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## CERTIFICATE OF ANALYSIS

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<b>Client:</b> Precision Environmental Co. 5500 Old Brecksville Rd. Independence, Ohio 44131	<b>Report Date:</b> 03/21/2016 <b>Project:</b> 16-04-025 <b>Log No.:</b> 1483
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## BULK SAMPLE ANALYSIS SUMMARY

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### Sample Identification:

Twenty-one (21) samples representing suspect materials associated with the investigation of the feasibility of installing green roofs on two existing roofs at the Cleveland Hopkins International Airport in Cleveland, Ohio were submitted by Mr. Daniel C. Peders, CAHES #31134. Samples were collected on March 7, 2016 by Mr. Peders were submitted to Amianthus LLC laboratory in Berea, Ohio for asbestos content determination.

### Analytical Method:

Analytical procedures were performed in accordance with the U. S. Environmental Protection Agency (EPA) Recommended Method for the Determination of Asbestos in Bulk Samples by Polarized Light Microscopy and Dispersion Staining (PLM/DS) (EPA-600/M4-82-020, EPA-600/R-93-116). This report relates only to those samples actually analyzed, and may not be indicative of other similar appearing materials existing at this, or other sites.

Quantification of asbestos content was determined by Calibrated Visual Estimation.

The EPA requires that friable samples with analytical results of 10% or less asbestos, by visual estimation, be treated as asbestos-containing material unless these quantities are verified using the point counting method. The point counting method is a systematic technique for estimating concentration, also using PLM. The point counting method, however, does not increase the analyst's ability to detect fibers.

In any given material, fibers with a small diameter (<0.25µm) may not be detected by the PLM method. Floor tile and other resinously bound material may yield a false negative if the asbestos fibers are too small to be resolved using PLM. Additional analytical methods may be required.

**Analysis Performed By:** Daniel C. Peders

**Date:** March 15, 2016

**Approved By:**



Daniel C. Peders  
Laboratory Director

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AIHA PAT for Bulk Asbestos no. 198622

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Analysis Method: EPA 600/R-93/116

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Report Date: 03/21/2016  
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Lab No.	Client No.	Description	Location	Color	Asbestos Type(s) Detected				Non-Asbestos Materials				Comments
					% Chrysotile	% Amosite	% Crocidolite	% Other	% Cellulose	% Fibrous Glass/ Mineral Wool	% Other Fibrous Materials	% Non-Fibrous Materials	
40443	RF-01	Caulking	Roof A, along wall at roof flashing seam	Gray/White	0	0	0	0	0	0	0	100	
40444	RF-02			Gray/White	0	0	0	0	0	0	0	0	100
40445	RF-03	Textured coating over foam	Roof A, coating over foam layer	Gray	0	0	0	0	0	0	3	97	
40446	RF-04			Gray	0	0	0	0	0	0	3	99	
40447	RF-05	Fireproofing (<1,000 S.F.)	Roof A-Interior, on structural metal above suspended ceiling tiles of Customs area	Brown/Gray	0	0	0	0	0	90	0	10	
40448	RF-06			Brown/Gray	0	0	0	0	0	90	0	10	
40449	RF-07			Brown/Gray	0	0	0	0	0	90	0	10	
40450	RF-08	2' x 2' ceiling tile	Roof A-Interior, in suspended metal grid in Customs area	White	0	0	0	0	0	30	0	70	
40451	RF-09			White	0	0	0	0	0	30	0	70	
40452	RF-10	Fireproofing (<1,000 S.F.)	Roof A-Interior, on structural metal above suspended cementitious ceiling of baggage handling area of Customs	Gray	0	0	0	0	0	90	0	10	
40453	RF-11			Gray	0	0	0	0	0	90	0	10	
40454	RF-12			Gray	0	0	0	0	0	90	0	10	

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					% Chrysotile	% Amosite	% Crocidolite	% Other	% Cellulose	% Fibrous Glass/ Mineral Wool	% Other Fibrous Materials	% Non-Fibrous Materials	
40455	RF-13	Cementitious ceiling (< 1,000 S.F.)	Roof A-Interior, ceiling of baggage handling area of Customs	White/Gray	0	0	0	0	0	0	0	100	
40456	RF-14			White/Gray	0	0	0	0	0	0	0	100	
40457	RF-15			White/Gray	0	0	0	0	0	0	0	100	
40458	RF-16	Textured coating over foam	Roof B, coating over foam layer	Gray	0	0	0	0	0	0	3	97	
40459	RF-17			Gray	0	0	0	0	0	0	3	99	
40460	RF-18	Caulking	Roof B, along wall at roof flashing seam	White	0	0	0	0	0	0	0	100	
40461	RF-19			White	0	0	0	0	0	0	0	100	
40462	RF-20	Asphalt-based duct seam covering	Roof	Gray/Black	0	0	0	0	10	10	0	80	
40463	RF-21			Gray/Black	0	0	0	0	15	10	0	75	

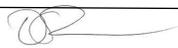
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Roof A



Roof A that was inspected is the area marked in red. Only the top foam roof layer was sampled and inspected because the structure is still occupied and the integrity of the roof was to be maintained. The assumption is that there is a suspect asbestos-containing asphalt-based roofing material underneath the foam coating.

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Amianthus



Roof A is at the North end of Concourse A on the West side between Gates A5 and A7 and has a textured coated (RF-03 & 04) foam insulation assumed to be over an existing asphalt-based built-up roof material. The hidden asphalt-based roofing materials are assumed to be asbestos-containing

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Roof A: Caulking (RF-01 & 02) along roof edge at wall



Roof A: Roof coating (RF-03 & 04) over foam roofing



Roof A: Interior, 2' x 2' ceiling tile (RF-08 & 09)

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Roof A: Interior, fireproofing (RF-05, 06 & 07) on structural metal above suspended ceiling in Customs area



Roof A: Interior, cementitious plaster ceiling (RF-13, 14 & 15) in Customs baggage area



Roof A: Interior, fireproofing (RF-10, 11 & 12) on structural metal also there is paper-faced fiberglass batt insulation (not suspect) lain above cementitious plaster ceiling in Customs baggage area

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Roof B



Roof B that was inspected is the area marked in red. Only the top foam roof layer was sampled and inspected because the structure is still occupied and the integrity of the roof was to be maintained. The assumption is that there is a suspect asbestos-containing asphalt-based roofing material underneath the foam coating.

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Roof B is West of the main terminal food court, South of the bridge to Concourse B and East of Gate B1 and has a textured coated (RF-16 & 17) foam insulation assumed to be over an existing asphalt-based built-up roof material. The hidden asphalt-based roofing materials are assumed to be asbestos-containing. Also there is some black rubber pipe insulation (not suspect) on the rooftop mounted HVAC pipes.

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Roof B: Rubber flashing (not suspect)



Roof B: Same coating (RF16 & RF-17) for roof is over metal ducts on lower roof with asphalt-based material (RF-20 & 21) covering duct seams under coating



Roof B: Caulking (RF-18 & 19) along lower roof edge at wall

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Roof B: Interior of Building Maintenance Department has exposed cement roof deck, metal duct not insulated and fiberglass pipe insulation (not suspect)

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