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April 24, 2012

Ms. Kimberly Tisa
Environmental Scientist and PCB Coordinator
EPA-New England, Region 1
5 Post Office Square
Suite 100
Mail Code OSRR07-2
Boston, MA 02109-3912

**Re: PCB Remediation Plan/Close Out Document
Field House and Grayson House – Buildings #330, #332
Roof Replacement
UMASS - Amherst**

Dear Ms. Tisa:

Please find enclosed the PCB Remediation Plan and Project Close-Out Document (dated April 24, 2012) for removal of the exterior caulking from fascia joints at both Field House and Grayson House at the University of Massachusetts – Amherst. The plan has been developed in conjunction with the Roof Replacement Project that was completed on August 27, 2010.

If you have any questions regarding this application, please feel free to call me directly at (413) 664-6687.

Sincerely,

ATC Associates Inc.

ATC Associates Inc.

A handwritten signature in black ink, appearing to read 'Derrick Wissman'.

Derrick Wissman
Senior Project Manager

A handwritten signature in black ink, appearing to read 'Brian Williams'.

Brian Williams
Branch Manager



PCB REMEDIATION PLAN & CLOSE-OUT DOCUMENT

FIELD HOUSE & GRAYSON HOUSE ROOF REPLACEMENT PROJECT

PREPARED FOR:

**UNIVERSITY OF MASSACHUSETTS
360 CAMPUS CENTER WAY
AMHERST, MASSACHUSETTS**

APRIL 24, 2012

PREPARED BY:

**ATC ASSOCIATES, INC.
73 WILLIAM FRANKS DRIVE
WEST SPRINGFIELD , MA 01089**

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1. Introduction and Scope of Work

ATC Associates Inc (ATC) on behalf of the University of Massachusetts – Amherst (UMASS) has prepared the following PCB Remediation Plan and Close-Out Document for remediation of caulking containing PCB from the fascia joints at Field House and Grayson House.

Both Field House and Grayson House are 7 story buildings identical to one another built in 1968. The buildings are joined together by an interconnecting stairwell to the south end of Grayson House which provides the appearance of one continuous building. Both buildings are currently utilized as student dormitories.

A project was bid for roof replacement at both buildings. The scope included removal of the existing roof and replacement with a new membrane system that included overlapping and capping of the existing parapet walls on the roof. The Contract was awarded to Titan Roofing Company in February 2010.

2. The Nature of the Contamination

During construction it was determined that caulking was present within the exposed masonry joints on the parapet wall and fascia that would need to be removed and replaced as part of the new roof installation.

UMASS retained Environmental Compliance Services (ECS) to test the caulking for the presence of PCB's on May 17, 2010.

The samples were analyzed by Spectrum Analytical, Inc. using EPA SW-846 Method 8082 and Prep Method 3550B/C. Refer to *Appendix B* for the PCB analytical report.

The following Table 1.0 represents a summary of those results:

TABLE 1.0				
PCB CAULK SAMPLING – SOURCE MATERIAL (May 17, 2010)				
Sample ID	Description/Location	Aroclor	Result (PPM)	Detection Limit (PPM)
Gray-PCB-1	Grayson House – Caulking at Parapet	1254/1260	430	3.78
Field-PCB-2	Field House – Caulking at Parapet	1254/1260	211.20	1.88

3. The Location and Extent of the Identified Contaminated Area

Both samples collected of the caulking reported concentrations of ≥ 50 ppm and based on those results, it was assumed that all the joints at the roof parapet wall and fascia contained PCB caulking ≥ 50 ppm which would require the material to be removed and disposed of as "PCB Bulk Product Waste". Refer to *Attachment G* for photos that show a typical joint.

Subsequent to the source testing, core sampling was performed on the masonry surfaces adjacent to the caulk joints to determine if PCB has migrated into the substrate.

ESC collected samples on May 27, 2010 and June 10, 2010.

The samples were analyzed by Spectrum Analytical, Inc. using EPA SW-846 Method 8082 and Prep Method 3550B/C and 3545A. Refer to *Appendix C* for the PCB analytical report.

The following Table 2.0 represents a summary of those results:

<p style="text-align: center;">TABLE 2.0</p> <p style="text-align: center;">SUBSTRATE SAMPLING</p> <p style="text-align: center;">MASONRY SURFACES (PRE-REMEDICATION)</p> <p style="text-align: center;">(May 27, 2010 & June 10, 2010)</p>				
Sample ID	Description/Location	Aroclor	Result (PPM)	Detection Limit (PPM)
Gray-PCB-3	Core Sample – 2" From Joint	1254/1260	0.570	0.019
Field-PCB-4	Core Sample – 2" From Joint	1254	0.223	0.018
Gray-PCB-5	Core Sample – 1-2" From Joint	-	BRL	0.203
Gray-PCB-6	Core Sample – 1-2" From Joint	-	BRL	0.142
Gray-PCB-7	Core Sample – 1-2" From Joint	-	BRL	0.136
Field-PCB-5	Core Sample – 1-2" From Joint	-	BRL	0.258
Field-PCB-6	Core Sample – 1-2" From Joint	-	BRL	0.101
Field-PCB-7	Core Sample – 1-2" From Joint	-	BRL	0.254

BRL = Below Reporting Limit

Results of the masonry sampling indicated all samples to be below 1 part per million (ppm), and therefore the adjacent substrates (within 1-2" from the joint) are not considered PCB remediation waste as defined by 40 CFR 761.61.

4. Remediation Work

Based upon the results of the substrate sampling (i.e. masonry being ≤ 1 ppm), the plan for remediation was to remove the source material, properly clean the joint and install new caulking as required for installation of the new roof system. In addition, confirmatory sampling of the masonry joints themselves was also performed to verify all PCB Bulk Product Waste was removed.

Outlined below is a chronological summary of the remediation work:

4.1 Initial Source Removal

The Scope of Work included removal of the source caulking from 103 joints each containing 2.8 linear feet of PCB caulking for a total of 288.4 linear feet. Baystate Contracting Services out of Springfield, Massachusetts completed the removal on July 12, 2010. ECS provided oversight, inspection and final approval of the remediation work.

Removal was completed utilizing a lift to access the material under “regulated conditions” including caution tape and signage. A polyethylene drop-cloth was secured from the lift to the underside the of soffit area below each joint in order to catch any falling caulk resulting from the removal process. The caulking was removed manually with hand tools and a HEPA vacuum. Once the caulking was removed, the joint was wiped-down with hexane moistened cloths.

All waste generated from the remediation was properly packaged, labeled, transported and disposed of as PCB material (>50 ppm) in accordance with 40 CFR 761.62. All waste was disposed of at Triumvirate Environmental (NYC) LLC, 42-14 19th Avenue, Astoria, New York, 11105. Refer to *Appendix J* for a copy of the Waste Manifest.

After completion of remediation, but prior to installation of new caulking, core samples were collected within representative joints to confirm remediation was complete.

The sampling was performed by ESC on July 16, 2010.

The samples were analyzed by Spectrum Analytical, Inc. using EPA SW-846 Method 8082 and Prep Method 3545A. Refer to *Appendix D* for the PCB analytical report.

The following Table 3.0 represents a summary of those results:

TABLE 3.0				
SUBSTRATE SAMPLING				
MASONRY SURFACES (POST REMEDIATION)				
(July 16, 2010)				
Sample ID	Description/Location	Aroclor	Result (PPM)	Detection Limit (PPM)
Joint-6-B	Core Sample at Roof Parapet (at Joint)	1254/1260	309.2	4.89

TABLE 3.0 -- (Continued)

Sample ID	Description/Location	Aroclor	Result (PPM)	Detection Limit (PPM)
Joint-12-B	Core Sample at Roof Parapet (at Joint)	1254/1260	361	4.52
Joint-36-B	Core Sample at Roof Parapet (at Joint)	1254/1260	10.6	0.876
Joint-93	Core Sample at Roof Parapet (at Joint)	1254/1260	1,331	16.6
Joint-94	Core Sample at Roof Parapet (at Joint)	1254/1260	74.4	0.961

Results indicated detectable PCB's present in all samples with five (5) samples being greater than 50 ppm and one (1) sample being less than 50 ppm. Review of the remediation process with the Contractor determined that additional raking of the joints and cleaning would be required.

4.2 Additional Removal/Cleaning

Baystate Contracting Services performed additional "raking" of the joints to remove any residual debris that may be present. In addition, the joints were recleaned a 2nd time using HEPA vacuums and then double wiped with hexane moistened cloths.

Core sampling of the masonry joints was performed after completion of the recleaning. The sampling was performed by ESC on July 26, 2010 and August 2, 2010.

Samples were analyzed by Spectrum Analytical, Inc. using EPA SW-846 Method 8082 and Prep Method 3550B/C and 3540C. Refer to *Appendix E* for the PCB analytical report.

The following Table 4.0 represents a summary of those results:

TABLE 4.0

**SUBSTRATE SAMPLING
MASONRY SURFACES (AFTER ADDITIONAL CLEANING)
(July 26, 2010 & August 2, 2010)**

Sample ID	Description/Location	Aroclor	Result (PPM)	Detection Limit (PPM)
Joint-6-1"	Core Sample -- 1" From Joint	1254	3.89	0.066
Joint-6-3"	Core Sample -- 3" From Joint	-	BRL	0.065
Joint-12-1"	Core Sample -- 1" From Joint	1254	0.499	0.064
Joint-12-3"	Core Sample -- 3" From Joint	-	BRL	0.064
Joint-93-1"	Core Sample -- 1" From Joint	1254	0.175	0.059
Joint-93-3"	Core Sample -- 3" From Joint	1254	0.476	0.062
Joint-56-1"	Core Sample -- 1" From Joint	1254	0.455	0.062
Joint-56-3"	Core Sample -- 3" From Joint	-	BRL	0.064
Joint-62-1"	Core Sample -- 1" From Joint	1254	0.537	0.061

TABLE 4.0 – (Continued)				
Sample ID	Description/Location	Aroclor	Result (PPM)	Detection Limit (PPM)
Joint-62-3"	Core Sample – 3" From Joint	1254	0.828	0.063
Joint-71-1"	Core Sample – 1" From Joint	1254	0.3	0.065
Joint-71-3"	Core Sample – 3" From Joint	-	BRL	0.060

BRL = Below Reporting Limit

Results in Table 4.0 reflect analysis by 8082 and Prep Method 3540C

Results of the masonry substrate sampling after remediation of the source material (i.e. caulking) and recleaning indicated detectable PCB's present in eight (8) samples ranging from 0.175 ppm up to 3.89 ppm. Four (4) samples yielded results of "Below Reporting Limit".

4.3 Encapsulation/Coating

Results of the masonry substrate testing confirmed the presence of PCB remediation waste (greater than 1 ppm) within one (1) inch of the caulk joints which required additional remediation of the substrate.

Due to this unforeseen condition, UMASS contacted EPA Region 1 TSCA Coordinator Kim Tisa to discuss this issue on July 25, 2011. UMASS then implemented an "Interim Control Measure" associated with the masonry joints by encapsulating/coating the masonry surfaces with a vapor barrier coating within six (6") to each side of the joint. This was due in part to the existing roof construction work needed to be completed to make the buildings weather-tight and the pending reoccupancy of the dormitories by the students for the fall semester. Refer to *Appendix H* for "Joint Treatment Detail".

For the "Interim Control Measure" the existing data supported that the masonry within 1 inch of the caulk joints contained PCBs at concentrations ≥ 1 ppm and the masonry beyond than point contained PCBs at concentrations < 1 ppm.

The PCB source was the exterior caulking located within masonry joints being affected by the removal and replacement of the roof system at both buildings. The joints are both vertical on the fascia and horizontal at the roof cap. Current human receptors who are likely to be present at the Site or in the surrounding environment, and who as a result, would likely be exposed to the PCBs were students, faculty, visitors, construction/utility workers, and trespassers. However, the likelihood of humans coming in contact with PCBs was considered extremely low due the following:

- The location of the caulk joints at the parapet wall from the ground (7 stories up).
- The joints on the parapet wall have been encapsulated and are not accessible.
- A metal roof cap has been installed which encloses the inside face and top of the parapet wall.

- Access to the roof is only allowed for maintenance purposes.
- Access to the caulk joints on the outside of the parapet would only be feasible via a boom lift.

Sikagard 62, a moisture tolerant epoxy resin was applied to the masonry surfaces within six (6) inches on either side of the caulk joints. Two (2) coats were applied. Manufacturer's product specifications are attached in *Appendix K*. This coating system's was applied to seal the surface of masonry and provide additional protection in order to eliminate human exposure to PCB's at the site.

4.4 Confirmatory Wipe Sampling

To confirm that the coating system was adequately sealing residual PCBs in the masonry, confirmatory wipe sampling of the masonry surfaces was performed at 26 of the 103 joints on the building (25% total). The wipe sampling was performed after application of the coating and the time-frame allowed for the coatings to fully cure.

Wipe samples were collected per standard wipe test protocols in accordance with 40 CFR 761.123. The samples were collected utilizing the applicable procedures identified in Wipe Sampling and Double Wash/Rinse Cleanup as recommended by the Environmental Protection Agency PCB Spill Cleanup Policy (June 23, 1987, Revised and Clarified on April 18, 1991). A one-use template was used to delineate the 100 cm² sampling area.

Confirmatory wipe sampling was performed by ECS on August 13, 2010, August 17, 2010 and August 23, 2010.

All samples were analyzed by Spectrum Analytical, Inc. using EPA SW-846 Method 8082 and Prep Method 3540C. Refer to *Appendix F* for the PCB analytical report.

The following Table 5.0 represents a summary of those results:

TABLE 5.0				
CONFIRMATORY WIPE SAMPLING MASONRY SURFACES – AFTER COATING (August 13, 2010, August 17, 2010 & August 23, 2010)				
Sample ID	Description/Location	Aroclor	Result (PPM)	Detection Limit (PPM)
Joint-2-Wipe	Wipe Sample – Joint 2	-	BRL	0.20
Joint-6-Wipe	Wipe Sample – Joint 6	-	BRL	0.20
Joint-9-Wipe	Wipe Sample – Joint 9	-	BRL	0.20
Joint-12-Wipe	Wipe Sample – Joint 12	-	BRL	0.20
Joint-17-Wipe	Wipe Sample – Joint 17	-	BRL	0.20
Joint-22-Wipe	Wipe Sample – Joint 22	-	BRL	0.20
Joint-29-Wipe	Wipe Sample – Joint 29	-	BRL	0.20
Joint-34-Wipe	Wipe Sample – Joint 34	-	BRL	0.20

TABLE 5.0 -- (Continued)

Sample ID	Description/Location	Aroclor	Result (PPM)	Detection Limit (PPM)
Joint-89-Wipe	Wipe Sample -- Joint 89	-	BRL	0.20
Joint-93-Wipe	Wipe Sample -- Joint 93	-	BRL	0.20
Joint-99-Wipe	Wipe Sample -- Joint 99	-	BRL	0.20
Joint-105-Wipe	Wipe Sample -- Joint 105	-	BRL	0.20
Joint-112-Wipe	Wipe Sample -- Joint 112	-	BRL	0.20
Joint-113-Wipe	Wipe Sample -- Joint 113	1254	0.44	0.20
Joint-41-Wipe	Wipe Sample -- Joint 41	-	BRL	0.20
Joint-45-Wipe	Wipe Sample -- Joint 45	-	BRL	0.20
Joint-50-Wipe	Wipe Sample -- Joint 50	-	BRL	0.20
Joint-55-Wipe	Wipe Sample -- Joint 55	1254/1260	0.90	0.20
Joint-62-Wipe	Wipe Sample -- Joint 62	-	BRL	0.20
Joint-66-Wipe	Wipe Sample -- Joint 66	-	BRL	0.20
Joint-70-Wipe	Wipe Sample -- Joint 70	-	BRL	0.20
Joint-73-Wipe	Wipe Sample -- Joint 73	-	BRL	0.20
Joint-77-Wipe	Wipe Sample -- Joint 77	-	BRL	0.20
Joint-82-Wipe	Wipe Sample -- Joint 82	-	BRL	0.20
Joint-85-Wipe	Wipe Sample -- Joint 85	-	BRL	0.20
Joint-87-Wipe	Wipe Sample -- Joint 87	-	BRL	0.20

BRL = Below Reporting Limit

All twenty-six (26) wipe samples yielding concentrations of less than 1 ug/100 cm². This demonstrates that the encapsulant/coating is performing as designed, the PCBs that might be present in the underlying surfaces have been successfully encapsulated and no corrective actions are required at this time. Refer to *Appendix I* for post-remediation site photos.

5. Long Term Monitoring and Maintenance

UMASS shall include both of these sites with the UMASS Campus Wide "Long-Term Monitoring and Maintenance Implementation Plan"(MMIP) to prevent human exposure to polychlorinated biphenyls (PCB) that might be associated with residual PCB levels at the exterior masonry caulk joints at the roof parapet. The MMIP shall apply to all maintenance workers and any person that conducts work that could impact the encapsulant.

The monitoring program's overall objective is to ensure that the encapsulant continues to perform as required. This objective will be met through visual inspections by representatives from UMASS or a Designated Representative. The encapsulated caulk joints shall be visually inspected on an annual basis with the aid of high-powered binoculars. The first inspection will be performed during the spring of 2011 with subsequent inspections every year thereafter.

Inspections will check the encapsulant for signs of wear, cracking, peeling, flaking or other signs of deterioration from ground level and/or adjacent buildings. A "Review Checklist" contained in *Appendix L* will be completed after each inspection. It will include a written narrative, sketches and photographs where appropriate.

If inspections or other information indicate that the coating is worn or damaged, corrective action (i.e., recoating) will be performed.

Activities detailed in the MMIP shall continue until such time that plan modifications are proposed by UMASS and approved by the EPA.

6. Recordkeeping and Documentation

All records pertaining to the work on this project are maintained at the UMASS Environmental Health and Safety (EH&S) Office located at the University of Massachusetts, 117 Draper Hall, 40 Campus Center, Amherst, Massachusetts 01003.

This submission serves as the final report documenting the completion of the work activities as of February 7, 2011, including but not limited to a description of the work, verification analytical results, volumes of disposed materials, and waste disposal documentation.

Completed Checklists for the future annual inspection work shall also be kept on file at the UMASS EH&S Office.

All records will be made available for inspection by authorized representatives of the EPA upon request.

7. Deed Notice

A deed notice will be prepared for the remediation work completed herein. The notice will be finalized for recording with the Hampshire County Registry of Deeds. Once the process is completed, a copy of the recorded deed notice will be provided to the EPA under separate cover.

Appendix A

Written Certification

Certification

The undersigned owner of the property where the cleanup site is located and the party conducting the cleanup certify that all sampling plans, sampling collection procedures, sample preparation procedures, extraction procedures and instrumental/chemical analysis procedures used to assess or characterize the PCB contamination at the cleanup site, are on file at the location indicated below and are available for EPA inspection, as set forth below.

PCB Abatement Location:

Field House and Grayson House (Roof Replacement)

Document Location:

Environmental Health and Safety
117 Draper Hall
University of Massachusetts
40 Campus Center Way
Amherst, MA 01003

Authorized Signature:

Property Owner: The University of Massachusetts

Authorized Signature: _____

Date: 4-24-12

Name of Authorized

Representative (print): Donald A. Robinson, CSP, P.E., Ph.D.

Director, Environmental Health and Safety Special

Title: Assistant to Vice Chancellor of Administration and Finance
for Emergency Management



Appendix B

PCB Analytical Reports

Source Testing

Report Date:
24-May-10 15:17



SPECTRUM ANALYTICAL, INC.

Featuring

HANIBAL TECHNOLOGY

Laboratory Report

- ☒ Final Report
☐ Re-Issued Report
☐ Revised Report

Environmental Compliance Services
588 Silver Street
Agawam, MA 01001
Attn: Christopher Godfrey

Project: UMASS - Amherst, MA
Project #: [none]

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SB12429-01	Gray-PCB-1	Caulking	17-May-10 10:00	20-May-10 12:00
SB12429-02	Field-PCB-2	Caulking	17-May-10 10:00	20-May-10 12:00
SB12429-03	JQA-PCB-3	Caulking	17-May-10 13:00	20-May-10 12:00
SB12429-04	JQA-PCB-4	Caulking	17-May-10 13:00	20-May-10 12:00

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011/MA012
New York # 11393/11840
Pennsylvania # 68-04426/68-02924
Rhode Island # 98
USDA # S-51435
Vermont # VT-11393



Authorized by:

Hanibal C. Tayeh, Ph.D.
President/Laboratory Director

Technical Reviewer's Initial:

Spectrum Analytical holds certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes. Please note that this report contains 7 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, FL-E87936 and NJ-MA012).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

CASE NARRATIVE:

The samples were received 22.4 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 2.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

SW846 8082

Samples:

SB12429-01 *Gray-PCB-1*

The concentration indicated for this analyte is an estimated value. This value is considered an estimate (CLP E-flag).

Aroclor-1254
Aroclor-1260

The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.

Decachlorobiphenyl (Sr) [2C]

SB12429-02 *Field-PCB-2*

The concentration indicated for this analyte is an estimated value. This value is considered an estimate (CLP E-flag).

Aroclor-1254
Aroclor-1260

The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.

Decachlorobiphenyl (Sr) [2C]

SB12429-03 *JQA-PCB-3*

The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.

Decachlorobiphenyl (Sr) [2C]

Sample Identification

Gray-PCB-I

SB12429-01

Client Project #

[none]

Matrix

Caulking

Collection Date/Time

17-May-10 10:00

Received

20-May-10

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>Flag</i>	<i>Units</i>	<i>*RDL</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Analyst</i>	<i>Batch</i>	<i>Cert.</i>
Semivolatile Organic Compounds by GC												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
<u>Prepared by method SW846 3550B/C</u>												
12674-11-2	Aroclor-1016	BRL		µg/kg	189	1	SW846 8082	21-May-10	22-May-10	SM	1010737	
11104-28-2	Aroclor-1221	BRL		µg/kg	189	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg	189	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg	189	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg	189	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	266,000	E	µg/kg	189	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	120,000	E	µg/kg	189	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg	189	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg	189	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	100			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	106			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	103			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	163	S02		30-150 %		"	"	"	"	"	

Re-analysis of Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3550B/C

12674-11-2	Aroclor-1016	BRL		µg/kg	3780	20	SW846 8082	21-May-10	24-May-10	IMR	1010737	
11104-28-2	Aroclor-1221	BRL		µg/kg	3780	20	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg	3780	20	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg	3780	20	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg	3780	20	"	"	"	"	"	
11097-69-1	Aroclor-1254	311,000		µg/kg	3780	20	"	"	"	"	"	
11096-82-5	Aroclor-1260	119,000		µg/kg	3780	20	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg	3780	20	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg	3780	20	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	140			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	140			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	90			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	110			30-150 %		"	"	"	"	"	

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

Field-PCB-2

SB12429-02

Client Project #

[none]

Matrix

Caulking

Collection Date/Time

17-May-10 10:00

Received

20-May-10

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>Flag</i>	<i>Units</i>	<i>*RDL</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Analyst</i>	<i>Batch</i>	<i>Cert.</i>
Semivolatile Organic Compounds by GC												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
<u>Prepared by method SW846 3550B/C</u>												
12674-11-2	Aroclor-1016	BRL		µg/kg	188	1	SW846 8082	21-May-10	22-May-10	SM	1010737	
11104-28-2	Aroclor-1221	BRL		µg/kg	188	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg	188	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg	188	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg	188	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	144,000	E	µg/kg	188	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	58,500	E	µg/kg	188	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg	188	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg	188	1	"	"	"	"	"	
<u>Surrogate recoveries:</u>												
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	99			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	96			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	93			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	175	S02		30-150 %		"	"	"	"	"	
<u>Re-analysis of Polychlorinated Biphenyls by SW846 8082</u>												
<u>Prepared by method SW846 3550B/C</u>												
12674-11-2	Aroclor-1016	BRL		µg/kg	1880	10	SW846 8082	21-May-10	24-May-10	IMR	1010737	
11104-28-2	Aroclor-1221	BRL		µg/kg	1880	10	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg	1880	10	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg	1880	10	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg	1880	10	"	"	"	"	"	
11097-69-1	Aroclor-1254	150,000		µg/kg	1880	10	"	"	"	"	"	
11096-82-5	Aroclor-1260	61,200		µg/kg	1880	10	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg	1880	10	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg	1880	10	"	"	"	"	"	
<u>Surrogate recoveries:</u>												
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	105			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	105			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	100			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	90			30-150 %		"	"	"	"	"	

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

JQA-PCB-3

SBI2429-03

Client Project #

[none]

Matrix

Caulking

Collection Date/Time

17-May-10 13:00

Received

20-May-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
<u>Prepared by method SW846 3550B/C</u>												
12674-11-2	Aroclor-1016	BRL		µg/kg	886	5	SW846 8082	21-May-10	22-May-10	SM	1010737	
11104-28-2	Aroclor-1221	BRL		µg/kg	886	5	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg	886	5	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg	886	5	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg	886	5	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/kg	886	5	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/kg	886	5	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg	886	5	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg	886	5	"	"	"	"	"	
Surrogate recoveries:												
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	103			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	50			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	110			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	2800	S02		30-150 %		"	"	"	"	"	

Sample Identification

JQA-PCB-4

SBI2429-04

Client Project #

[none]

Matrix

Caulking

Collection Date/Time

17-May-10 13:00

Received

20-May-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
<u>Prepared by method SW846 3550B/C</u>												
12674-11-2	Aroclor-1016	BRL		µg/kg	169	1	SW846 8082	21-May-10	22-May-10	SM	1010737	
11104-28-2	Aroclor-1221	BRL		µg/kg	169	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg	169	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg	169	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg	169	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	3,180		µg/kg	169	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/kg	169	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg	169	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg	169	1	"	"	"	"	"	
Surrogate recoveries:												
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	86			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	90			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	87			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	102			30-150 %		"	"	"	"	"	

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit

BRL = Below Reporting Limit

Page 5 of 7

Semivolatile Organic Compounds by GC - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1010737 - SW846 3550B/C										
Blank (1010737-BLK1)					<u>Prepared: 21-May-10 Analyzed: 22-May-10</u>					
Aroclor-1016	BRL		µg/kg	20.0						
Aroclor-1016 [2C]	BRL		µg/kg	20.0						
Aroclor-1221	BRL		µg/kg	20.0						
Aroclor-1221 [2C]	BRL		µg/kg	20.0						
Aroclor-1232	BRL		µg/kg	20.0						
Aroclor-1232 [2C]	BRL		µg/kg	20.0						
Aroclor-1242	BRL		µg/kg	20.0						
Aroclor-1242 [2C]	BRL		µg/kg	20.0						
Aroclor-1248	BRL		µg/kg	20.0						
Aroclor-1248 [2C]	BRL		µg/kg	20.0						
Aroclor-1254	BRL		µg/kg	20.0						
Aroclor-1254 [2C]	BRL		µg/kg	20.0						
Aroclor-1260	BRL		µg/kg	20.0						
Aroclor-1260 [2C]	BRL		µg/kg	20.0						
Aroclor-1262	BRL		µg/kg	20.0						
Aroclor-1262 [2C]	BRL		µg/kg	20.0						
Aroclor-1268	BRL		µg/kg	20.0						
Aroclor-1268 [2C]	BRL		µg/kg	20.0						
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	13.8		µg/kg		20.0		69	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	18.9		µg/kg		20.0		94	30-150		
Surrogate: Decachlorobiphenyl (Sr)	21.4		µg/kg		20.0		107	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	24.1		µg/kg		20.0		121	30-150		
LCS (1010737-BS1)					<u>Prepared: 21-May-10 Analyzed: 22-May-10</u>					
Aroclor-1016	236		µg/kg	20.0	250		94	50-140		
Aroclor-1016 [2C]	253		µg/kg	20.0	250		101	50-140		
Aroclor-1260	210		µg/kg	20.0	250		84	50-140		
Aroclor-1260 [2C]	193		µg/kg	20.0	250		77	50-140		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	18.2		µg/kg		20.0		91	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	17.9		µg/kg		20.0		90	30-150		
Surrogate: Decachlorobiphenyl (Sr)	20.7		µg/kg		20.0		104	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	22.7		µg/kg		20.0		114	30-150		
LCS Dup (1010737-BSD1)					<u>Prepared: 21-May-10 Analyzed: 22-May-10</u>					
Aroclor-1016	254		µg/kg	20.0	250		102	50-140	7	30
Aroclor-1016 [2C]	273		µg/kg	20.0	250		109	50-140	8	30
Aroclor-1260	225		µg/kg	20.0	250		90	50-140	7	30
Aroclor-1260 [2C]	216		µg/kg	20.0	250		87	50-140	11	30
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	18.0		µg/kg		20.0		90	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	19.1		µg/kg		20.0		96	30-150		
Surrogate: Decachlorobiphenyl (Sr)	22.5		µg/kg		20.0		113	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	24.8		µg/kg		20.0		124	30-150		

Notes and Definitions

E	The concentration indicated for this analyte is an estimated value. This value is considered an estimate (CLP E-flag).
S02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
BRL	Below Reporting Limit - Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

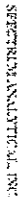
Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic

Validated by:
Hanibal C. Tayeh, Ph.D.
Kimberly Wisk



1941

Special Handling:

62-2138

☐ Standard TAT - 7 to 10 business days
☒ Rush TAT - Date Needed 2/26/14
- All TATs subject to laboratory approval.
- 24-hour notification needed for rush samples.
- Samples disposed of after 60 days unless otherwise instructed.

ASPIRE TO INSURE

Report To: SCS / Hqs

Invoice To: EOS - Lebanon

Project No. _____

Site Name: Grayson Field Sta. Abrams

Location: UMASS Cambridge State: MA

Project Name: CHOC - Community
Telephone #: 412-256-3530

P.O. No.

BOX: 6277

Sample size: 17, 19, 20, 22

1= Na_2SO_3 2= HCl 3= H_2SO_4 4= HNO_3

acetic acid CH_3COOH

List preservative code below:

Quercus Reparing Notes:

800-NITRO-911

101

[illegible]

1

which is usually

DW=Drinking Water GW=Groundwater WW=Wastewater
 O=Oil SW=Surface Water SO=Soil SL=Sludge A=Air
 X1=Ca²⁺/K⁺/Mg²⁺ X2= X3=

Time-Cost-Compromise

Sample Id	Date	Time	Type	Matrix

of VOA Vials
of Amber Glass
of Clear Glass
of Plastic Bags

DC B'5

[illegible]

☐ Positive RNA DETECTed AND Report

☐ Positive CT DETECTed Report

QAC Reporting Level

☐ Subtotal ☐ No QAC

☐ Other _____

State specific reporting standards.

EDD form

☒ E-mail to Cand Taylor@EIS-Consult.com
X McGovern@EIS-Consult.com

Condition from scratch: ☐ Red ☐ Arabian ☐ 66

Religionsbuddh.

Received by:

Deaf:

Index

Handwritten signature: *William J. ...*
Handwritten initials: *WJS*

5

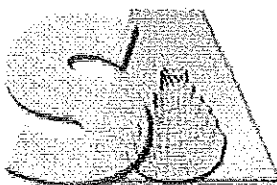
Stella 1200

Appendix C

PCB Analytical Reports

Substrate Sampling (Pre-Remediation)

Report Date:
01-Jun-10 16:26



- ☒ Final Report
☐ Re-Issued Report
☐ Revised Report

SPECTRUM ANALYTICAL, INC.

Featuring
HANIBAL TECHNOLOGY

Laboratory Report

Environmental Compliance Services
588 Silver Street
Agawam, MA 01001
Attn: Christopher Godfrey

Project: Grayson/Field Roof - UMASS Amherst, MA
Project #: 01-207319.02.36

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SB12886-01	Gray-PCB-3	Cement	27-May-10 10:00	28-May-10 16:00
SB12886-02	Field-PCB-4	Cement	27-May-10 10:00	28-May-10 16:00

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011/MA012
New York # 11393/11840
Pennsylvania # 68-04426/68-02924
Rhode Island # 98
USDA # S-51435
Vermont # VT-11393



Authorized by:

Hanibal C. Tayeh, Ph.D.
President/Laboratory Director

Technical Reviewer's Initial:

Spectrum Analytical holds certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes.
Please note that this report contains 5 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, FL-E87936 and NJ-MA012).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

CASE NARRATIVE:

The samples were received 0.1 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 2.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

SW846 8082

Samples:

SB12886-01 *Gray-PCB-3*

The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.

Decachlorobiphenyl (Sr) [2C]

Sample Identification

Gray-PCB-3

SB12886-01

Client Project #

01-207319.02.36

Matrix

Cement

Collection Date/Time

27-May-10 10:00

Received

28-May-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
Prepared by method SW846 3545A												
12674-11-2	Aroclor-1016	BRL		µg/kg dry	19.9	1	SW846 8082	28-May-10	01-Jun-10	IMR	1011330	
11104-28-2	Aroclor-1221	BRL		µg/kg dry	19.9	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg dry	19.9	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg dry	19.9	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg dry	19.9	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	513		µg/kg dry	19.9	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	57.4		µg/kg dry	19.9	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg dry	19.9	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg dry	19.9	1	"	"	"	"	"	
Surrogate recoveries:												
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	135			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	147			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	137			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	156	S02		30-150 %		"	"	"	"	"	
General Chemistry Parameters												
Sample Prep		Completed		N/A		1	SAI SOP	01-Jun-10	01-Jun-10	TDD	1011531	
% Solids		98.4		%		1	SM2540 G Mod.	28-May-10	28-May-10	BD	1011435	

Sample Identification

Field-PCB-4

SB12886-02

Client Project #

01-207319.02.36

Matrix

Cement

Collection Date/Time

27-May-10 10:00

Received

28-May-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
Prepared by method SW846 3545A												
12674-11-2	Aroclor-1016	BRL		µg/kg dry	18.5	1	SW846 8082	28-May-10	01-Jun-10	IMR	1011330	
11104-28-2	Aroclor-1221	BRL		µg/kg dry	18.5	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg dry	18.5	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg dry	18.5	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg dry	18.5	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	223		µg/kg dry	18.5	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/kg dry	18.5	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg dry	18.5	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg dry	18.5	1	"	"	"	"	"	
Surrogate recoveries:												
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	86			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	97			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	90			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	96			30-150 %		"	"	"	"	"	
General Chemistry Parameters												
Sample Prep		Completed		N/A		1	SAI SOP	01-Jun-10	01-Jun-10	TDD	1011531	
% Solids		98.2		%		1	SM2540 G Mod.	28-May-10	28-May-10	BD	1011435	

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit

BRL = Below Reporting Limit

Semivolatile Organic Compounds by GC - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1011330 - SW846 3545A										
<u>Blank (1011330-BLK1)</u>					<u>Prepared & Analyzed: 28-May-10</u>					
Aroclor-1016	BRL		µg/kg wet	20.0						
Aroclor-1016 [2C]	BRL		µg/kg wet	20.0						
Aroclor-1221	BRL		µg/kg wet	20.0						
Aroclor-1221 [2C]	BRL		µg/kg wet	20.0						
Aroclor-1232	BRL		µg/kg wet	20.0						
Aroclor-1232 [2C]	BRL		µg/kg wet	20.0						
Aroclor-1242	BRL		µg/kg wet	20.0						
Aroclor-1242 [2C]	BRL		µg/kg wet	20.0						
Aroclor-1248	BRL		µg/kg wet	20.0						
Aroclor-1248 [2C]	BRL		µg/kg wet	20.0						
Aroclor-1254	BRL		µg/kg wet	20.0						
Aroclor-1254 [2C]	BRL		µg/kg wet	20.0						
Aroclor-1260	BRL		µg/kg wet	20.0						
Aroclor-1260 [2C]	BRL		µg/kg wet	20.0						
Aroclor-1262	BRL		µg/kg wet	20.0						
Aroclor-1262 [2C]	BRL		µg/kg wet	20.0						
Aroclor-1268	BRL		µg/kg wet	20.0						
Aroclor-1268 [2C]	BRL		µg/kg wet	20.0						
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	19.4		µg/kg wet		20.0		97	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	20.3		µg/kg wet		20.0		102	30-150		
Surrogate: Decachlorobiphenyl (Sr)	16.8		µg/kg wet		20.0		84	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	21.5		µg/kg wet		20.0		108	30-150		
<u>LCS (1011330-BS1)</u>					<u>Prepared & Analyzed: 28-May-10</u>					
Aroclor-1016	211		µg/kg wet	20.0	250		84	50-140		
Aroclor-1016 [2C]	218		µg/kg wet	20.0	250		87	50-140		
Aroclor-1260	200		µg/kg wet	20.0	250		80	50-140		
Aroclor-1260 [2C]	210		µg/kg wet	20.0	250		84	50-140		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	17.6		µg/kg wet		20.0		88	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	19.2		µg/kg wet		20.0		96	30-150		
Surrogate: Decachlorobiphenyl (Sr)	15.7		µg/kg wet		20.0		78	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	20.5		µg/kg wet		20.0		103	30-150		
<u>LCS Dup (1011330-BSD1)</u>					<u>Prepared & Analyzed: 28-May-10</u>					
Aroclor-1016	224		µg/kg wet	20.0	250		89	50-140	6	30
Aroclor-1016 [2C]	230		µg/kg wet	20.0	250		92	50-140	5	30
Aroclor-1260	213		µg/kg wet	20.0	250		85	50-140	7	30
Aroclor-1260 [2C]	220		µg/kg wet	20.0	250		88	50-140	5	30
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	18.8		µg/kg wet		20.0		94	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	20.4		µg/kg wet		20.0		102	30-150		
Surrogate: Decachlorobiphenyl (Sr)	17.0		µg/kg wet		20.0		85	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	21.4		µg/kg wet		20.0		107	30-150		

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit BRL = Below Reporting Limit

Notes and Definitions

S02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
BRL	Below Reporting Limit - Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

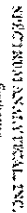
Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic

Validated by:
Hanibal C. Tayeh, Ph.D.
Nicole Leja



Page 1 of 1

45800

~~Rush TAT - Data Needed:~~ 2/3/10

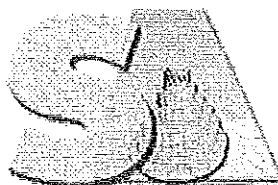
All IATs subject to laboratory approval.

Smith & Jones of 1010 Main Street

otherwise instructed.

[illegible]

Report Date:
15-Jun-10 14:38



SPECTRUM ANALYTICAL, INC.

Featuring

HANIBAL TECHNOLOGY

Laboratory Report

- ☒ Final Report
☐ Re-Issued Report
☐ Revised Report

Environmental Compliance Services
588 Silver Street
Agawam, MA 01001
Attn: Mike Grover

Project: Grayson/Field Roof - UMASS Amherst, MA
Project #: 01-207319.02.36

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SB13624-01	Gray-PCB-5	Cement	10-Jun-10 13:30	14-Jun-10 09:23
SB13624-02	Gray-PCB-6	Cement	10-Jun-10 13:30	14-Jun-10 09:23
SB13624-03	Gray-PCB-7	Cement	10-Jun-10 13:30	14-Jun-10 09:23
SB13624-04	Field-PCB-5	Cement	10-Jun-10 13:30	14-Jun-10 09:23
SB13624-05	Field-PCB-6	Cement	10-Jun-10 13:30	14-Jun-10 09:23
SB13624-06	Field-PCB-7	Cement	10-Jun-10 13:30	14-Jun-10 09:23

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011/MA012
New York # 11393/11840
Pennsylvania # 68-04426/68-02924
Rhode Island # 98
USDA # S-51435
Vermont # VT-11393



Authorized by:

Hanibal C. Tayeh, Ph.D.
President/Laboratory Director

Technical Reviewer's Initial:

Spectrum Analytical holds certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes.

Please note that this report contains 7 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, FL-E87936 and NJ-MA012).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

CASE NARRATIVE:

The samples were received 20.6 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 2.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

SW846 8082

Samples:

SB13624-03 *Gray-PCB-7*

The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.

Decachlorobiphenyl (Sr) [2C]

Sample Identification

Gray-PCB-5
SB13624-01

Client Project #

01-207319.02.36

Matrix

Cement

Collection Date/Time

10-Jun-10 13:30

Received

14-Jun-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
Prepared by method SW846 3550B/C												
12674-11-2	Aroclor-1016	BRL		µg/kg	203	1	SW846 8082	14-Jun-10	15-Jun-10	SM	1012515	
11104-28-2	Aroclor-1221	BRL		µg/kg	203	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg	203	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg	203	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg	203	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/kg	203	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/kg	203	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg	203	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg	203	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	107			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	103			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	114			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	144			30-150 %		"	"	"	"	"	

Sample Identification

Gray-PCB-6
SB13624-02

Client Project #

01-207319.02.36

Matrix

Cement

Collection Date/Time

10-Jun-10 13:30

Received

14-Jun-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
Prepared by method SW846 3550B/C												
12674-11-2	Aroclor-1016	BRL		µg/kg	142	1	SW846 8082	14-Jun-10	15-Jun-10	SM	1012515	
11104-28-2	Aroclor-1221	BRL		µg/kg	142	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg	142	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg	142	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg	142	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/kg	142	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/kg	142	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg	142	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg	142	1	"	"	"	"	"	
<u>Surrogate recoveries:</u>												
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	86			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	85			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	88			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	119			30-150 %		"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

Gray-PCB-7
SB13624-03

Client Project #
01-207319.02.36

Matrix
Cement

Collection Date/Time
10-Jun-10 13:30

Received
14-Jun-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
<u>Prepared by method SW846 3550B/C</u>												
12674-11-2	Aroclor-1016	BRL		µg/kg	136	1	SW846 8082	14-Jun-10	15-Jun-10	SM	1012515	
11104-28-2	Aroclor-1221	BRL		µg/kg	136	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg	136	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg	136	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg	136	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/kg	136	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/kg	136	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg	136	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg	136	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	115			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	109			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	118			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	154	S02		30-150 %		"	"	"	"	"	

Sample Identification

Field-PCB-5
SB13624-04

Client Project #
01-207319.02.36

Matrix
Cement

Collection Date/Time
10-Jun-10 13:30

Received
14-Jun-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
<u>Prepared by method SW846 3550B/C</u>												
12674-11-2	Aroclor-1016	BRL		µg/kg	258	1	SW846 8082	14-Jun-10	15-Jun-10	SM	1012515	
11104-28-2	Aroclor-1221	BRL		µg/kg	258	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg	258	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg	258	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg	258	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/kg	258	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/kg	258	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg	258	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg	258	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	115			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	108			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	124			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	150			30-150 %		"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

Page 4 of 7

Sample Identification

Field-PCB-6

SB13624-05

Client Project #

01-207319.02.36

Matrix

Cement

Collection Date/Time

10-Jun-10 13:30

Received

14-Jun-10

<u>CAS No.</u>	<u>Analyte(s)</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>*RDL</u>	<u>Dilution</u>	<u>Method Ref.</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>	<u>Batch</u>	<u>Cert.</u>
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082

Prepared by method SW846 3550B/C

12674-11-2	Aroclor-1016	BRL		µg/kg	101	1	SW846 8082	14-Jun-10	15-Jun-10	SM	1012515	
11104-28-2	Aroclor-1221	BRL		µg/kg	101	1	"	"	"	"	"	"
11141-16-5	Aroclor-1232	BRL		µg/kg	101	1	"	"	"	"	"	"
53469-21-9	Aroclor-1242	BRL		µg/kg	101	1	"	"	"	"	"	"
12672-29-6	Aroclor-1248	BRL		µg/kg	101	1	"	"	"	"	"	"
11097-69-1	Aroclor-1254	BRL		µg/kg	101	1	"	"	"	"	"	"
11096-82-5	Aroclor-1260	BRL		µg/kg	101	1	"	"	"	"	"	"
37324-23-5	Aroclor-1262	BRL		µg/kg	101	1	"	"	"	"	"	"
11100-14-4	Aroclor-1268	BRL		µg/kg	101	1	"	"	"	"	"	"

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	103			30-150 %		"	"	"	"	"	"
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	107			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr)	130			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr) [2C]	118			30-150 %		"	"	"	"	"	"

Sample Identification

Field-PCB-7

SB13624-06

Client Project #

01-207319.02.36

Matrix

Cement

Collection Date/Time

10-Jun-10 13:30

Received

14-Jun-10

<u>CAS No.</u>	<u>Analyte(s)</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>*RDL</u>	<u>Dilution</u>	<u>Method Ref.</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>	<u>Batch</u>	<u>Cert.</u>
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082

Prepared by method SW846 3550B/C

12674-11-2	Aroclor-1016	BRL		µg/kg	254	1	SW846 8082	14-Jun-10	15-Jun-10	SM	1012515	
11104-28-2	Aroclor-1221	BRL		µg/kg	254	1	"	"	"	"	"	"
11141-16-5	Aroclor-1232	BRL		µg/kg	254	1	"	"	"	"	"	"
53469-21-9	Aroclor-1242	BRL		µg/kg	254	1	"	"	"	"	"	"
12672-29-6	Aroclor-1248	BRL		µg/kg	254	1	"	"	"	"	"	"
11097-69-1	Aroclor-1254	BRL		µg/kg	254	1	"	"	"	"	"	"
11096-82-5	Aroclor-1260	BRL		µg/kg	254	1	"	"	"	"	"	"
37324-23-5	Aroclor-1262	BRL		µg/kg	254	1	"	"	"	"	"	"
11100-14-4	Aroclor-1268	BRL		µg/kg	254	1	"	"	"	"	"	"

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	116			30-150 %		"	"	"	"	"	"
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	112			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr)	121			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr) [2C]	149			30-150 %		"	"	"	"	"	"

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit

BRL = Below Reporting Limit

Page 5 of 7

Semivolatle Organic Compounds by GC - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1012515 - SW846 3550B/C										
<u>Blank (1012515-BLK1)</u>					<u>Prepared & Analyzed: 14-Jun-10</u>					
Aroclor-1016	BRL		µg/kg	66.7						
Aroclor-1016 [2C]	BRL		µg/kg	66.7						
Aroclor-1221	BRL		µg/kg	66.7						
Aroclor-1221 [2C]	BRL		µg/kg	66.7						
Aroclor-1232	BRL		µg/kg	66.7						
Aroclor-1232 [2C]	BRL		µg/kg	66.7						
Aroclor-1242	BRL		µg/kg	66.7						
Aroclor-1242 [2C]	BRL		µg/kg	66.7						
Aroclor-1248	BRL		µg/kg	66.7						
Aroclor-1248 [2C]	BRL		µg/kg	66.7						
Aroclor-1254	BRL		µg/kg	66.7						
Aroclor-1254 [2C]	BRL		µg/kg	66.7						
Aroclor-1260	BRL		µg/kg	66.7						
Aroclor-1260 [2C]	BRL		µg/kg	66.7						
Aroclor-1262	BRL		µg/kg	66.7						
Aroclor-1262 [2C]	BRL		µg/kg	66.7						
Aroclor-1268	BRL		µg/kg	66.7						
Aroclor-1268 [2C]	BRL		µg/kg	66.7						
<hr/>										
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	69.7		µg/kg		66.7		105	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	69.0		µg/kg		66.7		104	30-150		
Surrogate: Decachlorobiphenyl (Sr)	65.0		µg/kg		66.7		97	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	90.3		µg/kg		66.7		136	30-150		
<u>LCS (1012515-BS1)</u>					<u>Prepared: 14-Jun-10 Analyzed: 15-Jun-10</u>					
Aroclor-1016	967		µg/kg	66.7	833		116	50-140		
Aroclor-1016 [2C]	1010		µg/kg	66.7	833		121	50-140		
Aroclor-1260	934		µg/kg	66.7	833		112	50-140		
Aroclor-1260 [2C]	866		µg/kg	66.7	833		104	50-140		
<hr/>										
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	73.0		µg/kg		66.7		110	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	67.3		µg/kg		66.7		101	30-150		
Surrogate: Decachlorobiphenyl (Sr)	73.7		µg/kg		66.7		111	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	92.3		µg/kg		66.7		139	30-150		
<u>LCS Dup (1012515-BSD1)</u>					<u>Prepared: 14-Jun-10 Analyzed: 15-Jun-10</u>					
Aroclor-1016	860		µg/kg	66.7	833		103	50-140	12	30
Aroclor-1016 [2C]	958		µg/kg	66.7	833		115	50-140	5	30
Aroclor-1260	835		µg/kg	66.7	833		100	50-140	11	30
Aroclor-1260 [2C]	880		µg/kg	66.7	833		106	50-140	2	30
<hr/>										
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	45.0		µg/kg		66.7		67	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	75.7		µg/kg		66.7		114	30-150		
Surrogate: Decachlorobiphenyl (Sr)	66.3		µg/kg		66.7		99	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	96.7		µg/kg		66.7		145	30-150		

Notes and Definitions

S02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
BRL	Below Reporting Limit - Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic

Validated by:
Hanibal C. Tayeh, Ph.D.
June O'Connor

Electrical Engineering

Special Funding

83-13624

- ☐ Standard TAT - 7 to 10 business days
- ☒ Rush TAT - Date Needed: 6/5/10
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Project No. 01-207314.01.36

Site Name: Grayson Field Hall-Road

Excursion: Massachusetts State: MA

TON: 5277

List preservative code below:

QA/QC Reporting Notes
Network as installed

•

als

Glass

USS

Analysis:

☐ Provide AAA, DIP, ACU, CASH Report
☐ Provide CT DPH RCT Report

C=Curb C=Ccomposite

Lab. Id. •	Sample Id:	Date:	Time:	Type	Matrix	# of V	# of A	# of C	# of PI	
13-0224-01	GMW-208- 5	6/10/10	1:30	G	X1				1	X
	-02 GMW-208- 6	6/10/10	1:30	G	X1				1	X
	-03 GMW-208- 7	6/10/10	1:30	C	X1				1	X
	-04 full-208- 5	6/10/10	1:30	G	X1				1	X
	-05 full-208- 6	6/10/10	1:30	G	X1				1	X
	-06 full-208- 7	6/10/10	1:30	G	X1				1	X

State specific reporting standards:

* Cement paraffin
 core Samples - taken
 1" to 2" from Surface
 Casings

EDD Form

E-mail to MQA@mcgraw-hill.com
cc: cs@mcgraw-hill.com

Condition upon receipt: ☐ level

[illegible]

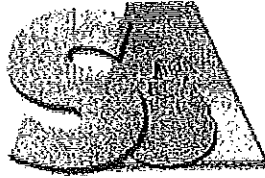
11 Alhambra Drive • Agawam, MA 01001 • 413-789-9018 • FAX 413-789-4075 • www.southam-arealife.com

Appendix D

PCB Analytical Reports

Substrate Sampling (Post-Remediation)

Report Date:
19-Jul-10 15:55



SPECTRUM ANALYTICAL, INC.

Featuring
HANIBAL TECHNOLOGY

Laboratory Report

- ☒ Final Report
☐ Re-Issued Report
☐ Revised Report

Environmental Compliance Services
588 Silver Street
Agawam, MA 01001
Attn: Mike Grover

Project: Grayson/Field Roof - UMASS Amherst, MA
Project #: 01-207319.02.36

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SB15274-01	Joint -6-B	Roof Parapet Cement	16-Jul-10 15:00	16-Jul-10 16:05
SB15274-02	Joint -12-B	Roof Parapet Cement	16-Jul-10 15:00	16-Jul-10 16:05
SB15274-03	Joint -36-B	Roof Parapet Cement	16-Jul-10 15:00	16-Jul-10 16:05
SB15274-04	Joint -93	Roof Parapet Cement	16-Jul-10 15:00	16-Jul-10 16:05
SB15274-05	Joint -94	Roof Parapet Cement	16-Jul-10 15:00	16-Jul-10 16:05

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011/MA012
New York # 11393/11840
Pennsylvania # 68-04426/68-02924
Rhode Island # 98
USDA # S-51435
Vermont # VT-11393



Authorized by:

Hanibal C. Tayeh, Ph.D.
President/Laboratory Director

Technical Reviewer's Initial:

Spectrum Analytical holds certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes.
Please note that this report contains 12 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey and Florida. All analytical work for Volatile Organic and Air analysis is transferred to and conducted at our 830 Silver Street location (NY-11840, FL-E87936 and NJ-MA012).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

CASE NARRATIVE:

The samples were received 30.4 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 2.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

MADEP has published a list of analytical methods (CAM) which provides a series of recommended protocols for the acquisition, analysis and reporting of analytical data in support of MCP decisions. "Presumptive Certainty" can be established only for those methods published by the MADEP in the MCP CAM. The compounds and/or elements reported were specifically requested by the client on the Chain of Custody and in some cases may not include the full analyte list as defined in the method.

According to WSC-CAM 5/2009 Rev.1, Table 11 A-1, recovery for some VOC analytes have been deemed potentially difficult. Although they may still be within the recommended recovery range, a range has been set based on historical control limits.

Some target analytes which are not listed as exceptions in the Summary of CAM Reporting Limits may exceed the recommended RL based on sample initial volume or weight provided, % moisture content, or responsiveness of a particular analyte to purge and trap instrumentation.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

SW846 8082

Samples:

SB15274-01 *Joint -6-B*

The concentration indicated for this analyte is an estimated value. This value is considered an estimate (CLP E-flag).

Aroclor-1254 [2C]

Aroclor-1260 [2C]

SB15274-01RE1 *Joint -6-B*

Sample dilution required for high concentration of target analytes to be within the instrument calibration range.

SB15274-02 *Joint -12-B*

The concentration indicated for this analyte is an estimated value. This value is considered an estimate (CLP E-flag).

Aroclor-1254

Aroclor-1260

SB15274-02RE1 *Joint -12-B*

Sample dilution required for high concentration of target analytes to be within the instrument calibration range.

SB15274-04 *Joint -93*

The concentration indicated for this analyte is an estimated value. This value is considered an estimate (CLP E-flag).

Aroclor-1254 [2C]

Aroclor-1260 [2C]

The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.

Decachlorobiphenyl (Sr)

SB15274-04RE1 *Joint -93*

Sample dilution required for high concentration of target analytes to be within the instrument calibration range.

SW846 8082

Samples:

SB15274-04RE1 *Joint -93*

The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference's.

4,4-DB-Octafluorobiphenyl (Sr)

4,4-DB-Octafluorobiphenyl (Sr) [2C]

Decachlorobiphenyl (Sr)

Decachlorobiphenyl (Sr) [2C]

SB15274-05 *Joint -94*

Sample dilution required for high concentration of target analytes to be within the instrument calibration range.

Sample IdentificationJoint -6-B
SB15274-01Client Project #
01-207319.02.36Matrix
Roof Parapet CementCollection Date/Time
16-Jul-10 15:00Received
16-Jul-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
<u>Prepared by method SW846 3545A</u>												
12674-11-2	Aroclor-1016	BRL		µg/kg	97.9	1	SW846 8082	17-Jul-10	19-Jul-10	IMR	1015161	
11104-28-2	Aroclor-1221	BRL		µg/kg	97.9	1	"	"	"	"	"	"
11141-16-5	Aroclor-1232	BRL		µg/kg	97.9	1	"	"	"	"	"	"
53469-21-9	Aroclor-1242	BRL		µg/kg	97.9	1	"	"	"	"	"	"
12672-29-6	Aroclor-1248	BRL		µg/kg	97.9	1	"	"	"	"	"	"
11097-69-1	Aroclor-1254	255,000	E	µg/kg	97.9	1	"	"	"	"	"	"
11096-82-5	Aroclor-1260	44,200	E	µg/kg	97.9	1	"	"	"	"	"	"
37324-23-5	Aroclor-1262	BRL		µg/kg	97.9	1	"	"	"	"	"	"
11100-14-4	Aroclor-1268	BRL		µg/kg	97.9	1	"	"	"	"	"	"

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	102		30-150 %		"	"	"	"	"	"	"
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	123		30-150 %		"	"	"	"	"	"	"
	[2C]					"	"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr)	140		30-150 %		"	"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr) [2C]	125		30-150 %		"	"	"	"	"	"	"

Re-analysis of Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3545A

12674-11-2	Aroclor-1016	BRL		µg/kg	4890	50	SW846 8082	17-Jul-10	19-Jul-10	IMR	1015161	
11104-28-2	Aroclor-1221	BRL		µg/kg	4890	50	"	"	"	"	"	"
11141-16-5	Aroclor-1232	BRL		µg/kg	4890	50	"	"	"	"	"	"
53469-21-9	Aroclor-1242	BRL		µg/kg	4890	50	"	"	"	"	"	"
12672-29-6	Aroclor-1248	BRL		µg/kg	4890	50	"	"	"	"	"	"
11097-69-1	Aroclor-1254	268,000		µg/kg	4890	50	"	"	"	"	"	"
11096-82-5	Aroclor-1260	41,200		µg/kg	4890	50	"	"	"	"	"	"
37324-23-5	Aroclor-1262	BRL		µg/kg	4890	50	"	"	"	"	"	"
11100-14-4	Aroclor-1268	BRL		µg/kg	4890	50	"	"	"	"	"	"

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	125		30-150 %		"	"	"	"	"	"	"
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	100		30-150 %		"	"	"	"	"	"	"
	[2C]					"	"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr)	125		30-150 %		"	"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr) [2C]	100		30-150 %		"	"	"	"	"	"	"

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* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

Joint -12-B

SB15274-02

Client Project #

01-207319.02.36

Matrix

Roof Parapet Cement

Collection Date/Time

16-Jul-10 15:00

Received

16-Jul-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
<u>Prepared by method SW846 3545A</u>												
12674-11-2	Aroclor-1016	BRL		µg/kg	90.3	1	SW846 8082	17-Jul-10	19-Jul-10	IMR	1015161	
11104-28-2	Aroclor-1221	BRL		µg/kg	90.3	1	"	"	"	"	"	"
11141-16-5	Aroclor-1232	BRL		µg/kg	90.3	1	"	"	"	"	"	"
53469-21-9	Aroclor-1242	BRL		µg/kg	90.3	1	"	"	"	"	"	"
12672-29-6	Aroclor-1248	BRL		µg/kg	90.3	1	"	"	"	"	"	"
11097-69-1	Aroclor-1254	274,000	E	µg/kg	90.3	1	"	"	"	"	"	"
11096-82-5	Aroclor-1260	43,000	E	µg/kg	90.3	1	"	"	"	"	"	"
37324-23-5	Aroclor-1262	BRL		µg/kg	90.3	1	"	"	"	"	"	"
11100-14-4	Aroclor-1268	BRL		µg/kg	90.3	1	"	"	"	"	"	"

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	118		30-150 %	"	"	"	"	"	"	"	"
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	106		30-150 %	"	"	"	"	"	"	"	"
	[2C]				"	"	"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr)	126		30-150 %	"	"	"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr) [2C]	99		30-150 %	"	"	"	"	"	"	"	"

Re-analysis of Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3545A

12674-11-2	Aroclor-1016	BRL		µg/kg	4520	50	SW846 8082	17-Jul-10	19-Jul-10	IMR	1015161	
11104-28-2	Aroclor-1221	BRL		µg/kg	4520	50	"	"	"	"	"	"
11141-16-5	Aroclor-1232	BRL		µg/kg	4520	50	"	"	"	"	"	"
53469-21-9	Aroclor-1242	BRL		µg/kg	4520	50	"	"	"	"	"	"
12672-29-6	Aroclor-1248	BRL		µg/kg	4520	50	"	"	"	"	"	"
11097-69-1	Aroclor-1254	312,000		µg/kg	4520	50	"	"	"	"	"	"
11096-82-5	Aroclor-1260	49,000		µg/kg	4520	50	"	"	"	"	"	"
37324-23-5	Aroclor-1262	BRL		µg/kg	4520	50	"	"	"	"	"	"
11100-14-4	Aroclor-1268	BRL		µg/kg	4520	50	"	"	"	"	"	"

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	125		30-150 %	"	"	"	"	"	"	"	"
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	125		30-150 %	"	"	"	"	"	"	"	"
	[2C]				"	"	"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr)	75		30-150 %	"	"	"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr) [2C]	125		30-150 %	"	"	"	"	"	"	"	"

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

Joint -36-B

SB15274-03

Client Project #

01-207319.02.36

Matrix

Roof Parapet Cement

Collection Date/Time

16-Jul-10 15:00

Received

16-Jul-10

<u>CAS No.</u>	<u>Analyte(s)</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>*RDL</u>	<u>Dilution</u>	<u>Method Ref.</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>	<u>Batch</u>	<u>Cert.</u>
Semivolatile Organic Compounds by GC												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
<u>Prepared by method SW846 3545A</u>												
12674-11-2	Aroclor-1016	BRL		µg/kg	87.6	1	SW846 8082	17-Jul-10	19-Jul-10	IMR	1015161	
11104-28-2	Aroclor-1221	BRL		µg/kg	87.6	1	"	"	"	"	"	"
11141-16-5	Aroclor-1232	BRL		µg/kg	87.6	1	"	"	"	"	"	"
53469-21-9	Aroclor-1242	BRL		µg/kg	87.6	1	"	"	"	"	"	"
12672-29-6	Aroclor-1248	BRL		µg/kg	87.6	1	"	"	"	"	"	"
11097-69-1	Aroclor-1254	8,530		µg/kg	87.6	1	"	"	"	"	"	"
11096-82-5	Aroclor-1260	2,070		µg/kg	87.6	1	"	"	"	"	"	"
37324-23-5	Aroclor-1262	BRL		µg/kg	87.6	1	"	"	"	"	"	"
11100-14-4	Aroclor-1268	BRL		µg/kg	87.6	1	"	"	"	"	"	"
<u>Surrogate recoveries:</u>												
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	121			30-150 %		"	"	"	"	"	"
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	117			30-150 %		"	"	"	"	"	"
	[2C]						"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr)	114			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr) [2C]	122			30-150 %		"	"	"	"	"	"

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit

BRL = Below Reporting Limit

Sample IdentificationJoint -93
SB15274-04Client Project #

01-207319.02.36

Matrix

Roof Parapet Cement

Collection Date/Time

16-Jul-10 15:00

Received

16-Jul-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
<u>Prepared by method SW846 3545A</u>												
12674-11-2	Aroclor-1016	BRL		µg/kg	83.1	1	SW846 8082	17-Jul-10	19-Jul-10	IMR	1015161	
11104-28-2	Aroclor-1221	BRL		µg/kg	83.1	1	"	"	"	"	"	"
11141-16-5	Aroclor-1232	BRL		µg/kg	83.1	1	"	"	"	"	"	"
53469-21-9	Aroclor-1242	BRL		µg/kg	83.1	1	"	"	"	"	"	"
12672-29-6	Aroclor-1248	BRL		µg/kg	83.1	1	"	"	"	"	"	"
11097-69-1	Aroclor-1254	716,000	E	µg/kg	83.1	1	"	"	"	"	"	"
11096-82-5	Aroclor-1260	174,000	E	µg/kg	83.1	1	"	"	"	"	"	"
37324-23-5	Aroclor-1262	BRL		µg/kg	83.1	1	"	"	"	"	"	"
11100-14-4	Aroclor-1268	BRL		µg/kg	83.1	1	"	"	"	"	"	"

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	110			30-150 %		"	"	"	"	"	"
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	106			30-150 %		"	"	"	"	"	"
	[2C]											
2051-24-3	Decachlorobiphenyl (Sr)	170	S04		30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr) [2C]	94			30-150 %		"	"	"	"	"	"

Re-analysis of Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3545A

12674-11-2	Aroclor-1016	BRL		µg/kg	16600	200	SW846 8082	17-Jul-10	19-Jul-10	IMR	1015161	
11104-28-2	Aroclor-1221	BRL		µg/kg	16600	200	"	"	"	"	"	"
11141-16-5	Aroclor-1232	BRL		µg/kg	16600	200	"	"	"	"	"	"
53469-21-9	Aroclor-1242	BRL		µg/kg	16600	200	"	"	"	"	"	"
12672-29-6	Aroclor-1248	BRL		µg/kg	16600	200	"	"	"	"	"	"
11097-69-1	Aroclor-1254	1,110,000		µg/kg	16600	200	"	"	"	"	"	"
11096-82-5	Aroclor-1260	221,000		µg/kg	16600	200	"	"	"	"	"	"
37324-23-5	Aroclor-1262	BRL		µg/kg	16600	200	"	"	"	"	"	"
11100-14-4	Aroclor-1268	BRL		µg/kg	16600	200	"	"	"	"	"	"

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	0	S01		30-150 %		"	"	"	"	"	"
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	0	S01		30-150 %		"	"	"	"	"	"
	[2C]											
2051-24-3	Decachlorobiphenyl (Sr)	0	S01		30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr) [2C]	0	S01		30-150 %		"	"	"	"	"	"

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

Joint -94
SB15274-05

Client Project #
01-207319.02.36

Matrix
Roof Parapet Cement

Collection Date/Time
16-Jul-10 15:00

Received
16-Jul-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
<u>Prepared by method SW846 3545A</u>												
				GS1								
12674-11-2	Aroclor-1016	BRL		µg/kg	961	10	SW846 8082	17-Jul-10	19-Jul-10	IMR	1015161	
11104-28-2	Aroclor-1221	BRL		µg/kg	961	10	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg	961	10	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg	961	10	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg	961	10	"	"	"	"	"	
11097-69-1	Aroclor-1254	56,100		µg/kg	961	10	"	"	"	"	"	
11096-82-5	Aroclor-1260	18,300		µg/kg	961	10	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg	961	10	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg	961	10	"	"	"	"	"	
Surrogate recoveries:												
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	130			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	120			30-150 %		"	"	"	"	"	
	[2C]						"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	110			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	105			30-150 %		"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

Semivolatile Organic Compounds by GC - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1015161 - SW846 3545A										
<u>Blank (1015161-BLK1)</u>					<u>Prepared: 17-Jul-10 Analyzed: 19-Jul-10</u>					
Aroclor-1016	BRL		µg/kg	20.0						
Aroclor-1016 [2C]	BRL		µg/kg	20.0						
Aroclor-1221	BRL		µg/kg	20.0						
Aroclor-1221 [2C]	BRL		µg/kg	20.0						
Aroclor-1232	BRL		µg/kg	20.0						
Aroclor-1232 [2C]	BRL		µg/kg	20.0						
Aroclor-1242	BRL		µg/kg	20.0						
Aroclor-1242 [2C]	BRL		µg/kg	20.0						
Aroclor-1248	BRL		µg/kg	20.0						
Aroclor-1248 [2C]	BRL		µg/kg	20.0						
Aroclor-1254	BRL		µg/kg	20.0						
Aroclor-1254 [2C]	BRL		µg/kg	20.0						
Aroclor-1260	BRL		µg/kg	20.0						
Aroclor-1260 [2C]	BRL		µg/kg	20.0						
Aroclor-1262	BRL		µg/kg	20.0						
Aroclor-1262 [2C]	BRL		µg/kg	20.0						
Aroclor-1268	BRL		µg/kg	20.0						
Aroclor-1268 [2C]	BRL		µg/kg	20.0						
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	19.2		µg/kg		20.0		96	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	19.2		µg/kg		20.0		96	30-150		
Surrogate: Decachlorobiphenyl (Sr)	20.1		µg/kg		20.0		101	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	17.6		µg/kg		20.0		88	30-150		
<u>LCS (1015161-BS1)</u>					<u>Prepared: 17-Jul-10 Analyzed: 19-Jul-10</u>					
Aroclor-1016	226		µg/kg	20.0	250		91	50-140		
Aroclor-1016 [2C]	202		µg/kg	20.0	250		81	50-140		
Aroclor-1260	214		µg/kg	20.0	250		85	50-140		
Aroclor-1260 [2C]	198		µg/kg	20.0	250		79	50-140		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	20.3		µg/kg		20.0		102	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	21.3		µg/kg		20.0		107	30-150		
Surrogate: Decachlorobiphenyl (Sr)	24.9		µg/kg		20.0		125	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	17.6		µg/kg		20.0		88	30-150		
<u>LCS Dup (1015161-BSD1)</u>					<u>Prepared: 17-Jul-10 Analyzed: 19-Jul-10</u>					
Aroclor-1016	225		µg/kg	20.0	250		90	50-140	0.5	30
Aroclor-1016 [2C]	202		µg/kg	20.0	250		81	50-140	0.1	30
Aroclor-1260	205		µg/kg	20.0	250		82	50-140	4	30
Aroclor-1260 [2C]	193		µg/kg	20.0	250		77	50-140	3	30
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	20.6		µg/kg		20.0		103	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	21.0		µg/kg		20.0		105	30-150		
Surrogate: Decachlorobiphenyl (Sr)	23.7		µg/kg		20.0		119	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	19.8		µg/kg		20.0		99	30-150		
<u>Duplicate (1015161-DUP1)</u>					<u>Source: SB15274-05 Prepared: 17-Jul-10 Analyzed: 19-Jul-10</u>					
Aroclor-1016	BRL		µg/kg	859		BRL				40
Aroclor-1221	BRL		µg/kg	859		BRL				40
Aroclor-1232	BRL		µg/kg	859		BRL				40
Aroclor-1242	BRL		µg/kg	859		BRL				40
Aroclor-1248	BRL		µg/kg	859		BRL				40
Aroclor-1254 [2C]	47300		µg/kg	859		56100			17	40
Aroclor-1260 [2C]	14000		µg/kg	859		18300			27	40
Aroclor-1262	BRL		µg/kg	859		BRL				40
Aroclor-1268	BRL		µg/kg	859		BRL				40

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit BRL = Below Reporting Limit

Semivolatile Organic Compounds by GC - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1015161 - SW846 3545A										
Duplicate (1015161-DUP1)										
				Source: SB15274-05		Prepared: 17-Jul-10		Analyzed: 19-Jul-10		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	125		µg/kg		85.9		145	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	116		µg/kg		85.9		135	30-150		
Surrogate: Decachlorobiphenyl (Sr)	125		µg/kg		85.9		145	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	98.8		µg/kg		85.9		115	30-150		

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* Reportable Detection Limit BRL = Below Reporting Limit

Notes and Definitions

E	The concentration indicated for this analyte is an estimated value. This value is considered an estimate (CLP E-flag).
GS1	Sample dilution required for high concentration of target analytes to be within the instrument calibration range.
S01	The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference's.
S04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
BRL	Below Reporting Limit - Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.


Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic

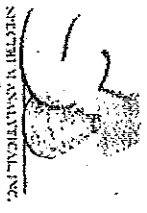
Validated by:
Hanibal C. Tayeh, Ph.D.
Rebecca Merz

MassDEP Analytical Protocol Certification Form

Laboratory Name: Spectrum Analytical, Inc.			Project #: 01-207319.02.36		
Project Location: Grayson/Field Roof - UMASS Amherst, MA			RTN:		
This form provides certifications for the following data set:			SB15274-01 through SB15274-05		
Matrices: Roof Parapet Cement					
CAM Protocol					
8260 VOC CAM II A	7470/7471 Hg CAM III B	MassDEP VPH CAM IV A	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
8270 SVOC CAM II B	7010 Metals CAM III C	MassDEP EPH CAM IV B	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
6010 Metals CAM III A	6020 Metals CAM III D	✓ 8082 PCB CAM V A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B	
Affirmative responses to questions A through F are required for "Presumptive Certainty" status					
A	Were all samples received in a condition consistent with those described on the Chain of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?				Yes ✓ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?				✓ Yes No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?				✓ Yes No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?				✓ Yes No
E	a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?				Yes No Yes No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to questions A through E)?				✓ Yes No
Responses to questions G, H and I below are required for "Presumptive Certainty" status					
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?				Yes ✓ No
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.					
H	Were all QC performance standards specified in the CAM protocol(s) achieved?				Yes ✓ No
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?				✓ Yes No
All negative responses are addressed in a case narrative on the cover page of this report.					
I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.					
<div style="text-align: right;">  Hanibal C. Tayeh, Ph.D. President/Laboratory Director Date: 7/19/2010 </div>					

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit BRL = Below Reporting Limit



SPECTRA ANALYTICAL, INC.
Framingham
MA 01864

CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:

- ☐ Standard FAT - 7 to 10 business days
- ☒ Rush FAT - Date Needed: 7/19/10
- All FATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: ECS, Agawam

Invoice To: ECS Agawam

Project No.: 01-207319.003, 36

Site Name: Field/Agawam Roof

Location: Unit 55, Amherst State: MA

Telephone #: 413-348-3300

P.O. No.: RON 6272

Samples: M. Green

Project Mgr: M. Green

List preservative code below:

1-Na₂SO₃, 2-HCl, 3-H₂SO₄, 4-HNO₃, 5-NaOH, 6-Ascorbic Acid, 7-C₁₂H₁₁OH, 10-
8-NaHSO₃, 9-
DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW=Surface Water SO=Soil SL=Sediment A=Air
X1=Roof, X2=, X3=

QA/QC Reporting Notes:
(check as needed)

G-Grab C-Composite

QA/QC Reporting Level
☐ Standard ☐ No QC
☐ Other

Lab Id: Sample Id: Date: Time: Type: Matrix

State specific reporting standards:

Containers: # of VOA Vials # of Amber Glass # of Clear Glass # of Plastic Bags

Analyses:

1-03 Count-94 7/14/10 3:00 G X1

2-03 Count-93 V. 3:00 G X1

3-03 Count-93 3:00 G X1

4-03 Count-94 3:00 G X1

5-03 Count-94 3:00 G X1

6-03 Count-94 3:00 G X1

7-03 Count-94 3:00 G X1

8-03 Count-94 3:00 G X1

9-03 Count-94 3:00 G X1

10-03 Count-94 3:00 G X1

11-03 Count-94 3:00 G X1

12-03 Count-94 3:00 G X1

13-03 Count-94 3:00 G X1

14-03 Count-94 3:00 G X1

15-03 Count-94 3:00 G X1

16-03 Count-94 3:00 G X1

17-03 Count-94 3:00 G X1

18-03 Count-94 3:00 G X1

19-03 Count-94 3:00 G X1

20-03 Count-94 3:00 G X1

21-03 Count-94 3:00 G X1

22-03 Count-94 3:00 G X1

23-03 Count-94 3:00 G X1

24-03 Count-94 3:00 G X1

25-03 Count-94 3:00 G X1

26-03 Count-94 3:00 G X1

27-03 Count-94 3:00 G X1

28-03 Count-94 3:00 G X1

29-03 Count-94 3:00 G X1

30-03 Count-94 3:00 G X1

31-03 Count-94 3:00 G X1

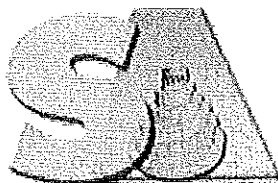
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Appendix E

PCB Analytical Reports

Substrate Sampling (Post-Additional Cleaning)

Report Date:
05-Aug-10 14:38



SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY
Laboratory Report

- ☐ Final Report
☐ Re-Issued Report
☒ Revised Report

Environmental Compliance Services
588 Silver Street
Agawam, MA 01001
Attn: Mike Grover

Project: Grayson/Field Roof - UMASS Amherst, MA
Project #: 207319.02.36

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SB15728-01	Joint-6-1"	Roof Parapet Cement	26-Jul-10 10:30	26-Jul-10 13:20
SB15728-02	Joint-6-3"	Roof Parapet Cement	26-Jul-10 10:30	26-Jul-10 13:20
SB15728-03	Joint-12-1"	Roof Parapet Cement	26-Jul-10 10:30	26-Jul-10 13:20
SB15728-04	Joint-12-3"	Roof Parapet Cement	26-Jul-10 10:30	26-Jul-10 13:20
SB15728-05	Joint-93-1"	Roof Parapet Cement	26-Jul-10 10:30	26-Jul-10 13:20
SB15728-06	Joint-93-3"	Roof Parapet Cement	26-Jul-10 10:30	26-Jul-10 13:20

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011/MA012
New York # 11393/11840
Pennsylvania # 68-04426/68-02924
Rhode Island # 98
USDA # S-51435
Vermont # VT-11393



Authorized by:

Hanibal C. Tayeh, Ph.D.
President/Laboratory Director

Technical Reviewer's Initial:

Spectrum Analytical holds certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes. Please note that this report contains 12 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, FL-E87936 and NJ-MA012).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

CASE NARRATIVE:

The samples were received 23.5 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 2.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

MADEP has published a list of analytical methods (CAM) which provides a series of recommended protocols for the acquisition, analysis and reporting of analytical data in support of MCP decisions. "Presumptive Certainty" can be established only for those methods published by the MADEP in the MCP CAM. The compounds and/or elements reported were specifically requested by the client on the Chain of Custody and in some cases may not include the full analyte list as defined in the method.

According to WSC-CAM 5/2009 Rev.1, Table 11 A-1, recovery for some VOC analytes have been deemed potentially difficult. Although they may still be within the recommended recovery range, a range has been set based on historical control limits.

Some target analytes which are not listed as exceptions in the Summary of CAM Reporting Limits may exceed the recommended RL based on sample initial volume or weight provided, % moisture content, or responsiveness of a particular analyte to purge and trap instrumentation.

There is no relevant protocol-specific QC and/or performance standards non-conformances to report.

Sample Identification

Joint-6-1"
SB15728-01

Client Project #
207319.02.36

Matrix
Roof Parapet Cement

Collection Date/Time
26-Jul-10 10:30

Received
26-Jul-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
<u>Prepared by method SW846 3550B/C</u>												
12674-11-2	Aroclor-1016	BRL		µg/kg	61.6	1	SW846 8082	26-Jul-10	27-Jul-10	IMR	1015754	
11104-28-2	Aroclor-1221	BRL		µg/kg	61.6	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg	61.6	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg	61.6	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg	61.6	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	5,340		µg/kg	61.6	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/kg	61.6	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg	61.6	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg	61.6	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	110			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	90			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	120			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	77			30-150 %		"	"	"	"	"	

Re-analysis of Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/kg	66.5	1	SW846 8082	26-Jul-10	03-Aug-10	IMR	1016372	
11104-28-2	Aroclor-1221	BRL		µg/kg	66.5	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg	66.5	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg	66.5	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg	66.5	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	3,890		µg/kg	66.5	1	"	"	04-Aug-10	"	"	
11096-82-5	Aroclor-1260	BRL		µg/kg	66.5	1	"	"	03-Aug-10	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg	66.5	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg	66.5	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	91			30-150 %		"	"	04-Aug-10	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	87			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	98			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	80			30-150 %		"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

Joint-6-3"

SB15728-02

Client Project #

207319.02.36

Matrix

Roof Parapet Cement

Collection Date/Time

26-Jul-10 10:30

Received

26-Jul-10

<u>CAS No.</u>	<u>Analyte(s)</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>*RDL</u>	<u>Dilution</u>	<u>Method Ref.</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>	<u>Batch</u>	<u>Cert.</u>
Semivolatile Organic Compounds by GC												
Polychlorinated Biphenyls by SW846 8082												
Prepared by method SW846 3550B/C												
12674-11-2	Aroclor-1016	BRL		µg/kg	57.6	1	SW846 8082	26-Jul-10	27-Jul-10	IMR	1015754	
11104-28-2	Aroclor-1221	BRL		µg/kg	57.6	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg	57.6	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg	57.6	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg	57.6	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/kg	57.6	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/kg	57.6	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg	57.6	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg	57.6	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	123			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	116			30-150 %		"	"	"	"	"	
	[2C]											
2051-24-3	Decachlorobiphenyl (Sr)	134			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	84			30-150 %		"	"	"	"	"	

Re-analysis of Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/kg	65.6	1	SW846 8082	26-Jul-10	03-Aug-10	IMR	1016372	
11104-28-2	Aroclor-1221	BRL		µg/kg	65.6	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg	65.6	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg	65.6	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg	65.6	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/kg	65.6	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/kg	65.6	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg	65.6	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg	65.6	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	98			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	85			30-150 %		"	"	"	"	"	
	[2C]											
2051-24-3	Decachlorobiphenyl (Sr)	104			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	74			30-150 %		"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

Page 4 of 12

Sample Identification

Joint-12-1"

SB15728-03

Client Project #

207319.02.36

Matrix

Roof Parapet Cement

Collection Date/Time

26-Jul-10 10:30

Received

26-Jul-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
<u>Prepared by method SW846 3550B/C</u>												
12674-11-2	Aroclor-1016	BRL		µg/kg	65.6	1	SW846 8082	26-Jul-10	27-Jul-10	IMR	1015754	
11104-28-2	Aroclor-1221	BRL		µg/kg	65.6	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg	65.6	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg	65.6	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg	65.6	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	745		µg/kg	65.6	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/kg	65.6	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg	65.6	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg	65.6	1	"	"	"	"	"	
<u>Surrogate recoveries:</u>												
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	113			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	122			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	112			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	89			30-150 %		"	"	"	"	"	
<u>Re-analysis of Polychlorinated Biphenyls by SW846 8082</u>												
<u>Prepared by method SW846 3540C</u>												
12674-11-2	Aroclor-1016	BRL		µg/kg	64.1	1	SW846 8082	26-Jul-10	03-Aug-10	IMR	1016372	
11104-28-2	Aroclor-1221	BRL		µg/kg	64.1	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg	64.1	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg	64.1	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg	64.1	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	499		µg/kg	64.1	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/kg	64.1	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg	64.1	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg	64.1	1	"	"	"	"	"	
<u>Surrogate recoveries:</u>												
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	92			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	92			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	96			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	74			30-150 %		"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

Joint-12-3"

SB15728-04

Client Project #

207319.02.36

Matrix

Roof Parapet Cement

Collection Date/Time

26-Jul-10 10:30

Received

26-Jul-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3550B/C

12674-11-2	Aroclor-1016	BRL		µg/kg	63.0	1	SW846 8082	26-Jul-10	27-Jul-10	IMR	1015754	
11104-28-2	Aroclor-1221	BRL		µg/kg	63.0	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg	63.0	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg	63.0	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg	63.0	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/kg	63.0	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/kg	63.0	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg	63.0	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg	63.0	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	96			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	83			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	90			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	67			30-150 %		"	"	"	"	"	

Re-analysis of Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/kg	64.5	1	SW846 8082	26-Jul-10	03-Aug-10	IMR	1016372	
11104-28-2	Aroclor-1221	BRL		µg/kg	64.5	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg	64.5	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg	64.5	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg	64.5	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/kg	64.5	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/kg	64.5	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg	64.5	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg	64.5	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	91			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	92			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	90			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	68			30-150 %		"	"	"	"	"	

Sample Identification

Joint-93-1"

SB15728-05

Client Project #

207319.02.36

Matrix

Roof Parapet Cement

Collection Date/Time

26-Jul-10 10:30

Received

26-Jul-10

<u>CAS No.</u>	<u>Analyte(s)</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>*RDL</u>	<u>Dilution</u>	<u>Method Ref.</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Analyst</u>	<u>Batch</u>	<u>Cert.</u>
<u>Semivolatile Organic Compounds by GC</u>												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
<u>Prepared by method SW846 3550B/C</u>												
12674-11-2	Aroclor-1016	BRL		µg/kg	61.2	1	SW846 8082	26-Jul-10	27-Jul-10	IMR	1015754	
11104-28-2	Aroclor-1221	BRL		µg/kg	61.2	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg	61.2	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg	61.2	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg	61.2	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	172		µg/kg	61.2	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/kg	61.2	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg	61.2	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg	61.2	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	130			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	95			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	145			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	99			30-150 %		"	"	"	"	"	

Re-analysis of Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/kg	59.8	1	SW846 8082	26-Jul-10	03-Aug-10	IMR	1016372	
11104-28-2	Aroclor-1221	BRL		µg/kg	59.8	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg	59.8	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg	59.8	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg	59.8	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	175		µg/kg	59.8	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/kg	59.8	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg	59.8	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg	59.8	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	88			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	85			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	92			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	72			30-150 %		"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

Joint-93-3"

SB15728-06

Client Project #

207319.02.36

Matrix

Roof Parapet Cement

Collection Date/Time

26-Jul-10 10:30

Received

26-Jul-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GCPolychlorinated Biphenyls by SW846 8082Prepared by method SW846 3550B/C

12674-11-2	Aroclor-1016	BRL		µg/kg	65.1	1	SW846 8082	26-Jul-10	27-Jul-10	IMR	1015754	
11104-28-2	Aroclor-1221	BRL		µg/kg	65.1	1	"	"	"	"	"	"
11141-16-5	Aroclor-1232	BRL		µg/kg	65.1	1	"	"	"	"	"	"
53469-21-9	Aroclor-1242	BRL		µg/kg	65.1	1	"	"	"	"	"	"
12672-29-6	Aroclor-1248	BRL		µg/kg	65.1	1	"	"	"	"	"	"
11097-69-1	Aroclor-1254	147		µg/kg	65.1	1	"	"	"	"	"	"
11096-82-5	Aroclor-1260	BRL		µg/kg	65.1	1	"	"	"	"	"	"
37324-23-5	Aroclor-1262	BRL		µg/kg	65.1	1	"	"	"	"	"	"
11100-14-4	Aroclor-1268	BRL		µg/kg	65.1	1	"	"	"	"	"	"

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	121			30-150 %		"	"	"	"	"	"
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	118			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr)	94			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr) [2C]	98			30-150 %		"	"	"	"	"	"

Re-analysis of Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

11104-28-2	Aroclor-1221	BRL		µg/kg	62.2	1	SW846 8082	26-Jul-10	04-Aug-10	IMR	1016372	
11141-16-5	Aroclor-1232	BRL		µg/kg	62.2	1	"	"	"	"	"	"
53469-21-9	Aroclor-1242	BRL		µg/kg	62.2	1	"	"	"	"	"	"
12672-29-6	Aroclor-1248	BRL		µg/kg	62.2	1	"	"	"	"	"	"
11097-69-1	Aroclor-1254	476		µg/kg	62.2	1	"	"	03-Aug-10	"	"	"
11096-82-5	Aroclor-1260	BRL		µg/kg	62.2	1	"	"	04-Aug-10	"	"	"
37324-23-5	Aroclor-1262	BRL		µg/kg	62.2	1	"	"	"	"	"	"
11100-14-4	Aroclor-1268	BRL		µg/kg	62.2	1	"	"	"	"	"	"

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	96			30-150 %		"	"	03-Aug-10	"	"	"
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	91			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr)	101			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr) [2C]	80			30-150 %		"	"	"	"	"	"

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* Reportable Detection Limit

BRL = Below Reporting Limit

Semivolatile Organic Compounds by GC - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1015754 - SW846 3550B/C										
<u>Blank (1015754-BLK1)</u>					<u>Prepared: 26-Jul-10 Analyzed: 27-Jul-10</u>					
Aroclor-1016	BRL		µg/kg	20.0						
Aroclor-1016 [2C]	BRL		µg/kg	20.0						
Aroclor-1221	BRL		µg/kg	20.0						
Aroclor-1221 [2C]	BRL		µg/kg	20.0						
Aroclor-1232	BRL		µg/kg	20.0						
Aroclor-1232 [2C]	BRL		µg/kg	20.0						
Aroclor-1242	BRL		µg/kg	20.0						
Aroclor-1242 [2C]	BRL		µg/kg	20.0						
Aroclor-1248	BRL		µg/kg	20.0						
Aroclor-1248 [2C]	BRL		µg/kg	20.0						
Aroclor-1254	BRL		µg/kg	20.0						
Aroclor-1254 [2C]	BRL		µg/kg	20.0						
Aroclor-1260	BRL		µg/kg	20.0						
Aroclor-1260 [2C]	BRL		µg/kg	20.0						
Aroclor-1262	BRL		µg/kg	20.0						
Aroclor-1262 [2C]	BRL		µg/kg	20.0						
Aroclor-1268	BRL		µg/kg	20.0						
Aroclor-1268 [2C]	BRL		µg/kg	20.0						
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	22.0		µg/kg		20.0		110	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	19.1		µg/kg		20.0		96	30-150		
Surrogate: Decachlorobiphenyl (Sr)	14.4		µg/kg		20.0		72	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	14.9		µg/kg		20.0		74	30-150		
<u>LCS (1015754-BS1)</u>					<u>Prepared: 26-Jul-10 Analyzed: 27-Jul-10</u>					
Aroclor-1016	240		µg/kg	20.0	250		96	50-140		
Aroclor-1016 [2C]	229		µg/kg	20.0	250		91	50-140		
Aroclor-1260	192		µg/kg	20.0	250		77	50-140		
Aroclor-1260 [2C]	206		µg/kg	20.0	250		83	50-140		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	22.3		µg/kg		20.0		112	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	19.5		µg/kg		20.0		98	30-150		
Surrogate: Decachlorobiphenyl (Sr)	12.8		µg/kg		20.0		64	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	15.1		µg/kg		20.0		76	30-150		
<u>LCS Dup (1015754-BSD1)</u>					<u>Prepared: 26-Jul-10 Analyzed: 27-Jul-10</u>					
Aroclor-1016	275		µg/kg	20.0	250		110	50-140	14	30
Aroclor-1016 [2C]	214		µg/kg	20.0	250		85	50-140	7	30
Aroclor-1260	229		µg/kg	20.0	250		91	50-140	17	30
Aroclor-1260 [2C]	230		µg/kg	20.0	250		92	50-140	11	30
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	26.1		µg/kg		20.0		131	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	19.4		µg/kg		20.0		97	30-150		
Surrogate: Decachlorobiphenyl (Sr)	16.1		µg/kg		20.0		80	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	15.7		µg/kg		20.0		78	30-150		
Batch 1016372 - SW846 3540C										
<u>Blank (1016372-BLK1)</u>					<u>Prepared: 02-Aug-10 Analyzed: 03-Aug-10</u>					
Aroclor-1016	BRL		µg/kg	20.0						
Aroclor-1016 [2C]	BRL		µg/kg	20.0						
Aroclor-1221	BRL		µg/kg	20.0						
Aroclor-1221 [2C]	BRL		µg/kg	20.0						
Aroclor-1232	BRL		µg/kg	20.0						
Aroclor-1232 [2C]	BRL		µg/kg	20.0						
Aroclor-1242	BRL		µg/kg	20.0						
Aroclor-1242 [2C]	BRL		µg/kg	20.0						

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* Reportable Detection Limit BRL = Below Reporting Limit

Semivolatile Organic Compounds by GC - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1016372 - SW846 3540C										
Blank (1016372-BLK1)					Prepared: 02-Aug-10 Analyzed: 03-Aug-10					
Aroclor-1248	BRL		µg/kg	20.0						
Aroclor-1248 [2C]	BRL		µg/kg	20.0						
Aroclor-1254	BRL		µg/kg	20.0						
Aroclor-1254 [2C]	BRL		µg/kg	20.0						
Aroclor-1260	BRL		µg/kg	20.0						
Aroclor-1260 [2C]	BRL		µg/kg	20.0						
Aroclor-1262	BRL		µg/kg	20.0						
Aroclor-1262 [2C]	BRL		µg/kg	20.0						
Aroclor-1268	BRL		µg/kg	20.0						
Aroclor-1268 [2C]	BRL		µg/kg	20.0						
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	19.3		µg/kg		20.0		96	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	18.7		µg/kg		20.0		94	30-150		
Surrogate: Decachlorobiphenyl (Sr)	19.7		µg/kg		20.0		98	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	15.9		µg/kg		20.0		80	30-150		
LCS (1016372-BS1)					Prepared: 02-Aug-10 Analyzed: 03-Aug-10					
Aroclor-1016	224		µg/kg	20.0	250		90	50-140		
Aroclor-1016 [2C]	225		µg/kg	20.0	250		90	50-140		
Aroclor-1260	202		µg/kg	20.0	250		81	50-140		
Aroclor-1260 [2C]	190		µg/kg	20.0	250		76	50-140		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	19.1		µg/kg		20.0		96	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	18.4		µg/kg		20.0		92	30-150		
Surrogate: Decachlorobiphenyl (Sr)	19.4		µg/kg		20.0		97	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	16.2		µg/kg		20.0		81	30-150		
LCS Dup (1016372-BSD1)					Prepared: 02-Aug-10 Analyzed: 03-Aug-10					
Aroclor-1016	234		µg/kg	20.0	250		94	50-140	4	30
Aroclor-1016 [2C]	228		µg/kg	20.0	250		91	50-140	1	30
Aroclor-1260	213		µg/kg	20.0	250		85	50-140	5	30
Aroclor-1260 [2C]	191		µg/kg	20.0	250		76	50-140	0.6	30
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	20.1		µg/kg		20.0		101	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	18.4		µg/kg		20.0		92	30-150		
Surrogate: Decachlorobiphenyl (Sr)	21.5		µg/kg		20.0		108	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	16.6		µg/kg		20.0		83	30-150		

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* Reportable Detection Limit BRL = Below Reporting Limit

Notes and Definitions

BRL	Below Reporting Limit - Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.


Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic

Validated by:
Hanibal C. Tayeh, Ph.D.
June O'Connor
Nicole Leja

MassDEP Analytical Protocol Certification Form

Laboratory Name: Spectrum Analytical, Inc.			Project #: 207319.02.36		
Project Location: Grayson/Field Roof - UMASS Amherst, MA			RTN:		
This form provides certifications for the following data set:			SB15728-01 through SB15728-06		
Matrices: Roof Parapet Cement					
CAM Protocol					
8260 VOC CAM II A	7470/7471 Hg CAM III B	MassDEP VPH CAM IV A	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
8270 SVOC CAM II B	7010 Metals CAM III C	MassDEP EPH CAM IV B	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
6010 Metals CAM III A	6020 Metals CAM III D	✓ 8082 PCB CAM V A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B	
Affirmative responses to questions A through F are required for "Presumptive Certainty" status					
A	Were all samples received in a condition consistent with those described on the Chain of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?				Yes ✓ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?				✓ Yes No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?				✓ Yes No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?				✓ Yes No
E	a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?				Yes No Yes No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to questions A through E)?				✓ Yes No
Responses to questions G, H and I below are required for "Presumptive Certainty" status					
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?				✓ Yes No
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.					
H	Were all QC performance standards specified in the CAM protocol(s) achieved?				✓ Yes No
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?				✓ Yes No
All negative responses are addressed in a case narrative on the cover page of this report.					
I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.					
 Hanibal C. Tayeh, Ph.D. President/Laboratory Director Date: 8/5/2010					

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* Reportable Detection Limit

BRL = Below Reporting Limit



Page 1 of 1

So 15728

DEBATE

Project No.: 207319.02-36

Location: MP-55 Campers State: ME

Sampler(s): MLK Grover

List preservative code below:

[illegible]

Analysis

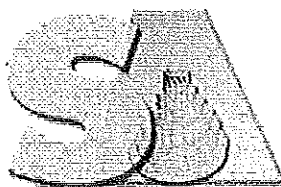
10

SL

DATA

[illegible]

Report Date:
04-Aug-10 14:24



SPECTRUM ANALYTICAL, INC.

Featuring

HANIBAL TECHNOLOGY

Laboratory Report

- ☒ Final Report
☐ Re-Issued Report
☐ Revised Report

Environmental Compliance Services
588 Silver Street
Agawam, MA 01001
Attn: Mike Grover

Project: Grayson/Field Hall-UMASS Amherst
Project #: 01-207319.02.36

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SB16061-01	Joint 56-1"	Roof Parapet Cement	02-Aug-10 11:00	02-Aug-10 15:15
SB16061-02	Joint 56-3"	Roof Parapet Cement	02-Aug-10 11:02	02-Aug-10 15:15
SB16061-03	Joint 62-1"	Roof Parapet Cement	02-Aug-10 12:00	02-Aug-10 15:15
SB16061-04	Joint 62-3"	Roof Parapet Cement	02-Aug-10 12:00	02-Aug-10 15:15
SB16061-05	Joint 71-1"	Roof Parapet Cement	02-Aug-10 13:00	02-Aug-10 15:15
SB16061-06	Joint 71-3"	Roof Parapet Cement	02-Aug-10 13:02	02-Aug-10 15:15

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011/MA012
New York # 11393/11840
Pennsylvania # 68-04426/68-02924
Rhode Island # 98
USDA # S-51435
Vermont # VT-11393



Authorized by:

Hanibal C. Tayeh, Ph.D.
President/Laboratory Director

Technical Reviewer's Initial:

Spectrum Analytical holds certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes.

Please note that this report contains 9 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, FL-E87936 and NJ-MA012).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

CASE NARRATIVE:

The samples were received 28.2 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 2.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

MADEP has published a list of analytical methods (CAM) which provides a series of recommended protocols for the acquisition, analysis and reporting of analytical data in support of MCP decisions. "Presumptive Certainty" can be established only for those methods published by the MADEP in the MCP CAM. The compounds and/or elements reported were specifically requested by the client on the Chain of Custody and in some cases may not include the full analyte list as defined in the method.

According to WSC-CAM 5/2009 Rev.1, Table 11 A-1, recovery for some VOC analytes have been deemed potentially difficult. Although they may still be within the recommended recovery range, a range has been set based on historical control limits.

Some target analytes which are not listed as exceptions in the Summary of CAM Reporting Limits may exceed the recommended RL based on sample initial volume or weight provided, % moisture content, or responsiveness of a particular analyte to purge and trap instrumentation.

There is no relevant protocol-specific QC and/or performance standards non-conformances to report.

Sample Identification

Joint 56-1"

SB16061-01

Client Project #

01-207319.02.36

Matrix

Roof Parapet Cement

Collection Date/Time

02-Aug-10 11:00

Received

02-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
Prepared by method SW846 3540C												
12674-11-2	Aroclor-1016	BRL		µg/kg	62.7	1	SW846 8082	02-Aug-10	04-Aug-10	IMR	1016372	
11104-28-2	Aroclor-1221	BRL		µg/kg	62.7	1	"	"	"	"	"	"
11141-16-5	Aroclor-1232	BRL		µg/kg	62.7	1	"	"	"	"	"	"
53469-21-9	Aroclor-1242	BRL		µg/kg	62.7	1	"	"	"	"	"	"
12672-29-6	Aroclor-1248	BRL		µg/kg	62.7	1	"	"	"	"	"	"
11097-69-1	Aroclor-1254	455		µg/kg	62.7	1	"	"	"	"	"	"
11096-82-5	Aroclor-1260	BRL		µg/kg	62.7	1	"	"	"	"	"	"
37324-23-5	Aroclor-1262	BRL		µg/kg	62.7	1	"	"	"	"	"	"
11100-14-4	Aroclor-1268	BRL		µg/kg	62.7	1	"	"	"	"	"	"
Surrogate recoveries:												
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	98			30-150 %		"	"	"	"	"	"
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	88			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr)	98			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr) [2C]	78			30-150 %		"	"	"	"	"	"

Sample Identification

Joint 56-3"

SB16061-02

Client Project #

01-207319.02.36

Matrix

Roof Parapet Cement

Collection Date/Time

02-Aug-10 11:02

Received

02-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
Prepared by method SW846 3540C												
12674-11-2	Aroclor-1016	BRL		µg/kg	64.5	1	SW846 8082	02-Aug-10	04-Aug-10	IMR	1016372	
11104-28-2	Aroclor-1221	BRL		µg/kg	64.5	1	"	"	"	"	"	"
11141-16-5	Aroclor-1232	BRL		µg/kg	64.5	1	"	"	"	"	"	"
53469-21-9	Aroclor-1242	BRL		µg/kg	64.5	1	"	"	"	"	"	"
12672-29-6	Aroclor-1248	BRL		µg/kg	64.5	1	"	"	"	"	"	"
11097-69-1	Aroclor-1254	BRL		µg/kg	64.5	1	"	"	"	"	"	"
11096-82-5	Aroclor-1260	BRL		µg/kg	64.5	1	"	"	"	"	"	"
37324-23-5	Aroclor-1262	BRL		µg/kg	64.5	1	"	"	"	"	"	"
11100-14-4	Aroclor-1268	BRL		µg/kg	64.5	1	"	"	"	"	"	"
Surrogate recoveries:												
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	84			30-150 %		"	"	"	"	"	"
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	76			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr)	91			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr) [2C]	60			30-150 %		"	"	"	"	"	"

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

Joint 62-1"

SB16061-03

Client Project #

01-207319.02.36

Matrix

Roof Parapet Cement

Collection Date/Time

02-Aug-10 12:00

Received

02-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/kg	61.1	1	SW846 8082	02-Aug-10	04-Aug-10	IMR	1016372	
11104-28-2	Aroclor-1221	BRL		µg/kg	61.1	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg	61.1	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg	61.1	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg	61.1	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	537		µg/kg	61.1	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/kg	61.1	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg	61.1	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg	61.1	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	89			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	78			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	96			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	68			30-150 %		"	"	"	"	"	

Sample Identification

Joint 62-3"

SB16061-04

Client Project #

01-207319.02.36

Matrix

Roof Parapet Cement

Collection Date/Time

02-Aug-10 12:00

Received

02-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
---------	------------	--------	------	-------	------	----------	-------------	----------	----------	---------	-------	-------

Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/kg	63.5	1	SW846 8082	02-Aug-10	04-Aug-10	IMR	1016372	
11104-28-2	Aroclor-1221	BRL		µg/kg	63.5	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/kg	63.5	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/kg	63.5	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/kg	63.5	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	82.8		µg/kg	63.5	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/kg	63.5	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/kg	63.5	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/kg	63.5	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	93			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	87			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	102			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	72			30-150 %		"	"	"	"	"	

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

Joint 71-1"

SB16061-05

Client Project #

01-207319.02.36

Matrix

Roof Parapet Cement

Collection Date/Time

02-Aug-10 13:00

Received

02-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
<u>Prepared by method SW846 3540C</u>												
12674-11-2	Aroclor-1016	BRL		µg/kg	65.5	1	SW846 8082	02-Aug-10	04-Aug-10	IMR	1016372	
11104-28-2	Aroclor-1221	BRL		µg/kg	65.5	1	"	"	"	"	"	"
11141-16-5	Aroclor-1232	BRL		µg/kg	65.5	1	"	"	"	"	"	"
53469-21-9	Aroclor-1242	BRL		µg/kg	65.5	1	"	"	"	"	"	"
12672-29-6	Aroclor-1248	BRL		µg/kg	65.5	1	"	"	"	"	"	"
11097-69-1	Aroclor-1254	300		µg/kg	65.5	1	"	"	"	"	"	"
11096-82-5	Aroclor-1260	BRL		µg/kg	65.5	1	"	"	"	"	"	"
37324-23-5	Aroclor-1262	BRL		µg/kg	65.5	1	"	"	"	"	"	"
11100-14-4	Aroclor-1268	BRL		µg/kg	65.5	1	"	"	"	"	"	"

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	95			30-150 %		"	"	"	"	"	"
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	98			30-150 %		"	"	"	"	"	"
	[2C]						"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr)	98			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr) [2C]	76			30-150 %		"	"	"	"	"	"

Sample Identification

Joint 71-3"

SB16061-06

Client Project #

01-207319.02.36

Matrix

Roof Parapet Cement

Collection Date/Time

02-Aug-10 13:02

Received

02-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC												
<u>Polychlorinated Biphenyls by SW846 8082</u>												
<u>Prepared by method SW846 3540C</u>												
12674-11-2	Aroclor-1016	BRL		µg/kg	60.3	1	SW846 8082	02-Aug-10	04-Aug-10	IMR	1016372	
11104-28-2	Aroclor-1221	BRL		µg/kg	60.3	1	"	"	"	"	"	"
11141-16-5	Aroclor-1232	BRL		µg/kg	60.3	1	"	"	"	"	"	"
53469-21-9	Aroclor-1242	BRL		µg/kg	60.3	1	"	"	"	"	"	"
12672-29-6	Aroclor-1248	BRL		µg/kg	60.3	1	"	"	"	"	"	"
11097-69-1	Aroclor-1254	BRL		µg/kg	60.3	1	"	"	"	"	"	"
11096-82-5	Aroclor-1260	BRL		µg/kg	60.3	1	"	"	"	"	"	"
37324-23-5	Aroclor-1262	BRL		µg/kg	60.3	1	"	"	"	"	"	"
11100-14-4	Aroclor-1268	BRL		µg/kg	60.3	1	"	"	"	"	"	"

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	92			30-150 %		"	"	"	"	"	"
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	92			30-150 %		"	"	"	"	"	"
	[2C]						"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr)	102			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr) [2C]	72			30-150 %		"	"	"	"	"	"

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit

BRL = Below Reporting Limit

Semivolatile Organic Compounds by GC - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1016372 - SW846 3540C										
<u>Blank (1016372-BLK1)</u>					Prepared: 02-Aug-10 Analyzed: 03-Aug-10					
Aroclor-1016	BRL		µg/kg	20.0						
Aroclor-1016 [2C]	BRL		µg/kg	20.0						
Aroclor-1221	BRL		µg/kg	20.0						
Aroclor-1221 [2C]	BRL		µg/kg	20.0						
Aroclor-1232	BRL		µg/kg	20.0						
Aroclor-1232 [2C]	BRL		µg/kg	20.0						
Aroclor-1242	BRL		µg/kg	20.0						
Aroclor-1242 [2C]	BRL		µg/kg	20.0						
Aroclor-1248	BRL		µg/kg	20.0						
Aroclor-1248 [2C]	BRL		µg/kg	20.0						
Aroclor-1254	BRL		µg/kg	20.0						
Aroclor-1254 [2C]	BRL		µg/kg	20.0						
Aroclor-1260	BRL		µg/kg	20.0						
Aroclor-1260 [2C]	BRL		µg/kg	20.0						
Aroclor-1262	BRL		µg/kg	20.0						
Aroclor-1262 [2C]	BRL		µg/kg	20.0						
Aroclor-1268	BRL		µg/kg	20.0						
Aroclor-1268 [2C]	BRL		µg/kg	20.0						
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	19.3		µg/kg		20.0		96	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	18.7		µg/kg		20.0		94	30-150		
Surrogate: Decachlorobiphenyl (Sr)	19.7		µg/kg		20.0		98	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	15.9		µg/kg		20.0		80	30-150		
<u>LCS (1016372-B51)</u>					Prepared: 02-Aug-10 Analyzed: 03-Aug-10					
Aroclor-1016	224		µg/kg	20.0	250		90	50-140		
Aroclor-1016 [2C]	225		µg/kg	20.0	250		90	50-140		
Aroclor-1260	202		µg/kg	20.0	250		81	50-140		
Aroclor-1260 [2C]	190		µg/kg	20.0	250		76	50-140		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	19.1		µg/kg		20.0		96	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	18.4		µg/kg		20.0		92	30-150		
Surrogate: Decachlorobiphenyl (Sr)	19.4		µg/kg		20.0		97	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	16.2		µg/kg		20.0		81	30-150		
<u>LCS Dup (1016372-BSD1)</u>					Prepared: 02-Aug-10 Analyzed: 03-Aug-10					
Aroclor-1016	234		µg/kg	20.0	250		94	50-140	4	30
Aroclor-1016 [2C]	228		µg/kg	20.0	250		91	50-140	1	30
Aroclor-1260	213		µg/kg	20.0	250		85	50-140	5	30
Aroclor-1260 [2C]	191		µg/kg	20.0	250		76	50-140	0.6	30
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	20.1		µg/kg		20.0		101	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	18.4		µg/kg		20.0		92	30-150		
Surrogate: Decachlorobiphenyl (Sr)	21.5		µg/kg		20.0		108	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	16.6		µg/kg		20.0		83	30-150		
<u>Duplicate (1016372-DUP1)</u>					Source: SB16061-01 Prepared: 02-Aug-10 Analyzed: 03-Aug-10					
Aroclor-1016	BRL		µg/kg	61.7		BRL				40
Aroclor-1221	BRL		µg/kg	61.7		BRL				40
Aroclor-1232	BRL		µg/kg	61.7		BRL				40
Aroclor-1242	BRL		µg/kg	61.7		BRL				40
Aroclor-1248	BRL		µg/kg	61.7		BRL				40
Aroclor-1254	310		µg/kg	61.7		455			38	40
Aroclor-1260	BRL		µg/kg	61.7		BRL				40
Aroclor-1262	BRL		µg/kg	61.7		BRL				40
Aroclor-1268	BRL		µg/kg	61.7		BRL				40

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit BRL = Below Reporting Limit

Semivolatile Organic Compounds by GC - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1016372 - SW846 3540C										
<u>Duplicate (1016372-DUP1)</u>						<u>Source: SB16061-01</u>		<u>Prepared: 02-Aug-10</u>	<u>Analyzed: 03-Aug-10</u>	
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	54.0		µg/kg		61.7		88	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	56.8		µg/kg		61.7		92	30-150		
Surrogate: Decachlorobiphenyl (Sr)	57.4		µg/kg		61.7		93	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	45.1		µg/kg		61.7		73	30-150		

Notes and Definitions

BRL	Below Reporting Limit - Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.


Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

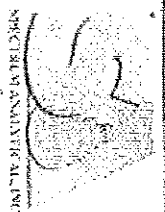
Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic

Validated by:
Hanibal C. Tayeh, Ph.D.
Kimberly Wisk

MassDEP Analytical Protocol Certification Form

Laboratory Name: Spectrum Analytical, Inc.			Project #: 01-207319.02.36		
Project Location: Grayson/Field Hall-UMASS Amherst			RTN:		
This form provides certifications for the following data set:			SB16061-01 through SB16061-06		
Matrices: Roof Parapet Cement					
CAM Protocol					
8260 VOC CAM II A	7470/7471 Hg CAM III B	MassDEP VPH CAM IV A	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
8270 SVOC CAM II B	7010 Metals CAM III C	MassDEP EPH CAM IV B	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
6010 Metals CAM III A	6020 Metals CAM III D	✓ 8082 PCB CAM V A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B	
Affirmative responses to questions A through F are required for "Presumptive Certainty" status					
A	Were all samples received in a condition consistent with those described on the Chain of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?				Yes ✓ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?				✓ Yes No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?				✓ Yes No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?				✓ Yes No
E	a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?				Yes No Yes No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to questions A through E)?				✓ Yes No
Responses to questions G, H and I below are required for "Presumptive Certainty" status					
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?				✓ Yes No
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.					
H	Were all QC performance standards specified in the CAM protocol(s) achieved?				✓ Yes No
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?				✓ Yes No
All negative responses are addressed in a case narrative on the cover page of this report.					
I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.					
 Hanibal C. Tayeh, Ph.D. President/Laboratory Director Date: 8/4/2010					



SPECTRA ANALYTICAL, INC.
FARMINGTON, CT 06031

CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:

- ☐ Standard TAT - 7 to 10 business days
- ☒ Rush TAT - Date Needed: 8/24/10
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: EC5 Aggravation

Invoice To: EC5 Aggravation

Project No.: 01-00334-03, 36

Site Name: Mass Amburst, Camp 2

Location: Graysville Field Road State: MA

Sampler(s): M. Greener

Telephone #: 413-248-7322

P.O. No.: RDN: 6027

Project Mat: Mike Greener

List preservative code below:

QA/QC Reporting Notes:
(attach as needed)

1= Na_2SO_4 2= HCl 3= H_2SO_4 4= HNO_3 5= NaOH 6=Ascorbic Acid 7= $\text{C}_2\text{H}_5\text{OH}$ 10=
8= NaHSO_4 9=
DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW=Surface Water SO=Soil SL=Sludge A=Air
X1=Best Available X2=
C=Composite

Containers:

Analyses:

- ☒ Per the MA DEP NCE CAA Report
- ☐ Per the CT DEP RCP Report
- QA/QC Reporting Level
- ☐ Standard ☐ No QC
- Other _____
- State specific reporting standards:

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Containers	Analyses	QA/QC
01	56-1"	8/2/10	11:00	B	X1	1	1	1	1	1	1	Cont Samples
02	56-3"	8/2/10	11:02	G	X1	1	1	1	1	1	1	*Please use USEPA Method 3540C Soxhlet Extraction
03	56-62-1"	8/2/10	11:06	G	X1	1	1	1	1	1	1	
04	56-62-3"	8/2/10	11:02	G	X1	1	1	1	1	1	1	
05	56-71-1"	8/2/10	11:06	G	X1	1	1	1	1	1	1	
06	56-71-3"	8/2/10	11:02	G	X1	1	1	1	1	1	1	

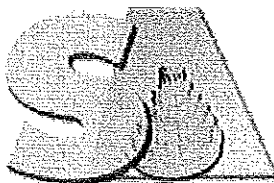
11 Ahmeyer Drive • Aggravation, MA 01001 • 413-789-6018 • FAX 413-789-4076 • www.spectra-analytical.com

Appendix F

PCB Analytical Reports

Wipe Sampling (Post-Encapsulation)

Report Date:
19-Aug-10 15:32



SPECTRUM ANALYTICAL, INC.

Featuring

HANIBAL TECHNOLOGY

Laboratory Report

- ☒ Final Report
☐ Re-Issued Report
☐ Revised Report

Environmental Compliance Services
588 Silver Street
Agawam, MA 01001
Attn: Mike Grover

Project: Grayson/Field Hall-UMASS Amherst
Project #: 01-207319.02.36

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SB16756-01	Joint-2-Wipe	Caulking/Sealant Sika Product	13-Aug-10 14:00	17-Aug-10 13:30
SB16756-02	Joint-6-Wipe	Caulking/Sealant Sika Product	13-Aug-10 14:00	17-Aug-10 13:30
SB16756-03	Joint-9-Wipe	Caulking/Sealant Sika Product	13-Aug-10 14:00	17-Aug-10 13:30
SB16756-04	Joint-12-Wipe	Caulking/Sealant Sika Product	13-Aug-10 14:00	17-Aug-10 13:30

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.

All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011/MA012
New York # 11393/11840
Pennsylvania # 68-04426/68-02924
Rhode Island # 98
USDA # S-51435
Vermont # VT-11393



Authorized by:

Hanibal C. Tayeh, Ph.D.
President/Laboratory Director

Technical Reviewer's Initial:

Spectrum Analytical holds certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes. Please note that this report contains 7 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, FL-E87936 and NJ-MA012).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

CASE NARRATIVE:

The samples were received 4.3 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 2.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

MADEP has published a list of analytical methods (CAM) which provides a series of recommended protocols for the acquisition, analysis and reporting of analytical data in support of MCP decisions. "Presumptive Certainty" can be established only for those methods published by the MADEP in the MCP CAM. The compounds and/or elements reported were specifically requested by the client on the Chain of Custody and in some cases may not include the full analyte list as defined in the method.

According to WSC-CAM 5/2009 Rev.1, Table 11 A-1, recovery for some VOC analytes have been deemed potentially difficult. Although they may still be within the recommended recovery range, a range has been set based on historical control limits.

Some target analytes which are not listed as exceptions in the Summary of CAM Reporting Limits may exceed the recommended RL based on sample initial volume or weight provided, % moisture content, or responsiveness of a particular analyte to purge and trap instrumentation.

There is no relevant protocol-specific QC and/or performance standards non-conformances to report.

Sample IdentificationJoint-2-Wipe
SB16756-01Client Project #
01-207319.02.36Matrix
Caulking/Sealant Sika
ProductCollection Date/Time
13-Aug-10 14:00Received
17-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	17-Aug-10	18-Aug-10	TG	1017547	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	78			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	76			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	99			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	96			30-150 %		"	"	"	"	"	

Sample IdentificationJoint-6-Wipe
SB16756-02Client Project #
01-207319.02.36Matrix
Caulking/Sealant Sika
ProductCollection Date/Time
13-Aug-10 14:00Received
17-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	17-Aug-10	18-Aug-10	TG	1017547	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	78			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	88			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	108			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	106			30-150 %		"	"	"	"	"	

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit

BRL = Below Reporting Limit

Page 3 of 7

Sample Identification

Joint-9-Wipe

SB16756-03

Client Project #

01-207319.02.36

MatrixCaulking/Sealant Sika
ProductCollection Date/Time

13-Aug-10 14:00

Received

17-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	17-Aug-10	18-Aug-10	TG	1017547	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	73			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	80			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	93			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	98			30-150 %		"	"	"	"	"	

Sample Identification

Joint-12-Wipe

SB16756-04

Client Project #

01-207319.02.36

MatrixCaulking/Sealant Sika
ProductCollection Date/Time

13-Aug-10 14:00

Received

17-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	17-Aug-10	18-Aug-10	TG	1017547	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	78			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	80			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	98			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	104			30-150 %		"	"	"	"	"	

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit

BRL = Below Reporting Limit

Page 4 of 7

Semivolatile Organic Compounds by GC - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1017547 - SW846 3540C										
<u>Blank (1017547-BLK1)</u>					<u>Prepared: 17-Aug-10 Analyzed: 18-Aug-10</u>					
Aroclor-1016	BRL		µg/Wipe	0.20						
Aroclor-1016 [2C]	BRL		µg/Wipe	0.20						
Aroclor-1221	BRL		µg/Wipe	0.20						
Aroclor-1221 [2C]	BRL		µg/Wipe	0.20						
Aroclor-1232	BRL		µg/Wipe	0.20						
Aroclor-1232 [2C]	BRL		µg/Wipe	0.20						
Aroclor-1242	BRL		µg/Wipe	0.20						
Aroclor-1242 [2C]	BRL		µg/Wipe	0.20						
Aroclor-1248	BRL		µg/Wipe	0.20						
Aroclor-1248 [2C]	BRL		µg/Wipe	0.20						
Aroclor-1254	BRL		µg/Wipe	0.20						
Aroclor-1254 [2C]	BRL		µg/Wipe	0.20						
Aroclor-1260	BRL		µg/Wipe	0.20						
Aroclor-1260 [2C]	BRL		µg/Wipe	0.20						
Aroclor-1262	BRL		µg/Wipe	0.20						
Aroclor-1262 [2C]	BRL		µg/Wipe	0.20						
Aroclor-1268	BRL		µg/Wipe	0.20						
Aroclor-1268 [2C]	BRL		µg/Wipe	0.20						
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0.195		µg/Wipe		0.200		97	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	0.175		µg/Wipe		0.200		88	30-150		
Surrogate: Decachlorobiphenyl (Sr)	0.231		µg/Wipe		0.200		116	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.234		µg/Wipe		0.200		117	30-150		
<u>LCS (1017547-BS1)</u>					<u>Prepared: 17-Aug-10 Analyzed: 18-Aug-10</u>					
Aroclor-1016	2.47		µg/Wipe	0.20	2.50		99	50-140		
Aroclor-1016 [2C]	2.60		µg/Wipe	0.20	2.50		104	50-140		
Aroclor-1260	1.82		µg/Wipe	0.20	2.50		73	50-140		
Aroclor-1260 [2C]	2.25		µg/Wipe	0.20	2.50		90	50-140		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0.167		µg/Wipe		0.200		84	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	0.163		µg/Wipe		0.200		82	30-150		
Surrogate: Decachlorobiphenyl (Sr)	0.199		µg/Wipe		0.200		100	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.198		µg/Wipe		0.200		99	30-150		
<u>LCS Dup (1017547-BSD1)</u>					<u>Prepared: 17-Aug-10 Analyzed: 18-Aug-10</u>					
Aroclor-1016	2.35		µg/Wipe	0.20	2.50		94	50-140	5	30
Aroclor-1016 [2C]	2.66		µg/Wipe	0.20	2.50		106	50-140	3	30
Aroclor-1260	1.93		µg/Wipe	0.20	2.50		77	50-140	6	30
Aroclor-1260 [2C]	2.26		µg/Wipe	0.20	2.50		90	50-140	0.3	30
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0.149		µg/Wipe		0.200		74	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	0.172		µg/Wipe		0.200		86	30-150		
Surrogate: Decachlorobiphenyl (Sr)	0.215		µg/Wipe		0.200		108	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.201		µg/Wipe		0.200		101	30-150		

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit BRL = Below Reporting Limit

Notes and Definitions

BRL	Below Reporting Limit - Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

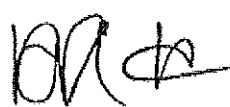
Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

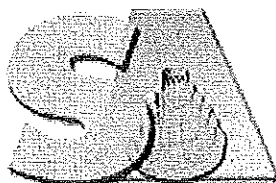
Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic

Validated by:
Hanibal C. Tayeh, Ph.D.
Kimberly Wisk

MassDEP Analytical Protocol Certification Form

Laboratory Name: Spectrum Analytical, Inc.			Project #: 01-207319.02.36		
Project Location: Grayson/Field Hall-UMASS Amherst			RTN:		
This form provides certifications for the following data set:			SB16756-01 through SB16756-04		
Matrices: Caulking/Sealant Sika Product					
CAM Protocol					
8260 VOC CAM II A	7470/7471 Hg CAM III B	MassDEP VPH CAM IV A	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
8270 SVOC CAM II B	7010 Metals CAM III C	MassDEP EPH CAM IV B	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
6010 Metals CAM III A	6020 Metals CAM III D	✓ 8082 PCB CAM V A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B	
<i>Affirmative responses to questions A through F are required for "Presumptive Certainty" status</i>					
A	Were all samples received in a condition consistent with those described on the Chain of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?				✓ Yes No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?				✓ Yes No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?				✓ Yes No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?				✓ Yes No
E	a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?				Yes No Yes No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to questions A through E)?				✓ Yes No
<i>Responses to questions G, H and I below are required for "Presumptive Certainty" status</i>					
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?				✓ Yes No
<i>Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.</i>					
H	Were all QC performance standards specified in the CAM protocol(s) achieved?				✓ Yes No
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?				✓ Yes No
All negative responses are addressed in a case narrative on the cover page of this report.					
<p><i>I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.</i></p> <div style="text-align: right; margin-top: 20px;">  Hanibal C. Tayeh, Ph.D. President/Laboratory Director Date: 8/19/2010 </div>					

Report Date:
19-Aug-10 15:35



SPECTRUM ANALYTICAL, INC.

Featuring

HANIBAL TECHNOLOGY

Laboratory Report

- ☒ Final Report
☐ Re-Issued Report
☐ Revised Report

Environmental Compliance Services
588 Silver Street
Agawam, MA 01001
Attn: Mike Grover

Project: Grayson/Field Hall-UMASS Amherst
Project #: 01-207319.02.36

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SB16757-01	Joint-17-Wipe	Caulking/Sealant Sika Product	17-Aug-10 09:00	17-Aug-10 13:30
SB16757-02	Joint-22-Wipe	Caulking/Sealant Sika Product	17-Aug-10 09:15	17-Aug-10 13:30
SB16757-03	Joint-29-Wipe	Caulking/Sealant Sika Product	17-Aug-10 09:25	17-Aug-10 13:30
SB16757-04	Joint-34-Wipe	Caulking/Sealant Sika Product	17-Aug-10 09:40	17-Aug-10 13:30
SB16757-05	Joint-89-Wipe	Caulking/Sealant Sika Product	17-Aug-10 10:15	17-Aug-10 13:30
SB16757-06	Joint-93-Wipe	Caulking/Sealant Sika Product	17-Aug-10 10:30	17-Aug-10 13:30
SB16757-07	Joint-99-Wipe	Caulking/Sealant Sika Product	17-Aug-10 11:00	17-Aug-10 13:30
SB16757-08	Joint-105-Wipe	Caulking/Sealant Sika Product	17-Aug-10 11:20	17-Aug-10 13:30
SB16757-09	Joint-112-Wipe	Caulking/Sealant Sika Product	17-Aug-10 11:35	17-Aug-10 13:30
SB16757-10	Joint-113-Wipe	Caulking/Sealant Sika Product	17-Aug-10 11:50	17-Aug-10 13:30

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011/MA012
New York # 11393/11840
Pennsylvania # 68-04426/68-02924
Rhode Island # 98
USDA # S-51435
Vermont # VT-11393



Authorized by:

Hanibal C. Tayeh, Ph.D.
President/Laboratory Director

Technical Reviewer's Initial:

Spectrum Analytical holds certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes.
Please note that this report contains 10 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, FL-E87936 and NJ-MA012).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

CASE NARRATIVE:

The samples were received 4.3 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 2.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

MADEP has published a list of analytical methods (CAM) which provides a series of recommended protocols for the acquisition, analysis and reporting of analytical data in support of MCP decisions. "Presumptive Certainty" can be established only for those methods published by the MADEP in the MCP CAM. The compounds and/or elements reported were specifically requested by the client on the Chain of Custody and in some cases may **not include** the full analyte list as defined in the method.

According to WSC-CAM 5/2009 Rev.1, Table 11 A-1; recovery for some VOC analytes have been deemed potentially difficult. Although they may still be within the recommended recovery range, a range has been set based on historical control limits.

Some target analytes which are not listed as exceptions in the Summary of CAM Reporting Limits may exceed the recommended RL based on sample initial volume or weight provided, % moisture content, or responsiveness of a particular analyte to purge and trap instrumentation.

There is no relevant protocol-specific QC and/or performance standards non-conformances to report.

Sample Identification

Joint-17-Wipe
SB16757-01

Client Project #
01-207319.02.36

Matrix
Caulking/Sealant Sika
Product

Collection Date/Time
17-Aug-10 09:00

Received
17-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	17-Aug-10	18-Aug-10	TG	1017547	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	87			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	85			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	104			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	106			30-150 %		"	"	"	"	"	

Sample Identification

Joint-22-Wipe
SB16757-02

Client Project #
01-207319.02.36

Matrix
Caulking/Sealant Sika
Product

Collection Date/Time
17-Aug-10 09:15

Received
17-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	17-Aug-10	18-Aug-10	TG	1017547	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	84			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	82			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	100			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	104			30-150 %		"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

Joint-29-Wipe

SB16757-03

Client Project #

01-207319.02.36

MatrixCaulking/Sealant Sika
ProductCollection Date/Time

17-Aug-10 09:25

Received

17-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	17-Aug-10	18-Aug-10	TG	1017547	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	86			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	84			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	106			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	106			30-150 %		"	"	"	"	"	

Sample Identification

Joint-34-Wipe

SB16757-04

Client Project #

01-207319.02.36

MatrixCaulking/Sealant Sika
ProductCollection Date/Time

17-Aug-10 09:40

Received

17-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	17-Aug-10	18-Aug-10	TG	1017547	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	74			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	82			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	103			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	98			30-150 %		"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

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Sample Identification

Joint-89-Wipe

SB16757-05

Client Project #

01-207319.02.36

MatrixCaulking/Sealant Sika
ProductCollection Date/Time

17-Aug-10 10:15

Received

17-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082

Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	17-Aug-10	18-Aug-10	TG	1017547	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	76			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	87			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	107			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	110			30-150 %		"	"	"	"	"	

Sample Identification

Joint-93-Wipe

SB16757-06

Client Project #

01-207319.02.36

MatrixCaulking/Sealant Sika
ProductCollection Date/Time

17-Aug-10 10:30

Received

17-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082

Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	17-Aug-10	18-Aug-10	TG	1017547	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	88			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	88			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	115			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	113			30-150 %		"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

Page 5 of 10

Sample Identification

Joint-99-Wipe

SB16757-07

Client Project #

01-207319.02.36

MatrixCaulking/Sealant Sika
ProductCollection Date/Time

17-Aug-10 11:00

Received

17-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082

Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	17-Aug-10	18-Aug-10	TG	1017547	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	83			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	82			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	103			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	108			30-150 %		"	"	"	"	"	

Sample Identification

Joint-105-Wipe

SB16757-08

Client Project #

01-207319.02.36

MatrixCaulking/Sealant Sika
ProductCollection Date/Time

17-Aug-10 11:20

Received

17-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082

Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	17-Aug-10	18-Aug-10	TG	1017547	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	82			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	86			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	110			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	110			30-150 %		"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

Page 6 of 10

Sample Identification

Joint-112-Wipe

SB16757-09

Client Project #

01-207319.02.36

MatrixCaulking/Sealant Sika
ProductCollection Date/Time

17-Aug-10 11:35

Received

17-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	17-Aug-10	18-Aug-10	TG	1017547	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	81			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	82			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	100			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	100			30-150 %		"	"	"	"	"	

Sample Identification

Joint-113-Wipe

SB16757-10

Client Project #

01-207319.02.36

MatrixCaulking/Sealant Sika
ProductCollection Date/Time

17-Aug-10 11:50

Received

17-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	17-Aug-10	18-Aug-10	TG	1017547	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	0.44		µg/Wipe	0.20	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	82			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	82			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	98			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	109			30-150 %		"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

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Semivolatile Organic Compounds by GC - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1017547 - SW846 3540C										
<u>Blank (1017547-BLK1)</u>					<u>Prepared: 17-Aug-10 Analyzed: 18-Aug-10</u>					
Aroclor-1016	BRL		µg/Wipe	0.20						
Aroclor-1016 [2C]	BRL		µg/Wipe	0.20						
Aroclor-1221	BRL		µg/Wipe	0.20						
Aroclor-1221 [2C]	BRL		µg/Wipe	0.20						
Aroclor-1232	BRL		µg/Wipe	0.20						
Aroclor-1232 [2C]	BRL		µg/Wipe	0.20						
Aroclor-1242	BRL		µg/Wipe	0.20						
Aroclor-1242 [2C]	BRL		µg/Wipe	0.20						
Aroclor-1248	BRL		µg/Wipe	0.20						
Aroclor-1248 [2C]	BRL		µg/Wipe	0.20						
Aroclor-1254	BRL		µg/Wipe	0.20						
Aroclor-1254 [2C]	BRL		µg/Wipe	0.20						
Aroclor-1260	BRL		µg/Wipe	0.20						
Aroclor-1260 [2C]	BRL		µg/Wipe	0.20						
Aroclor-1262	BRL		µg/Wipe	0.20						
Aroclor-1262 [2C]	BRL		µg/Wipe	0.20						
Aroclor-1268	BRL		µg/Wipe	0.20						
Aroclor-1268 [2C]	BRL		µg/Wipe	0.20						
<hr/>										
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0.195		µg/Wipe		0.200		97	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	0.175		µg/Wipe		0.200		88	30-150		
Surrogate: Decachlorobiphenyl (Sr)	0.231		µg/Wipe		0.200		116	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.234		µg/Wipe		0.200		117	30-150		
<u>LCS (1017547-BS1)</u>					<u>Prepared: 17-Aug-10 Analyzed: 18-Aug-10</u>					
Aroclor-1016	2.47		µg/Wipe	0.20	2.50		99	50-140		
Aroclor-1016 [2C]	2.60		µg/Wipe	0.20	2.50		104	50-140		
Aroclor-1260	1.82		µg/Wipe	0.20	2.50		73	50-140		
Aroclor-1260 [2C]	2.25		µg/Wipe	0.20	2.50		90	50-140		
<hr/>										
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0.167		µg/Wipe		0.200		84	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	0.163		µg/Wipe		0.200		82	30-150		
Surrogate: Decachlorobiphenyl (Sr)	0.199		µg/Wipe		0.200		100	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.198		µg/Wipe		0.200		99	30-150		
<u>LCS Dup (1017547-BSD1)</u>					<u>Prepared: 17-Aug-10 Analyzed: 18-Aug-10</u>					
Aroclor-1016	2.35		µg/Wipe	0.20	2.50		94	50-140	5	30
Aroclor-1016 [2C]	2.66		µg/Wipe	0.20	2.50		106	50-140	3	30
Aroclor-1260	1.93		µg/Wipe	0.20	2.50		77	50-140	6	30
Aroclor-1260 [2C]	2.26		µg/Wipe	0.20	2.50		90	50-140	0.3	30
<hr/>										
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0.149		µg/Wipe		0.200		74	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	0.172		µg/Wipe		0.200		86	30-150		
Surrogate: Decachlorobiphenyl (Sr)	0.215		µg/Wipe		0.200		108	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.201		µg/Wipe		0.200		101	30-150		

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit BRL = Below Reporting Limit

Page 8 of 10

Notes and Definitions

BRL Below Reporting Limit - Analyte NOT DETECTED at or above the reporting limit

dry Sample results reported on a dry weight basis

NR Not Reported

RPD Relative Percent Difference

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

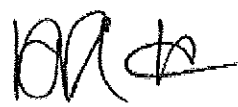
Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic

Validated by:
Hanibal C. Tayeh, Ph.D.
Kimberly Wisk

MassDEP Analytical Protocol Certification Form

Laboratory Name: Spectrum Analytical, Inc.			Project #: 01-207319.02.36		
Project Location: Grayson/Field Hall-UMASS Amherst			RTN:		
This form provides certifications for the following data set:			SB16757-01 through SB16757-10		
Matrices: Caulking/Sealant Sika Product					
CAM Protocol					
8260 VOC CAM II A	7470/7471 Hg CAM III B	MassDEP VPH CAM IV A	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
8270 SVOC CAM II B	7010 Metals CAM III C	MassDEP EPH CAM IV B	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
6010 Metals CAM III A	6020 Metals CAM III D	✓ 8082 PCB CAM V A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B	
<i>Affirmative responses to questions A through F are required for "Presumptive Certainty" status</i>					
A	Were all samples received in a condition consistent with those described on the Chain of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?				✓ Yes No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?				✓ Yes No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?				✓ Yes No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?				✓ Yes No
E	a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?				Yes No Yes No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to questions A through E)?				✓ Yes No
<i>Responses to questions G, H and I below are required for "Presumptive Certainty" status</i>					
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?				✓ Yes No
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.					
H	Were all QC performance standards specified in the CAM protocol(s) achieved?				✓ Yes No
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?				✓ Yes No
All negative responses are addressed in a case narrative on the cover page of this report.					
<p>I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.</p> <div style="text-align: right; margin-top: 20px;">  Hanibal C. Tayeh, Ph.D. President/Laboratory Director Date: 8/19/2010 </div>					



SPECTRUM ANALYTICAL, INC.
Framingham, MA 01701
HUNTINGTON, MA 01701

CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:

- ☐ Standard TAT - 7 to 10 business days
- ☒ Rush TAT - Date Needed: 3/26/10 15:40
- ☐ All TATs subject to laboratory approval
- ☐ Min. 24-hour notification needed for rushes
- ☐ Samples disposed of after 60 days unless otherwise instructed

Report To: ELS, Agawam

Invoice To: ELS, Agawam

Project No: 01-307319.02.36

Site Name: Greene/Field

Location: Amherst State: MA

Sampler(s): MKS Greener

Telephone #: 413-348-7322

P.O. No.: R06 6277

Project Mtr: MKS Greener

1= Na_2SO_4 2= HCl 3= H_2SO_4 4= HNO_3 5= NaOH 6=Ascorbic Acid 7= CH_3OH

List preservative code below:

QA/QC Reporting Notes:
(check as needed)

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW=Surface Water SO=Soil SL=Sludge A=Air
X1=Cellulose X2=5% KCl X3=Product

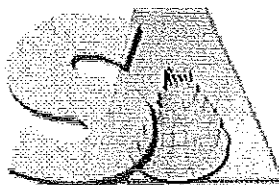
Contains:

Analyses:

G=Grab C=Composite

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Temp. °C	Time	Temp. °C	Time	Temp. °C
SL6757-01	SW-17-01	8/17/10	9:00	G	X1									
	SW-17-02	8/17/10	9:15	G										
	SW-17-03	8/17/10	9:25	G										
	SW-17-04	8/17/10	9:40	G										
	SW-17-05	8/17/10	10:15	G										
	SW-17-06	8/17/10	10:30	G										
	SW-17-07	8/17/10	11:00	G										
	SW-17-08	8/17/10	11:30	G										
	SW-17-09	8/17/10	11:35	G										
	SW-17-10	8/17/10	11:50	G										
	SW-17-11	8/17/10	13:30	G										
	SW-17-12	8/17/10	13:30	G										
	SW-17-13	8/17/10	13:30	G										
	SW-17-14	8/17/10	13:30	G										
	SW-17-15	8/17/10	13:30	G										
	SW-17-16	8/17/10	13:30	G										
	SW-17-17	8/17/10	13:30	G										
	SW-17-18	8/17/10	13:30	G										
	SW-17-19	8/17/10	13:30	G										
	SW-17-20	8/17/10	13:30	G										
	SW-17-21	8/17/10	13:30	G										
	SW-17-22	8/17/10	13:30	G										
	SW-17-23	8/17/10	13:30	G										
	SW-17-24	8/17/10	13:30	G										
	SW-17-25	8/17/10	13:30	G										
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	SW-17-30	8/17/10	13:30	G										
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	SW-17-38	8/17/10	13:30	G										
	SW-17-39	8/17/10	13:30	G										
	SW-17-40	8/17/10	13:30	G										
	SW-17-41	8/17/10	13:30	G										
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	SW-17-43	8/17/10	13:30	G										
	SW-17-44	8/17/10	13:30	G										
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	SW-17-125	8/17/10	13:30	G										
	SW-17-126	8/17/10	13:30	G										

Report Date:
26-Aug-10 13:41



SPECTRUM ANALYTICAL, INC.

Featuring
HANIBAL TECHNOLOGY

Laboratory Report

- ☒ Final Report
☐ Re-Issued Report
☐ Revised Report

Environmental Compliance Services
588 Silver Street
Agawam, MA 01001
Attn: Mike Grover

Project: UMASS - Amherst, MA
Project #: 01-207319.02.36

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SB17069-01	Joint-41	Caulking/Sealant/Sika Product	23-Aug-10 11:35	23-Aug-10 14:57
SB17069-02	Joint-45	Caulking/Sealant/Sika Product	23-Aug-10 11:42	23-Aug-10 14:57
SB17069-03	Joint-50	Caulking/Sealant/Sika Product	23-Aug-10 11:55	23-Aug-10 14:57
SB17069-04	Joint-55	Caulking/Sealant/Sika Product	23-Aug-10 12:05	23-Aug-10 14:57
SB17069-05	Joint-62	Caulking/Sealant/Sika Product	23-Aug-10 12:13	23-Aug-10 14:57
SB17069-06	Joint-66	Caulking/Sealant/Sika Product	23-Aug-10 12:20	23-Aug-10 14:57
SB17069-07	Joint-70	Caulking/Sealant/Sika Product	23-Aug-10 12:26	23-Aug-10 14:57
SB17069-08	Joint-73	Caulking/Sealant/Sika Product	23-Aug-10 12:29	23-Aug-10 14:57
SB17069-09	Joint-77	Caulking/Sealant/Sika Product	23-Aug-10 12:35	23-Aug-10 14:57
SB17069-10	Joint-82	Caulking/Sealant/Sika Product	23-Aug-10 12:45	23-Aug-10 14:57
SB17069-11	Joint-85-Wipe	Caulking/Sealant/Sika Product	23-Aug-10 12:53	23-Aug-10 14:57
SB17069-12	Joint-87-Wipe	Caulking/Sealant/Sika Product	23-Aug-10 13:00	23-Aug-10 14:57

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011/MA012
New York # 11393/11840
Pennsylvania # 68-04426/68-02924
Rhode Island # 98
USDA # S-51435
Vermont # VT-11393



Authorized by:

Hanibal C. Tayeh, Ph.D.
President/Laboratory Director

Technical Reviewer's Initial:

Spectrum Analytical holds certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes.
Please note that this report contains 11 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, FL-E87936 and NJ-MA012).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

CASE NARRATIVE:

The samples were received 2.4 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 2.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

MADEP has published a list of analytical methods (CAM) which provides a series of recommended protocols for the acquisition, analysis and reporting of analytical data in support of MCP decisions. "Presumptive Certainty" can be established only for those methods published by the MADEP in the MCP CAM. The compounds and/or elements reported were specifically requested by the client on the Chain of Custody and in some cases may not include the full analyte list as defined in the method.

According to WSC-CAM 5/2009 Rev.1, Table 11 A-1, recovery for some VOC analytes have been deemed potentially difficult. Although they may still be within the recommended recovery range, a range has been set based on historical control limits.

Some target analytes which are not listed as exceptions in the Summary of CAM Reporting Limits may exceed the recommended RL based on sample initial volume or weight provided, % moisture content, or responsiveness of a particular analyte to purge and trap instrumentation.

There is no relevant protocol-specific QC and/or performance standards non-conformances to report.

Sample Identification

Joint-41
SB17069-01

Client Project #

01-207319.02.36

Matrix

Caulking/Sealant/Sika
Product

Collection Date/Time

23-Aug-10 11:35

Received

23-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	23-Aug-10	25-Aug-10	SM	1017974	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	91			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	75			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	86			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	102			30-150 %		"	"	"	"	"	

Sample Identification

Joint-45
SB17069-02

Client Project #

01-207319.02.36

Matrix

Caulking/Sealant/Sika
Product

Collection Date/Time

23-Aug-10 11:42

Received

23-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	23-Aug-10	25-Aug-10	SM	1017974	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	90			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	72			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	80			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	94			30-150 %		"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

Joint-50
SB17069-03

Client Project #
01-207319.02.36

Matrix
Caulking/Sealant/Sika
Product

Collection Date/Time
23-Aug-10 11:55

Received
23-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC												
Polychlorinated Biphenyls by SW846 8082												
Prepared by method SW846 3540C												
12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	23-Aug-10	25-Aug-10	SM	1017974	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	80			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	78			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	88			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	102			30-150 %		"	"	"	"	"	

Sample Identification

Joint-55
SB17069-04

Client Project #
01-207319.02.36

Matrix
Caulking/Sealant/Sika
Product

Collection Date/Time
23-Aug-10 12:05

Received
23-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC												
Polychlorinated Biphenyls by SW846 8082												
Prepared by method SW846 3540C												
12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	23-Aug-10	25-Aug-10	SM	1017974	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	90			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	77			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	90			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	98			30-150 %		"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

Joint-62
SB17069-05

Client Project #

01-207319.02.36

Matrix

Caulking/Sealant/Sika
Product

Collection Date/Time

23-Aug-10 12:13

Received

23-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC												
Polychlorinated Biphenyls by SW846 8082												
Prepared by method SW846 3540C												
12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	23-Aug-10	25-Aug-10	SM	1017974	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
11097-69-1	Aroclor-1254	0.32		µg/Wipe	0.20	1	"	"	"	"	"	"
11096-82-5	Aroclor-1260	0.58		µg/Wipe	0.20	1	"	"	"	"	"	"
37324-23-5	Aroclor-1262	BRL	0.9	µg/Wipe	0.20	1	"	"	"	"	"	"
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	74			30-150 %		"	"	"	"	"	"
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	63			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr)	72			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr) [2C]	92			30-150 %		"	"	"	"	"	"

Sample Identification

Joint-66
SB17069-06

Client Project #

01-207319.02.36

Matrix

Caulking/Sealant/Sika
Product

Collection Date/Time

23-Aug-10 12:20

Received

23-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC												
Polychlorinated Biphenyls by SW846 8082												
Prepared by method SW846 3540C												
12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	23-Aug-10	25-Aug-10	SM	1017974	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	67			30-150 %		"	"	"	"	"	"
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	80			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr)	88			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr) [2C]	106			30-150 %		"	"	"	"	"	"

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* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

Joint-70
SB17069-07

Client Project #

01-207319.02.36

Matrix

Caulking/Sealant/Sika
Product

Collection Date/Time

23-Aug-10 12:26

Received

23-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	23-Aug-10	25-Aug-10	SM	1017974	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	94			30-150 %		"	"	"	"	"	"
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	76			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr)	90			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr) [2C]	101			30-150 %		"	"	"	"	"	"

Sample Identification

Joint-73
SB17069-08

Client Project #

01-207319.02.36

Matrix

Caulking/Sealant/Sika
Product

Collection Date/Time

23-Aug-10 12:29

Received

23-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	23-Aug-10	25-Aug-10	SM	1017974	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	117			30-150 %		"	"	"	"	"	"
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	92			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr)	101			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr) [2C]	124			30-150 %		"	"	"	"	"	"

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* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

Joint-77
SB17069-09

Client Project #

01-207319.02.36

Matrix

Caulking/Sealant/Sika
Product

Collection Date/Time

23-Aug-10 12:35

Received

23-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	23-Aug-10	25-Aug-10	SM	1017974	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	104			30-150 %		"	"	"	"	"	"
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	82			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr)	93			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr) [2C]	109			30-150 %		"	"	"	"	"	"

Sample Identification

Joint-82
SB17069-10

Client Project #

01-207319.02.36

Matrix

Caulking/Sealant/Sika
Product

Collection Date/Time

23-Aug-10 12:45

Received

23-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	23-Aug-10	25-Aug-10	SM	1017974	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	"

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	69			30-150 %		"	"	"	"	"	"
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	76			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr)	84			30-150 %		"	"	"	"	"	"
2051-24-3	Decachlorobiphenyl (Sr) [2C]	100			30-150 %		"	"	"	"	"	"

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* Reportable Detection Limit

BRL = Below Reporting Limit

Sample Identification

Joint-85-Wipe
SB17069-11

Client Project #

01-207319.02.36

Matrix

Caulking/Sealant/Sika
Product

Collection Date/Time

23-Aug-10 12:53

Received

23-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	23-Aug-10	25-Aug-10	SM	1017974	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	72			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	78			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	87			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	105			30-150 %		"	"	"	"	"	

Sample Identification

Joint-87-Wipe
SB17069-12

Client Project #

01-207319.02.36

Matrix

Caulking/Sealant/Sika
Product

Collection Date/Time

23-Aug-10 13:00

Received

23-Aug-10

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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Semivolatile Organic Compounds by GC

Polychlorinated Biphenyls by SW846 8082Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	BRL		µg/Wipe	0.20	1	SW846 8082	23-Aug-10	25-Aug-10	SM	1017974	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	"	"	"	"	"	

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	90			30-150 %		"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	82			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	88			30-150 %		"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	110			30-150 %		"	"	"	"	"	

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* Reportable Detection Limit

BRL = Below Reporting Limit

Semivolatile Organic Compounds by GC - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1017974 - SW846 3540C										
<u>Blank (1017974-BLK1)</u>					<u>Prepared: 23-Aug-10 Analyzed: 25-Aug-10</u>					
Aroclor-1016	BRL		µg/Wipe	0.20						
Aroclor-1016 [2C]	BRL		µg/Wipe	0.20						
Aroclor-1221	BRL		µg/Wipe	0.20						
Aroclor-1221 [2C]	BRL		µg/Wipe	0.20						
Aroclor-1232	BRL		µg/Wipe	0.20						
Aroclor-1232 [2C]	BRL		µg/Wipe	0.20						
Aroclor-1242	BRL		µg/Wipe	0.20						
Aroclor-1242 [2C]	BRL		µg/Wipe	0.20						
Aroclor-1248	BRL		µg/Wipe	0.20						
Aroclor-1248 [2C]	BRL		µg/Wipe	0.20						
Aroclor-1254	BRL		µg/Wipe	0.20						
Aroclor-1254 [2C]	BRL		µg/Wipe	0.20						
Aroclor-1260	BRL		µg/Wipe	0.20						
Aroclor-1260 [2C]	BRL		µg/Wipe	0.20						
Aroclor-1262	BRL		µg/Wipe	0.20						
Aroclor-1262 [2C]	BRL		µg/Wipe	0.20						
Aroclor-1268	BRL		µg/Wipe	0.20						
Aroclor-1268 [2C]	BRL		µg/Wipe	0.20						
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0.146		µg/Wipe		0.200		73	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	0.167		µg/Wipe		0.200		84	30-150		
Surrogate: Decachlorobiphenyl (Sr)	0.188		µg/Wipe		0.200		94	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.227		µg/Wipe		0.200		114	30-150		
<u>LCS (1017974-BS1)</u>					<u>Prepared: 23-Aug-10 Analyzed: 25-Aug-10</u>					
Aroclor-1016	2.15		µg/Wipe	0.20	2.50		86	50-140		
Aroclor-1016 [2C]	2.27		µg/Wipe	0.20	2.50		91	50-140		
Aroclor-1260	2.04		µg/Wipe	0.20	2.50		82	50-140		
Aroclor-1260 [2C]	2.18		µg/Wipe	0.20	2.50		87	50-140		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0.160		µg/Wipe		0.200		80	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	0.152		µg/Wipe		0.200		76	30-150		
Surrogate: Decachlorobiphenyl (Sr)	0.170		µg/Wipe		0.200		85	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.202		µg/Wipe		0.200		101	30-150		
<u>LCS Dup (1017974-BSD1)</u>					<u>Prepared: 23-Aug-10 Analyzed: 25-Aug-10</u>					
Aroclor-1016	2.15		µg/Wipe	0.20	2.50		86	50-140	0.05	30
Aroclor-1016 [2C]	1.98		µg/Wipe	0.20	2.50		79	50-140	13	30
Aroclor-1260	1.96		µg/Wipe	0.20	2.50		79	50-140	4	30
Aroclor-1260 [2C]	1.99		µg/Wipe	0.20	2.50		80	50-140	9	30
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0.142		µg/Wipe		0.200		71	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	0.148		µg/Wipe		0.200		74	30-150		
Surrogate: Decachlorobiphenyl (Sr)	0.172		µg/Wipe		0.200		86	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.182		µg/Wipe		0.200		91	30-150		

This laboratory report is not valid without an authorized signature on the cover page.

* Reportable Detection Limit BRL = Below Reporting Limit

Notes and Definitions

BRL	Below Reporting Limit - Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference

A plus sign (+) in the Method Reference column indicates the method is not accredited by NELAC.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.


Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

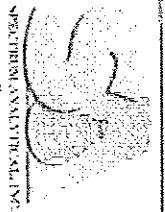
Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic

Validated by:
Hanibal C. Tayeh, Ph.D.
Kimberly Wisk

MassDEP Analytical Protocol Certification Form

Laboratory Name: Spectrum Analytical, Inc.			Project #: 01-207319.02.36		
Project Location: UMASS - Amherst, MA			RTN:		
This form provides certifications for the following data set:			SB17069-01 through SB17069-12		
Matrices: Caulking/Sealant/Sika Product					
CAM Protocol					
8260 VOC CAM II A	7470/7471 Hg CAM III B	MassDEP VPH CAM IV A	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
8270 SVOC CAM II B	7010 Metals CAM III C	MassDEP EPH CAM IV B	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
6010 Metals CAM III A	6020 Metals CAM III D	✓ 8082 PCB CAM V A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B	
Affirmative responses to questions A through F are required for "Presumptive Certainty" status					
A	Were all samples received in a condition consistent with those described on the Chain of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?				✓ Yes No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?				✓ Yes No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?				✓ Yes No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?				✓ Yes No
E	a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?				Yes No Yes No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to questions A through E)?				✓ Yes No
Responses to questions G, H and I below are required for "Presumptive Certainty" status					
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?				✓ Yes No
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.					
H	Were all QC performance standards specified in the CAM protocol(s) achieved?				✓ Yes No
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?				✓ Yes No
All negative responses are addressed in a case narrative on the cover page of this report.					
I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.					
 Hanibal C. Tayeh, Ph.D. President/Laboratory Director Date: 8/26/2010					



SPECTRUM ANALYTICAL, INC.
Reference

CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:

- ☐ Standard TAT - 7 to 10 business days
- ☒ Rush TAT - Date Needed: 8/24/10
- All TATs subject to laboratory approval
- Min. 24-hour notification needed for rushes
- Samples disposed of after 60 days unless otherwise instructed.

Report To: ECS, Agawam

Invoice To: ECS, Agawam

Project No.: 01-207319.03.36

Site Name: Gayden Field

Location: Unass. Burial Store: MT

Sampler(s): Mick Gasser

Telephone #: 413-348-7330

P.O. No.: _____

RON: 6377

Project Mgr: Mick Gasser

1= $\text{Na}_2\text{S}_2\text{O}_8$ 2= HCl 3= H_2SO_4 4= HNO_3 5= NaOH 6=Ascorbic Acid 7= CH_3OH 11= _____

8= NaHSO_4 9=Hexane 10= _____

DW=Drinking Water GW=Groundwater WW=Wastewater

O=Oil SW=Surface Water SO=Soil SL=Sediment A=Air

X1=Gas/liquid check of X2= _____ X3= _____

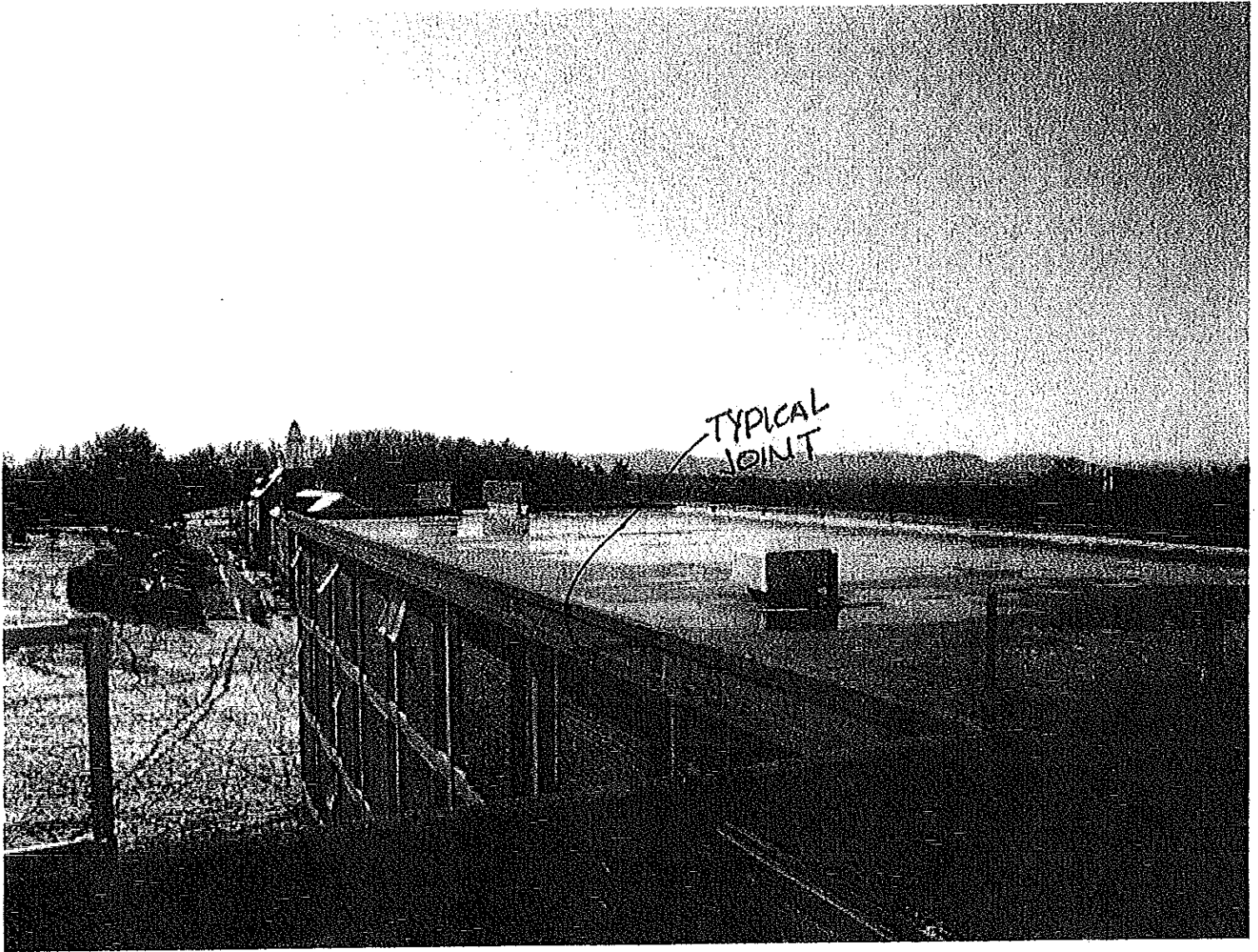
SKA Product

G=Grab C=Composite

Lab Id.	Sample Id.	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Containers:	List preservative code below:	QA/QC Reporting Notes:
10619-01	Soil-41	8/23/10	11:35	G	X1	1						QA/QC Reporting Notes: (check as needed)
2	Soil-45	8/23/10	11:42	G	X1	1						QA/QC Reporting Notes: (check as needed)
3	Soil-50	8/23/10	11:55	G	X1	1						QA/QC Reporting Notes: (check as needed)
4	Soil-55	8/23/10	12:05	G	X1	1						QA/QC Reporting Notes: (check as needed)
5	Soil-60	8/23/10	12:13	G	X1	1						QA/QC Reporting Notes: (check as needed)
6	Soil-66	8/23/10	12:20	G	X1	1						QA/QC Reporting Notes: (check as needed)
7	Soil-70	8/23/10	12:26	G	X1	1						QA/QC Reporting Notes: (check as needed)
8	Soil-73	8/23/10	12:29	G	X1	1						QA/QC Reporting Notes: (check as needed)
9	Soil-77	8/23/10	12:35	G	X1	1						QA/QC Reporting Notes: (check as needed)
10	Soil-83	8/23/10	12:45	G	X1	1						QA/QC Reporting Notes: (check as needed)
11	Soil-88	8/23/10	12:45	G	X1	1						QA/QC Reporting Notes: (check as needed)

Appendix G

Site Photos (Before Remediation)



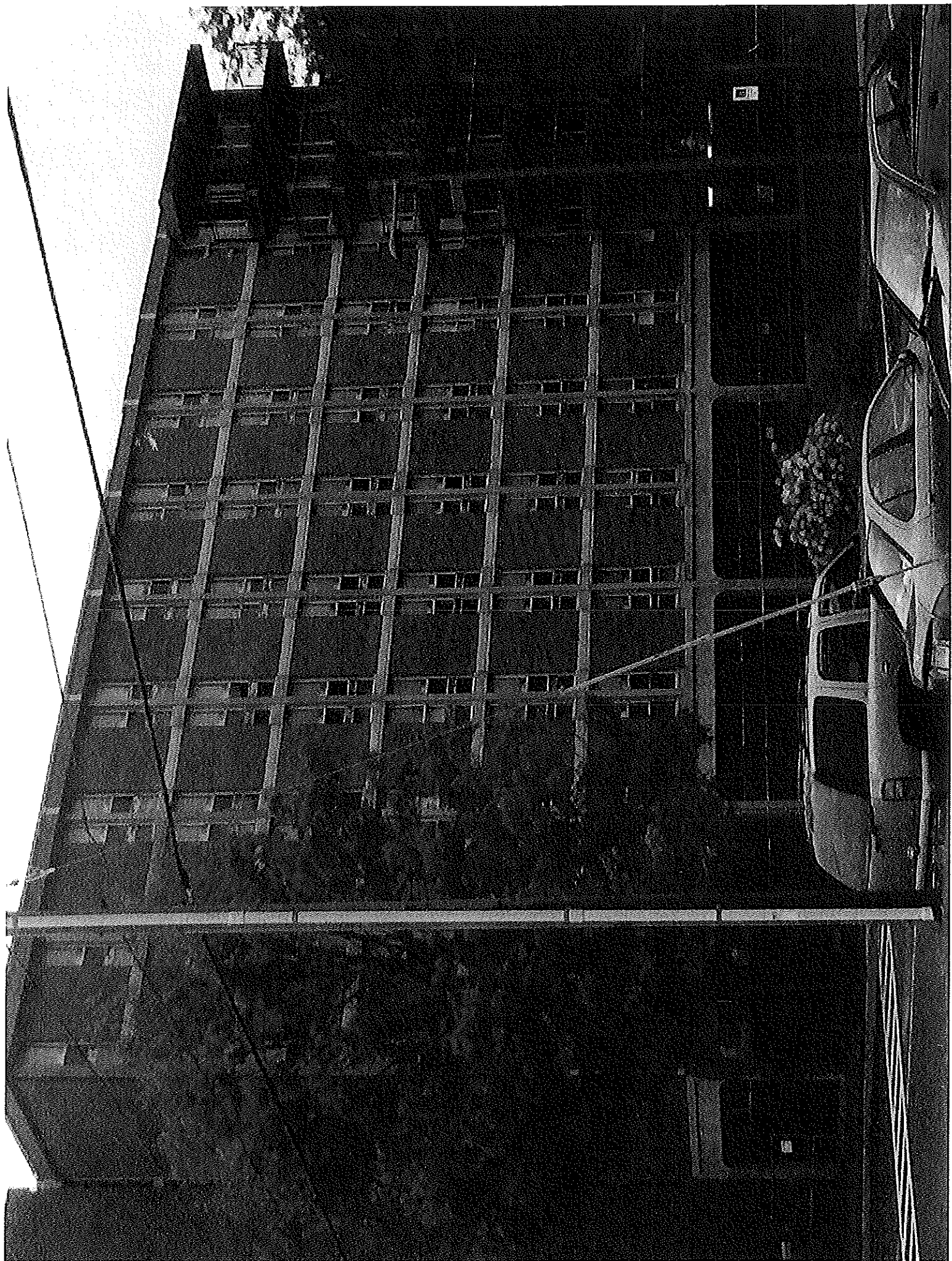
Appendix H

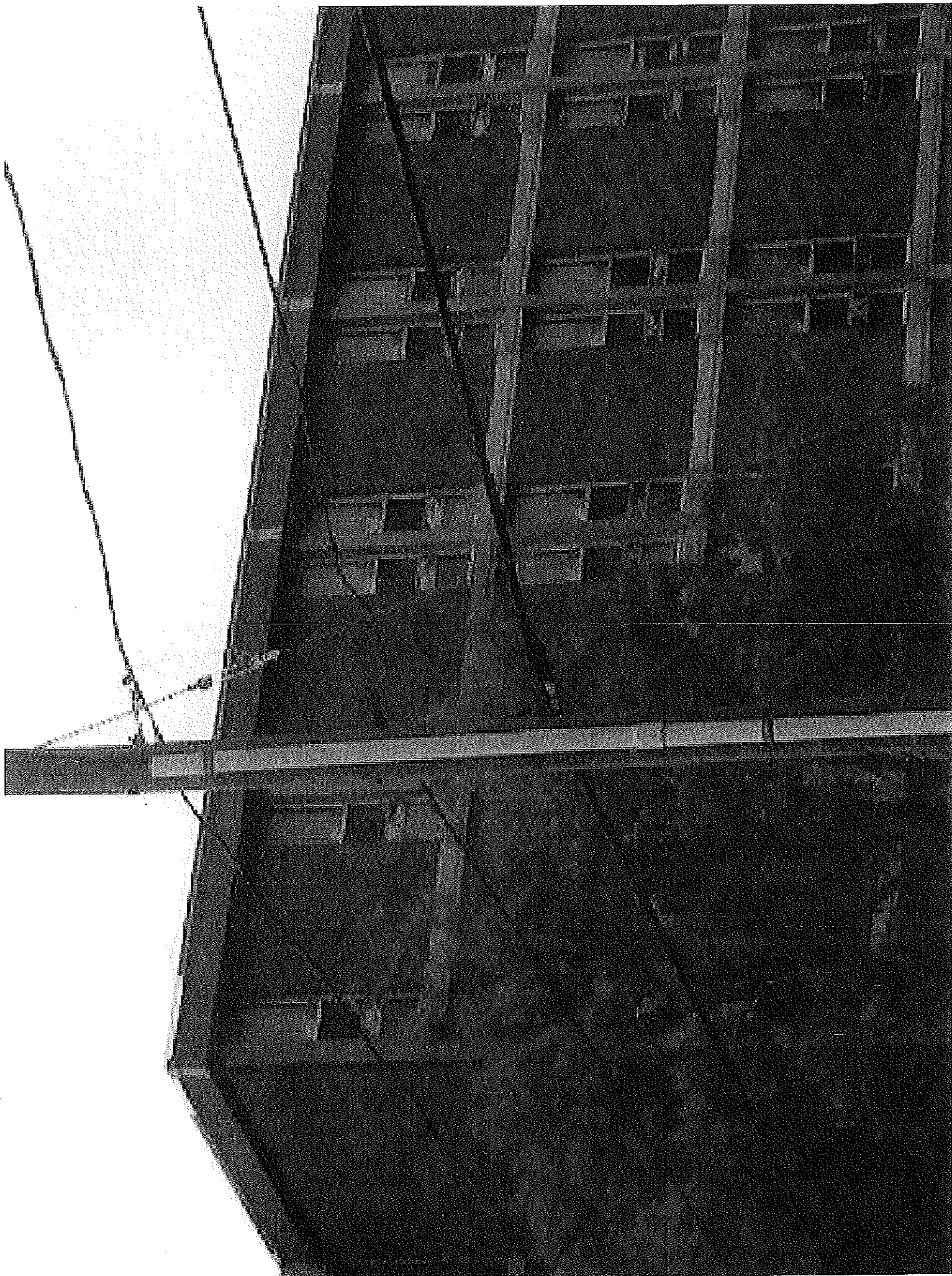
Joint Treatment Detail

3 Section - Parapet Treatment - Step 2
Scale: 6" = 1'-0"

Appendix I

Site Photos (Post Remediation)





Appendix J

Waste Manifest

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB 8320-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number MAD000844670	2. Page 1 of 1	3. Emergency Response Phone 800 966 9282	4. Manifest Tracking Number 002878369 FLE		
5. Generator's Name and Mailing Address University of Massachusetts - Amherst EH&S/17 Draper Hall 40 Campus Center Way Amherst, MA 01003							
Generator's Phone: (413) 545-5122 Attn: Jim Field				Generator's Site Address (if different than mailing address) EH&S/17 Draper Hall University of Massachusetts Amherst 40 Campus Center Amherst, MA 01003			
6. Transporter 1 Company Name Triunvirate Environmental, Inc				U.S. EPA ID Number MAD985286988			
7. Transporter 2 Company Name				U.S. EPA ID Number			
8. Designated Facility Name and Site Address Triunvirate Environmental (NYC), LLC 42-14 19th Avenue Astoria, NY 11105							
Facility's Phone: (718) 274-3339				U.S. EPA ID Number NYD07744263			
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	X	1. UN3432, RQ: Polychlorinated biphenyls, solid 9, II	002	DM	00060	K	MA02 B007
		2.					
		3.					
		4.					
14. Special Handling Instructions and Additional Information 1- (2 x 55) NYC10052 PLCH/Field/Grays 2- 3- 4- F6001, F6003 OUT OF SERVICE 9-21-2010							
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Officer's Printed/Typed Name: Allen A. Juskiewicz Signature: <i>[Signature]</i> Month: 09 Day: 22 Year: 10							
16. International Shipments: <input type="checkbox"/> Import to U.S. <input checked="" type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____							
TRANSPORTER/INTERMEDIATE	17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name: MARIO CELLOPCCA Signature: <i>[Signature]</i> Month: 09 Day: 22 Year: 10						
	Transporter 2 Printed/Typed Name: _____ Signature: _____ Month: _____ Day: _____ Year: _____						
SIGNED FACILITY	18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number: _____ U.S. EPA ID Number: _____						
	18b. Alternate Facility (or Generator) Facility's Phone: _____ Month: _____ Day: _____ Year: _____						
	18c. Signature of Alternate Facility (or Generator) Signature: _____ Month: _____ Day: _____ Year: _____						
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems) H100							
20. Designated Facility Owner or Operator. Certification of receipt of hazardous materials covered by the manifest except as noted in Item 10a. Printed/Typed Name: CHRISTOPHER ANNE Signature: <i>[Signature]</i> Month: 10 Day: 11 Year: 10							

Appendix K

Sikaguard 62 Product Specifications



Spec Component:
SC-054-03/10
Sikagard 62

DIVISION 9 - FINISHES

Section 09900 Coatings

Part 1 - General

1.01 Summary

- A. This specification describes the coating of substrates with a vapor-barrier, solvent-free, protective, dampproofing, waterproofing, moisture-insensitive, epoxy resin coating.

1.02 Quality Assurance

- A. Manufacturing qualifications: The manufacturer of the specified product shall be ISO 9001 certified and have in existence a recognized ongoing quality assurance program independently audited on a regular basis.
- B. Contractor qualifications: Contractor shall be qualified in the field of concrete repair and protection with a successful track record of 5 years or more. Contractor shall maintain qualified personnel who have received product training by a manufacturer's representative.
- C. Install materials in accordance with all safety and weather conditions required by manufacturer or as modified by applicable rules and regulations of local, state and federal authorities having jurisdiction. Consult Material Safety Data Sheets for complete handling recommendations.

1.03 Delivery, Storage, and Handling

- A. All materials must be delivered in original, unopened containers with the manufacturer's name, labels, product identification, and batch numbers. Damaged material must be removed from the site immediately.
- B. Store all materials off the ground and protect from rain, freezing or excessive heat until ready for use.
- C. Condition the specified product as recommended by the manufacturer.

1.04 Job Conditions

- A. Environmental Conditions: Do not apply material if it is raining or snowing or if such conditions appear to be imminent. Minimum application temperature 40°F (5°C) and rising.
- B. Protection: Precautions should be taken to avoid damage to any surface near the work zone due to mixing and handling of the specified material.

1.05 Submittals

- A. Submit two copies of manufacturer's literature, to include: Product Data Sheets and appropriate Material Safety Data Sheets (MSDS).

1.06 Warranty

- A. Provide a written warranty from the manufacturer against defects of materials for a period of one (1) year, beginning with date of substantial completion of the project.

Part 2 - Products

2.01 Manufacturer

- A. Sikagard 62, as manufactured by Sika Corporation, 1682 Marion Williamsport Road, Marion, Ohio, 43302 is considered to conform to the requirements of this specification.

2.02 Materials

- A. Epoxy resin coating:
 - 1. Component A shall be a epoxy resin of diglycidylether of bisphenol A containing suitable viscosity control agents. It shall not contain butyl glycidyl ether.
 - 2. Component B shall be primarily a reaction product of a selected amine blend with an epoxy resin of the epichlorohydrin bisphenol A type containing suitable viscosity control agents, pigments, and accelerators.
 - 3. The ratio of Component A: Component B shall be 1:1 by volume
- B. Granules for slip-resistance shall be supplied by the manufacturer of the specified product and shall be able to be mixed into the coating and shall not settle during application.

2.03 Performance Criteria

- A. Typical Properties of the mixed epoxy resin coating:
 - 1. Pot Life: 35- 40 minutes (60 gram mass)
 - 2. Tack FreeTime: Approximately 4 hours
 - 3. Color: red, grey, tan
 - 4. Solids: 100% VOC g/l : 134 (A+B)
 - 5. Immersion & Chemical Exposure: min. Cure 3 Days

Typical Properties of the cured epoxy resin coating:

Water Absorption (ASTM D-570) at 7days: 0.1% max. (2 hour boil), 24 hour immersion

Elongation (ASTM D-522) at 14 days: 5% min.

Abrasion Resistance (ASTM D-968) at 14 days: 51 liters/mil

Adhesion classification (ASTM 3359) at 14 days: 4A.

Abrasion (Taber Abrader) at 7 days: Weight loss: 0.65 gm. max. (H-22 wheel; 1000 gm weight; 1000 cycles)

Tensile Properties (ASTM D-638) at 14 days: Tensile Strength 5,400 psi (37.3 Mpa) / Elongation at Break 2.7%

Bond Strength (ASTM C-882) Hardened Concrete to Hardened Concrete

2 Day (dry cure): 2,000 psi (13.79 MPa)

14 Day (moist cure): 1,500 psi. (10.34 MPa)

- 8. The coating shall have United States Department of Agriculture approval.

Note: Tests above were performed with the material and curing conditions @ 71°F – 75°F and 45-55% relative humidity.

Part 3 – Execution

3.01 Surface Preparation

- A. Substrate must be clean, sound, and free of surface contaminants. Remove dust, laitance, grease, oils, curing compounds, form release agents and all foreign particles by mechanical means. Substrate shall be in accordance with ICRI Guideline No. 03732 for coatings.

3.02 Mixing and Application

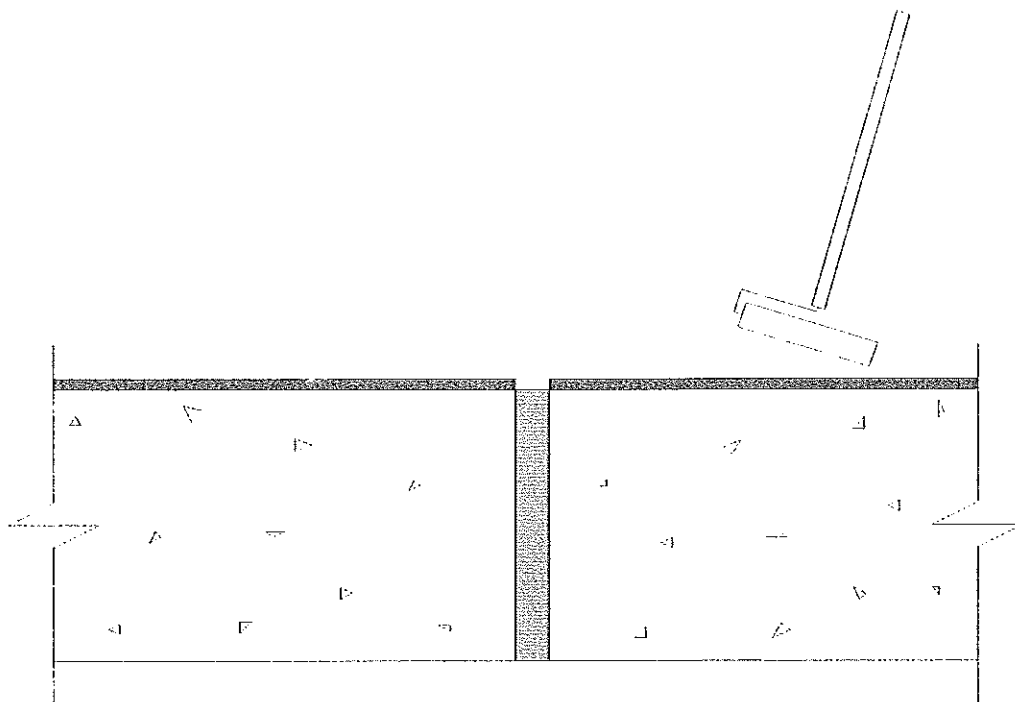
- A. **Mixing:** Premix each component. Proportion equal parts by volume of Component A and Component B into a clean, dry mixing pail. Mix thoroughly for 3 minutes min. with a jiffy paddle on a low-speed (400-600 rpm) drill. Mix only that quantity of material that can be used within its pot life (35 minutes at 73F). To minimize color difference, blend two complete Components B's together. Use only one of the blended Component B's to mix with a Component A. After the first Component B has been used, blend the second Component B with a new Component B and repeat the above procedure for the entire application.
- B. **Placement Procedure:** The epoxy resin coating shall be applied only to approved, prepared surfaces with high-quality brushes, rollers, or spray equipment. Coating shall be applied at ambient and substrate temperatures between 50 and 90F. Application thickness shall be between 4-7 mils per coat. Subsequent coats shall be applied within 48 hours of the previous coat. Care is to be taken on vertical and overhead surfaces to avoid sags or runs. If this occurs, it must be sanded out and the area re-coated. If coating of horizontal surfaces that will receive traffic is specified, a slip-resistant aggregate, Sikagard 62 Granules, shall be incorporated into the mixed epoxy resin coating at 1/2 lb./gallon or as directed by the engineer.
- C. When applying the coating, if possible never stop the application until the entire surface has been coated. If possible always discontinue at an edge, corner, or joint. Never let a previously coated film dry. Always coat into wet film. Always apply the coating at a 45° angle to an edge, corner, or joint.
- D. Adhere to all limitations and cautions for the epoxy resin as stated in the manufacturers printed literature.

3.03 Cleaning

- A. The uncured epoxy resin coating can be cleaned from tools with an approved solvent. The cured epoxy resin coating can only be removed mechanically.
- B. Leave finished work and work area in a neat, clean condition without evidence of spillovers onto adjacent areas.

SC-054

Sikagard 62 Coating



1. Apply Sikagard 62 with high quality brushes or rollers. Care should be taken to avoid sags or runs.
2. When applying the coating, never stop the application until the entire surface has been coated.
3. Subsequent coats shall be applied within 48 hours of the previous coat.
4. For a slip-resistant surface, aggregate shall be incorporated into the mixed epoxy resin coating at a ½ lb./gal.

Note: When applying Sikagard 62 always end at an edge, corner or joint. Do not apply 62 directly over joint filler.

The preceding specifications are provided by Sika Corporation as a guide for informational purposes only and are not intended to replace sound engineering practice and judgment and should not be relied upon for that purpose. **SIKA CORPORATION MAKES NO WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, AS TO THE ACCURACY, COMPLETENESS OR THE CONTENTS OF THESE GUIDE SPECIFICATIONS.** Sika Corporation assumes no liability with respect to the provision or use of these guide specifications, nor shall any legal relationship be created by, or arise from, the provision of such specifications. **SIKA SHALL NOT BE RESPONSIBLE UNDER ANY LEGAL THEORY TO ANY THIRD PARTY FOR ANY DIRECT OR CONSEQUENTIAL DAMAGES OF ANY KIND ARISING FROM THE USE OF THESE GUIDE SPECIFICATIONS.** The specifier, architect, engineer or design professional or contractor for a particular project bears the sole responsibility for the preparation and approval of the specifications and determining their suitability for a particular project or application.

Prior to each use of any Sika product, the user must always read and follow the warnings and instructions on the product's most current Technical Data Sheet, product label and Material Safety Data Sheet which are available at www.sikaconstruction.com or by calling (201) 933-7452. Nothing contained in any Sika materials relieves the user of the obligation to read and follow the warnings and instructions for each Sika product as set forth in the current Technical Data Sheet, product label and Material Safety Data Sheet prior to product use.

Appendix L

Long Term Maintenance Checklist

Field House & Grayson House Coating Review Checklist

Annual Inspection of Fascia/Joints coating systems for proper coverage and integrity.

Bldg Name _____ Date _____
Address _____ Inspector's Name _____
Address _____ Inspector's Signature _____

Fascia Level

Tour the perimeter of the building from the ground and conduct a review using high-powered binoculars once per year. Document any deterioration e.g. peeling, fading, chipping) in the coating system.

CHECK

- ☐ Inspect the fascia/joints using ground based inspections and high power binoculars.
☐ Inspect the fascia/joints from adjacent building using high-powered binoculars

Additional Information

- ☐ Photos attached
☐ Additional narrative attached

The PCB Program Manager will oversee the thorough inspection of the exterior fascia joints at both Field House and Grayson House once per year. All deterioration and damage to the coating will be noted and corrective action plans will be initiated to repair the coating to the original condition.