



# MATRIX

Health & Safety Consultants, L.L.C.

April 24, 2018

North Carolina State University  
Capital Project Management  
Campus Box 7520  
Raleigh, NC 27695

Attention: Mr. Steve Bostian, PE

Subject: PCB Testing of Exterior Caulk  
Poe Hall  
DH Hill Library – North Tower  
North Carolina State University  
Raleigh, North Carolina  
Matrix Project 180419

Dear Mr. Bostian:

Matrix Health and Safety Consultants, L.L.C. (Matrix) is pleased to present this report of bulk sampling for the presence of Polychlorinated Biphenyls (PCBs). This report includes pertinent project information, a description of the scope of work performed, and results of the survey.

The PCB samples were collected on April 2, 2018 by Matrix's Industrial Hygienist Gregg E. Heppert. PCB sampling covered in this report was limited to exterior caulking on the subject buildings scheduled for caulk replacement. Suspect PCB containing caulking was grouped based on material homogeneity. A homogeneous area is an area that contains materials that seem by texture, color, and wear to be uniform and applied during the same general time period.

Samples were collected utilizing a utility knife, a hammer and a chisel. Caulk was collected and placed in tubes provided by the laboratory. Sampling equipment was decontaminated between each composite sample utilizing deionized water and Hexane. One sample (DH-5) was randomly split and sent to the laboratory for QA/QC purposes.

Areas of removed caulk were sealed with new repair caulk to prevent moisture from entering the building envelope.

Suspect PCB materials were sampled and sent to EMSL Analytical in Cinnaminson, New Jersey. Each sample obtained was placed in a sealed container with ice and labeled with a consecutive number, location, date, and who sampled it. A signed chain-of-custody form is maintained with the samples until their disposal.

**PCB IN CAULK SURVEY RESULTS – POE HALL**

Sample Number	Material Description	General Location	PCB Quantity Mg/kg (ppm)
<b>POE-1</b>	<b>Exterior Brown/White Window Caulk</b>	<b>Sample Collected from Room 602M</b>	<b>6000 (Aroclor-1254)</b>  <b>17000 (Aroclor-1268)</b>
<b>POE-2</b>	<b>Exterior Gray Panel Caulk (Underlying Original Caulk)</b>	<b>Sample Collected from East Loading Dock</b>	<b>2700 (Aroclor-1254)</b>  <b>12000 (Aroclor-1268)</b>

*Method EPA SW 846 3540C/8082A*

**PCB IN CAULK SURVEY RESULTS – DH HILL LIBRARY (NORTH TOWER)**

Sample Number	Material Description	General Location	PCB Quantity Mg/kg (ppm)
DH-1	Exterior Dark Gray Panel Caulk	Sample Collected from North Loading Dock	1.3 (Aroclor-1254)  1.2 (Aroclor-1268)
<b>DH-2</b>	<b>Exterior Gray Window Caulk</b>	<b>Sample Collected from South Window</b>	<b>11000 (Aroclor-1254)</b>  <b>22000 (Aroclor-1268)</b>
<b>DH-3</b>	<b>Exterior Pink Caulk on Concrete/Brick</b>	<b>Sample Collected from South Wall</b>	<b>3800 (Aroclor-1254)</b>  <b>4200 (Aroclor-1268)</b>
DH-4	Exterior Brown Vent Caulk	Sample Collected from South Vent/Louvers	12 (Aroclor-1254)  3.4 (Aroclor-1268)
DH-5	Exterior Pink Brick Seam Caulk	Sample Collected from East Wall at Transition Between North and South Tower	Analyte was not detected at Reporting Limit

*Method EPA SW 846 3540C/8082A*

**PCB IN CAULK SURVEY RESULTS – DH HILL LIBRARY (NORTH TOWER) –  
QA/QC**

Sample Number	Material Description	General Location	PCB Quantity Mg/kg (ppm)
DH-6	Exterior Pink Brick Seam Caulk	Sample Collected from East Wall at Transition Between North and South Tower (Same ad GV-5)	Analyte was not detected at Reporting Limit

*Method EPA SW 846 3540C/8082A*

Caulk samples **POE-1, POE-2, DH-2, and DH-3** contain PCB's in excess of 50 ppm and are considered hazardous special waste according to the EPA. Matrix recommends that OSHA and EPA regulations be followed for handling and disposal of exterior caulking at the subject buildings during future renovation and demolition activities. Additionally, leaching of PCB's into the surrounding substrates is a possibility. Matrix recommends that the surrounding substrates such as the concrete panels be tested to determine PCB levels prior to waste stream determination prior to future demolition activities.

Although caulk samples **DH-1** and **DH-4** are not considered hazardous special waste, Matrix recommends that OSHA and EPA regulations be followed for handling and disposal of the caulk during future renovation or demolition activities and the caulk be disposed of in a landfill that will accept materials with PCB levels less than 50 PPM.

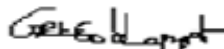
**QUALIFICATIONS**

This report summarizes Matrix's evaluation of the conditions observed at the subject facility during the course of the survey. Our findings are based upon our observations at the facility and analysis of the samples obtained at the time of this survey. PCB's may exist (undetected) in other portions of the facility due to inaccessibility, undetectable change in materials or in materials not included to be tested in this scope of work. Any conditions discovered which deviate from the data contained in this report should be presented to us for our evaluation.

Matrix appreciates the opportunity to have provided these services. We would be glad to discuss any of the results contained in this report, at your convenience. If there are any questions concerning this report or results, please contact us.

Sincerely,

**MATRIX HEALTH AND SAFETY CONSULTANTS**



Gregg E. Heppert  
Project Principal

Attachments: Laboratory Analysis Report  
Site Photographs

## Laboratory Results



**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077  
 Phone/Fax: (856) 303-2500 / (856) 858-4571  
<http://www.EMSL.com> [EnvChemistry2@emsl.com](mailto:EnvChemistry2@emsl.com)

EMSL Order: 011802412  
 CustomerID: MATR63  
 CustomerPO:  
 ProjectID:

Attn: **Gregg Heppert** Phone: (919) 833-2520  
**Matrix Health & Safety** Fax: (919) 882-9926  
**2900 Yonkers Road, Suite B** Received: 04/04/18 9:25 AM  
**Raleigh, NC 27604**

Project: PCB Caulk Testing Poe Hau&DH Hill

**Analytical Results**

Client Sample Description		POE-1	Collected:	4/2/2018	Lab ID:	011802412-0001		
		poe hall without caulk room 602 brown and white						
Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	470	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1221	ND	470	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1232	ND	470	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1242	ND	470	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1248	ND	470	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1254	6000	470	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1260	ND	470	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1262	ND	470	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1268	17000	470	mg/Kg	4/12/2018	AB	4/16/2018	EH
Client Sample Description		POE-2	Collected:	4/2/2018	Lab ID:	011802412-0002		
		poe hall original loading dock caulk panels						
Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	1200	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1221	ND	1200	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1232	ND	1200	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1242	ND	1200	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1248	ND	1200	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1254	2700	1200	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1260	ND	1200	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1262	ND	1200	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1268	12000	1200	mg/Kg	4/12/2018	AB	4/16/2018	EH
Client Sample Description		DH-1	Collected:	4/2/2018	Lab ID:	011802412-0003		
		dh hill concrete panels loading dock north						
Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1221	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1232	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1242	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1248	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1254	1.3	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1260	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1262	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1268	1.2	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH



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EMSL Order: 011802412  
 CustomerID: MATR63  
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 ProjectID:

Attn: **Gregg Heppert**  
**Matrix Health & Safety**  
**2900 Yonkers Road, Suite B**  
**Raleigh, NC 27604**

Phone: (919) 833-2520  
 Fax: (919) 882-9926  
 Received: 04/04/18 9:25 AM

Project: **PCB Caulk Testing Poe Hau&DH Hill**

**Analytical Results**

Client Sample Description		Collected:	Lab ID:				
DH-2 dh hill gray caulk south window		4/2/2018	011802412-0004				
Method	Parameter	Result	RL Units	Prep Date	Analyst	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	940 mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1221	ND	940 mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1232	ND	940 mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1242	ND	940 mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1248	ND	940 mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1254	11000	940 mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1260	ND	940 mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1262	ND	940 mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1268	22000	940 mg/Kg	4/12/2018	AB	4/16/2018	EH
Client Sample Description		Collected:	Lab ID:				
DH-3 dh pink caulk south concrete		4/2/2018	011802412-0005				
Method	Parameter	Result	RL Units	Prep Date	Analyst	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	470 mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1221	ND	470 mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1232	ND	470 mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1242	ND	470 mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1248	ND	470 mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1254	3800	470 mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1260	ND	470 mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1262	ND	470 mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1268	4200	470 mg/Kg	4/12/2018	AB	4/16/2018	EH
Client Sample Description		Collected:	Lab ID:				
DH-4 dh brown vent caulk south		4/2/2018	011802412-0006				
Method	Parameter	Result	RL Units	Prep Date	Analyst	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.95 mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1221	ND	0.95 mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1232	ND	0.95 mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1242	ND	0.95 mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1248	ND	0.95 mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1254	12	0.95 mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1260	ND	0.95 mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1262	ND	0.95 mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1268	3.4	0.95 mg/Kg	4/12/2018	AB	4/16/2018	EH



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Phone: (919) 833-2520  
 Fax: (919) 882-9926  
 Received: 04/04/18 9:25 AM

Project: **PCB Caulk Testing Poe Hau&DH Hill**

**Analytical Results**

**Client Sample Description** DH-5  
 dh hill pink brick seam caulk  
**Collected:** 4/2/2018 **Lab ID:** 011802412-0007

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1221	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1232	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1242	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1248	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1254	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1260	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1262	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1268	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH

**Client Sample Description** DH-6  
**Collected:** 4/2/2018 **Lab ID:** 011802412-0008

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
3540C/8082A	Aroclor-1016	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1221	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1232	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1242	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1248	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1254	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1260	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1262	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH
3540C/8082A	Aroclor-1268	ND	0.98	mg/Kg	4/12/2018	AB	4/16/2018	EH

**Definitions:**

ND - indicates that the analyte was not detected at the reporting limit  
 RL - Reporting Limit (Analytical)

OrderID: 011802412



**Environmental Chemistry**  
**Chain of Custody**  
 EMSL Order Number (Lab Use Only):  
 011802412

EMSL ANALYTICAL, INC.  
 200 ROUTE 130 NORTH  
 CINCINNATI, NJ 08077  
 PHONE: (800) 220-3675  
 FAX: (956) 786-5974

Report To Contact Name: Gregg Hyspart Bill To Company: Samc

Company Name: MATRIX HEALTH & SAFETY CONSULTANTS LLC Attention To:

Street: 2906 YMKEL ROAD Street: \_\_\_\_\_

City: Raleigh State/Province: NC Zip/Postal Code: 27604 City: \_\_\_\_\_

Phone: 919 853-2520 Fax: \_\_\_\_\_ State/Province: \_\_\_\_\_ Zip/Postal Code: \_\_\_\_\_

Project Name: PCB Caulk Testing Poe Hall & DH Hill Email Results To: Gregg@matrix-hk.com U.S. State where Samples Collected: \_\_\_\_\_

Number of Samples in Shipment: 8 Date of Shipment: 4/3/18 Purchase Order: \_\_\_\_\_

Standard Turnaround Time:  2 Weeks The following TAT's are subject to lab approval:  1 Week  4 Days  3 Days  1 Day

Failure to complete will hinder processing of samples List Test(s) Needed

Client Sample ID	Comp	Grab	Date/Time	Matrix	Preservative	Received By	Date & Time	Comments
1 POE-1			4/2/18	W=Water S=Soil A=Air SL=Sludge O=Other	1=HCL 2=HNO3 3=H2SO4 4=ICE 5=Other	<u>Gregg Hyspart</u>		Poe Hall window caulk Room 604m Brown Building Poe Hall original leaving dock 4/2/18 Paul
2 POE-2			"					
3 DH-1			"					DH Hill concrete panels leaving dock North
4 DH-2			"					DH Hill Gray caulk 5th floor window
5 DH-3			"					DH Hill Park caulk South Concrete
Released By (Signature): <u>Gregg Hyspart</u>				Date & Time: <u>4-3-18</u>		Received By: <u>Matthew</u>		Date & Time: <u>4-3-18 9:20am</u>

Please indicate reporting requirements:  Results Only  Results and QC  Reduced Deliverables  Disk Deliverable  Other \_\_\_\_\_

Instructions or Comments: PCB - Bulk sample caulking via EPA SW 846 35400/8082A





## Site Photographs



Poe Hall – POE-1 Window caulk with PCB's >50 PPM



Poe Hall – POE-2 Panel caulk with PCB's >50 PPM



DH Hill Library – DH-1 Panel caulk with PCB's <50 PPM



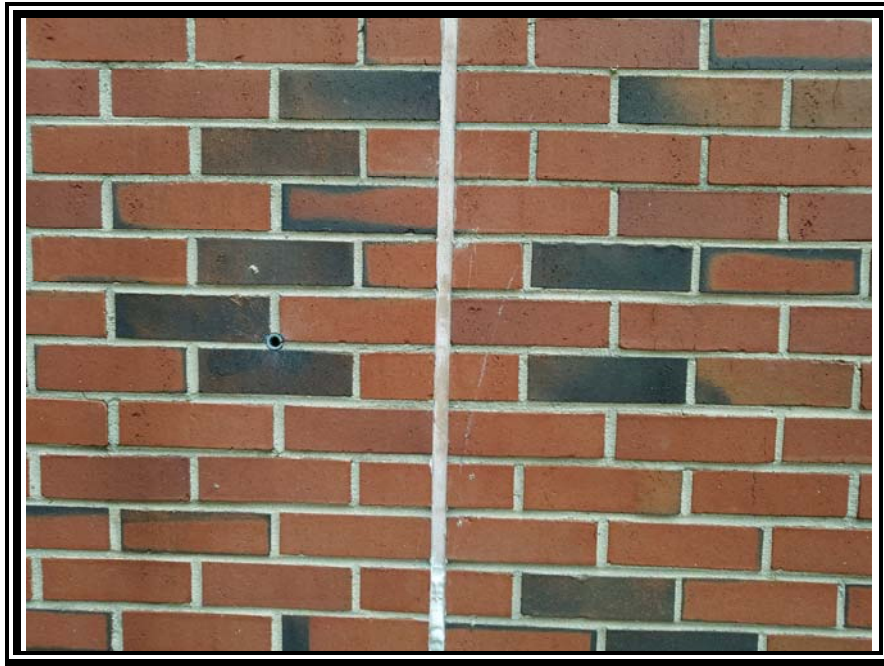
DH Hill Library – DH-2 Gray window caulk with PCB's >50 PPM



DH Hill Library – DH-3 Pink Panel caulk with PCB's >50 PPM



DH Hill Library – DH-4 Vent caulk with PCB's <50 PPM



DH Hill Library – DH-5 and DH-6 Panel caulk with no detected PCB's.