



State of Utah

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Lieutenant Governor

Department of Administrative Services

KIMBERLY K. HOOD  
Executive Director

Division of Facilities Construction and Management

DAVID G. BUXTON  
Director

## ADDENDUM NO. 1

Date: July 28, 2009

To: Contractors

From: Matthias Mueller – Project Manager

Reference: Demolition and Electrical – Gibson Science Center  
Southern Utah University – Cedar City, Utah  
DFCM Project No. 07297730

Subject: **Addendum No. 1**

Pages	Addendum Cover Sheet	1 page
	Architect's Addendum No. 2	2 pages
	Electrical Addendum #E-01	1 page
	<u>HazMat Survey and Assessment</u>	<u>37 pages</u>
	Total	41 pages

**Note:** *This Addendum shall be included as part of the Contract Documents. Items in this Addendum apply to all drawings and specification sections whether referenced or not involving the portion of the work added, deleted, modified, or otherwise addressed in the Addendum. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to Disqualification.*

While we contend that SB220 should only be potentially applicable to a contract issued after the effective date of said bill, this is to clarify that for purposes of this contract, regardless of the execution or effective dates of this contract, the status of Utah Law and remedies available to the State of Utah and DFCM, as it relates to any matter referred to or affected by said SB220, shall be the Utah law in effect at the time of the issuance of this Addendum.

1.1 **SCHEDULE CHANGES:** No Project Schedule changes.

1.2 **GENERAL ITEMS:**

- 1.2.1 See attached Architect's Addendum No. 2 dated July 28, 2009
- 1.2.2 See attached Electrical Addendum #E-01 dated July 28, 2009
- 1.2.3 See attached HazMat Survey and Assessment performed August 18, 2007



## Addendum No. 2

Issued: 28 July 09

**Addendum No. Two  
for the  
Gibson Science Center  
Southern Utah University  
Demolition Bid Package No. 1  
MHTN Project No. 2009536,.00**

All Contractors submitting proposals on the above captioned project shall be governed by the following addendum, changes and explanations to the bidding documents dated 29 June, 2009 and shall submit their bids in accordance therewith:

**Clarifications:**

**A2.1** A hazardous materials survey for this project is available through DFCM.

**Changes to the Project Manual:**

**A2.2 Section 011000.1.4** Add the following:

B Demolition work shall be completed by August 23, 2009. This includes uniformly grading of the site prior to turn-over to the Owner. A slight depression of the finish grades is acceptable provided the slope of finish grades does not exceed 5 percent.

**A2.3 Section 011000.1.6.A** Add the following:

4 Two additional approaches may be used from State Road 300 West. The Contractor shall coordinate approach locations with SUU prior to beginning work. The Contractor shall incorporate UDOT accepted methods to gain temporary access to the site from said road. All temporary approaches shall not impede the use of the storm-drain / gutter system and shall be removed prior to completion of demolition work.

**A2.4 Section 02116 .3.4** Add the following:

5. All surfaces scheduled to remain shall be clean-cut with no broken edges from the surfaces being demolished.
6. Contractor shall be liable for maintaining the existing condition of the asphalt or concrete paving scheduled to remain. Any damage to said paving shall be repaired / replaced by the contractor.
7. Disposal of debris at the local pre-approved dumpsite requires pushing said debris over the pit edge. Contractors shall provide accommodations for this dump-site requirement.
8. The existing transformer scheduled to be disconnected shall be turned over to the Owner in good order for their future use.

Owner contact:

Tiger Funk  
Manager, Utility Services  
Southern Utah University  
351 W. University Ave  
Cedar City, Utah 84720  
435-586-7888 office

435-590-8451 cell  
435-586-5482 fax

**A2.5 Section 02116.3.4.C** Add the following:

3. Water for dust control shall be obtained from a nearby fire hydrant. Requirements for the use of this water shall be coordinated with Cedar City by the Contractor. SUU will not have water available for dust control use. The Contractor shall include all water costs for dust control in their bid.

**A2.6 Section 02116 .3.5.C** Add the following:

2. Existing helical piers shall be cleanly cut from existing foundations such that removal of the piers can occur at a future date. The location of said piers shall be flagged and terminated at least one foot below finish grade prior to the application of bark mulch.

**A2.7 Section 02116 .3.6** Add the following:

- C Contractor shall provide a 4" bark mulch over the entire demolition site after all debris has been removed and the site has been uniformly graded for demolition completion.

**Changes to the Drawings:**

None

**Attachments:**

Electrical Addendum #E-01 Ken Garner Engineering

**End of Addendum No. 2**



## ELECTRICAL ADDENDUM #E-01

**Project Name:** SUU GIBSON SCIENCE BUILDING ADDITION – DEMO PACKAGE      **KGE Project #:** 59026  
**Date:** 07-28-09

### GENERAL CLARIFICATIONS:

- I. All new medium voltage terminations shall be 200 amp loadbreak molded products as indicated in the drawings and specifications.
- II. All existing medium voltage equipment included within this project have 200 amp bushing wells.
- III. All existing medium voltage cables are 15 KV EPR. The actual sizes of conductors need to be field verified by the contractor, but are believed to be between #2/0 and #250.
- IV. The medium voltage cable testing needs to comply with the drawings and specifications; however, the cable testing company does not need to be submitted prior to bid.

### DRAWINGS:

- A. SHEET EX100:
  1. Revise the following medium voltage feeders to be **“(3) #4/0 15 KV EPR with (1) #4/0 THWN GROUND”**:
    - a. Feeder from South hall transformer to temporary sectionalizer #4A
    - b. Feeder from existing Science Building transformer to temporary sectionalizer #4A
  2. Provide any required 200 amp, 15 KV bushing wells and bushing well inserts for the temporary sectionalizer #4A as needed to connect the new 200 amp loadbreak elbows.
  3. The existing 150 KVA transformer that is being demolished shall be protected, salvaged and delivered to owner at a location within 3 miles of the site. Contractor shall be responsible for protecting the transformer from damage and transporting to SUU defined location. The transformer oil shall be drained prior to transportation after being tested for PCB's.

**HAZMAT (ASBESTOS & LEAD BASED PAINT)  
SURVEY AND ASSESSMENT**

*Southern Utah University  
Life Science Building  
Cedar City, Utah*



**Prepared for:**

Robert Anderson, HAZMAT Manager  
Division of Facilities Construction & Management  
4110 State Office Building  
Salt Lake City, Utah 84114

**Prepared by:**

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HAZMAT (ASBESTOS & LEAD BASED PAINT)  
SURVEY AND ASSESSMENT

*Southern Utah University  
Life Science Building  
Cedar City, Utah*

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**HAZMAT (ASBESTOS & LEAD BASED PAINT)  
SURVEY AND ASSESSMENT**

*Southern Utah University  
Life Science Building  
Cedar City, Utah*

**1.0 EXECUTIVE SUMMARY**

A survey of this facility was performed on August 18, 2007, by **ROWLAND CONSULTING, INC.** The building was visually inspected to identify building materials that might contain asbestos. Bulk samples were collected from suspect materials and analyzed to determine if they contained asbestos. All Asbestos Containing Materials (ACMs) were assessed for damage and the potential for exposure. This survey was requested by Mr. Robert J. Anderson, HAZMAT Manager, State of Utah, Division of Facilities Construction and Management.

The following table lists all ACMs that were identified in the building. Information specific to the building concerning inaccessible areas / materials and recommended response actions can be found in this report. There is important information in these sections that is not included in this executive summary. This report should be read in its entirety, including detailed information that is contained in other sections and appendices of this report.

**ACMs by Homogeneous Area**

<b>Material ID # (1)</b>	<b>Material Description</b>	<b>Location</b>	<b>Asbestos Content (2)</b>	<b>Quantity</b>	<b>Cost Estimate (3)</b>
M001	12" Floor Tile Tan w/ Brown Streaks With Black Mastic	Custodial Closet Room #164	8% C (Tile) >1% C (Mastic)	1,006 sq. ft.	\$2,515.00 @\$2.50/sq. ft.
M002	12" Floor Tile White w/ Black & Grey Streaks	Room 150 B, Hallway	>1% C (Mastic)	1,869 sq. ft.	\$4,672.50 @\$2.50/sq. ft.
M003	Transite Panels, Corrugated (4x8 Panels)	Greenhouse Tables	10% C (Cement)	180 Sq. Ft.	\$1,080.00 @\$6.00/sq. ft.
M004	Transite Panels, Flat	Greenhouse Tables	10% C (Cement)	1,533 Sq. Ft.	\$9,198.00 @\$6.00/sq. ft.

Footnotes:

1. Homogeneous Area Number (not related to building room numbers).
2. C = Chrysotile Asbestos.
3. Cost Estimates include asbestos removal costs only; abatement design and management fees and replacement costs are not included. For projects with small quantities, ask Contractors for their mobilization fee. Please refer to Section 7.0 for more details.

# Asbestos Survey and Assessment

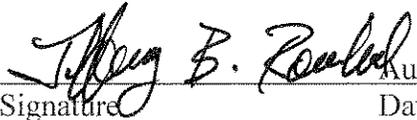
*Southern Utah University  
Life Science Building  
Cedar City, Utah*

## 2.0 INTRODUCTION

On August 18, 2007, **ROWLAND CONSULTING, INC.** performed an asbestos survey and assessment at Southern Utah University, Life Science Building in Cedar City, Utah. The purpose of this survey was to identify the existence, extent, and condition of both friable and non-friable asbestos-containing materials (ACM) within and on the facility. Bulk samples were collected from suspect materials, submitted to a laboratory, and analyzed for asbestos content. Each occurrence of ACM was assessed for damage and friability.

The following accredited and certified inspectors performed the inspection, collected the samples and made assessment:

Jeffrey B. Rowland  
Name

  
Signature

August 18, 2007

Date

Utah  
State of Accreditation

ASB-1377  
State of Utah  
Division of Air Quality  
Asbestos Certification Number

*This report has been reviewed  
By a Certified Industrial Hygienist (CIH)*

**Frank D. DeRosso, CIH MSPH**  
Senior Scientist  
**RMEC Environmental, Inc.**  
*for ROWLAND CONSULTING, INC.*

  
CIH Signature

10/2/07  
Date



## **4.0 SURVEY PROCEDURES**

### **4.1 Building Surveys**

All accessible areas of the facility were visually inspected to identify suspect asbestos containing materials (ACM.) All accessible surfaces, structures, and mechanical systems within these areas were examined and all suspected ACM was touched to determine friability.

Suspect ACM was identified and assessed in homogeneous areas. A homogeneous area is defined as a single material, uniform in texture and appearance, installed at one time, and unlikely to consist of more than one type, or formulation, of material. In cases where joint compound and/or tape have been applied to wallboard (gypsum board) and cannot be visually distinguished from the wallboard, it is considered an integral part of the wallboard and in effect becomes one material forming a wall or ceiling "system."

Each homogeneous area was given a unique material identification number. Each ID number begins with a letter: "S" for Surfacing materials, "T" for Thermal system insulation, or "M" for Miscellaneous materials. This letter is followed by a three-digit number, assigned in consecutive order. This number is used to identify the homogeneous area throughout the inspection report.

### **4.2 Bulk Sample Collection**

Bulk samples were collected from all accessible homogeneous areas of suspect ACM for subsequent laboratory analysis to determine actual asbestos content. Sampling was conducted in a manner that minimized damage to the building, did not leave any unsightly marks, and did not create a health hazard for the inspectors.

The number of samples collected from each homogeneous area generally followed the EPA AHERA regulations (40 CFR 763.86). Friable surfacing materials were sampled using the random sampling scheme given in the EPA publication 560 / 5-85-30a, titled "Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials." Between three and seven samples were collected from friable surfacing materials, depending on the size of the homogeneous area.

### **4.3 Bulk Sample Analysis**

Bulk samples were analyzed using polarized light microscopy (PLM) and visual estimation in accordance with the EPA Interim Method for the Determination of Asbestos in Bulk Insulation Samples, EPA-600 / M4-82-020. Samples were analyzed by **DIXON INFORMATION INC.**, 78 West 2400 South, Salt Lake City, Utah.

The laboratory is accredited under the National Institute of Standards and Technology – National Voluntary Laboratory Accreditation Program (NIST-NVLAP) for bulk-asbestos sample analysis and is also accredited by the American Industrial Hygiene Association (AIHA).

Federal EPA's NESHAP and AHERA regulations define ACM as material containing greater than 1% asbestos by weight; materials containing less than 1% asbestos are not considered regulated ACM. ***However, the OSHA ASBESTOS STANDARD considers any percentage of asbestos to be regulated and needs to be handled properly.***

Further, the NESHAP regulations state that any sample found to contain less than 10% asbestos but greater than "none detected," by visual estimation, must be assumed to contain greater than 1% asbestos unless confirmed to be less than 1.0% asbestos by point counting analysis. Any samples found to contain asbestos in this concentration range were assumed to contain greater than 1.0% asbestos and are listed in Section 5.9 of this report. All samples that have been point counted are identified as such in the sample result tables.

The laboratories reports can be found in Appendix D of this report.

## SURVEY RESULTS

### 5.1 Asbestos-Containing Materials (ACMs)

Homogeneous areas of suspect ACM are identified as being ACM if the laboratory analysis shows the material to contain any detectable asbestos, unless subsequent Point Counting analysis resulted in less than 1% asbestos being detected. Table 1 of the Executive Summary and in Appendix A lists all homogeneous areas that were found to be ACM. Each material is described by type of material, friability and visual appearance.

Friability is defined in accordance with EPA's NESHAP regulations.

"Friable ACM" is any material containing more than 1% asbestos (as determined by PLM) that, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure and also includes non-friable ACM that may become friable during building demolition.

"Non-friable ACM" is any material containing more than 1% asbestos (as determined by PLM) that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

"Category I non-friable ACM" are asbestos-containing resilient floor coverings (commonly known as vinyl asbestos tile (VAT), asphalt roofing products, packings, and gaskets.

"Category II non-friable ACM" encompasses all other non-friable ACM.

"Non-friable RACM" is used to denote thermal system insulation that is in good condition but would become friable during renovation or demolition and therefore is "regulated asbestos containing material" (RACM).

### 5.2 Non-Asbestos-Containing Materials

Homogeneous areas of suspect ACM are identified as *non*-ACM if the laboratory analysis shows the material to contain no detectable asbestos. Table 2, located in Appendix A of this report, lists all homogeneous areas that were found to be non-ACM.

### 5.3 Bulk Sample Analytical Results

Table 3, located in Appendix A of this report, lists all of the bulk samples in order by sample number, that were collected from homogeneous areas of suspect ACM, along with the laboratory analytical results. Each sample was given a unique sample number. There may be more than one sample number for the same homogeneous area of suspect ACM. The homogeneous areas of suspect ACM are identified on this table by their material identification numbers. The sample location listed on this table provides a brief, but specific, description of the location where the sample was collected. This is different

than the homogeneous area location provided on Tables 1 and 2. Table 4 is the same as Table 3 except the entries have been sorted by homogeneous area number.

#### **5.4 Damage and Hazard Assessment**

Each homogeneous area of ACM has been assessed for existing damage, accessibility, and potential for future damage, and this information is presented in Table 5, located in Appendix A of this report. This table also lists the substrate present beneath each homogeneous area of ACM.

Each homogeneous area of friable ACM and asbestos-containing building material (ACBM) was classified into one of the following seven categories, as specified in EPA's AHERA regulations (40 CFR 763.88):

- (1) Damaged or significantly damaged thermal system insulation ACM.
- (2) Damaged friable surfacing ACM.
- (3) Significantly damaged friable surfacing ACM.
- (4) Damaged or significantly damaged friable miscellaneous ACM.
- (5) ACBM with potential for damage.
- (6) ACBM with potential for significant damage.
- (7) Any remaining friable ACBM or friable suspected ACBM.
- (X) Not Applicable (material is non-friable surfacing or miscellaneous material).

The damage categories are defined as follows:

“Undamaged” means the material had no visible damage, or extremely minor damage or surface marring (i.e., a room full of floor tile with only two or three small corners chipped off on the tile).

“Damaged” means the material had visible damage evenly distributed over less than 10% of its surface, or localized over less than 25% of its surface.

“Significantly Damaged” means the material had visible damage that is evenly distributed over 10% or more of its surface, or localized over 25% or more of its surface.

Each homogeneous area of ACM was evaluated for accessibility to the building occupants and the general public, assuming the building was fully occupied, using the following assessment categories.

“Inaccessible” means the material was located in an area that people had no reason to enter and could not access without special measures. One example would be the area above a solid ceiling.

“Rarely Accessed” identifies a material that was in a location that could be accessed but wasn’t unless there was a specific need. An example would be a pipe tunnel. Another example would be a high ceiling that is out of reach and not subject to any specific disturbance.

“Periodic Access” identifies a material that was in a location that was accessible, was not occupied full time, but was accessed on a routine basis. An example would be a mechanical room or boiler room.

“Continuous Access” identifies a material that was in a location that was occupied full time and was within reach of the occupants, or was frequently subject to direct disturbance. Examples would be exposed floor tile or a normal height ceiling.

## 5.5 Hazard Ranking

A hazard ranking has been determined for every ACM, in each functional space (room), and is listed in Table 7, Appendix A. The Hazard Rank is derived from the material's current condition and potential for future disturbance. Table 7 also presents material description, quantity, and estimated abatement cost.

The EPA Management Planner hazard assessment process used here produces seven Hazard Ranks. **The rankings of potential hazard range from 1, most hazardous, to 7, least hazardous, and are used to determine abatement priority.** The highest ranking is reserved for ACM that is "significantly damaged." Hazard rankings 2 - 4 reflect ACM that is "damaged" (slight damage is the term used in Table 7), with a ranking of 2 indicating "potential for significant damage," and a ranking of 3 indicating a "potential for damage." Hazard rankings of 5 to 7 are reserved for materials currently in good condition, but with a range of moderate to low in the likelihood for future disturbance.

Note that these seven rankings are different from, and should not be confused with, the seven AHERA categories of damage and potential damage described in Section 5.4, above, and listed in Table 5.

### 5.6 Homogeneous Areas with Special Considerations

NONE

### 5.7 Suspect Materials Presumed to be Asbestos-Containing Materials without Laboratory Analysis

NONE

### 5.8 Inaccessible Areas

NONE

### 5.9 Material(s) assumed to contain >1.0% asbestos without subsequent TEM or Point Count Analysis

NONE

## 6.0 RESPONSE ACTION COMMENTS

### 6.1 EPA Requirements

Asbestos is regulated as a hazardous air pollutant by the Environmental Protection Agency (EPA) under the authority of the Clean Air Act. The asbestos regulations are included in the National Emissions Standards for Hazardous Air Pollutants (NESHAP) and referenced as 40 CFR 61, Subpart M. ACMs identified in this report are subject to those regulations. Those regulations, and state and local regulations, should be carefully examined prior to renovation, demolition, cleanup, or any other activity which could disturb the ACMs, to ensure that all activities are in compliance with applicable requirements.

ACM is defined by the EPA, as any material containing greater than one percent of asbestos. ACMs are categorized as being either friable or non-friable. Friable ACMs are those materials that can be easily crumbled, pulverized, or otherwise broken up using hand or finger pressure when dry, and are materials considered more likely to produce airborne asbestos fibers. Non-friable ACMs are materials that do not meet the above test, and are considered less likely to produce airborne asbestos fibers. Not all ACMs are regulated under NESHAP. Regulated ACM (RACM) means (a) Friable asbestos material, (b) Category I non-friable ACM that has become friable, (c) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II non-friable that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of regulated demolition or renovation operations. Regulated demolition and renovation operations are those where the quantity of ACM affected is 260 linear feet or more on pipes, 160 square feet or more on other components, or 35 cubic feet or more in volume. There are certain notification requirements for demolition projects involving less than the above quantities.

Briefly, EPA requires that RACM be removed from facilities scheduled for demolition or renovation before any activity begins that would break up, dislodge, or similarly disturb the materials or preclude access to the materials for subsequent removal. Category I non-friable ACM that is not in poor condition and is not friable does not have to be removed prior to demolition of a facility. **However, these materials are exempt from mandatory removal only during demolition, not renovation. Removal is mandated when renovation activities are expected to disturb these ACMs and render them friable.** Category II non-friable ACM also does not have to be removed prior to demolition if the probability is low that the material will become crumbled, pulverized, or reduced to powder (made friable) during demolition. However, state regulations may require the removal of these materials. Additionally, Category I non-friable ACM that has not become crumbled, pulverized, or reduced to powder during demolition activities may be disposed of as ordinary construction waste.

In any situation where ACM remains in a building, it should be managed under a comprehensive operations and maintenance program (O&M). The procedures and

guidelines described in an O&M program should be followed whenever building maintenance activities may disturb any ACMs present in the building.

## **6.2 Renovation Options**

Some ACMs may remain in place during building renovations, as long as they are *not disturbed and/or damaged.*

## 7.0 COST ESTIMATES

A breakdown of the estimated removal costs by homogeneous area can be found in Table 6, Appendix A. These cost estimates are provided for use in long-term budgeting and planning only, and do not have a level of accuracy sufficient to be used as a construction design cost estimate. The actual cost of asbestos removal is highly dependent on a number of factors such as size of the project, the required time frame for removal, the time of year the job is conducted, the regulatory climate at the time, etc., therefore, actual abatement costs could vary significantly from these estimates. Replacement costs have **not** been included in these figures.

The cost for abatement design and management services is **not** included in these figures. These additional fees can range from 15% of the estimated abatement costs for large projects to greater than 50% for very small projects. The design and management fees cover the cost of preparing plans and specifications, conducting the bidding process as well as third-party oversight during abatement.

## 8.0 LIMITATIONS AND EXCLUSIONS OF WARRANTY

This asbestos survey and assessment was performed using procedures and a level of diligence typically exercised by professional consultants performing similar services. However, ACM can be present in a structure, but not identified using ordinary investigative procedures.

No asbestos survey can completely eliminate uncertainty regarding the presence of ACM. **ROWLAND CONSULTING, INC. and RMEC ENVIRONMENTAL, INC's.** level of diligence and investigative procedures are intended to reduce, but not eliminate, potential uncertainty regarding the presence of ACM. The procedures used for this survey attempt to establish a balance between the competing goals of limiting investigative costs, time, and building damage, and reducing the uncertainty about unknown conditions. Therefore, the determinations in this report should not be construed as a guarantee that all ACM present in the subject property has been included in this report.

This report presents **ROWLAND CONSULTING, INC. and RMEC ENVIRONMENTAL, INC.** professional determinations, which are dependent upon information obtained during performance of consulting services. **ROWLAND CONSULTING, INC. and RMEC ENVIRONMENTAL, INC.** assumes no responsibility for omissions or errors resulting from inaccurate information provided by sources outside of **ROWLAND CONSULTING, INC. and RMEC ENVIRONMENTAL, INC.**

No warranty or guarantee, expressed or implied, is made regarding the findings, conclusions, or recommendations contained in this report. The limitations presented above supersede the requirements or provisions of all other contracts or scopes of work, implied or otherwise, except those stated or acknowledged herein.

**Table 1**  
**ACMs by Homogeneous Area**

*Southern Utah University*  
*Life Science Building*  
*Cedar City, Utah*

<b>Homogeneous Area Number</b>	<b>Material Description</b>	<b>Location</b>	<b>Friability</b>	<b>Asbestos Content</b>	<b>Quantity</b>
M001	12" Floor Tile Tan w/ Brown Streaks With Black Mastic	Custodial Closet Room #164	No	8% C (Tile) >1% C (Mastic)	1,006 sq. ft.
M002	12" Floor Tile White w/ Black & Grey Streaks	Room 150 B. Hallway	No	>1% C (Mastic)	1,869 sq. ft.
M003	Transite Panels, Corrugated (4x8 Panels)	Greenhouse Tables	No	10% C (Cement)	180 Sq. Ft.
M004	Transite Panels, Flat	Greenhouse Tables	No	10% C (Cement)	1,533 Sq. Ft.

**Table 2**  
**Homogeneous Areas That Do Not Contain Asbestos**

*Southern Utah University*  
*Life Science Building*  
*Cedar City, Utah*

<b>Homogeneous Area Number</b>	<b>Material Description</b>	<b>Material Location</b>
T001	Hot Water Storage Tank	Room 150E
T002	Heat Exchanger	Room 150E
T003	Joints/Fittings (Mudded) (This area contains <1% asbestos)	Room 150E
M005	Wallboard w/Joint Compound (This area contains <1% asbestos)	Room #164 Custodial Closet & Hallway
M006	12" Ceiling Tile Wormhole Pattern Splines, No Adhesive	Throughout

**Table 3**  
**Bulk Sample Analytical Results by Sample Number**

*Southern Utah University*  
*Life Science Building*  
*Cedar City, Utah*

<b>Sample Number</b>	<b>Homogeneous Area Number</b>	<b>Material Sampled</b>	<b>Sample Location</b>	<b>Analytical Results</b>
01	T001	Hot Water Storage Tank 4' L x 18" Diameter w/Mudded Ends		NONE DETECTED
02	T001	Hot Water Storage Tank 4' L x 18" Diameter w/Mudded Ends		NONE DETECTED
03	T002	Heat Exchanger		NONE DETECTED
04	T002	Heat Exchanger		NONE DETECTED
05	T003	Joints/Fittings (Mudded)		NONE DETECTED
06	T003	Joints/Fittings (Mudded)		NONE DETECTED
07	M001	12" Floor Tile Tan w/ Brown Streaks With Black Mastic	Custodial Closet Room #164	8% C (Tile) >1% C (Mastic)
08	M001	12" Floor Tile Tan w/ Brown Streaks With Black Mastic	Custodial Closet Room #164	8% C (Tile) >1% C (Mastic)
09	M002	12" Floor Tile White w/ Black & Grey Streaks	Room 150 B	>1% C (Mastic)
10	M002	12" Floor Tile White w/ Black & Grey Streaks	Room 150 B	>1% C (Mastic)
11	M002	12" Floor Tile White w/ Black & Grey Streaks	Room 150 B	>1% C (Mastic)
12	M003	Transite Panels, Corrugated (4x8 Panels)	Greenhouse Tables	10% C (Cement)
13	M003	Transite Panels, Corrugated (4x8 Panels)	Greenhouse Tables	10% C (Cement)
14	M003	Transite Panels, Corrugated (4x8 Panels)	Greenhouse Tables	10% C (Cement)
15	M004	Transite Panels, Flat	Greenhouse Tables	10% C (Cement)
16	M004	Transite Panels, Flat	Greenhouse Tables	10% C (Cement)
17	M004	Transite Panels, Flat	Greenhouse Tables	10% C (Cement)
18	M005	Wallboard w/ Joint Compound	Room #164 Custodial Closet	NONE DETECTED
19	M005	Wallboard w/ Joint Compound	Room #164 Custodial Closet	NONE DETECTED
20	M005	Wallboard w/ Joint Compound	Room #164 Hallway	NONE DETECTED
21	M006	12" Ceiling Tile Wormhole Pattern Splines, No Adhesive		NONE DETECTED
22	M006	12" Ceiling Tile Wormhole Pattern Splines, No Adhesive		NONE DETECTED
23	M006	12" Ceiling Tile Wormhole Pattern Splines, No Adhesive		NONE DETECTED

**Table 4**  
**Bulk Sample Analytical Results by Homogeneous Area Number**

*Southern Utah University*  
*Life Science Building*  
*Cedar City, Utah*

<b>Homogeneous Area Number</b>	<b>Sample Number</b>	<b>Material Sampled</b>	<b>Sample Location</b>	<b>Analytical Results</b>
T001	01	Hot Water Storage Tank 4' L x 18" Diameter w/Mudded Ends		NONE DETECTED
T001	02	Hot Water Storage Tank 4' L x 18" Diameter w/Mudded Ends		NONE DETECTED
T002	03	Heat Exchanger		<1% C
T002	04	Heat Exchanger		NONE DETECTED
T003	05	Joints/Fittings (Mudded)		NONE DETECTED
T003	06	Joints/Fittings (Mudded)		NONE DETECTED
M001	07	12" Floor Tile Tan w/ Brown Streaks With Black Mastic	Custodial Closet Room #164	8% C (Tile) >1% C (Mastic)
M001	08	12" Floor Tile Tan w/ Brown Streaks With Black Mastic	Custodial Closet Room #164	8% C (Tile) >1% C (Mastic)
M002	09	12" Floor Tile White w/ Black & Grey Streaks	Room 150 B, Hallway	>1% C (Mastic)
M002	10	12" Floor Tile White w/ Black & Grey Streaks	Room 150 B, Hallway	>1% C (Mastic)
M002	11	12" Floor Tile White w/ Black & Grey Streaks	Room 150 B, Hallway	>1% C (Mastic)
M003	12	Transite Panels, Corrugated (4x8 Panels)	Greenhouse Tables	10% C (Cement)
M003	13	Transite Panels, Corrugated (4x8 Panels)	Greenhouse Tables	10% C (Cement)
M003	14	Transite Panels, Corrugated (4x8 Panels)	Greenhouse Tables	10% C (Cement)
M004	15	Transite Panels, Flat	Greenhouse Tables	10% C (Cement)
M004	16	Transite Panels, Flat	Greenhouse Tables	10% C (Cement)
M004	17	Transite Panels, Flat	Greenhouse Tables	10% C (Cement)
M005	18	Wallboard w/Joint Compound	Room #164 Custodial Closet	NONE DETECTED
M005	19	Wallboard w/Joint Compound	Room #164 Custodial Closet	<1% C
M005	20	Wallboard w/Joint Compound	Room #164 Hallway	<1% C
M006	21	12" Ceiling Tile Wormhole Pattern Splines, No Adhesive		NONE DETECTED
M006	22	12" Ceiling Tile Wormhole Pattern Splines, No Adhesive		NONE DETECTED
M006	23	12" Ceiling Tile Wormhole Pattern Splines, No Adhesive		NONE DETECTED

**Table 5**  
**Damage and Hazard Assessment by Homogeneous Area**

*Southern Utah University*  
*Life Science Building*  
*Cedar City, Utah*

Area Number	Material Type	Substrate	Assessment Category	Damage	Accessibility	Disturbance Potential
M001	12" Floor Tile Tan w/ Brown Streaks With Black Mastic	Concrete	X	NA	Continuous	Low
M002	12" Floor Tile White w/ Black & Grey Streaks	Concrete	X	NA	Continuous	Low
M003	Transite Panels, Corrugated (4x8 Panels)	(Loose Panels)	X	NA	Periodic	Low
M004	Transite Panels, Flat	(Loose Panels)	X	NA	Periodic	Low

Note: Assessment Categories:

- 1-Damaged or significantly damaged Thermal System Insulation ACM
- 2-Damaged friable surfacing ACM
- 3-Significantly damaged friable surfacing ACM
- 4-Damaged or significantly damaged friable miscellaneous ACM
- 5-ACM with potential for damage
- 6-ACM with potential for significant damage
- 7-Any remaining friable ACM or friable suspect ACM
- X-Not applicable (material is non-friable surfacing or miscellaneous)

**Table 6**  
**Estimated Abatement Costs by Homogeneous Area**

*Southern Utah University*  
*Life Science Building*  
*Cedar City, Utah*

<b>Homogeneous Area Number</b>	<b>Material</b>	<b>Quantity</b>	<b>Unit Cost</b>	<b>Extended Cost</b>
M001	12" Floor Tile Tan w/ Brown Streaks With Black Mastic	1,006 sq. ft.	\$2.50/sq. ft.	\$2,515.00
M002	12" Floor Tile White w/ Black & Grey Streaks	1,869 sq. ft.	\$2.50/sq. ft.	\$4,672.50
M003	Transite Panels, Corrugated (4x8 Panels)	180 Sq. Ft.	\$6.00/sq. ft.	\$1,080.00
M004	Transite Panels, Flat	1,533 Sq. Ft.	\$6.00/sq. ft.	\$9,198.00

Table 7

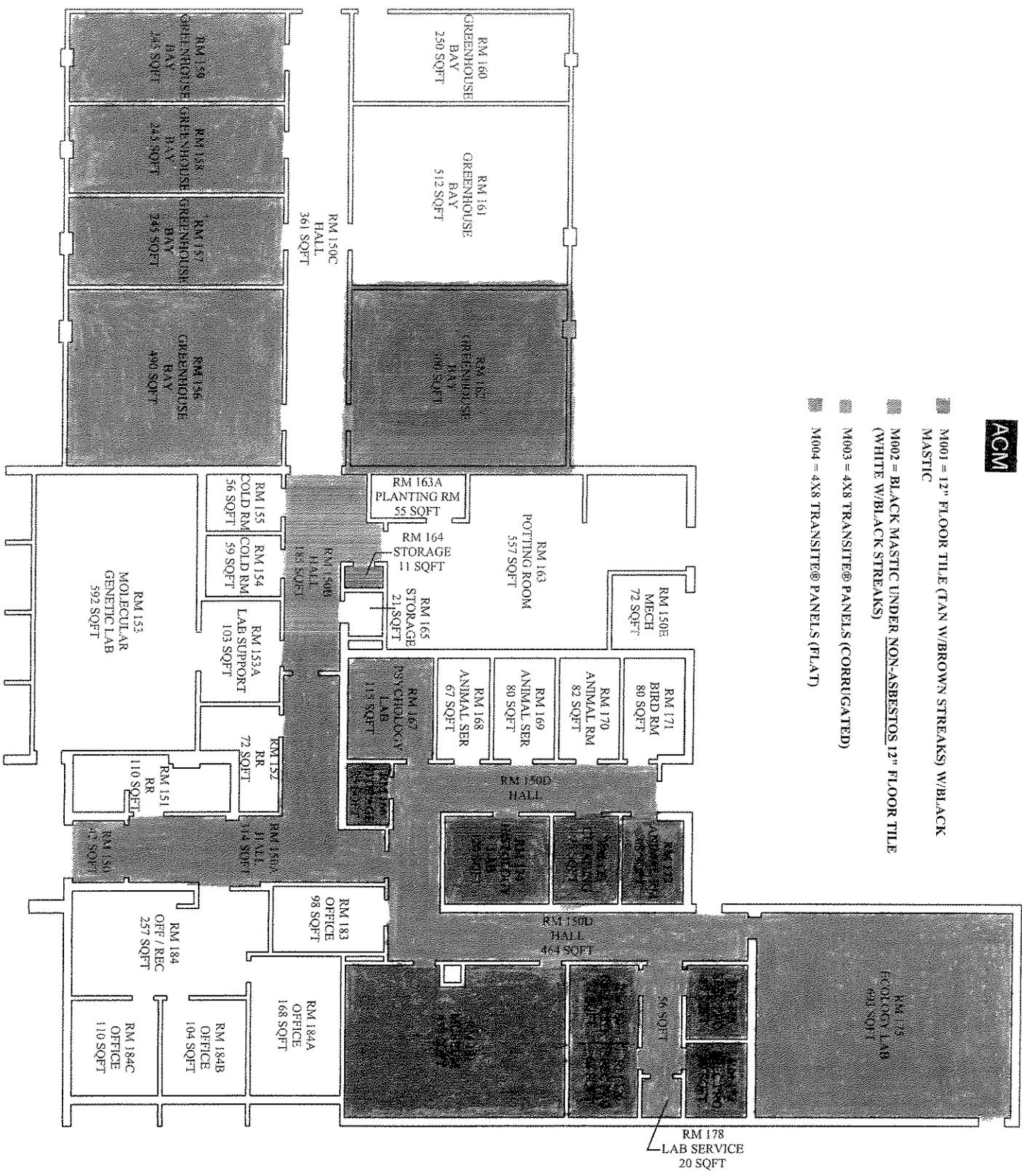
*Material Description, Abatement Cost, Amount, Location by Functional Space, Hazardous Rank*

*Southern Utah University  
Life Science Building  
Cedar City, Utah*

Homogeneous Area Number	Material Description	Quantity	% Asbestos	Cost	Condition	Disturbance Potential	Hazardous Rank
M001	12" Floor Tile Tan w/ Brown Streaks With Black Mastic		8% C (Tile) >1% C (Mastic)	\$2,515.00 @\$2.50/sq. ft.	Fair	Medium	NA
M002	12" Floor Tile White w/ Black & Grey Streaks		>1% C (Mastic)	\$4,672.50 @\$2.50/sq. ft.	Fair	Medium	NA
M003	Transite Panels, Corrugated (4x8 Panels)	180 Sq. Ft.	10% C (Cement)	\$1,080.00 @\$6.00/sq. ft.	Fair	Medium	NA
M004	Transite Panels, Flat	1,533 Sq. Ft.	10% C (Cement)	\$9,198.00 @\$6.00/sq. ft.	Fair	Medium	NA

**ACM**

- M001 = 12" FLOOR TILE (TAN W/BROWN STREAKS) W/BLACK MASTIC
- M002 = BLACK MASTIC UNDER NON-ASBESTOS 12" FLOOR TILE (WHITE W/BLACK STREAKS)
- M003 = 4X8 TRANSITE® PANELS (CORRUGATED)
- M004 = 4X8 TRANSITE® PANELS (FLAT)



# SOUTHERN UTAH UNIVERSITY

## FACILITIES MANAGEMENT

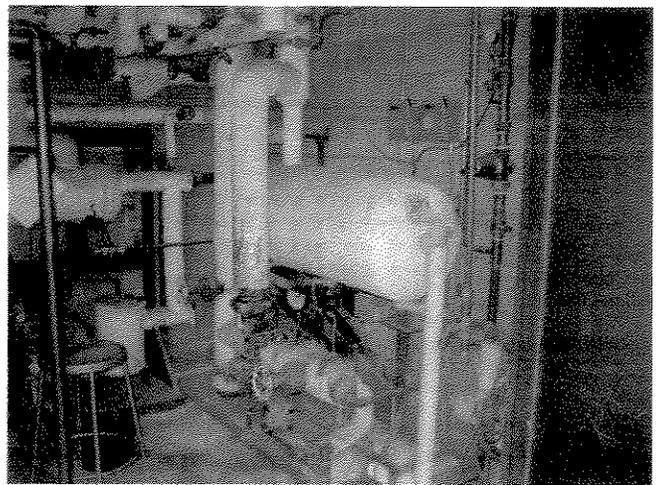
### SPACE PLANNING

LIFE SCIENCE

STATE BLD NUM: 1402
SUU BLD NUM: 4
DATE: 11/2003
SHEET: 1 OF 1
SCALE: 1/16" = 1'



**Photograph 1- M001**  
Asbestos Containing 12" Floor Tile  
Custodial Closet Room 164



**Photograph 2-T001**  
Hot Water Storage Tank  
4' x 18" w/Mudded Ends  
No Asbestos Detected



**Photograph 3-M003**  
Asbestos Containing Transite Panels  
(Corrugated), Greenhouse



**Photograph 4- M004**  
Asbestos Containing Transite Panels (Flat)  
Greenhouse



**Photograph 5- T002**  
Heat Exchanger containing less than 1%  
chrysotile asbestos

**DIXON INFORMATION INC.**

MICROSCOPY, ASBESTOS ANALYSIS & CONSULTING

A.I.H.A. ACCREDITED LABORATORY # 101579

NVLAP LAB CODE 101012-0

August 22, 2007

Jeff Rowland  
Rowland Consulting, Inc.  
7301 Paddington Road  
West Jordan, UT 84084

Ref: Batch # 75604, Lab # ROW5994 - ROW6016  
Received August 20, 2007  
Test report  
Southern Utah University - Life Science Building  
Cedar City, Utah  
Sampled by Jeff Rowland, 08/18/07

Dear Mr. Rowland:

Samples ROW5994 through ROW6016 have been analyzed by visual estimation based on EPA-600/M4-82-020 December 1982 optical microscopy test method. Appendix "A" contains statements which an accredited laboratory must make to meet the requirements of accrediting agencies. It also contains additional information about the method of analysis. This analysis is accredited by NVLAP. Appendix "A" must be included as an essential part of this test report.

This report may be reproduced but all reproduction must be in full unless written approval is received from the laboratory for partial reproduction. The results of analysis are as follows:

Lab ROW5994, Field 01 T001 - Hot Water Storage Tank TSI

This sample contains two types of material: The first type is white cotton cloth; the second type is 20% mineral wool in off-white plaster. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 5% of the sample. The second type is 95% of the sample.

Lab ROW5995, Field 02 T001 - Hot Water Storage Tank TSI

This sample contains two types of material: The first type is white cotton cloth; the second type is 20% mineral wool in off-white plaster. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 5% of the sample. The second type is 95% of the sample.

78 WEST 2400 SOUTH • SOUTH SALT LAKE, UTAH 84115-3013

PHONE 801-486-0800 • FAX 801-486-0849 • RES. 801-571-7695

Batch # 75604

Lab # ROW5994 - ROW6016

Page 2 of 5

Lab ROW5996, Field 03 T002 - TSI, Heat Exchanger

This sample contains two types of material: The first type is white cotton cloth; the second type is 20% mineral wool and **less than 1% chrysotile asbestos** in off-white plaster. This sample is non-homogeneous.

The first type is 2% of the sample. The second type is 98% of the sample.

Lab ROW5997, Field 04 T002 - TSI, Heat Exchanger

This sample contains two types of material: The first type is white cotton cloth; the second type is 20% mineral wool in off-white plaster. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 4% of the sample. The second type is 96% of the sample.

Lab ROW5998, Field 05 T003 - TSI Joints/Fittings (Mudded)

This is 20% mineral wool in off-white plaster. **Asbestos is none detected.**

Lab ROW5999, Field 06 T003 - TSI Joints/Fittings (Mudded)

This sample contains two types of material: The first type is white cotton cloth; the second type is 20% mineral wool in off-white plaster. This sample is non-homogeneous. **Asbestos is none detected.**

The first type is 1% of the sample. The second type is 99% of the sample.

Lab ROW6000, Field 07 M001 - 12" Floor Tile (Tan with Brown Streaks) with Mastic

This sample contains three types of material: The first type is **8% chrysotile asbestos** in tan and off-white plastic and limestone tile; the second type is white sandy plaster; the third type is **greater than 1% chrysotile asbestos** in black tar mastic. This sample is non-homogeneous.

The first type is 90% of the sample. The second type is 8% of the sample. The third type is 2% of the sample.

Lab ROW6001, Field 08 M001 - 12" Floor Tile (Tan with Brown Streaks) with Mastic

According to your instructions this sample was not analyzed. There is no charge for this sample.

Lab ROW6002, Field 09 M002 - 12" Floor Tile (White with Black - Gray Streaks)

This sample contains three types of material: The first type is black and white plastic and limestone tile; the second type is yellow resin mastic; the third type is **greater than 1% chrysotile asbestos** in black tar mastic. This sample is non-homogeneous.

The first type is 98% of the sample. The second type is 1% of the sample. The third type is 1% of the sample.

Batch # 75604

Lab # ROW5994 - ROW6016

Page 3 of 5

Lab ROW6003, Field 10 M002 - 12" Floor Tile (White with Black - Gray Streaks)

This sample contains three types of material: The first type is black and white plastic and limestone tile; the second type is yellow resin mastic; the third type is **greater than 1% chrysotile asbestos** in black tar mastic. This sample is non-homogeneous.

The first type is 98% of the sample. The second type is 1% of the sample. The third type is 1% of the sample.

Lab ROW6004, Field 11 M002 - 12" Floor Tile (White with Black - Gray Streaks)

This sample contains three types of material: The first type is black and white plastic and limestone tile; the second type is yellow resin mastic; the third type is **greater than 1% chrysotile asbestos** in black tar mastic. This sample is non-homogeneous.

The first type is 98% of the sample. The second type is 1% of the sample. The third type is 1% of the sample.

Lab ROW6005, Field 12 M003 - Transite Panels (Corrugated)

This is **10% chrysotile asbestos** in gray cement.

Lab ROW6006, Field 13 M003 - Transite Panels (Corrugated)

According to your instructions this sample was not analyzed. There is no charge for this sample.

Lab ROW6007, Field 14 M003 - Transite Panels (Corrugated)

According to your instructions this sample was not analyzed. There is no charge for this sample.

Lab ROW6008, Field 15 M004 - Transite Panels (Flat)

This is **10% chrysotile asbestos** in gray cement.

Lab ROW6009, Field 16 M004 - Transite Panels (Flat)

According to your instructions this sample was not analyzed. There is no charge for this sample.

Lab ROW6010, Field 17 M004 - Transite Panels (Flat)

According to your instructions this sample was not analyzed. There is no charge for this sample.

Lab ROW6011, Field 18 M005 - Wallboard with Joint Compound

This sample contains white paint, tan plant fiber paper, and white gypsum plaster with 1% fiberglass and 1% plant fiber. This sample is non-homogeneous. **Asbestos is none detected.**

The paint is 1% of the sample. The plant fiber paper is 5% of the sample. The white gypsum plaster is 94% of the sample.

Batch # 75604

Lab # ROW5994 - ROW6016

Page 4 of 5

Lab ROW6012, Field 19 M005 - Wallboard with Joint Compound.

This sample contains white paint, **less than 1% chrysotile asbestos** in micaceous white gypsum joint compound, tan plant fiber paper, and white gypsum plaster with 1% fiberglass and 1% plant fiber. This sample is non-homogeneous. Overall, this is less than 1% chrysotile asbestos.

The paint is 1% of the sample. The joint compound is 1% of the sample. The plant fiber paper is 4% of the sample. The white gypsum plaster is 94% of the sample.

**Note:** Some of the chrysotile asbestos is a low grade variety that grades into a lizardite antigorite polymorph.

Lab ROW6013, Field 20 M005 - Wallboard with Joint Compound

This sample contains white paint, **less than 1% chrysotile asbestos** in micaceous white limestone joint compound, tan plant fiber paper, and white gypsum plaster with 1% fiberglass and 1% plant fiber. This sample is non-homogeneous. Overall, this is less than 1% chrysotile asbestos.

The paint is 1% of the sample. The joint compound is 1% of the sample. The plant fiber paper is 4% of the sample. The white gypsum plaster is 94% of the sample.

**Note:** Some of the chrysotile asbestos is a low grade variety that grades into a lizardite antigorite polymorph.

Lab ROW6014, Field 21 M006 - 12" Ceiling Tile (Wormhole Pattern)

This is a light gray sample with perlite, 25% plant fiber, and 30% mineral wool in resin binder with a white coating on one side. **Asbestos is none detected.**

The white coating is 1% of the sample.

Lab ROW6015, Field 22 M006 - 12" Ceiling Tile (Wormhole Pattern)

This is a light gray sample with perlite, 25% plant fiber, and 30% mineral wool in resin binder with a white coating on one side. **Asbestos is none detected.**

The white coating is 1% of the sample.

Lab ROW6016, Field 23 M006 - 12" Ceiling Tile (Wormhole Pattern)

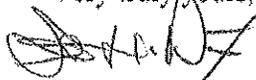
This is a light gray sample with perlite, 25% plant fiber, and 30% mineral wool in resin binder with a white coating on one side. **Asbestos is none detected.**

The white coating is 1% of the sample.

Batch # 75604  
Lab # ROW5994 - ROW6016  
Page 5 of 5

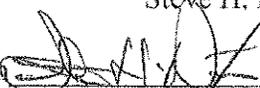
In order to be sure reagents and tools used for analysis are not contaminated with asbestos, blanks are tested. Asbestos was none detected in the blanks tested with this bulk sample set.

Very truly yours,



Steve H. Dixon, President

Analyst: Steve H. Dixon



Date Analyzed: 8/22/07

# RUSH

75604

## ROWLAND CONSULTING, INC. ASBESTOS - LEAD PAINT

### BULK ANALYTICAL REQUEST AND CHAIN OF CUSTODY

TAT: RUSH  
PAGE: 1 of 2

Sample Location: SOUTHERN UTAH UNIVERSITY - LIFE SCIENCE BUILDING  
CECILE CITY, UT

Sampled by: Jeff Rowland

Date: 8/20/07

Report and Invoice to be sent to:  
**ROWLAND CONSULTING, INC.**  
**STOP/GO GROUPED SAMPLES**

SAMPLE ID#	SAMPLE DESCRIPTION/LOCATION	DATE	LAB#
01	T001 - HOT WATER STORAGE TANK TSI	8/18/07	5994
02	?		5995
03	T002 - TSI, HEAT EXCHANGER		5996
04	?		5997
05	T003 - TSI JOINTS/FITTINGS (MURDER)		5998
06	?		5999
07	M001 - 12" FLOOR TILE (TAN w/BROWN SIBRACK) w/MASTIC		6000
08	?		6001
09	M002 - 12" FLOOR TILE (WHITE w/BLACK - GRAY SIBRACK)		6002
10	?		6003
11	?		6004
12	M003 - TRANSITE PANELS (CORROGATED)		6005
13	?		6006
14	?		6007
15	M004 - TRANSITE PANELS (FLAT)		6008
16	?		6009
17	?		6010

### STOP/GO GROUPED SAMPLES CHAIN OF CUSTODY

Submitted by:	Jeff Rowland	Date/Time:	
Revd by lab:	<i>[Signature]</i>	Date/Time:	8-20-07 1347
Revd by Analyst:	<i>[Signature]</i>	Date/Time:	8-21-07 1500
Returned by lab:		Date/Time:	

**RUSH**  
75604

**ROWLAND CONSULTING, INC.**  
**ASBESTOS - LEAD PAINT**

**BULK ANALYTICAL REQUEST AND CHAIN OF CUSTODY**

TAT: RUSH  
PAGE: 1 of ~~2~~ 2

Sample Location: SVO - LIFE SCIENCE Bldg.

Sampled by: Jeff Rowland

Date: \_\_\_\_\_

Report and Invoice to be sent to:  
**ROWLAND CONSULTING, INC.**  
**STOP/GO GROUPED SAMPLES**

SAMPLE ID#	SAMPLE DESCRIPTION/LOCATION	DATE	LAB #
18	M005 - WALL BOARD W/TOINT COMPOUND	8/18/07	6011
19	?	}	6012
20	?		6013
21	M006 - 12" CEILING TILE (WORMHOLE PATTER)		6014
22	?	6015	
23	?	6016	

**STOP/GO GROUPED SAMPLES**  
**CHAIN OF CUSTODY**

Submitted by: Jeff Rowland Date/Time: 8/20/07 @ 1345  
Rcvd by lab: Shelley Date/Time: 8-20-07 1347  
Rcvd by Analyst: FADE Date/Time: 8-21-07 1540  
Returned by lab: \_\_\_\_\_ Date/Time: \_\_\_\_\_

# LEAD-BASED PAINT INSPECTION

*Southern Utah University  
Life Science Building  
Cedar City, Utah*



August 18, 2007

**Prepared for:**

Mr. Robert Anderson  
HAZMAT Manager  
Division of Facilities Construction & Management  
4110 State Office Building  
Salt Lake City, Utah 84114

**Prepared by:**

**ROWLAND CONSULTING, INC.**  
7301 South Paddington Road  
West Jordan, Utah 84084  
OFFICE 801.255.2800 FAX 801.569.2501

# LEAD-BASED PAINT INSPECTION

*Southern Utah University  
Life Science Building  
Cedar City, Utah*

## **Introduction**

On August 18, 2007, ROWLAND CONSULTING, INC. performed a Lead-Based Paint (LBP) survey of the *Southern Utah University Life Science Building, Cedar City, Utah*. The purpose of the survey was to identify the existence, extent and condition of LBP on interior/exterior surfaces of the building. Measurements for lead in paint were made using a *Radiation Monitoring Devices, Inc. (RMD) LPA-1 X-ray Fluorescence (XRF) Spectrum Analyzer*. Chip sampling and laboratory analysis was not performed unless it was required in accordance with the spectrum analyzers current performance characteristics sheet. However, ROWLAND CONSULTING, INC. recommends confirmatory chip sampling of XRF measurements between 0.0-0.3 prior to planned renovation activities.

The survey was conducted by Jeff Rowland with ROWLAND CONSULTING, INC., in West Jordan, Utah. Jeff Rowland has completed Lead Inspector Training through the University of Utah Rocky Mountain Center For Occupational And Environmental Health Lead Training Facility, an EPA-sponsored Regional Lead Training Center, and is certified by the State of Utah, Division of Air Quality, as a Lead Inspector.

The U.S. Department of housing and Urban Development (HUD) *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in housing* (HUD Guidelines), Chapter 7: Lead-Based Paint Inspection, 1997 Revision, were generally followed for this survey, with modifications appropriate for a non-residential building.

## **Lead-Based Paint Definitions**

HUD defines "lead-based paint" as any coating that has a lead concentration of 1.0 milligram of lead per square centimeter ( $1.0 \text{ mg/cm}^2$ ) or greater, or if the lead concentration is greater than 0.5% by weight. The Consumer Product Safety Commission (CPSC) currently considers paint to be lead-containing if the concentration of lead exceeds 600 ppm (0.06% by weight). In 1978, the CPSC banned the sale of lead-based paint to consumers, and banned its application in areas where consumers have direct access to painted surfaces. Both the CPSC and HUD definitions of lead-containing paint are aimed at protecting the general population from exposure to lead in the residential setting. By contrast, the mission of the Occupational Safety and Health Administration (OSHA) with respect to lead-containing paint, is to protect workers

during construction activities that may generate elevated airborne lead concentrations. OSHA states that construction work (including renovation, maintenance, and demolition) carried-out on structures coated with paint have lead concentrations lower than the HUD or CPSC can still result in airborne lead concentrations in excess of regulatory limits. For this reason, OSHA has not defined lead-containing paint, but states that paint having any measurable level of lead may pose a substantial exposure hazard during construction work, depending upon the work performed.

### **Paint Sampling Methodologies**

Direct measurements of lead in paint were made using a Radiation Monitoring Devices, Inc. (RMD) *LPA-1 X-ray Fluorescence (XRF) Spectrum Analyzer* (serial number 2311). The LPA-1 Lead Paint Analyzer non-destructively measures lead concentrations of painted surfaces, regardless of the number of layers present. These instruments were developed specifically for addressing lead-based paint issues in housing and their use in identifying potential exposure hazards for renovation or construction work must be augmented by selective collection and analysis of physical paint chip samples.

The newer XRF instruments are capable of identifying lead in paint at concentrations of about 0.3 milligram per square centimeter ( $\text{mg}/\text{cm}^2$ ) or greater. When lead concentrations are lower than this, the instruments are not capable of making accurate, reliable measurements, and the reported lead concentration may underestimate or overestimate the actual lead concentration in the paint. Therefore, an XRF readings of  $0.4 \text{ mg}/\text{cm}^2$  or greater may be considered lead-containing from an OSHA perspective, and any readings of  $0.3 \text{ mg}/\text{cm}^2$  or less should be confirmed by the collection and laboratory analysis of paint chip samples, or assumed to be positive for lead.

Where paint chip samples are necessary, samples are collected according to the protocol specified in the HUD Guidelines. The samples are then submitted to a laboratory recognized under the EPA's National Lead Laboratory Accreditation Program (NLLAP) for analysis by flame atomic absorption spectrophotometry according to American Society of Testing and Materials (ASTM) method ASTM-E 1645.

### **XRF Calibration**

Before beginning the testing and after the testing was completed, the internal calibration of the LPA-1 was checked by taking three consecutive measurements on a National Institute for Standards and Technology (NIST) standard with a known concentration of lead. Three more readings were taken on a lead-free wood block. These calibration checks are reported within the XRF data tables found in Appendix A of this report and are maintained in a file at **ROWLAND CONSULTING, INC.** to detect changes in instrument performance over time.

## Lead Paint Inspection Data Tables

The XRF instrument generates a unique set of data tables for each inspection. The Sequential Report lists the measurements made throughout the property in sequential order, from the first measurement to the last.

### Results and Conclusions

**NO DETECTABLE MEASUREMENTS OF LEAD WERE IDENTIFIED.**

**Table 1  
XRF Sampling Results**

Sample No.	Area of Building	Color / Condition	Sample Location / Substrate	XRF Results Mg/cm <sup>2</sup>
01TCM				CALIBRATION 0.8
02 TCM				CALIBRATION 0.7
03 TCM				CALIBRATION 0.7
04 QM				CALIBRATION -0.1
05 QM				CALIBRATION -0.1
06 QM				CALIBRATION -0.2
07	Room 163	Gray/Fair	Floor/Concrete	NEGATIVE -0.3
08	Room 163	Off White/Good	West Wall/Wall Board	NEGATIVE -0.3
09	Room 163	Off White/Good	East Wall/Brick	NEGATIVE -0.1
10	100 Corridor	Tan/Good	East Wall/Brick	NEGATIVE -0.2
11	Room 184	Brown/Good	Window Frame/Metal	NEGATIVE -0.2
12	Room 184	Clear/Good	Door/Wood	NEGATIVE -0.3
13	Men's Room	Light Yellow/Good	East Wall/Ceramic	NEGATIVE -0.2
14	Men's Room	Yellow/Good	Floor/Ceramic	NEGATIVE -0.5
15	Men's Room	Yellow/Good	Floor/Ceramic	NEGATIVE -0.5
16	Corridor	Brown/Good	Door/Metal	NEGATIVE -0.0
17	Corridor	White/Good	Wall/Block	NEGATIVE -0.2
18	Outside Room 181	White/Good	East Wall/Wall Board	NEGATIVE -0.2
19	Exterior Entry	Brown/Good	East Door/Metal	NEGATIVE -0.1
20	Exterior Entry	Brown/Good	Door Frame/Metal	NEGATIVE -0.0

The XRF instrument indicated that lead is **not present** in/on painted interior/exterior surfaces.

The OSHA Lead in Construction Standard (29 CFR 1926.62) shall apply to any construction work (including renovation and demolition) that may disturb those surfaces. The standard requires, among other things, the following:

- Initial training on the hazards of lead exposure, proper work practices, respiratory protection, and other topics;
- An initial exposure assessment, by air monitoring, to determine the lead exposure assessment, until sample analysis indicates exposures below the Permissible Exposure Limit;
- Hand washing facilities, designated clean change areas, and designated eating areas.

In addition to the above considerations, the presence of lead in demolition debris has the potential to impose limitations on where and how the debris may be disposed. The Resource Conservation and Recovery Act (RCRA), Subtitles C and D, require that the waste must be analyzed to determine the amount of leachable lead present. The type of test to be performed on the waste is the Toxicity Characteristic Leaching Procedure (TCLP) for lead, and the results of this test will determine whether the material must be handled and disposed of as hazardous waste. For structures containing large amounts of lead-containing paint, significant potential for failing the TCLP exists.

# OTHER HAZARDOUS MATERIALS

*Southern Utah University  
Life Science Building  
Cedar City, Utah*

Hazardous materials requiring proper removal and disposal identified at Southern Utah University Life Science Building are as follows:

Material	Location	Quantity	Unit Cost
Fluorescent Light Tubes (4 feet)	Throughout	~250	\$1.50/ln. ft.

NOTE: no PCB containing light ballasts were observed.

DFCM policy requires the items above to be removed and disposed of at a facility approved to accept such waste prior to demolition. The cost estimated to transport and dispose of these hazardous materials is approximately **\$1,500.00**. This cost estimate is based on industry standard unit prices. The unit prices include transportation and disposal only. This estimate does not include removal, design, or management fees associated with dismantling and packaging the materials.