

PRE-DEMOLITION/RENOVATION
ASBESTOS AND LEAD-BASED PAINT
INSPECTION REPORT FOR
COLORADO DEPARTMENT OF
TRANSPORTATION BRIDGE STRUCTURE
H-17-BC

## I-25 Southbound and Air Force Academy Road 70 Mile Marker 155.931

STRUCTURE ID: H-17-BC

WALSH Project Number: WA-000944-0186

July 13, 2012

Prepared for:

Mr. Phillip Kangas Colorado Department of Transportation Hazardous Waste Management Supervisor 15285 South Golden Road, Bldg. 47 Golden, Colorado 80401



# PRE-DEMOLITION/RENOVATION SPECIFIC ASBESTOS AND LEAD-BASED PAINT INSPECTION REPORT FOR

## COLORADO DEPARTMENT OF TRANSPORTATION BRIDGE STRUCTURE H-17-BC

## I-25 SOUTHBOUND AND AIR FORCE ACADEMY ROAD 70 COLORADO SPRINGS, COLORADO

July 13, 2012

Prepared for:
Colorado Department of Transportation

Inspection Conducted and Report Prepared by:

Walsh Environmental Scientists and Engineers, LLC 130 East Kiowa, Suite 202 Colorado Springs, Colorado 80903 (719) 227-0999

Kelly Dennison

CDPHE Asbestos Inspector Accreditation #18158

Reviewed By:

Chris J. Thompson District Manager

Submitted by WALSH ENVIRONMENTAL SCIENTISTS AND ENGINEERS, LLC Walsh Project WA-000944-0186

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#### 1. EXECUTIVE SUMMARY

#### 1.1. Summary of Work

This report provides an overview of an asbestos and lead paint inspection of Bridge Structure ID H-17-BC, located at the intersection of I-25 Southbound and Air Force Academy Road 70 at Mile Marker 155.931 in Colorado Springs, Colorado (the Site). Walsh Environmental Scientists and Engineers, LLC (Walsh) was contracted by the Colorado Department of Transportation (CDOT) to perform a pre-demolition/renovation inspection to locate asbestos-containing building materials (ACBM) and to conduct a limited screening for Lead-Based Paint (LBP) due to planned demolition/renovation activities. The inspection was conducted in accordance with CDOT Contract No. 201000559 including Exhibit A (statement of work) and in accordance with applicable EPA, OSHA and CDPHE regulations. The inspection was performed on July 02, 2012.

The following were specific structures at the Site <u>included</u> in the demolition/renovation specific inspection:

 Bridge ID: H-17-BC – I-25 Southbound and Air Force Academy Road 70 in Colorado Springs, Colorado. Mile Marker 155.931

The following were specific structures <u>excluded</u> in the demolition/renovation specific inspection:

None

#### 1.2. Asbestos-Containing Material

The sampling and inspection process was conducted in accordance with standards of the Environmental Protection Agency (EPA) Asbestos Emergency Hazard Response Act (AHERA) and National Emission Standards for Hazardous Air Pollutants (NESHAPs), Occupational Safety and Health Administration (OSHA) Construction and General Industry Standards for asbestos, Colorado Department of Public Health and Environment (CDPHE) Regulation 8 (Reg. 8), and other applicable industry standards. Asbestos inspection activities were conducted by AHERA and State of Colorado accredited personnel.

The inspection identified seven (7) suspected asbestos-containing homogeneous areas. One (1) functional space was identified and inspected. Seven (7) bulk samples were collected during the inspection. A material is considered to be asbestos-containing building material (ACBM) if the asbestos content is greater than 1% asbestos. Asbestos was not reported in the samples collected during this inspection.

#### **Special Conditions / Observations**

In addition to general limitations described in Section 8, the following materials have the potential to be asbestos-containing but cannot be accessed or inspected due to access limitations, operational considerations, or safety issues (e.g. electrical hazards):

Packing and gasket material associated with expansion joints within the bridge structure.
 Other materials not observed during this inspection may be present in spaces that were concealed with concrete and/or asphalt within the structure.

See Section 7 (Recommendations) for requirements prior to demolition activities that may impact ACBM.

#### 1.3. Lead-Based Paint

EPA, HUD and CDPHE define Lead-Based Paint (LBP) as paint having a lead content of greater than or equal to 1.0 mg/cm² using XRF analysis, or 0.5 weight percent using flame atomic absorption analysis.

Walsh conducted a limited LBP survey at the Site by collecting a limited number of representative paint chip samples that were analyzed using atomic absorption spectrometry (AAS) for lead content. The limited LBP survey was conducted due to planned renovation or demolition of a structure and is solely for general disclosure purposes to provide contractors with information regarding those materials containing the highest levels of lead, to supplement presumption that all painted surfaces contain some level of lead. This disclosure is provided to those employers that may impact painted materials about general conditions that may be encountered for a particular building. The screening is also conducted to provide general information regarding demolition/renovation waste characterization/disposition (proper disposal).

Lead-Based Paint (>0.5% by weight) was identified during the inspection. The following component was confirmed to be LBP and should be disclosed to the demolition contractor, and is subject to waste determination procedures.

#### Lead-Based Paint (LBP)

Steel-Silver Paint over Red Paint – Located on Steel Support Beams.

Demolition activities involving lead-based paint and lead-containing paint are covered under the OSHA Construction Industry Standard for Lead (Title 29 of the Federal Code of Regulations, Part 1926.62). This standard addresses such issues as worker training, medical evaluations, personnel protective equipment, exposure assessment, air monitoring, hygiene facilities and practices, and health and safety plans. OSHA regulations do not define a minimum concentration of lead as a threshold for action. Thus, even concentrations below EPA/HUD/CDPHE levels are covered under OSHA regulations.

Additionally, lead-containing materials require a hazardous waste determination pursuant to 40 CFR 262.11, and 40 CFR 261.24. It is a standard industry approach that demolition waste characterization should be performed on structures containing lead-based paint. This procedure is the Toxicity Characteristic Leaching Process (TCLP), where a composite sample representative

of all building components to be demolished (i.e. all lead-based paint coated and non-lead-based paint coated materials from the structure) is submitted to the laboratory for analysis. The Toxicity Characteristic (TC) limit for lead is 5ppm in the leachate. Materials that exceed this limit must be disposed of as hazardous waste. Materials that do not exceed this limit may be disposed of as solid waste.

The types and locations of LBP, and regulatory requirements should be disclosed to the demolition contractor and/or salvage contractor to avoid accidental disturbance, and for contractor compliance with applicable regulations (to ensure proper worker protection).

See Section 7 (Recommendations) for requirements prior to demolition activities that may impact LBP.

#### 2. STRUCTURE INFORMATION

A site map showing the location of the structure is provided in the appendices. The following summary provides specific structure, scope of inspection, areas inspected and functional space information relevant to the inspection.

Bridge Structure ID: H-17-BC consists of a precast concrete prestressed girder bridge constructed in 1958 at the intersection of I-25 Southbound and Air Force Academy Road 70 in Colorado Springs, Colorado. The bridge is 191-feet long and 54-feet wide.



Photo 1 – View of Bridge Structure ID: H-17-BC.

#### 3. FUNCTIONAL SPACE INFORMATION

The following summary provides basic information for specific materials inspected, including location, description, dimensions, and other observations. This summary also identifies those areas that were inaccessible and could not be inspected, which will require inspection prior to renovation activities.

One (1) functional space (bridge) was identified. Seven (7) materials were identified as suspect asbestos-containing materials and sampled during the inspection and are listed below:

- Composite Asphalt
- Concrete Substrate
- Gray, Foam Expansion Joint
- Silver Paint over Red Paint on Steel Structure
- White Road Lane Paint over Asphalt
- Yellow Road Lane Paint over Asphalt
- Black Road Tar over Asphalt

No other suspect materials were identified during this inspection.

#### 4. INSPECTION METHODOLOGY

#### 4.1. Asbestos-Containing Material

The sampling and destructive investigation process was conducted in accordance with AHERA under Title 40 of the Federal Register, CDPHE Regulation 8, and other applicable industry standards (including EPA, NESHAP, OSHA asbestos regulations, and asbestos regulations.) Asbestos inspection activities were conducted by AHERA and State of Colorado accredited personnel.

The scope of the asbestos inspection was to identify ACBM and included the following steps:

- Visual inspection of all accessible areas of the structure to identify suspect materials.
- Visual inspection of all areas of suspect ACBM.
- Determination of friability by touching all suspect ACBM.
- Development of a sampling plan for each material based on the homogeneous type, friability, and accessibility and material locations. Samples were submitted for laboratory analysis by Polarized Light Microscopy (PLM).
- Inspection in two phases: comprehensive non-destructive inspection for accessible areas, followed
  by destructive investigation (creating large openings in walls, ceilings, chases, etc) to identify
  ACBM in previously inaccessible areas.

A homogeneous area (material) is defined as an area containing a material that appears similar throughout with regard to color, texture, and date of application. Individual systems that were inspected, but not suspected to contain asbestos, are not included in this report. Such systems include carpet, fiberglass, plastic, and wood products.

Each type of suspect building material (homogeneous area) was assigned an alpha material code, followed by a number to identify the different varieties of that building material. For example, ceiling tiles are designated by the material code of CT. Each type of ceiling tile was denoted by subsequent "type" number (CT-01, CT-02, etc). Material size, thickness, substrate, material friability, location, and quantity were recorded. Material information was recorded on a room-by-room (functional space) inventory form (and/or Walsh Asbestos Inspection Form).

The homogeneous area was classified into one of three available types of homogeneous material descriptions.

- Surfacing Material refers to a wide range of trowel or spray-applied materials typically used for acoustical or fireproofing purposes. Examples include spray-applied fireproofing and acoustical texture ceilings.
- Thermal System Insulation (TSI) refers to insulation that is applied to heating or mechanical system components. Examples include pipe, tank and boiler insulation.
- **Miscellaneous Materials** refers to all other materials that do not fall into one of the above categories. Examples include floor tile, adhesives, and ceiling tiles.

Once the homogeneous area was determined it was then classified as friable or nonfriable. The EPA distinguishes between friable and nonfriable forms of ACBM. Friable materials can be crumbled or reduced to powder by hand pressure, whereas nonfriable materials cannot. Friable materials are more likely to be released into the air, especially during renovation and demolition of a structure. Therefore, the distinction between friable and nonfriable homogeneous material is important.

The following Bulk Sampling protocol for friable and Category I and II nonfriable materials was used to determine the number of samples to be collected for friable materials and nonfriable materials deemed potential Regulated Asbestos-Containing Material (RACM, nonfriable materials with potential to be rendered friable during normal demolition).

**Bulk Sampling Strategy** 

	6		
Material	Homogeneous Area	Units	Minimum Number of Samples
Friable Surfacing	Less than 1000 1000 to 5000 More than 5000	SF	3 5 7
Nonfriable Surfacing		SF	3
Friable and Nonfriable Thermal System Insulation		LF/SF/EA	3*
Friable and Nonfriable Miscellaneous Materials		LF / SF / EA	3*

<sup>\*</sup> One sample was collected for limited quantity replacement or patch (salient) materials.

#### 4.2. Lead-Based Paint

Walsh conducted a limited LBP survey at the site by collecting a limited number of representative paint chip samples that were analyzed by atomic absorption spectrometry (AAS) for lead content. The limited LBP survey was conducted due to planned renovation or demolition of a structure and is solely for general disclosure purposes to provide contractors with information regarding those materials containing the highest levels of lead, to supplement presumption that all painted surfaces contain some level of lead. This disclosure is provided to those employers that may impact painted materials about general conditions that may be encountered for a particular building. The screening is also conducted to provide general information regarding demolition/renovation waste characterization/disposition (proper disposal).

The lead inspection used methods adapted from the Housing and Urban Development (HUD) Guidelines for the Evaluation and Control of Lead-Based paint in Housing, June, 1995.

#### 5. BULK SAMPLING AND LABORATORY ANALYSIS

#### 5.1. Asbestos-Containing Material

As part of the inspection, bulk samples of suspect materials were collected by accredited asbestos inspectors in a random and representative manner as determined by each inspector. Samples were collected by taking a core sample that included all layers within the suspect material. Samples from soft friable materials were obtained by removing a small portion using wetting techniques. All samples were placed in sealed, labeled containers, and the sample descriptions and locations were recorded. Digital photographs were also taken to provide a visual reference for each material. At the time of collection, samples were labeled with an appropriate and unique number. This number (along with other information such as sample location, color, texture, and condition) was recorded on the inspection form.

The inspector delivered the samples along with a completed chain-of-custody (COC) document to the laboratory. The laboratory then arranged the samples in numerical order. If a discrepancy between the samples exists, this is noted and initialed on the COC. The laboratory signed a copy of the COC to acknowledge receipt. The inspector retained the signed copy for evidentiary purposes. Further, the laboratory assigned a laboratory number to each sample received. The laboratory labeled both the analytical report and the sample container with this laboratory number for cross-reference purposes.

The bulk samples were submitted for progressive analysis (positive stop) to Reservoirs Environmental Services Inc., a National Volunteer Laboratory Accreditation Program (NVLAP) accredited laboratory. Under progressive analysis, once a positive result is obtained within a sample set, all subsequent samples within that set are not analyzed (as a cost savings measure).

Analysis of the bulk samples was performed using PLM procedures developed by McCrone Research Institute, and in compliance with the guidelines established by the Environmental Protection Agency (EPA-600/R-93/116, June, 1993) to determine asbestos type and content. The PLM samples are reported as percent asbestos by Calibrated Visual Area Estimation. Percent asbestos for separate layers and total for the sample are delineated in the laboratory report. Unused portions of samples are archived for six months unless the client requests special handling.

As of November 20, 1990, the EPA NESHAP requires that samples with less than 10 percent asbestos be analyzed by the point-count procedure, or must be assumed positive for asbestos. CDPHE regulations require that samples containing 1 percent or less asbestos be analyzed under the point-counting method (to avoid false negatives, or inaccurately classifying asbestos-containing material as non-asbestos-containing material). The analytical and laboratory reports are located in Appendix D of this report.

The following summary provides specific information for suspect homogeneous materials identified, bulk sampling, and analytical results.

TABLE 1 - SUMMARY OF ASBESTOS ANALYSIS

HOMOGENEOUS AREA	MATERIAL DESCRIPTION	ASBESTOS CONTENT	LOCATION	QUANTITY
H-17-BC-AS01	Asphalt Composite	ND	Surface of Bridge	10,314 SF
H-17-BC-CN01	Concrete Substrate	ND	Bridge Structure	26,816 SF
H-17-BC-EJ01	Gray, Foam Expansion Joint	ND	Between Median on Bridge Surface	54 LF
H-17-BC-PA01	Silver Paint over Red Paint	ND	On Steel Structural Support Beams	80 SF
H-17-BC-PA02	White Road Lane Paint	ND	Shoulder of Bridge and Main Lanes on Asphalt	478 LF
H-17-BC-PA03	Yellow Road Lane Paint	ND	Median Lanes on Asphalt	191 LF
H-17-BC-RT01	Black Road Tar	ND	Horizontal Areas on Asphalt	353 LF

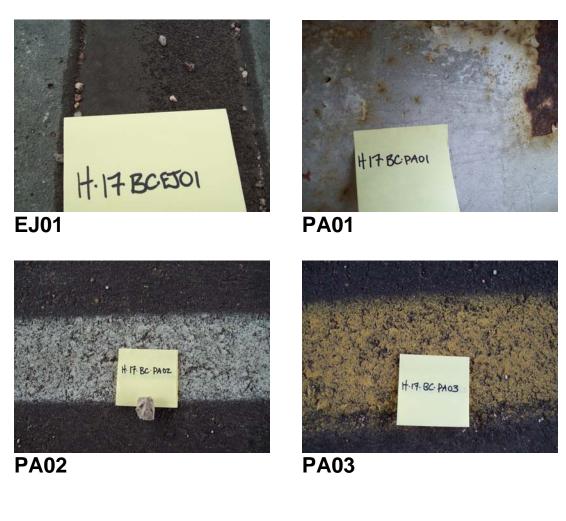
LF – Linear Feet; SF – Square Feet; ND – None Detected

#### Representative Photos are below:





AS01 CN01





RT01

The analytical and laboratory reports are located in Appendix D of this report.

#### 5.2. Lead-Based Paint

Paint (chip) samples were collected by physically removing a small portion approximately 2 inches square using a cutting or coring tool. Each sample was placed into a sealed and labeled container, and sample locations and descriptions were recorded.

The inspector delivered the samples along with a completed COC document to the laboratory. The laboratory then arranged the samples in numerical order. If a discrepancy between the samples exists, this is noted and initialed on the log sheet. The laboratory signed a copy of the sample log to acknowledge receipt. The inspector retained the signed copy for evidentiary purposes. Further, the laboratory assigned a laboratory number to each sample received. The laboratory labeled both the analytical report and the sample container with this laboratory number for cross-reference purposes.

The chip samples were submitted to Reservoirs Environmental Services Inc. for analysis by Atomic Absorption Analysis (AAS).

The following summary provides the results of lead analysis by AAS.

TABLE 2 - SUMMARY OF LEAD-BASED PAINT ANALYSIS

SAMPLE ID	LOCATION	SUBSTRATE	COLOR	CONDITION	RESULT (% BY WEIGHT)
H-17-BC- LBP01	On Steel Structural Support Beams	Steel	Silver over Red	Poor	1.2
H-17-BC- LBP02	On Shoulders and Main Road Lanes	Asphalt	White	Intact	BRL
H-17-BC- LBP03	Median of Road	Asphalt	Yellow	Intact	BRL

BRL- Below Reporting Limit

Representative Photos are below:





LBP01 LBP02



LBP03

#### 6. FINDINGS

#### 6.1. Asbestos-Containing Material

EPA, OSHA and CDPHE define asbestos-containing material (ACM) as any material containing greater than 1% asbestos. EPA and CDPHE define asbestos-containing building material (ACBM) as any building material containing greater than 1% asbestos. The following summary provides listings of ACBM

Asbestos-containing materials were not identified as part of this inspection.

#### 6.2. Lead-Based Paint

Lead-Based Paint (>0.5% by weight) was identified during this inspection. The following component was confirmed to be LBP:

Steel Substrate-Silver Paint over Red Paint-Located on Steel Structural Beams.

#### 7. RECOMMENDATIONS

#### 7.1. Asbestos-Containing Material

All regulated asbestos-containing materials (RACMs) are required by regulation to be properly removed and disposed of prior to renovation or demolition activities. The proper removal and handling of these materials is typically addressed through the preparation of a written "abatement scope of work/specification" document (bid package).

Under normal demolition activities, nonfriable Category I non-RACMs (nonfriable materials such as floor tile, roofing, and gasket material) and similar nonfriable Category II non-RACMs are allowed to remain, and can be disposed of as normal demolition debris, provided these materials remain nonfriable during demolition activities. Some landfills allow the material to be disposed of with construction debris; however, the waste hauler and landfill must be notified that they are receiving a Category I nonfriable asbestos material. If the material is removed as an asbestos removal project it should be disposed of as nonfriable asbestos waste.

Materials containing 1% or less asbestos (as verified by point count) are not subject to EPA and CDPHE requirements, and therefore may remain during building demolition. Non-RACMs and materials containing 1% or less asbestos may be subject to OSHA regulations if air concentrations are at or above the personal exposure limit (PEL) of 0.1 f/cc or the excursion limit of 1.0 f/cc.

Asbestos-containing materials or trace-1% (OSHA) asbestos materials were not identified during this inspection; therefore, materials are not subject to the above referenced provisions.

#### 7.2. Lead-Based Paint and Lead-Containing Paint

Renovation and demolition activities involving Lead-Based Paint are covered under the OSHA Construction Industry Standard for Lead (Title 29 of the Federal Code of Regulations, Part 1926.62). This standard addresses such issues as worker training, medical evaluations, personnel protective equipment, exposure assessment, biological monitoring, air monitoring, hygiene facilities and practices, and health and safety plans. OSHA regulations do not define a minimum concentration of lead as a threshold for action. Thus, even concentrations below EPA/HUD/CDPHE levels are covered under OSHA.

Additionally, lead-containing materials require a hazardous waste determination pursuant to 40 CFR 262.11, and 40 CFR 261.24. It is a standard industry approach that demolition waste characterization should be performed on structures containing lead-based paint. This procedure is the Toxicity Characteristic Leaching Process (TCLP), where sample composite representative of all building components to be demolished (i.e. all lead-based paint coated and non-lead-based paint coated materials from the structure) is submitted to the laboratory for analysis. The Toxicity Characteristic (TC) limit for lead is 5ppm in the leachate. Materials that exceed this limit must be disposed of as hazardous waste. Materials that do not exceed this limit may be disposed of as solid waste.

The types and locations of lead-containing paint (LCP), and regulatory requirements should be disclosed to the demolition contractor and/or salvage contractor to avoid accidental disturbance, and for contractor compliance with applicable regulations (to ensure proper worker protection).

#### 8. LIMITATIONS

No survey can completely eliminate the uncertainty regarding the presence of asbestos-containing materials, lead-based paint and other hazardous materials. The level of diligence and investigative procedures utilized are intended to reduce, but not eliminate potential uncertainty regarding the presence of these materials. The procedures used for this survey attempted to establish a balance between the competing goals of inspection cost, time and aesthetic damage. The determinations of this report should not be construed as a guarantee that all such materials present in the subject property have been identified in the report.

The inspection was performed in a manner consistent with the level of care and expertise exercised by members of the asbestos inspection and assessment profession. Those entities and persons involved with the inspection and generation of this report do not imply or guarantee that all potential asbestos-containing materials on or in the structure have been identified or sampled. Historically, asbestos has been added as a component to over 3,000 materials and products produced in the United States. The inspection was intended to identify those accessible materials that were reasonably suspect and that were most likely to contain asbestos in quantities subject to regulation, based on existing industry and regulatory standards.

Destructive investigation activities were conducted to identify materials in previously inaccessible areas (behind walls, above ceilings, etc), using limited demolition methods. These activities created small openings for investigation, but are limited in that full observation is not possible due to the presence of walls, flooring, ceilings, etc. Informational (hazard communication) training for demolition supervisory staff and workers, and additional inspection by an accredited asbestos inspector during demolition may assist in identifying any other hidden or concealed materials that may exist in the building.

Drawings and diagrams contained in this report are for informational purposes only, and proportion and scales are approximate.

## **APPENDIX A**

## **SITE LOCATION DRAWING**



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## **APPENDIX B**

## **SAMPLE LOCATION DRAWINGS**

(Asbestos and Paint Sample Locations)



Project

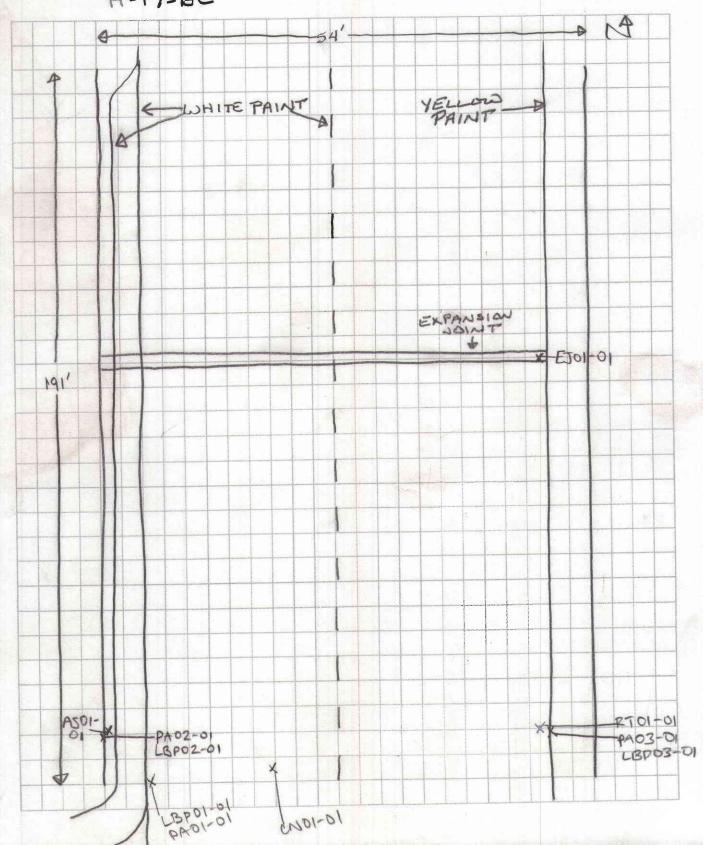
(page \_\_\_ of \_\_\_) (719) 227-0999

Environmental Scientists and Engineers, Inc

130 East Kiowa, Suite 202 Colorado Springs, Colorado 80903

## DAILY FIELD DRAWING

Project: CDOT: REGION 2 BRIDGE 1D: Date: 6/29/12 Day: FRI



## **APPENDIX C**

## FIELD INSPECTION WORKSHEETS

		Name: CDOT Region 2 Bridges Project: WA-000944-0186 Date: 06/29/12			
Building: Bridge H-17-BC	Homogeneo	ous Area # $\frac{1}{1}$ - $\frac{1}{1}$ - $\frac{1}{3}$ (material: $\frac{10}{3}$ L	C-ASOI-X		
Description of Material:	sphalt composit	le			
Type of Suspect Material:	Surfacing	TSI	_Miscellaneous		
Sample # Location Ot SW corner	r of bridge		Lab Result		
<b>Condition</b> Deteriora	Sig. Damaged	Damaged	Good X		
Friable Water Da	amage		X		
Non-Friable Y Physical I	Damage				
Note: Sig. Damaged = >10% scattered	ed or >25% local damage. I	Damaged = <10%/<25%			
Potential for Disturbance	High	Moderate	Low		
Contact Vibration	<del></del>	4			
Air erosic		-			
Comments:					
Physical Classification					
Damaged friable surfact Significantly damaged Damaged or significant X ACBM with potential f ACBM with potential f	friable surfacing ACBM tly damaged friable miscelland for damage	eous ACBM			
Comments:	1				
Assistant Name: Mid	Inspector Signa	ture: Kelly D			
<b>≧</b> Walsh		J			

			000944-0186 <b>Date</b> : (	)6/29/12
Building: Brid	lge H-17-BC	_ Homogeneous _ Amount of ma	Area # H-17-BC-C aterial: 26,816 SF	NOI-X
Description of	Material: CONCVe-	te substrate		
Type of Suspe	ct Material:	_ Surfacing	TSIXI	Miscellaneous
Sample # _O(	Location under bridge, a	1 5 edge,1	o' From Wedge	Lab Result
$\equiv$				
Condition	Deterioration	Sig. Damaged	Damaged	Good
Friable	Water Damage	×		
Non-Friable X	Physical Damage	_X	-	
Note: Sig. Damag	ged = >10% scattered or >2	25% local damage. Da	maged = <10%/<25%	
Potential for I	Disturbance	High	Moderate	Low
	Contact	V		
	Vibration	$\stackrel{\wedge}{\times}$		
	Air erosion			
Comments:				
Physical Class	ification			
Da Si Da	amaged or significantly damagemaged friable surfacing ACI gnificantly damaged friable sumaged or significantly damagemaged or significantly damagemagemagemagemagemagemagemagemagemag	BM urfacing ACBM ged friable miscellaneo		
	CBM with potential for damaged CBM with potential for signifulations.			
Aı	ny remaining friable ACBM of	or friable suspected AC	BM	
Comments:	AN			
	m. 1/1 / App	ader 1	2/11/	,
Assistant Name:_	Must	Inspector Signatur	re: All L	
<b>▲</b> Walsh			U	
Environmental Scienti	sts and Engineers, LLC. 130 E. Ki	iowa, Suite 202 Colorado S	prings, CO. 80903 719-227-099	99 (fax)719-227-0491

			00944-0186 <b>Date</b> : 0	6/29/12
Building: B	ridge H-17-BC	Homogeneous Amount of mat	Area # H. 17. 13 C. E. erial: \$4LF	[J01-X
Description	of Material: Gvay, F	Dam ex pansion	Joint	
	pect Material:			
Sample #	Location East side of Median	bridge, centered	N to S, center	Lab Result
Condition		Sig. Damaged	Damaged	Good
	Deterioration		X	
Friable_Non-Friable_X	Water Damage Physical Damage		$\frac{1}{x}$	
/	naged = >10% scattered or >	>25% local damage. Dan	naged = <10%/<25%	
	r <b>Disturbance</b> Contact Vibration Air erosion	High  X	Moderate	Low
Comments:		-X		
Physical Cla				
	Damaged or significantly dam Damaged friable surfacing AC Significantly damaged friable Damaged or significantly dam ACBM with potential for dam	CBM surfacing ACBM aged friable miscellaneou age		
	ACBM with potential for sign Any remaining friable ACBM	ificant damage or friable suspected ACE	BM	
Comments:	un Alle	7.	1/11	9:
Assistant Name	: //www.	Inspector Signature	e: Kerry	
Environmental Sci	entists and Engineers, LLC. 130 E.	Kiowa, Suite 202 Colorado Sp	rings, CO. 80903 719-227-099	99 (fax)719-227-0491

			Region 2 Bridges 00944-0186 <b>Date</b> :	06/29/12		
Building: Bri	dge H-17-BC	Homogeneous Amount of mate	Homogeneous Area # H. 17. BC - PAOI-X Amount of material:			
Description of	f Material: Silvey	paint on steel	substrate.	- over ved par		
		Surfacing				
Sample #	Location under bridge	, SW most suf	pport	Lab Result		
E						
Condition	Deterioration	Sig. Damaged	Damaged	Good		
Friable	Deterioration Water Damage	<u> </u>	·	No. of the contract of the con		
Non-Friable	Physical Dama					
	aged = >10% scattered or	>25% local damage. Dam	aged = <10%/<25%			
Potential for	Disturbance	High	Moderate	Low		
	Contact	Χ		-		
	Vibration	×		2		
	Air erosion	<del></del>	44-2			
Comments:	on steel stw	ictural support	beams			
Physical Clas	sification					
		amaged thermal system insul	ation (TSI)			
	Damaged friable surfacing					
S	ignificantly damaged friab	amaged friable miscellaneous	SACBM			
L	CBM with potential for da	amage	TIODIII			
X	CBM with potential for si	gnificant damage				
A	Any remaining friable ACB	M or friable suspected ACB	M			
Comments:	AA					
Assistant Name:	Mille	Inspector Signature	Kelly	2		
Walsh Environmental Scient	tists and Engineers, LLC. 130	E. Kiowa, Suite 202 Colorado Spr	ings, CO, 80903 719-227-0	999 (fax)719-227-0491		
Lavinonniemai Scien	uso and Engineers, ELC. 150	L. Inone, Care 202 Colorado Opi	0., ,			

		00944-0186 Date:	06/29/12
Building: Bridge H-17-BC	Homogeneous Amount of mat	Area # <u> </u>	- PAOZ-X
Description of Material: White	road lane po	xint	
Type of Suspect Material:	Surfacing	TSIX	Miscellaneous
Sample # Location  OI SIN TURN LANC.	at Shoulder		Lab Result
Condition  Deterioration	Sig. Damaged	Damaged	Good X
Friable Water Damage Non-Friable X Physical Damage			*
Note: Sig. Damaged = >10% scattered or	>25% local damage. Dan	naged = <10%/<25%	
Potential for Disturbance	High	Moderate	Low
Contact Vibration Air erosion			
Comments:			
Physical Classification  Damaged or significantly dam Damaged friable surfacing AC Significantly damaged friable Damaged or significantly dam ACBM with potential for dam ACBM with potential for sign Any remaining friable ACBM	CBM surfacing ACBM laged friable miscellaneou lage ificant damage	s ACBM	
Comments:  Assistant Name:	Inspector Signatur	e: Killy	2
Environmental Scientists and Engineers, LLC. 130 E.	Kiowa, Suite 202 Colorado Sp	orings, CO. 80903 719-227-0	999 (fax)719-227-0491

		1 Region 2 Bridges -000944-0186 <b>Date</b> :	06/29/12
Building: Bridge H-17-BC	Homogeneou Amount of m	s Area # <u>H. 17 · BC</u> aterial:	PA03.X
Description of Material:	oad lane	paint	
Type of Suspect Material:			
Sample # Location  DI SE Median line			Lab Result
	Sig. Damaged	Damaged	Good
Friable Water Damage Non-Friable Physical Damage			X
Note: Sig. Damaged = >10% scattered or >25%	% local damage. De	amaged = <10%/<25%	
Potential for Disturbance  Contact Vibration Air erosion	High  X  X	Moderate	Low
Comments:			
Physical Classification  Damaged or significantly damaged Damaged friable surfacing ACBM Significantly damaged friable surfacing Damaged or significantly damaged X ACBM with potential for damaged ACBM with potential for signification Any remaining friable ACBM or form	If facing ACBM d friable miscellaned ant damage	ous ACBM	
Comments:		V.11. I	> `
Assistant Name:  Environmental Scientists and Engineers, LLC. 130 E. Kiow	Inspector Signatura, Suite 202 Colorado	J	-0999 (fax)719-227-0491

			000944-0186 <b>Date</b>	: 06/29/12
Building: Bridge H-17-	·BC	Homogeneous Amount of ma	Area # H 17 - Bo aterial: 353 L	C. RTOI-X
Description of Materia	1: Black 1	road far		
Type of Suspect Mater	ial:	_Surfacing	TSI	_Miscellaneous
Sample # Loca A+	tion Shoulder, So	Ecorner of b	ridge	Lab Result
Condition	Datasiandian	Sig. Damaged	Damaged	Good
Friable	Deterioration Water Damage			×
	Physical Damage			×
Note: Sig. Damaged = >109	% scattered or >2	5% local damage. Da	maged = <10%/<25%	6
Potential for Disturban	ıce	High	Moderate	Low
	Contact Vibration Air erosion	×		
Comments:				
Physical Classification	-			
Damaged fria	significantly damag able surfacing ACB damaged friable su	ged thermal system ins  M  Infacing ACBM	ulation (TSI)	
Damaged or	significantly damag	ged friable miscellaneo	us ACBM	
ACBM with	potential for damag potential for signifi	ge		
ACBM with Any remaining	ng friable ACBM o	r friable suspected AC	BM	
Comments:	AL			
yn:	(Ve)	4	1/11/10	<u> </u>
Assistant Name:		Inspector Signatu	re: Aug 12	
<b>≜</b> Walsh		0 14 200 0 1-1	Parimos CO 90002 710 222	7-0999 (fax)719-227-0491
Environmental Scientists and Engin	ieers, LLC. 130 E. Ki	owa, Suite 202 Colorado S	ppinigs, CO. 60903 /19-22	(int)/17-22/ OT)1

WALSH Lead Inspection Form  Building: H. 17. BC	Name: CDOT REGION 7 Bridges Project: 000944 0186 Date: 06/29/12 Sample Method: Paint Chip
Description:	
Component Location  F W C S O F W C S O F W C S O F W C S O F W C S O F W C S O F W C S O F W C S O F W C S O F W C S O F W C S O F W C S O F W C S O F W C S O F W C S O F W C S O	Color   Condition   Sample #   Lab Result
F W C S O F W C S O F W C S O Components: F=Floors, W=Walls, C=Ceiling, S=Exterior Siding, O=Condition: I=Intact, F=Fair (Damage or deterioration <2SF or 10%)  Comments:	per room), P=Poor (Damage or deterioration >2SF or 10% per room)
(80SE)	
- A/L	
Inspector Signature	Assistant Signature

WALSH Lead Inspection Form	Name: CDOT Region 2 bridge
	Project: 000944-0180 Date: 06/29/12
Building: H-17-BC	Sample Method: Paint Chip
Description:	
	Color Condition Common # Lob Dogult
Component Location	Color Condition Sample # Lab Result
FWCS O SW turn lane	00.11.
FWCSO	T P D
F W C S O	I E D
FWCSO	
FWCSO	I E D
F W C S O	I D D
FWCSO	T P D
FWCSO	
FWCSO	
F W C S O	T P D
FWCSO	
F W C S O	
FWCSO	T D D
F W C S O	I F P
F W C S O Components: F=Floors, W=Walls, C=Ceiling, S=Exterior Sidin	
Condition: I=Intact, F=Fair (Damage or deterioration <2SF)	or 10% per room), P=Poor (Damage or deterioration >2SF or 10% per room)
Comments:	the state of the s
asphalt substrate	478LF)
as phalt substrate	
	The state of the s
2/1	2.1
Yes ( Works	$\mathcal{L}_{\mathcal{A}}$
Mielu	grew t
Inspector Signature	Assistant Signature

Building: H. 17- BC	Project: 60 0944-01810 Date: 06/29/12 Sample Method: Paint Chip	
Description:		
Component Location	Color Condition Sample # Lab Result	
FWCSO SE Median line	4clow O F PUSPOS-01 BRL	
FWCSO		
FWCSO		
FWCSO	I F P	
FWCSO	I F P	
FWCSO	I F P	
F W C S O	T T D	
F W C S O	T D D	
FWCSO	T D D	
FWCSO	T D D	
F W C S O	T D D	
FWCSO	T T D	
F W C S O	I D D	
FWCSO	T D D	
FWCSO	I F P	
Comments:  OSPhalt Substrate	10% per room), P=Poor (Damage or deterioration >2SF or 10% per room)	
Mre Inspector Signature	Assistant Signature	

## **APPENDIX D**

## LABORATORY REPORTS AND CHAIN OF CUSTODY FORMS



July 5, 2012

Laboratory Code: RES Subcontract Number: NA

Laboratory Report: RES 239371-1
Project # / PO #: WA-000944-0186-10
Project Description: Region 2 Bridges - H-17-

BC - Lead

Walsh Environmental - (Colo. Springs) 130 E. Kiowa Suite 202 Colorado Springs CO 80903

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the American Industrial Hygiene Association, Lab ID 101533 - Accreditation Certificate #480. The laboratory is currently proficient in both PAT & ELPAT programs respectively.

Reservoirs has analyzed the following sample(s) using Atomic Absorption Spectroscopy (AAS) / Atomic Emission Spectroscopy - Inductively Coupled Plasma (AES-ICP) per your request. Reported sample results were not blank corrected. The analysis has been completed in general accordance with the appropriate methodology as stated in the analysis table. Results have been sent to your office.

**RES 239371-1** is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those authorized by the client. The results described in this report only apply to the samples analyzed. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you should have any questions about this report, please feel free to call me at 303-964-1986.

Sincerely,

Jeanne Spencer

President

F: 303-477-4275

www.reilab.com

## RESERVOIRS ENVIRONMENTAL, INC.

**5801 Logan St., Suite 100 Denver CO 80216** 

**TABLE ANALYSIS: LEAD IN PAINT** 

**RES Job Number:** RES 239371-1

Client: Walsh Environmental - (Colo. Springs)

Client Project Number / P.O.: WA-000944-0186-10

Client Project Description: Region 2 Bridges - H-17-BC - Lead

Date Samples Received: July 3, 2012

Analysis Type: USEPA SW846 3050B / AA (7420)

Turnaround: 24 Hour Date Samples Analyzed: July 3, 2012

Client	Lab	Reporting	LEAD
ID Number	ID Number	Limit	CONCENTRATION
		(%)	(%)
H-17-BC-LBP01-01	EM 890256	0.0019	1.2
H-17-BC-LBP02-01	EM 890257	0.0013	BRL
H-17-BC-LBP03-01	EM 890258	0.0009	BRL

<sup>\*</sup> Unless otherwise noted all quality control samples performed within specifications established by the laboratory.

BRL = Below Reporting Limit Data QA P: 303-964-1986 1-866-RESI-ENV Reservoirs Environmental, Inc.

5801 Logan Street, Suite 100 Denver, CO 80216 (303) 964-1986 Fax (303) 477-4275 Toll Free (866) RESI-ENV

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Due Date:\_ Due Time:\_

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Page Z of Z

kdennison@walshenv.com csresults@walshenv.com CONTACT INFORMATION: Cell/pager Phone: Fax 1-719-227-0999 Cell/pager: 1-303-330-1147 1-719-227-0491 Final Data Deliverable Email Address; Contact: Kelly Dennison Phone: Fax INVOICE TO: (IF DIFFERENT) 1490 Address: RC 1+ Company: Walsh Environmental Scientists & Engineers, LLC. 01-9819-17000-17 KRGIUM 2 KrIDARS-SAMPLES SUBMITTED BY: Colorado Springs, CO 80903 130 E. Kiowa St. Suite 202 Project Number and/or P.O. #: | Project Description/Location: Address:

00 N W (Laboratory Use Only) 750 LAB NOTES: EM Number 0 Ų. \*\*ASTM E1792 approved wipe media only\*\* Collected hh/mm a/p Time Paint = P Wipe = W Bulk = B VALID MATRIX CODES Drinking Water = DW Waste Water = WW Collected Other = 0Date mm/dd/yy # Containers Dust = D Soil = S Air = AMatrix Code вэлА \ (Д) Sample Volume - ЯЭНТО REQUESTED ANALYSIS ORGANICS - BTEX, MTBE, 8260, GRO, DRO Welding Fume, ,члот METALS - Analyte(s) ,listoT - T&UC (Additional samples shall be listed on attached long form.) A400A, 7400B, OSHA Semi-quant, Micro-vac, ISO-Indirect Preps AHERA, Levelll, 7402, ISO, +/-, Quant, Short report, Long report, Point Count "Ahalysis tumarounds are subject to laboratory sample volume and are not guaranteed. You will be notifited if "Prior notification is required for RUSH ASBESTOS LABORATORY HOURS: Weekdays:: 7am - 7pm; Saturday: 8am -5pm turnarounds.\*\* (Rush PCM/PLM = 2hr, TEM - 6hr.) delays are expected. Additional fees apply for afterhours and holidays for all analysis types." (Sample ID's must be unique) CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm RUSH X 24 hr. 3-5 Day RUSH \_\_\_ 24 hr. \_\_\_3-5 Day RUSH 5 day 10 day 5 Day ٥ Ó 1 ſ 3 day ر م RUSH \_\_\_ 24 hr. \_\_\_3-5 day 24 hr. रेत कर्ति 2 ١ Client sample ID number Special Instructions:  $\sqcup \rho d$ Number of samples received: TCLP/ Welding Fume Scan RCRA 8/Metals Scan PCM/PLM/TEM Organics Metal(s) Dust Ø 4 Ŋ ဖ œ တ

NOTE. REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days.

ined By: 人が以上 Date/Time: 57 ら こ こ こ Carrier Contact Page Phone Email Fax Date Time Initials Contact		,				40g) / '	_			
Page Phone Email Fax Date Time Initials Contact	elinquished By: $\angle \mathcal{W} \setminus \mathcal{V}$	\				Date/Time: 67 02 12	Sample Condition: On Ice	n: On Ice	Sealed	Intact
Contact Page Phone Email Fax Date Time Initials Contact	aboratory Use Only/	ب	Date/Time:	7.3	, N	5-45- Carrier Fred Et	Temp. (F°)	A/N	N/A	B B
Dana Chang Canal Car, Data Times	Contact	hone Email Fax	Date	Time	Initials	Contact Page 16	Page Ruone Email Fax Date 7522 Time	Date 7512	Time	Initia
rage rione timal rax Date IIII Coniaci	Contact Page P	Page Phone Email Fax	Date	Time	Initials		Page Phone Email Fax Date	Date	Time	Initial



July 3, 2012 Laboratory Code: RES Subcontract Number: NA

Laboratory Report: RES 239364-1
Project # / P.O. # WA-000944-0186-10
Project Description: Region 2 Bridges

H.17.BC

Walsh Environmental - (Colo. Springs) 130 E. Kiowa Suite 202 Colorado Springs CO 80903

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

**RES 239364-1** is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer

President

Analyst(s):

Paul D. LoScalzo Michael Scales Anita Grigg

**Bethany Nichols** 

Wenlong Liu Adam Humphreys Robert R. Workman Jr.

Mahlul

Anya Angst

#### RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0 TDH Licensed Laboratory # 30-0136

#### TABLE PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number: RES 239364-1

Client: Walsh Environmental - (Colo. Springs)

Client Project Number / P.O.: **WA-000944-0186-10** 

Client Project Description: Region 2 Bridges H.17.BC

Date Samples Received: July 3, 2012

Analysis Type: PLM, Short Report

Turnaround: 24 Hour
Date Analyzed: July 3, 2012

ND=None Detected

TR=Trace, <1% Visual Estimate Trem-Act=Tremolite-Actinolite

Client	Lab	L			Asbestos Content	Non	Non-
Sample	ID Number	Α		Sub		Asbestos	Fibrous
Number		Υ	· · · · · · · · · · · · · · · · · · ·	Part	ļ		Components
		Ε	Description	(%)		Components	(%)
		R			Estimate (%	(%)	
H-17-BC-AS01-01	EM 145691	Α	Black granular tar	100	ND	0	100
H-17-BC-CN01-01	EM 145692	Α	Gray cementitious material	100	ND	0	100
H-17-BC-EJ01-01	EM 145693	Α	Gray resinous material	100	ND	0	100
H-17-BC-PA01-01	EM 145694	Α	Silver paint	10	ND	0	100
		В	Red/black resinous material	90	ND	0	100
H-17-BC-PA02-01	EM 145695	Α	White paint w/ glass beads	50	ND	0	100
		В	Black granular tar	50	ND	0	100
H-17-BC-PA03-01	EM 145696	Α	Black granular tar	40	ND		100
		В	Yellow paint w/ glass beads	60	ND	0	100
H-17-BC-RT01-01	EM 145697	Α	Black resinous tar	100	ND	0	100

# RES 239364

Reservoirs Environmental, Inc.

5801 Logan Street, Suite 100 Denver, CO 80216 (303) 964-1986 Fax (303) 477-4275

Toll Free (866) RESI-ENV

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Due Time: Due Date:

kdennison@walshenv.com csresults@walshenv.com CONTACT INFORMATION Cell/pager Phone: Fax: 1-719-227-0999 1-719-227-0491 Cell/pager: 1-303-330-1147 Final Data Deliverable Email Address: Kelly Dennison Contact: Phone; Fax (IF DIFFERENT) INVOICE TO: Company Address 7. 20 Company: Walsh Environmental Scientists & Engineers, LLC Project Number and/or P.O. # 1/14- 500 944-01810-10 Bridges SAMPLES SUBMITTED BY: Colorado Springs, CO 80903 130 E. Kiowa St. Suite 202 Project Description/Location: 1000 and \ddress;

(Laboratory Use Only) LAB NOTES: EM Number J 18 S 7 N W T T E1792 approved wipe media only\*\* Collected hh/mm a/p Time Buk = B Paint = P Wipe = WVALID MATRIX CODES Drinking Water = DW Waste Water = WW Collected mm/dd/yy Other = 0 # Confainers Dust = D Soil = S Air = A **Natrix Code** \*\*ASTM 691A \ (J) Sample Volume STHER REQUESTED ANALYSIS ORGANICS - BTEX, MTBE, 8260, GRO, DRO RCRA 8, TCLP, Welding Fume, Metals Scan METALS - Analyte(s) DUST - Total, Respirable AHSO ,800hY ,A00hY -Semi-quant, Micro-vac, ISO-Indirect Preps +/-, Quant, AHERA, Levelli, 7402, ISO, Short report, Long report, Point Count \*\*Analysis tumarounds are subject to laboratory sample volume and are not guaranteed. You will be notifited if "Prior notification is required for RUSH ASBESTOS LABORATÕRY HOURS: Weekdays: 7am - 7pm; Saturday: 8am -5pm turnarounds.\*\* (Rush PCM/PLM = 2hr, TEM - 6hr.) delays are expected. Additional fees apply for afterhours and holidays for all analysis types.\*\* (Sample ID's must be unique) CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm 24 hr. 3-5 Day 3-5 Day \_10 day 24 hr. 9 0 O 0 0 5 day 3 day RUSH X 24 hr. 3-5 day RUSH RUSH RUSH Ω C 24 hr. Client sample ID number **ICLP/ Welding Fume Scan** Ø RCRA 8/Metals Scan Special Instructions: PCM/PLM/TEM Organics Metal(s) Dust 12 9 4 S ထ တ

Information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days (Additional samples shall be listed on attached long form.) samples based upor NOTE: . REI will analyze incoming Number of samples received:

Initials Initials E SE Sealed Σ× Time Time <u>o</u> 0 Date Date Sample Condition: Page Phone Email/Fax Page Phone Email Fax Temp. (F°) Carrier: Date/Time: 04/02/17 シスツ Contact Contact Initials Initials 7 Ņ r Time Time Date/Time: Date Date Page Phone Email Fax Page Phone Email Fax **Laboratory Use Oni** Received By: Relinquished By: Contact Contact Results:

## **APPENDIX E**

## **REFERENCES**

## **ACRONYMS AND ABBREVIATIONS**

ACM Asbestos-Containing Materials

ACBM Asbestos-Containing Building Materials

AHERA EPA Asbestos Hazard Emergency Response Act

CDPHE Colorado Department of Public Health and Environment

D/R Demolition and/or Renovation

HVAC Heating Ventilation and Air Conditioning

NESHAPs National Emission Standards for Hazardous Air Pollutants NVLAP National Volunteer Laboratory Accreditation Program

O&M Asbestos Operations and Maintenance

OSHA Occupational Safety and Health Administration

PACM Presumed Asbestos-containing Material

PEL Personal Exposure Limit
PLM Polarized Light Microscopy

RACM Regulated Asbestos- Containing Material

TSI Thermal System Insulation

EPA United States Environmental Protection Agency

VAT Asbestos-Containing Vinyl Tile

WALSH Walsh Environmental Scientists and Engineers, LLC

## **ASBESTOS REFERENCES**

- United States Environmental Protection Agency, National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR 61.140-157.
- United States Environmental Protection Agency, Asbestos-Containing Materials in Schools; Final Rule and Notice (Asbestos Hazard Emergency Response Act -AHERA) 40 CFR 763.80-99, 1990.
- United States Environmental Protection Agency, Simplified Sampling Scheme for Surfacing Materials ("Pink Book") EPA publication #560/5-85-030a, Washington DC, 1985.
- Occupational Safety and Health Administration, Asbestos Regulations for the Construction Industry 29 CFR 1926.1101, Washington DC, 1994.
- Occupational Safety and Health Administration, Asbestos Regulations for the General Industry 29 CFR 1910.1001, Washington DC, 1994.
- Colorado Department of Public Health and Environment, Regulation 8 Emission Standards for Asbestos, 2003.

#### **GLOSSARY**

- ASBESTOS A generic name given to a number of naturally occurring silicates that have a unique crystalline structure. They are incombustible in air and separable into fibers. Asbestos includes the asbestiform varieties of Chrysotile, Crocidolite, Amosite, Anthophyllite, Actinolite, and Tremolite.
- ACBM Asbestos-Containing Building Material. A term that encompasses surfacing, thermal system, and miscellaneous asbestos-containing material in or on interior/exterior parts of a building. This definition also included exterior hallways connecting buildings, porticos, and mechanical system insulation.
- ACBM Asbestos-Containing Building Material. Any material with one percent (1%) or more asbestos content.
- BULK SAMPLE A piece of suspected asbestos-containing building material.
- FRIABLE A material which can be crumbled, pulverized, or reduced to powder when dry, by moderate hand pressure.
- FUNCTIONAL AREA Distinct units within a building such as a room, a group of rooms, or a homogeneous area this includes crawl spaces and areas above a drop ceiling.
- HOMOGENEOUS AREA An area which appears similar throughout in terms of: color, texture, and date of material application.
- INACCESSIBLE AREA Inaccessible areas are those areas which cannot be inspected due to physical barriers. Buildings may contain areas that are intrinsically inaccessible. These include gaps and spaces in walls, areas above fixed ceilings and below floors, and enclosed boiler breechings and ducts. Some buildings contain other inaccessible areas, such as very small pipe tunnels, sealed crawl spaces, unsafe attics, encased boilers, etc.
- NONFRIABLE A material which cannot be crumbled or pulverized by hand pressure.
- PACM Presumed Asbestos-Containing Material
- PLM Polarized Light Microscopy. An accepted method for analyzing bulk ACBM samples.
- RACM Regulated Asbestos-Containing Material. Any material with one percent (1%) or more asbestos content and is required to be removed prior to demolition activities.
- EPA United States Environmental Protection Agency. The EPA is the federal agency that governs environmental problems. In the case of ACBM in buildings, the EPA deals with regulations and their guidelines for application, renovation, removal, and disposal of ACBM in building structures.

## **APPENDIX F**

## **CONSULTANT CREDENTIALS**

# STATE OF COLORADO

# ASBESTOS CERTIFICATION\*

Colorado Department of Public Health and Environment Air Pollution Control Division

This certifies that

# **Michael Perry**

Certification No: 15632

has met the requirements of 25-7-507, C.R.S. and Air Quality Control Commission Regulation No. 8, Part B, and is hereby certified by the state of Colorado in the following discipline:

# Inspector/Management Planner\*

Issued: 9/9/2011

Expires on: 9/9/2012

Authorized APCD Representative

<sup>\*</sup> This certificate is valid only with the possession of a current Division-approved training course certification in the discipline specified above.



## COLORADO HAZARO CONTROL LLO

2727 West 92<sup>nd</sup> Avenue, Suite 10 Federal Heights, CO 80233 303.410.4941 36 North Research Drive, Suite B Pueblo West, CO 81007 719.547.2785

Certifies that

## Michael Perry

Has Successfully Completed the EPA- Approved Annual Asbestos Refresher Training Course Under Section 206 of the Toxic Substance Control Act (TSCA), Title II.

## **BUILDING INSPECTOR**

Course Date:

April 17, 2012

Certificate No.: 112179

No. of Hours: 4

Expiration Date: April 17, 2013

SFAL COLORADO COMPANION COLORADO COMPANION COLORADO COMPANION COLORADO COMPANION COLORADO COMPANION COLORADO COMPANION COLORADO C

Michael Benedetto - Guest Instructor

Daniel R. Beaver - Instructor



#### COLORADO HAZARD CONTROL ...

2727 West 92<sup>nd</sup> Avenue, Suite 10 Federal Heights, CO 80233 303.410.4941

36 North Research Drive, Suite B Pueblo West, CO 81007 719.547.2785

Certifies that

Kelly E. Dennison

Has Successfully Completed the EPA- Approved Annual Asbestos Refresher Training Course Under Section 206 of the Toxic Substance Control Act (TSCA), Title II.

#### **BUILDING INSPECTOR**

Course Date:

April 17, 2012

Certificate No.: 112178

No. of Hours:

Expiration Date: April 17, 2013

Michael Benedetto - Guest Instructor

niel R. Beaver - Instructor

# STATE OF COLORADO

# ASBESTOS CERTIFICATION\*

Colorado Department of Public Health and Environment Air Pollution Control Division

This certifies that

Kelly E. Dennison

Certification No: 18158

has met the requirements of 25-7-507, C.R.S. and Air Quality Control Commission Regulation No. 8, Part B, and is hereby certified by the state of Colorado in the following discipline:

**Building Inspector\*** 

Issued: 4/20/2012

Expires on: 4/20/2013

Authorized APCD Representative

SEAL

<sup>\*</sup> This certificate is valid only with the possession of a current Division-approved training course certification in the discipline specified above.