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ASBESTOS SURVEY REPORT

Bachelors Enlisted Quarters (ID: Building 151)

NASA-AMES
Moffett Field
Mt. View, CA

BUILDING INSPECTIONS

ENVIRONMENTAL ENGINEERING

SPECIALIZED TRAINING

CONTRACT MANAGEMENT

Prepared for:
NASA - AMES (PAI CORPORTATION)
Nasa-ames Research Center
Mt. View, CA 94035-1000

Prepared by:
Benchmark Environmental Engineering
December 13, 2001
Project Number: **E01-448-A-SU**

Prepared By:

A handwritten signature in black ink, appearing to read 'Terri MacFarlane', written over a horizontal line.

Terri MacFarlane
a California Certified Asbestos Consultant
90-2747

Reviewed By:

A second handwritten signature in black ink, identical to the one above, written over a horizontal line.

Terri MacFarlane
a California Certified Asbestos Consultant
90-2747

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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 Bachelors Enlisted Quarters (Building ID: Building 151), to determine the locations of accessible and to the extent feasible, inaccessible friable and non-friable asbestos containing building materials (ACBM).

This inspection included the interior and exterior building materials. 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.

Asbestos was detected in the following friable (or jacketed friable) materials:

- Pipe Elbows
- Pipe Insulation

Asbestos was detected in the following non-friable materials:

- Adhesive
- Floor Tile

The following materials were assumed to contain asbestos:

- Fire Door

Section 1 Introduction

Benchmark Environmental Engineering (Benchmark) performed an Asbestos Hazard Emergency Response Act (AHERA) style asbestos survey of the Bachelors Enlisted Quarters 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 the interior and exterior building materials. 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, July 5, 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: 2

Year Built: 1953

Total Square Footage: 15,785

Structural components consist of:

Concrete Foundation

Exterior Wall construction components consist of: Concrete

Interior Wall construction components consist of: Drywall
Plaster

Interior ceiling components consist of: Ceiling Tile

Roofing construction components consist of: Rolled Composite

Building Description/Comments:

This is a two-story structure with a basement. It is concrete over a concrete foundation. The concrete exterior is tan. There is a flat composite roof.

Comments:

Tetra Tech, Inc. completed an asbestos survey on this facility on June 23, 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

Bachelors Enlisted Quarters (Site ID: Parcel 5)

Moffett Field
Mt. View, CA

Client Information

NASA - Ames (PAI Corporation)
NASA-Ames Research Center
Mt. View, CA 94035-1000

Survey Performed By

Benchmark Environmental Engineering

Inspector

Terri MacFarlane

Inspection Date

Thursday, July 5, 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	EXTERIOR	No
12" Tan Floor Tile	Flooring	FT-2	THROUGHOUT THE BULDING	No
Baseboard Adhesive	Flooring	BA-3	THROUGHOUT THE BULDING	No
2'x4' Pinhole Ceiling Tile	Ceilings	CT-4	THROUGHOUT THE BULDING	No
Wallboard		WLBD-5	THROUGHOUT THE BULDING	No
Wall - Plaster troweled-on		WLPLTR-6	THROUGHOUT THE BULDING	No
1" TSI Pipe Insulation	TSI	PI-7	THROUGHOUT THE BULDING	Yes
1" TSI Pipe Elbows	TSI	PE-8	THROUGHOUT THE BULDING	Yes
2" TSI Pipe Insulation	TSI	PI-9	THROUGHOUT THE BULDING	Yes
2" TSI Pipe Elbows	TSI	PE-10	THROUGHOUT THE BULDING	Yes
Brown Stair Floor Tile	Flooring	FT-11	1ST FLOOR S. CENTER	No
Fire Door	Miscellaneous	FD-12	CENTER	Yes
Floor - Mastic	Flooring	FLMAS-13	THROUGHOUT THE BULDING	No
Sink Undercoating Adhesive	Miscellaneous	AD-14	CENTER	Yes
9 x 9 Red/Brown Floor Tile	Flooring	FT-15		Yes

Section 4 Material Information Tables

Site Information

Bachelors Enlisted Quarters (Site ID: Parcel 5)
Moffett Field
Mt. View, CA

Client Information

NASA - Ames (PAI Corporation)
NASA-Ames Research Center
Mt. View, CA 94035-1000

Survey Performed By

Benchmark Environmental Engineering

Inspector

Terri MacFarlane

Inspection Date

Thursday, July 5, 2001

Job Number

E01-448-A-SU

<i>Material Description</i>			<i>Material Number</i>	<i>Asbestos Present?</i>
Roofing Material			RM-1	No
<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	15,783	Square Feet
<i>General Condition</i>	<i>Damage Category</i>	<i>Overall Material Assessment</i>	<i>Recommended Response</i>	
		No Assessment, Non-asbestos		
<i>General Material Comments</i>				

Material Location(s)

EXTERIOR

<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-1-01-6613-151-1	Roof Core West		Yes	0	1) Roofing core 2) 3)	Non Detected
rm-1-01-6614-151-2	Roof Core Northwest		Yes	0	1) Roofing core 2) 3)	Non Detected
rm-1-01-6615-151-3	Roof Patch Southwest		Yes	0	1) Roofing material 2) 3)	Non Detected
rm-1-01-6616-151-4	Roof Penetration North		Yes	0	1) Roof penetration 2) 3)	Non Detected
rm-1-01-6617-151-5	Roof Penetration South		Yes	0	1) Roof penetration 2) 3)	Non Detected

Section 4 Material Information Tables

Site Information

Bachelors Enlisted Quarters (Site ID: Parcel 5)

Inspection Date

Thursday, July 5, 2001

Material Description 12" Tan Floor Tile			Material Number FT-2	Asbestos Present? No
Material Category Flooring	Friable Classification Non-Friable	EPA Category Category I	Total Quantity 4,250	Unit of Measure Square Feet
General Condition	Damage Category	Overall Material Assessment No Assessment, Non-asbestos	Recommended Response	

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
ft-2-01-4522-151-1	1st Floor Dining Area		Yes	0%	1) Floor Tile 2) 3)	Non Detected
ft-2-01-4523-151-2	2nd Floor Hallway at Room 213		Yes	0%	1) Floor Tile 2) 3)	Non Detected
ft-2-01-4524-151-3	2nd Floor Hallway in Laundry		Yes	0%	1) Floor Tile 2) 3)	Non Detected

Material Description Baseboard Adhesive			Material Number BA-3	Asbestos Present? No
Material Category Flooring	Friable Classification Non-Friable	EPA Category Category I	Total Quantity 680	Unit of Measure Linear Feet
General Condition	Damage Category	Overall Material Assessment No Assessment, Non-asbestos	Recommended Response	

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
ba-3-01-4525-151-4	1st Floor Hallway at Duty Officer Office		Yes	0%	1) Adhesive 2) 3)	Non Detected
ba-3-01-4526-151-5	2nd Floor Hallway at Room 213		Yes	0%	1) Adhesive 2) 3)	Non Detected
ba-3-01-4527-151-6	2nd Floor Hallway at Rom 207		Yes	0%	1) Adhesive 2) 3)	Non Detected

Section 4 Material Information Tables

Site Information

Bachelors Enlisted Quarters (Site ID: Parcel 5)

Inspection Date

Thursday, July 5, 2001

Material Description 2'x4' Pinhole Ceiling Tile			Material Number CT-4	Asbestos Present? No
Material Category Ceilings	Friable Classification Friable	EPA Category Friable	Total Quantity 3,050	Unit of Measure Square Feet
General Condition	Damage Category	Overall Material Assessment No Assessment, Non-asbestos	Recommended Response	

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
ct-4-151-HO4-A			Yes	0%	1) Ceiling Tile 2) 3)	0
ct-4-151-HO4-B			Yes	0%	1) Ceiling Tile 2) 3)	0
ct-4-151-HO4-C			Yes	0%	1) Ceiling Tile 2) 3)	0
ct-4-151-HO4-D			Yes	0%	1) Ceiling Tile 2) 3)	0
ct-4-151-HO4-E			Yes	0%	1) Ceiling Tile 2) 3)	0

Section 4 Material Information Tables

Site Information

Bachelors Enlisted Quarters (Site ID: Parcel 5)

Inspection Date

Thursday, July 5, 2001

Material Description Wallboard			Material Number WLBD-5	Asbestos Present? No
Material Category	Friable Classification Non-Friable	EPA Category Category II	Total Quantity 15,100	Unit of Measure Square Feet
General Condition	Damage Category	Overall Material Assessment No Assessment, Non-asbestos	Recommended Response	

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
WLBD-5-151-HO5-A			Yes	0%	1) Drywall 2) 3)	0
WLBD-5-151-HO5-B			Yes	0%	1) Drywall 2) 3)	0
WLBD-5-151-HO5-C			Yes	0%	1) Drywall 2) 3)	0
WLBD-5-151-HO5-D			Yes	0%	1) Drywall 2) 3)	0
WLBD-5-151-HO5-E			Yes	0%	1) Drywall 2) 3)	0
WLBD-5-151-HO5-F			Yes	0%	1) Drywall 2) 3)	0
WLBD-5-151-HO5-G			Yes	0%	1) Drywall 2) 3)	0
WLBD-5-151-HO5-H			Yes	0%	1) Drywall 2) 3)	0
WLBD-5-151-HO5-I			Yes	0%	1) Drywall 2) 3)	0
WLBD-5-152-HO5-J			Yes	0%	1) Drywall 2) 3)	0

Section 4 Material Information Tables

Site Information

Bachelors Enlisted Quarters (Site ID: Parcel 5)

Inspection Date

Thursday, July 5, 2001

Material Description Wall - Plaster troweled-on			Material Number WLPLTR-6	Asbestos Present? No
Material Category	Friable Classification Non-Friable	EPA Category Category II	Total Quantity 6,900	Unit of Measure Square Feet
General Condition	Damage Category	Overall Material Assessment No Assessment, Non-asbestos	Recommended Response	

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
WLPLTR-6-151-HO6-A			Yes	0%	1) Wall Plaster 2) 3)	0
WLPLTR-6-151-HO6-B			Yes	0%	1) Wall Plaster 2) 3)	0
WLPLTR-6-151-HO6-C			Yes	0%	1) Drywall 2) 3)	0
WLPLTR-6-151-HO6-D			Yes	0%	1) Wall Plaster 2) 3)	0
WLPLTR-6-151-HO6-E			Yes	0%	1) Wall Plaster 2) 3)	0
WLPLTR-6-151-HO6-F			Yes	0%	1) Wall Plaster 2) 3)	0
WLPLTR-6-151-HO6-G			Yes	0%	1) Wall Plaster 2) 3)	0

Section 4 Material Information Tables

Site Information

Bachelors Enlisted Quarters (Site ID: Parcel 5)

Inspection Date

Thursday, July 5, 2001

Material Description 1" TSI Pipe Insulation			Material Number PI-7	Asbestos Present? Yes
Material Category TSI	Friable Classification Friable	EPA Category Friable	Total Quantity 1,400	Unit of Measure Linear Feet
General Condition	Damage Category	Overall Material Assessment	Recommended Response Abate Prior to Demolition	

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
pi-7-151-HO7-A			Yes	20%	1) Pipe Insulation 2) Pipe Insulation 3)	10-20 % Chrysotile 10-20 % Amosite
pi-7-151-HO7-B			No	Not Avail.	1) Pipe Insulation 2) 3)	
pi-7-151-HO7-C			No	Not Avail.	1) Pipe Insulation 2) 3)	
pi-7-01-4539-151-18	1st Floor Hallway Near Duty Officer Office		Yes	20%	1) Pipe Insulation 2) Pipe Insulation 3)	20 % Amosite 10 % Chrysotile
pi-7-01-4540-151-19	2nd Floor Hallway Near Bathroom		Yes	20%	1) Pipe Insulation 2) Pipe Insulation 3)	20 % Amosite 10 % Chrysotile

Section 4 Material Information Tables

Site Information

Bachelors Enlisted Quarters (Site ID: Parcel 5)

Inspection Date

Thursday, July 5, 2001

Material Description 1" TSI Pipe Elbows			Material Number PE-8	Asbestos Present? Yes
Material Category TSI	Friable Classification Friable	EPA Category Friable	Total Quantity 215	Unit of Measure Each
General Condition	Damage Category	Overall Material Assessment	Recommended Response Abate Prior to Demolition	

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
pe-8-151-HO8-A			Yes	20%	1) TSI Elbow 2) TSI Elbow 3)	10-20 % Chrysotile 10-20 % Amosite
pe-8-151-HO8-B			No	Not Avail.	1) TSI Elbow 2) 3)	
pe-8-151-HO8-C			No	Not Avail.	1) TSI Elbow 2) 3)	
pe-8-01-4541-151-20	1st Floor Hallway Near Duty Officer Office		Yes	30%	1) TSI Elbow 2) TSI Elbow 3)	5 % Amosite 30 % Chrysotile
pe-8-01-4542-151-21	2nd Floor Hallway Near Bathroom		Yes	15%	1) TSI Elbow 2) TSI Elbow 3)	10 % Amosite 15 % Chrysotile

Section 4 Material Information Tables

Site Information

Bachelors Enlisted Quarters (Site ID: Parcel 5)

Inspection Date

Thursday, July 5, 2001

Material Description 2" TSI Pipe Insulation			Material Number PI-9	Asbestos Present? Yes
Material Category TSI	Friable Classification Friable	EPA Category Friable	Total Quantity 700	Unit of Measure Linear Feet
General Condition	Damage Category	Overall Material Assessment	Recommended Response Abate Prior to Demolition	

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
pi-9-151-HO9-A			Yes	10%	1) Pipe Insulation 2) Pipe Insulation 3)	5-10 % Chrysotile
pi-9-151-HO9-B			No	Not Avail.	1) Pipe Insulation 2) 3)	
pi-9-151-HO9-C			No	Not Avail.	1) Pipe Insulation 2) 3)	
pi-9-01-4543-151-22	1st Floor Hallway Near Duty Officer Office		Yes	15%	1) Pipe Insulation 2) Pipe Insulation 3)	15 % Amosite 10 % Chrysotile
pi-9-01-4544-151-23	2nd Floor Hallway Near Bathroom		Yes	15%	1) Pipe Insulation 2) Pipe Insulation 3)	15 % Amosite 10 % Chrysotile

Section 4 Material Information Tables

Site Information

Bachelors Enlisted Quarters (Site ID: Parcel 5)

Inspection Date

Thursday, July 5, 2001

Material Description 2" TSI Pipe Elbows			Material Number PE-10	Asbestos Present? Yes
Material Category TSI	Friable Classification Friable	EPA Category Friable	Total Quantity 11	Unit of Measure Each
General Condition	Damage Category	Overall Material Assessment	Recommended Response Abate Prior to Demolition	

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
pe-10-151-H10-A			Yes	20%	1) TSI Elbow 2) 3)	10-20 % Chrysotile 10-20 % Amosite
pe-10-151-H10-B			No	Not Avail.	1) TSI Elbow 2) 3)	
pe-10-151-H10-C			No	Not Avail.	1) TSI Elbow 2) 3)	
pe-10-01-4545-151-24	1st Floor Hallway Near Duty Officer Office		Yes	15%	1) TSI Elbow 2) TSI Elbow 3)	15 % Amosite 10 % Chrysotile
pe-10-01-4546-151-25	2nd Floor Hallway Near Bathroom		Yes	20%	1) TSI Elbow 2) TSI Elbow 3)	20 % Amosite 5 % Chrysotile

Material Description Brown Stair Floor Tile			Material Number FT-11	Asbestos Present? No
Material Category Flooring	Friable Classification Non-Friable	EPA Category Category I	Total Quantity 400	Unit of Measure Square Feet
General Condition	Damage Category	Overall Material Assessment No Assessment, Non-asbestos	Recommended Response	

General Material Comments

Material Location(s)

1ST FLOOR S. CENTER

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported by Lab	Results by Layer
ft-11-01-4528-151-7	2nd Floor Top of Stairs		Yes	0%	1) Floor Tile 2) 3)	Non Detected
ft-11-01-4529-151-8	Landing Between 1st and 2nd Floor		Yes	0%	1) Floor Tile 2) 3)	Non Detected
ft-11-01-4530-151-9	1st Floor Stair Tread		Yes	0%	1) Floor Tile 2) 3)	Non Detected

Section 4 Material Information Tables

Site Information

Bachelors Enlisted Quarters (Site ID: Parcel 5)

Inspection Date

Thursday, July 5, 2001

Material Description Fire Door			Material Number FD-12	Asbestos Present? Yes (assumed)
Material Category Miscellaneous	Friable Classification Non-Friable	EPA Category Category II	Total Quantity 400	Unit of Measure Square Feet
General Condition	Damage Category	Overall Material Assessment Not Assessed under AHERA	Recommended Response Abate Prior to Demolition	
General Material Comments				
Material Location(s) CENTER				

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported by Lab	Results by Layer
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Material Description Floor - Mastic			Material Number FLMAS-13	Asbestos Present? No
Material Category Flooring	Friable Classification Non-Friable	EPA Category Category I	Total Quantity 4,650	Unit of Measure Square Feet
General Condition	Damage Category	Overall Material Assessment No Assessment, Non-asbestos	Recommended Response	
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
FLMAS-13-01-4531-151-10	1st Floor Dining Area		Yes	0%	1) Mastic 2) 3)	Non Detected
FLMAS-13-01-4532-151-11	2nd Floor Hallway at Room 213		Yes	0%	1) Mastic 2) 3)	Non Detected
FLMAS-13-01-4533-151-12	2nd Floor Hallway Top of Stairs		Yes	0%	1) Mastic 2) 3)	Non Detected
FLMAS-13-01-4534-151-13	2nd Floor Hallway at Room 213		Yes	0%	1) Mastic 2) 3)	Non Detected
FLMAS-13-01-4535-151-14	2nd Floor Hallway at Room 213		Yes	0%	1) Mastic 2) 3)	Non Detected

Section 4 Material Information Tables

Site Information

Bachelors Enlisted Quarters (Site ID: Parcel 5)

Inspection Date

Thursday, July 5, 2001

Material Description Sink Undercoating Adhesive			Material Number AD-14		Asbestos Present? Yes	
Material Category Miscellaneous	Friable Classification Non-Friable		EPA Category Category I		Total Quantity 5	Unit of Measure Square Feet
General Condition	Damage Category	Overall Material Assessment Not Assessed under AHERA		Recommended Response Abate Prior to Demolition		
General Material Comments						
Material Location(s) CENTER						
Sample ID(s) ad-14-151-H14-A	Sample Location(s)	Floor	Analyzed Yes	Overall Result 5%	Layer(s) Reported by Lab 1) Sink Undercoating 2) 3)	Results by Layer 1-5 % Chrysotile

Material Description 9 x 9 Red/Brown Floor Tile			Material Number FT-15		Asbestos Present? Yes	
Material Category Flooring	Friable Classification Non-Friable		EPA Category Category I		Total Quantity 4,200	Unit of Measure Square Feet
General Condition	Damage Category	Overall Material Assessment Not Assessed under AHERA		Recommended Response Abate Prior to Demolition		
General Material Comments						
Material Location(s)						
Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported by Lab	Results by Layer
ft-15-01-4536-151-15	1st Floor Dining Room		Yes	10%	1) Floor Tile 2) 3)	10 % Chrysotile
ft-15-01-4537-151-16	2nd Floor Hallway at Room 213		Yes	10%	1) Floor Tile 2) 3)	10 % Chrysotile
ft-15-01-4538-151-17	2nd Floor Hallway at Room 210		Yes	5%	1) Floor Tile 2) 3)	5 % Chrysotile

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 Bachelors Enlisted Quarters				QTY. Units Removal Costs (low to high)
HM	EPA Category	Suspect Material	Material Location	
7	Friable	1" TSI Pipe Insulation	THROUGHOUT THE BULDING	1,400 Linear Feet \$21000 to \$28000
8	Friable	1" TSI Pipe Elbows	THROUGHOUT THE BULDING	215 Each \$4300
9	Friable	2" TSI Pipe Insulation	THROUGHOUT THE BULDING	700 Linear Feet \$10500 to \$14000
10	Friable	2" TSI Pipe Elbows	THROUGHOUT THE BULDING	11 Each \$500
12	Category II	Fire Door	CENTER	400 Square Feet \$60000
14	Category I	Sink Undercoating Adhesive	CENTER	5 Square Feet \$500
15	Category I	9 x 9 Red/Brown Floor Tile		4,200 Square Feet \$6300 to \$8400

**QTY.
Units
Removal
Costs
(low to high)**

**HM Building
EPA Category**

Suspect Material

Material Location

Total Removal Costs: \$103,100 to \$115,700

Building	Floor	Sample #	Sample Location	Room	Material Sampled	%/Type
151	1	01-4522-151-1	1st Floor Dining Area	Dining	12" Tan Floor Tile	Non Detected
151	2	01-4523-151-2	2nd Floor Hallway at Room 213	Hall	12" Tan Floor Tile	Non Detected
151	2	01-4524-151-3	2nd Floor Hallway in Laundry	Hall	12" Tan Floor Tile	Non Detected
151	1	01-4525-151-4	1st Floor Hallway at Duty Officer Office	Hall	Baseboard Adhesive	Non Detected
151	2	01-4526-151-5	2nd Floor Hallway at Room 213	Hall	Baseboard Adhesive	Non Detected
151	2	01-4527-151-6	2nd Floor Hallway at Rom 207	Hall	Baseboard Adhesive	Non Detected
151	2	01-4528-151-7	2nd Floor Top of Stairs	Stairs	Brown Stair Floor Tile	Non Detected
151	1	01-4529-151-8	Landing Between 1st and 2nd Floor	Stairs	Brown Stair Floor Tile	Non Detected
151	1	01-4530-151-9	1st Floor Stair Tread	Dining	Brown Stair Floor Tile	Non Detected
151	1	01-4531-151-10	1st Floor Dining Area	Dining	Floor - Mastic	Non Detected
151	2	01-4532-151-11	2nd Floor Hallway at Room 213	Hall	Floor - Mastic	Non Detected
151	2	01-4533-151-12	2nd Floor Hallway Top of Stairs	Hall	Floor - Mastic	Non Detected
151	2	01-4534-151-13	2nd Floor Hallway at Room 213	Hall	Floor - Mastic	Non Detected
151	2	01-4535-151-14	2nd Floor Hallway at Room 213	Hall	Floor - Mastic	Non Detected
151	1	01-4536-151-15	1st Floor Dining Room	Dining	9 x 9 Red/Brown Floor Tile	10% Chrysotile
151	2	01-4537-151-16	2nd Floor Hallway at Room 213	Hall	9 x 9 Red/Brown Floor Tile	10% Chrysotile
151	2	01-4538-151-17	2nd Floor Hallway at Room 210	Hall	9 x 9 Red/Brown Floor Tile	5% Chrysotile
151	1	01-4539-151-18	1st Floor Hallway Near Duty Officer Office	Hall	1" TSI Pipe Insulation	20% Amosite
151	2	01-4540-151-19	2nd Floor Hallway Near Bathroom	Hall	1" TSI Pipe Insulation	20% Amosite
151	1	01-4541-151-20	1st Floor Hallway Near Duty Officer Office	Hall	1" TSI Pipe Elbows	5% Amosite
151	2	01-4542-151-21	2nd Floor Hallway Near Bathroom	Hall	1" TSI Pipe Elbows	10% Amosite
151	1	01-4543-151-22	1st Floor Hallway Near Duty Officer Office	Hall	2" TSI Pipe Insulation	15% Amosite
151	2	01-4544-151-23	2nd Floor Hallway Near Bathroom	Hall	2" TSI Pipe Insulation	15% Amosite
151	1	01-4545-151-24	1st Floor Hallway Near Duty Officer Office	Hall	2" TSI Pipe Elbows	15% Amosite
151	2	01-4546-151-25	2nd Floor Hallway Near Bathroom	Hall	2" TSI Pipe Elbows	20% Amosite
151	Roof	01-6613-151-1	Roof Core West	Roof	Roofing Material	Non Detected
151	Roof	01-6614-151-2	Roof Core Northwest	Roof	Roofing Material	Non Detected
151	Roof	01-6615-151-3	Roof Patch Southwest	Roof	Roofing Material	Non Detected
151	Roof	01-6616-151-4	Roof Penetration North	Roof	Roofing Material	Non Detected
151	Roof	01-6617-151-5	Roof Penetration South	Roof	Roofing Material	Non Detected
Pre-Existing Survey						
151		151-H14-A			Sink Undercoating Adhesive	1-5% Chrysotile
151		151-HO4-A			2'x4' Pinhole Ceiling Tile	Non Detected
151		151-HO4-B			2'x4' Pinhole Ceiling Tile	Non Detected
151		151-HO4-C			2'x4' Pinhole Ceiling Tile	Non Detected
151		151-HO4-D			2'x4' Pinhole Ceiling Tile	Non Detected

Building	Floor	Sample #	Sample Location	Room	Material Sampled	%/Type
151		151-HO4-E			2'x4' Pinhole Ceiling Tile	Non Detected
151		151-HO5-A			Wallboard	<% Chrysotile
151		151-HO5-B			Wallboard	Non Detected
151		151-HO5-C			Wallboard	Non Detected
151		151-HO5-D			Wallboard	Non Detected
151		151-HO5-E			Wallboard	Non Detected
151		151-HO5-F			Wallboard	Non Detected
151		151-HO5-G			Wallboard	Non Detected
151		151-HO5-H			Wallboard	Non Detected
151		151-HO5-I			Wallboard	1-5% Chrysotile
151		152-HO5-J			Wallboard	Not Analyzed
151		151-HO6-A			Wall - Plaster troweled-on	Not Analyzed
151		151-HO6-B			Wall - Plaster troweled-on	Non Detected
151		151-HO6-C			Wall - Plaster troweled-on	Non Detected
151		151-HO6-D			Wall - Plaster troweled-on	Non Detected
151		151-HO6-E			Wall - Plaster troweled-on	Non Detected
151		151-HO6-F			Wall - Plaster troweled-on	Non Detected
151		151-HO6-G			Wall - Plaster troweled-on	Non Detected
151		151-HO7-A			Wall - Plaster troweled-on	Non Detected
151		151-HO7-B			1" TSI Pipe Insulation	Non Detected
151		151-HO7-C			1" TSI Pipe Insulation	10-20% Chrysotile
151		151-HO8-A			1" TSI Pipe Insulation	Not Analyzed
151		151-HO8-B			1" TSI Pipe Elbows	Not Analyzed
151		151-HO8-C			1" TSI Pipe Elbows	Not Analyzed
151		151-HO9-A			1" TSI Pipe Elbows	Not Analyzed
151		151-HO9-B			2" TSI Pipe Insulation	10-20% Chrysotile
151		151-HO9-C			2" TSI Pipe Insulation	Not Analyzed
151		151-H10-A			2" TSI Pipe Insulation	Not Analyzed
151		151-H10-B			2" TSI Pipe Elbows	10-20% Chrysotile
151		151-H10-C			2" TSI Pipe Elbows	Not Analyzed
151		151-H10-C			2" TSI Pipe Elbows	Not Analyzed

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

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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: 2541-01-13
CLIENT: Benchmark
ADDRESS: 3732 Charter Park Drive
San Jose, CA 95136

DATE COLLECTED: 7/ 5/2001
DATE RECEIVED: 7/ 6/2001
DATE ANALYZED: 7/ 9/2001
DATE REPORTED: 7/ 9/2001

PO NO.:
PROJECT NAME: NASA
PROJECT NO.: E01-448-A-SU
JOB LOCATION: Bldg 151

Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	Asbestos Detected (Yes/No)	Sample Description
01-4522-151-1	1981688 Layer 1: 100% Non-Asbestos	1st Fl Dining Area Floor Tile	No	Beige, Organically Bound NON FIBROUS MATERIAL 100%
01-4523-151-2	1981689 Layer 1: 100% Non-Asbestos	2nd Fl Hllway@Rm213 Floor Tile	No	Beige, Organically Bound NON FIBROUS MATERIAL 100%
01-4524-151-3	1981690 Layer 1: 100% Non-Asbestos	2nd Fl Hllway Lndry Floor Tile	No	Beige, Organically Bound NON FIBROUS MATERIAL 100%
01-4525-151-4	1981691 Layer 1: 100% Non-Asbestos	1st Fl Hllway@Office Mastic	No	Light Brown, Brittle NON FIBROUS MATERIAL 100%
01-4526-151-5	1981692 Layer 1: 100% Non-Asbestos	2nd Fl Hllway@ Rm213 Mastic	No	Light Brown, Brittle NON FIBROUS MATERIAL 100%

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
01-4527-151-6	1981693 Layer 1: 100% Non-Asbestos	2nd Fl Hillway Rm 207 Mastic	No	Brown, Brittle NON FIBROUS MATERIAL 98%, WOLLASTONITE 2%
01-4528-151-7	1981694 Layer 1: 100% Non-Asbestos	2nd Fl Top of Stairs Stair Tile	No	Light Brown, Rubbery NON FIBROUS MATERIAL 100%
01-4529-151-8	1981695 Layer 1: 100% Non-Asbestos	Landing Stair Tile	No	Light Brown, Rubbery NON FIBROUS MATERIAL 100%
01-4530-151-9	1981696 Layer 1: 100% Non-Asbestos	1st Fl Stair Tread Stair Tile	No	Light Brown, Rubbery NON FIBROUS MATERIAL 100%
01-4531-151-10	1981697 Layer 1: 100% Non-Asbestos	W/Sample #1 Mastic	No	Tan, Brittle CELLULOSE FIBER 2%, NON FIBROUS MATERIAL 98%
01-4532-151-11	1981698 Layer 1: 100% Non-Asbestos	W/Sample #2 Mastic	No	Tan, Brittle CELLULOSE FIBER 5%, NON FIBROUS MATERIAL 95%
01-4533-151-12	1981699 Layer 1: 100% Non-Asbestos	W/Sample #7 Mastic	No	Tan, Rubbery NON FIBROUS MATERIAL 100%
01-4534-151-13	1981700 Layer 1: 100% Non-Asbestos	W/Sample #15 Mastic	No	Black, Bituminous CELLULOSE FIBER < 1%, NON FIBROUS MATERIAL 100%
01-4535-151-14	1981701 Layer 1: 100% Non-Asbestos	W/Sample #16 Mastic	No	Black, Bituminous CELLULOSE FIBER < 1%, NON FIBROUS MATERIAL 100%
01-4536-151-15	1981702 Layer 1: 10% Asbestos 90% Non-Asbestos	1st Fl Dining Rm Floor Tile	Yes	Dark Brown, Organically Bound CHRYSTILE 10% NON FIBROUS MATERIAL 90%

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
01-4537-151-16	1981703 Layer 1: 10% Asbestos 90% Non-Asbestos	2nd Fl Hillway@Rm213 Floor Tile	Yes	Dark Brown, Organically Bound CHRYSTILE 10% NON FIBROUS MATERIAL 90%
01-4538-151-17	1981704 Layer 1: Sample not received.	2nd Fl Hillway@210		
01-4539-151-18	1981705 Layer 1: 30% Asbestos 70% Non-Asbestos Unable to separate individual layers.	1st Fl Hillway Office Insulation/Cover	Yes	White, Powdery, Rubbery, Fibrous AMOSITE 20%, CHRYSTILE 10% MINERAL/GLASS WOOL 15%, NON FIBROUS MATERIAL 55%
01-4540-151-19	1981706 Layer 1: 30% Asbestos 70% Non-Asbestos Unable to separate individual layers.	2nd Fl Hillway nr Bth Insulation/Cover	Yes	White, Powdery, Rubbery, Fibrous AMOSITE 20%, CHRYSTILE 10% MINERAL/GLASS WOOL 15%, NON FIBROUS MATERIAL 55%
01-4541-151-20	1981707 Layer 1: 35% Asbestos 65% Non-Asbestos No Cover Found.	1st Fl Hillway Office Insulation	Yes	White, Powdery, Fibrous AMOSITE 5%, CHRYSTILE 30% CELLULOSE FIBER < 1%, NON FIBROUS MATERIAL 65%
01-4542-151-21	1981708 Layer 1: 25% Asbestos 75% Non-Asbestos Unable to separate individual layers.	2nd Fl Hillway nr Bth Insulation/Cover	Yes	White, Powdery, Fibrous AMOSITE 10%, CHRYSTILE 15% CELLULOSE FIBER 20%, NON FIBROUS MATERIAL 55%
01-4543-151-22	1981709 Layer 1: 25% Asbestos 75% Non-Asbestos Unable to separate individual layers.	1st Fl Hillway Office Insulation/Cover	Yes	White, Powdery, Fibrous AMOSITE 15%, CHRYSTILE 10% CELLULOSE FIBER 15%, NON FIBROUS MATERIAL 60%
01-4544-151-23	1981710 Layer 1: 25% Asbestos 75% Non-Asbestos Unable to separate individual layers.	2nd Fl Hillway nr Bth Insulation/Cover	Yes	White, Powdery, Fibrous AMOSITE 15%, CHRYSTILE 10% CELLULOSE FIBER 15%, NON FIBROUS MATERIAL 60%

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
01-4545-151-24	1981711	1st Fl Hillway Office	Yes	White, Powdery, Fibrous
	Layer 1:	Insulation/Cover		
		25% Asbestos		AMOSITE 15%, CHRYSOTILE 10%
		75% Non-Asbestos		CELLULOSE FIBER 15%, NON FIBROUS MATERIAL 60%
		<i>Unable to separate individual layers.</i>		
01-4546-151-25	1981712	2nd Fl Hillway nr Bth	Yes	White, Powdery, Fibrous
	Layer 1:	Insulation/Cover		
		25% Asbestos		AMOSITE 20%, CHRYSOTILE 5%
		75% Non-Asbestos		NON FIBROUS MATERIAL 75%
		<i>Unable to separate individual layers.</i>		

ANALYST: KATHERINE M. CHARLES

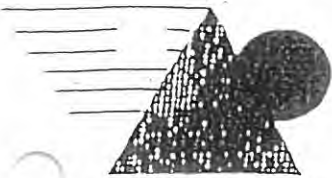
Total no. of pages in report = 4



REVIEWED BY

Shannon Vescio, Dept. Head

amples 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

254-01-13

Sample Location Worksheet
Chain Of Custody

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

Project Number: 001-448-ASU Date: 7/5/01

Technician: T. MacFarlan

Project Location: NASA Bldg 151

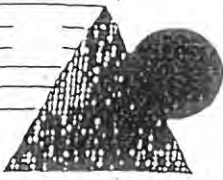
Client Name: K. McGLUTLIN Company: PAI

Project Type	Type Of Analysis	Turnaround Time
<u>Asbestos</u>	<u>PLM/Bulk (EPA 600)</u>	Same Day 3 Hr 6 Hr
Lead-based Paint	EPA SW846-7420, FLAA	<u>24 Hour</u>
Lead Risk Assessment	Dust Wipes, Paint Chips	<u>48 Hour</u>
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 Fill Positive

Homogenous Material Group	Material / Component	Sample Number	Location Of Samples	Analysis Specification
02	12 x 12 TAN FLOOR TILE	01-4522-151-1	1 ST FLOOR, DINING AREA TOP LAYER	ANALYZED AND SUBMITTED
	↓	01-4523-151-2	2 ND FLOOR HALLWAY AT ROOM 213	
	↓	01-4524-151-3	2 ND FLOOR, HALLWAY IN LAUNDRY (TILE ONLY)	
03	CORNER MASTIC	01-4525-151-4	1 ST FLOOR HALLWAY AT DATA OFFICER OFFICE	
	↓	01-4526-151-5	2 ND FLOOR HALLWAY AT ROOM 213	
	↓	01-4527-151-6	2 ND FLOOR HALLWAY IN ROOM 207	
11	BROWN STAIR TILE	01-4528-151-7	2 ND FLOOR, TOP OF STAIRS	
	↓	01-4529-151-8	LANDING BETWEEN 1 ST & 2 ND FLOOR (TILE ONLY)	
	↓	01-4530-151-9	1 ST FLOOR STAIR TREAD, BOTTOM STAIR (TILE ONLY)	
13	FLOOR TILE MASTIC	01-4531-151-10	WITH SAMPLE #1, 12 x 12 TAN	
	↓	01-4532-151-11	WITH SAMPLE #2, 12 x 12 TAN	
	↓	01-4533-151-12	WITH SAMPLE #7, 2 ND FLOOR STAIR TREAD	
	↓	01-4534-151-13	WITH SAMPLE #15, 9x9 F.T. BELOW 12x12 FT	
	↓	01-4535-151-14	WITH SAMPLE #16, 9x9 F.T. BELOW 12x12 FT	
15	9x9 Red/Blue Floor Tile	01-4536-151-15	1 ST FLOOR DINING ROOM BELOW 12x12	

Relinquished By: <u>T. MacFarlan</u>	Received By: <u>A. Miller</u>	Date/Time Received: <u>7/6 10⁰⁰</u>
--------------------------------------	-------------------------------	--

FX: 827942445578 (5)



BENCHMARK

Sample Location Worksheet
Chain Of Custody

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

Project Number: 621-448

Date: 7/5/01

Technician: T. McArthur

Project Location: NASA BLDG 151

Client Name: K. McBlortin

Company: PAI

Project Type	Type Of Analysis	Turnaround Time
<u>Asbestos</u>	<u>PLM/Bulk (EPA 600)</u>	Same Day 3 Hr 6 Hr
Lead-based Paint	EPA SW846-7420, FLAA	<u>24-Hour</u>
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: _____	CFR = Test Till Positive

Homogenous Material Group	Material / Component	Sample Number	Location Of Samples	Analysis Specification
15	9x9 Red/Brown Floor Tile	01-4537-151-16	2ND FLOOR, HALLWAY AT ROOM 213, BELOW 12x12	ANALYZE ALL SUBMITTED
	↓	01-4538-151-17	2ND FLOOR HALLWAY AT 210 (TILE ONLY)	
07	1" PIPE RUN	01-4538-151-18	1ST FLOOR HALLWAY APPROX DUTY OFFICER OFFICE	
	↓	01-4540-151-19	2ND FLOOR HALLWAY NEAR BATHROOM	
08	1" PIPE ELBOW	01-4540-151-20	1ST FLOOR HALLWAY NEAR DUTY OFFICER OFFICE	
	↓	01-4542-151-21	2ND FLOOR HALLWAY NEAR BATHROOM	
09	2" PIPE RUN	01-4543-151-22	1ST FLOOR HALLWAY NEAR DUTY OFFICER OFFICE	
	↓	01-4544-151-23	2ND FLOOR HALLWAY NEAR BATHROOM	
10	2" PIPE ELBOW	01-4545-151-24	1ST FLOOR HALLWAY NEAR DUTY OFFICER OFFICE	
	↓	01-4546-151-25	2ND FLOOR HALLWAY NEAR BATHROOM	
01	ROOF	01-4547-151-26		
		01-4548-151-27		
		01-4549-151-28		
		01-4550-151-29		
		01-4551-151-30		
Relinquished By: <u>T. McArthur</u>		Received By: <u>S. Miller</u> FX 8279 42145578		Date/Time Received: <u>7/6 10⁰⁰</u>

NOT SUBMITTED

01-4552-151-31
01-4553-151-32

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LABORATORY ANALYSIS REPORT

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

ACCOUNT: 2541-01-333
CLIENT: Benchmark
ADDRESS: 3732 Charter Park Drive Suite A
San Jose, CA 95136

DATE COLLECTED:
DATE RECEIVED: 12/ 7/2001
DATE ANALYZED: 12/ 7/2001
DATE REPORTED: 12/10/2001

PO NO.:
PROJECT NAME: Bldg. 151
PROJECT NO.: E01-448
JOB LOCATION:

Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	Asbestos Detected (Yes/No)	Sample Description
01-6613-151-1	2116962 Layer 1: 100% Non-Asbestos	Core west Core	No	Black, Bituminous CELLULOSE FIBER 25%, NON FIBROUS MATERIAL 75%
01-6614-151-2	2116963 Layer 1: 100% Non-Asbestos	Core NW Core	No	Black, Bituminous CELLULOSE FIBER 30%, NON FIBROUS MATERIAL 70%
01-6615-151-3	2116964 Layer 1: 100% Non-Asbestos	Patch S/W Patch	No	Black, Bituminous NON FIBROUS MATERIAL 100%
01-6616-151-4	2116965 Layer 1: 100% Non-Asbestos	Penetration N Penetration	No	Black, Bituminous NON FIBROUS MATERIAL 100%
01-6617-151-5	2116966 Layer 1: 100% Non-Asbestos	Penetration S Penetration	No	Black, Bituminous NON FIBROUS MATERIAL 100%

ANALYST: SAMI A. HOSN
Total no. of pages in report = 1


REVIEWED BY Katherine M. Charles, 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.

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



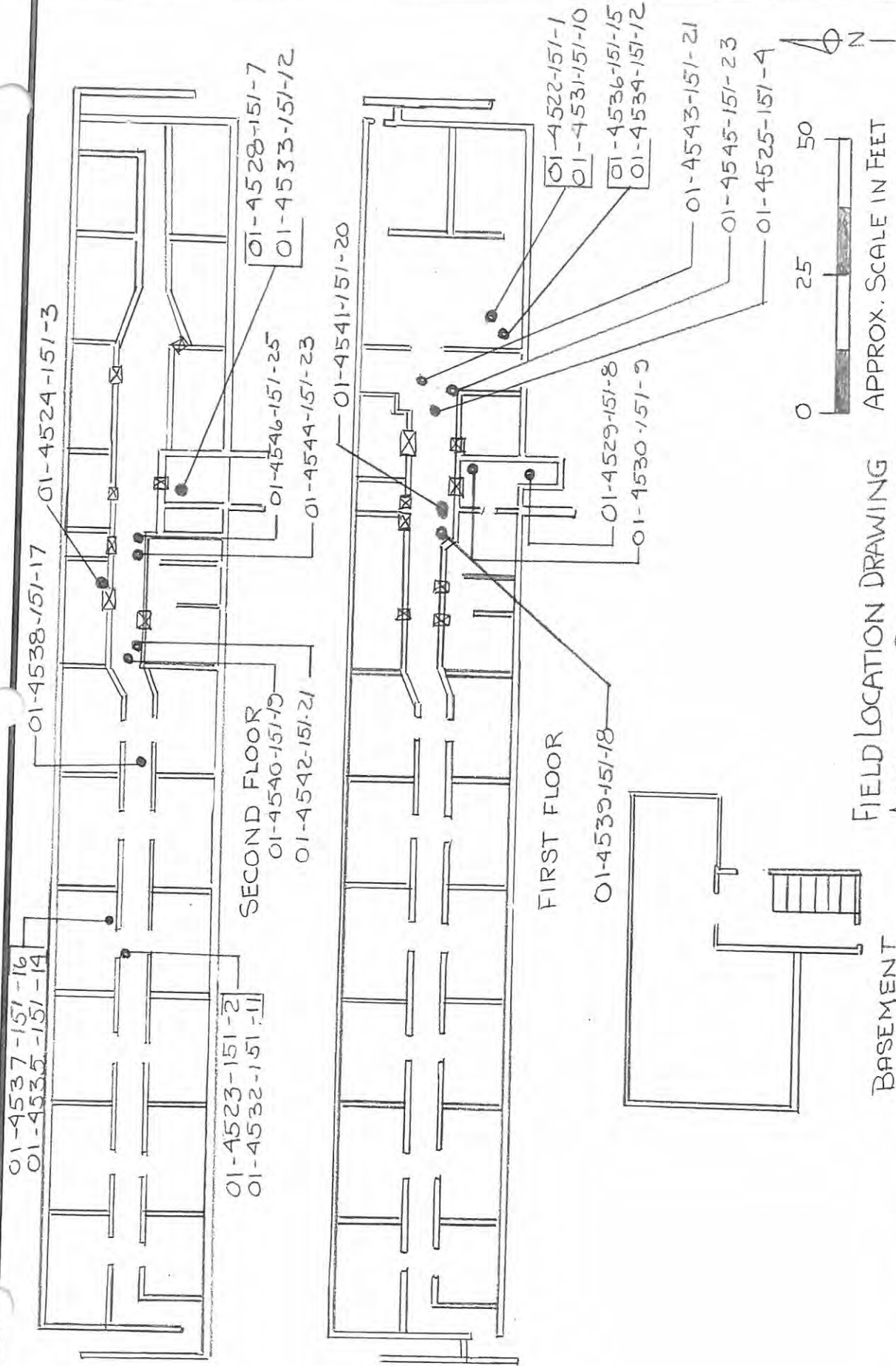
Name

Certification No. **90-2747**


Expires on **5/3/2002**

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code

Appendix F
Drawings Indicating Sampling Locations



FIELD LOCATION DRAWING APPROX. SCALE IN FEET
 ASBESTOS SAMPLE LOCATIONS

 BENCHMARK	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: BUILDING 151 NASA - AMES PARCEL 5	DRAFT PERSON: RJM	DATE: 12/17	DWG. No. 01
				PROJECT NO. EOI-448		