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LEAD BASED PAINT SURVEY REPORT

BACHELOR'S ENLISTED QUARTERS (ID: Building 148)

BUILDING INSPECTIONS

NASA-AMES

Moffett Field, CA 94035

ENVIRONMENTAL ENGINEERING

PREPARED FOR

NASA AMES PAI CORPORATION
NASA Ames Research Center
Moffett Field, CA 94035-1000

SPECIALIZED TRAINING

PREPARED BY

Benchmark Environmental Engineering
August 6, 2001
Project Number: E01-448w-L-SU

CONTRACT MANAGEMENT

Prepared By:

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

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Table of Contents

Section

| | |
|---|---------------------------|
| | Executive Summary |
| 1 | Introduction |
| 2 | Scope of Services |
| 3 | Methodology |
| 4 | Findings and Observations |

APPENDICES

| | |
|---|--------------------------|
| A | XRF- Data Results Tables |
| B | Certification(s) |
| C | Site Map |
| D | Laboratory Results |

EXECUTIVE SUMMARY

Benchmark Environmental Engineering was retained by PAI Corporation, to conduct a lead-based paint survey at Building 148, Bachelor's Enlisted Quarters, located at Moffett Field, California.

In order to determine if lead based paint was present, thirteen (13) paint chip samples were collected and 142 assays were taken using an X-RAY FLUORESCENCE (XRF) instrument. The results indicated that the following building components were above the EPA and DHS level of 1.0 mg/ cm² or 5000 PPM.

Lead-based Paint was identified on the following building components:

Exterior: Windows, Window Sills, Stair Handrails, Door Casings, Door Frame,

Interior: Laundry Room Walls, Door Trim; Hallway Bathroom Tile Wall, Stairway Handrail; Hallway Door Trim, Recreation Room Chair Rail; T. V. Room Kick Panel.

INTRODUCTION

Benchmark Environmental Engineering was retained by Mr. Kris McGlothlin, to conduct a lead-based paint survey at NASA Ames-PAI Corporation, Moffett Field, California.

Authorization to perform this survey was received via signed agreement to BENCHMARK from Mr. Kris McGlothlin, on or about May 1, 2001, as referenced by BENCHMARK'S proposal E01-448.

BACKGROUND

The Bachelor's Enlisted Quarters (Building 148) is a two-story 15,785 square foot structure with a basement. The building construction is concrete over a concrete foundation and with a flat composition roof. The concrete exterior is tan in color.

WARRANTY

Benchmark Environmental Engineering warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform lead-related construction risk assessments and inspections pursuant to the scope of work required on this Project.

The survey included inspection of accessible materials. BENCHMARK did not inspect or sample inaccessible areas such as behind walls or within ductwork, and did not dismantle any part of the structure to survey inaccessible areas. For the purpose of this warranty, inaccessible is defined as areas of the building that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are not visible to Benchmark's inspectors are assumed to be lead containing.

Authorization to perform this survey was received by BENCHMARK from Mr. Kris McGlothlin, of The PAI Corporation, on May 1, 2001, as referenced by Benchmark's Proposal E01-448.

The survey was conducted on August 6, 2001. A comprehensive site survey was performed based on the building plan. All building components identified in the specifications that may contain lead-based paint/coating were targeted for testing. (Exterior and interior walls, exterior and interior windows, doors and numerous associated components).

Sampling protocol for identification of lead-based paint was in accordance with The U.S. Department of Housing and Urban Development (HUD) Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, Chapter 7.

All suspect lead-coated surfaces were identified by building, wall, and building component, as such each component had a unique identification number.

The report establishes lead concentrations in painted surfaces as a general guidance tool for the purpose of conducting demolition activities for Building 148.

A total of 142 XRF assays and thirteen (13) paint chip samples were collected within this building.

SCOPE OF SERVICES

Benchmark recognized the scope of work for the NASA Ames-PAI Corporation, to be composed of a Lead Based Paint Inspection for the Bachelor's Enlisted Quarters (ID: Building 148). The survey consisted of testing for lead-base paint in general accordance with the U.S Department of Housing and Urban Development (HUD) guidelines for the evaluation and control of Lead-Based Paint Hazards in Housing, Chapter 7.

Certain building components that are adjacent to each other and not likely to have different painting histories have been grouped together into a single testing combination, as follows: Window Casings/Stops/Jambs/Aprons Or- Door Jambs/Stops/Transoms/Casings and other door frame parts.

The following building components were inspected when applicable:

- Exterior Areas:

| | |
|---------------|-----------------|
| Walls | Windows |
| Windowsills | Stair Handrails |
| Doors | Door Molding |
| Downspouts | Window Screen |
| Building Trim | Skylight |
| Balusters | Stair Handrail |
| Stair Risers | Support Pillar |

- Interior Areas:

| | |
|-----------------|-----------------|
| Walls | Windows |
| Windowsills | Stair Treads |
| Balusters | Doors |
| Door Molding | Stair Stringer |
| Ceilings | Ceiling Molding |
| Skylight | Floors |
| Ceiling Molding | Grates |
| Baseboards | Support Beams |
| Electrical Box | Book Shelf |
| Chair Rail | Wainscot |

Paint chip samples were collected from thirteen (13) building components to provide conclusions that would be in compliance with DOSH 8 CCR 1532.1.

METHODOLOGY

GENERAL REFERENCES

Inspection, sampling, and assessment procedures were performed in general accordance with the guidelines published by The Department of Housing and Urban Development's (HUD) 1995 Guidelines, Chapter 7. The survey consisted of three major activities: visual inspection, sampling, and analysis. Although these activities are listed separately, they are integrated tasks.

VISUAL INSPECTION

An inspector that is a Department of Health Services Certified Lead Inspector/Risk Assessor performed the inspection. An initial building walkthrough was conducted to determine the presence of suspect materials that were accessible or exposed.

SAMPLING PROCEDURES

Following the walkthrough, the inspector selected samples areas of exposed or accessible materials identified as suspect LBP. EPA and HUD guidelines were used to determine the sampling protocol. Sampling locations were chosen to be representative of the homogeneous material.

X-RAY FLUORESCENCE (XRF) ANALYSIS

XRF instruments measure lead in paint by directing high energy X-rays and gamma rays into the paint, causing the lead atoms in the paint to emit X-rays which are detected by the instrument and converted to a measurement of the amount of lead in the paint. The EPA approved technology allows for measurement of X-rays without scraping or samples preparation to characterize substrate or matrix effects. The Spectrum Analyzer, Metals Analysis Probe (MAP 4) is combined with a microprocessor system that enables field-testing with a high degree of quality control and speed. Sample locations, descriptions, conditions, and measurement results are automatically recorded by the instrument and easily downloaded to a PC or laptop.

QUALITY CONTROL PROGRAM

Benchmark Environmental Engineering utilizes only DHS approved inspectors, which are certified to use radioactive instruments. The MAP 4 Spectrum Analyzer has on-board calibration routines, which continuously operate, and self-correct to minimize sampling error. This is known as substrate correcting software.

PAINT CHIP SAMPLE COLLECTION

A total of thirteen (13) paint chip samples were collected in accordance with the HUD Evaluation and Control of Lead-Based Paint Hazards in Housing, Paint Chip Sampling. A two-inch by two-inch area was measured and delineated. The paint chip sample was collected with the use of a sharp stainless steel paint scraper. Paint was scraped directly off the substrate. The goal is remove all layers of paint equally, but none of the substrate. Paint chip samples collected in this fashion are reported in PPM or % by weight .

LEAD

Laboratory analysis was performed by Schneider Laboratories, Inc. Their AIHA Accredited Laboratory Identification Number is AIHA/ELLAP #100527, and CA ELAP #2078. Samples are analyzed by Flame Atomic Absorption in accordance with EPA's "Standard Operating Procedures for Lead in Paint by Hotplate or Microwave based Acid digestions and Atomic Absorption or Inductively Coupled Plasma Emission Spectrometry" (1991), EPA/600/8-91/213, NTIS Document No. PB92-114172. Samples are prepared by hotplate digestion with nitric acid and hydrogen peroxide, and analyzed by Flame AA.

LABORATORY QUALITY CONTROL PROGRAM

Schneider Laboratories, Inc. maintains an in-house quality control program. This program involves blind reanalysis of ten percent of all samples, precision and accuracy controls, and use of standard bulk reference materials.

FINDINGS AND OBSERVATIONS

LEAD

A total of 142 assays were taken. The results indicated that 31 assays contained lead above the EPA and DHS level of 1.0 mg/cm² or greater. The components, which contain lead-based paint, are:

Exterior: Windows, Window Sills, Stair Handrails, Door Casings, Door Frame,

Interior: Laundry Room Walls, Door Trim; Hallway Bathroom Tile Wall, Stairway Handrail; Hallway Door Trim, Recreation Room Chair Rail; T. V. Room Kick Panel.

Cal/OSHA's Lead in Construction Standard, Title 8, CCR section 1532.1, is primarily concerned with worker protection when disturbing any detectable level of lead in paint or surface coatings.

Assays with results **less than** 1.0 mg/cm² and paint chip samples with results less than 5000 ppm may create hazardous conditions if subjected to poor and/or prohibited work practices. Refer to Work Activities on the following page.

OSHA LEAD REGULATION SUMMARY

The Federal Occupational Safety and Health Administration (OSHA) has enacted an interim lead standard, which was adopted by Cal/OSHA as 8 CCR 1532.1. The purpose of both standards is to protect construction workers from exposure to lead. OSHA is primarily concerned with activities that disturb lead-containing material. Lead was used in most paints until the mid 1950's and was banned in amounts in excess of 0.06% by weight in 1978 for most non-industrial paints by the Consumer Product Safety Commission (CPSC).

The new standard requires contractors and employers who perform activities that would disturb lead, must monitor their employees to determine whether they are being exposed in excess of the Action Level (AL) of 30 micrograms per cubic meter of air (ug/m³) over an eight-hour time weighted average (TWA) or the Permissible Exposure Limit (PEL) of 50 ug/m³ TWA. Monitoring is performed by personal exposure air sampling.

Even when concentrations are below the AL, an employer must provide employees with High Efficiency Particulate Air (HEPA) filtered vacuums, wetting agents and hand-washing facilities. If the exposure exceeds the AL or the PEL, other procedures such as containing the area, decontamination facilities and medical monitoring are required.

OSHA has identified several activities that pose varying levels of potential lead exposure to laborers disturbing lead-containing paint. Estimated exposure levels of lead are founded on the activity itself, rather than the concentrations of lead present in paint. Therefore, as an example, paints that contain 0.5% versus 15% of lead by weight or 0.8 mg/cm² versus 3.5 mg/cm² of lead in paint could present the same levels of potential exposure to workers depending on the activities that cause the disturbance and the administrative and engineering controls that are followed.

The following is a summary of work activities that disturb paint, the expected exposures and the respiratory protection requirements as outlined in the OSHA standards:

Class I Activities:

Class I activities include: Manual demolition, manual scraping, manual sanding, heat gun application, general cleanup, power tool cleaning with dust collection systems and spray painting activities.

Potential Exposure: 50 ug/m³ to 500 ug/m³
Minimum Respiratory Protection: Half mask air purifying respirator equipped with HEPA filters having a protection factor of 10.

Class II Activities:

Class II activities include: Using lead-containing mortars, lead burning, lead riveting, rivet busting, power tool cleaning without dust collection systems, cleanup of dry expendable abrasives and abrasive blasting.

Potential Exposure: 500 ug/m³ to 2,500 ug/m³
Minimum Respiratory Protection: Full face powered air-purifying respirators equipped with HEPA filters having a protection Factor of 100.

Class III Activities:

Class II activities include: Abrasive blasting, welding, cutting and torch burning on steel structures.

Potential Exposure: Greater than 2,500 ug/m³.
Minimum Respiratory Protection: Full face supplied - air respirator operated in pressure demand mode or - the positive pressure mode.

DOSH 8 CCR 1532.1 requires that an initial exposure assessment be performed if workers will be performing any of the trigger tasks found in 1532.1. It should be noted that the California Department of Health Services (DHS) has issued emergency work procedures for lead paint materials that in the absence of any other procedures are recommendations.

The following recommendations are general site specific work practice specifications.

- You must use "containment" when you sand, scrape, or disturb any detectable level of lead in paint or surface coatings.
- Containment is required for abatement and/or any activity that or disturb any detectable level of lead in paint or surface coatings.
- You must be DHS-certified (workers, supervisors, monitors, and inspectors) if you are conducting abatement.
- You must follow an abatement plan.
- A DHS -certified supervisor, monitor, and/or project designer must design an abatement project.
- A clearance inspection by dust wipe sampling is required for abatement.

RESULTS OF THE PAINT CHIP SAMPLES COLLECTED

Paint Chip Samples NASA Ames-PAI Corporation August 6, 2001

| Sample Number | Component | Location | PPM | % By Weight |
|---------------|------------|--------------------------------------|------|-------------|
| 01-4571-01 | Wall #1 | Recreation Room | 3740 | 0.374 |
| 01-4572-02 | Chair Rail | Recreation Room Wall 1 | 5770 | 0.577 |
| 01-4573-03 | Wall #4 | Recreation Room Outside Wall | 3640 | 0.364 |
| 01-4574-04 | Kick Panel | TV Room Wall #2 | 5340 | 0.534 |
| 01-4575-05 | Wall #4 | Main Entry Wall | 1230 | 0.123 |
| 01-4576-06 | Wall #3 | Duty Office, Main Entry Wall | 510 | 0.051 |
| 01-4577-07 | Wall #1 | Duty Office, Officer Restroom | 3400 | 0.340 |
| 01-4578-08 | Chair Rail | Duty Office, Wall #2 | 6230 | 0.623 |
| 01-4579-09 | Wall #2 | Laundry Room, Floor #1 | 9650 | 0.965 |
| 01-4580-10 | Wall #2 | Common Hall by Room 100, Floor #1 | 500 | 0.050 |

| Sample Number | Component | Location | PPM | % By Weight |
|---------------|------------|----------------------------|-------|-------------|
| 01-4581-11 | Wall #4 | Room 104 Wall, Floor #1 | 4120 | 0.412 |
| 01-4582-12 | Door Frame | Exterior, Wall #2 | 16190 | 1.619 |
| 01-4583-13 | Wall #2 | Exterior Wall | 2900 | 0.290 |

LEAD WASTE DISPOSAL

The visual determination indicated that all building components that tested positive were in intact to poor condition (minor cracking to flaking and peeling). As such, these components need to be considered a lead hazard if flaking paint is not stabilized. All small debris (paint chips, rags, filters, and components smaller than 2"x2") that may be generated during the paint stabilization process (paint preparation) should be considered Class I, lead hazardous waste. The debris generated from paint stabilization of LBP building components should be segregated from all other dust and debris. Building components, which tested positive, should be stabilized by a DHS-accredited Contractor.

Power washing may be conducted on the building. Run off water must be collected and analyzed by an accredited laboratory to meet the criteria established by the Clean Water Act, Resource Conservation and Recovery Act (RCRA 1972). Lead levels must not exceed 5mg/L.

CODES AND REGULATIONS - LEAD-BASED PAINT

Federal and state regulations, which govern lead-based, paint work or hauling and disposal of lead-based paint waste materials include but are not limited to the following:

FEDERAL

Housing and Urban Development (HUD) 1995 Guidelines For The Evaluation and Control of Lead-Based Paint in Housing

OSHA

Lead In Construction
29 CFR 1926.62

NESHAP

Emissions Standards
40 CFR 50.12

Lead-Based Paint Poisoning Prevention Act (LBPPPA), 1970.

Title 10 - Residential LBP Hazard Reduction Act, 1992, (amendment for LBPPPA, 1970)

Resource Conservation Recovery Act (RCRA)

STATE

Cal/OSHA

Lead In Construction
Title 8 CCR 1532.1

Department of Health Services (DHS)

Emergency Work Practice Regulations
Title 17 CCR, Division 1, Chp.

APPENDIX A
XRF - DATA RESULTS TABLE

| Bldg. | Floor | Room | Result | Shot Sequence | Location | Wall | Description | XRF Result | AA Analysis in PPM |
|-------|-------|------|--------------|---------------|-----------|------|------------------|------------|--------------------|
| 148 | Base. | | XRF Positive | 27183 | Stairway | 1 | Stair Handrail | 2.759 | |
| 148 | Base. | | Negative | 27184 | Stairway | 1 | Tile counter top | -0.078 | |
| 148 | Base. | | Negative | 27185 | Stairway | 1 | Wall | 0.131 | |
| 148 | Base. | | Negative | 27186 | Stairway | 1 | Ceiling | 0.012 | |
| 148 | Base. | | Negative | 27187 | Stairwell | 1 | Wall | 0.638 | |
| 148 | Base. | | Negative | 27188 | Stairwell | 1 | Wall | 0.521 | |
| 148 | Base. | | Negative | 27189 | Stairwell | 1 | | -0.242 | |
| 148 | Base. | | Negative | 27190 | Stairwell | 1 | Drain Pipe 6" | 0.635 | |
| 148 | Base. | | XRF Positive | 27191 | Stairwell | 4 | Door | 1.771 | |
| 148 | Base. | | Negative | 27192 | Stairwell | 1 | Wall | 0.086 | |
| 148 | Base. | | Negative | 27193 | Stairwell | 1 | Wall | 0.456 | |
| 148 | Base. | | Negative | 27194 | Stairwell | 1 | Wall | 0.461 | |
| 148 | Base. | | XRF Positive | 27195 | Stairwell | 1 | Door | 7.033 | |
| 148 | 0001 | | Negative | 27097 | Exterior | 1 | Wall | -0.095 | |
| 148 | 0001 | | XRF Positive | 27098 | Exterior | 1 | Stair Handrail | 3.847 | |
| 148 | 0001 | | Negative | 27099 | Exterior | 1 | Stair Riser | 0.407 | |
| 148 | 0001 | | Negative | 27100 | Exterior | 2 | Wall | -1.127 | |
| 148 | 0001 | | Negative | 27101 | Exterior | 2 | Wall | -0.066 | |
| 148 | 0001 | | Inconclusive | 27102 | Exterior | 1 | Fire exit | 0.921 | |
| 148 | 0001 | | XRF Positive | 27103 | Exterior | 1 | Door casing | 1.361 | |
| 148 | 0001 | | Negative | 27104 | Exterior | 2 | Kick panel | 0.067 | |
| 148 | 0001 | | XRF Positive | 27105 | Exterior | 2 | Window Sill | 1.644 | |
| 148 | 0001 | | XRF Positive | 27106 | Exterior | 2 | Window Molding | 1.312 | |
| 148 | 0001 | | Negative | 27107 | Exterior | 2 | Stall door | 0.443 | |
| 148 | 0001 | | Negative | 27108 | Exterior | 2 | Fascias | -0.04 | |
| 148 | 0001 | | Negative | 27109 | Exterior | 2 | Double Exit Door | -0.179 | |
| 148 | 0001 | | XRF Positive | 27110 | Exterior | 2 | Door casing | 2.822 | |
| 148 | 0001 | | Negative | 27111 | Exterior | 2 | Door | -0.432 | |
| 148 | 0001 | | XRF Positive | 27112 | Exterior | 2 | Door casing | 5.485 | |
| 148 | 0001 | | Negative | 27113 | Exterior | 2 | Down spout | -0.4 | |
| 148 | 0001 | | Negative | 27114 | Exterior | 2 | Drain Pipe 6" | -0.861 | |
| 148 | 0001 | | Inconclusive | 27115 | Exterior | 2 | Electrical Panel | 1.09 | |
| 148 | 0001 | | Negative | 27116 | Exterior | 3 | Wall | -0.398 | |
| 148 | 0001 | | XRF Positive | 27117 | Exterior | 3 | Stair Handrail | 4.305 | |

| Bldg. | Floor | Room | Result | Shot Sequence | Location | Wall | Description | XRF Result | AA Analysis in PPM |
|-------|-------|------|--------------|---------------|-------------|------|------------------|------------|--------------------|
| 148 | 0001 | | Negative | 27118 | Exterior | 3 | Stair Riser | 0.747 | |
| 148 | 0001 | | Negative | 27119 | Exterior | 4 | Wall | 0.692 | |
| 148 | 0001 | | Negative | 27120 | Exterior | 4 | Wall | 0.082 | |
| 148 | 0001 | | XRF Positive | 27121 | Exterior | 4 | Window Molding | 1.592 | |
| 148 | 0001 | | Negative | 27122 | Exterior | 4 | Stall door | -0.087 | |
| 148 | 0001 | | Negative | 27123 | Exterior | 4 | Fascias | 0.379 | |
| 148 | 0001 | | Negative | 27124 | Exterior | 4 | Down spout | -0.147 | |
| 148 | 0001 | | Negative | 27125 | Exterior | 4 | Double Exit Door | 0.151 | |
| 148 | 0001 | | XRF Positive | 27126 | Exterior | 4 | Door casing | 3.172 | |
| 148 | 0001 | | XRF Positive | 27127 | Exterior | 2 | Lg window frame | 2.203 | |
| 148 | 0001 | | XRF Positive | 27128 | Stairwell | 1 | Stair Handrail | 1.953 | |
| 148 | 0001 | | Negative | 27129 | Stairwell | 1 | Tile counter top | -0.06 | |
| 148 | 0001 | | Negative | 27130 | Stairwell | 1 | Wall | 0.642 | |
| 148 | 0001 | | Negative | 27131 | Stairwell | 1 | Door | 0.493 | |
| 148 | 0001 | | XRF Positive | 27132 | Stairwell | 1 | Door casing | 2.836 | |
| 148 | 0001 | | Negative | 27133 | Stairwell | 1 | Window Molding | -0.578 | |
| 148 | 0001 | | Paint Chip | | | | | | 16190 |
| 148 | 0001 | | Paint Chip | | | | | | 2900 |
| 148 | 0001 | | Negative | 27136 | Exterior | 2 | Door Frame | 1.619 | |
| 148 | 0001 | | Negative | 27137 | Exterior | 2 | Wall | 0.29 | |
| 148 | 0001 | | Negative | 27138 | Hallway | 1 | Wainscott | -1.308 | |
| 148 | 0001 | | Negative | 27139 | Hallway | 1 | Wainscott | 0.281 | |
| 148 | 0001 | | Negative | 27140 | Hallway | 1 | Wall | 0.473 | |
| 148 | 0001 | | Negative | 27141 | Hallway | 4 | Window Molding | 0.518 | |
| 148 | 0001 | | Negative | 27142 | Hallway | 4 | Window Sill | 0.012 | |
| 148 | 0001 | | Negative | 27143 | Hallway | 1 | Fire exit | -0.202 | |
| 148 | 0001 | | Negative | 27144 | Hallway | 1 | Door casing | 0.496 | |
| 148 | 0001 | | Negative | 27145 | Hallway | 2 | Common wall | -0.374 | |
| 148 | 0001 | | Negative | 27146 | Hallway | 2 | Door | 0.144 | |
| 148 | 0001 | | Negative | 27147 | Hallway | 2 | Door casing | -0.271 | |
| 148 | 0001 | | Inconclusive | 27148 | Common area | 1 | I beam Soffit | 0.234 | |
| 148 | 0001 | | Negative | 27149 | Common area | 2 | Wall | 0.978 | |
| 148 | 0001 | | Negative | 27150 | Common area | 2 | Wall | 0.519 | 500 |
| 148 | 0001 | | Negative | 27151 | Common area | 2 | Window Molding | 0.413 | |
| 148 | 0001 | | Negative | | Common area | 2 | Window Sill | 0.036 | |
| 148 | 0001 | | Negative | | Common area | 2 | Radiator | 0.357 | |

| Bldg. | Floor | Room | Result | Shot Sequence | Location | Wall | Description | XRF Result | AA Analysis in PPM |
|-------|-------|-------------|--------------|---------------|------------------|------|------------------|------------|--------------------|
| 148 | 0001 | | Negative | 27152 | Hallway | 1 | Ceiling | 0.206 | |
| 148 | 0001 | | Negative | 27153 | Hallway | 2 | Chair rail | -0.523 | |
| 148 | 0001 | | Negative | 27154 | Hallway | 1 | Door | -0.105 | |
| 148 | 0001 | | XRF Positive | 27155 | Laundry Room | 1 | Wall | 2.72 | |
| 148 | 0001 | | XRF Positive | 27156 | Laundry Room | 2 | Wall | 2.2 | |
| 148 | 0001 | | XRF Positive | 27157 | Laundry Room | 3 | Wall | 1.775 | |
| 148 | 0001 | | Negative | 27158 | Laundry Room | 2 | Door | 0.081 | |
| 148 | 0001 | | Negative | 27159 | Laundry Room | 2 | Door casing | 0.415 | |
| 148 | 0001 | | Negative | 27160 | Hallway Head | 2 | Wall | 0.178 | |
| 148 | 0001 | | Negative | 27161 | Hallway Head | 2 | Window Molding | 0.144 | |
| 148 | 0001 | | Negative | 27162 | Hallway Head | 2 | Window Sill | 0.422 | |
| 148 | 0001 | | XRF Positive | 27163 | Hallway Head | 3 | Tile wall | 14.64 | |
| 148 | 0001 | | Negative | 27164 | Hallway Head | 1 | Ceiling | -0.255 | |
| 148 | 0001 | | Inconclusive | 27165 | Hallway Head | 3 | Common wall | 0.963 | |
| 148 | 0001 | | Negative | 27166 | Hallway Head | 3 | Stall door | -0.216 | |
| 148 | 0001 | | Inconclusive | 27167 | Hallway Head | 3 | Drain Pipe Porch | 1.102 | |
| 148 | 0001 | | Negative | 27168 | Hallway Head | 4 | Door | -0.355 | |
| 148 | 0001 | | Negative | 27169 | Hallway Head | 4 | Door casing | 0.485 | |
| 148 | 0002 | | Negative | 27170 | Hallway | 2 | Door | -0.297 | |
| 148 | 0002 | | Negative | 27171 | Hallway | 2 | Door casing | 0.13 | |
| 148 | 0002 | | Negative | 27172 | Hallway | 3 | Wainscott | -0.57 | |
| 148 | 0002 | | Negative | 27173 | Hallway | 2 | Wall | 0.389 | |
| 148 | 0002 | | Negative | 27174 | Hallway | 3 | Fire exit | -0.001 | |
| 148 | 0002 | | Negative | 27175 | Hallway | 3 | Window Molding | 0.455 | |
| 148 | 0002 | | Negative | 27176 | Hallway | 3 | Window Sill | 0.641 | |
| 148 | | | Paint Chip | | Laundry Room | 2 | Wall | 0.965 | 9650 |
| 148 | 0002 | | Paint Chip | | Recreation Rm. | 1 | Wall | 0.374 | 3740 |
| 148 | 0002 | | Paint Chip | | Recreation Rm. | 1 | Chair rail | 0.577 | 5770 |
| 148 | 0002 | | Paint Chip | | Recreation Rm. | 4 | Outside Wall | 0.364 | 3640 |
| 148 | 0002 | | Paint Chip | | T. V. Room | 2 | Kick Panel | 0.534 | 5340 |
| 148 | 0002 | | Paint Chip | | Main Entry | 4 | Wall | 0.123 | 1230 |
| 148 | 0002 | Duty Office | Paint Chip | | Main Entry | 3 | Wall | 0.051 | 510 |
| 148 | 0002 | Duty Office | Paint Chip | | Officer Restroom | 1 | Wall | 0.34 | 3400 |
| 148 | 0002 | Duty Office | Paint Chip | | Office | 2 | Chair Rail | 0.623 | 6230 |

| Bldg. | Floor | Room | Result | Shot Sequence | Location | Wall | Description | XRF Result | AA Analysis in PPM |
|-------|-------|------|--------------|---------------|--------------|------|-------------------|------------|--------------------|
| 148 | 0002 | | Paint Chip | | Room 104 | 4 | Wall | 0.412 | 4120 |
| 148 | 0003 | | XRF Positive | 27204 | Stairway | 2 | Garage Dr Molding | 1.299 | |
| 148 | 0003 | | Negative | 27205 | Hallway | 1 | Wall | 0.406 | |
| 148 | 0003 | | Negative | 27207 | Hallway | 1 | Fire exit | -0.614 | |
| 148 | 0003 | | Negative | 27208 | Hallway | 1 | Door casing | 0.541 | |
| 148 | 0003 | | XRF Positive | 27209 | Common area | 1 | Door trim H/W | 1.361 | |
| 148 | 0003 | | Negative | 27210 | Common area | 4 | Window Sill | 0.537 | |
| 148 | 0003 | | Negative | 27211 | Hallway | 2 | Common wall | -0.137 | |
| 148 | 0003 | | Negative | 27212 | Hallway | 2 | Door | 0.361 | |
| 148 | 0003 | | Negative | 27213 | Hallway | 2 | Door casing | 0.214 | |
| 148 | 0003 | | Inconclusive | 27214 | Common area | 2 | Wall | 1.078 | |
| 148 | 0003 | | Negative | 27215 | Common area | 2 | Heater insulator | 0.186 | |
| 148 | 0003 | | Negative | 27216 | Common area | 1 | I beam Soffit | -0.318 | |
| 148 | 0003 | | Negative | 27217 | Hallway | 2 | Common wall | 0.454 | |
| 148 | 0003 | | Negative | 27218 | Hallway | 2 | Chair rail | 0.488 | |
| 148 | 0003 | | Negative | 27219 | Hallway | 3 | Door casing | 0.105 | |
| 148 | 0003 | | Negative | 27220 | Hallway | 1 | Ceiling | 0.195 | |
| 148 | 0003 | | Negative | 27221 | Stairwell | 1 | Common wall | -0.959 | |
| 148 | 0003 | | Negative | 27222 | Stairwell | 1 | Common wall | 0.842 | |
| 148 | 0003 | | Negative | 27223 | Stairwell | 2 | Common wall | -0.928 | |
| 148 | 0003 | | Negative | 27224 | Stairwell | 3 | Common wall | 0.485 | |
| 148 | 0003 | | Negative | 27225 | Stairwell | 4 | Wall | 0.887 | |
| 148 | 0003 | | Negative | 27226 | Stairwell | 1 | Door | 0.121 | |
| 148 | 0003 | | Negative | 27227 | Stairwell | 2 | Door casing | 0.222 | |
| 148 | 0003 | | Negative | 27228 | Laundry Room | 1 | Common wall | 0.252 | |
| 148 | 0003 | | Negative | 27229 | Laundry Room | 2 | Common wall | -0.097 | |
| 148 | 0003 | | XRF Positive | 27230 | Laundry Room | 4 | Door trim H/W | 2.956 | |
| 148 | 0003 | | Negative | 27231 | Laundry Room | 4 | Window Sill | 0.138 | |
| 148 | 0003 | | Negative | 27232 | Laundry Room | 4 | Ceiling | 0.366 | |
| 148 | 0003 | | Inconclusive | 27233 | Laundry Room | 1 | | 0.996 | |
| 148 | 0003 | | Negative | 27234 | Laundry Room | 1 | | -0.076 | |
| 148 | 0003 | | Negative | 27235 | Hallway Head | 1 | Wall | 0.168 | |
| 148 | 0003 | | XRF Positive | 27236 | Hallway Head | 1 | Tile wall | 15.234 | |
| 148 | 0003 | | Negative | 27237 | Hallway Head | 2 | Door trim H/W | 0.494 | |

| Bldg. | Floor | Room | Result | Shot Sequence | Location | Wall | Description | XRF Result | AA Analysis in PPM |
|-------|-------|------|--------------|---------------|--------------|------|---------------|------------|--------------------|
| 148 | 0003 | | Negative | 27238 | Hallway Head | 4 | Door | -0.388 | |
| 148 | 0003 | | Negative | 27239 | Hallway Head | 4 | Door casing | -0.055 | |
| 148 | 0003 | | Negative | 27240 | Hallway Head | 1 | Floor | 0.262 | |
| 148 | 0003 | | Negative | 27241 | Hallway Head | 1 | Ceiling | 0.215 | |
| 148 | 0003 | | Negative | 27242 | Common area | 1 | Wainscott | 0.482 | |
| 148 | 0003 | | Negative | 27243 | Hallway | 2 | Wall | 0.131 | |
| 148 | 0003 | | Negative | 27244 | Common area | 2 | Door | 0.007 | |
| 148 | 0003 | | Negative | 27245 | Common area | 2 | Door casing | 0.422 | |
| 148 | 0003 | | XRF Positive | 27246 | Common area | 4 | Door trim H/W | 1.286 | |
| 148 | 0003 | | XRF Positive | 27247 | Hallway | 2 | Door trim H/W | 1.774 | |
| 148 | 0003 | | Negative | 27248 | Hallway | 3 | Fire exit | -0.537 | |
| 148 | 0003 | | Negative | 27249 | Hallway | 3 | Door casing | -0.665 | |
| 148 | 0003 | | XRF Positive | 27177 | Laundry Room | 1 | Wall | 3.461 | |
| 148 | 0003 | | XRF Positive | 27178 | Laundry Room | 2 | Wall | 1.449 | |
| 148 | 0003 | | XRF Positive | 27179 | Laundry Room | 3 | Wall | 1.402 | |
| 148 | 0003 | | XRF Positive | 27180 | Laundry Room | 4 | Wall | 2.038 | |
| 148 | 0003 | | Negative | 27181 | Laundry Room | 1 | Ceiling | -0.278 | |
| 148 | 0003 | | Negative | 27182 | Laundry Room | 2 | Door | -0.224 | |

APPENDIX B
CERTIFICATION(S)

Lead-Registered Construction
Interim Certificate

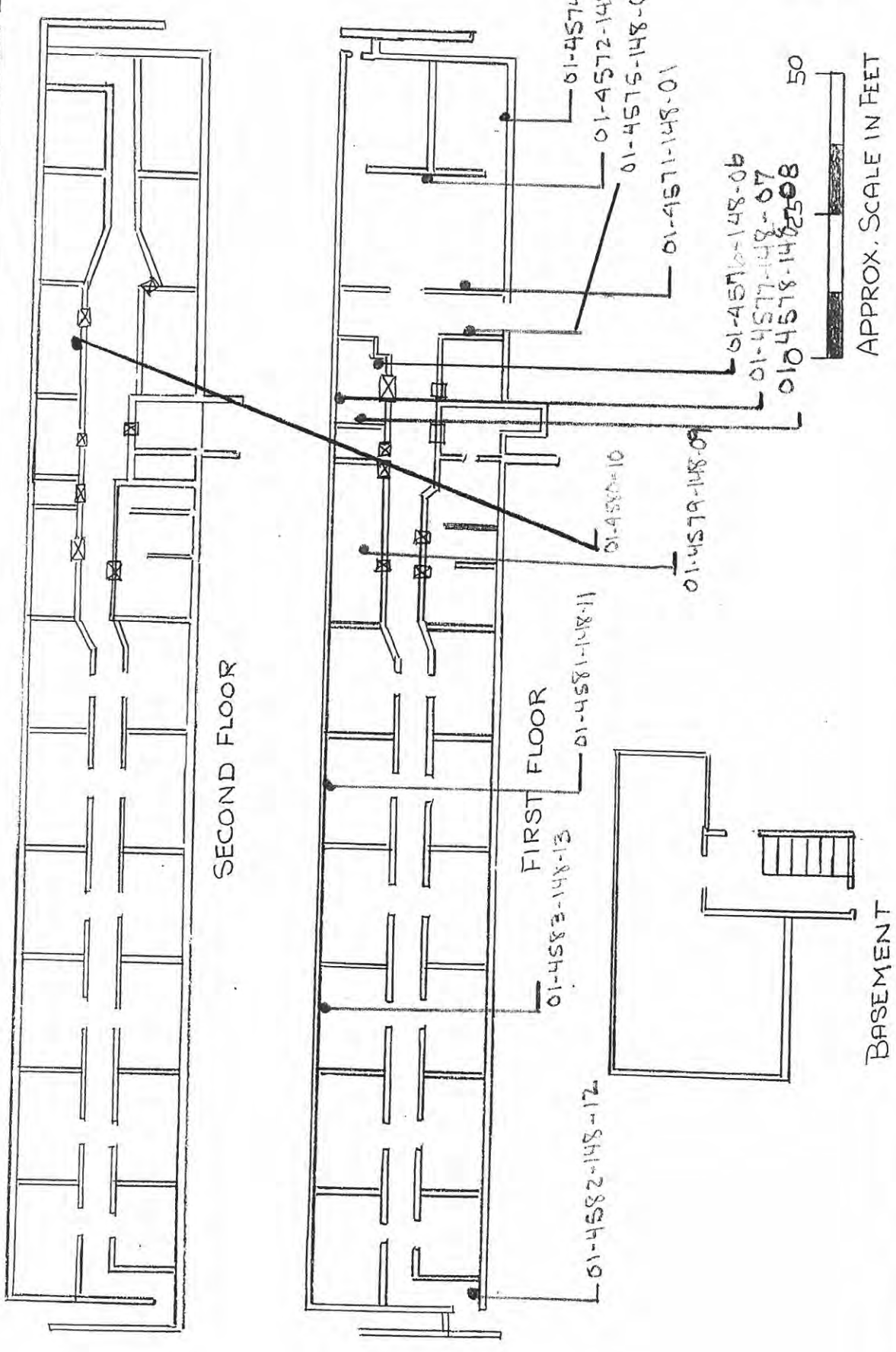
Richard E. MacFarlane

Inspector-Assessor
I-2241 (Exp. 11/03/01)



APPENDIX C

SITE MAP

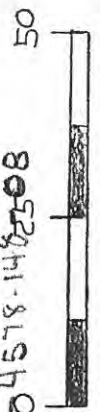
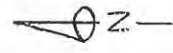


SECOND FLOOR

FIRST FLOOR

BASEMENT

- 01-4582-148-12
- 01-4583-148-13
- 01-4581-148-11
- 01-4580-10
- 01-4579-148-09
- 01-4576-148-06
- 01-4577-148-07
- 01-4578-148-08
- 01-4571-148-01
- 01-4575-148-05
- 01-4572-148-02
- 01-4574-148-04



APPROX. SCALE IN FEET



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 148
 NASA AMES
 PARCEL 5

DRAFT PERSON: WLM
 DATE: 12/10
 DWG. No. 2
 PROJECT No. E01-448-AL-50

APPENDIX D
LABORATORY RESULTS

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

Lead Analysis by EPA 3050B/7420 Method

ACCOUNT #: 2541-01-53
CLIENT: Benchmark
ADDRESS: 3732 Charter Park Drive
San Jose, CA 95136

DATE COLLECTED: 8/6/2001
DATE RECEIVED: 8/14/2001
DATE ANALYZED: 8/14/2001
DATE REPORTED: 8/14/2001

PO NO.:
PROJECT NAME: PA1
PROJECT NO: E01-448
JOB LOCATION: NASA Ammes Bldg 148

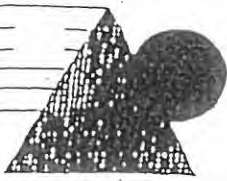
SAMPLE TYPE: PAINT

| SLI Sample No. | Client Sample No. | Sample Description | Sample Wt (mg) | Dilution Factor | Total Lead (µg)* | Lead Conc (% by wt) | Lead Conc (PPM) |
|----------------|-------------------|--------------------------|----------------|-----------------|------------------|---------------------|-----------------|
| 2016267 | 01-4571-148-01 | Rec Rm Wall 1 | 473 | 10 | 1,769.4 | 0.374 | 3740 |
| 2016268 | 01-4572-148-02 | Rec Rm Chair Rail | 490 | 10 | 2,828.3 | 0.577 | 5770 |
| 2016269 | 01-4573-148-03 | Rec Rm Out Wall | 497 | 10 | 1,808.6 | 0.364 | 3640 |
| 16270 | 01-4574-148-04 | TV Rm Kick Panel | 471 | 10 | 2,514.6 | 0.534 | 5340 |
| 2016271 | 01-4575-148-05 | Main Entry Wall | 490 | 1 | 600.5 | 0.123 | 1230 |
| 2016272 | 01-4576-148-06 | Main Entry Wall DO | 485 | 1 | 247.5 | 0.051 | 510 |
| 2016273 | 01-4577-148-07 | Officer Restrm DO | 497 | 10 | 1,691.0 | 0.340 | 3400 |
| 2016274 | 01-4578-148-08 | Office Chairrail DO | 498 | 10 | 3,102.8 | 0.623 | 6230 |
| 2016275 | 01-4579-148-09 | Laundry Rm Fl 1 | 468 | 10 | 4,514.7 | 0.965 | 9650 |
| 2016276 | 01-4580-148-10 | Common Hall 2st Fl | 495 | 1 | 247.5 | 0.050 | 500 |
| 2016277 | 01-4581-148-11 | Rm 104 Fl 1 | 487 | 10 | 2,004.7 | 0.412 | 4120 |
| 2016278 | 01-4582-148-12 | Ext Dr Frame | 492 | 10 | 7,965.9 | 1.619 | 16190 |
| 2016279 | 01-4583-148-13 | Ext Wall | 498 | 2 | 1,444.1 | 0.290 | 2900 |
| | QC - 18999 | 10.0 ppm Calibration Std | | | 996.6 | 99.7% | |
| | QC - 18999 | 200 µg spike | | | 200.5 | 100.2% | |
| | QC - 18999 | 5.0 ppm Calibration Std | | | 514.2 | 102.8% | |
| | QC - 18999 | Blank | | | < 20.0 | | |
| | QC - 18999 | NIST 2710 Standard | | | 565.2 | 102.2% | |

ANALYST: AMY J. COLOSIMO
Total no. of pages in report = /


REVIEWED BY Matthew D. Asbury, Dept. Head

Minimum Reporting Limit: 20 µg Total Lead. For work involving HUD, child-occupied building and other residential sites, the Federal Lead Standard is 0.5% lead by weight [5000 ppm]. The requirements of the OSHA Lead in Construction Standard, 29 CFR 1926.62, are invoked if any lead is present in the sample; there is no minimum concentration. *For true values, assume two (2) significant figures. All testing is performed in strict accordance with Schneider Laboratories, Inc. protocol.



BENCHMARK

2541-01-53

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: E01-448

Date: 8/6/01

Technician: R. MacFarland

Project Location: NASA-Ames Bldg #148 BAQ

Client Name: PAI Company: _____

| | | |
|---|--|--|
| Project Type | Type Of Analysis | Turnaround Time |
| Asbestos | PLM/Bulk (EPA 600) | Same Day 3 Hr 6 Hr |
| <input checked="" type="checkbox"/> Lead-based Paint | <input checked="" type="checkbox"/> EPA SW846-7420, FLAA | 24 Hour |
| Lead Risk Assessment | Dust Wipes <u>Paint Chips</u> | <input checked="" type="checkbox"/> 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: <u>P/C</u> | TTP = Test Till Positive |

| Homogenous Material Group | Material / Component | Sample Number | Location Of Samples | Analysis Specification |
|--|--------------------------------|-------------------------|---|------------------------|
| <u>P/C</u> | <u>All Samples ARE 2" x 2"</u> | | | <u>PPM</u> |
| | | <u>01-4571 - 148-01</u> | <u>REC. RM. WALL #1 WALL</u> | } |
| | | <u>01-4572 - 148-02</u> | <u>REC. RM. CHAIR RAIL WALL #1</u> | |
| | | <u>01-4573 - 148-03</u> | <u>OUTSIDE WALL - REC. RM. - WALL #4</u> | |
| | | <u>01-4574 - 148-04</u> | <u>T.V. ROOM - KICK PANEL WALL #2</u> | |
| | | <u>01-4575 - 148-05</u> | <u>MAIN ENTRY WALL WALL #4</u> | |
| | | <u>01-4576 - 148-06</u> | <u>WALL MAIN ENTRY - D/O WALL #3</u> | |
| | | <u>01-4577 - 148-07</u> | <u>D/O - OFFICE - RESTROOM WALL #1</u> | |
| | | <u>01-4578 - 148-08</u> | <u>D/O - OFFICE WALL #2 CHAIR RAIL</u> | |
| | | <u>01-4579 - 148-09</u> | <u>LAUNDRY RM FLOOR #1 WALL #2</u> | |
| | | <u>01-4580 - 148-10</u> | <u>1st. FIR. COMMON HALL WALL #2 By 100</u> | |
| | | <u>01-4581 - 148-11</u> | <u>FLOOR #1 RM 104 WALL - WALL #4</u> | |
| | | <u>01-4582 - 148-12</u> | <u>EXTERIOR DOOR FRAME WALL #2</u> | |
| | | <u>01-4583 - 148-13</u> | <u>EXTERIOR WALL - WALL #2</u> | |
| <u>NOTE! SENSITIVITY MUST BE 25 <</u> | | | | |

| | | |
|-----------------------------------|---------------------------------|---|
| Relinquished By: <u>P. MARTIN</u> | Received By: <u>[Signature]</u> | Date/Time Received: <u>8-14-01 1000 940</u> |
| URS 12222899221013 7564 (2) | | |