



# Consolidated Safety Services

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FEB 03 2010

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NASA COTR:  
Requestor:

JS

Patrick Muldoon  
John Steen  
PATRICK S. MULDOON, CHP  
SR. HEALTH PHYSICIST

NASA Ames Research Center  
Moffett Field, California 94035

From:

Diana Harrington  
Diana Harrington, Program Manager

1/20/10  
Date

Contract No.:

NNA06AA01C

Report Title:

Bld 343

Keywords:

Asbestos

Task Number:

N/A

Locations:

Bldg Bld 343: Bathrooms

Investigator:

Jennifer Morris

Field Date:

10/21/09

Final Report:

12/30/09

Reviewed By:

Lin Lin  
Lin Lin

01/19/2010  
Date

Individual(s) responsible for reviewing and ensuring findings for this report are appropriately acted upon:

Cc:

CSS Project File

Charles Duff II, 237-13, Q  
Kran Kilpatrick, 218-1, JCM  
Union VP For Safety, 247-5,  
Rondia White, 16-1, JCM

e-MAILED

Distribution completed by:

se

Date FEB 16 2010

## PURPOSE

On October 21, 2009 Consolidated Safety Services Inc. (CSS) Industrial Hygiene personnel conducted a limited bulk sampling of suspected asbestos containing materials in the bathroom of building 343 which was damaged from a leaking roof after a heavy rain in building 343. This report documents the findings and recommendations resulting from the Industrial Hygiene Consulting services conducted in the bathroom of building 343 of the NASA Ames Research Center (ARC).

## BACKGROUND

At the request of the Safety, Health, and Medical Services Division, Code QH, CSS personnel performed a limited asbestos survey in areas identified by Carmen Morey, Code JCM, as those damaged by water intrusion. Jennifer Morris, Industrial Hygienist and Certified Asbestos Consultant from CSS, performed the asbestos survey.

## SAMPLING AND ANALYTICAL METHOD

Nine (9) bulk suspect asbestos samples were collected from the damaged walls in the bathroom in building 343. The asbestos bulk samples were submitted to EMSL Lab, Inc., San Leandro, CA., an AIHA accredited laboratory and participant in NVLAP, for analysis of asbestos. The samples were analyzed by EPA 600/R-93/116 method using polarized light microscopy (PLM).

## FINDINGS AND DISCUSSION

The laboratory report indicated that asbestos is present in the joint compound in the damaged drywall in the bathroom of building 343. The laboratory results are summarized in Table 1 below.

Table 1. Building 343 Bathroom Bulk Samples for Asbestos Content – October 21, 2009

Sample No.	Location / Material Description	Asbestos Concentration*	NESHAPS Category	OSHA Class of Work
091021-343-01	343 bathrooms. Wall board (brown/beige)	None Detected	NA	NA
091021-343-01	343 bathrooms. Paint	None Detected	NA	NA
091021-343-01	343 bathrooms. Joint Compound	3% Chrysotile	RACM	Class II
091021-343-02	343 bathrooms. Drywall	Not Analyzed	NA	NA
091021-343-02	343 bathrooms. Paint	None Detected	NA	NA
091021-343-02	343 bathrooms. Joint Compound	Stop Positive (not analyzed)	NA	NA
091021-343-03	343 bathrooms. Drywall	Not Analyzed	NA	NA

Sample No.	Location / Material Description	Asbestos Concentration*	NESHAPS Category	OSHA Class of Work
091021-343-03	343 bathrooms. Paint	None Detected	NA	NA
091021-343-03	343 bathrooms. Joint Compound	Stop Positive (Not analyzed)	NA	NA

\*The NASA Ames Asbestos Management Plan has defined asbestos containing materials as those materials that contain greater than 0.1% asbestos.

## CONCLUSION

The following materials contained asbestos in the amounts regulated by the State of California and NASA Ames: joint compound and tapping associated with the drywall in the damaged bathroom walls and ceiling in building 343.

## RECOMMENDATIONS

The findings of the report should be on the hazardous communication list to any workers that may work in the building. The joint compound and tapping material is considered a Regulated Asbestos Containing Material (RACM) and should be removed under Class II/Class III OSHA abatement procedures by trained asbestos workers.

Asbestos abatement control measures shall be taken to prevent environmental releases of asbestos. The policies and procedures established in AHB 1700.1 Chapter 30, Asbestos Management Plan and the applicable sections of the Ames Standard Construction Specification shall be followed. The NASA ARC Asbestos Management Plan and applicable Federal, State, and Local Governmental Regulations pertaining to handling, disturbance, removal, storage, and disposal of asbestos containing materials must be adhered to.

## REFERENCES

NASA Ames Health and Safety Plan, Chapter 30 Asbestos Management Plan

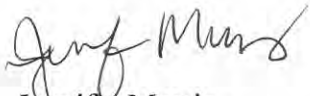
NIOSH Manual of Analytical Methods (NMAM®), 4th ed., DHHS (NIOSH) Publication 94-113 (August, 1994), Cassinelli, M.E. & O'Connor, P.F. (pfo1@cdc.gov), Eds.

OSHA Technical Manual, Directive no. TED 1-0.15A, Occupational Safety and Health Administration (January, 1999).

29 CFR 1910.1000, 1910.1001 U.S. Occupational Safety and Health Administration.

If you have any questions, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Jennifer Morris". The signature is fluid and cursive, with the first name being more prominent.

Jennifer Morris  
CSS, Industrial Hygienist  
CAC, # 96-2013

Attachments

Appendix 1-  
Laboratory  
Analytical  
Report



EMSL Analytical, Inc

2235 Polvorosa Ave , Suite 230, San Leandro, CA 94577

Phone: (510) 895-3575 Fax: (510) 895-3680 Email: milpitasiab@emsl.com

Attn: Jennifer Morris
CSS, Inc. / NASA Ames Research Center
Code QH, MS: 223-6
Moffet Field, CA 94035-1000

Customer ID: CSSI78
Customer PO: 343
Received: 10/23/09 9:00 AM
EMSL Order: 090908617

Fax: (650) 604-2034 Phone: (650) 604-6295
Project: 343 - Bathrooms

EMSL Proj:
Analysis Date: 10/23/2009

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Table with 7 columns: Sample, Description, Appearance, % Fibrous, % Non-Fibrous, Asbestos % Type. Rows include Wallboard, Paint, Joint Compound, Drywall, and another Paint and Joint Compound sample.

Analyst(s)

Michael Schaumloeffel (5)

Baojia Ke, Laboratory Manager
or other approved signatory

Due to magnification limitations inherent in PLM, asbestos fibers in dimensions below the resolution capability of PLM may not be detected. Samples reported as <1% or none detected require additional testing by TEM to confirm asbestos quantities. The above test report relates only to the items tested and may not be reproduced in any form without the express written approval of EMSL Analytical, Inc. EMSL's liability is limited to the cost of analysis. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc San Leandro 2235 Polvorosa Ave., Suite 230, San Leandro CA NVLAP Lab Code 101048-3. MA AA000201. WA C2007



**EMSL Analytical, Inc**

2235 Polvorosa Ave , Suite 230, San Leandro, CA 94577

Phone: (510) 895-3675 Fax: (510) 895-3680 Email: milpitaslab@emsl.com

Attn: **Jennifer Morris**  
**CSS, Inc. / NASA Ames Research Center**  
**Code QH, MS: 223-6**  
**Moffet Field, CA 94035-1000**

Fax: (650) 604-2034 Phone: (650) 604-6295  
Project: **343 - Bathrooms**

Customer ID: CSSI78  
Customer PO: 343  
Received: 10/23/09 9:00 AM  
EMSL Order: 090908617  
EMSL Proj:  
Analysis Date: 10/23/2009

**Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy**

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
091021-343-03-Drywall <i>090908617-0003</i>	343 Bathrooms				Not Analyzed
No apparent Drywall present on submitted sample.					
091021-343-03-Paint <i>908617-0003A</i>	343 Bathrooms	Various Non-Fibrous  Heterogeneous		100% Non-fibrous (other)	None Detected
091021-343-03-Joint Compound <i>090908617-0003B</i>	343 Bathrooms				Stop Positive (Not Analyzed)

Analyst(s)  

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*Michael Schaumloeffel (5)*

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**Baojia Ke, Laboratory Manager**  
or other approved signatory

Due to magnification limitations inherent in PLM, asbestos fibers in dimensions below the resolution capability of PLM may not be detected. Samples reported as <1% or none detected may require additional testing by TEM to confirm asbestos quantities. The above test report relates only to the items tested and may not be reproduced in any form without the express written approval of EMSL Analytical, Inc. EMSL's liability is limited to the cost of analysis. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.  
Samples analyzed by EMSL Analytical, Inc San Leandro 2235 Polvorosa Ave , Suite 230, San Leandro CA NVLAP Lab Code 101048-3, MA AA000201, WA C2007

90908617



# Chain of Custody Asbestos Lab Services

EMSL Analytical, Inc.  
Suite 230  
2235 Polvorosa Ave  
San Leandro, CA 94577  
Phone: (510)  
895-3675 (888)  
455-3675  
Fax: (510) 895-3680  
<http://www.emsl.com>

Please print all information legibly.

<b>Company:</b>	Consulated Safety Services	<b>Bill To:</b>	Consulated Safety Services
<b>Address1:</b>	M/s 223-6	<b>Address1:</b>	M/s 223-6
<b>Address2:</b>		<b>Address2:</b>	
<b>City, State:</b>	Moffett Field, CA	<b>City, State:</b>	Moffett Field, CA
<b>Zip/Post Code:</b>	94035	<b>Zip/Post Code:</b>	94035
<b>Country:</b>	USA	<b>Country:</b>	USA
<b>Contact Name:</b>	Jennifer Morris	<b>Attn:</b>	Sally Verdugo
<b>Phone:</b>	559-213-5321	<b>Phone:</b>	408-218-6821
<b>Fax:</b>	650-604-2035	<b>Fax:</b>	650-604-2035
<b>Email:</b>		<b>Email:</b>	
<b>EMSL Rep:</b>		<b>P.O. Number:</b>	
<b>Project Name/Number:</b>	343 - bathrooms		

MATRIX			TURNAROUND			
<input type="checkbox"/> Air	<input type="checkbox"/> Soil	<input type="checkbox"/> Micro-Vac	<input type="checkbox"/> 3 Hours	<input type="checkbox"/> 6 Hours		<input checked="" type="checkbox"/> 24 Hours (1 day)
<input checked="" type="checkbox"/> Bulk	<input type="checkbox"/> Drinking Water		<input type="checkbox"/> 48 Hours (2 days)	<input type="checkbox"/> 72 Hours (3 days)	<input type="checkbox"/> 96 Hours (4 days)	<input type="checkbox"/> 120 Hours (5 days)
<input type="checkbox"/> Wipe	<input type="checkbox"/> Wastewater		<input type="checkbox"/> 144+ hours (6-10 days)			

TEM AIR, 3 hours, 6 hours. Please call ahead to schedule. There is a premium charge for 3-hour tat, please call 1-800-220-3675 for price prior to sending samples. You will be asked to sign an authorization form for this service.

Spot Positive

### PCM - Air

- NIOSH 7400(A) Issue 2, August 1994
- OSHA w/TWA
- Other:

### TEM Air

- AHERA 40 CFR, Part 763 Subpart E
- NIOSH 7402
- EPA Level II

### TEM WATER

- EPA 100.1
- EPA 100.2
- NYS 198.2

### PLM - Bulk

- EPA 600/R-93/116
- EPA Point Count
- NY Stratified Point Count
- PLM NOB (Gravimetric) NYS 198.1
- NIOSH 9002:
- EMSL Standard Addition:

### TEM BULK

- Drop Mount (Qualitative)
- Chatfield SOP - 1988-02
- TEM NOB (Gravimetric) NYS 198.4
- EMSL Standard Addition:

### TEM Microvac/Wipe

- ASTM D 5755-95 (quantative method)
- Wipe Qualitative

### SEM Air or Bulk

- Qualitative
- Quantitative

### PLM Soil

- EPA Protocol Qualitative
- EPA Protocol Quantitative
- EMSL MSD 9000 Method fibers/gram

### XRD

- Asbestos
- Silica NIOSH 7500

### OTHER

- 



# Chain of Custody Asbestos Lab Services

EMSL Analytical, Inc.  
Suite 230  
2235 Polvorosa Ave  
San Leandro, CA 94577  
Phone: (510)  
895-3675 (888)  
455-3675  
Fax: (510) 895-3680  
<http://www.emsl.com>

Please print all information legibly.

Client Sample # (s) 091021-343-01 - 091021-343-03

Total Samples #: 3

Received at EMSL Analytical, Inc. San Leandro, CA (888) 455-3675	
By	<i>[Signature]</i>
Date	<u>10/13/09 @ 9:00 am pm</u>

Red Br



90908617

Relinquished: Jerry Mura Date: 10/21/09 Time: FedEx  
Received: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
Received: \_\_\_\_\_ Date: 10/23/2009 Time: 9:00am FedEx

(+) ✓  
↓

SAMPLE NUMBER	SAMPLE DESCRIPTION/LOCATION	VOLUME (if applicable)
091021-343-01	multi layered sample paint, wall board,	
091021-343-02	multi layered sample paint, joint comp drywall	
091021-343-03	multi layered sample	
<del>Stop at 1st positive sample</del>		

3732 CHARTER PARK DRIVE  
SUITE A  
SAN JOSE, CA 95136  
TEL: 408.448.7594  
TOLL FREE: 800.988.7424  
FAX: 408.448.3849

## ASBESTOS SURVEY REPORT

### Public Works Shop (ID: Building 343)

NASA-AMES  
Moffett Field  
Mt. View, CA 94035

BUILDING INSPECTIONS

ENVIRONMENTAL ENGINEERING

SPECIALIZED TRAINING

CONTRACT MANAGEMENT

Prepared for:  
NASA - AMES (PAI CORPORTATION)  
Nasa-ames Research Center  
Moffett Field, CA 94035-1000

Prepared by:  
Benchmark Environmental Engineering  
November 29, 2001  
Project Number: **E01-448-A-SU**

Prepared By:

---

Terri MacFarlane  
a California Certified Asbestos Consultant  
90-2747

Reviewed By:

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Terri MacFarlane  
a California Certified Asbestos Consultant  
90-2747

## Table of Contents

### Section:

	<b>Executive Summary</b>
<b>1</b>	<b>Introduction</b>
<b>2</b>	<b>Description of Building Construction and Systems</b>
<b>3</b>	<b>Summary of Findings for Suspect Materials</b>
<b>4</b>	<b>Material Information Tables</b>
<b>5</b>	<b>Removal Cost Estimate Summary</b>

### Appendices:

<b>A</b>	<b>Definitions of Terms and Assessment Criteria</b>
<b>B</b>	<b>Bulk Sampling Protocol and Analytical Methods</b>
<b>C</b>	<b>Laboratory Bulk Sampling Reports</b>
<b>D</b>	<b>Summary of Regulatory Requirements</b>
<b>E</b>	<b>AHERA Building Inspector Certifications</b>
<b>F</b>	<b>Drawings Indicating Material Locations</b>

## Executive Summary

Benchmark Environmental Engineering (Benchmark) was retained by NASA - Ames (PAI Corporation) to perform an Asbestos Hazard Emergency Response Act (AHERA) style asbestos survey of the Public Works Shop (Building ID: Building 343), to determine the locations of accessible and to the extent feasible, inaccessible friable and non-friable asbestos containing building materials (ACBM).

This inspection included both the interior and exterior spaces. Pre-existing survey data was used to help provide a picture of existing condition of this building. Benchmark collected additional samples of the construction material to help supplement existing data, to contradict existing data or to provide additional data of materials not perviously identified.

No friable asbestos-containing materials were observed in the building.

Asbestos was detected in the following non-friable materials:

- Floor Tile
- Mastic
- Roofing Material

## Section 1 Introduction

Benchmark Environmental Engineering (Benchmark) performed an Asbestos Hazard Emergency Response Act (AHERA) style asbestos survey of the Public Works Shop located at Moffett Field, Mt. View, CA, to identify ACBM. This report identifies the locations and asbestos content of friable and non-friable ACBM, provides assessment of the friable ACBM in relation to the material's hazard potential to building occupants and provides removal cost estimates.

This inspection included both the interior and exterior spaces. Pre-existing survey data was used to help provide a picture of existing condition of this building. Benchmark collected additional samples of the construction material to help supplement existing data, to contradict existing data or to provide additional data of materials not perviously identified.

All identified suspect asbestos-containing materials are summarized in Section 3. Materials testing positive for asbestos including material assessments, recommended response actions, and quantities are described in Section 4. Removal cost estimates for asbestos-containing materials are included in Section 5.

Removal cost estimates (Section 5) are for budgeting purposes only and should not be used as a quote for removal of the materials. It is not our recommendation to remove these materials unless they are beyond repair, or planned demolition or renovation activities will disturb the materials. Estimates are based on recent pricing we have received from contractors performing similar work and may vary from actual prices obtained due to the actual scope of work, quantity of material removed, control measures specified and contractor work loads.

On Thursday, August 2, 2001 Terri MacFarlane ( 90-2747 ) , a California Certified Asbestos Consultant and Roy J. Mabus ( 92-0191 ) , a California Certified Asbestos Consultant, from Benchmark, performed an asbestos survey of the building(s) in accordance with the Asbestos Hazard and Emergency Response Act of 1987 (AHERA).

### DISCLAIMER

This report is prepared for the express use and benefit of NASA - Ames (PAI Corporation), its agents and employees. The information in this report or portions thereof may be required to be included in notifications to employees, contractors or other visitors to the building(s). This report is not intended to be used as a specification or work plan for any of the work suggested or recommended in this report.

This report is based upon conditions observed at the property and information made available to the surveyor. This report does not intend to identify all hazards or unsafe

conditions, nor to indicate that other hazards or unsafe conditions do not exist at the premises.

## Section 2 Description of Building Construction and Systems

Number of Floors: 1

Year Built: 1942

Total Square Footage: 1,785

Structural components consist of:

Concrete Foundation

Exterior Wall construction components consist of: Wood  
Stucco

Interior Wall construction components consist of: Drywall

Roofing construction components consist of:

Rolled Composite

### Building Description/Comments:

This facility is a one-story with plenum. This construction is wood frame over a concrete foundation. It has a flat composite roof. The exterior is stucco and plaster.

### Comments:

There was a previous asbestos survey conducted by Tetra Tech, Inc. on February 11, 1993.

### Section 3 Summary of Findings for Suspect Materials

The following table is a list of all materials at this building which were tested for the presence of asbestos or were assumed to contain asbestos along with overall sample results. Complete information on asbestos containing materials is included in Section 4 of this report.

Each unique material within the building is assigned a unique HM number by the surveyor at the time the survey is performed.

Section 3 and Section 4 are organized by building, surfacing, thermal systems insulation, flooring, walls, ceilings, roofing and miscellaneous materials.

*Site Information*

**Public Works Shop (Site ID: Parcel 5)**  
Moffett Field  
Mt. View, CA 94035

*Client Information*

NASA - Ames (PAI Corporation)  
NASA-Ames Research Center  
Moffett Field, CA 94035-1000

*Survey Performed By*

Benchmark Environmental Engineering

*Inspector*

Terri MacFarlane

*Inspection Date*

Thursday, August 2, 2001

*Job Number*

E01-448-A-SU

<i>Suspect Material</i>	<i>Category</i>	<i>HM Number</i>	<i>Material Location(s)</i>	<i>Asbestos Present?</i>
Roofing Material	Roofing	RM-1		Yes
Wall - Board	Walls	WLBO-2	THROUGHOUT THE BULDING	No
9" Brown Floor Tile	Flooring	FT-3	NORTH	Yes
Coving Mastic	Miscellaneous	MASTIC-4	NORTH	Yes
Floor Tile Mastic	Miscellaneous	MASTIC-5	NORTH	Yes
Exterior Stucco Surfacing	Miscellaneous	ES-6	EXTERIOR	No
Black Sink Undercoating	Miscellaneous	SK-7		No



## Section 4 Material Information Tables

*Site Information*

**Public Works Shop (Site ID: Parcel 5)**  
 Moffett Field  
 Mt. View, CA 94035

*Client Information*

NASA - Ames (PAI Corporation)  
 NASA-Ames Research Center  
 Moffett Field, CA 94035-1000

*Survey Performed By*

Benchmark Environmental Engineering

*Inspector*

Terri MacFarlane

*Inspection Date*

Thursday, August 2, 2001

*Job Number*

E01-448-A-SU

<i>Material Description</i>			<i>Material Number</i>	<i>Asbestos Present?</i>
Roofing Material			RM-1	Yes
<i>Material Category</i>	<i>Friable Classification</i>	<i>EPA Category</i>	<i>Total Quantity</i>	<i>Unit of Measure</i>
Roofing	Non-Friable	Category I	1,785	Square Feet
<i>General Condition</i>	<i>Damage Category</i>	<i>Overall Material Assessment</i>	<i>Recommended Response</i>	
		Not Assessed under AHERA	Abate Prior to Demolition	
<i>General Material Comments</i>				
<i>Material Location(s)</i>				

<i>Sample ID(s)</i>	<i>Sample Location(s)</i>	<i>Floor</i>	<i>Analyzed</i>	<i>Overall Result</i>	<i>Layer(s) Reported by Lab</i>	<i>Results by Layer</i>
rm-1-01-4900-343-10	Roof - Rolled Asphalt Shingle South		Yes	0%	1) Roofing material 2) 3)	Non Detected
rm-1-01-4901-343-11	Roof - Rolled Asphalt Shingle North		Yes	0%	1) Roofing material 2) 3)	Non Detected
rm-1-01-4902-343-12	Penetration South		Yes	7%	1) Roof penetration 2) 3)	7 % Chrysotile
rm-1-01-4903-343-13	Penetration North		Yes	8%	1) Roof penetration 2) 3)	8 % Chrysotile

# Section 4 Material Information Tables

Site Information

Public Works Shop (Site ID: Parcel 5)

Inspection Date

Thursday, August 2, 2001

<b>Material Description</b> Wall - Board			<b>Material Number</b> WLBO-2	<b>Asbestos Present?</b> No
<b>Material Category</b> Walls	<b>Friable Classification</b> Non-Friable	<b>EPA Category</b> Category II	<b>Total Quantity</b> 4,025	<b>Unit of Measure</b> Square Feet
<b>General Condition</b>	<b>Damage Category</b>	<b>Overall Material Assessment</b> No Assessment, Non-asbestos	<b>Recommended Response</b>	

General Material Comments

Material Location(s)

THROUGHOUT THE BULDING

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported by Lab	Results by Layer
WLBO-2-146-H02-A			Yes	0%	1) Drywall 2) 3)	Non Detected
WLBO-2-146-H02-B			Yes	0%	1) Drywall 2) 3)	Non Detected
WLBO-2-146-H02-C			Yes	0%	1) Drywall 2) 3)	Non Detected
WLBO-2-146-H02-D			Yes	0%	1) Drywall 2) 3)	Non Detected
WLBO-2-146-H02-E			Yes	0%	1) Drywall 2) 3)	Non Detected

<b>Material Description</b> 9" Brown Floor Tile			<b>Material Number</b> FT-3	<b>Asbestos Present?</b> Yes
<b>Material Category</b> Flooring	<b>Friable Classification</b> Non-Friable	<b>EPA Category</b> Category I	<b>Total Quantity</b> 247	<b>Unit of Measure</b> Square Feet
<b>General Condition</b>	<b>Damage Category</b>	<b>Overall Material Assessment</b> Not Assessed under AHERA	<b>Recommended Response</b> Abate Prior to Demolition	

General Material Comments

Material Location(s)

NORTH

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported by Lab	Results by Layer
ft-3-01-4891-343-1	Office, Southeast		Yes	4%	1) Floor Tile 2) 3)	4 % Chrysotile
ft-3-01-4892-343-2	Office, Southeast		Yes	5%	1) Floor Tile 2) 3)	5 % Chrysotile
ft-3-01-4893-343-3	Office, Southeast		Yes	4%	1) Floor Tile 2) 3)	4 % Chrysotile

# Section 4 Material Information Tables

Site Information

Public Works Shop (Site ID: Parcel 5)

Inspection Date

Thursday, August 2, 2001

<b>Material Description</b> Coving Mastic			<b>Material Number</b> MASTIC-4	<b>Asbestos Present?</b> Yes
<b>Material Category</b> Miscellaneous	<b>Friable Classification</b> Non-Friable	<b>EPA Category</b> Category II	<b>Total Quantity</b> 32	<b>Unit of Measure</b> Square Feet
<b>General Condition</b>	<b>Damage Category</b>	<b>Overall Material Assessment</b> Not Assessed under AHERA	<b>Recommended Response</b> Abate Prior to Demolition	

General Material Comments

Material Location(s)

NORTH

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported by Lab	Results by Layer
MASTIC-4-01-4894-343-4	Office, Southeast		Yes	3%	1) Mastic 2) 3)	3 % Chrysotile
MASTIC-4-01-4895-343-5	Office, Southeast		Yes	3%	1) Mastic 2) 3)	3 % Chrysotile
MASTIC-4-01-4896-343-6	Office, Southeast		Yes	3%	1) Mastic 2) 3)	3 % Chrysotile

<b>Material Description</b> Floor Tile Mastic			<b>Material Number</b> MASTIC-5	<b>Asbestos Present?</b> Yes
<b>Material Category</b> Miscellaneous	<b>Friable Classification</b> Non-Friable	<b>EPA Category</b> Category II	<b>Total Quantity</b> 247	<b>Unit of Measure</b> Square Feet
<b>General Condition</b>	<b>Damage Category</b>	<b>Overall Material Assessment</b> Not Assessed under AHERA	<b>Recommended Response</b> Abate Prior to Demolition	

General Material Comments

Material Location(s)

NORTH

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported by Lab	Results by Layer
MASTIC-5-01-4897-343-7	Office, Southeast		Yes	10%	1) Mastic 2) 3)	10 % Chrysotile
MASTIC-5-01-4898-343-8	Office Southeast		Yes	7%	1) Mastic 2) 3)	7 % Chrysotile
MASTIC-5-01-4899-343-9	Office, Southeast		Yes	7%	1) Mastic 2) 3)	7 % Chrysotile

# Section 4 Material Information Tables

Site Information

Public Works Shop (Site ID: Parcel 5)

Inspection Date

Thursday, August 2, 2001

<b>Material Description</b> Exterior Stucco Surfacing			<b>Material Number</b> ES-6	<b>Asbestos Present?</b> No
<b>Material Category</b> Miscellaneous	<b>Friable Classification</b> Non-Friable	<b>EPA Category</b> Category II	<b>Total Quantity</b> 2,000	<b>Unit of Measure</b> Square Feet
<b>General Condition</b>	<b>Damage Category</b>	<b>Overall Material Assessment</b> No Assessment, Non-asbestos	<b>Recommended Response</b>	

General Material Comments

Material Location(s)

EXTERIOR

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported by Lab	Results by Layer
es-6-343-H06-A			Yes	0%	1) Stucco 2) 3)	Non Detected
es-6-343-H06-B			Yes	0%	1) Stucco 2) 3)	Non Detected
es-6-343-H06-C			Yes	0%	1) Stucco 2) 3)	Non Detected

<b>Material Description</b> Black Sink Undercoating			<b>Material Number</b> SK-7	<b>Asbestos Present?</b> No
<b>Material Category</b> Miscellaneous	<b>Friable Classification</b> Non-Friable	<b>EPA Category</b> Category I	<b>Total Quantity</b> 3	<b>Unit of Measure</b> Square Feet
<b>General Condition</b>	<b>Damage Category</b>	<b>Overall Material Assessment</b> No Assessment, Non-asbestos	<b>Recommended Response</b>	

General Material Comments

Material Location(s)

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported by Lab	Results by Layer
sk-7-343-H07-A			Yes	0%	1) Sink Undercoating 2) 3)	Non Detected

## Section 5 Removal Cost Estimate Summary

These estimates are for budgeting purposes only and should not be used as a quote for removal of the materials. It is not our recommendation to remove these materials unless they are beyond repair, or planned demolition or renovation activities will disturb the materials. Estimates are based on recent pricing we have received from contractors performing similar work and may vary from actual prices obtained due to the actual scope of work, quantity of material removed, control measures specified and contractor work loads, etc.

Building Public Works Shop				QTY. Units Removal Costs (low to high)
HM	EPA Category	Suspect Material	Material Location	
1	Category I	Roofing Material		1,785 Square Feet \$1785 to \$3570
3	Category I	9" Brown Floor Tile	NORTH	247 Square Feet \$500
4	Category II	Coving Mastic	NORTH	32 Square Feet \$500
5	Category II	Floor Tile Mastic	NORTH	247 Square Feet \$500
Total Removal Costs:			\$3,285	to \$5,070

Building	Floor	Sample #	Sample Location	Room	Material Sampled	%/Type
343	1	01-4891-343-1	Office, Southeast	103	9" Brown Floor Tile	4% Chrysotile
343	1	01-4892-343-2	Office, Southeast	103	9" Brown Floor Tile	5% Chrysotile
343	1	01-4893-343-3	Office, Southeast	103	9" Brown Floor Tile	4% Chrysotile
343	1	01-4894-343-4	Office, Southeast	103	Coving Mastic	3% Chrysotile
343	1	01-4895-343-5	Office, Southeast	103	Coving Mastic	3% Chrysotile
343	1	01-4896-343-6	Office, Southeast	103	Coving Mastic	3% Chrysotile
343	1	01-4897-343-7	Office, Southeast	103	Floor Tile Mastic	10% Chrysotile
343	1	01-4898-343-8	Office Southeast	103	Floor Tile Mastic	7% Chrysotile
343	1	01-4899-343-9	Office, Southeast	103	Floor Tile Mastic	7% Chrysotile
343	1	01-4900-343-10	Roof - Rolled Asphalt Shingle South	Roof	Roofing Material	Non Detected
343	1	01-4901-343-11	Roof - Rolled Asphalt Shingle North	Roof	Roofing Material	Non Detected
343	1	01-4902-343-12	Penetration South	Roof	Roofing Material	7% Chrysotile
343	1	01-4903-343-13	Penetration North	Roof	Roofing Material	8% Chrysotile
Pre-Existing Survey						
343	1	343-H07-A	Bathroom	R101	Black Sink Undercoating	Non Detected
343	1	146-H02-A	Office	101	Wall - Board	Non Detected
343	1	146-H02-B	Office	102	Wall - Board	Non Detected
343	1	146-H02-C	Office	103	Wall - Board	Non Detected
343	1	146-H02-D	Office	103	Wall - Board	Non Detected
343	1	146-H02-E	Bathroom	R101	Wall - Board	Non Detected
343	1	343-H06-A	Exterior	Ext.	Exterior Stucco Surfacing	Non Detected
343	1	343-H06-B	Exterior	Ext.	Exterior Stucco Surfacing	Non Detected
343	1	343-H06-C	Exterior	Ext.	Exterior Stucco Surfacing	Non Detected

Appendix A  
**Definitions of Terms and Assessment Criteria**

## Definitions of Terms and Assessment Criteria

This survey report organizes information on each suspect ACBM identified in tables located in Section 4. This section describes how to interpret the data found on materials listed in Section 4.

**Material description** contains the description of the suspect homogeneous asbestos containing building material.

**Material Serial Number** is used to reference the material for reinspections, etc..

**Asbestos type and content** describes the type of asbestos and its percentage in the material.

**Asbestos Results** for positive materials are shown as a percentage. Samples having less than 1% asbestos are reported as containing "Trace" amounts of asbestos and samples with no detected asbestos are reported as "BLD" or below limit of detection.

**Sample number(s)** identifies a particular material sample obtained from a specific sample location. Sample numbers are used primarily for laboratory identification.

**Sample Location** identifies where the samples of this material were obtained.

**Material Category** categorizes each material as surfacing, TSI or miscellaneous.

*Surfacing Materials* - Asbestos containing materials that are sprayed-on, trowled-on or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.

*Thermal Systems Insulation (TSI)* - Asbestos containing materials applied to pipes, fittings, boilers, breaching, tanks, ducts or other interior structural components to prevent heat loss or gain or water condensation.

*Miscellaneous Materials* - Asbestos containing materials applied to or a part of building components that are not classified as surfacing materials or thermal systems insulation.

**Quantity & Units** reports approximate total quantity per unit of measure for each material.

**Building(s) & Floor(s)** specifies where a material is located.

**Material Location** describes where the material is found throughout the building.

**Material Condition** identifies the material as Friable, Non-friable or Jacketed (for thermal systems insulation only) if asbestos is present.

*Friable* - An asbestos containing material that can be crumbled, pulverized or reduced to powder, when dry, by hand pressure, such as spray applied fireproofing on structural steel members, spray applied acoustical ceiling materials or damaged thermal systems insulation. Friable materials are of greatest concern due to their potential fiber release.

*Non-Friable* - An asbestos containing material where the asbestos is bound tightly in a matrix or sealed by a protective layer. Non-friable materials can become friable by being rendered to a crumbled, pulverized or powdered state, when dry, by crushing, sanding, sawing, shot-blasting, severe weathering or by other mechanically induced means. Common examples of non-friable materials are adhesives, floor tiles, transite and roofing materials.

*Jacketed* - An asbestos containing material applied to thermal systems insulation and "jacketed" with a protective outer layer such as canvas or metal to keep the material in good condition. Undamaged jacketed ACBM is considered non-friable. If the jacketing is damaged, the material is considered friable.

**Damage Category** describes the type of damage, if any, to the material. The following damage categories are used: None, Physical, Air, and Water.

**Material Assessment** identifies the condition of the material in relation to physical and water damage, delamination of the material from its substrate, the extent of the damage and the potential for damage from building conditions, such as, accessibility by building occupants, influence of vibration, etc. The six standard assessment categories ranked by hazard potential, with the first being the lowest hazard are as follows: 1) Potential for Damage, 2) Potential for Significant Damage, 3) Damaged, 4) Damaged with Potential for Damage, 5) Damaged with Potential for Significant Damage, and 6) Significantly Damaged. Only friable materials are assessed under AHERA regulations. Non-friable materials, unless damaged, are not assessed and can be assumed to be in good condition.



*Damaged* - The damage or deterioration of the material results in inadequate cohesion or adhesion with crumbling, blistering, water stains, marring or otherwise abraded over less than one-tenth (1/10) of the surface if the damage is evenly distributed or one-fourth (1/4) if the damage is localized.

*Significant Damage* - The damage or deterioration of the material results in inadequate adhesion or cohesion and the damage is extensive and severe with one or more of the following characteristics: 1) Crumbling or blistering over at least one-tenth (1/10) of the surface if evenly distributed, one-fourth (1/4) if the damage is localized; 2) Areas of the material hanging from the surface, delaminated, or showing adhesive failure; 3) Water stains, gouges or marred.

**Recommended Response** suggests the appropriate options for controlling or maintaining ACBM in a safe manner. There are four options used:

*Operations & Maintenance (O&M)* - A program designed to "manage" asbestos in-place. As long as asbestos containing materials remain in a building, an O&M program should be instituted to alert maintenance personnel, custodial workers and outside vendors of the existence and location of these materials and to set a policy for the maintenance of these materials. The material is usually only required to be removed if it is significantly damaged, prior to demolition of the building or if it will be disturbed by renovation activities.

*Repair* - The restoration of damaged or deteriorated asbestos containing building materials to an intact condition. Once the intact condition is established, the material should be included in an O&M program. The material is usually only required to be removed if it is significantly damaged, prior to demolition of the building or if it will be disturbed by renovation activities.

*Abate Due to Condition* - This material is significantly damaged and is unsafe in its current condition. The access to the area should be restricted to personnel equipped with appropriate personal protection. This material should be properly removed by a licensed contractor using workers trained in the safe removal of asbestos.

*Abate Prior to Renovation* - This material should be properly removed prior to planned renovation activities by a licensed contractor using workers trained in the safe removal of asbestos. This recommendation is usually made only on survey reports prepared prior to planned renovation activities.

**Comments & Damage Description** contains any additional information and or specific details of material damage are noted here.

**EPA Category** provides the appropriate material category as outlined in the NESHAPS regulation. The four options are friable, Category 1, Category 2, and needs determination.

*Friable* - Materials containing greater than 1% asbestos are always considered Regulated Asbestos Containing Materials (RACM) that require removal prior to building renovation or demolition activities that impact the material.

*Category 1* - Materials that are bituminous non-friable and contain more than 1% asbestos that become RACM and require removal only when will be subject to grinding, cutting, sanding or abrading.

Appendix B  
**Bulk Sampling Protocol and Analytical Methods**

## **Bulk Sampling Protocol and Analytical Methods**

Bulk samples of suspect asbestos containing building materials were obtained using standard industrial hygiene techniques including wetting the material to minimize fiber release. Our personnel wore half-face air purifying respirators equipped with high efficiency particulate (HEPA) filters while obtaining samples

Our sampling strategy for suspect friable surfacing materials was based on the guidelines outlined in the EPA publication Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials, and the procedures outlined in 40 CFR 763, Subpart E (ASHERA). For non-friable suspect materials, ASHERA requires the building inspector to determine the appropriate number of samples to obtain and analyze. Usually one to three samples of non-friable materials are collected.

For each homogeneous material identified by visual inspection as suspect material, random samples are obtained. A single bulk sample is randomly selected from each homogeneous material for first-round testing. If the sample is positive, the remaining samples are not analyzed; if the sample is negative, the other samples are submitted for study. Every sample must be reported negative if the material is to be considered non-asbestos containing.

The bulk samples were delivered to an independent laboratory that participates in the bulk sample proficiency analysis program conducted by the United States Environmental Protection Agency and is accredited by the National Voluntary Laboratory Program (NVLAP). The samples were analyzed using Polarized Light Microscopy (PLM) with dispersion staining to estimate the percent of asbestos composition by volume. Samples with no observable asbestiform minerals are designated as None-Detected. Samples in which asbestiform minerals are observed, but exist in concentrations of less than one percent (<1%), are designated as present in Trace amounts; all other samples are designated as asbestos containing with the appropriate percent of asbestos noted.

Appendix C  
**Laboratory Bulk Sampling Reports**

# SCHNEIDER LABORATORIES INCORPORATED

2512 W. Cary Street • Richmond, Virginia • 23220-5117  
804-353-6778 • 800-785-LABS (5227) • (FAX) 804-353-6928

*Excellence in Service and Technology*

AIHA/ELLAP 100527, NVLAP 1150, NYELAP 11413, CAELAP 2078, NC 593, SC 93003

## LABORATORY ANALYSIS REPORT

Asbestos Identification by EPA Method 600/R-93/116

**ACCOUNT:** 2541-01-105  
**CLIENT:** Benchmark  
**ADDRESS:** 3732 Charter Park Drive  
San Jose, CA 95136

**DATE COLLECTED:**  
**DATE RECEIVED:** 8/24/2001  
**DATE ANALYZED:** 8/25/2001  
**DATE REPORTED:** 8/27/2001

**PO NO.:**  
**PROJECT NAME:**  
**PROJECT NO.:** E01-448-A-SU  
**JOB LOCATION:** Parcel 5, Bldg 343

Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	Asbestos Detected (Yes/No)	Sample Description
01-4891-343-1	2027562 Layer 1: <b>4% Asbestos</b> <b>96% Non-Asbestos</b>	Office, S/E Floor Tile	<b>Yes</b>	Brown, Organically Bound CHRYSOTILE 4% CELLULOSE FIBER 3%, NON FIBROUS MATERIAL 93%
01-4892-343-2	2027563 Layer 1: <b>5% Asbestos</b> <b>95% Non-Asbestos</b>	Office, S/E Floor Tile	<b>Yes</b>	Brown, Organically Bound CHRYSOTILE 5% CELLULOSE FIBER 3%, NON FIBROUS MATERIAL 92%
01-4893-343-3	2027564 Layer 1: <b>4% Asbestos</b> <b>96% Non-Asbestos</b>	Office, S/E Floor Tile	<b>Yes</b>	Brown, Organically Bound CHRYSOTILE 4% CELLULOSE FIBER 3%, NON FIBROUS MATERIAL 93%
01-4894-343-4	2027565 Layer 1: <b>3% Asbestos</b> <b>97% Non-Asbestos</b>	Office, S/E Mastic	<b>Yes</b>	Brown, Soft FIBROUS TREMOLITE 3% NON FIBROUS MATERIAL 92%, TALC 5%

*Samples analyzed by the EPA Test Method are subject to the inherent limitations of light microscopy including interference by matrix components. Gravimetric reduction and correlative analyses are recommended for all non-friable, organically bound materials. For calibrated visual estimate, 1% is the concentration at which there is a quantitative uncertainty. This report relates only to the items tested, must not be reproduced except in full with the approval of the lab, and must not be used to claim NVLAP or other government agency endorsement.*

Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	Asbestos Detected (Yes/No)	Sample Description
01-4895-343-5	2027566	Office, S/E Layer 1: Mastic	Yes	Brown, Soft FIBROUS TREMOLITE 3% NON FIBROUS MATERIAL 92%, TALC 5%
01-4896-343-6	2027567	Office, S/E Layer 1: Mastic	Yes	Brown, Soft FIBROUS TREMOLITE 3% NON FIBROUS MATERIAL 92%, TALC 5%
01-4897-343-7	2027568	Office, S/E Layer 1: Mastic	Yes	Black, Bituminous CHRYSTOTILE 10% NON FIBROUS MATERIAL 90%
01-4898-343-8	2027569	Office, S/E Layer 1: Mastic	Yes	Black, Bituminous CHRYSTOTILE 7% NON FIBROUS MATERIAL 93%
01-4898-343-9	2027570	Office, S/E Layer 1: Mastic	Yes	Black, Bituminous CHRYSTOTILE 7% NON FIBROUS MATERIAL 93%
01-4899-343-10	2027571	Roof Layer 1: Shingle	No	Black, Bituminous CELLULOSE FIBER 5%, MINERAL/GLASS WOOL 15%, NON FIBROUS MATERIAL 80%
01-4900-343-11	2027572	Roof Layer 1: Shingle	No	Black, Bituminous CELLULOSE FIBER 5%, MINERAL/GLASS WOOL 10%, NON FIBROUS MATERIAL 85%
01-4901-343-12	2027573	Penetration-South Layer 1: Roofing	Yes	Black, Bituminous CHRYSTOTILE 7% NON FIBROUS MATERIAL 93%

*Samples analyzed by the EPA Test Method are subject to the inherent limitations of light microscopy including interference by matrix components. Gravimetric reduction and correlative analyses are recommended for all non friable, organically bound materials. For calibrated visual estimate, 1% is the concentration at which there is a quantitative uncertainty. This report relates only to the items tested, must not be reproduced except in full with the approval of the lab, and must not be used to claim NVLAP or other government agency endorsement.*

Client Sample lo.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	Asbestos Detected (Yes/No)	Sample Description
01-4902-343-13	2027574	Penetration-North		
	Layer 1:	Roofing	Yes	Black, Bituminous
	8% Asbestos		CHRYBOTILE	8%
	92% Non-Asbestos		NON FIBROUS MATERIAL	92%

ANALYST: JONNELLE G. HARGROVE

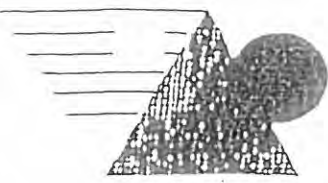
Total no. of pages in report = 3



REVIEWED BY

Beverly A. Schrage, Analyst

*Samples analyzed by the EPA Test Method are subject to the inherent limitations of light microscopy including interference by matrix components. Gravimetric reduction and correlative analyses are recommended for all non-friable, organically bound materials. For calibrated visual estimate, 1% is the concentration at which there is a quantitative uncertainty. This report relates only to the items tested, must not be reproduced except in full with the approval of the lab, and must not be used to claim NVLAP or other government agency endorsement.*



# BENCHMARK

Sample Location Works:  
Chain Of Cust

3680 Charter Park Dr Suite E San Jose, CA 95136  
(408) 448-7594 (408) 448-3849 (fax)

254-02-105

Project Number: CGI-448-A-SID Date: \_\_\_\_\_

Technician: T. J. Farlane

Project Location: Parcel 5, Bldg. 343

Client Name: Kris Company: NASA

Project Type	Type Of Analysis	Turnaround Time
Asbestos	PLM/Bulk (EPA 600)	Same Day 3 Hr 6 Hr
Lead-based Paint	EPA SW846-7420, FLAA	24 Hour
Lead Risk Assessment	Dust Wipes, Paint Chips	48 Hour
Lead (water)	Air, Soil	72 Hour
Mold/Fungus/Bacteria	SM313B, GFAA, Water	5 Day
Indoor Air Quality	TEM/Bulk (Chatfield)	Other: _____
Other: _____	Other: _____	TTP = Test Till Positive

Homogenous Material Group	Material / Component	Sample Number	Location Of Samples	Analysis Specification
03	2 x 9 FT BROWN	01-4891-343-1	OFFICE, S/E	
		01-4892-343-2	OFFICE, S/E	
		01-4893-343-3	OFFICE S/E	
04	COVING MASTIC	01-4894-343-4	OFFICE, S/E	
		01-4895-343-5	OFFICE, S/E	
		01-4896-343-6	OFFICE, S/E	
05	F-T MASTIC	01-4897-343-7	W/ SAMPLE #1	
		01-4898-343-8	W/ SAMPLE #2	
		01-4899-343-9	W/ SAMPLE #3	
01	ROOF	01-4900-343-10	Roof - ROOF ASPHALT STRIKING SOUTH	
		01-4901-343-11	Roof - " " " - NORTH	
		01-4902-343-12	PENETRATION - SOUTH	
		01-4903-343-13	PENETRATION - NORTH	
		<del>01-4904-343-14</del>		

Relinquished By: <u>T. J. Farlane</u>	Received By: <u>[Signature]</u> UPS 122228992210B2194 @	Date/Time Received: <u>8/24/01 945</u>
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Appendix D  
**Summary of Regulatory Requirements**

## **Appendix D Summary of Regulatory Requirements**

This appendix provides a summary of building owner and manager requirements under various asbestos regulations promulgated by the Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA) to protect building occupants and employees from exposure to asbestos.

### **Survey Requirements**

Prior to any renovation activity, OSHA and EPA regulations require that a complete asbestos survey be performed to determine if asbestos is present in any suspect asbestos containing material that will be present in the construction or work area. This survey report addresses accessible materials. It is recommended that prior to renovation activities, inaccessible areas that could contain asbestos materials be inspected.

### **Notification and Posting Requirements**

Regulatory agencies feel that the building owner or manager should be responsible for knowing and communicating the locations of asbestos in their buildings to building employees, outside contractors and tenants to prevent exposure to asbestos.

Under the California Health and Safety Code, building owners and managers are required to provide annual notifications regarding known asbestos containing materials in their buildings to building employees, tenants, vendors and outside contractors. Therefore, specific information contained in this survey report is required to be included in the notification.

OSHA requires building employees, outside contractors, vendors and construction contractors bidding on or performing work in buildings be provided with notification regarding asbestos containing materials in their work areas. OSHA also requires that asbestos warning signs be posted in mechanical rooms.

### **Removal Requirements**

Under EPA regulations, asbestos containing materials must be properly removed by licensed asbestos abatement contractors prior to renovation or demolition activities that would disturb friable materials or cause non-friable materials to become friable and a regulated material.

### **Repair of Damaged Materials and Cleanup of Debris**

OSHA requires that asbestos containing debris be immediately cleaned up. It is recommended that damaged materials that may release fibers be repaired as soon as possible to prevent fiber release and potential exposures.

### **Training Requirements**

OSHA requires employers whose employees are likely to or required to disturb asbestos to receive an asbestos training course. Refresher training is required to be provided annually.

Appendix E  
**AHERA Building Inspector Certifications**

State of California  
Division of Occupational Safety and Health

Certified Asbestos Consultant

Terri A. MacFarlane



Name

Certification No. 90-2747

Expires on 5/3/2002

This certification was issued by the Division of Occupational Safety and Health pursuant to Section 13309 of the California Labor Code.

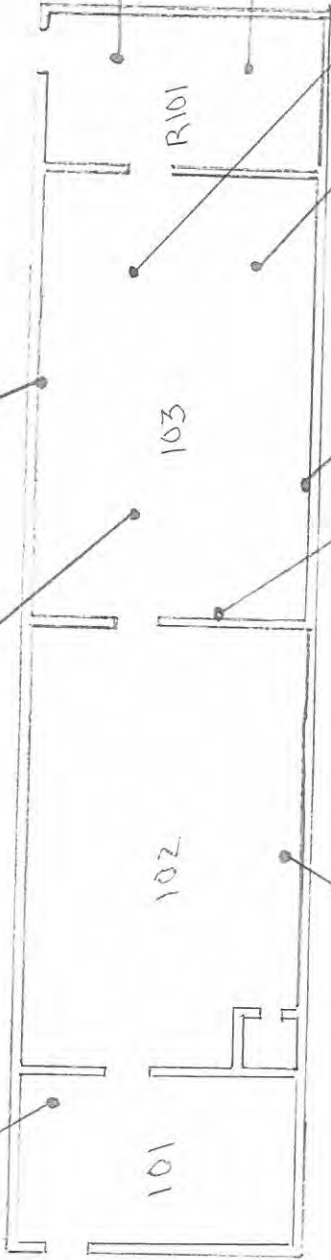
Appendix F  
**Drawings Indicating Sampling Locations**

ASBESTOS SAMPLE  
LOCATIONS

01-4899-343-9  
01-4893-343-3

01-4901-343-11

01-4894-343-4



102

103

R101

01-4900-343-10

01-4903-343-13

01-4902-343-12

01-4895-343-5

"FIELD DRAWING"

01-4896-343-6

01-4892-343-2  
01-4898-343-8

01-4891-343-1  
01-4897-343-7



Property Inspections - Environmental Engineering  
Specialized Training - Contract Management  
3732 - A Charter Park Drive  
San Jose, CA 951366  
Phone: (408) 448-7594 - Fax: (408) 448-3849

PROJECT NAME:  
Bldg 343  
PAI-COOP  
NASA-AMCS  
PARCEL 5

DRAFT PERSON: WLB  
DATE: 11/20  
DWG. No. 1

PROJECT No.

E01-448-AL-SU