HAZMAT (ASBESTOS & LEAD PAINT SURVEY AND ASSESSMENT
SOUTHERN UTAH UNIVERSITY
FACILITIES/AUTOMOTIVE BUILDING
CEDAR CITY, UTAH

SEPTEMBER 15, 2006

Prepared for:
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
TEL 801.255.2800 FAX 801.569.2501

ASBESTOS SURVEY AND ASSESSMENT

SOUTHERN UTAH UNIVERSITY
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1.0 EXECUTIVE SUMMARY

Asbestos Survey and Assessment
SOUTHERN UTAH UNIVERSITY
FACILITIES/AUTOMOTIVE BUILDING
CEDAR CITY, UTAH

A survey of this facility was performed on September 15, 2006, 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 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
SOUTHERN UTAH UNIVERSITY
FACILITIES/AUTOMOTIVE BUILDING
CEDAR CITY, UTAH

Material (1) ID #	Material Description	Location	Asbestos Content (2)	Amount	Cost Estimate (3)
T001	Thermal System Insulation (TSI) Joints/fittings (mudded)	Rooms 001-002, 105 (auto shop), 113 (auto tech offices)	20% C	~40 each	$800.00 @$20/joint
M002	9" floor tile	Facilities offices and classrooms, Men's restroom, Custodial closet	5% C tile ND (mastic)	~2,464 sq. ft.	$4,928.00 @$2/sq. ft.

S = SURFACING MATERIAL T = THERMAL SYSTEM INSULATION M = MISCELLANEOUS MATERIAL

Footnotes:

1. Homogeneous Area Number (not related to building room numbers).
2. C = Chrysotile Asbestos. ND = Non-detectable for 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
FACILITIES/AUTOMOTIVE BUILDING
CEDAR CITY, UTAH

2.0 INTRODUCTION

On September 15, 2006, **ROWLAND CONSULTING, INC.** performed an asbestos survey and assessment at Southern Utah University, Facilities/Automotive Building, 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 *not* sampled during previous surveys, 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	_____	October, 2006
Name	Signature	Date
Utah	**ASB-1377**	
State of Accreditation	State of Utah Division of Air Quality Asbestos Certification Number	

3.0 BUILDING DESCRIPTION

Building Identification **FACILITIES/AUTOMOTIVE BUILDING SOUTHERN UTAH UNIVERSITY**

Building Name……. Facilities/Automotive
Building Address…….Cedar City, Utah

Building Construction

Building Construction Date….1960's
Building Type……Classrooms, auto shop, administrative
Building Total Sq. Ft……. ~12,000
Structural System……. Reinforced concrete and brick
Exterior Wall Construction…. Brick/block
Floor Deck Construction…… Reinforced concrete
Roof Construction……Sealed membrane
Floors Above Grade……..1
Floors Below Grade……1

Interior Finishes

Floors…….. Concrete, ceramic tile, vinyl ***asbestos*** floor tile, glued-down carpet
Ceilings……Ceiling tiles, wallboard
Walls……. Concrete, brick, wallboard
Attic…….. None
Basement…….Accessed from Mechanical room with ***asbestos TSI mudded joints***

Building Mechanical

Heating Plant…….. Central Heat Plant
Main Heating Distribution…. Low pressure steam and hot water from Central Heat Plant distributed through wall heaters
Mechanical Piping……..***Asbestos containing TSI mudded joints*** mixed in with fiberglass pipe lagging

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 has 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**.

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.

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 5.8 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.

5.0 SURVEY RESULTS

5.1 Asbestos-Containing Materials

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 than1% 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.

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 if 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 Homogeneous Areas with Special Considerations

NONE

5.6 Suspect Materials Presumed to be Asbestos-Containing Materials without Laboratory Analysis

NONE

5.7 Inaccessible Areas

NONE

5.8 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 precedent 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, asbestos-containing material (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.** 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 professional determinations, which are dependent upon information obtained during performance of consulting services. **ROWLAND CONSULTING, INC.** assumes no responsibility for omissions or errors resulting from inaccurate information provided by sources outside of **ROWLAND CONSULTING, 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
FACILITIES/AUTOMOTIVE BUILDING
CEDAR CITY, UTAH

Homogeneous Area Number	Material Description	Location	Friability	Asbestos Content	Amount
T001	Thermal System Insulation (TSI) Joints/fittings (mudded)	Rooms 001-002, 105 (auto shop), 113 (auto tech offices)	YES	20% C	~40 each
M002	9" floor tile	Facilities offices and classrooms, Men's restroom, Custodial closet	NO	1.5% C tile ND (mastic)	~2,464 sq. ft.

Table 2
Homogeneous Areas That Do Not Contain Asbestos
SOUTHERN UTAH UNIVERSITY
FACILITIES/AUTOMOTIVE BUILDING
CEDAR CITY, UTAH

Homogeneous Area Number	Material Description	Material Location
M001	Wallboard w/joint compound	Throughout
M003	12" ceiling tile (glued-on)	Facilities offices, classrooms
M004	12" floor tile w/mastic	Auto shop rest room
M005	Window caulking	Exterior windows

NOTE: THE ROOF IS A SEALED MEMBRANE ROOF AND WAS NOT SAMPLED DUE TO WARRANTY RESTRICTIONS.

Table 3
Bulk Sample Analytical Results by Sample Number
SOUTHERN UTAH UNIVERSITY
FACILITIES/AUTOMOTIVE BUILDING
CEDAR CITY, UTAH

Sample Number	Homogeneous Area Number	Material Sampled	Sample Location	Analytical Results
01	M001	Wallboard w/jt. cmpd.	Room 001	1.5% C 0.3%(point count)
02				1.5% C NONE DETECTED (point count)
03				1.5% C <1% C
14			Room 107	NONE DETECTED
15				1.5% C 0.3% C
04	T001	TSI joints/fittings (mudded)	Room 002	20% C
05			Room 001	NA
06			Room 105 (auto shop)	NA
07				NA
08			Room 113 (auto tech)	NA
09	M002	9" floor tile w/mastic	Main floor (east-west hallway)	5% C
10				NA
11				NA
12			Room 107	NA
13				NA
16	M003	12" ceiling tile	Room 116	NONE DETECTED
17				NONE DETECTED
18				NONE DETECTED
19	M004	12" floor tile	Auto shop rest room	NONE DETECTED
20				NONE DETECTED
21	M005	Window caulking	Exterior windows	<1% C
22				<1% C
23				<1% C

NA = NOT ANALYZED, a sample from this homogeneous group tested positive for asbestos.

Table 4
Bulk Sample Analytical Results by Homogeneous Area Number
SOUTHERN UTAH UNIVERSITY
FACILITIES/AUTOMOTIVE BUILDING
CEDAR CITY, UTAH

Homogeneous Area Number	Sample Number	Material Sampled	Sample Location	Analytical Results
M001	01	Wallboard w/jt. cmpd.	Room 001	1.5% C 0.3%(point count)
	02			1.5% C NONE DETECTED (point count)
	03			1.5% C <1% C
	14		Room 107	NONE DETECTED
	15			1.5% C 0.3% C
T001	04	TSI joints/fittings (mudded)	Room 002	20% C
	05		Room 001	NA
	06		Room 105 (auto shop)	NA
	07			NA
	08		Room 113 (auto tech)	NA
M002	09	9" floor tile w/mastic	Main floor (east-west hallway)	5% C
	10			NA
	11			NA
	12		Room 107	NA
	13			NA
M003	16	12" ceiling tile	Room 116	NONE DETECTED
	17			NONE DETECTED
	18			NONE DETECTED
M004	19	12" floor tile	Auto shop rest room	NONE DETECTED
	20			NONE DETECTED
M005	21	Window caulking	Exterior windows	<1% C
	22			<1% C
	23			<1% C

NA = NOT ANALYZED, a sample from this homogeneous group tested positive for asbestos.

Table 5
Damage and Hazard Assessment by Homogeneous Area
SOUTHERN UTAH UNIVERSITY
FACILITIES/AUTOMOTIVE BUILDING
CEDAR CITY, UTAH

Area Number	Material Type	Substrate	Assessment Category	Damage	Accessibility	Disturb Potential
T001	Thermal System Insulation (TSI) Joints/fittings (mudded)	Metal	6	UNDAMAGED	PERIODIC	HIGH
M002	9" floor tile	Concrete	NA	UNDAMAGED	CONTINUOUS	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
NA-Not applicable (non-friable material)

Table 6
Estimated Abatement Costs by Homogeneous Area
SOUTHERN UTAH UNIVERSITY
FACILITIES/AUTOMOTIVE BUILDING
CEDAR CITY, UTAH

Homogeneous Area Number	Material	Amount	Unit Cost	Extended Cost
T001	Thermal System Insulation (TSI) Joints/fittings (mudded)	~40 each	@$20/joint	$800.00
M002	9" floor tile	~2,464 sq. ft.	@$2/sq. ft.	$4,928.00

Table 7

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

SOUTHERN UTAH UNIVERSITY
FACILITIES/AUTOMOTIVE BUILDING
CEDAR CITY, UTAH

Homogeneous Area	Material Description	Amount	%Asbestos	Cost	Condition	Disturbance Potential	Hazardous Rank
T001	TSI (joints/fittings-mudded)	~40 each	20% C	$800.00	Fair	High	6
M002	9" floor tile	~2,464 sq. ft.	5% C	$4,928.00	Fair	Low	NA

LEAD-BASED PAINT INSPECTION

SOUTHERN UTAH UNIVERSITY
FACILITIES/AUTOMOTIVE BUILDING
CEDAR CITY, UTAH

SEPTEMBER 15, 2006

Submitted to:

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
801.541.6915 FAX 801.569.2501

LEAD-BASED PAINT INSPECTION

SOUTHERN UTAH UNIVERSITY
FACILITIES/AUTOMOTIVE BUILDING
CEDAR CITY, UTAH

Introduction

On **September 15, 2006**, a lead-based paint (LBP) survey was conducted at Southern Utah University Facilities/Automotive Building, Cedar City, Utah. The purpose of the survey was to identify lead in paint on interior and 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 for confirmation of XRF measurements.

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), Chapter7: 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 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 (mg/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 mg/cm^2 or greater may be considered lead-containing from an OSHA perspective, and any readings of 0.3 mg/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. The Data table is located in Appendix A to this report.

Results and Conclusions

The XRF instrument indicated that ***lead is present (exterior handrails)***.

Because lead has been detected in the areas mentioned above, the OSHA Lead in Construction Standard (29 CFR 1926.62) would 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 worker lead exposures. The measured exposures will then dictate if additional requirements of 29 CFR 1926.62 will apply.
- 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
FACILITIES/AUTOMOTIVE BUILDING
CEDAR CITY, UTAH

Hazardous materials requiring proper removal and disposal identified at Southern Utah University Facilities/Automotive facility are as follows:

Material	Location	Quantity
Fluorescent light tubes (newer type tubes- non hazardous)	***Throughout***	***~250 each***

This facility contains typical household cleaning chemicals and non-pcb containing light ballasts.

The Iron County Health Department requires hazardous items to be removed and disposed of at a facility approved to accept such waste prior to demolition.

The cost estimate to remove and dispose of these hazardous materials is approximately **$ 1.35/tube.**

Photograph 1-SUU FACILTITES/AUTO
Room 001, TSI pipe lagging (fiberglass, NON-ACM).

Photograph 2-SUU FACILTITES/AUTO
Room 002, T001, TSI joints/fittings (mudded, **ACM**).

Photograph 3-SUU FACILTITES/AUTO
Room 001, T001, TSI joints/fittings (mudded, **ACM**).

Photograph 4-SUU FACILTITES/AUTO
Automotive shop, T001, TSI joints/fittings (mudded, **ACM**).

Photograph 5-SUU FACILTITES/AUTO
Facilities building, main hallway, M002 9" floor tile under carpet, **ACM.**

Photograph 6-SUU FACILTITES/AUTO
Room 107 custodial closet, M002, 9" floor tile, exposed, **ACM.**

Photograph 7-SUU FACILTITES/AUTO
Auto shop, T001, TSI joints/fittings-mudded, **ACM.**

Photograph 8-SUU FACILTITES/AUTO
View south, front entry to Facilities/Automotive building.