arkhipov

QCAnalyst: Andrew Pittman

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NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	31-11-3	AES Lab ID:	3517
Location:	Not given		

Sample Description: Gray soft fibrous to perlitic with paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	35
Fiberglass:	
Cellulose:	25
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	30
Aggregates:	
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	10

COMMENTS: Paint included as binder. -

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: S. Arkhipov — Svetlana Arkhipov

QCAnalyst: Andrew Pittman — Andrew Pittman

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NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	35-24-1	AES Lab ID:	3390
Location:	Not given		

Sample Description: Black semi-hard bitumenous with fibers.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	3
Mineral Wool:	
Fiberglass:	
Cellulose:	2
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	90
Resilient Material:	
Glue:	
Binders:	5

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: Svetlana Arkhipov

QCAnalyst: Svetlana Arkhipov

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NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	35-24-2	AES Lab ID:	3391
Location:	Not given		

Sample Description: Black semi-hard bitumenous with fibers.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	3
Mineral Wool:	
Fiberglass:	
Cellulose:	2
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	90
Resilient Material:	
Glue:	
Binders:	5

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: 
Svetlana Arkhipov

QCAnalyst: 
Svetlana Arkhipov

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NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	35-24-3	AES Lab ID:	3392
Location:	Not given		

Sample Description: Black semi-hard bitumenous with fibers.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	3
Mineral Wool:	
Fiberglass:	
Cellulose:	2
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	90
Resilient Material:	
Glue:	
Binders:	5

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: 
Svetlana Arkhipov

QCAnalyst: 
Svetlana Arkhipov

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NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	33-11-1	AES Lab ID:	3435
Location:	Not given		

Sample Description: Light gray soft powdery to vacuous with fibers and paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	50

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	49

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: S. Arkhipov — Svetlana Arkhipov

QCAnalyst: Andrew Pittman — Andrew Pittman

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NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	33-11-2	AES Lab ID:	3436
Location:	Not given		

Sample Description: Light gray soft powdery to vacuous with fibers and paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	50

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	49

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: S. Arkhipov — Svetlana Arkhipov

QCAnalyst: Andrew Pittman — Andrew Pittman

All percentages given are by volume visually estimated. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993." This report must not be reproduced except in full with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested. The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.

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NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	33-11-3	AES Lab ID:	3437
Location:	Not given		

Sample Description: Light gray soft powdery to vacuous with fibers and paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	45
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	1
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	3
Binders:	50

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: Svetlana Arkhipov

QCAnalyst: Andrew Pittman

All percentages given are by volume visually estimated. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993." This report must not be reproduced except in full with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested. The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.

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POLARIZED LIGHT MICROSCOPY (PLM)
BULK SAMPLE ANALYSIS REPORT

CLIENT NAME:	BAT ASSOCIATES	LAB JOB NO:	B9334-2
PROJECT NAME:	CHARLESTON NSY / 971001-13.03	DATE RECEIVED:	12/16/99
PROJECT NO:	L802Z.000	REPORT ISSUED:	1/13/00
SAMPLE FIELD ID:	31-7-1	LAB ID:	928077
SAMPLE INFO:		DATE ANALYZED:	1/10/00

SAMPLE DESCRIPTION

LAYERED: NO

APPEARANCE: GRAY SOFT FIBROUS TO GRANULAR TO POWDERY WITH PAINT

RESULT OF ANALYSIS IN VOLUME PERCENTAGE (BY VISUAL ESTIMATE)

ASBESTOS FIBERS		NONASBESTOS FIBERS		NONFIBROUS COMPONENTS		OTHER COMPONENTS	
CHRYSOTILE		CELLULOSE	35	VERMICULITE/MICA		BITUMEN/TAR	
AMOSITE		GLASS FIBERS	25	PERLITE	30	SAND/AGGR.	
CROCIDOLITE		SYNTHETICS		EXPANDED GLASS		GLUE/CAULK	
TREMOLITE		WOLLASTONITE		SYNTHETIC FOAM		VINYL	
ACTINOLITE		TALC		ALUMINUM/METAL		CORK	
ANTHOPHYLLITE				FOAM RUBBER		LATEX/RUBBER	
						PAINT/OTHER	10

COMMENTS:

SAMPLE WAS ANALYZED BY PLM USING DISPERSION STAINING TECHNIQUES IN ACCORDANCE WITH U.S. EPA METHOD 40CFR Ch. I (7-1-92) PT. 763, SUBPT. F, APP. A. LAST CALIBRATION OF EQUIPMENT WAS PERFORMED ON: 1/10/00
FOR ALL HETEROGENEOUS AND LAYERED SAMPLES EASILY SEPARATED INTO SUBLAYERS, EACH LAYER IS ANALYZED SEPARATELY.
REPORT 1 OF 1

ANALYST

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QUALITY CONTROL

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POLARIZED LIGHT MICROSCOPY (PLM)
BULK SAMPLE ANALYSIS REPORT

CLIENT NAME:	BAT ASSOCIATES	LAB JOB NO:	B9334-2
PROJECT NAME:	CHARLESTON NSY / 971001-13.03	DATE RECEIVED:	12/16/99
PROJECT NO:	L802Z.000	REPORT ISSUED:	1/13/00
SAMPLE FIELD ID:	31-7-2	LAB ID:	928078
SAMPLE INFO:		DATE ANALYZED:	1/10/00

SAMPLE DESCRIPTION

LAYERED: NO

APPEARANCE: GRAY SOFT FIBROUS TO GRANULAR TO POWDERY WITH PAINT

RESULT OF ANALYSIS IN VOLUME PERCENTAGE (BY VISUAL ESTIMATE)

ASBESTOS FIBERS		NONASBESTOS FIBERS		NONFIBROUS COMPONENTS		OTHER COMPONENTS	
CHRYSOTILE		CELLULOSE	35	VERMICULITE/MICA		BITUMEN/TAR	
AMOSITE		GLASS FIBERS	25	PERLITE	30	SAND/AGGR.	
CROCIDOLITE		SYNTHETICS		EXPANDED GLASS		GLUE/CAULK	
TREMOLITE		WOLLASTONITE		SYNTHETIC FOAM		VINYL	
ACTINOLITE		TALC		ALUMINUM/METAL		CORK	
ANTHOPHYLLITE				FOAM RUBBER		LATEX/RUBBER	
						PAINT/OTHER	10

COMMENTS:

SAMPLE WAS ANALYZED BY PLM USING DISPERSION STAINING TECHNIQUES IN ACCORDANCE WITH U.S. EPA METHOD 40CFR Ch. I (7-1-92) PT. 763, SUBPT. F, APP. A. LAST CALIBRATION OF EQUIPMENT WAS PERFORMED ON: 1/10/00
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POLARIZED LIGHT MICROSCOPY (PLM)
BULK SAMPLE ANALYSIS REPORT

CLIENT NAME:	BAT ASSOCIATES	LAB JOB NO:	B9334-2
PROJECT NAME:	CHARLESTON NSY / 971001-13.03	DATE RECEIVED:	12/16/99
PROJECT NO:	L802Z.000	REPORT ISSUED:	1/13/00
SAMPLE FIELD ID:	31-7-3	LAB ID:	928079
SAMPLE INFO:		DATE ANALYZED:	1/10/00

SAMPLE DESCRIPTION

LAYERED: NO

APPEARANCE: GRAY SOFT FIBROUS TO GRANULAR TO POWDERY WITH PAINT

RESULT OF ANALYSIS IN VOLUME PERCENTAGE (BY VISUAL ESTIMATE)

ASBESTOS FIBERS		NONASBESTOS FIBERS		NONFIBROUS COMPONENTS		OTHER COMPONENTS	
CHRYSOTILE		CELLULOSE	30	VERMICULITE/MICA		BITUMEN/TAR	
AMOSITE		GLASS FIBERS	30	PERLITE	30	SAND/AGGR.	
CROCIDOLITE		SYNTHETICS		EXPANDED GLASS		GLUE/CAULK	
TREMOLITE		WOLLASTONITE		SYNTHETIC FOAM		VINYL	
ACTINOLITE		TALC		ALUMINUM/METAL		CORK	
ANTHOPHYLLITE				FOAM RUBBER		LATEX/RUBBER	
						PAINT/OTHER	10

COMMENTS:

SAMPLE WAS ANALYZED BY PLM USING DISPERSION STAINING TECHNIQUES IN ACCORDANCE WITH U.S. EPA METHOD 40CFR Ch. I (7-1-92) PT. 763, SUBPT. F, APP. A. LAST CALIBRATION OF EQUIPMENT WAS PERFORMED ON: 1/10/00
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POLARIZED LIGHT MICROSCOPY (PLM)
BULK SAMPLE ANALYSIS REPORT

CLIENT NAME:	BAT ASSOCIATES	LAB JOB NO:	B9334-2
PROJECT NAME:	CHARLESTON NSY / 971001-13.03	DATE RECEIVED:	12/16/99
PROJECT NO:	L802Z.000	REPORT ISSUED:	1/13/00
SAMPLE FIELD ID:	**31-6-1**	LAB ID:	928074
SAMPLE INFO:		DATE ANALYZED:	1/10/00

SAMPLE DESCRIPTION

LAYERED: NO

APPEARANCE: GRAY SOFT FIBROUS TO GRANULAR TO POWDERY WITH PAINT

RESULT OF ANALYSIS IN VOLUME PERCENTAGE (BY VISUAL ESTIMATE)

ASBESTOS FIBERS		NONASBESTOS FIBERS		NONFIBROUS COMPONENTS		OTHER COMPONENTS	
CHRYSOTILE		CELLULOSE	30	VERMICULITE/MICA		BITUMEN/TAR	
AMOSITE		GLASS FIBERS	30	PERLITE	30	SAND/AGGR.	
CROCIDOLITE		SYNTHETICS		EXPANDED GLASS		GLUE/CAULK	
TREMOLITE		WOLLASTONITE		SYNTHETIC FOAM		VINYL	
ACTINOLITE		TALC		ALUMINUM/METAL		CORK	
ANTHOPHYLLITE				FOAM RUBBER		LATEX/RUBBER	
						PAINT/OTHER	10

COMMENTS:

SAMPLE WAS ANALYZED BY PLM USING DISPERSION STAINING TECHNIQUES IN ACCORDANCE WITH U.S. EPA METHOD 40CFR Ch. I (7-1-92) PT. 763, SUBPT. F, APP. A. LAST CALIBRATION OF EQUIPMENT WAS PERFORMED ON: 1/10/00
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POLARIZED LIGHT MICROSCOPY (PLM)
BULK SAMPLE ANALYSIS REPORT

CLIENT NAME:	BAT ASSOCIATES	LAB JOB NO:	B9334-2
PROJECT NAME:	CHARLESTON NSY / 971001-13.03	DATE RECEIVED:	12/16/99
PROJECT NO:	L802Z.000	REPORT ISSUED:	1/13/00
SAMPLE FIELD ID:	31-6-2	LAB ID:	928075
SAMPLE INFO:		DATE ANALYZED:	1/10/00

SAMPLE DESCRIPTION

LAYERED: NO

APPEARANCE: GRAY SOFT FIBROUS TO GRANULAR TO POWDERY WITH PAINT

RESULT OF ANALYSIS IN VOLUME PERCENTAGE (BY VISUAL ESTIMATE)

ASBESTOS FIBERS		NONASBESTOS FIBERS		NONFIBROUS COMPONENTS		OTHER COMPONENTS	
CHRYSOTILE		CELLULOSE	30	VERMICULITE/MICA		BITUMEN/TAR	
AMOSITE		GLASS FIBERS	30	PERLITE	25	SAND/AGGR.	
CROCIDOLITE		SYNTHETICS		EXPANDED GLASS		GLUE/CAULK	
TREMOLITE		WOLLASTONITE		SYNTHETIC FOAM		VINYL	
ACTINOLITE		TALC		ALUMINUM/METAL		CORK	
ANTHOPHYLLITE				FOAM RUBBER		LATEX/RUBBER	
						PAINT/OTHER	15

COMMENTS:

SAMPLE WAS ANALYZED BY PLM USING DISPERSION STAINING TECHNIQUES IN ACCORDANCE WITH U.S. EPA METHOD 40CFR Ch. I (7-1-92) PT. 763, SUBPT. F, APP. A. LAST CALIBRATION OF EQUIPMENT WAS PERFORMED ON: 1/10/00
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POLARIZED LIGHT MICROSCOPY (PLM)
BULK SAMPLE ANALYSIS REPORT

CLIENT NAME:	BAT ASSOCIATES	LAB JOB NO:	B9334-2
PROJECT NAME:	CHARLESTON NSY / 971001-13.03	DATE RECEIVED:	12/16/99
PROJECT NO:	L802Z.000	REPORT ISSUED:	1/13/00
SAMPLE FIELD ID:	**31-6-3**	LAB ID:	928076
SAMPLE INFO:		DATE ANALYZED:	1/10/00

SAMPLE DESCRIPTION

LAYERED: NO
APPEARANCE: GRAY SOFT FIBROUS TO GRANULAR TO POWDERY WITH PAINT

RESULT OF ANALYSIS IN VOLUME PERCENTAGE (BY VISUAL ESTIMATE)

ASBESTOS FIBERS		NONASBESTOS FIBERS		NONFIBROUS COMPONENTS		OTHER COMPONENTS	
CHRYSOTILE		CELLULOSE	25	VERMICULITE/MICA		BITUMEN/TAR	
AMOSITE		GLASS FIBERS	25	PERLITE	35	SAND/AGGR.	
CROCIDOLITE		SYNTHETICS		EXPANDED GLASS		GLUE/CAULK	
TREMOLITE		WOLLASTONITE		SYNTHETIC FOAM		VINYL	
ACTINOLITE		TALC		ALUMINUM/METAL		CORK	
ANTHOPHYLLITE				FOAM RUBBER		LATEX/RUBBER	
						PAINT/OTHER	15

COMMENTS:

SAMPLE WAS ANALYZED BY PLM USING DISPERSION STAINING TECHNIQUES IN ACCORDANCE WITH U.S. EPA METHOD 40CFR Ch. I (7-1-92) PT. 763, SUBPT. F, APP. A. LAST CALIBRATION OF EQUIPMENT WAS PERFORMED ON: 1/10/00
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NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	34-19-1	AES Lab ID:	3551
Location:	Not given		

Sample Description: Black semi-hard bitumenous to silty with fibers.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	2
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	50
Resilient Material:	
Glue:	
Binders:	47

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: S. Arkhipov — Svetlana Arkhipov

QCAnalyst: Andrew Pittman — Andrew Pittman

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NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	34-19-2	AES Lab ID:	3552
Location:	Not given		

Sample Description: Black semi-hard bitumenous to silty with fibers.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	2
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	50
Resilient Material:	
Glue:	
Binders:	47

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: J. Arkhipov — Svetlana Arkhipov

QCAnalyst: Andrew Pittman — Andrew Pittman

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NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	34-19-3	AES Lab ID:	3553
Location:	Not given		

Sample Description: Black semi-hard bitumenous to silty with fibers.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	2
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	50
Resilient Material:	
Glue:	
Binders:	47

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: Svetlana Arkhipov

QCAnalyst: Andrew Pittman

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POLARIZED LIGHT MICROSCOPY (PLM)
BULK SAMPLE ANALYSIS REPORT

CLIENT NAME:	BAT ASSOCIATES	LAB JOB NO:	B9334-2
PROJECT NAME:	CHARLESTON NSY / 971001-13.03	DATE RECEIVED:	12/16/99
PROJECT NO:	L802Z.000	REPORT ISSUED:	1/13/00
SAMPLE FIELD ID:	**33-3-1**	LAB ID:	928056
SAMPLE INFO:		DATE ANALYZED:	1/10/00

SAMPLE DESCRIPTION

LAYERED: NO

APPEARANCE: WHITE SOFT POWDERY TO FIBROUS WITH CANVAS AND PAINT

RESULT OF ANALYSIS IN VOLUME PERCENTAGE (BY VISUAL ESTIMATE)

ASBESTOS FIBERS		NONASBESTOS FIBERS		NONFIBROUS COMPONENTS		OTHER COMPONENTS	
CHRYSOTILE	15	CELLULOSE	20	VERMICULITE/MICA		BITUMEN/TAR	
AMOSITE	15	GLASS FIBERS		PERLITE		SAND/AGGR.	
CROCIDOLITE		SYNTHETICS		EXPANDED GLASS		GLUE/CAULK	
TREMOLITE		WOLLASTONITE		SYNTHETIC FOAM		VINYL	
ACTINOLITE		TALC		ALUMINUM/METAL		CORK	
ANTHOPHYLLITE				FOAM RUBBER		LATEX/RUBBER	
						PAINT/OTHER	50

COMMENTS:

SAMPLE WAS ANALYZED BY PLM USING DISPERSION STAINING TECHNIQUES IN ACCORDANCE WITH U.S. EPA METHOD 40CFR Ch. I (7-1-92) PT. 763, SUBPT. F, APP. A. LAST CALIBRATION OF EQUIPMENT WAS PERFORMED ON: 1/10/00
FOR ALL HETEROGENEOUS AND LAYERED SAMPLES EASILY SEPARATED INTO SUBLAYERS, EACH LAYER IS ANALYZED SEPARATELY.
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POLARIZED LIGHT MICROSCOPY (PLM)
BULK SAMPLE ANALYSIS REPORT

CLIENT NAME:	BAT ASSOCIATES	LAB JOB NO:	B9334-2
PROJECT NAME:	CHARLESTON NSY / 971001-13.03	DATE RECEIVED:	12/16/99
PROJECT NO:	L802Z.000	REPORT ISSUED:	1/13/00
SAMPLE FIELD ID:	33-3-2	LAB ID:	928057
SAMPLE INFO:		DATE ANALYZED:	1/10/00

SAMPLE DESCRIPTION

LAYERED: NO

APPEARANCE: WHITE SOFT POWDERY TO FIBROUS WITH CANVAS AND PAINT

RESULT OF ANALYSIS IN VOLUME PERCENTAGE (BY VISUAL ESTIMATE)

ASBESTOS FIBERS		NONASBESTOS FIBERS		NONFIBROUS COMPONENTS		OTHER COMPONENTS	
CHRYSOTILE	20	CELLULOSE	20	VERMICULITE/MICA		BITUMEN/TAR	
AMOSITE	15	GLASS FIBERS		PERLITE		SAND/AGGR.	
CROCIDOLITE		SYNTHETICS		EXPANDED GLASS		GLUE/CAULK	
TREMOLITE		WOLLASTONITE		SYNTHETIC FOAM		VINYL	
ACTINOLITE		TALC		ALUMINUM/METAL		CORK	
ANTHOPHYLLITE				FOAM RUBBER		LATEX/RUBBER	
						PAINT/OTHER	45

COMMENTS:

SAMPLE WAS ANALYZED BY PLM USING DISPERSION STAINING TECHNIQUES IN ACCORDANCE WITH U.S. EPA METHOD 40CFR Ch. I (7-1-92) PT. 763, SUBPT. F, APP. A. LAST CALIBRATION OF EQUIPMENT WAS PERFORMED ON: 1/10/00
FOR ALL HETEROGENEOUS AND LAYERED SAMPLES EASILY SEPARATED INTO SUBLAYERS, EACH LAYER IS ANALYZED SEPARATELY.
REPORT 1 OF 1

ANALYST

ALEKSEY REZNIK

QUALITY CONTROL

STEVE JARVIS

ENVIRONMENTAL MANAGEMENT INC

2302 PARKLAKE DRIVE, SUITE 200, ATLANTA, GA 30345
TEL: (770) 908-7200 FAX: (770) 908-7219

NVLAP ®
ACCREDITED
LAB CODE - 102111

POLARIZED LIGHT MICROSCOPY (PLM)
BULK SAMPLE ANALYSIS REPORT

CLIENT NAME:	BAT ASSOCIATES	LAB JOB NO:	B9334-2
PROJECT NAME:	CHARLESTON NSY / 971001-13.03	DATE RECEIVED:	12/16/99
PROJECT NO:	L802Z.000	REPORT ISSUED:	1/13/00
SAMPLE FIELD ID:	33-3-3	LAB ID:	928058
SAMPLE INFO:		DATE ANALYZED:	1/10/00

SAMPLE DESCRIPTION

LAYERED: NO

APPEARANCE: WHITE SOFT POWDERY TO FIBROUS WITH CANVAS AND PAINT

RESULT OF ANALYSIS IN VOLUME PERCENTAGE (BY VISUAL ESTIMATE)

ASBESTOS FIBERS		NONASBESTOS FIBERS		NONFIBROUS COMPONENTS		OTHER COMPONENTS	
CHRYSOTILE	20	CELLULOSE	15	VERMICULITE/MICA		BITUMEN/TAR	
AMOSITE	20	GLASS FIBERS		PERLITE		SAND/AGGR.	
CROCIDOLITE		SYNTHETICS		EXPANDED GLASS		GLUE/CAULK	
TREMOLITE		WOLLASTONITE		SYNTHETIC FOAM		VINYL	
ACTINOLITE		TALC		ALUMINUM/METAL		CORK	
ANTHOPHYLLITE				FOAM RUBBER		LATEX/RUBBER	
						PAINT/OTHER	45

COMMENTS:

SAMPLE WAS ANALYZED BY PLM USING DISPERSION STAINING TECHNIQUES IN ACCORDANCE WITH U.S. EPA METHOD 40CFR Ch. I (7-1-92) PT. 763, SUBPT. F, APP. A. LAST CALIBRATION OF EQUIPMENT WAS PERFORMED ON: 1/10/00
FOR ALL HETEROGENEOUS AND LAYERED SAMPLES EASILY SEPARATED INTO SUBLAYERS, EACH LAYER IS ANALYZED SEPARATELY.
REPORT 1 OF 1

ANALYST

ALEKSEY REZNIK

QUALITY CONTROL

STEVE JARVIS

ANALYTICAL ENVIRONMENTAL SERVICES, INC.
3125 Marjan Drive
Atlanta, GA 30340
Tel: (770) 457-8177
Fax: (770) 457-8188

NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	Exterior Pipe - 32	AES Lab ID:	3393
Location:	Not given		

Sample Description: Layered: 1) Light brown semi-hard fibrous with aluminum; 2) Gray soft powdery to fibrous.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	15
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	5
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	5
Bitumen:	
Resilient Material:	
Glue:	
Binders:	75

COMMENTS: Layer #2 contains 15% amosite. Layer #1 does not contain asbestos.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: Svetlana Arkhipov

QCAnalyst: Svetlana Arkhipov

All percentages given are by volume visually estimated. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993." This report must not be reproduced except in full with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested. The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.

ENVIRONMENTAL MANAGEMENT INC

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NVLAP ®
ACCREDITED
LAB CODE - 102111

POLARIZED LIGHT MICROSCOPY (PLM)
BULK SAMPLE ANALYSIS REPORT

CLIENT NAME:	BAT ASSOCIATES	LAB JOB NO:	B9334-1
PROJECT NAME:	CHARLESTON NSY / 971001-13.03	DATE RECEIVED:	12/16/99
PROJECT NO:	L802Z.000	REPORT ISSUED:	1/13/00
SAMPLE FIELD ID:	36-4-1	LAB ID:	928047
SAMPLE INFO:		DATE ANALYZED:	1/7/00

SAMPLE DESCRIPTION

LAYERED: NO

APPEARANCE: GRAY HARD SILTY

RESULT OF ANALYSIS IN VOLUME PERCENTAGE (BY VISUAL ESTIMATE)

ASBESTOS FIBERS		NONASBESTOS FIBERS		NONFIBROUS COMPONENTS		OTHER COMPONENTS	
CHRYSOTILE		CELLULOSE		VERMICULITE/MICA		BITUMEN/TAR	
AMOSITE		GLASS FIBERS		PERLITE		SAND/AGGR.	5
CROCIDOLITE		SYNTHETICS		EXPANDED GLASS		GLUE/CAULK	
TREMOLITE		WOLLASTONITE		SYNTHETIC FOAM		VINYL	
ACTINOLITE		TALC		ALUMINUM/METAL		CORK	
ANTHOPHYLLITE				FOAM RUBBER		LATEX/RUBBER	
						PAINT/OTHER	95

COMMENTS:

SAMPLE WAS ANALYZED BY PLM USING DISPERSION STAINING TECHNIQUES IN ACCORDANCE WITH U.S. EPA METHOD 40CFR Ch. I (7-1-92) PT. 763, SUBPT. F, APP. A. LAST CALIBRATION OF EQUIPMENT WAS PERFORMED ON: 1/7/00
FOR ALL HETEROGENEOUS AND LAYERED SAMPLES EASILY SEPARATED INTO SUBLAYERS, EACH LAYER IS ANALYZED SEPARATELY.
REPORT 1 OF 1

ANALYST

ALEKSEY REZNIK

QUALITY CONTROL

STEVE JARVIS

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ACCREDITED
LAB CODE - 102111

POLARIZED LIGHT MICROSCOPY (PLM)
BULK SAMPLE ANALYSIS REPORT

CLIENT NAME:	BAT ASSOCIATES	LAB JOB NO:	B9334-1
PROJECT NAME:	CHARLESTON NSY / 971001-13.03	DATE RECEIVED:	12/16/99
PROJECT NO:	L802Z.000	REPORT ISSUED:	1/13/00
SAMPLE FIELD ID:	**36-4-2**	LAB ID:	928048
SAMPLE INFO:		DATE ANALYZED:	1/7/00

SAMPLE DESCRIPTION

LAYERED: NO

APPEARANCE: GRAY HARD SILTY

RESULT OF ANALYSIS IN VOLUME PERCENTAGE (BY VISUAL ESTIMATE)

ASBESTOS FIBERS		NONASBESTOS FIBERS		NONFIBROUS COMPONENTS		OTHER COMPONENTS	
CHRYSOTILE		CELLULOSE		VERMICULITE/MICA		BITUMEN/TAR	
AMOSITE		GLASS FIBERS		PERLITE		SAND/AGGR.	7
CROCIDOLITE		SYNTHETICS		EXPANDED GLASS		GLUE/CAULK	
TREMOLITE		WOLLASTONITE		SYNTHETIC FOAM		VINYL	
ACTINOLITE		TALC		ALUMINUM/METAL		CORK	
ANTHOPHYLLITE				FOAM RUBBER		LATEX/RUBBER	
						PAINT/OTHER	93

COMMENTS:

SAMPLE WAS ANALYZED BY PLM USING DISPERSION STAINING TECHNIQUES IN ACCORDANCE WITH U.S. EPA METHOD 40CFR Ch. I (7-1-92) PT. 763, SUBPT. F, APP. A. LAST CALIBRATION OF EQUIPMENT WAS PERFORMED ON: 1/7/00
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REPORT 1 OF 1

ANALYST

ALEKSEY REZNIK

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ACCREDITED
LAB CODE - 102111

POLARIZED LIGHT MICROSCOPY (PLM)
BULK SAMPLE ANALYSIS REPORT

CLIENT NAME:	BAT ASSOCIATES	LAB JOB NO:	B9334-1
PROJECT NAME:	CHARLESTON NSY / 971001-13.03	DATE RECEIVED:	12/16/99
PROJECT NO:	L802Z.000	REPORT ISSUED:	1/13/00
SAMPLE FIELD ID:	**36-4-3**	LAB ID:	928049
SAMPLE INFO:		DATE ANALYZED:	1/7/00

SAMPLE DESCRIPTION

LAYERED: NO

APPEARANCE: GRAY HARD SILTY

RESULT OF ANALYSIS IN VOLUME PERCENTAGE (BY VISUAL ESTIMATE)

ASBESTOS FIBERS		NONASBESTOS FIBERS		NONFIBROUS COMPONENTS		OTHER COMPONENTS	
CHRYSOTILE		CELLULOSE		VERMICULITE/MICA		BITUMEN/TAR	
AMOSITE		GLASS FIBERS		PERLITE		SAND/AGGR.	5
CROCIDOLITE		SYNTHETICS		EXPANDED GLASS		GLUE/CAULK	
TREMOLITE		WOLLASTONITE		SYNTHETIC FOAM		VINYL	
ACTINOLITE		TALC		ALUMINUM/METAL		CORK	
ANTHOPHYLLITE				FOAM RUBBER		LATEX/RUBBER	
						PAINT/OTHER	95

COMMENTS:

SAMPLE WAS ANALYZED BY PLM USING DISPERSION STAINING TECHNIQUES IN ACCORDANCE WITH U.S. EPA METHOD 40CFR Ch. I (7-1-92) PT. 763, SUBPT. F, APP. A. LAST CALIBRATION OF EQUIPMENT WAS PERFORMED ON: 1/7/00
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REPORT 1 OF 1

ANALYST

ALEKSEY REZNIK

QUALITY CONTROL

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3125 Marjan Drive
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Tel: (770) 457-8177
Fax: (770) 457-8188

NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	B34-S1	AES Lab ID:	3405
Location:	Not given		

Sample Description: Layered: 1) Red semi-hard silty to woven; 2) Gray semi-hard silty to fibrous; 3) Light gray soft fibrous.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	5
Fiberglass:	80
Cellulose:	
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	15

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: Svetlana Arkhipov

QCAnalyst: Svetlana Arkhipov

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NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	B34-S2	AES Lab ID:	3406
Location:	Not given		

Sample Description: Layered: 1) Red semi-hard silty to woven; 2) Gray semi-hard silty to fibrous; 3) Light gray soft fibrous.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	5
Fiberglass:	80
Cellulose:	
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	15

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: 
Svetlana Arkhipov

QCAnalyst: 
Svetlana Arkhipov

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ANALYTICAL ENVIRONMENTAL SERVICES, INC.
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Fax: (770) 457-8188

NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	B34-S3	AES Lab ID:	3407
Location:	Not given		

Sample Description: Layered: 1) Red semi-hard silty to woven; 2) Light gray soft powdery to fibrous.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	10
Cellulose:	25
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	65

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: J. Arkhipov — Svetlana Arkhipov

QCAnalyst: Andrew Pittman — Andrew Pittman

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Fax: (770) 457-8188

NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	36-15-1	AES Lab ID:	3417
Location:	Not given		

Sample Description: Layered: 1) Black semi-hard bitumenous; 2) Black semi-hard bitumenous to fibrous; 3) Brown soft fibrous to perlitic.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	5
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	5
Fiberglass:	
Cellulose:	30
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	60
Resilient Material:	
Glue:	
Binders:	

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: S. Arkhipov — Svetlana Arkhipov

QCAnalyst: Andrew Pittman — Andrew Pittman

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NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	36-15-2	AES Lab ID:	3418
Location:	Not given		

Sample Description: Layered: 1) Black semi-hard bitumenous; 2) Black semi-hard bitumenous to fibrous; 3) Brown soft fibrous to perlitic.

All percentages given below are visually estimated by volume.

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	5
Fiberglass:	
Cellulose:	30
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	5
Aggregates:	
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	60
Resilient Material:	
Glue:	
Binders:	

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: Svetlana Arkhipov

QCAnalyst: Andrew Pittman

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NVLAP Lab # 102082-0

BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.		
Project Name:	Charleston Naval Shipyard	Project Number	971001
Client Sample ID:	36-15-3	AES Lab ID:	3419
Location:	Not given		

Sample Description: Layered: 1) Black semi-hard bitumenous with aggregates; 2) Black semi-hard bitumenous to fibrous.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	10
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	25
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	65
Resilient Material:	
Glue:	
Binders:	

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: S. Arkhipov — Svetlana Arkhipov

QCAnalyst: Andrew Pittman — Andrew Pittman

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BAT
BAT Associates, Inc.
ENVIRONMENTAL, HEALTH & SAFETY SERVICES

5151 Brook Hollow Pkwy., Suite 250
Norcross, GA 30071
Phone: (770) 242-39031
Fax: (770) 242-3912

CHAIN OF CUSTODY FORM

BAT PROJECT CONTACT	**DOUGLAS J. MILTON**		
BAT JOB NAME	**Charleston Naval Shipyard**	BAT JOB NO. **971001**	TASK NO. **13.03**
ANALYSIS REQUESTED	■ PLM □ PCM □ AAS For Lead Content □ OTHER_____		
CHECK ONE:	□ ROUTINE ■ ROUTINE - FAX (HANDWRITTEN) AS SOON AS POSSIBLE □ RUSH - FAX (HANDWRITTEN) AS SOON AS POSSIBLE		

SAMPLE ID	SAMPLE ID
1. 31-2-1	16. 31-12-1
2. 31-2-2	17. 31-12-2
3. 31-2-3	18. 31-12-3
4. 31-5-1	19. 31-13-1
5. 31-5-2	20. 31-13-2
6. 31-5-3	21. 31-13-3
7. 31-9-1	22. 31-16-1
8.. 31-9-2	23. 31-16-2
9. 31-9-3	24. 31-16-3
10. 31-10-1	25.
11. 31-10-2	26.
12. 31-10-3	27.
13. 31-11-1	28.
14. 31-11-2	29.
15. 31-11-3	30.

SPECIAL INSTRUCTIONS: Analyze each homogeneous area till positive	
Relinquished by: Leslie Bell	Received by: Jennystar Ross
Date: ~~1/31/00~~ Time: 1357	Date: FEB 01 2000 Time:

2/1/00 NAVY BILL RATE

BAT
BAT Associates, Inc.
ENVIRONMENTAL, HEALTH & SAFETY SERVICES

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Fax: (770) 242-3912

CHAIN OF CUSTODY FORM

BAT PROJECT CONTACT	**DOUGLAS J. MILTON**		
BAT JOB NAME	**Charleston Naval Shipyard**	BAT JOB NO. **971001**	TASK NO. **13.03**
ANALYSIS REQUESTED	■ PLM □ PCM □ AAS For Lead Content □ OTHER_____		

CHECK ONE:
- □ ROUTINE
- ■ ROUTINE - FAX (HANDWRITTEN) AS SOON AS POSSIBLE
- □ RUSH - FAX (HANDWRITTEN) AS SOON AS POSSIBLE

SAMPLE ID	SAMPLE ID
1. 32-2-1	16. 32-7-1
2. 32-2-2	17. 32-7-2
3. 32-2-3	18. 32-7-3
4. 32-3-1	19. 32-8-1
5. 32-3-2	20. 32-8-2
6. 32-3-3	21. 32-8-3
7. 32-4-1	22. 32-11-1
8.. 32-4-2	23. 32-11-2
9. 32-4-3	24. 32-11-3
10. 32-5-1	25.
11. 32-5-2	26.
12. 32-5-3	27.
13. 32-6-1	28.
14. 32-6-2	29.
15. 32-6-3	30.

SPECIAL INSTRUCTIONS: Analyze each homogeneous area till positive

Relinquished by: Ashie Bell	Received by: Jennyster Ross
Date: ~~1/31/00~~ Time: 1357	Date: FEB 0 1 2000 Time:

2/1/00 NAVY BILL RATE

BAT
BAT Associates, Inc.
ENVIRONMENTAL, HEALTH & SAFETY SERVICES

5151 Brook Hollow Pkwy., Suite 250
Norcross, GA 30071
Phone: (770) 242-39034
Fax: (770) 242-3912

CHAIN OF CUSTODY FORM

BAT PROJECT CONTACT	**DOUGLAS J. MILTON**		
BAT JOB NAME	**Charleston Naval Shipyard**	BAT JOB NO. **971001**	TASK NO. **13.03**
ANALYSIS REQUESTED	■ PLM □ PCM □ AAS For Lead Content □ OTHER_____		

CHECK ONE:
- □ ROUTINE
- ■ ROUTINE - FAX (HANDWRITTEN) AS SOON AS POSSIBLE
- □ RUSH - FAX (HANDWRITTEN) AS SOON AS POSSIBLE

SAMPLE ID	SAMPLE ID
1. 33-4-1	16.
2. 33-4-2	17.
3. 33-4-3	18.
4. 33-5-1	19.
5. 33-5-2	20.
6. 33-5-3	21.
7. 33-8-1	22.
8.. 33-8-2	23.
9. 33-8-3	24.
10. 33-9-1	25.
11. 33-9-2	26.
12. 33-9-3	27.
13. 33-11-1	28.
14. 33-11-2	29.
15. 33-11-3	30.

SPECIAL INSTRUCTIONS: Analyze each homogeneous area till positive

Relinquished by: Sophie Bell	Received by: Jennystar Ross
Date: ~~1/33/00~~ Time: 1357	Date: FEB 01 2000 Time:

2/11/00 NAVY Bill rate

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Fax: (770) 242-3912

CHAIN OF CUSTODY FORM

BAT PROJECT CONTACT	DOUGLAS J. MILTON		
BAT JOB NAME	Charleston Naval Shipyard	BAT JOB NO. 971001	TASK NO. 13.03
ANALYSIS REQUESTED	■ PLM □ PCM □ AAS For Lead Content □ OTHER_____		

CHECK ONE:
- □ ROUTINE
- ■ ROUTINE - FAX (HANDWRITTEN) AS SOON AS POSSIBLE
- □ RUSH - FAX (HANDWRITTEN) AS SOON AS POSSIBLE

SAMPLE ID	SAMPLE ID
1. 34-3-1	16. 34-10-1
2. 34-3-2	17. 34-10-2
3. 34-3-3	18. 34-10-3
4. 34-4-1	19. 34-11-1
5. 34-4-2	20. 34-11-2
6. 34-4-3	21. 34-11-3
7. 34-5-1	22. 34-12-1
8.. 34-5-2	23. 34-12-2
9. 34-5-3	24. 34-12-3
10. 34-6-1 -	25. 34-19-1
11. 34-6-2	26. 34-19-2
12. 34-6-3	27. 34-19-3
13. 34-8-1	28.
14. 34-8-2	29.
15. 34-8-3	30.

SPECIAL INSTRUCTIONS: Analyze each homogeneous area ~~[illegible]~~ till positive

Relinquished by: Joshua Bell	Received by: Jennystar Ross
Date: ~~1/34/00~~ Time: 1357	Date: FEB 01 2000 Time:

2/1/00 NAVY BILL RATE

BAT
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Phone: (770) 242-39033
Fax: (770) 242-3912

CHAIN OF CUSTODY FORM

BAT PROJECT CONTACT	**DOUGLAS J. MILTON**		
BAT JOB NAME	**Charleston Naval Shipyard**	BAT JOB NO. **971001**	TASK NO. **13.03**
ANALYSIS REQUESTED	■ PLM □ PCM □ AAS For Lead Content □ OTHER_____		
CHECK ONE:	□ ROUTINE ■ ROUTINE - FAX (HANDWRITTEN) AS SOON AS POSSIBLE □ RUSH - FAX (HANDWRITTEN) AS SOON AS POSSIBLE		

SAMPLE ID	SAMPLE ID
1. 35-5-1	16.
2. 35-5-2	17.
3. 35-5-3	18.
4. 35-10-1	19.
5. 35-10-2	20.
6. 35-10-3	21.
7. 35-24-1	22.
8. 35-24-2	23.
9. 35-24-3	24.
10.	25.
11.	26.
12.	27.
13.	233.
14.	29.
15.	30.

SPECIAL INSTRUCTIONS: Analyze each homogeneous area tile positive	
Relinquished by: Ashlee Bell	Received by: Jennystar Ross
Date: ~~1/33/00~~ Time: 1357	Date: FEB 01 2000 Time:

2/1/00 NAVY BILL Rate

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CHAIN OF CUSTODY FORM

BAT PROJECT CONTACT	**DOUGLAS J. MILTON**		
BAT JOB NAME	**Charleston Naval Shipyard**	BAT JOB NO. **971001**	TASK NO. **13.03**
ANALYSIS REQUESTED	■ PLM □ PCM □ AAS For Lead Content □ OTHER_____		
CHECK ONE:	□ ROUTINE ■ ROUTINE - FAX (HANDWRITTEN) AS SOON AS POSSIBLE □ RUSH - FAX (HANDWRITTEN) AS SOON AS POSSIBLE		

SAMPLE ID	SAMPLE ID
1. 36-4-1	16.
2. 36-4-2	17.
3. 36-4-3	18.
4. 36-5-1	19.
5. 36-5-2	20.
6. 36-5-3	21.
7. 36-15-1	22.
8.. 36-15-2	23.
9. 36-15-3	24.
10. 36-16-1	25.
11.36-16-2	26.
12.36-16-3	27.
13.	28.
14.	29.
15.	30.

SPECIAL INSTRUCTIONS: Analyze each homogeneous area tile positive	
Relinquished by: Leslie Bell	Received by: Jennyfer Ross
Date: ~~1/33/00~~ 2/1/00 Time: 1357	Date: FEB 0 1 2000 Time:

NAVY BILL rate

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Fax: (770) 242-3912

CHAIN OF CUSTODY FORM

BAT PROJECT CONTACT	DOUGLAS J. MILTON		
BAT JOB NAME	Charleston Naval Shipyard	BAT JOB NO. 971001	TASK NO. 13.03
ANALYSIS REQUESTED	■ PLM □ PCM □ AAS For Lead Content □ OTHER_____		

CHECK ONE:
- □ ROUTINE
- ■ ROUTINE - FAX (HANDWRITTEN) AS SOON AS POSSIBLE
- □ RUSH - FAX (HANDWRITTEN) AS SOON AS POSSIBLE

SAMPLE ID	SAMPLE ID
1. Exterior Pipe-32	16. B35-S1
2. Exterior Pipe-34	17. B35-S2
3. Exterior Pipe-36	18. B35-S3
4. B31-S1	19.
5. B31-S2	20.
6. B31-S3	21.
7. B32-S1	22.
8. B32-S2	23.
9. B32-S3	24.
10. B33-S1	25.
11. B33-S2	26.
12. B33-S3	27.
13. B34-S1	233.
14. B34-S2	29.
15. B34-S3	30.

SPECIAL INSTRUCTIONS: Analyze each homogeneous area till positive

Relinquished by: Debbie Bell	Received by: Jennyster Ross
Date: ~~1/33/00~~ Time: 1357	Date: FEB 01 2000 Time:

2/1/00 NAVY BILL Note

ENVIRONMENTAL MANAGEMENT I N C

TEL: (770) 908-7200 FAX: (770) 908-7219

PLM ANALYSIS ASBESTOS SUMMARY *

CLIENT NAME: BAT ASSOCIATES PROJECT NO: 00003.000.000

PROJECT NAME: CHARLESTON NSY / 971001-13.03 LAB JOB NO: B0018 DATE RCVD: 2/1/00

	SAMPLE LAB ID	SAMPLE FIELD ID	LAYER NUMBER	APPEARANCE	LOCATION / DESCRIPTION	% ASBESTOS (COMMENTS)
17	1032	34-4-1QC		BLUE HARD RESILIENT TO GRANULAR WITH BLACK MASTIC		4%CHR (6% CHRYSOTILE IN BLACK MASTIC)
18	1033-1	34-6-1QC	1 (of 2)	RED HARD RESILIENT TO GRANULAR		-
19	1033-2	34-6-1QC	2 (of 2)	BLACK MASTIC WITH FIBERS		7%CHR
20	1034	34-5-1QC		YELLOW HARD RESILIENT TO GRANULAR WITH BLACK MASTIC		5%CHR (7% CHRYSOTILE IN BLACK MASTIC)
21	1035	36-4-1QC		GRAY HARD RESILIENT TO GRANULAR WITH BLACK MASTIC		7%CHR (4% CHRYSOTILE IN BLACK MASTIC)
22	1036	BAT199-2-1QC		PINK HARD RESILIENT TO GRANULAR WITH YELLOW GUMMY MASTIC		-
23	1037	BAT199-1-1QC		BLACK HARD RESILIENT TO GRANULAR WITH FIBERS AND BLACK MASTIC		5%CHR (3% CHRYSOTILE IN BLACK MASTIC)
24	1038	BAT199-4-1QC		GRAY SEMI-HARD RESILIENT WITH BROWN MASTIC		-
25	1039	BAT199-5-1QC		GRAY SEMI-HARD RESILIENT		-
26	1040	BAT199-7-1QC		GRAY SOFT FIBROUS TO GRANULAR TO POWDERY WITH PAINT		-
27	1041	BAT199-10-1QC		BLACK SOFT BITUMINOUS WITH FIBERS AND ALUMINUM FOIL		5%CHR
28	1042	BAT199-17-1QC		GRAY SOFT RESILIENT WITH ALUMINUM FOIL, CANVAS, AND YELLOW FIBERS		-
29	1043-2	1777-3-1QC	2 (of 2)	BLACK SOFT BITUMINOUS WITH FIBERS		3%CHR (SAMPLE NOT ON CHAIN-OF-CUSTODY)
30	1043	1777-1-1QC		NOT RECEIVED		(NOT ANALYZED)
31	1043-1	1777-3-1QC	1 (of 2)	GREEN HARD RESILIENT TO GRANULAR WITH FIBERS		(SAMPLE NOT ON CHAIN-OF-CUSTODY)

* If box "QC" is not checked, these results are provided before full QC is completed and therefore could be changed. QC ☐ "-" = NO ASBESTOS DETECTED

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CHAIN OF CUSTODY FORM

BAT PROJECT CONTACT	DOUGLAS J. MILTON		
BAT JOB NAME	Charleston Naval Shipyard	BAT JOB NO. 971001	TASK NO. 13.03
ANALYSIS REQUESTED	■ PLM □ PCM □ AAS For Lead Content □ OTHER_____		

CHECK ONE:
- □ ROUTINE
- ■ ROUTINE - FAX (HANDWRITTEN) AS SOON AS POSSIBLE
- □ RUSH - FAX (HANDWRITTEN) AS SOON AS POSSIBLE

SAMPLE ID	SAMPLE ID
1. 76-1-1QC	16. 34-4-1QC
2. 76-4-1QC	17. 34-6-1QC
3. 76-8-1QC	18. 34-5-1QC
4. 76-9-1QC	19. 36-4-1QC
5. 76-12-1QC	20. BAT199-2-1QC
6. 76-15-1QC	21. BAT199-1-1QC
7. 76-16-1QC	22. BAT199-4-1QC
8. 76-21-1QC	23. BAT199-5-1QC
9. 76-23-1QC	24. BAT199-7-1QC
10. 31-5-1QC	25. BAT199-10-1QC
11. 31-10-1QC	26. BAT199-17-1QC
12. 32-2-1QC	27.
13. 32-3-1QC	28.
14. 33-5-1QC	29.
15. 34-3-1QC	30.

SPECIAL INSTRUCTIONS: [illegible]

Relinquished by: Joshua Bell	Received by:
Date: ~~12/29/99~~ Time:	Date: 2/1/00 Time: 2:30

~~43100~~ 2/1/00