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ASBESTOS CONTAINING MATERIAL RE INSPECTION BUILDING 1886 VOLUME 23 CNC
CHARLESTON SC
1/15/2000
BAT ASSOCIATES, INC.

Volume 23

**Asbestos-Containing Material Re-inspection
For Building 1886
Charleston Naval Shipyard
Charleston, South Carolina**

Contract No. N2467-96-D-0998
Delivery Order No. 0013

Prepared for:

Department of the Navy
Southern Division
NAVFACENGCOM
245 Eagle Drive
North Charleston, SC 29419

Prepared by:

BAT Associates, Inc.
541 Brook Hollow Parkway
Suite 250
Norcross, Georgia 30071
(770) 242-3908

January 15, 2000

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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 1886 located at the Charleston Naval Shipyard in Charleston, South Carolina.

No asbestos-containing materials were identified in this building.

2.0 BUILDING INSPECTION INFORMATION FORM

Building Name: SCE&G
Building Number: 1886
Facility: Charleston Naval Shipyard
Building Area (square footage): 960
Year Built: 1977
Building Type: Storage
No. of Floors in Building: One
Purpose of ACM Survey: Re-Inspection
Facility Unit Identification Code (UIC): N/A

Building Contact: Mr. William A. Drawdy
Contact's Telephone No.: (843) 743-9985
Building Survey Date(s): November 8, 1999

Asbestos Inspector's Name: Mr. Jason McGlashan
Asbestos Inspector's Accreditation No: GA2594
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 23 separate volume reports. This report describes the results for Building 1886.

This re-inspection survey was performed by Mr. Jason McGlashan, under the direct supervision of Mr. Douglas J. Milton, CIH, on November 8, 1999. Mr. McGlashan is an accredited asbestos building inspector. 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); and conclusions (Section 10.0). Appendix A contains drawings identifying the locations of collected bulk samples. Appendix B contains laboratory analysis results. Appendix C contains personnel and laboratory accreditations.

The assessment protocol for ACM involved three distinct steps:

1. Performed preliminary walk-through 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 763.86, and in accordance with BAT's contract requirements.

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.

5.0 ASBESTOS INVENTORY AND ASSESSMENT

Table 1.0 describes the suspect ACM identified in and around Building 1886.

Table 1.0
Summary of Identified Suspect ACM

HA No.	Description of Suspect ACM	Location of Suspect ACM	AHERA Category of Material
1	Floor Tile, 12" x 12" gray w/ black mastic	Women's locker room area	N/A
2	Ceiling Tile, 2' x 4' with two size holes	Men's and women's locker room areas	N/A
3	Joint Sealer Compound, on drywall	Throughout the building	N/A
4	Floor Tile, 12" x 12" blue with blue and white streaks w/ black mastic	Men's locker room	N/A

Notes: N/A = Not Applicable

6.0 SUMMARY OF SAMPLE ANALYSIS RESULTS

Table 2.0 contains a summary of the bulk sample analysis results for suspect ACM identified in this building.

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 2.0
Summary of Sample Analysis Results

HA No.	Sample ID No.	Suspect Material Description	Asbestos Content	Friability
1	1886-1-1, 1886-1-2, 1886-1-3	Floor Tile, 12" x 12" gray w/ black mastic	NAD	N/A
2	1886-2-1, 1886-2-2, 1886-2-3	Ceiling Tile, 2' x 4' with two size holes	NAD	N/A
3	1886-3-1, 1886-3-2, 1886-3-3	Joint Sealer Compound, on drywall	NAD	N/A
4	1886-4-1, 1886-4-2, 1886-4-3	Floor Tile, 12" x 12" blue with blue and white streaks w/ black mastic	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 3.0
Validation of Quality Control Sampling

Sample I.D. No.	Primary Laboratory Analysis Results	QC Laboratory Analysis Results
1886-1-1	NAD	NAD
1886-4-1	NAD	NAD

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

No physical assessments are required since no asbestos-containing materials were identified in this building.

9.0 HAZARD ASSESSMENT OF IDENTIFIED ACM

No hazard assessments are required since no asbestos-containing materials were identified in this building.

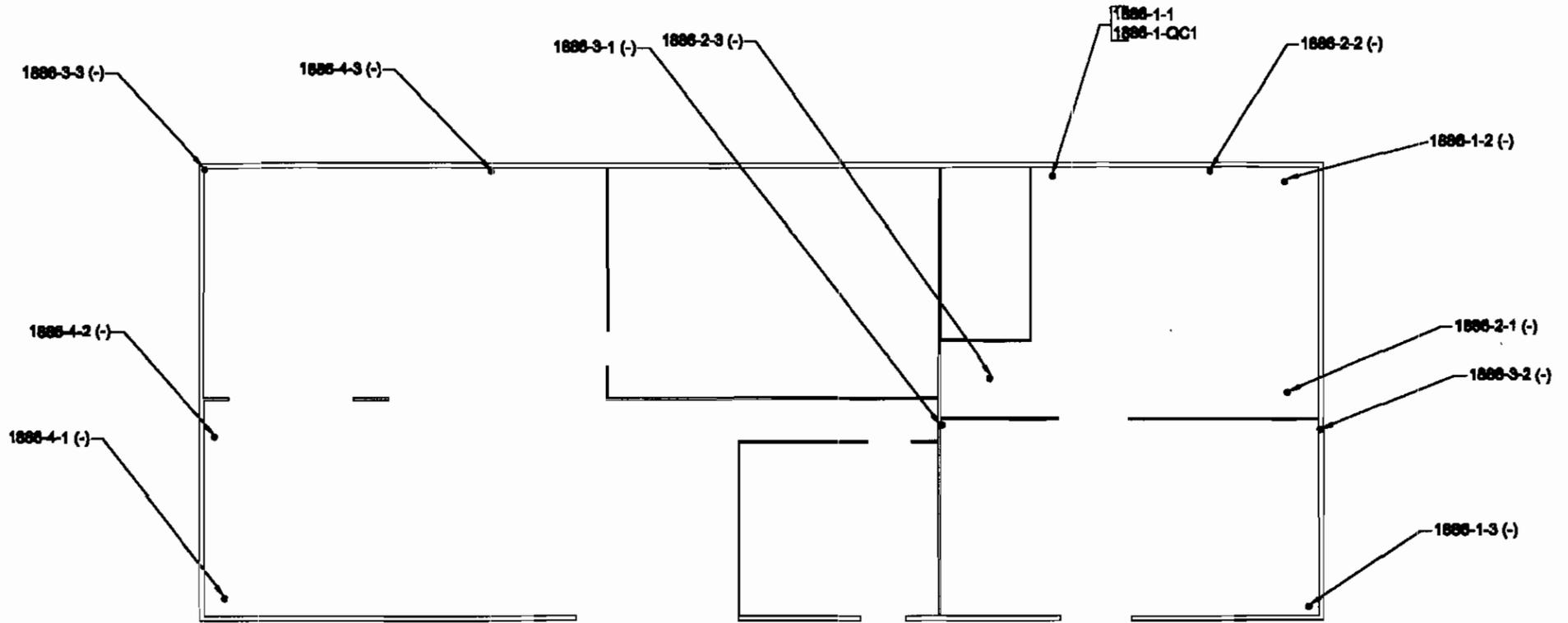
10.0 CONCLUSIONS

Inspection of Building 1886 and confirmatory laboratory bulk sample analysis of selected samples identified the following materials with asbestos concentrations greater than one percent.

<u>Identified ACM</u>	<u>Quantity</u>	<u>NESHAP Category</u>
None.		

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

<u>Assumed ACM</u>	<u>Quantity</u>	<u>NESHAP Category</u>
None.		



**NOTE: No Asbestos-Containing
Materials Identified In
This Building.**

**Building 1886
Sample Locations**

LEGEND

- - Sample Location
- (-) - Non-Asbestos-Containing Sample Location



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

**POLARIZED LIGHT MICROSCOPY (PLM)
BULK SAMPLE ANALYSIS REPORT**

CLIENT NAME: BAT ASSOCIATES LAB JOB NO: B9323
PROJECT NAME: CHARLESTON NSY / 971001-13.03 DATE RECEIVED: 12/6/99
PROJECT NO: L802Z.000 REPORT ISSUED: 12/14/99
SAMPLE FIELD ID: 1886-1-1 LAB ID: 927129
SAMPLE INFO: DATE ANALYZED: 12/13/99

SAMPLE DESCRIPTION

LAYERED: NO
APPEARANCE: GRAY HARD RESILIENT TO GRANULAR

RESULT OF ANALYSIS IN VOLUME PERCENTAGE (BY VISUAL ESTIMATE)

ASBESTOS FIBERS		NONASBESTOS FIBERS		NONFIBROUS COMPONENTS		OTHER COMPONENTS	
CHRYBOTILE		CELLULOSE	2	VERMICULITE/MICA		BITUMEN/TAR	
AMOSITE		GLASS FIBERS		PERLITE		SAND/AGGR.	30
CROCIDOLITE		SYNTHETICS		EXPANDED GLASS		GLUE/CAULK	
TREMOLITE		WOLLASTONITE		SYNTHETIC FOAM		VINYL	
ACTINOLITE		TALC		ALUMINUM/METAL		CORK	
ANTHOPHYLLITE				FOAM RUBBER		LATEX/RUBBER	
						PAINT/OTHER	68

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: 12/13/99 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

**POLARIZED LIGHT MICROSCOPY (PLM)
BULK SAMPLE ANALYSIS REPORT**

CLIENT NAME: BAT ASSOCIATES LAB JOB NO: B9323
PROJECT NAME: CHARLESTON NSY / 971001-13.03 DATE RECEIVED: 12/6/99
PROJECT NO: L802Z.000 REPORT ISSUED: 12/14/99
SAMPLE FIELD ID: 1886-1-2 LAB ID: 927130
SAMPLE INFO: DATE ANALYZED: 12/13/99

SAMPLE DESCRIPTION

LAYERED: NO
APPEARANCE: GRAY HARD RESILIENT TO GRANULAR WITH MASTIC

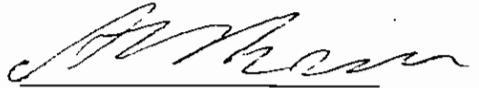
RESULT OF ANALYSIS IN VOLUME PERCENTAGE (BY VISUAL ESTIMATE)

ASBESTOS FIBERS		NONASBESTOS FIBERS		NONFIBROUS COMPONENTS		OTHER COMPONENTS	
CHRYSTOLE		CELLULOSE	3	VERMICULITE/MICA		BITUMEN/TAR	
AMOSITE		GLASS FIBERS		PERLITE		SAND/AGGR.	30
CROCIDOLITE		SYNTHETICS		EXPANDED GLASS		GLUE/CAULK	2
TREMOLITE		WOLLASTONITE		SYNTHETIC FOAM		VINYL	
ACTINOLITE		TALC		ALUMINUM/METAL		CORK	
ANTHOPHYLLITE				FOAM RUBBER		LATEX/RUBBER	
						PAINT/OTHER	65

COMMENTS:

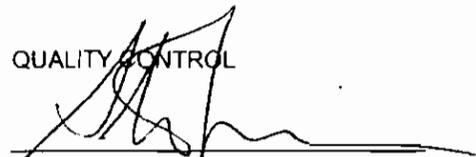
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PROJECT NAME: CHARLESTON NSY / 971001-13.03 DATE RECEIVED: 12/6/99
PROJECT NO: L802Z.000 REPORT ISSUED: 12/14/99
SAMPLE FIELD ID: 1886-1-3 LAB ID: 927131
SAMPLE INFO: DATE ANALYZED: 12/13/99

SAMPLE DESCRIPTION

LAYERED: NO

APPEARANCE: GRAY HARD RESILIENT TO GRANULAR WITH MASTIC

RESULT OF ANALYSIS IN VOLUME PERCENTAGE (BY VISUAL ESTIMATE)

ASBESTOS FIBERS		NONASBESTOS FIBERS		NONFIBROUS COMPONENTS		OTHER COMPONENTS	
CHRYBOTILE		CELLULOSE	3	VERMICULITE/MICA		BITUMEN/TAR	
AMOSITE		GLASS FIBERS		PERLITE		SAND/AGGR.	30
CROCIDOLITE		SYNTHETICS		EXPANDED GLASS		GLUE/CAULK	2
TREMOLITE		WOLLASTONITE		SYNTHETIC FOAM		VINYL	
ACTINOLITE		TALC		ALUMINUM/METAL		CORK	
ANTHOPHYLLITE				FOAM RUBBER		LATEX/RUBBER	
						PAINT/OTHER	65

COMMENTS:

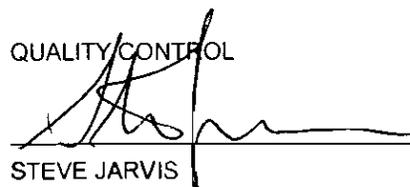
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REPORT 1 OF 1

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 PROJECT NO: L802Z.000 REPORT ISSUED: 12/14/99
 SAMPLE FIELD ID: 1886-2-1 LAB ID: 927132
 SAMPLE INFO: _____ DATE ANALYZED: 12/13/99

SAMPLE DESCRIPTION

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

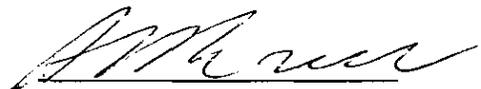
RESULT OF ANALYSIS IN VOLUME PERCENTAGE (BY VISUAL ESTIMATE)

ASBESTOS FIBERS		NONASBESTOS FIBERS		NONFIBROUS COMPONENTS		OTHER COMPONENTS	
CHRYCOTILE		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

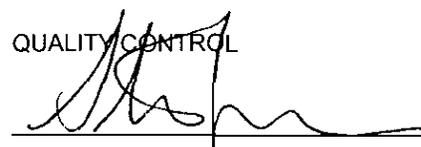
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BULK SAMPLE ANALYSIS REPORT**

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PROJECT NAME: CHARLESTON NSY / 971001-13.03 DATE RECEIVED: 12/6/99
PROJECT NO: L802Z.000 REPORT ISSUED: 12/14/99
SAMPLE FIELD ID: 1886-2-2 LAB ID: 927133
SAMPLE INFO: DATE ANALYZED: 12/13/99

SAMPLE DESCRIPTION

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

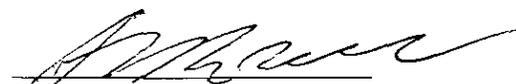
RESULT OF ANALYSIS IN VOLUME PERCENTAGE (BY VISUAL ESTIMATE)

ASBESTOS FIBERS		NONASBESTOS FIBERS		NONFIBROUS COMPONENTS		OTHER COMPONENTS	
CHRYSTOLE		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

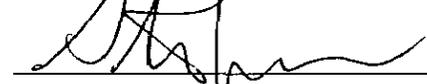
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PROJECT NAME: CHARLESTON NSY / 971001-13.03 DATE RECEIVED: 12/6/99
PROJECT NO: L802Z.000 REPORT ISSUED: 12/14/99
SAMPLE FIELD ID: 1886-2-3 LAB ID: 927134
SAMPLE INFO: _____ DATE ANALYZED: 12/13/99

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	
CHRYSTOLE		CELLULOSE	20	VERMICULITE/MICA		BITUMEN/TAR	
AMOSITE		GLASS FIBERS	40	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: 12/13/99 FOR ALL HETEROGENEOUS AND LAYERED SAMPLES EASILY SEPARATED INTO SUBLAYERS, EACH LAYER IS ANALYZED SEPARATELY. REPORT 1 OF 1

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PROJECT NAME: CHARLESTON NSY / 971001-13.03 DATE RECEIVED: 12/6/99
PROJECT NO: L802Z.000 REPORT ISSUED: 12/14/99
SAMPLE FIELD ID: 1886-3-1 LAB ID: 927135
SAMPLE INFO: DATE ANALYZED: 12/13/99

SAMPLE DESCRIPTION

LAYERED: YES LAYER NO: 1+2 NO. OF LAYERS: 2
APPEARANCE: 1. WHITE HARD SILTY WITH MICA (J/C); 2. GRAY SOFT FIBROUS (TAPE)

RESULT OF ANALYSIS IN VOLUME PERCENTAGE (BY VISUAL ESTIMATE)

ASBESTOS FIBERS	NONASBESTOS FIBERS	NONFIBROUS COMPONENTS	OTHER COMPONENTS
CHRYSTOLE	CELLULOSE 30	VERMICULITE/MICA 5	BITUMEN/TAR
AMOSITE	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 65

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: 12/13/99 FOR ALL HETEROGENEOUS AND LAYERED SAMPLES EASILY SEPARATED INTO SUBLAYERS, EACH LAYER IS ANALYZED SEPARATELY.
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PROJECT NAME: CHARLESTON NSY / 971001-13.03 DATE RECEIVED: 12/6/99
PROJECT NO: L802Z.000 REPORT ISSUED: 12/14/99
SAMPLE FIELD ID: 1886-3-2 LAB ID: 927136
SAMPLE INFO: DATE ANALYZED: 12/13/99

SAMPLE DESCRIPTION

LAYERED: YES LAYER NO: 1+2 NO. OF LAYERS: 2
APPEARANCE: 1. WHITE HARD SILTY WITH MICA (J/C); 2. GRAY SOFT FIBROUS (TAPE)

RESULT OF ANALYSIS IN VOLUME PERCENTAGE (BY VISUAL ESTIMATE)

ASBESTOS FIBERS		NONASBESTOS FIBERS		NONFIBROUS COMPONENTS		OTHER COMPONENTS	
CHRYSOTILE		CELLULOSE	30	VERMICULITE/MICA	2	BITUMEN/TAR	
AMOSITE		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	68

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: 12/13/99 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

**POLARIZED LIGHT MICROSCOPY (PLM)
BULK SAMPLE ANALYSIS REPORT**

CLIENT NAME: BAT ASSOCIATES LAB JOB NO: B9323
 PROJECT NAME: CHARLESTON NSY / 971001-13.03 DATE RECEIVED: 12/6/99
 PROJECT NO: L802Z.000 REPORT ISSUED: 12/14/99
 SAMPLE FIELD ID: 1886-3-3 LAB ID: 927137
 SAMPLE INFO: _____ DATE ANALYZED: 12/13/99

SAMPLE DESCRIPTION

LAYERED: YES LAYER NO: 1+2 NO. OF LAYERS: 2
 APPEARANCE: 1. WHITE HARD SILTY WITH MICA (J/C) AND PAINT; 2. GRAY SOFT FIBROUS (TAPE)

RESULT OF ANALYSIS IN VOLUME PERCENTAGE (BY VISUAL ESTIMATE)

ASBESTOS FIBERS		NONASBESTOS FIBERS		NONFIBROUS COMPONENTS		OTHER COMPONENTS	
CHRYCOTILE		CELLULOSE	30	VERMICULITE/MICA	2	BITUMEN/TAR	
AMOSITE		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	68

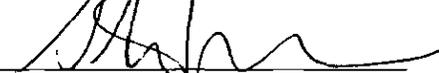
COMMENTS:

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: 12/13/99 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

**POLARIZED LIGHT MICROSCOPY (PLM)
BULK SAMPLE ANALYSIS REPORT**

CLIENT NAME: BAT ASSOCIATES LAB JOB NO: B9323
PROJECT NAME: CHARLESTON NSY / 971001-13.03 DATE RECEIVED: 12/6/99
PROJECT NO: L802Z.000 REPORT ISSUED: 12/14/99
SAMPLE FIELD ID: 1886-4-1 LAB ID: 927138
SAMPLE INFO: DATE ANALYZED: 12/13/99

SAMPLE DESCRIPTION

LAYERED: NO
APPEARANCE: BLUE HARD RESILIENT TO GRANULAR WITH BLACK MASTIC

RESULT OF ANALYSIS IN VOLUME PERCENTAGE (BY VISUAL ESTIMATE)

ASBESTOS FIBERS		NONASBESTOS FIBERS		NONFIBROUS COMPONENTS		OTHER COMPONENTS	
CHRYCOTILE		CELLULOSE	2	VERMICULITE/MICA		BITUMEN/TAR	3
AMOSITE		GLASS FIBERS		PERLITE		SAND/AGGR.	25
CROCIDOLITE		SYNTHETICS		EXPANDED GLASS		GLUE/CAULK	
TREMOLITE		WOLLASTONITE		SYNTHETIC FOAM		VINYL	
ACTINOLITE		TALC		ALUMINUM/METAL		CORK	
ANTHOPHYLLITE				FOAM RUBBER		LATEX/RUBBER	
						PAINT/OTHER	70

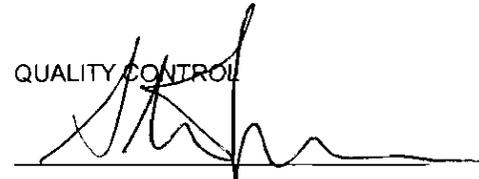
COMMENTS:

SAMPLE WAS ANALYZED BY PLM USING DISPERSION STAINING TECHNIQUES IN ACCORDANCE WITH U.S. EPA METHOD 40CFR Ch 1 (7-1-92) PT. 763, SUBPT. F, APP. A. LAST CALIBRATION OF EQUIPMENT WAS PERFORMED ON: 12/13/99 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

**POLARIZED LIGHT MICROSCOPY (PLM)
BULK SAMPLE ANALYSIS REPORT**

CLIENT NAME: BAT ASSOCIATES LAB JOB NO: B9323
PROJECT NAME: CHARLESTON NSY / 971001-13.03 DATE RECEIVED: 12/6/99
PROJECT NO: L802Z.000 REPORT ISSUED: 12/14/99
SAMPLE FIELD ID: 1886-4-2 LAB ID: 927139
SAMPLE INFO: DATE ANALYZED: 12/13/99

SAMPLE DESCRIPTION

LAYERED: NO

APPEARANCE: BLUE HARD RESILIENT TO GRANULAR WITH BLACK MASTIC

RESULT OF ANALYSIS IN VOLUME PERCENTAGE (BY VISUAL ESTIMATE)

ASBESTOS FIBERS		NONASBESTOS FIBERS		NONFIBROUS COMPONENTS		OTHER COMPONENTS	
CHRYBOTILE		CELLULOSE	2	VERMICULITE/MICA		BITUMEN/TAR	2
AMOSITE		GLASS FIBERS		PERLITE		SAND/AGGR.	25
CROCIDOLITE		SYNTHETICS		EXPANDED GLASS		GLUE/CAULK	
TREMOLITE		WOLLASTONITE		SYNTHETIC FOAM		VINYL	
ACTINOLITE		TALC		ALUMINUM/METAL		CORK	
ANTHOPHYLLITE				FOAM RUBBER		LATEX/RUBBER	
						PAINT/OTHER	71

COMMENTS:

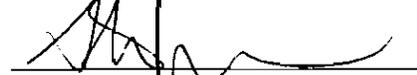
SAMPLE WAS ANALYZED BY PLM USING DISPERSION STAINING TECHNIQUES IN ACCORDANCE WITH U.S. EPA METHOD 40CFR Ch. I (7-1-92) PT. 763, SUBPT. F, APP. A LAST CALIBRATION OF EQUIPMENT WAS PERFORMED ON: 12/13/99 FOR ALL HETEROGENEOUS AND LAYERED SAMPLES EASILY SEPARATED INTO SUBLAYERS, EACH LAYER IS ANALYZED SEPARATELY.
REPORT 1 OF 1

ANALYST



ALEKSEY REZNIK

QUALITY CONTROL



STEVE JARVIS

**POLARIZED LIGHT MICROSCOPY (PLM)
BULK SAMPLE ANALYSIS REPORT**

CLIENT NAME: BAT ASSOCIATES LAB JOB NO: B9323
PROJECT NAME: CHARLESTON NSY / 971001-13.03 DATE RECEIVED: 12/6/99
PROJECT NO: L802Z.000 REPORT ISSUED: 12/14/99
SAMPLE FIELD ID: 1886-4-3 LAB ID: 927140
SAMPLE INFO: DATE ANALYZED: 12/13/99

SAMPLE DESCRIPTION

LAYERED: NO

APPEARANCE: BLUE HARD RESILIENT TO GRANULAR WITH BLACK MASTIC

RESULT OF ANALYSIS IN VOLUME PERCENTAGE (BY VISUAL ESTIMATE)

ASBESTOS FIBERS		NONASBESTOS FIBERS		NONFIBROUS COMPONENTS		OTHER COMPONENTS	
CHRYBOTILE		CELLULOSE	1	VERMICULITE/MICA		BITUMEN/TAR	3
AMOSITE		GLASS FIBERS		PERLITE		SAND/AGGR.	30
CROCIDOLITE		SYNTHETICS		EXPANDED GLASS		GLUE/CAULK	
TREMOLITE		WOLLASTONITE		SYNTHETIC FOAM		VINYL	
ACTINOLITE		TALC		ALUMINUM/METAL		CORK	
ANTHOPHYLLITE				FOAM RUBBER		LATEX/RUBBER	
						PAINT/OTHER	66

COMMENTS:

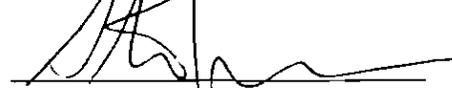
SAMPLE WAS ANALYZED BY PLM USING DISPERSION STAINING TECHNIQUES IN ACCORDANCE WITH U.S. EPA METHOD 40CFR Ch. I (7-1-92) PT. 763, SUBPT. F, APP. A. LAST CALIBRATION OF EQUIPMENT WAS PERFORMED ON: 12/13/99 FOR ALL HETEROGENEOUS AND LAYERED SAMPLES EASILY SEPARATED INTO SUBLAYERS, EACH LAYER IS ANALYZED SEPARATELY.
REPORT 1 OF 1

ANALYST



ALEKSEY REZNIK

QUALITY CONTROL



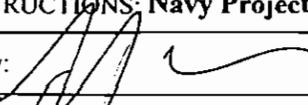
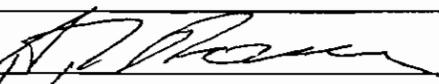
STEVE JARVIS

BAT

BAT Associates, Inc.
ENGINEERS • SCIENTISTS • PLANNERS

5151 Brook Hollow Pkwy., Suite 250
Norcross, GA 30071
Phone: (770) 242-3908
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 <input checked="" type="checkbox"/> PLM <input type="checkbox"/> PCM <input type="checkbox"/> AAS For Lead Content <input type="checkbox"/> OTHER _____	
CHECK ONE: <input type="checkbox"/> ROUTINE <input checked="" type="checkbox"/> ROUTINE - FAX (HANDWRITTEN) AS SOON AS POSSIBLE <input type="checkbox"/> RUSH - FAX (HANDWRITTEN) AS SOON AS POSSIBLE	
SAMPLE ID	SAMPLE ID
1. 1886-1-1	16.
2. 1886-1-2	17.
3. 1886-1-3	18.
4. 1886-2-1	19.
5. 1886-2-2	20.
6. 1886-2-3	21.
7. 1886-3-1	22.
8. 1886-3-2	23.
9. 1886-3-3	24.
10. 1886-4-1	25.
11. 1886-4-2	26.
12. 1886-4-3	27.
13. 1001-1-1	28.
14. 1001-1-2	29.
15. 1001-1-3	30.
SPECIAL INSTRUCTIONS: Navy Project Rates	
Relinquished by: 	Received by: 
Date: 12/6/99 Time: 10:00	Date: 12/6/99 Time: 10:40

Analytical Environmental Services, Inc.
 3781 Presidential Parkway, Suite 111, Atlanta, GA 30340
 TEL: (770)457-8177 FAX: (770)457-8188

CLIENT NAME : BAT ASSOCIATES, INC DATE : 12/03/99

PROJECT NAME: CHARLESTON NAVAL SHIPYARD

SAMPLE ID : 1886-1-QC1 AES LAB NO : 144767 AES JOB NO : B9526

SAMPLE LOCATION :

SAMPLE - DARK GRAY HARD COMPACT PARTLY GRANULAR WITH FIBERS & GLUE.
 DESCRIPTION

RESULT OF BULK SAMPLE ANALYSIS (BY VISUAL VOLUMETRIC PERCENTAGE)			
ASBESTOS FIBERS		NONFIBROUS COMPONENTS	
CHRYBOTILE		VERMICULITE	
AMOSITE		BIOTITE	
CROCIDOLITE		MICA	
ANTHOPHYLLITE		PERLITE	
TREMOLITE		AGGREGATE/SAND	45
ACTINOLITE		STYROFOAM	
NONASBESTOS FIBERS		OTHER COMPONENTS	
SYNTHETICS	1	ALUMINUM	
MINERAL WOOL		BITUMEN	
FIBERGLASS		RESILIENT MATERIAL	
CELLULOSE	2	GLUE	< 1
ANIMAL HAIR		BINDERS	52
ANTIGORITE			

COMMENTS :

It is certified by the signatures below that this laboratory is accredited by the National Institute of Standards and Technology under NVLAP for the analysis of asbestos in building materials by polarized light microscopy. NVLAP Laboratory Code: 2033. Test report relates only to the items tested.

MICROANALYST : *A. Gendlin*
 ARKADIY GENDLIN

QUALITY CONTROL BY : *S. Arkhipov*
 SVETLANA ARKHIPOV

Analytical Environmental Services, Inc.
 3781 Presidential Parkway, Suite 111, Atlanta, GA 30340
 TEL: (770)457-8177 FAX: (770)457-8188

CLIENT NAME : BAT ASSOCIATES, INC DATE : 12/03/99

PROJECT NAME: CHARLESTON NAVAL SHIPYARD

SAMPLE ID : 1886-4-QC2 AES LAB NO : 144768 AES JOB NO : B9526

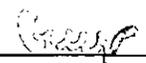
SAMPLE LOCATION :

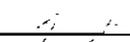
SAMPLE - BLUE HARD COMPACT PARTLY GRANULAR WITH FIBERS & BITUMEN.
 DESCRIPTION

RESULT OF BULK SAMPLE ANALYSIS (BY VISUAL VOLUMETRIC PERCENTAGE)			
ASBESTOS FIBERS		NONFIBROUS COMPONENTS	
CHRYBOTILE		VERMICULITE	
AMOSITE		BIOTITE	
CROCIDOLITE		MICA	
ANTHOPHYLLITE		PERLITE	
TREMOLITE		AGGREGATE/SAND	45
ACTINOLITE		STYROFOAM	
NONASBESTOS FIBERS		OTHER COMPONENTS	
SYNTHETICS	1	ALUMINUM	
MINERAL WOOL		BITUMEN	1
FIBERGLASS		RESILIENT MATERIAL	
CELLULOSE	1	GLUE	
ANIMAL HAIR		BINDERS	52
ANTIGORITE			

COMMENTS :

It is certified by the signatures below that this laboratory is accredited by the National Institute of Standards and Technology under NVLAP for the analysis of asbestos in building materials by polarized light microscopy. NVLAP Laboratory Code: 2033. Test report relates only to the items tested.

MICROANALYST : 
 ARKADIY GENDLIN

QUALITY CONTROL BY : 
 SVETLANA ARKHIPOV

Analytical Environmental Services, Inc.
 3781 Presidential Parkway, Suite 111, Atlanta, GA 30340
 TEL: (770)457-8177 FAX: (770)457-8188

CLIENT NAME : BAT ASSOCIATES, INC DATE : 12/03/99

PROJECT NAME: CHARLESTON NAVAL SHIPYARD

SAMPLE ID : 1001-1-QC1 AES LAB NO : 144771 AES JOB NO : B9526

SAMPLE LOCATION :

SAMPLE - DARK BROWN HARD COMPACT PARTLY GRANULAR WITH FIBERS & BITUMEN.
 DESCRIPTION

RESULT OF BULK SAMPLE ANALYSIS (BY VISUAL VOLUMETRIC PERCENTAGE)			
ASBESTOS FIBERS		NONFIBROUS COMPONENTS	
CHRYBOTILE		VERMICULITE	
AMOSITE		BIOTITE	
CROCIDOLITE		MICA	
ANTHOPHYLLITE		PERLITE	
TREMOLITE		AGGREGATE/SAND	45
ACTINOLITE		STYROFOAM	
NONASBESTOS FIBERS		OTHER COMPONENTS	
SYNTHETICS	1	ALUMINUM	
MINERAL WOOL		BITUMEN	2
FIBERGLASS		RESILIENT MATERIAL	
CELLULOSE	1	GLUE	
ANIMAL HAIR		BINDERS	51
ANTIGORITE			

COMMENTS :

It is certified by the signatures below that this laboratory is accredited by the National Institute of Standards and Technology under NVLAP for the analysis of asbestos in building materials by polarized light microscopy. NVLAP Laboratory Code: 2033. Test report relates only to the items tested.

MICROANALYST :

ARKADIY GENDLIN

QUALITY CONTROL BY :

SVETLANA ARKHIPOV

ARKADIY GENDLIN

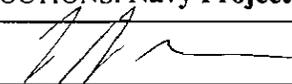
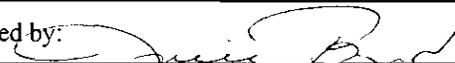
SVETLANA ARKHIPOV

BAT

BAT Associates, Inc.
ENGINEERS • SCIENTISTS • PLANNERS

5151 Brook Hollow Pkwy., Suite 250
Norcross, GA 30071
Phone: (770) 242-3908
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 <input checked="" type="checkbox"/> PLM <input type="checkbox"/> PCM <input type="checkbox"/> AAS For Lead Content <input type="checkbox"/> OTHER _____	
CHECK ONE: <input type="checkbox"/> ROUTINE <input checked="" type="checkbox"/> ROUTINE - FAX (HANDWRITTEN) AS SOON AS POSSIBLE <input type="checkbox"/> RUSH - FAX (HANDWRITTEN) AS SOON AS POSSIBLE	
SAMPLE ID	SAMPLE ID
1. 1886-1-QC1	16.
2. 1886-4-QC2	17.
3. 1601-1-QC1	18.
4. 1601-5-QC2	19.
5. 1001-1-QC1	20.
6.	21.
7.	22.
8.	23.
9.	24.
10.	25.
11.	26.
12.	27.
13.	28.
14.	29.
15.	30.
SPECIAL INSTRUCTIONS: Navy Project Rates	
Relinquished by: 	Received by: 
Date: 11/30/99 Time: 16:39	Date: 11-30-99 Time: 4:40 PM

The Environmental Institute

Jason McGlashan

Social Security Number - 137-62-0377

*Has completed coursework and satisfactorily passed
an examination that meets all criteria required for
EPA/AHERA/ASHARA (TSCA Title II) Approved Accreditation
and NESHAP Regulations Training*

Asbestos in Buildings: Inspection and Assessment

June 21-23, 1999

Course Date

2594

Certificate Number

June 23, 1999

Examination Date

June 22, 2000

Expiration Date

R. A. Short

Ronald A. Short - Course Director

Rachel G. McCain

Rachel G. McCain - Exam Administrator



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

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

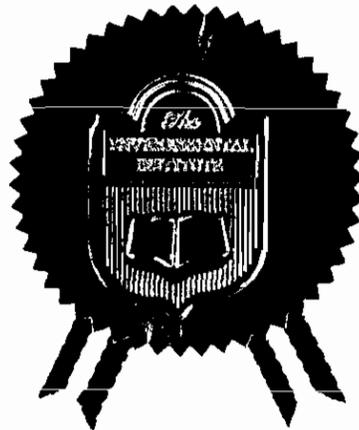
Expiration Date

Tod A. Dawson

Tod A. Dawson - Course Director

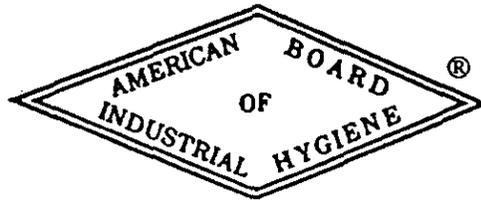
Rachel G. McCain

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

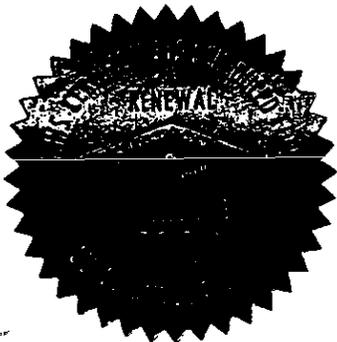
having met all requirements through
education, experience and examination,
is hereby certified in the

**COMPREHENSIVE PRACTICE
of
INDUSTRIAL HYGIENE**

and has the right to use the designations

CERTIFIED INDUSTRIAL HYGIENIST

CIH



November 12, 1997

date

J. Kenneth Conroy
Chair ABIH

CP 7612

certificate
number

Ray T. Conroy
Secretary ABIH

United States Department of Commerce
National Institute of Standards and Technology

NVLAP[®]

ISO/IEC GUIDE 25:1990
ISO 9002:1987

Certificate of Accreditation



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

A handwritten signature in black ink, appearing to read "James L. Galt".

For the National Institute of Standards and Technology

NVLAP Lab Code: 102111-0

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