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CNC CHARLESTON  
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PROJECT SURVEILLANCE SERVICES AND AIR MONITORING DURING REMOVAL OF  
ASBESTOS-CONTAINING MATERIAL QUARTER 762 CNC CHARLESTON SC  
10/30/2000  
BAT ASSOCIATES, INC.

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**Project Surveillance Services and Air Monitoring  
During Removal of Asbestos-Containing Material  
at the  
North Charleston Naval Base: Quarter 762  
North Charleston, South Carolina**

Contract Number N62467-96-R-0098

***Prepared for:***

Department of the Navy  
Southern Division  
NAVFACENGCOM  
2155 Eagle Drive  
North Charleston, South Carolina 29411

---

***Prepared by:***

BAT Associates, Inc.  
5151 Brook Hollow Parkway, Suite 250  
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Contact Person: Mr. Douglas J. Milton, CIH  
770/242-3908

# BAT

**BAT Associates, Inc.**

Environmental, Health & Safety Services

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October 30, 2000

Department of the Navy  
Southern Division  
NAVFACENGCOM  
2155 Eagle Drive  
North Charleston, South Carolina 29411

**Attention: Mr. Archie Browder**

**References: Contract Number: N62467-96-R-0098**

**Subject: Closure Report for Project Surveillance and Air Monitoring  
North Charleston Naval Base: Quarter 762  
North Charleston, South Carolina**

Dear Mr. Browder:

BAT Associates, Inc. (BAT) has completed project surveillance and air monitoring activities for the above referenced project. Results of the project indicated that the project site is ready for re-occupancy. A copy of the closure report accompanies this cover letter. Within the report is detailed information concerning project-related activities from start to finish.

Thank you, for the opportunity to work with you on this project. Should you have any questions, please feel free to contact us.

Sincerely,  
Bat Associates, Inc.

Dee Parker  
Project Industrial Hygienist

Douglas J. Milton, CIH  
Director of Health and Safety

## TABLE OF CONTENTS

### EXECUTIVE SUMMARY

<b>1.0 PURPOSE</b> .....	2
<b>1.1 BACKGROUND INFORMATION</b> .....	2
<b>1.2 SEQUENCE OF WORK</b> .....	2
1.2.1 Work Area Isolation.....	2
1.2.2 Asbestos Removal Procedures.....	3
Removal of Asbestos Contaminated Soil .....	3
1.2.3 Disposal of Contaminated Liquids.....	3
1.2.4 Site Visitations.....	4
1.2.5 Pre-Abatement and Final Visual Inspections.....	4
1.2.6 Post-Abatement Inspections.....	4
<b>2.0 AIR SAMPLE COLLECTION</b> .....	4
2.1 Daily Air Samples.....	5
2.2 Final Clearance Air Testing.....	5
<b>3.0 SOIL SAMPLE COLLECTION</b> .....	6
<b>4.0 DATA EVALUATION</b> .....	6
<b>5.0 CONCLUSION</b> .....	6
<b>6.0 RECOMMENDATIONS</b> .....	7
<b>7.0 LIMITATIONS</b> .....	7

## **APPENDICES**

- APPENDIX A: PCM - Fiber Counting Results
- APPENDIX B: PLM -- Final Clearance Soil Sample Results
- APPENDIX C: Photographic Documentation
- APPENDIX D: Professional Certification

## EXECUTIVE SUMMARY

BAT Associates, Inc. (BAT) was retained by the Department of the Navy Southern Division NAVFACENGCOM (SouthDiv.) to perform project surveillance and air monitoring services before, during, and after the removal of asbestos-containing materials (ACM) at the North Charleston Naval Base. Project activities were centered around Quarter 762 (hereinafter referred to as the Project Site). Work scheduled at the Project Site included the crawl space area of Quarter 762.

Cape Environmental Management Inc. (Abatement Contractor) was retained by SouthDiv to perform the asbestos removal, disposal, and clean up at the Project Site. Ms. DeArna Parker, Project Industrial Hygienist, performed on-site project surveillance and air monitoring for BAT and the Navy. The Contractor was represented by Mr. Mayro Hidalgo, Project Supervisor.

The following paragraphs summarize the information in the report.

1. Project activities began on September 25, 2000 and were completed on October 02, 2000. The scope of work for abatement included the removal of asbestos contaminated soil from the crawl of Quarter 760.
2. BAT performed on-site fiber counting using Phase Contrast Microscopy (PCM). All air sample collection and fiber counting were executed in accordance to the National Institute of Occupational Safety and Health (NIOSH) 7400 Method.

Thirty-three (33) air samples were collected during the course of the project. Air samples included background samples, work area samples (inside the work containment), critical area samples (outside the work area samples), and final clearance air samples (Refer to Appendix A).

BAT collected seven final clearance air samples (including field blanks) and evaluated the air samples using PCM. All final clearance air samples indicated airborne fiber concentrations of less than 0.010 fibers per cubic centimeter of air (<0.010 f/cc). All work areas successfully met "release criteria", which included a final visual inspection and final clearance air testing, and all are ready for re-occupation.

## **1.0 PURPOSE**

The purpose for the asbestos abatement activities was to: 1) remove and properly dispose of previously identified friable ACM in the crawl space soil and 2) properly clean the work area prior to an anticipated property transfer. SouthDiv initiated an asbestos remediation program to accomplish the aforementioned goals.

## **1.1 BACKGROUND INFORMATION**

A previously performed asbestos survey of the Project Site identified: 1) asbestos contaminated soil inside the crawl space area.

## **1.2 SEQUENCE OF WORK**

The sections 1.2.1 through 1.2.6 describe the activities executed by the Contractor during the asbestos abatement and BAT's project surveillance activities. Section 2.0 describes activities performed by BAT while conducting air monitoring tasks.

### **1.2.1 Work Area Isolation**

The Abatement Contractor performed relevant enclosure activities to ensure isolation of the work area in accordance with regulatory requirements. Proper warning signs were posted at the entrance of the regulated area (work area) to prevent entry by unauthorized persons. The work area was isolated from the unprotected public by separation and usage of temporary critical barriers over doorways, perimeter vent ways, ceiling penetrations and/or other openings. Temporary critical barriers were constructed of 6 millimeter thick (6-mil) polyethylene sheeting and installed using spray glue and duct tape.

A personal decontamination facility (PDF) was constructed and used by the Abatement Contractor's workers and other work area visitors to dispose of used coveralls and rinse themselves of any dust or debris prior to leaving the clean side of the PDF. The PDF was located at the entrance to the work area and consisted of three primary chambers: 1) dirty room, 2) decontamination shower, and 3) clean room. Each chamber of the PDF was segmented via overlapping curtains constructed of 6-mil polyethylene sheeting.

## **1.2.2 Asbestos Removal Procedures**

The Contractor used wet removal methods as the primary engineering control during the removal, disposal, and cleaning process of the asbestos-containing and asbestos-contaminated materials. The Contractor wetted the materials with an amended water solution before initiating removal and continued wetting the materials throughout the removal process. Other engineering controls used to supplement the wet removal methods included the use of negative pressure differential machines. Negative pressure differential machines extracted potentially contaminated air from the work area, filtered the air using High Efficiency Particulate Absolute (HEPA) filters, and exhausted the filtered air to the outside environment. These machines were located throughout the work areas.

During the removal activities, BAT systematically monitored the filtered exhaust from the negative pressure differential machines for asbestos fiber concentrations. BAT collected air samples representative of the filtered exhaust and evaluated samples via fiber counting (see Section 2.0). All samples indicated that the filtered exhaust were lower than the airborne fiber concentration required to meet release criteria (0.010 f/cc

### **Removal of Contaminated Soil**

The Contractor's workers donned full-face P.A.P.R during the gross removal of the asbestos contaminated soil. Other PPE included hooded disposable coveralls with booties, protective footwear, and gloves.

The Contractor used a trailer-mounted vacuum (Vac truck) equipped with a HEPA filter to vacuum out approximately 1 inch to 4 inches of soil from within the crawl space. The soil was containerized in a three chamber non-permeable bladder bag which was lined inside a transport dumpster. Mr. Larry Hopkins, of Cross Construction Corp., operated the Vac truck.

## **1.2.3 Disposal of Contaminated Liquid**

Asbestos-contaminated shower water, resulting from personnel and equipment decontamination was handled in accordance with regulatory requirements. The Contractor collected all water used throughout the removal and decontamination process in the showers of the PDF. Water was filtered through the Contractor's 3-filter shower filtration unit. The effluent was passed through a 10-micron, 5-micron and 3-micron filtering system. After filtration, the water was discharged into the public sewage system as filtered effluent.

#### **1.2.4 Site Visitation**

During the removal and clean-up activities, no site visitation from SouthDiv Representatives or any regulatory agencies were observed.

#### **1.2.5 Pre-Abatement and Final Visual Inspection**

BAT performed pre-abatement visual inspections of each work area prior to the start of asbestos removal activities. Final visual inspections were performed by the BAT specialist upon completion of asbestos removal and detailed cleaning.

The pre-abatement visual inspection was performed by Ms. Parker and Mr. Hidalgo (Abatement Contractor's Project Supervisor) upon completion of work area preparations. During the visual evaluation, the negative pressure differential machines and PDF shower were functioning properly. No breaches in the critical barriers were observed.

BAT performed a final visual inspection at the completion of the asbestos removal and work area clean up. Ms. Parker performed the final visual inspection of all work area in conformance with practices and procedures consistent with the American Society for Testing and Materials (ASTM), the Navy's Scope-of-Work and Third Party Monitoring specification. The visual inspection included, but was not limited to, a visual review of horizontal and vertical surfaces for visible accumulation of asbestos dust and/or asbestos-contaminated debris. Additionally, the soil's surface was inspected for visible ACM material, after scarification of the surface. The Contractor promptly cleaned areas of visible residual dust and/or debris identified by BAT during the inspection.

Results of the final visual inspection did not identify visible accumulations of asbestos-containing or contaminated dust or debris. In preparation for final clearance air testing, the Contractor encapsulated abated surface soil within the crawl space with a penetrating encapsulant to lock-down unseen fibers.

#### **1.2.6 Post-Abatement Inspection**

BAT performed post-abatement visual inspections with the Contractor in the work areas. Locations identified to contain residual ACM after the removal of critical barriers (normally behind duct tape) were HEPA vacuumed and wet wiped until visually clean.

### **2.0 AIR SAMPLE COLLECTION**

BAT collected daily air samples from outside the work area, inside the work area, and at the exhaust points of negative pressure differential machines. Air samples were collected on 25 millimeter, 0.8 micron pore size mixed cellulose ester filter cassettes with 50

millimeter, non-conductive cowl. Air samples were collected at an approximate flow rate of 0.5 liters per minute (LPM) to 16.0 LPM, as per NIOSH 7400 Method. The sampling pumps were calibrated before and after each sampling period using a high volume Rotometer calibrated using a primary calibration standard.

Air samples were fiber counted using Phase Contrast Microscopy (PCM) by Ms. Parker. Ms. Parker has successfully completed the National Institute for Occupational Safety and Health (NIOSH) 582 course, *Sampling and Evaluating Airborne Asbestos Dust*, and has successfully participated in the Proficiency Analytical Testing (PAT) program.

## 2.1 Daily Air Samples

Airborne fiber concentrations at critical barriers and at negative pressure differential exhaust points did not exceed 0.010 f/cc of air during the removal or cleaning process. Although there are no Federal or state regulations governing the concentration of airborne fibers inside work areas, it is noteworthy that during removal activities airborne fiber concentrations, on average, were maintained at or below final clearance thresholds. An airborne fiber concentration of 0.010 f/cc (by PCM) is the EPA-recommended re-occupancy concentration following an asbestos response action. The Occupational Safety and Health Administration (OSHA) instructs that a concentration of 0.100 f/cc is a permissible exposure to airborne asbestos for an 8-hour time weighted average.

Photocopies of the Fiber Counting reports are included in Appendix A: *PCM- Fiber Counting Results*.

## 2.2 Final Clearance Air Testing

After the abatement work was completed and prior to collecting final clearance air samples, the negative air pressure differential machines, equipped with HEPA filters, were used to evacuate any residual airborne fibers, and to reduce the moisture in the work area.

A “non-aggressive” clearance air testing protocol was used inside the crawl space to avoid filter overload with dirt and dust debris on sampling cassettes.

BAT collected five final clearance air samples at the Project Site using high volume pumps and PCM air filter cassettes. Filters were fiber counted via PCM. All samples indicated airborne fiber concentrations <0.010 f/cc.

### **3.0 FINAL CLEARANCE SOIL SAMPLE RESULTS**

Prior to the collecting of final clearance air sampling, BAT collected four surface soil samples at the Project Site in the crawl space using a rigid container. Each container was uniquely labeled and recorded on a chain-of-custody form prior to submission for analysis.

The soil samples were forwarded to an independent laboratory, Analytical Environmental Services (AES), for analysis using Polarized Light Microscopy (PLM). AES, located in Atlanta, Georgia, is an accredited laboratory registered with the American Industrial Hygiene Association. AES is a successful participant of the National Institute of Standards and Technology (NIST)/AIHA sponsored National Voluntary Laboratory Accreditation Program (NVLAP #1020820)

All soil samples were analyzed for the presence and estimated quantity of asbestos. Analysis was conducted using PLM and dispersion staining techniques. Samples were analyzed in accordance with the EPA "Method for the Detection of Asbestos in Bulk Building Materials", EPA/600/R-93/116 July 1993. All samples were identified to contain <10% asbestos as per the National Emission Standards for Hazardous Air Pollutants (NESHAP). One of the nine soil samples as identified to contain 3% asbestos. EPA defines an asbestos material containing greater than 1% asbestos.

BAT required the Abatement Contractor to remove soil in a 12-inch radius around the area that the 3% asbestos-contaminated soil was collected. A visual re-inspection identified no suspect ACM.

### **4.0 DATA EVALUATION**

All critical barriers, work areas, and negative pressure differential exhaust point air sample fiber concentrations were less than 0.010 f/cc of air. An airborne fiber concentration of 0.010 f/cc, is the EPA recommended airborne fiber concentration level for re-occupancy. No residual dust, debris or mastic was noted upon completion of the final visual inspections. Final clearance air samples indicated airborne fiber concentrations of less than the EPA re-occupancy standard of 0.010 f/cc.

### **5.0 CONCLUSION**

Based on BAT's field observations, visual inspection, and fiber counting results, the asbestos abatement activities have been performed in conformance to the project work plan and applicable Federal and state regulations. With the conclusion of removal and cleaning activities, BAT informed SouthDiv of the successful final clearance air results and announced the availability to re-occupy the Project Site.

## **6.0 RECOMMENDATIONS**

Based on BAT's field observations, the following recommendations should be considered:

- 1) Write an ACM operations and maintenance plan (O&M) including the soil located in the crawl space. The O&M Plan should be maintained until the soil is:
  - a) Enclosed with a permanent non-permeable barrier (i.e. concrete) or
  - b) Remove down to a non-permeable foundation.
- 2) Include the crawl space in the facility's non-permit confined space entry Program. Within the program and specific to this site, a "buddy system" should be required.

## **7.0 LIMITATIONS**

The conclusions presented in this report are based on: 1) visual observations performed during and after asbestos removal and final cleaning; 2) the results of fiber counting of collected air samples; and 3) the results of final clearance air samples evaluated via PCM. Airborne fiber concentrations will vary between sample locations. BAT's assessment of the performance of the work performed by the Contractor is a professional opinion, arrived at through the methods and procedures accepted by the industry. No warranty is expressed or implied.

This report has been prepared on behalf of the Southern Division of the Navy and their authorized affiliates. Should any other person, partnership, or corporation desire to rely upon this report, it will be necessary for BAT Associates, Inc., to update it for the new user.

## **APPENDIX A**

### **PCM - Fiber Counting Results**

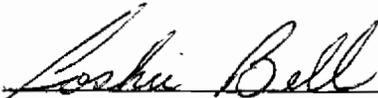
## BAT Associates, Inc. Field Sample Data Form Fiber Counting Using Phase Contrast Microscopy

DATE: 9.25.00

QUARTER: 762 2 of 2

TYPE: Backgrounds Daily Clearance

Sample ID	Sample Location	Volume (L)	MFC (f/cc)	LOD (f/cc)	LOQ (f/cc)	RFC (f/cc)
971001-15-89	INSIDE WORK AREA	3248	0.000	0.001	0.009	<0.009
971001-15-90	INSIDE WORK AREA	3118.5	0.001	0.001	0.009	<0.009
971001-15-91	INSIDE WORK AREA	1813	0.000	0.001	0.017	<0.017
971001-15-92	INSIDE BLDG. OUTSIDE WORK AREA	3214	0.000	0.001	0.009	<0.009
971001-15-						
971001-15-						
971001-15-						
971001-15-						
971001-15-						
971001-15-						

  
Analyst's Signature

Douglas J. Milton, CIH  
Laboratory Manager

**Legend:**

BG - Background    IWA - Inside Work Area    OWA - Outside Work Area    FC - Final Clearance    MFC - Measured Fiber Concentration    LOD - Limit of Detection  
 LOQ - Limit of Quantification    RFC - Reported Fiber Concentration

## BAT Associates, Inc. Field Sample Data Form Fiber Counting Using Phase Contrast Microscopy

DATE: 9-26-00

QUARTER: 762 2 of 2

TYPE: Backgrounds Daily Clearance

Sample ID	Sample Location	Volume (L)	MFC (f/cc)	LOD (f/cc)	LOQ (f/cc)	RFC (f/cc)
971001-15-100	OWA: Clean Room	463.5	0.004	0.005	0.066	<0.066
971001-15-101	OWA: Neg. Air Exhaust	565.0	0.000	0.004	0.054	<0.054
971001-15-102	OWA: Living Room in House	523.2	0.001	0.004	0.059	<0.059
971001-15-103	IWA: Dirty Room	425.0	0.009	0.005	0.072	0.009
971001-15-104	Field Blank					0.0 f/m <sup>2</sup>
971001-15-105	Field Blank					0.0 f/m <sup>2</sup>
971001-15-						
971001-15-						
971001-15-						
971001-15-						

*Doski Bell*  
Analyst's Signature

Douglas J. Milton, CIH  
Laboratory Manager

**Legend:**

BG - Background    IWA - Inside Work Area    OWA - Outside Work Area    FC - Final Clearance    MFC - Measured Fiber Concentration    LOD - Limit of Detection  
LOQ - Limit of Quantification    RFC - Reported Fiber Concentration

## BAT Associates, Inc. Field Sample Data Form Fiber Counting Using Phase Contrast Microscopy

DATE: 9-27-00

QUARTER: 762 1 of 2

TYPE: Backgrounds Daily Clearance

Sample ID	Sample Location	Volume (L)	MFC (f/cc)	LOD (f/cc)	LOQ (f/cc)	RFC (f/cc)
971001-15-106	OWA: Clean Room	1,415.0	0.001	0.002	0.021	<0.021
971001-15-107	IWA: Dirty Room	852.0	0.004	0.003	0.036	0.004
971001-15-108	OWA: Neg. Air Exhaust	828.0	0.008	0.003	0.037	0.008
971001-15-109	OWA: Living Room	1,715.0	0.000	0.001	0.018	<0.018
971001-15-110	IWA: Crawl Space	326.3	VOID	0.007	0.095	VOID
971001-15-111	OWA: Neg. Air Exhaust	675.0	0.001	0.003	0.045	<0.045
971001-15-112	OWA: Clean Room	1,049.8	0.003	0.002	0.029	<0.029
971001-15-113	IWA: Dirty Room	657.0	0.009	0.003	0.047	0.009
971001-15-114	OWA: Living Room	750.0	0.000	0.003	0.041	<0.041
971001-15-115	Field Blank (LAB)					0.0 <sup>5</sup> mat

*Douglas J. Milton*  
Analyst's Signature

Douglas J. Milton, CIH  
Laboratory Manager

**Legend:**

BG - Background    IWA - Inside Work Area    OWA - Outside Work Area    FC - Final Clearance    MFC - Measured Fiber Concentration    LOD - Limit of Detection  
LOQ - Limit of Quantification    RFC - Reported Fiber Concentration

## BAT Associates, Inc. Field Sample Data Form Fiber Counting Using Phase Contrast Microscopy

DATE: 9-27-00QUARTER: 762TYPE: Backgrounds (Daily) Clearance

Sample ID	Sample Location	Volume (L)	MFC (f/cc)	LOD (f/cc)	LOQ (f/cc)	RFC (f/cc)
971001-15-116	FIELD Blank (30sec)					0.6 f/m <sup>2</sup>
971001-15-						
971001-15-						
971001-15-						
971001-15-						
971001-15-						
971001-15-						
971001-15-						
971001-15-						
971001-15-						



Analyst's Signature

Douglas J. Milton, CIH  
Laboratory Manager

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LOQ - Limit of Quantification    RFC - Reported Fiber Concentration

## BAT Associates, Inc. Field Sample Data Form Fiber Counting Using Phase Contrast Microscopy

DATE: 02 OCT 00

QUARTER: 762

TYPE: Backgrounds Daily Clearance

Sample ID	Sample Location	Volume (L)	MFC (f/cc)	LOD (f/cc)	LOQ (f/cc)	RFC (f/cc)
971001-15-128	LAB BLANK	---	---	---	---	0 f/mm <sup>2</sup>
971001-15-129	(30 SEC.) FIELD BLANK	---	---	---	---	0 f/mm <sup>2</sup>
971001-15-130	IWA-CRAWL SPACE/NORTH SIDE-FRONT	3024	0.001	0.001	0.010	<0.010
971001-15-131	IWA-CRAWL SPACE/EAST SIDE	3024	0.001	0.001	0.010	<0.010
971001-15-132	IWA-CRAWL SPACE/SOUTH SIDE	3024	0.000	0.001	0.010	<0.010
971001-15-133	IWA-CRAWL SPACE/WEST SIDE	2929.5	0.000	0.001	0.010	<0.010
971001-15-134	IWA-CRAWL SPACE/NORTH SIDE-REAR	3040	0.000	0.001	0.010	<0.010
971001-15-						
971001-15-						
971001-15-						



Analyst's Signature

Douglas J. Milton, CIH  
 Laboratory Manager

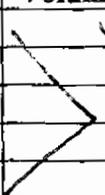
**Legend:**  
 BG - Background    IWA - Inside Work Area    OWA - Outside Work Area    FC - Final Clearance    MFC - Measured Fiber Concentration    LOD - Limit of Detection  
 LOQ - Limit of Quantification    RFC - Reported Fiber Concentration

## BAT Associates, Inc. Field Sample Data Form Fiber Counting Using Phase Contrast Microscopy

DATE: 9.29.00

QUARTER: 762

TYPE: Backgrounds Daily Clearance

Sample ID	Sample Location	Volume (L)	MFC (f/cc)	LOD (f/cc)	LOQ (f/cc)	RFC (f/cc)
971001-15-123	IWA - CRAWL SPACE / NORTH - FRONT	VOID				VOID
971001-15-124	IWA - CRAWL SPACE / EAST SIDE	 LOST POWER				VOID
971001-15-125	IWA - CRAWL SPACE / SOUTH SIDE					VOID
971001-15-126	IWA - CRAWL SPACE / WEST SIDE					VOID
971001-15-127	IWA - CRAWL SPACE / NORTH / REAR					VOID
<del>971001-15-128</del>	<del>LAB BLANK</del>					
<del>971001-15-129</del>	<del>(30 SEC) FIELD BLANK</del>					<del>_____</del>
971001-15-						
971001-15-						
971001-15-						



Analyst's Signature

Douglas J. Milton, CIH  
 Laboratory Manager

**Legend:**

BG - Background    IWA - Inside Work Area    OWA - Outside Work Area    FC - Final Clearance    MFC - Measured Fiber Concentration    LOD - Limit of Detection  
 LOQ - Limit of Quantification    RFC - Reported Fiber Concentration

## **APPENDIX B**

### PLM – Soil Sample Results

BAT ASSC FES, INC.  
Chain-of-Custody

3251

No J06

Project #		Project Name/Location				No. of Containers	Parameters				REMARKS
Samplers: (signature)											
Station #	Date	Time	C o m p	G r a b	Station Location						
971001-15.04	North Charleston Shipyard										
<i>Ashie Bell</i>											
76211	9-27-00	1230		X	76211	1 of 4				PLM - Analysis Same Day	
76212	9-27-00	1230		X	76212	2 of 4				PLM - Analysis Same Day	
76213	9-27-00	1230		X	76213	3 of 4				PLM - Analysis Same Day	
76214	9-27-00	1230		X	76214	4 of 4				PLM - Analysis Same Day	
Relinquished by: (signature)		Date	Time	Received by: (Signature)		Relinquished by: (Signature)		Date	Time	Received by: (Signature)	
<i>Ashie Bell</i>		9-27-00	1615								
Relinquished by: (signature)		Date	Time	Received by: (Signature)		Relinquished by: (Signature)		Date	Time	Received by: (Signature)	
Relinquished by: (signature)		Date	Time	Received for laboratory by: (Signature)		Date	Time	Remarks:			
				<i>Man Hong</i>		9/28/00	1615	<i>W. Sam</i>			

Distribution: Original Accompanies Shipment. Copy returned with Report.

FedEx



**ANALYTICAL ENVIRONMENTAL SERVICES, INC.**  
**Bulk Sample Summary Report**



Client Name: **B A T Associates, Inc.**  
 Project Name: **North Charleston Shipyard**  
 Project Number: **971001-15.04**

GAS Job Number: **B3251**  
 Thursday, September 28, 2000

Client ID	AES ID	Location	Asbestos Mineral Percentage						Comments
			CH	AM	CR	AN	TR	AC	
762/1	30319		<1						
762/2	30320		<1						
762/3	30321		<1						Paint included as binder.
762/4	30322		<1						

Note: CH=chrysotile, AM=amosite, CR=crocidolite, AC=actinolite, TR=tremolite, AN=anthophyllite.  
 For comments on the samples, see the individual analysis sheets.

PLM is not consistently reliable in detecting small concentrations of asbestos in floor tiles and similar nonfriable materials. Quantitative TEM is currently the only method that can be used to determine the conclusive asbestos content.

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. All percentages given are by visually estimated volume. 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.

Microanalyst:   
 Arkadiy Gendlin

QC Analyst:   
 Svetlana Arkhipov

## **APPENDIX C**

### **Photographic Documentation**



**PHOTO 1:** View from within the crawl space prior to abatement of asbestos contaminated soil of Quarter 762.



**PHOTO 2:** Second view of the crawl space surface soil in Quarter 762, prior to abatement.

**PHOTO 3:** Vac truck used to vacuum out the asbestos contaminated soil from the crawl space of Quarter 762.



## **APPENDIX D**

### **Professional Certification**



ASBESTOS ABATEMENT LICENSE

No. 23145

This certifies that

*De Arna B. Parker*

*249-ASP-8980*

doing business as *B A T Associates, Inc.*

has satisfactorily completed the training required by South Carolina Regulation No. 61-86.1 for the category of

*Air Sampler*

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 06/14/00.

09/12/00

09/12/00 11:21

**ORIGINAL**



*Richard D. Sharpe*

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

CR-001126

Medical University of South Carolina  
College of Health Professions  
Program in Environmental Health Sciences

19 Hagood Avenue, Charleston, South Carolina 29425 (843) 792-5315

*Certifies that*

DEARNA P. PARKER

*Attended and Satisfactorily Completed  
Supervision of Asbestos Abatement Refresher  
conducted June 14, 2000 through June 14, 2000  
and passed an exam on June 14, 2000.*

SR27120-02983

Certificate Number

8

Contact Hours

249-33-8980

ID Number



T.A. Rowland, III

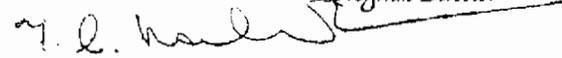
Program Director

June 14, 2000

Exam Date

June 13, 2001

Certificate Expires



T. A. Rowland III

Instructor



*This certifies that the above recipient has completed the requisite training for Asbestos Accreditation under TSCA Title II.*

**Medical University of South Carolina**  
**College of Health Professions**  
**Program in Environmental Health Sciences**

19 Hagood Avenue, Charleston, South Carolina 29425 (843) 792-5315

*Certifies that*

**DEARNA P. PARKER**

*Attended and Satisfactorily Completed*  
*Inspecting for Asbestos in Buildings Refresher*  
*conducted August 10, 2000 through August 10, 2000*  
*and passed an exam on August 10, 2000.*

IR27120-02526

Certificate Number

4

Contact Hours

249-33-8980

ID Number



T.A. Rowland, III

Program Director

August 10, 2000

Exam Date

August 9, 2001

Certificate Expires



T. A. Rowland III

Instructor

*This certifies that the above recipient has completed the requisite training for Asbestos Accreditation under TSCA Title II.*

United States Department of Commerce  
National Institute of Standards and Technology

**NVLAP**<sup>®</sup>

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:*

**AIRBORNE ASBESTOS FIBER ANALYSIS**

September 30, 2001

Effective through

*David F. Alderman*

For the National Institute of Standards and Technology

NVLAP Lab Code: 102082-0