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PROJECT # **ASBESTOS SURVEY**



PROJECT NAME

**CENTENNIAL BUILDING  
310 SOUTH THIRD STREET  
LAS VEGAS, NEVADA  
OCTOBER 17, 1990**

DOC TYPE **RPTS**





**WESTERN  
TECHNOLOGIES  
INC.**

4085 Nevso Drive, Suite C  
Las Vegas, Nevada 89103  
(702) 252-0580

October 17, 1990

Clark County General Services Department  
Facilities Services Division  
401 South Fourth Street  
Las Vegas, Nevada 89155

Attention: Mr. Jim Novak

Project No. 7470K215

Reference: Asbestos Survey  
Centennial Building  
310 South Third Street  
Las Vegas, Nevada 89155

Dear Mr. Novak:

Western Technologies, Inc. (WT) is pleased to provide this report of an asbestos survey conducted for the Centennial Building located at 310 South Third Street in Las Vegas, Nevada. The purpose of the survey was to identify potential asbestos-containing materials (ACMs) in the building. The survey was completed according to WT's Proposal No. 7470A182 dated September 11, 1990. This report completes the agreed upon scope of services.

#### **SURVEY METHODS**

On October 5, 1990, Mr. Timothy P. Aten and Mr. Dennis J. Kish, Nevada-licensed asbestos inspectors with WT, performed a walk-through of the building. The purpose of the walk-through was to identify potential ACMs and develop a sampling plan. The survey was limited to the second and third floors of the building.

Samples of suspect materials were obtained, secured in containers, labeled, and delivered to the NVLAP-approved Environmental Management Consultants Analytical laboratory in Las Vegas, Nevada, using appropriate chain-of-custody protocols. A total of 12 samples were obtained and analyzed for bulk asbestos content using polarized light microscopy (PLM) methods. A table summarizing the sampling data is presented in Appendix A. Table I contains sample type, location and asbestos content.

#### **SURVEY RESULTS**

The analytical results indicate asbestos was identified in 9 of the 12 samples. The asbestos is present in mudded pipe fittings, floor tiles, floor tile mastics, ceiling tile mastics, baseboard mastics and roofing felts. The analytical test results and chain-of-custody forms are presented in Appendix B.

The definition of friable asbestos in the United States Code of Federal Regulations, 40 CFR 61, Subpart M is: "...any material containing more than 1 percent asbestos by weight, that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure." During the field inspection activities, the mudded pipe fittings were classified as friable. It should be noted that several fittings are damaged with ACM debris present above the drywall ceilings. The floor tiles, mastics, and roofing felts were classified as non-friable in their present state.

The following table provides estimated quantities ( $\pm 10\%$ ) of the ACM identified in the building. The amounts are based on field measurements.

**TABLE II**  
**ESTIMATED QUANTITIES**

<u>ACM TYPE</u>	<u>AMOUNT</u>
Mudded pipe fittings	120
Floor tile	1880 square feet
Roofing felts	4760 square feet
Floor tile mastic	1880 square feet
Ceiling tile mastic	3100 square feet
Baseboard mastic	1180 linear feet

### **RECOMMENDATIONS**

It is WT's understanding that the Centennial Building is scheduled for renovation. Disturbance and/or removal of asbestos-containing materials, required notifications and safety requirements for personnel working with all asbestos-containing materials are regulated by Federal, State and County regulations. Penalties for non-compliance can be significant.

State of Nevada Department of Industrial Relations regulations require that any friable ACM which would be disturbed by a renovation activity must be removed prior to the renovation activity. Furthermore, the same regulations require the removal activities to be performed by a qualified, Nevada-licensed asbestos abatement contractor.

According to provisions in the same regulations, removal of non-friable asbestos-containing materials is not required provided the non-friable ACMs are:

- o Not sanded, power sawed, or drilled
- o Removed in the largest sections practicable and carefully lowered to the ground



- o Handled carefully to minimize breakage throughout removal, handling and transportation to an authorized disposal site
- o Wetted before removal and during subsequent handling, to the extent practicable

Due to the inherent liabilities associated with potential asbestos exposures to workers and the general public which could take place during activities that could disturb both friable and non-friable ACMs, WT recommends that it would be in the best interest of the Clark County General Services Department to also remove the non-friable ACMs during the planned renovation. The removal of non-friables should also be performed by a qualified abatement contractor to insure proper removal techniques.

In summary, WT recommends that the complete removal of all ACMs in this building should be considered. Furthermore, the Clark County General Services Department should:

- o Comply with the Federal requirements for ACM removal which are presented in the "EPA National Emissions Standards for Hazardous Air Pollutants Asbestos Regulations" (NESHAPS, 40 CFR 61, Subpart M) and the State of Nevada Department of Industrial Relations "Regulations for the Control of Asbestos."
- o Retain the services of WT to monitor the performance of the abatement contractor, the completeness of the removal work, and the air quality during and after the removal work.
- o Document all items and correspondence from the abatement contractor, the testing laboratory and any related items, and retain said items in a permanent record.
- o Develop specifications regarding this specific type of asbestos abatement prior to the commencement of the work. WT is prepared to submit a proposal for this service as well as abatement monitoring services and assist in selecting an abatement contractor.

**ACM REMOVAL COST ESTIMATES**

Verbal estimates for complete removal of all friable and non-friable ACM (excluding the roofing felts) were obtained from a Nevada-licensed asbestos abatement contractor, based upon the following two scenarios:

- 1) County removes dropped ceiling system to expose glued on ceiling tiles. Contractor would then remove ceiling tiles and tile mastic, demolish the underlying drywall ceiling and remove those pipe fittings which contain ACM. The County would then be responsible for replacing removed pipe fittings. In addition, the contractor would remove floor tiles and floor tile mastic, and baseboard and baseboard mastic; or
- 2) Contractor also required to remove dropped ceiling system before proceeding with asbestos removal as mentioned above.

The cost estimates are:

Scenario 1	-	\$15,000
Scenario 2	-	\$20,000



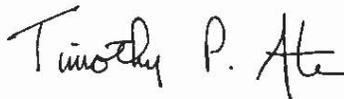
**STUDY LIMITATIONS**

This asbestos survey was performed to evaluate potential asbestos-containing materials that were accessible to WT personnel. Despite a thorough inspection by WT, anomalous materials may be present in the building in areas not readily accessible. Construction material specifications were not available to WT to review as part of this survey.

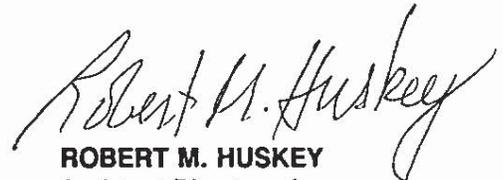
WT appreciates being of service to Clark County General Services Department. If you have any questions or require any additional information, please do not hesitate to contact this office.

Sincerely,

**WESTERN TECHNOLOGIES, INC.**



**TIMOTHY P. ATEN**  
Project Manager  
Nevada Asbestos Inspector IM 0055



**ROBERT M. HUSKEY**  
Assistant Director of  
Environmental Services



**VALERIE S. MITCHELL, CIH**  
Certified Industrial Hygienist  
Nevada Asbestos Consultants License IJPM 0119

\khw



**APPENDIX A**

TABLE I

SUMMARY OF ANALYTICAL RESULTS

<u>Sample Identification</u>	<u>Sample Type and Location</u>	<u>Asbestos Content</u>
S-1	Mudded pipe valve - 2nd floor, at A/C unit	60% Chrysotile
S-2	Drop-in ceiling panel (2' x 4') - 2nd floor	None detected
S-3	Mastic (brown) for ceiling tile - 2nd floor	10% Tremolite 20% Wollastonite
S-4	Ceiling tile (12" x 12") - 2nd floor	None detected
S-5	Mudded pipe elbow - 2nd floor at A/C unit	60% Chrysotile
S-6	Mastic for baseboard - 2nd floor hallway	10% Tremolite 20% Wollastonite
S-7	Floor tile (9" x 9") and mastic - 2nd floor restroom	Tile - 2% Chrysotile Mastic - 20% Chrysotile
S-8	Mudded pipe elbow - 2nd floor mechanical room	60% Chrysotile
S-9	Mastic (red) for ceiling tile - 3rd floor repaired area	None detected
S-10	Mudded pipe elbow - 3rd floor at A/C unit	50% Chrysotile
S-11	Baseboard (black) and mastic - 3rd floor hallway	None detected in baseboard - 20% Chrysotile in mastic
S-12	Roof - roofing felts	30% Chrysotile

**APPENDIX B**



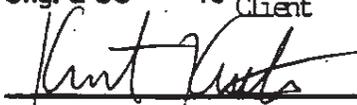
# ENVIRONMENTAL MANAGEMENT CONSULTANTS

REPORT Chemical Laboratory Analysis BULK Methodology EPA/M4-82-020  
 Client Western Tech Purchase Order.# \_\_\_\_\_  
 Reported to Dennis Kish By Order of Client  
 Sampled from Bridger Building - Centennial by Client Date 10-10-90  
 Shipped Via Hand Delivered Received 10-11-90 Reported 10-11-90

Lab #	Identification	Date Time	Parameter	TEST RESULTS
1267 1.	S-1 Pipe Lagging Color: White, Tan	10/10	Asbestos	Positive. This sample contains approx. 60% Chrysotile, and 20% Fiberglass 10% Cellulose.
2.	S-2 Ceiling Tile Color: White, Tan, Brown	10/10	Asbestos	None Detected. This sample contains approx 50% Cellulose, 20% Fiberglass, and 10% Perlite
3.	S-3 CIM Color: Brown	10/10	Asbestos	Positive. This sample contains approx. 10% Fibrous Tremolite, and 20% Wollastonite
4.	S-4 Ceiling Tile Color: White, Tan	10/10	Asbestos	None Detected. This sample contains approx 95% Cellulose.
5.	S-5 Pipe Lagging Color: White	10/10	Asbestos	Positive. This sample contains approx. 60% Chrysotile, and 30% Cellulose.
6.	S-6 CIM Color: Brown	10/10	Asbestos	Positive. This sample contains approx. 20% Wollastonite, and 10% Fibrous Tremolite
7.	S-7 Tile Color: White	10/10	Asbestos	Positive. This sample contains approx. 2% Chrysotile.
8.	S-7 Adhesive Color: Black	10/10	Asbestos	Positive. This sample contains approx. 20% Chrysotile, and 5% Cellulose.

THIS REPORT APPLIES TO THE STANDARDS OR PROCEDURES IDENTIFIED AND TO THE SAMPLE(S) TESTED. THE TEST RESULTS ARE NOT NECESSARILY INDICATIVE OR REPRESENTATIVE OF THE QUALITIES OF THE LOT FROM WHICH THE SAMPLE WAS TAKEN OR OF APPARENTLY IDENTICAL OR SIMILAR PRODUCTS. NOR DO THEY REPRESENT AN ON GOING QUALITY ASSURANCE PROGRAM UNLESS SO NOTED. THESE REPORTS ARE FOR THE EXCLUSIVE USE OF THE ADDRESSED CLIENT AND ARE RENDERED UPON THE CONDITION THAT THEY WILL NOT BE REPRODUCED WHOLLY OR IN PART FOR ADVERTISING OR OTHER PURPOSES OVER OUR SIGNATURE OR IN CONNECTION WITH OUR NAME WITHOUT SPECIAL WRITTEN PERMISSION. SAMPLES NOT DESTROYED IN TESTING ARE RETAINED A MAXIMUM OF THIRTY DAYS.

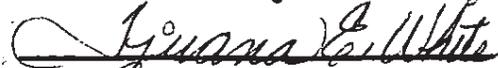
Charge: Western Tech  
 Orig. & CC To Client

  
 Kurt Kettler

Analyst

**NVLAQ**

Environmental Management Consultants

  
 By Tyana White



# ENVIRONMENTAL MANAGEMENT CONSULTANTS

REPORT Chemical Laboratory Analysis BULK Methodology EPA M4-82-020  
 Client Western Tech Purchase Order # \_\_\_\_\_  
 Reported to Dennis Kish By Order of Client  
 Sampled from Bridger Building - Centennial by Client Date 10-10-90  
 Shipped Via Hand Delivered Received 10-11-90 Reported 10-11-90

Lab #	Identification	Date Time	Parameter	TEST RESULTS
9.	S-8 Pipe Lagging Color: White, Tan	10/10	Asbestos	None Detected. This sample contains approx 100% Man Made Fibers.
10.	S-8 Pipe Lagging Color: White, Tan	10/10	Asbestos	Positive. This sample contains approx. 60% Chrysotile, and 30% Fiberglass.
11.	S-9 Mastic Color: Red	10/10	Asbestos	None Detected. This sample contains approx Nonfibrous materials.
12.	S-10 Pipe Lagging Color: White, Gray	10/10	Asbestos	Positive. This sample contains approx. 50% Chrysotile, and 40% Fiberglass.
13.	S-11 Cove base Color: Brown, Black	10/10	Asbestos	None Detected. This sample contains approx Nonfibrous materials.
14.	S-11 Adhesive Color: Brown, Black	10/10	Asbestos	Positive. This sample contains approx. 20% Chrysotile.
15.	S-12 Roofing Color: Black	10/10	Asbestos	Positive. This sample contains approx. 30% Chrysotile, 30% Fiberglass, and 30% Cellulose.

THIS REPORT APPLIES TO THE STANDARDS OR PROCEDURES IDENTIFIED AND TO THE SAMPLE(S) TESTED. THE TEST RESULTS ARE NOT NECESSARILY INDICATIVE OR REPRESENTATIVE OF THE QUALITIES OF THE LOT FROM WHICH THE SAMPLE WAS TAKEN OR OF APPARENTLY IDENTICAL OR SIMILAR PRODUCTS. NOR DO THEY REPRESENT AN ON GOING QUALITY ASSURANCE PROGRAM UNLESS SO NOTED. THESE REPORTS ARE FOR THE EXCLUSIVE USE OF THE ADDRESSED CLIENT AND ARE RENDERED UPON THE CONDITION THAT THEY WILL NOT BE REPRODUCED WHOLLY OR IN PART FOR ADVERTISING OR OTHER PURPOSES OVER OUR SIGNATURE OR IN CONNECTION WITH OUR NAME WITHOUT SPECIAL WRITTEN PERMISSION. SAMPLES NOT DESTROYED IN TESTING ARE RETAINED A MAXIMUM OF THIRTY DAYS.

Charge: Western Tech

Orig. & CC To Client

Kurt Kettler  
Kurt Kettler

Analyst

**NVLAQ**

Environmental Management Consultants

Luana White  
By Luana White



# ENVIRONMENTAL MANAGEMENT CONSULTANTS

Lab # 1267 Account # 12-101 Page 1 of 12

LABORATORY ANALYSIS OF BULK ASBESTOS: Method Interim EPA 600/M4-82-020  
Client Western Tech Purchase Order # \_\_\_\_\_  
Reported To Dennis Rusk By Order Of Client  
Sampled From Bidger Bldg. Sampled By Client Date 1/1/90  
Shipped Via Hand Delivered Date Received 10/11/90

Client Sample ID # S-1 Lab Sample ID # 1267-1  
Sample Description Asbestos on pipe lagging

### STEREOSCOPIC ANALYSIS

White  Yellow \_\_\_\_\_ Tan  Brown \_\_\_\_\_ Black \_\_\_\_\_ Green \_\_\_\_\_ Blue \_\_\_\_\_ Other \_\_\_\_\_  
Friable  Solid \_\_\_\_\_ Paper \_\_\_\_\_ Tile \_\_\_\_\_ Plaster  Paint \_\_\_\_\_ Other Pipe insulation  
FIBROUS MATERIAL 90 % NONFIBROUS 10 % HOMOGENEOUS:  Y  N  
ESTIMATED FIBROUS CONSTITUENTS 60 Chry 10 Amos 20 Pl

### PLM ANALYSIS

Chrysotile _____ %	Amosite _____ %	Crocidolite _____ %
<input type="checkbox"/> Wavy Fibers	<input type="checkbox"/> Straight Fibers	<input type="checkbox"/> Straight Fibers
<input type="checkbox"/> Sign of Elongation (+)	<input type="checkbox"/> Sign of Elongation (+)	<input type="checkbox"/> Sign of Elongation (-)
<input type="checkbox"/> Parallel Extinction	<input type="checkbox"/> Parallel Extinction	<input type="checkbox"/> Parallel Extinction
<input type="checkbox"/> Birefringence - L.M.H.	<input type="checkbox"/> Birefringence - L.M.H.	<input type="checkbox"/> Birefringence - L.M.H.
<input type="checkbox"/> ω blue ∈ yellow	<input type="checkbox"/> ω blue ∈ yellow	<input type="checkbox"/> ω Tan ∈ Blue
<input type="checkbox"/> D.St. -    Mag. -   Blue	<input type="checkbox"/> D.St. -    Gold -   Blue	<input type="checkbox"/> D.St. -    Yellow -   Yellow
<input type="checkbox"/> Becke Line Used	<input type="checkbox"/> pleochroic @ 40X	<input type="checkbox"/> pleochroic @ 40X
η    _____ η   _____	<input type="checkbox"/> Becke Line Used	<input type="checkbox"/> Becke Line Used
Cellulose _____ %	η    _____ η   _____	η    _____ η   _____
<input type="checkbox"/> Flat Twisted fibers	Mineral Wool _____ %	<input type="checkbox"/> Perlite _____
<input type="checkbox"/> Anisotropic	<input type="checkbox"/> irregular shapes	<input type="checkbox"/> Quartz _____
<input type="checkbox"/> Synthetics _____ %	<input type="checkbox"/> isotropic	<input type="checkbox"/> Wollastonite _____
<input type="checkbox"/> even edges	Glass Fibers _____ %	<input type="checkbox"/> Caco _____
<input type="checkbox"/> high birefringence	<input type="checkbox"/> staight fibers	<input type="checkbox"/> Caso _____
	<input type="checkbox"/> isotropic	<input type="checkbox"/> Mica _____
		<input type="checkbox"/> Other _____

Comments / Special Treatment \_\_\_\_\_

FINAL ANALYSIS 60% Chry 20% FG 10% Cell  
Analyst Grant Cook Date 10/11/90 2nd Party \_\_\_\_\_  
(if needed)



# ENVIRONMENTAL MANAGEMENT CONSULTANTS

Lab # 1267 Account # 12-101

Page 2 of 12

## LABORATORY ANALYSIS OF BULK ASBESTOS:

Method Interim EPA 600/M4-82-020

Client Western Tech Purchase Order # \_\_\_\_\_

Reported To Kenneth Fisk By Order Of Client

Sampled From Bidger Bldg. Sampled By Client Date 1/1/90

Shipped Via Hand Delivered Date Received 10/11/90

Client Sample ID # S-2 Lab Sample ID # 1267-2

Sample Description Ceiling tile

### STEREOSCOPIC ANALYSIS

White  Yellow \_\_\_\_\_ Tan  Brown  Black \_\_\_\_\_ Green \_\_\_\_\_ Blue \_\_\_\_\_ Other \_\_\_\_\_

Friable  Solid \_\_\_\_\_ Paper \_\_\_\_\_ Tile  Plaster \_\_\_\_\_ Paint \_\_\_\_\_ Other Ceiling

FIBROUS MATERIAL 85 % NONFIBROUS 15 % HOMOGENEOUS:  Y  N

ESTIMATED FIBROUS CONSTITUENTS 50 Cell 20 Fib 15 Perl

### PLM ANALYSIS

Chrysotile _____ %	Amosite _____ %	Crocidolite _____ %
<input type="checkbox"/> Wavy Fibers	<input type="checkbox"/> Straight Fibers	<input type="checkbox"/> Straight Fibers
<input type="checkbox"/> Sign of Elongation (+)	<input type="checkbox"/> Sign of Elongation (+)	<input type="checkbox"/> Sign of Elongation (-)
<input type="checkbox"/> Parallel Extinction	<input type="checkbox"/> Parallel Extinction	<input type="checkbox"/> Parallel Extinction
<input type="checkbox"/> Birefringence - L.M.H.	<input type="checkbox"/> Birefringence - L.M.H.	<input type="checkbox"/> Birefringence - L.M.H.
<input type="checkbox"/> ω blue ∈ yellow	<input type="checkbox"/> ω blue ∈ yellow	<input type="checkbox"/> ω Tan ∈ Blue
<input type="checkbox"/> D.St. -    Mag. -   Blue	<input type="checkbox"/> D.St. -    Gold -   Blue	<input type="checkbox"/> D.St. -    Yellow -   Yellow
<input type="checkbox"/> Becke Line Used	<input type="checkbox"/> pleochroic @ 40X	<input type="checkbox"/> pleochroic @ 40X
η    _____ η   _____	<input type="checkbox"/> Becke Line Used	<input type="checkbox"/> Becke Line Used
Cellulose <u>50</u> %	η    _____ η   _____	η    _____ η   _____
<input checked="" type="checkbox"/> Flat Twisted fibers	Mineral Wool _____ %	<input checked="" type="checkbox"/> Perite <u>10</u>
<input checked="" type="checkbox"/> Anisotropic	<input type="checkbox"/> irregular shapes	<input type="checkbox"/> Quartz _____
Synthetics _____ %	<input type="checkbox"/> isotropic	<input type="checkbox"/> Wollastonite _____
<input type="checkbox"/> even edges	Glass Fibers <u>20</u> %	<input type="checkbox"/> Caco _____
<input type="checkbox"/> high birefringence	<input checked="" type="checkbox"/> straight fibers	<input type="checkbox"/> Caso _____
	<input checked="" type="checkbox"/> isotropic	<input type="checkbox"/> Mica _____
		<input type="checkbox"/> Other _____

Comments / Special Treatment \_\_\_\_\_

FINAL ANALYSIS 50% Cell 20% Fib 10% Perl

Analyst Kent Kumb Date 10/11/90 2nd Party \_\_\_\_\_ (if needed)



# ENVIRONMENTAL MANAGEMENT CONSULTANTS

Lab # 1267 Account # 12-101

Page 3 of 12

LABORATORY ANALYSIS OF BULK ASBESTOS:

Method Interim EPA 600/M4-82-020

Client Western Tech Purchase Order # \_\_\_\_\_

Reported To Dennis Lisk By Order Of Client

Sampled From Bridger Bldg. Sampled By Client Date 1/1/

Shipped Via Hand Delivered Date Received 10/11/90

Client Sample ID # S-3 Lab Sample ID # 1267-3

Sample Description OTM

### STEREOSCOPIC ANALYSIS

White \_\_\_\_\_ Yellow \_\_\_\_\_ Tan \_\_\_\_\_ Brown  Black \_\_\_\_\_ Green \_\_\_\_\_ Blue \_\_\_\_\_ Other \_\_\_\_\_

Friable  Solid \_\_\_\_\_ Paper \_\_\_\_\_ Tile \_\_\_\_\_ Plaster \_\_\_\_\_ Paint \_\_\_\_\_ Other \_\_\_\_\_

FIBROUS MATERIAL 0 % NONFIBROUS 100 % HOMOGENEOUS:  N

ESTIMATED FIBROUS CONSTITUENTS appears to be NFM

### PLM ANALYSIS

Chrysotile _____ %	Amosite _____ %	Crocidolite _____ %
<input type="checkbox"/> Wavy Fibers	<input type="checkbox"/> Straight Fibers	<input type="checkbox"/> Straight Fibers
<input type="checkbox"/> Sign of Elongation (+)	<input type="checkbox"/> Sign of Elongation (+)	<input type="checkbox"/> Sign of Elongation (-)
<input type="checkbox"/> Parallel Extinction	<input type="checkbox"/> Parallel Extinction	<input type="checkbox"/> Parallel Extinction
<input type="checkbox"/> Birefringence - L.M.H.	<input type="checkbox"/> Birefringence - L.M.H.	<input type="checkbox"/> Birefringence - L.M.H.
<input type="checkbox"/> ω blue ∈ yellow	<input type="checkbox"/> ω blue ∈ yellow	<input type="checkbox"/> ω Tan ∈ Blue
<input type="checkbox"/> D.St. -    Mag. -   Blue	<input type="checkbox"/> D.St. -    Gold -   Blue	<input type="checkbox"/> D.St. -    Yellow -   Yellow
<input type="checkbox"/> Becke Line Used	<input type="checkbox"/> pleochroic @ 40X	<input type="checkbox"/> pleochroic @ 40X
η    _____ η   _____	<input type="checkbox"/> Becke Line Used	<input type="checkbox"/> Becke Line Used
Cellulose _____ %	η    _____ η   _____	η    _____ η   _____
<input type="checkbox"/> Flat Twisted fibers	Mineral Wool _____ %	<input type="checkbox"/> Perlite _____
<input type="checkbox"/> Anisotropic	<input type="checkbox"/> irregular shapes	<input type="checkbox"/> Quartz _____
<input type="checkbox"/> Synthetics _____ %	<input type="checkbox"/> isotropic	<input checked="" type="checkbox"/> Wollastonite <u>20</u>
<input type="checkbox"/> even edges	Glass Fibers _____ %	<input type="checkbox"/> Caco _____
<input type="checkbox"/> high birefringence	<input type="checkbox"/> staight fibers	<input type="checkbox"/> Caso _____
	<input type="checkbox"/> isotropic	<input type="checkbox"/> Mica _____
		<input checked="" type="checkbox"/> Other <u>10% Fib Trem</u>

Comments / Special Treatment POSITIVE FIB TREM

FINAL ANALYSIS 20% Woll. 10% Fib = Wollastonite

Analyst Kurt Kurt Date 10/11/90 2nd Party (if needed) \_\_\_\_\_



# ENVIRONMENTAL MANAGEMENT CONSULTANTS

Lab # 1267 Account # 12-101

Page 4 of 12

## LABORATORY ANALYSIS OF BULK ASBESTOS:

Method Interim EPA 600/M4-82-020

Client Western Tech Purchase Order # \_\_\_\_\_

Reported To Kenneth Lusk By Order Of Client

Sampled From Bridger Bldg. Sampled By Client Date 1/1/

Shipped Via Hand Delivered Date Received 10/11/90

Client Sample ID # S-4 Lab Sample ID # 1267-4

Sample Description Ceiling tile

### STEREOSCOPIC ANALYSIS

White  Yellow \_\_\_\_\_ Tan  Brown \_\_\_\_\_ Black \_\_\_\_\_ Green \_\_\_\_\_ Blue \_\_\_\_\_ Other \_\_\_\_\_

Friable  Solid \_\_\_\_\_ Paper \_\_\_\_\_ Tile  Plaster \_\_\_\_\_ Paint \_\_\_\_\_ Other \_\_\_\_\_

FIBROUS MATERIAL 95 % NONFIBROUS 5 % HOMOGENEOUS:  Y  N

ESTIMATED FIBROUS CONSTITUENTS cell

### PLM ANALYSIS

Chrysotile _____ %	Amosite _____ %	Crocidolite _____ %
<input type="checkbox"/> Wavy Fibers	<input type="checkbox"/> Straight Fibers	<input type="checkbox"/> Straight Fibers
<input type="checkbox"/> Sign of Elongation (+)	<input type="checkbox"/> Sign of Elongation (+)	<input type="checkbox"/> Sign of Elongation (-)
<input type="checkbox"/> Parallel Extinction	<input type="checkbox"/> Parallel Extinction	<input type="checkbox"/> Parallel Extinction
<input type="checkbox"/> Birefringence - L.M.H.	<input type="checkbox"/> Birefringence - L.M.H.	<input type="checkbox"/> Birefringence - L.M.H.
<input type="checkbox"/> ω blue ∈ yellow	<input type="checkbox"/> ω blue ∈ yellow	<input type="checkbox"/> ω Tan ∈ Blue
<input type="checkbox"/> D.St. -    Mag. -   Blue	<input type="checkbox"/> D.St. -    Gold -   Blue	<input type="checkbox"/> D.St. -    Yellow -   Yellow
<input type="checkbox"/> Becke Line Used	<input type="checkbox"/> pleochroic @ 40X	<input type="checkbox"/> pleochroic @ 40X
η    _____ η   _____	<input type="checkbox"/> Becke Line Used	<input type="checkbox"/> Becke Line Used
Cellulose <u>95</u> %	η    _____ η   _____	η    _____ η   _____
<input type="checkbox"/> Flat Twisted fibers	Mineral Wool _____ %	<input type="checkbox"/> Perlite _____
<input checked="" type="checkbox"/> Anisotropic	<input type="checkbox"/> irregular shapes	<input type="checkbox"/> Quartz _____
<input type="checkbox"/> Synthetics _____ %	<input type="checkbox"/> isotropic	<input type="checkbox"/> Wollastonite _____
<input type="checkbox"/> even edges	Glass Fibers _____ %	<input type="checkbox"/> Caco _____
<input type="checkbox"/> high birefringence	<input type="checkbox"/> straight fibers	<input type="checkbox"/> Caso _____
	<input type="checkbox"/> isotropic	<input type="checkbox"/> Mica _____
		<input type="checkbox"/> Other _____

Comments / Special Treatment \_\_\_\_\_

### FINAL ANALYSIS

Analyst Plant Plant Date 10/11/90 2nd Party (if needed) \_\_\_\_\_



# ENVIRONMENTAL MANAGEMENT CONSULTANTS

Lab # 1267 Account # 12-101

Page 5 of 12

## LABORATORY ANALYSIS OF BULK ASBESTOS:

Method Interim EPA 600/M4-82-020

Client Western Tech Purchase Order # \_\_\_\_\_

Reported To Kenneth Lusk By Order Of Client

Sampled From Bridger Bldg. Sampled By Client Date 1/1/1

Shipped Via Hand Delivered Date Received 10/11/90

Client Sample ID # S-5 Lab Sample ID # 1267-5

Sample Description Pipe Sugging

### STEREOSCOPIC ANALYSIS

White  Yellow \_\_\_\_\_ Tan \_\_\_\_\_ Brown \_\_\_\_\_ Black \_\_\_\_\_ Green \_\_\_\_\_ Blue \_\_\_\_\_ Other gray

Friable  Solid \_\_\_\_\_ Paper \_\_\_\_\_ Tile \_\_\_\_\_ Plaster  Paint \_\_\_\_\_ Other \_\_\_\_\_

FIBROUS MATERIAL 90 % NONFIBROUS 10 % HOMOGENEOUS:  Y  N

ESTIMATED FIBROUS CONSTITUENTS 60 chry 30 ceep

### PLM ANALYSIS

Chrysotile <u>100</u> %	Amosite _____ %	Crocidolite _____ %
<input checked="" type="checkbox"/> Wavy Fibers	____ Straight Fibers	____ Straight Fibers
____ Sign of Elongation (+)	____ Sign of Elongation (+)	____ Sign of Elongation (-)
<input checked="" type="checkbox"/> Parallel Extinction	____ Parallel Extinction	____ Parallel Extinction
<input checked="" type="checkbox"/> Birefringence - L.M.H.	____ Birefringence - L.M.H.	____ Birefringence - L.M.H.
<input checked="" type="checkbox"/> ω blue ∈ yellow	____ ω blue ∈ yellow	____ ω Tan ∈ Blue
<input checked="" type="checkbox"/> D.St. -    Mag. -   Blue	____ D.St. -    Gold -   Blue	____ D.St. -    Yellow -   Yellow
____ Becke Line Used	____ pleochroic @ 40X	____ pleochroic @ 40X
η    <u>1.55</u>   <u>1.54</u>	____ Becke Line Used	____ Becke Line Used
Callulose <u>30</u> %	η    _____ η   _____	η    _____ η   _____
<input checked="" type="checkbox"/> Flat Twisted fibers	Mineral Wool _____ %	____ Perlite _____
____ Anisotropic	____ irregular shapes	____ Quartz _____
____ Synthetics _____ %	____ isotropic	____ Wollastonite _____
____ even edges	Glass Fibers _____ %	____ Caco _____
____ high birefringence	____ staight fibers	____ Caso _____
	____ isotropic	____ Mica _____
		____ Other _____

Comments / Special Treatment \_\_\_\_\_

FINAL ANALYSIS 60% Chry 30% Cell

Analyst Ant Lusk Date 10/11/90 2nd Party \_\_\_\_\_ (if needed)



# ENVIRONMENTAL MANAGEMENT CONSULTANTS

Lab # 1267 Account # 12-101

Page 6 of 12

## LABORATORY ANALYSIS OF BULK ASBESTOS:

Method Interim EPA 600/M4-82-020

Client Western Tech Purchase Order # \_\_\_\_\_

Reported To Kenneth Rush By Order Of Client

Sampled From Bidger Bldg. Sampled By Client Date 1/1/90

Shipped Via Hand Delivered Date Received 10/11/90

Client Sample ID # S-6 Lab Sample ID # 1267-6

Sample Description CTM

### STEREOSCOPIC ANALYSIS

White  Yellow  Tan  Brown  Black  Green  Blue  Other \_\_\_\_\_

Friable  Solid  Paper  Tile  Plaster  Paint  Other \_\_\_\_\_

FIBROUS MATERIAL 0 % NONFIBROUS 100 % HOMOGENEOUS: Y N

ESTIMATED FIBROUS CONSTITUENTS appear to be NFK

### PLM ANALYSIS

Chrysotile _____ %	Amosite _____ %	Crocidolite _____ %
<input type="checkbox"/> Wavy Fibers	<input type="checkbox"/> Straight Fibers	<input type="checkbox"/> Straight Fibers
<input type="checkbox"/> Sign of Elongation (+)	<input type="checkbox"/> Sign of Elongation (+)	<input type="checkbox"/> Sign of Elongation (-)
<input type="checkbox"/> Parallel Extinction	<input type="checkbox"/> Parallel Extinction	<input type="checkbox"/> Parallel Extinction
<input type="checkbox"/> Birefringence - L.M.H.	<input type="checkbox"/> Birefringence - L.M.H.	<input type="checkbox"/> Birefringence - L.M.H.
<input type="checkbox"/> ω blue ∈ yellow	<input type="checkbox"/> ω blue ∈ yellow	<input type="checkbox"/> ω Tan ∈ Blue
<input type="checkbox"/> D.St. -    Mag. -   Blue	<input type="checkbox"/> D.St. -    Gold -   Blue	<input type="checkbox"/> D.St. -    Yellow -   Yellow
<input type="checkbox"/> Becke Line Used	<input type="checkbox"/> pleochroic @ 40X	<input type="checkbox"/> pleochroic @ 40X
η    _____ η   _____	<input type="checkbox"/> Becke Line Used	<input type="checkbox"/> Becke Line Used
Cellulose _____ %	η    _____ η   _____	η    _____ η   _____
<input type="checkbox"/> Flat Twisted fibers	Mineral Wool _____ %	<input type="checkbox"/> Perlite _____
<input type="checkbox"/> Anisotropic	<input type="checkbox"/> irregular shapes	<input type="checkbox"/> Quartz _____
<input type="checkbox"/> Synthetics _____ %	<input type="checkbox"/> isotropic	<input checked="" type="checkbox"/> Wollastonite <u>20%</u>
<input type="checkbox"/> even edges	Glass Fibers _____ %	<input type="checkbox"/> Caco _____
<input type="checkbox"/> high birefringence	<input type="checkbox"/> straight fibers	<input type="checkbox"/> Caso _____
	<input type="checkbox"/> isotropic	<input type="checkbox"/> Mica _____
		<input checked="" type="checkbox"/> Other <u>10% Fib. Tremolite</u>

Comments / Special Treatment POSITIVE

FINAL ANALYSIS 20% Woll 10% Fib Tremolite

Analyst Kent Kent Date 10/11/90 2nd Party (if needed) \_\_\_\_\_



# ENVIRONMENTAL MANAGEMENT CONSULTANTS

Lab # 1267 Account # 12-101

Page 7 of 12

### LABORATORY ANALYSIS OF BULK ASBESTOS:

Method Interim EPA 600/M4-82-020

Client Western Tech Purchase Order # \_\_\_\_\_

Reported To Kenneth Rusk By Order Of Client

Sampled From Bidger Bldg. Sampled By Client Date 1/1/90

Shipped Via Hand Delivered Date Received 10/11/90

Client Sample ID # S-7 Lab Sample ID # 1267-7

Sample Description Floor tile and cell

### STEREOSCOPIC ANALYSIS

White  Yellow  Tan  Brown  Black  Green  Blue  Other

Friable  Solid  Paper  Tile  Plaster  Paint  Other

FIBROUS MATERIAL 10 % NONFIBROUS 90 % HOMOGENEOUS: Y

ESTIMATED FIBROUS CONSTITUENTS some fibers in A T = NFM

### PLM ANALYSIS

Chrysotile <u>22</u> %	Amosite _____ %	Crocidolite _____ %
<input checked="" type="checkbox"/> Wavy Fibers	<input type="checkbox"/> Straight Fibers	<input type="checkbox"/> Straight Fibers
<input checked="" type="checkbox"/> Sign of Elongation (+)	<input type="checkbox"/> Sign of Elongation (+)	<input type="checkbox"/> Sign of Elongation (-)
<input type="checkbox"/> Parallel Extinction	<input type="checkbox"/> Parallel Extinction	<input type="checkbox"/> Parallel Extinction
<input checked="" type="checkbox"/> Birefringence - L.M.H.	<input type="checkbox"/> Birefringence - L.M.H.	<input type="checkbox"/> Birefringence - L.M.H.
<input checked="" type="checkbox"/> ω blue ∈ yellow	<input type="checkbox"/> ω blue ∈ yellow	<input type="checkbox"/> ω Tan ∈ Blue
<input checked="" type="checkbox"/> D.St. -    Mag. -   Blue	<input type="checkbox"/> D.St. -    Gold -   Blue	<input type="checkbox"/> D.St. -    Yellow -   Yellow
<input checked="" type="checkbox"/> Becke Line Used	<input type="checkbox"/> pleochroic @ 40X	<input type="checkbox"/> pleochroic @ 40X
<u>η    1.55 η   1.54</u>	<input type="checkbox"/> Becke Line Used	<input type="checkbox"/> Becke Line Used
<input checked="" type="checkbox"/> Cellulose <u>5</u> %	<u>η    _____ η   _____</u>	<u>η    _____ η   _____</u>
<input checked="" type="checkbox"/> Flat Twisted fibers	Mineral Wool _____ %	Perlite _____
<input type="checkbox"/> Anisotropic	<input type="checkbox"/> irregular shapes	Quartz _____
<input type="checkbox"/> Synthetics _____ %	<input type="checkbox"/> isotropic	Wollastonite _____
<input type="checkbox"/> even edges	Glass Fibers _____ %	Caco _____
<input type="checkbox"/> high birefringence	<input type="checkbox"/> straight fibers	Caso _____
	<input type="checkbox"/> isotropic	Mica _____
		Other _____

Comments / Special Treatment \_\_\_\_\_

FINAL ANALYSIS T: 29% Clay A: 20% Clay 59% Cell

Analyst Robert Rusk Date 10/11/90 2nd Party (if needed) \_\_\_\_\_



# ENVIRONMENTAL MANAGEMENT CONSULTANTS

Lab # 1267 Account # 12-101

Page 8 of 12

### LABORATORY ANALYSIS OF BULK ASBESTOS:

Method Interim EPA 600/M4-82-020

Client Western Tech Purchase Order # \_\_\_\_\_

Reported To Kenneth Pusk By Order Of Client

Sampled From Bridger Bldg. Sampled By Client Date 1/1/90

Shipped Via Hand Delivered Date Received 10/11/90

Client Sample ID # S-8 Lab Sample ID # 1267-8

Sample Description pipe lagging

### STEREOSCOPIC ANALYSIS

White  Yellow  Tan  Brown  Black  Green  Blue  Other \_\_\_\_\_

Friable  Solid  Paper  Tile  Plaster  Paint  Other Cloth

FIBROUS MATERIAL 90 % NONFIBROUS 10 % HOMOGENEOUS: Y  N

ESTIMATED FIBROUS CONSTITUENTS Cloth = 100% coal - mud = 60 clay 30 ppl

### PLM ANALYSIS

Chrysotile <u>30</u> %	Amosite _____ %	Crocidolite _____ %
<input checked="" type="checkbox"/> Wavy Fibers	<input type="checkbox"/> Straight Fibers	<input type="checkbox"/> Straight Fibers
<input checked="" type="checkbox"/> Sign of Elongation (+)	<input type="checkbox"/> Sign of Elongation (+)	<input type="checkbox"/> Sign of Elongation (-)
<input type="checkbox"/> Parallel Extinction	<input type="checkbox"/> Parallel Extinction	<input type="checkbox"/> Parallel Extinction
<input type="checkbox"/> Birefringence - L.M.H.	<input type="checkbox"/> Birefringence - L.M.H.	<input type="checkbox"/> Birefringence - L.M.H.
<input checked="" type="checkbox"/> ω blue ∈ yellow	<input type="checkbox"/> ω blue ∈ yellow	<input type="checkbox"/> ω Tan ∈ Blue
<input checked="" type="checkbox"/> D.St. -    Mag. -   Blue	<input type="checkbox"/> D.St. -    Gold -   Blue	<input type="checkbox"/> D.St. -    Yellow -   Yellow
<input checked="" type="checkbox"/> Becke Line Used	<input type="checkbox"/> pleochroic @ 40X	<input type="checkbox"/> pleochroic @ 40X
η    <u>1.54</u> η   _____	<input type="checkbox"/> Becke Line Used	<input type="checkbox"/> Becke Line Used
Cellulose _____ %	η    _____ η   _____	η    _____ η   _____
<input type="checkbox"/> Flat Twisted fibers	Mineral Wool _____ %	<input type="checkbox"/> Perlite _____
<input type="checkbox"/> Anisotropic	<input type="checkbox"/> irregular shapes	<input type="checkbox"/> Quartz _____
<input checked="" type="checkbox"/> Synthetics <u>50</u> %	<input type="checkbox"/> isotropic	<input type="checkbox"/> Wollastonite _____
<input checked="" type="checkbox"/> even edges	Glass Fibers <u>15</u> %	<input type="checkbox"/> Caco _____
<input checked="" type="checkbox"/> high birefringence	<input checked="" type="checkbox"/> straight fibers	<input type="checkbox"/> Caso _____
	<input type="checkbox"/> isotropic	<input type="checkbox"/> Mica _____
		<input type="checkbox"/> Other _____

Comments / Special Treatment \_\_\_\_\_

FINAL ANALYSIS Cloth: 100% MMF MUD: 60% Clay 30% FG

Analyst Kent Kents Date 10/11/90 2nd Party (if needed) \_\_\_\_\_



# ENVIRONMENTAL MANAGEMENT CONSULTANTS

Lab # 1267 Account # 12-101

Page 9 of 12

LABORATORY ANALYSIS OF BULK ASBESTOS:

Method Interim EPA 600/M4-82-020

Client Western Tech Purchase Order # \_\_\_\_\_

Reported To Kenneth Fisk By Order Of Client

Sampled From Bridger Bldg. Sampled By Client Date 1/1/90

Shipped Via Hand Delivered Date Received 10/11/90

Client Sample ID # S-9 Lab Sample ID # 1267-9

Sample Description Mastic

### STEREOSCOPIC ANALYSIS

White \_\_\_\_\_ Yellow \_\_\_\_\_ Tan \_\_\_\_\_ Brown \_\_\_\_\_ Black \_\_\_\_\_ Green \_\_\_\_\_ Blue \_\_\_\_\_ Other Red

Friable \_\_\_\_\_ Solid  Paper \_\_\_\_\_ Tile \_\_\_\_\_ Plaster \_\_\_\_\_ Paint \_\_\_\_\_ Other \_\_\_\_\_

FIBROUS MATERIAL 0 % NONFIBROUS 100 % HOMOGENEOUS:  Y  N

ESTIMATED FIBROUS CONSTITUENTS Mastic appears to be NFM - has a layer of cells on one side from C.T.

### PLM ANALYSIS

Chrysotile _____ %	Amosite _____ %	Crocidolite _____ %
<input type="checkbox"/> Wavy Fibers	<input type="checkbox"/> Straight Fibers	<input type="checkbox"/> Straight Fibers
<input type="checkbox"/> Sign of Elongation (+)	<input type="checkbox"/> Sign of Elongation (+)	<input type="checkbox"/> Sign of Elongation (-)
<input type="checkbox"/> Parallel Extinction	<input type="checkbox"/> Parallel Extinction	<input type="checkbox"/> Parallel Extinction
<input type="checkbox"/> Birefringence - L.M.H.	<input type="checkbox"/> Birefringence - L.M.H.	<input type="checkbox"/> Birefringence - L.M.H.
<input type="checkbox"/> ω blue ∈ yellow	<input type="checkbox"/> ω blue ∈ yellow	<input type="checkbox"/> ω Tan ∈ Blue
<input type="checkbox"/> D.St. -    Mag. -   Blue	<input type="checkbox"/> D.St. -    Gold -   Blue	<input type="checkbox"/> D.St. -    Yellow -   Yellow
<input type="checkbox"/> Becke Line Used	<input type="checkbox"/> pleochroic @ 40X	<input type="checkbox"/> pleochroic @ 40X
η    _____ η   _____	<input type="checkbox"/> Becke Line Used	<input type="checkbox"/> Becke Line Used
Cellulose _____ %	η    _____ η   _____	η    _____ η   _____
<input type="checkbox"/> Flat Twisted fibers	Mineral Wool _____ %	<input type="checkbox"/> Perlite _____
<input type="checkbox"/> Anisotropic	<input type="checkbox"/> irregular shapes	<input type="checkbox"/> Quartz _____
<input type="checkbox"/> Synthetics _____ %	<input type="checkbox"/> isotropic	<input type="checkbox"/> Wollastonite _____
<input type="checkbox"/> even edges	Glass Fibers _____ %	<input type="checkbox"/> Caco _____
<input type="checkbox"/> high birefringence	<input type="checkbox"/> straight fibers	<input type="checkbox"/> Caso _____
	<input type="checkbox"/> isotropic	<input type="checkbox"/> Mica _____
		<input type="checkbox"/> Other _____

Comments / Special Treatment \_\_\_\_\_

### FINAL ANALYSIS

Analyst Ant Luck Date 10/11/90 2nd Party (if needed) \_\_\_\_\_



# ENVIRONMENTAL MANAGEMENT CONSULTANTS

Lab # 1267 Account # 12-101

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### LABORATORY ANALYSIS OF BULK ASBESTOS:

Method Interim EPA 600/M4-82-020

Client Western Tech Purchase Order # \_\_\_\_\_

Reported To Kenneth Pisk By Order Of Client

Sampled From Bridger Bldg. Sampled By Client Date 1/1/

Shipped Via Hand Delivered Date Received 10/11/90

Client Sample ID # S-10 Lab Sample ID # 1267-10

Sample Description pipe lagging

### STEREOSCOPIC ANALYSIS

White  Yellow \_\_\_\_\_ Tan \_\_\_\_\_ Brown \_\_\_\_\_ Black \_\_\_\_\_ Green \_\_\_\_\_ Blue \_\_\_\_\_ Other gray

Friable  Solid \_\_\_\_\_ Paper \_\_\_\_\_ Tile \_\_\_\_\_ Plaster  Paint \_\_\_\_\_ Other \_\_\_\_\_

FIBROUS MATERIAL 90 % NONFIBROUS 10 % HOMOGENEOUS:  Y  N

ESTIMATED FIBROUS CONSTITUENTS 60 chry 30 fg

### PLM ANALYSIS

Chrysotile <u>50</u> %	Amosite _____ %	Crocidolite _____ %
<input checked="" type="checkbox"/> Wavy Fibers	<input type="checkbox"/> Straight Fibers	<input type="checkbox"/> Straight Fibers
<input type="checkbox"/> Sign of Elongation (+)	<input type="checkbox"/> Sign of Elongation (+)	<input type="checkbox"/> Sign of Elongation (-)
<input checked="" type="checkbox"/> Parallel Extinction	<input type="checkbox"/> Parallel Extinction	<input type="checkbox"/> Parallel Extinction
<input checked="" type="checkbox"/> Birefringence - L.M.H.	<input type="checkbox"/> Birefringence - L.M.H.	<input type="checkbox"/> Birefringence - L.M.H.
<input checked="" type="checkbox"/> ω blue ∈ yellow	<input type="checkbox"/> ω blue ∈ yellow	<input type="checkbox"/> ω Tan ∈ Blue
<input type="checkbox"/> D.St. -    Mag. -   Blue	<input type="checkbox"/> D.St. -    Gold -   Blue	<input type="checkbox"/> D.St. -    Yellow -   Yellow
<input type="checkbox"/> Becke Line Used	<input type="checkbox"/> pleochroic @ 40X	<input type="checkbox"/> pleochroic @ 40X
η    <u>1.54</u> η   _____	<input type="checkbox"/> Becke Line Used	<input type="checkbox"/> Becke Line Used
Cellulose _____ %	η    _____ η   _____	η    _____ η   _____
<input type="checkbox"/> Flat Twisted fibers	Mineral Wool _____ %	<input type="checkbox"/> Perlite _____
<input type="checkbox"/> Anisotropic	<input type="checkbox"/> irregular shapes	<input type="checkbox"/> Quartz _____
<input type="checkbox"/> Synthetics _____ %	<input type="checkbox"/> isotropic	<input type="checkbox"/> Wollastonite _____
<input type="checkbox"/> even edges	Glass Fibers <u>40</u> %	<input type="checkbox"/> Caco _____
<input type="checkbox"/> high birefringence	<input checked="" type="checkbox"/> straight fibers	<input type="checkbox"/> Caso _____
	<input checked="" type="checkbox"/> isotropic	<input type="checkbox"/> Mica _____
		<input type="checkbox"/> Other _____

Comments / Special Treatment \_\_\_\_\_

FINAL ANALYSIS 50% Chry 40% FG

Analyst Kent Hunt Date 10/11/90 2nd Party (if needed) \_\_\_\_\_



# ENVIRONMENTAL MANAGEMENT CONSULTANTS

Lab # 1267 Account # 12-101

Page 11 of 12

## LABORATORY ANALYSIS OF BULK ASBESTOS:

Method Interim EPA 600/M4-82-020

Client Western Tech Purchase Order # \_\_\_\_\_

Reported To Kenneth Rush By Order Of Client

Sampled From Bridger Bldg. Sampled By Client Date 1/1/90

Shipped Via Hand Delivered Date Received 10/11/90

Client Sample ID # S-11 Lab Sample ID # 1267-11

Sample Description core base and adh

### STEREOSCOPIC ANALYSIS

White \_\_\_\_\_ Yellow \_\_\_\_\_ Tan \_\_\_\_\_ Brown  Black  Green \_\_\_\_\_ Blue \_\_\_\_\_ Other \_\_\_\_\_

Friable \_\_\_\_\_ Solid  Paper \_\_\_\_\_ Tile \_\_\_\_\_ Plaster \_\_\_\_\_ Paint \_\_\_\_\_ Other core base and adh

FIBROUS MATERIAL 0 % NONFIBROUS 100 % HOMOGENEOUS: Y  (N)

ESTIMATED FIBROUS CONSTITUENTS A+B approx NFM

### PLM ANALYSIS

Chrysotile <u>20</u> %	Amosite _____ %	Crocidolite _____ %
<input checked="" type="checkbox"/> Wavy Fibers	____ Straight Fibers	____ Straight Fibers
____ Sign of Elongation (+)	____ Sign of Elongation (+)	____ Sign of Elongation (-)
____ Parallel Extinction	____ Parallel Extinction	____ Parallel Extinction
<input checked="" type="checkbox"/> Birefringence - L.M.H.	____ Birefringence - L.M.H.	____ Birefringence - L.M.H.
<input checked="" type="checkbox"/> ω blue ∈ yellow	____ ω blue ∈ yellow	____ ω Tan ∈ Blue
<input checked="" type="checkbox"/> D.St. -    Mag. -   Blue	____ D.St. -    Gold -   Blue	____ D.St. -    Yellow -   Yellow
<input checked="" type="checkbox"/> Becke Line Used	____ pleochroic @ 40X	____ pleochroic @ 40X
η    <u>1.55</u> η   <u>1.54</u>	____ Becke Line Used	____ Becke Line Used
Cellulose _____ %	η    _____ η   _____	η    _____ η   _____
____ Flat Twisted fibers	Mineral Wool _____ %	____ Perlite _____
____ Anisotropic	____ irregular shapes	____ Quartz _____
____ Synthetics _____ %	____ isotropic	____ Wollastonite _____
____ even edges	Glass Fibers _____ %	____ Caco _____
____ high birefringence	____ straight fibers	____ Caso _____
	____ isotropic	____ Mica _____
		____ Other _____

Comments / Special Treatment \_\_\_\_\_

FINAL ANALYSIS CB: NFM A: 20% Chy

Analyst Kent Kueh Date 10/11/90 2nd Party (if needed) \_\_\_\_\_



# ENVIRONMENTAL MANAGEMENT CONSULTANTS

Lab # 1267 Account # 12-101

Page 12 of 12

LABORATORY ANALYSIS OF BULK ASBESTOS:

Method Interim EPA 600/M4-82-020

Client Western Tech Purchase Order # \_\_\_\_\_

Reported To Kenneth Lisk By Order Of Client

Sampled From Bidger Bldg. Sampled By Client Date 1/1/90

Shipped Via Hand Delivered Date Received 10/11/90

Client Sample ID # S-12 Lab Sample ID # 1267-12

Sample Description Roofing

### STEREOSCOPIC ANALYSIS

White \_\_\_\_\_ Yellow \_\_\_\_\_ Tan \_\_\_\_\_ Brown \_\_\_\_\_ Black  Green \_\_\_\_\_ Blue \_\_\_\_\_ Other \_\_\_\_\_

Friable  Solid \_\_\_\_\_ Paper \_\_\_\_\_ Tile \_\_\_\_\_ Plaster \_\_\_\_\_ Paint \_\_\_\_\_ Other \_\_\_\_\_

FIBROUS MATERIAL 100 % NONFIBROUS 40 % HOMOGENEOUS: Y N

ESTIMATED FIBROUS CONSTITUENTS 30 FG 10 Cell 20 Chy

### PLM ANALYSIS

Chrysotile <u>30</u> %	Amosite _____ %	Crocidolite _____ %
<input checked="" type="checkbox"/> Wavy Fibers	<input type="checkbox"/> Straight Fibers	<input type="checkbox"/> Straight Fibers
<input checked="" type="checkbox"/> Sign of Elongation (+)	<input type="checkbox"/> Sign of Elongation (+)	<input type="checkbox"/> Sign of Elongation (-)
<input checked="" type="checkbox"/> Parallel Extinction	<input type="checkbox"/> Parallel Extinction	<input type="checkbox"/> Parallel Extinction
<input checked="" type="checkbox"/> Birefringence - L.M.H.	<input type="checkbox"/> Birefringence - L.M.H.	<input type="checkbox"/> Birefringence - L.M.H.
<input checked="" type="checkbox"/> ω blue ∈ yellow	<input type="checkbox"/> ω blue ∈ yellow	<input type="checkbox"/> ω Tan ∈ Blue
<input checked="" type="checkbox"/> D.St. -    Mag. -   Blue	<input type="checkbox"/> D.St. -    Gold -   Blue	<input type="checkbox"/> D.St. -    Yellow -   Yellow
<input checked="" type="checkbox"/> Becke Line Used	<input type="checkbox"/> pleochroic @ 40X	<input type="checkbox"/> pleochroic @ 40X
η    <u>1.55</u> η   <u>1.54</u>	<input type="checkbox"/> Becke Line Used	<input type="checkbox"/> Becke Line Used
<input checked="" type="checkbox"/> Cellulose <u>30</u> %	η    _____ η   _____	η    _____ η   _____
<input type="checkbox"/> Flat Twisted fibers	Mineral Wool _____ %	<input type="checkbox"/> Perlite _____
<input type="checkbox"/> Anisotropic	<input type="checkbox"/> irregular shapes	<input type="checkbox"/> Quartz _____
<input type="checkbox"/> Synthetics _____ %	<input type="checkbox"/> isotropic	<input type="checkbox"/> Wollastonite _____
<input type="checkbox"/> even edges	Glass Fibers <u>30</u> %	<input type="checkbox"/> Caco _____
<input type="checkbox"/> high birefringence	<input checked="" type="checkbox"/> straight fibers	<input type="checkbox"/> Caso _____
	<input type="checkbox"/> isotropic	<input type="checkbox"/> Mica _____
		<input type="checkbox"/> Other _____

Comments / Special Treatment \_\_\_\_\_

FINAL ANALYSIS 30% Chy 30% FG 30% Cell

Analyst [Signature] Date 10/11/90 2nd Party (if needed) \_\_\_\_\_

### ASBESTOS CHAIN OF CUSTODY RECORD

JOB NO.		PROJECT NAME		NUMBER OF CONTAINERS	SAMPLE METHOD							ANALYSIS METHOD	COMMENTS (Type of Material, Friability, Abatement Activity)	LABORATORY IDENTIFICATION		
SAMPLER (SIGNATURE)					BULK	WIPE	PERSONAL AIR	AREA AIR	FINAL CLEARANCE	PLM	PCM				TEM	TOTAL VOLUME (Liters)
SAMPLE IDENTIFICATION	DATE	TIME	SAMPLE LOCATION													
7470K215		Bridges/Conterminal Bldg														
TIM ATEN & Dennis Kish																
S-1	10/5	11:00	2nd floor - water pipe	1	X					X						
S-2			2nd floor - water pipe	1	X					X						
S-3			2nd floor - water pipe	1	X					X						
S-4			2nd floor - water pipe	1	X					X						
S-5			2nd floor - water pipe	1	X					X						
S-6			2nd floor - water pipe	1	X					X						
S-7			2nd floor - water pipe	1	X					X						
S-8			2nd floor - water pipe	1	X					X						
S-9			2nd floor - water pipe	1	X					X						
S-10			3rd floor - hallway	1	X					X						
S-11			3rd floor - hallway	1	X					X						
S-12			wood	1	X					X						
RELINQUISHED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		RELINQUISHED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)						
Tim Aten		10/5	11:00													
RELINQUISHED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)		RELINQUISHED BY (SIGNATURE)		DATE	TIME	RECEIVED BY (SIGNATURE)						
RELINQUISHED BY (SIGNATURE)		DATE	TIME	RECEIVED FOR LABORATORY BY (SIGNATURE)		DATE	TIME	TURNAROUND								
								<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Routine RUSH <input type="checkbox"/> Emergency RUSH !								

White-Testing Laboratory; Yellow-Department Job File; Pink-Field Sampler

10/5



# ENVIRONMENTAL MANAGEMENT CONSULTANTS

190

## CHAIN OF CUSTODY FORM

CLIENT Western Tech LAB # 1267

PROJECT NAME Bridge Bldg - Centennial

NUMBER OF SAMPLES 12 PAGE 1 OF 1

CLIENT SAMPLE ID S-1 to S-12

LAB SAMPLE ID 1267-1 to 1267-12

REC'D AG DATE REC'D 10-11-90 TIME 8:00  AM  PM

DELIVERED BY F White SHIPPING BILL RETAINED YES / NO

CONDITION OF PACKAGE good

PACKAGE OPENED BY AG DATE 10-11-90

SAMPLE CONDITION EXAMINED BY AG DATE 10-11-90

CONDITION OF INDIVIDUAL SAMPLES good

SAMPLE ACCEPTED  YES / NO

ASSIGNED FOR PREP ANALYSIS BY AG DATE 10-11-90

PREPARED FOR ANALYSIS BY E Jander DATE 10/11/90

ANALYZED BY Kurt Kurt DATE 10/11/90

SUBMITTED FOR Q.C. \_\_\_\_\_ DATE \_\_\_\_\_

QUALITY CONTROL CHECKED BY AG DATE 10/11/90

ACTION TAKEN none

INITIAL BY ALL PARTIES INVOLVED \_\_\_\_\_

SUBMITTED FOR REPORT BY AG DATE 10/11/90

REPORT CHECKED BY Kurt Kates DATE 10/11/90

REPORT ISSUED TO CLIENT BY \_\_\_\_\_ DATE \_\_\_\_\_

SAMPLES RETURNED YES / NO DATE \_\_\_\_\_

SAMPLES STORED \_\_\_\_\_ DATE \_\_\_\_\_

OTHER \_\_\_\_\_



A Wholly Owned Subsidiary of The Converse Professional Group

# Converse Consultants Southwest, Inc.

Celebrating 50 Years of Dedication in Engineering and Environmental Sciences

Reference to samples  
TAKEN at the site  
of a roof penetration  
at the Centennial bldg  
for the electrical team

## POLARIZED LIGHT MICROSCOPY ANALYSIS REPORT

Client: CECSW  
731 PILOT ROAD, SUITE H  
LAS VEGAS, NEVADA 89502

Account: NA  
Contact: JEFF DIX  
Project No: 9643657-01  
CENTENNIAL/RESTROOM

Date Received: 05/25/96  
Data Analyzed: 05/27/96  
Date Reported: 05/28/96  
Reported To: JEFF DIX  
Submitted By: FEDERAL EXPRESS  
Report No.: 71-25591  
P.O. #: NONE PROVIDED

I certify that these results are accurate for the samples obtained and comply with accepted methods of analysis.

Lab Manager, Dan R. Dolk

Analyst, Dan R. Dolk

RESULTS: LAB SAMPLE # LAB DESCRIPTION LOCATION	CLIENT SAMPLE #	PERCENT & TYPE OF ASBESTOS	PERCENT & TYPE OF NON-ASBESTOS	LAYER* I-H APPEARANCE* F-NF
25591 Black/Brown Roofing Not Provided	SUR	None Detected	20% Wood Fibers 75% Organic Binders 5% Mineral Cleavages	I F
25592 Brown Roofing Not Provided	SUB	None Detected	95% Wood Fibers 5% Binders	I F

Attached are the results of analysis of bulk samples submitted for asbestos identification. Converse Consultants MR, Inc. follows EPA Method EPA/600/R-93/116; July, 1993.

Each sample was initially examined under a stereoscopic microscope at a magnification of 10x to 60x. Fibrous material was examined for morphology and content. Portions of each sample were immersed in a fluid with a known refractive index. The sample was examined under polarized light using a Nikon Labophot microscope with a McCrone Dispersion Staining objective under 100X magnification. Optical characteristics of the fibrous material were examined to determine the mineralogy of the fiber. The observed optical characteristics include angles of extinction, signs of elongation and dispersion staining colors. Asbestos fiber content is estimated by optically comparing the quantity of asbestos material and non-asbestos material to establish estimated percentages.

Bulk sampling may not have been performed by Converse Consultants personnel. No warranty is made as to the acceptability of sampling strategies.

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\*I in the layer column above indicates an inhomogeneous sample; H indicates an homogenous sample.

\*F in the appearance column indicates a fibrous sample; NF indicates a nonfibrous sample.

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