

73 Williams Franks Drive West Springfield, MA 01089 Phone: (413) 781-0070 Fax: (413) 781-3734 www.atcassociates.com

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.

Derrick Wissman

Senior Project Manager

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:

TABLE 2.0

SUBSTRATE SAMPLING MASONRY SURFACES (PRE-REMEDIATION) (May 27, 2010 & June 10, 2010)

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) Limit (I								
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 reoccupany 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:	Duml	A Com	Date: 4-24-12
Name of Authorized			
Representative (print):		Robinson, CSP, P.E., Ph.D.	
•	Director,	Environmental Health and Safety	/ Special
Title:	Assistant	to Vice Chancellor of Administr	ration and Finance
	for Emerge	ency Management	

Appendix B

PCB Analytical Reports

Source Testing



Report Date: 24-May-10 15:17



☑ 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: UMASS - Amherst, MA

Project #: [none]

<u>Laboratory ID</u> SB12429-01	Client Sample ID Gray-PCB-1	<u>Matrix</u> Caulking	<u>Date Sampled</u> 17-May-10 10:00	<u>Date Received</u> 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

JOA-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 Id Gray-PC! SB12429-				t Project # none]	<u> </u>	<u>Matrix</u> Caulking		ection Date -May-10 10			ceived May-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolati	le Organic Compounds by GC											
	nated Biphenyls by SW846 8082 by method SW846 3550B/C		•									
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	**	-	n	•	**	
11141-16-5	Aroclor-1232	BRL		µg/kg	189	1	粹	*1	n	n	**	
53469-21-9	Aroclor-1242	BRL		μg/kg	189	1	н	*1	n	**	**	
12672-29-6	Aroclor-1248	BRL		µg/kg	189	1	H	स	**	п	Ħ	
11097-69-1	Aroclor-1254	266,000	E	µg/kg	189	1	н	Ħ	P	8	11	
11096-82-5	Aroclor-1260	120,000	ε	µĝ/kg	189	1	a	ar .	11	н	**	
37324-23-5	Aroclor-1262	BRL		µg/kg	189	1	Ħ	#	n	12	л	
11100-14-4	Aroclor-1268	BRL		µg/kg	189	1	**	**	n	a	**	
Surrogate i	recoveries:										-	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	100			30-150 %		я	н	н	я	29	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	106			30-150 %		πŧ	DT.	п	n	**	
2051-24-3	Decachlorobiphenyl (Sr)	103			30-150 %		rt	п	п	*	к	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	163	\$02		30-150 %		Ħ	H	71	Ħ	Ħ	
	is of Polychlorinated Biphenyls by by method SW846 3550B/C	SW846 8082										
	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	π	#	**	•	n	
11141-16-5	Aroclor-1232	BRL		μg/kg	3780	20	n	n	ĸ		n	
53469-21-9	Aroclor-1242	BRL		µg/kg	3780	20	•	n	Ħ	47	н	
12672-29-6	Aroclor-1248	BRL		μg/kg	3780	20	•	п	n	**	и	
11097-69-1	Aroclor-1254	311,000		μg/kg	3780	20	я	H	n	æ	Ħ	
11096-82-5	Aroclor-1260	119,000		μg/kg	3780	20	•	rŧ	11	q	•	
37324-23-5	Aroclor-1262	BRL		μg/kg	3780	20	Ħ	II.	R	а	91	
11100-14-4	Aroclor-1268	BRL		µg/kg	3780	20	n	н	,,	19	#	
Surrogate i	recoveries:											
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	140			30-150 %		at .	л	Ħ	и	11	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	140			30-150 %		н	Ħ	*	Ħ	n	
2051-24-3	Decachlorobiphenyl (Sr)	90			30-150 %		н	**	ĸ	я	**	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	110			30-150 %		H	•	H	и	п	

Sample Ide Field-PCE SB12429-0				Project# none]	!	<u>Matrix</u> Caulking	-	ection Date -May-10 10			ceived May-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatil	e Organic Compounds by GC											
	nated Biphenyls by SW846 8082 by method SW846 3550B/C											
	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	u		**	rt	-	
11141-16-5	Aroclor-1232	BRL		μg/kg	188	1	ri	e	я	н	H	
53469-21-9	Aroclor-1242	BRL		μg/kg	188	1	п	π	н	N	**	
12672-29-6	Aroclor-1248	BRL		µg/kg	188	1	**	n	н	19	rt	
11097-69-1	Aroclor-1254	144,000	E	µд∕кд	188	1	я	R	n	17	Ħ	
11096-82-5	Aroclor-1260	58,500	E	μg/kg	188	1	и		41	н	•	
37324-23-5	Aroclor-1262	BRL		µg/kg	188	1	47	ii	n	Ħ	H	
11100-14-4	Aroclor-1268	BRL		μg/kg	188	1	# · · · ·	71	ri	я		
Surrogate r	ecoveries:											
10386-84-2	4,4-DB-Oclafluorobiphenyl (Sr)	99			30-150 %		7	7	**	н	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	96			30-150 %		35	л	п	н	•	
2051-24-3	Decachlorobiphenyl (Sr)	93			30-150 %		n	rŧ	**	Ħ	11	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	175	S02		30-150 %		п	71	45	H	n	
Re-analys	is of Polychlorinated Biphenyls by by method SW846 3550B/C	SW846 <u>8082</u>	2									
	Aroclor-1016	BRL		µg/kg	1880	10	SW846 8082	21-May-10	24-May-10	IMR	101073	7
11104-28-2	Aroclor-1221	BRL		µg/kg	1880	10	л	n	er	и	ri	
11141-16-5	Aroclor-1232	BRL		μg/kg	1880	10	tf.	**	**	**	n	
53469-21-9	Aroclor-1242	BRL		μg/kg	1880	10	P	π	R	н	ii	
12672-29-6	Aroclor-1248	BRL		μg/kg	1880	10	n	rt	n	н	11	
11097-69-1	Arector-1254	150,000		μg/kg	1880	10	ii-	R	#1	H	н	
11096-82-5	Aroclor-1260	61,200		μg/kg	1880	10	10	н	п	н	11	
37324-23-5	Aroclor-1262	BRL		μg/kg	1880	10	н	¥ŧ	н	н	**	
11100-14-4	Aroclor-1268	BRL		μg/kg	1880	10	**		11	H	H	
Surrogate	recoveries:											
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	105			30-150 %		n	*	n	н	31	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	105			30-150 %		и	R	'n	13	B	
2051-24-3	Decachlorobiphenyl (Sr)	100			30-150 %		н	н	n	r	Я	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	90			30-150 %		et	**	n	н	**	

JQA-PCE SB12429-			•	Project# one]		<u>Matrix</u> Caulking		ection Date -May-10 13			ceived May-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolati	ile Organic Compounds by GC											
<u>Polychlori</u>	nated Biphenyls by SW846 8082											
	by method SW846 3550B/C				886	5	SW846 8082	21-May-10	22-May-10	SM	1010737	
12674-11-2	Aroclor-1016	BRL		hā/kā		5	#	21 may 10	H +	*	ĸ	
11104-28-2	Aroclor-1221	BRL		µg/kg	886	5	*	iP.	17	*	•	
11141-16-5	Aroclor-1232	BRL		µg/kg	886	5	u	**	78	я	ır	
53469-21-9	Aroclor-1242	BRL		µg/kg	886		ıı	**	н	17	и	
12672-29-6	Aroclor-1248	BRL		µg/kg	886	5	bj	31	н	н	N	
11097-69-1	Aroclor-1254	BRL		hā\ķā	886	5	71	п	**	н	11	
11096-82-5	Aroclor-1260	BRL		µg/kg	886	5		я	kj	rt		
37324-23-5	Aroclor-1262	BRL		µg/kg	886	5		**	п	я	,	
11100-14-4	Aroclor-1268	BRL	·	µg/kg	886	5	<u> </u>					-
Surrogate	recoveries:						и	**	3 7	н	и	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	103			30-150 %		3F	et	В	п	я	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	50			30-150 %		_	**	16	,	q	
2051-24-3	Decachlorobiphenyl (Sr)	110			30-150 %						я	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	2800	S02		30-150 %	and the second of the second o	**		N/ Torp standowner (1995)			<u> </u>
JQA-PC SB12429			[none]		Caulking	g 1'	7-May-10 1	3:00	20-	May-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert
Ct-slav												
Semiyosa	tile Organic Compounds by GC											
Polychlor	tile Organic Compounds by GC rinated Biphenyls by SW846 8082 I by method SW846 3550B/C											
Polychlor Prepared	rinated Biphenyls by SW846 8082 I by method SW846 3550B/C	BRL		þg/kg	169	1	SW846 8082	21-May-10) 22-May-10) SM	101073	7
Polychlor Prepared 12674-11-2	rinated Biphenyls by SW846 8082 I by method SW846 3550B/C Aroclor-1016	BRL BRL		µg/kg µg/kg	169 169	1	SW846 8082	21-May-10) 22-May-10 ") SM	101073	7
Prepared 12674-11-2 11104-28-2	rinated Biphenyls by SW846 8082 1 by method SW846 3550B/C 2 Aroclor-1016 2 Aroclor-1221	BRL		µg/kg			=	21-May-10 "	0 22-May-10 *			7
Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5	rinated Biphenyls by SW846 8082 d by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232	BRL BRL		µg/kg µg/kg	169	1	n	21-May-16 16 17	ਸ		'n	7
Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9	rinated Biphenyls by SW846 8082 I by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242	BRL BRL BRL		hâ\kâ hâ\kâ	169 169 169	1 1	ri **	21-May-16	ਸ		'n	7
Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6	rinated Biphenyls by SW846 8082 1 by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248	BRL BRL BRL BRL		ha/ka ha/ka ha/ka	169 169 169 169	1 1 1	ri **	21-May-16	ਸ		'n	7
Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1	rinated Biphenyls by SW846 8082 d by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254	BRL BRL BRL BRL 3,180		halyd ha halyd ha halyd ha halyd ha halyd ha halyd ha ha ha ha ha ha ha ha ha ha ha ha ha	169 169 169 169 169	1 1 1 1	ri **	21-May-10 ** ** **	ਸ		'n	7
Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5	rinated Biphenyls by SW846 8082 d by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1254 Aroclor-1260	BRL BRL BRL BRL 3,180 BRL		hãykã hãykã hãykã hãykã hãykã	169 169 169 169 169	1 1 1 1 1	ri **	21-May-11	ਸ	я н н п	'n	7
Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5	rinated Biphenyls by SW846 8082 I by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1260 Aroclor-1262	BRL BRL BRL BRL 3,180 BRL BRL		ha\ka ha\ka ha\ka ha\ka	169 169 169 169 169 169	1 1 1 1	ri **	21-May-16	ਸ	15 14 17 15 18	14 14 14 14 14	7
Polychlon Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4	rinated Biphenyls by SW846 8082 d by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1262 Aroclor-1268	BRL BRL BRL BRL 3,180 BRL		hãykã hãykã hãykã hãykã hãykã	169 169 169 169 169	1 1 1 1 1 1	ri **	21-May-16	# # # # # # # # # # # # # # # # # # #	6 11 15 15 11	14 14 14 14 14	7
Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate	rinated Biphenyls by SW846 8082 d by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268 Aroclor-1268 Aroclor-1268	BRL BRL BRL 3,180 BRL BRL BRL BRL		ha\ka ha\ka ha\ka ha\ka	169 169 169 169 169 169 169	1 1 1 1 1 1	ri **	21-May-11	# # # # # # # # # # # # # # # # # # #	6 11 15 15 11	14 14 14 14 14	
Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate 10386-84-1	rinated Biphenyls by SW846 8082 I by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268 e recoveries: 2 4,4-DB-Octafluorobiphenyl (Sr)	BRL BRL BRL 3,180 BRL BRL BRL		ha\ka ha\ka ha\ka ha\ka	169 169 169 169 169 169 169	1 1 1 1 1 1	ri **	21-May-16	# # # # # # # # # # # # # # # # # # #	6 11 15 15 11	N 11 11 11 11 11 11 11 11 11 11 11 11 11	
Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate	rinated Biphenyls by SW846 8082 i by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268 recoveries: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	BRL BRL BRL 3,180 BRL BRL BRL BRL		ha\ka ha\ka ha\ka ha\ka	169 169 169 169 169 169 169 30-150 %	1 1 1 1 1 1	ri **	21-May-16	# # # # # # # # # # # # # # # # # # #	6 11 15 15 11	N 11 11 11 11 11 11 11 11 11 11 11 11 11	
Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate 10386-84-1	rinated Biphenyls by SW846 8082 1 by method SW846 3550B/C 2 Aroclor-1016 2 Aroclor-1221 3 Aroclor-1232 3 Aroclor-1248 4 Aroclor-1254 5 Aroclor-1260 5 Aroclor-1262 4 Aroclor-1268 6 recoveries: 2 4,4-DB-Octafluorobiphenyl (Sr) 2 4,4-DB-Octafluorobiphenyl (Sr) [2C]	BRL BRL BRL 3,180 BRL BRL BRL		ha\ka ha\ka ha\ka ha\ka	169 169 169 169 169 169 169	1 1 1 1 1 1 1	ri **	21-May-16	# # # # # # # # # # # # # # # # # # #	6 11 15 15 11	N 11 11 11 11 11 11 11 11 11 11 11 11 11	

Semivolatile Organic Compounds by GC - Quality Control

nalyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPE Limi
atch 1010737 - SW846 3550B/C				1	-1111					
Blank (1010737-BLK1)					Pre	epared: 21-	May-10 An	alyzed: 22-l	<u> day-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>Pr</u>	epared: 21	-May-10 Ai	nalyzed; 22-	May-10	
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>P</u> :	repared: 21	-May-10 A	nalyzed: 22-	May-10	
Aroclor-1016	254		μg/kg	20.0	250		102	50-140	7	36
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: Decachiorobiphenyl (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.

<u>Laboratory Control Sample (LCS)</u>: 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.

<u>Surrogate</u>: 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

Special Handling:
Special Handling:
Special Handling:
Special Handling:
Special Handling:
Special Handling:

XI=Caulkuk- X O=Oil SW=Surface Water Report To: いとないてん EDD Format DW=Drinking Water - GW=Groundwater Telephone # 当まなのの Projuct Music Kirmin o Contray Octobro 11 Con Tub ld: 令 Value で Value V 1月2000000 SEECTRICAL ANALYTICAL INC ではない。など ATMINET LEGINGEOUS. GRAY-PEB-205, Agavien West Programme Control of the Contro CHOS のないでかい アーディーよう î 2=HC Sample Id. 3=14:SO; C=Composite SO-Seil (C) giful s 1000 5/17/10 4HNO; SI_=Sludge ō W₩=₩аяснаси ö CHAIN OF CUSTODY RECORD 10:00 5=NaOH 6=Ascerbic Acid 10:00 600 Tilite: Invoice To: P.O. No.: ٩ì Ç **~***; Type 'X' × U 1255 Matrix # of VOA Viols Hepwan HO/HO-1 10x: 6272 # of Amher Glass b of Clear Glass # of Plastic Boss $2CR^{l_{\delta}}$ Sampler(s): 1 (range 2 Location: [UM]\$55.Cooplets, Sire Name: GRAYSON / ISIAIN Project No.: list preservatīve ende belove: Ruceived ☐ Standard TAT - 7 to 10 business days

RRush TAT - Date Needed 5/24/1/

All TATs subject to laboratory approvat.

Mit. 34-hour notification recoded for rushes.

Samples disposed of after 60 days unless 2 othorwise instructed. 会要が D Provide MA DEF MCP CAM Report
D Provide CT 1991 RGP Report State specific repositing sendurds QNQC Reporting Notes: S S いない OAOO Reporting Level

Distanced Disease Date: (check as novded) SUBAY Since CIA 200 1111E

11 Almeren Drive - Agantum, MA 01001 - 413-789-9018 - FAX 413-789-4076 - www.spectron-unalytical-com

Constition upon sereigi: Disert

Demoins Dec

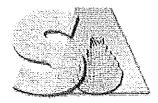
Appendix C

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

Laboratory ID	Client Sample ID	<u>Matrix</u>	Date Sampled	Date Received
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.

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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 Ide Gray-PCE SB12886-0				Project # 2319.02.36		<u>Matrix</u> Cement		ction <u>Date/</u> May-10 10			<u>eived</u> 1ay-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatil	le Organic Compounds by GC											
Polychlorin	nated Biphenyls by SW846 8082											
	by method SW846 3545A Aroclor-1016	BRL		µg/kg dry	19.9	1	SW846 8082	28-May-10	01-Jun-10	IMR	1011330	
11104-28-2	Aroclor-1010	BRL		μg/kg dry	19.9	1	"	н	н	Ħ	**	
11141-16-5	Aroclor-1232	BRL		µg/kg đry	19.9	1	d	н	4	*	rt	
53469-21-9	Aroclor-1242	BRL		µg/kg đry	19.9	1	**	#	Ħ	Ħ	п	
12672-29-6	Aroclor-1248	BRL		μg/kg dry	19.9	1	rt.	R	п	н	**	
11097-69-1	Aroclor-1254	513		µg/kg đry	19.9	1	n	π	75	15	F	
11096-82-5	Aroclor-1260	57.4		µg/kg đry	19.9	1	ж	н	п	н	,,	
37324-23-5	Aroclor-1262	BRL		μg/kg dry	19.9	1	к	41	*1	н	at .	
11100-14-4	Aroclor-1268	BRL		μg/kg dry	19.9	1				**	#	
Surrogate r	recoveries:								_			
10386-84-2	4,4-DB-Octatluorobiphenyl (Sr)	135			30-150 %				-	12	и	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	147			30-150 %		#	-	,	16	,,	
2051-24-3	Decachlorobiphenyl (Sr)	137			30-150 %		-			α	н	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	156	S02		30-150 %		*	•				
General C	Chemistry Parameters						041.005	04 km 40	01 lun 10	TDD	1011531	1
	Sample Prep	Completed		N/A		1	SAI SOP		01-Jun-10		101143	
	% Solids	98.4		%		1	SM2540 G Mod.	28-iviay-10	20-Way-10		TOTAL	
Field-PC SB12886				nt Project # 7319.02.36		Matrix Cement		ection Date -May-10 1	0:00	28-	ceived May-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Polychlor Prepared	tile Organic Compounds by GC Finated Biphenyls by SW846 8082 I by method SW846 3545A	201		µg/kg dry	18.5	1	SW846 8082	28-May-10	01-Jun-10	IMR	101133	0
12674-11-2		BRL		pg/kg dry	18.5	1	h	R		я,	n	
11104-28-2		BRL BRL		μg/kg dry	18.5	1	*	n	п	я.	35	
11141-16-5		BRL		μg/kg dry	18.5	1	н	**	н	*	**	
53469-21-9		BRL		μg/kg dry	18.5	1	Ħ	н	*1	n	*1	
12672-29-6		223		μg/kg dry	18,5	1	76	п	**	11	#1	
11097-69-1 11096-82-5		BRL		µg/kg dry	18.5	1	н	n		**	и	
37324-23-5		BRL		µg/kg dry	18.5	1	11	**	я	*1	Ħ	
11100-14-4		BRL		μg/kg dry	18.5	1	rt	44	н	47	47	
Surrogate	recoveries:				·							
10386-84-2		86			30-150 %		ĸ	76	В	ท	**	
10386-84-2		97			30-150 %		н	n	n	Ħ	FI	
2051-24-3		90			30-150 %		ж	ж	к	п	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	96			30-150 %		Ħ	н	н	19	n	
General (Chemistry Parameters										20215	14
General (Chemistry Parameters Sample Prep	Completed		N/A %		1	SAI SOP SM2540 G Mod		0 01-Jun-10		101153 101143	

Semivolatile Organic Compounds by GC - Quality Control

1.4	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
nalyte(s)	Result	riag	Onto							
atch 1011330 - SW846 3545A					D.	anarad 9 A	nalyzed: 28-	Meyell.		
Blank (1011330-BLK1)					<u>P6</u>	epared & A	nalyzeu, zo-	May-10		
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			-			· · · · · ·
Surrogale: 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		
Surrogale: Decachlorobiphenyl (Sr) [2C]	21.5		μg/kg wet		20.0		108	30-150		
LCS (1011330-BS1)					<u>P</u>	repared & /	Analyzed: 28	3-May-10		
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		
	17.6		µg/kg wet		20.0		88	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	17.0		μg/kg wet		20.0		96	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	19.2 15.7		μg/kg wet		20.0		78	30-150		
Surrogate: Decachlorobiphenyl (Sr)	20.5		μg/kg wet		20.0		103	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	20,5		Parva not			repared &	Analyzed: 2	8-May-10		
LCS Dup (1011330-B\$D1)	55.		unlen wat	20.0	250	.sparou u	89	50-140	6	31
Aroclor-1016	224		μg/kg wet	20.0	250		92	50-140	5	3
Aroclor-1016 [2C]	230		µg/kg wet	20.0	250		85	50-140	7	3
Aroclor-1260	213		µg/kg wet	20.0	250		88	50-140	5	3
Aroclor-1260 [2C]	220		μg/kg wet	20.0					-	
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		

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.

<u>Laboratory Control Sample (LCS)</u>: 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.

<u>Surrogate</u>: 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

312 284 64

CHAIN OF CUSTODY RECORD

Special Handling:

Standard TAT - 7 to 10 business days

Rush TAT - Date Needed: \(\frac{72}{22}\)\(\frac{1}{2}\)

Alt TATs subject to laboratory alproval.

Min. 24-boar metification needed for rushes.

Samples disposed of offer 60 days unless processes instances.

Repair Yo: ECS AGGINGOT	Invoice To SCS Agailan	JE 60 51 COS 16 200 No.	Anti-Article State Company of the Co
namanan antanan tani saha-dan ada da da da mangan naman mangan sa da mangan na mangan na na na na na na na na		E C	
		• lannels's engrapes on management and	State: OJA
Lefeblious & 213-386-3828	P.O. No.: RQN: 637.7	Simplex(s): M. Gillovol L.	
1=N ₁₅ S2O ₃ 2=FC1 3=45 ₅ SO ₄ 4=FNO ₃ S= N ₃ FSO ₄ 5= 10=	5=NaOH 6=Asearbic Acid 7=CH,OH	List preservative code belang OAOOC Re	QA/QC Reporting Notes: Jobsel: as needed)
Drinking Water GW-Croundwater SW=Surface Water SO=Soil St	evalue Continue	Adal) See: Descride Mo D	□ Provide MA DEP NEP ("AM Royers □ Provide CT DPH REP Report
A1= C=Composite	OA Vish	S Ovoca	QACQC Reparting Level Charles Charles (8)
Lab (d: Sumple)d: Date:	# of A # of P		State specific reporting attendends:
0 / May PCB - 1 1 5/2	0 G X	X Supple Collecte	collisted
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III)D FOTINK	Relinovidações	Required hy: Date:	29.7(
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and Danbient D.C.	2		

Report Date: 15-Jun-10 14:38



SPECTRUM ANALYTICAL, INC. Featuring HANIBAL TECHNOLOGY Laboratory Report

Environmental Compliance Services

588 Silver Street Agawam, MA 01001

Attn: Mike Grover

Project: Grayson/Field Roof - UMASS Amherst, MA

☐ Re-Issued Report

☐ Revised Report

Project #: 01-207319.02.36

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

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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]

Gray-PCB SB13624-(<u>Project #</u> 319.02.36		<u>Matrix</u> Cement		ection Date/ -Jun-10 13:			ceived Jun-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatii	e Organic Compounds by GC											
	nated Biphenyls by SW846 8082											
Prepared b	by method SW846 3550B/C						0110100000	14-Jun-10	45 Jun 40	SM	1012515	:
12674-11-2	Aroclor-1016	BRL		µg/kg	203	1	SW846 8082	14-Jun-10	10-3411-10	ri Olyi	1012313	,
11104-28-2	Aroclor-1221	BRL		µg/kg	203	1	,,	т.	н	я	н	
11141-16-5	Aroclor-1232	BRL		µg/kg	203	1		n	п		n	
53469-21-9	Aroclor-1242	BRL.		µg/kg	203	1	n		41	ж	,	
12672-29-6	Aroclor-1248	BRL		µg/kg	203	1	н	n	**	и	'n	
11097-69-1	Aroclor-1254	BRL.		hã\kã	203	1	н	Ħ		и		
11096-82-5	Aroclor-1260	BRL		µg/kg	203	1	н	n	н	47	"	
37324-23-5	Arocior-1262	BRL		µg/kg	203	1	Ħ	rj	Ħ	at .	Ħ	
11100-14-4	Areclor-1268	BRL		µg/kg	203	1	я	п	п	н	н	
Surrogate re	ecoveries:								,,		и	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	107			30-150 %			к			is .	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	103			30-150 %		н	я	п	и		
2051-24-3	Decachlorobiphenyl (Sr)	114			30-150 %		*	₩	п	я	Ħ	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	144			30-150 %	en e	и	и		14		
A 1. T.I.												
Sample Id Gray-PCI SB13624-	B-6			<u>Project #</u> 7319.02.30		<u>Matrix</u> Cement		ection <u>Date</u> 0-Jun-10 13			<u>ceived</u> Jun-10	
Gray-PCI	B-6	Result						0-Jun-10 13		14-	Jun-10	Cert
Gray-PCI SB13624- CAS No.	B-6 02 Analyte(s)	Result	01-207	7319.02.36	<u> </u>	Cement	10	0-Jun-10 13	:30	14-	Jun-10	Cert
Gray-PCI SB13624- CAS No. Semivolati Polychlori	B-6 02 Analyte(s) tle Organic Compounds by GC nated Biphenyls by SW846 8082		01-207	7319.02.36	<u> </u>	Cement	10	0-Jun-10 13	:30	14-	Jun-10	Cert
Gray-PCI SB13624- CAS No. Semivolati Polychlori Prepared	B-6 02 Analyte(s) Ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3550B/C		01-207	7319.02.36 Units	<u> </u>	Cement	10	0-Jun-10 13 Prepared	:30	14-	Jun-10	
Gray-PCI SB13624- CAS No. Semivolati Polychlori Prepared 12674-11-2	B-6 02 Analyte(s) Ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3550B/C Aroclor-1016	BRL	01-207	7319.02.30 <i>Units</i> µg/kg	*RDL	Cement Dilution	I Method Ref.	0-Jun-10 13 Prepared	:30 Analyzed	14-	Jun-10 Batch	
Gray-PCJ SB13624- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2	B-6 02 Analyte(s) Ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3550B/C Aroclor-1016 Aroclor-1221	8RL BRL	01-207	Units μg/kg μg/kg	* <i>RDL</i> 142 142	Cement Dilution	Method Ref. SW846 8082	0-Jun-10 13 Prepared	Analyzed	Analyst SM	Jun-10 Batch	
Gray-PCI SB13624- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5	B-6 02 Analyte(s) Ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232	BRL BRL BRL	01-207	Units μg/kg μg/kg μg/kg	*RDL 142 142 142	Dilution 1 1 1	Method Ref. SW846 8082	0-Jun-10 13 Prepared	:30 Analyzed 15-Jun-10	Analyst SM	Jun-10 Batch	
Gray-PCI SB13624- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9	B-6 02 Analyte(s) Ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242	8RL BRL BRL BRL	01-207	Units μg/kg μg/kg μg/kg μg/kg	*RDL 142 142 142 142	Cement Dilution 1 1 1 1	Method Ref. SW846 8082	0-Jun-10 13 Prepared	:30 Analyzed 15-Jun-10	Analyst SM	Jun-10 Batch	
Gray-PCJ SB13624- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6	B-6 02 Analyte(s) le Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248	BRL BRL BRL BRL BRL	01-207	Units Units µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg	*RDL 142 142 142 142 142 142	Cement Dilution 1 1 1 1 1	Method Ref. SW846 8082	0-Jun-10 13 Prepared	:30 Analyzed 15-Jun-10	Analyst SM	Jun-10 Batch	
Gray-PCJ SB13624- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-18-5 53469-21-9 12672-29-6 11097-69-1	B-6 02 Analyte(s) le Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254	BRL BRL BRL BRL BRL BRL	01-207	Units µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg	*RDL 142 142 142 142 142 142 142	Cement Dilution 1 1 1 1 1 1	Method Ref. SW846 8082	0-Jun-10 13 Prepared	:30 Analyzed 15-Jun-10 " " "	Analyst SM	Jun-10 Batch	
Gray-PCI SB13624- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11096-82-5	B-6 02 Analyte(s) Ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1254	BRL BRL BRL BRL BRL BRL	01-207	Units µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg	*RDL 142 142 142 142 142 142 142	Dilution 1	Method Ref. SW846 8082	0-Jun-10 13 Prepared	:30 Analyzed 15-Jun-10 """ """ """ """ """	Analyst SM	Jun-10 Batch	
Gray-PCI SB13624- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5	B-6 02 Analyte(s) Ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262	BRL BRL BRL BRL BRL BRL BRL	01-207	/319.02.36 <i>Units</i> µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg	*RDL 142 142 142 142 142 142 142 142 142	Dilution 1	Method Ref. SW846 8082	0-Jun-10 13 Prepared	:30 Analyzed 15-Jun-10 " " "	Analyst SM " "	Jun-10 Batch 101251:	
Gray-PCI SB13624- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4	B-6 02 Analyte(s) Ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268	BRL BRL BRL BRL BRL BRL	01-207	Units µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg	*RDL 142 142 142 142 142 142 142	Dilution 1	Method Ref. SW846 8082	0-Jun-10 13 Prepared	:30 Analyzed 15-Jun-10 " " "	Analyst SM " "	Jun-10 Batch 101251:	
Gray-PCI SB13624- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4	B-6 02 Analyte(s) Ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268 recoveries:	BRL BRL BRL BRL BRL BRL BRL BRL	01-207	/319.02.36 <i>Units</i> µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg	*RDL 142 142 142 142 142 142 142 142 142	Dilution 1	Method Ref. SW846 8082	0-Jun-10 13 Prepared	:30 Analyzed 15-Jun-10 " " "	Analyst SM " "	Jun-10 Batch 101251:	
Gray-PCI SB13624- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4	B-6 02 Analyte(s) Ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1268 recoveries:	BRL BRL BRL BRL BRL BRL BRL BRL	01-207	/319.02.36 <i>Units</i> µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg	*RDL 142 142 142 142 142 142 142 142 142 14	Cement Dilution 1	Method Ref. SW846 8082	0-Jun-10 13 Prepared	:30 Analyzed 15-Jun-10 " " " " " "	Analyst SM " "	Jun-10 Batch 101251:	
Gray-PCI SB13624- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-18-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate	B-6 02 Analyte(s) Ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268 recoveries: 4,4-DB-Octafluorobiphenyl (Sr)	BRL BRL BRL BRL BRL BRL BRL BRL	01-207	/319.02.36 <i>Units</i> µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg	*RDL 142 142 142 142 142 142 142 142 142 30-150 % 30-150 %	Cement Dilution 1	Method Ref. SW846 8082	0-Jun-10 13 Prepared	:30 Analyzed 15-Jun-10 " " " " " "	Analyst SM " "	Jun-10 Batch 101251:	
Gray-PCI SB13624- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate 10386-84-2	B-6 02 Analyte(s) Ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268 recoveries: 4,4-DB-Octafluorobiphenyl (Sr) 4,4-DB-Octafluorobiphenyl (Sr)	BRL BRL BRL BRL BRL BRL BRL BRL	01-207	/319.02.36 <i>Units</i> µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg	*RDL 142 142 142 142 142 142 142 142 142 14	Cement Dilution 1 1 1 1 1 1 1 1 1 1	Method Ref. SW846 8082	0-Jun-10 13 Prepared	:30 Analyzed 15-Jun-10 " " " " " "	Analyst SM " "	Jun-10 Batch 101251:	

Gray-PCB-7 SB13624-03				<u>Project#</u> 319.02.36		<u>Matrix</u> Cement		ection Date/ -Jun-10 13:			eived un-10	
CAS No. A	nalyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Samiyolatile (Organic Compounds by GC											
	ted Biphenyls by SW846 8082											
	method SW846 3550B/C											
12674-11-2 A	roclor-1016	BRL		µg/kg	136	1	SW846 8082	14-Jun-10	15-Jun-10	SM	1012515	
11104-28-2 A	roclor-1221	BRL		µg/kg	136	1	•	**	#	4	•	
11141-16-5 A	roctor-1232	BRL		µg/kg	136	1	п	**	at	ıŧ	u	
53469-21-9 A	roclor-1242	BRL		µg/kg	136	1	31	ч	*	#	и	
12672-29-6 A	roclor-1248	BRL		μg/kg	136	1	19	11	r	н	Ħ	
11097-69-1 A	roclor-1254	BRL		μg/kg	136	1	H	ĸ	Ħ	я	**	
11096-82-5 A	roctor-1260	BRL		μg/kg	136	1	n	н	n	*	н	
37324-23-5 A	roclor-1262	BRL.		µg/kg	136	1	п	n	n	10	Ħ	
11100-14-4 A	roclor-1268	BRL		μg/kg	136	1	4	п	11		я	
Surrogate reco	overies:											
•	,4-DB-Octafluorobiphenyl (Sr)	115			30-150 %		Ħ	H	Ħ	n	н	
	i,4-DB-Octafluorobiphenyl (Sr) 2C]	109			30-150 %		н	ы	Ħ	*	Ħ	
-	Decachlorobiphenyl (Sr)	118			30-150 %		n	**	Ħ	#	**	
2051-24-3 D	Decachlorobiphenyl (Sr) [2C]	154	S02		30-150 %		H	11	幹	И	Ħ	
garage and the second second second		the state of the section	<u> </u>		<u>autogr</u> iterrierikken			<u>e patitora pilaputot dada</u>	ele Marie Paris de la Companya de l La Companya de la Companya de		and a second program.	Services Administra
Sample Iden	ntification		Client	Project #		Matrix	Colle	ection Date	/Time	Re	ceived	
Field-PCB-5	5			/319.02.36)-Jun-10 13			Jun-10	
SB13624-04						Cement	11	Lagritud 12	.30		Juli	
SB13024-04	4		01-207	317.02.30	,	Cement		7-3411-10-15	.50		Jun 10	
	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.		Analyzed			Cert.
CAS No. A		Result										Cert.
CAS No. A	Analyte(s)	Result										Cert.
CAS No. A Semivolatile	Analyte(s) Organic Compounds by GC	Result					Method Ref.	Prepared	Analyzed	Analyst	Batch	•
CAS No. A Semivolatile	Analyte(s) Organic Compounds by GC sted Biphenyls by SW846 8082 or method SW846 3550B/C	Result BRL		<i>Units</i> µg/kg			Method Ref. SW846 8082	Prepared	Analyzed 15-Jun-10	Analyst		•
CAS No. A Semivolatile Polychlorina Prepared by	Analyte(s) Organic Compounds by GC sted Biphenyls by SW846 8082 or method SW846 3550B/C Aroclor-1016			Units	*RDL	Dilution	Method Ref. SW846 8082	Prepared	Analyzed 15-Jun-10	Analyst	Batch	•
CAS No. A Semivolatile Polychlorina Prepared by 12674-11-2 A	Analyte(s) Organic Compounds by GC ated Biphenyls by SW846 8082 or method SW846 3550B/C Aroclor-1016 Aroclor-1221	BRL		<i>Units</i> µg/kg	*RDL	Dilution 1 1 1	Method Ref. SW846 8082	Prepared	Analyzed 15-Jun-10	Analyst	Batch	•
CAS No. A Semivolatile of Polychlorina Prepared by 12674-11-2 A 11104-28-2 A 11141-16-5 A	Analyte(s) Organic Compounds by GC ated Biphenyls by SW846 8082 or method SW846 3550B/C Aroclor-1016 Aroclor-1221	BRL BRL		Units Pg/kg Pg/kg	*RDL 258 258 258 258 258	Dilution 1	Method Ref. SW846 8082	Prepared	Analyzed 15-Jun-10	Analyst	Batch	•
CAS No. A Semivolatile of Polychlorina Prepared by 12674-11-2 A 11104-28-2 A 11141-16-5 A 53469-21-9 A	Analyte(s) Organic Compounds by GC sted Biphenyls by SW846 8082 or method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232	BRL BRL BRL		Units ug/kg ug/kg ug/kg	*RDL 258 258 258	Dilution 1 1 1	Method Ref. SW846 8082	Prepared	Analyzed 15-Jun-10	Analyst	Batch	•
CAS No. A Semivolatile of Polychlorina Prepared by 12674-11-2 A 11104-28-2 A 11141-16-5 A 53469-21-9 A 12672-29-6 A	Analyte(s) Organic Compounds by GC sted Biphenyls by SW846 8082 or method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242	BRL BRL BRL BRL		Units µg/kg µg/kg µg/kg µg/kg	*RDL 258 258 258 258 258	Dilution 1 1 1 1	Method Ref. SW846 8082	Prepared	Analyzed 15-Jun-10	Analyst	Batch	•
CAS No. A Semivolatile of Polychlorina Prepared by 12674-11-2 A 11104-28-2 A 11141-16-5 A 53469-21-9 A 12672-29-6 A 11097-69-1 A	Organic Compounds by GC sted Biphenyls by SW846 8082 r method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248	BRL BRL BRL BRL BRL		Units µg/kg µg/kg µg/kg µg/kg	*RDL 258 258 258 258 258	Dilution 1 1 1 1	Method Ref. SW846 8082	Prepared	Analyzed 15-Jun-10	Analyst SM """ """ """ """ """ """ """ """ """	Batch	•
CAS No. A Semivolatile of Polychlorina Prepared by 12674-11-2 A 11104-28-2 A 11141-16-5 A 53469-21-9 A 12672-29-6 A 11097-69-1 A 11096-82-5 A	Analyte(s) Organic Compounds by GC ated Biphenyls by SW846 8082 The method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254	BRL BRL BRL BRL BRL		Units µg/kg µg/kg µg/kg µg/kg µg/kg	*RDL 258 258 258 258 258 258	Dilution 1 1 1 1 1 1 1	Method Ref. SW846 8082	Prepared	Analyzed 15-Jun-10 " " " " "	Analyst SM " " " "	Batch 1012515	•
CAS No. A Semivolatile of Polychlorina Prepared by 12674-11-2 A 11104-28-2 A 11141-16-5 A 53469-21-9 A 12672-29-6 A 11097-69-1 A 11096-82-5 A 37324-23-5 A	Analyte(s) Organic Compounds by GC sted Biphenyls by SW846 8082 of method SW846 3550B/C Aroctor-1016 Aroctor-1221 Aroctor-1232 Aroctor-1242 Aroctor-1248 Aroctor-1254 Aroctor-1254	BRL BRL BRL BRL BRL BRL		Units ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	*RDL 258 258 258 258 258 258 258 258	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Method Ref. SW846 8082	Prepared	Analyzed 15-Jun-10	Analyst SM """ """ """ """ """ """ """ """ """	Batch	•
CAS No. A Semivolatile of Polychlorina Prepared by 12674-11-2 A 11104-28-2 A 11141-16-5 A 53469-21-9 A 12672-29-6 A 11097-69-1 A 11096-82-5 A 37324-23-5 A	Analyte(s) Organic Compounds by GC sted Biphenyls by SW846 8082 of method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268	BRL BRL BRL BRL BRL BRL BRL		Units µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg	*RDL 258 258 258 258 258 258 258 258 258	Dilution 1 1 1 1 1 1 1 1 1 1	Method Ref. SW846 8082	Prepared	Analyzed 15-Jun-10 " " " " "	Analyst SM " " " "	Batch 1012515	•
CAS No. A Semivolatile of Polychlorina Prepared by 12674-11-2 A 11104-28-2 A 11141-16-5 A 12672-29-6 A 11097-69-1 A 11096-82-5 A 37324-23-5 A 11100-14-4 A Surrogate rec	Analyte(s) Organic Compounds by GC sted Biphenyls by SW846 8082 of method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268	BRL BRL BRL BRL BRL BRL BRL		Units µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg	*RDL 258 258 258 258 258 258 258 258 258	Dilution 1 1 1 1 1 1 1 1 1 1	Method Ref. SW846 8082	Prepared	Analyzed 15-Jun-10 " " " " "	Analyst SM " " " "	Batch 1012515	•
CAS No. A Semivolatile of Polychlorina Prepared by 12674-11-2 A 11104-28-2 A 11141-16-5 A 53469-21-9 A 12672-29-6 A 11097-69-1 A 11096-82-5 A 37324-23-5 A 11100-14-4 A Surrogate rece 10386-84-2 4 10386-84-2 4	Organic Compounds by GC sted Biphenyls by SW846 8082 or method SW846 3550B/C Aroctor-1016 Aroctor-1221 Aroctor-1232 Aroctor-1242 Aroctor-1248 Aroctor-1254 Aroctor-1260 Aroctor-1262 Aroctor-1268 Coveries: 4,4-DB-Octafluorobiphenyl (Sr)	BRL BRL BRL BRL BRL BRL BRL BRL		Units µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg	*RDL 258 258 258 258 258 258 258 258 258 25	Dilution 1 1 1 1 1 1 1 1 1 1	Method Ref. SW846 8082	Prepared	Analyzed 15-Jun-10 " " " " "	Analyst SM " " " "	Batch 1012515	•
CAS No. A Semivolatile of Polychlorina Prepared by 12674-11-2 A 11104-28-2 A 11141-16-5 A 53469-21-9 A 12672-29-6 A 11097-69-1 A 11096-82-5 A 37324-23-5 A 11100-14-4 A Surrogate received to 10386-84-2 A 10386-84-2 A 110386-84-2 A 110386-84-	Organic Compounds by GC sted Biphenyls by SW846 8082 or method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268 Coveries: 4,4-DB-Octafluorobiphenyl (Sr)	BRL BRL BRL BRL BRL BRL BRL		Units µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg µg/kg	*RDL 258 258 258 258 258 258 258 258 258 30-150 %	Dilution 1 1 1 1 1 1 1 1 1 1	Method Ref. SW846 8082	Prepared	Analyzed 15-Jun-10 " " " " "	Analyst SM " " " "	Batch 1012515	•

Sample Id Field-PCI SB13624-				Project # 7319.02.30		<u>Matrix</u> Cement		ection Date/)-Jun-10 13:			ceived Jun-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semiyolati	ile Organic Compounds by GC											
	nated Biphenyls by SW846 8082 by method SW846 3550B/C											
•	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	n	n	"	*		
11141-16-5	Aroclor-1232	BRL		µg/kg	101	1	Ħ	Ħ	н	11	n	
53469-21-9	Aroclor-1242	BRL		µg/kg	101	1	п	и	,,	n	п	
12672-29-6	Aroclor-1248	BRL		µg/kg	101	1	н	Ħ	19	д	В	
11097-69-1	Aroclor-1254	BRL		µg/kg	101	1	N	Ħ	н	31	F	
11096-82-5	Aroclor-1260	BRL		μg/kg	101	1	n	я	#	"	H	
37324-23-5	Aroclor-1262	BRL		μg/kg	101	1	n	11	Ħ	Ħ	pt	
11100-14-4	Aroclor-1268	BRL.		µg/kg	101	['] 1	n	41	н	Ħ	**	
Surrogate i	recoveries:											
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	103			30-150 %		n	я	**	я	a	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	107			30-150 %		41	Ħ	U	н	ri	
2051-24-3	Decachlorobiphenyl (Sr)	130			30-150 %		п	*	н		п	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	118			30-150 %		Ħ	F	ėl	Ħ	н	
<u>Bernster</u> (nysterior) and	n na proposition de la France, et un regiona anna la particulatifica y de la planta and de la comparte de pro-	Constitutional States of the control		O New York Control of the Control of				S well-say destruct the Company of the s	A Company of the Comp	acethronice dictely.	renstaten en Men	Muserma
Sample Id	1416141											
Campio ic	<u>lentification</u>		Client	Droignt #		Matrix	Colle	ection Date	Time	Re	havian	
Field-PC				Project #		<u>Matrix</u> Cement	·	ection Date			ceived Iun-10	
	B-7			t Project # 7319.02.30		<u>Matrix</u> Cement	·	ection Date -Jun-10 13			ceived Jun-10	
Field-PC	B-7	Result					·)-Jun-10 13		14-	Jun-10	Cert.
SB13624-	B-7 -06 Analyte(s)	Result	01-207	7319.02.30	5	Cement	10)-Jun-10 13	:30	14-	Jun-10	Cert.
SB13624- CAS No. Semivolati	B-7 -06 Analyte(s) ille Organic Compounds by GC inated Biphenyls by SW846 8082	Result	01-207	7319.02.30	5	Cement	10)-Jun-10 13	:30	14-	Jun-10	Cert.
SB13624- CAS No. Semivolati Polychlori Prepared	B-7 -06 Analyte(s) ile Organic Compounds by GC	<i>Result</i> BRL	01-207	7319.02.30	5	Cement	10	Prepared	:30	14-	Jun-10	
SB13624- CAS No. Semivolati Polychlori Prepared 12674-11-2	B-7 -06 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3550B/C Aroclor-1016		01-207	Vnits	*RDL	Cement	16	Prepared	Analyzed	14-	Jun-10 Batch	
SB13624- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2	B-7 -06 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3550B/C Aroclor-1016	BRL	01-207	Units Vg/kg	*RDL	Cement Dilution	Method Ref. SW846 8082	Prepared	Analyzed	14-	Jun-10 Batch	
SB13624- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2	B-7 -06 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3550B/C Aroclor-1016 Aroclor-1221	BRL BRL	01-207	Units Vg/kg pg/kg	*RDL 254 254	Cement Dilution	Method Ref. SW846 8082	Prepared 14-Jun-10	Analyzed 15-Jun-10	Analyst SM	Jun-10 Batch 1012515	
SB13624- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5	B-7 -06 Analyte(s) ille Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232	BRL BRL BRL	01-207	Units Valve Va	*RDL 254 254 254 254	Cement Dilution 1 1 1	Method Ref. SW846 8082	Prepared 14-Jun-10	Analyzed 15-Jun-10	Analyst SM	Jun-10 Batch 1012515	
SB13624- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9	B-7 -06 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242	BRL BRL BRL BRL	01-207	Units Pg/kg Pg/kg Pg/kg Pg/kg	*RDL 254 254 254 254 254	Cement Dilution 1 1 1 1	Method Ref. SW846 8082	Prepared 14-Jun-10	Analyzed 15-Jun-10	Analyst SM	Jun-10 Batch 1012515	
Field-PC SB13624- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6	B-7 -06 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248	BRL BRL BRL BRL BRL	01-207	Vnits Vg/kg pg/kg pg/kg pg/kg pg/kg pg/kg	*RDL 254 254 254 254 254 254	Cement Dilution 1 1 1 1 1	Method Ref. SW846 8082	Prepared 14-Jun-10	Analyzed 15-Jun-10	Analyst SM	Jun-10 Batch 1012515	
Field-PC: SB13624- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1	B-7 -06 Analyte(s) Ille Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254	BRL BRL BRL BRL BRL BRL	01-207	Vnits Vg/kg pg/kg pg/kg pg/kg pg/kg pg/kg pg/kg	*RDL 254 254 254 254 254 254 254 254	Cement Dilution 1 1 1 1 1 1	Method Ref. SW846 8082	Prepared 14-Jun-10	Analyzed 15-Jun-10	Analyst SM	Jun-10 Batch 1012515	
Field-PC: SB13624- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5	B-7 -06 Analyte(s) ille Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260	BRL BRL BRL BRL BRL BRL	01-207	Vnits Va/kg Va/kg Va/kg Va/kg Va/kg Va/kg Va/kg Va/kg Va/kg	*RDL 254 254 254 254 254 254 254 254 254	Cement Dilution 1 1 1 1 1 1 1 1 1 1	Method Ref. SW846 8082	Prepared 14-Jun-10	Analyzed 15-Jun-10	Analyst SM " " "	Jun-10 Batch 1012515	
Field-PC: SB13624- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4	B-7 -06 Analyte(s) ille Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268	BRL BRL BRL BRL BRL BRL BRL	01-207	Vnits Vg/kg Vg/kg Vg/kg Vg/kg Vg/kg Vg/kg Vg/kg Vg/kg Vg/kg	254 254 254 254 254 254 254 254 254	Cement Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Method Ref. SW846 8082	Prepared 14-Jun-10	Analyzed 15-Jun-10	Analyst SM	Jun-10 Batch 1012515	
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Field-PC: SB13624- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate 1 10386-84-2	B-7 -06 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3550B/C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268 recoveries: 4,4-DB-Octafluorobiphenyl (Sr) 4,4-DB-Octafluorobiphenyl (Sr) [2C]	BRL BRL BRL BRL BRL BRL BRL	01-207	Vnits Vg/kg Vg/kg Vg/kg Vg/kg Vg/kg Vg/kg Vg/kg Vg/kg Vg/kg	254 254 254 254 254 254 254 254 254 254	Cement Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Method Ref. SW846 8082	Prepared 14-Jun-10	Analyzed 15-Jun-10	Analyst SM	Jun-10 Batch 1012515	
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Semivolatile Organic Compounds by GC - Quality Control

nalyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limi
tch 1012515 - SW846 3550B/C		•								
Blank (1012515-BLK1)					Pre	epared & A	nalyzed: 14-	Jun-10		
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						
Arocior-1268	BRL		µg/kg	66.7						
Aroclor-1268 [2C]	BRL		µg/kg	66.7						
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	69.7	•	µg/kg		66.7	4-4	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		
LCS (1012515-BS1)					<u>Pr</u>	epared: 14	-Jun-10 An	alyzed: 15-J	un-1 <u>0</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		
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		
LGS Dup (1012515-BSD1)					<u>Pr</u>	epared: 14	-Jun-10 Ar	ialyzed: 15-J	un-10	
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
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.

<u>Laboratory Control Sample (LCS)</u>: 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.

<u>Matrix Spike</u>: 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.

<u>Surrogate</u>: 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

P5981-8624

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11 Absgren Drive - Agswurt MA 01501 - 413-789-9018 , FAX 443-789-4076 , www.spectrus-unslytical.com

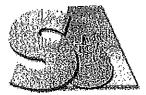
Appendix D

PCB Analytical Reports

Substrate Sampling (Post-Remediation)



Report Date: 19-Jul-10 15:55



SPECTRUM ANALYTICAL, INC. Featuring HANIBAL TECHNOLOGY

Laboratory Report

Project: Grayson/Field Roof - UMASS Amherst, MA

Project #: 01-207319.02.36

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

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

☑ Final Report

☐ Re-Issued Report

☐ Revised Report

Technical Reviewer's Initial:

M

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 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-E

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).

Areclor-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 Identification
Joint -6-B
SB15274-01

Matrix Roof Parapet Cement Collection Date/Time 16-Jul-10 15:00

AS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analysi	Batch	_Ce
emivolati	ile Organic Compounds by GC											
olychlori	inated Biphenyls by SW846 8082											
	by method SW846 3545A								40 1 3 40	445	4045464	
2674-11-2	Aroclor-1016	BRL		µg/kg	97.9	1	SW846 8082	17-Jul-10	19-Jul-10	IMR	1015161	
1104-28-2	Aroctor-1221	BRL		µg/kg	97.9	1	¥f		_	_		
1141-16-5	Aroclor-1232	BRL		μg/kg	97.9	1	H			" "	-	
3459-21-9	Aroclor-1242	BRŁ		µg/kg	97.9	1	ч -	. *				
2672-29-6	Aroclor-1248	BRL		hâ\kā	97.9	1	61		**		a a	
1097-69-1	Aroclor-1254	255,000	E	µg/kg	97.9	1	a	я	n			
1096-82-5	Arodor-1260	44,200	٤	þg/kg	97.9	1	**	*	*	*	•	
7324-23-5	Aroclor-1262	BRL		µg/kg	97.9	1	Ħ	rt .	n		•	
1100-14-4	Arodor-1268	BRL		μg/kg	97.9	1						
Surrogate	recoveries:							_		**		
0386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	102			30-150 %					-		
0385-84-2	4,4-DB-Octafluoroblphenyl (Sr) [2C]	123			30-150 %			_				
051-24-3	Decachlorobiphenyl (Sr)	140			30-150 %		×,				4	
051-24-3	Decachlorobiphenyl (Sr) [2C]	125			30-150 %		*	*		*	-	
Re-analy:	sis of Polychlorinated Biphenyls b by method SW846 3545A	y SW846 808	<u>2</u>									
2874-11-2		BRL		µg/kg	4890	50	SW846 8082	17-Jul-10	19-Jul-10	IMR	1015161	ĺ
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1096-82-5		41,200		μg/kg	4890	60	*	я	#	н	tr	
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	Arodor-1268	BRL.		µg/kg	4890	50	u	*	В	×	17	_
	recoveries:											
しいかへんつきつ	1ecovenes. 9 4,4-DB-Octafluoroblphenyl (Sr)	125	,		30-150 %		"	ıt	*	•	•	
•					30-150 %		п	ti .	71	•	9	
*	4,4-DB-Octafluorobiphenyl (St)	100										
10386-84-2		100 125			30-150 %		н	,	я			

Sample Identification
Joint -12-B
SB15274-02

<u>Matrix</u> Roof Parapet Cement Collection Date/Time 16-Jul-10 15:00

AS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	
emivolati	ile Organic Compounds by GC											
	inated Biphenyls by SW846 8082											
repared	by method SW846 3545A								40 1:140	1140	1015161	
2674-11-2	Arador-1016	BRL		µg/kg	90.3	1	SW846 8082	17-Jui-10	19-Jul-10	IMR	1010101	
1104-28-2	Arodor-1221	BRL		hâţķā	90.3	1	-					
1141-16-5	Arodor-1232	BRL		µg/k g	90.3	1	2		_			
3459-21-9	Aroclor-1242	BRL		hâykâ	90,3	1	-	•		,		
2672-29-6	Aroclor-1248	BRL		μg/kg	90.3	1	17	-	•	••	7	
1097-69-1	Arodor-1254	274,000	E	µg/kg	90.3	1	42	•	P			
1096-82-5	Aroclor-1260	43,000	E	hā/kā	90.3	1	-		~ .	*		
7324-23-5	Arodor-1262	BRL		μg/kg	90.3	1	ч	я	ч	*		
1100-14-4	Arodor-1268	BRL		hâlyā	90.3	1	<u> </u>		-		IF	
urrogate	recoveries:			•							n	
0386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	118			30-150 %		4	13				
0386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	106			30-150 %		_	. ,		,,	24	
051-24-3	Decachlorobiphenyl (Sr)	126			30-150 %		72		_	45	e e	
051-24-3	Decachlorobiphenyl (Sr) [2C]	99			30-150 %		•	ű	-	•	_	
Re-analy Prepared	sis of Polychlorinated Biphenyls b I by method SW846 3545A	y SW846 808	<u>2</u>									
2674-11-2		BRL		µg/kg	4520	50	SW846 8082	17-Jul-10	19-Jul-10	IMR	1015161	l
1104-28-2	Aroctor-1221	BRL		hã/kã	4520	50	el	Na.	п	×	-	
1141-16-5	Arodor-1232	BRL		µg/kg	4520	50	-	**	×	-	,,	
3469-21-9		BRL		hã/kã	4520	50	**	12		н	*	
2672-29-6		BRL		µg/kg	4520	50	ų	n	pt	**	п	
		312,000		μg/kg	4520	50	ęź		н	15		
1097-69-1				µg/kg	4520	50	¥	*	u	15	ы	
	Aroctor-1260	49,000					n	11		#1	**	
1096-82-5		49,000 BRL		µg/kg	4520	50						
1096-82-5 7324-23-5	Arodor-1262			ին\¢ն	4520 4520	50 50	**	ш	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	"		
1096-82-5 7324-23-5 1100-14-4	Arodor-1262 Arodor-1268	BRL					44	ш	27			
1096-82-5 37324-23-5 11100-14-4 Surrogale	Arodor-1262 Arodor-1268 recoveries:	BRL					н	u ta	N9	tt	n	
11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate 10386-84-2	Arodor-1262 Aroctor-1268 recoveries: 2 4,4-DB-Octafluorobiphenyl (Sr) 2 4,4-DB-Octafluorobiphenyl (Sr)	BRL BRL			4520			12 24 19	19 13 22	ti It		
1096-82-5 17324-23-5 11100-14-4 Surrogate 10386-84-2	Arodor-1262 i Aroctor-1268 recoveries: 2 4,4-D8-Octafluorobiphenyl (Sr) 2 4,4-DB-Octafluorobiphenyl (Sr) [2C]	BRL BRL 125			4520 30-150 %		ж	s. D	19 18 22	ite.	n	

Joint -36-	Sample Identification Joint -36-B SB15274-03			Project # 7319.02.36	Roc	<u>Matrix</u> of Parapet (= -	ection Date 6-Jul-10 15		Received 16-Jul-10		
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolati	le Organic Compounds by GC											
Polychlori	nated Biphenyls by SW846 8082 by method SW846 3545A											
12674-11-2		BRL		µg/kg	87.6	1	SW846 8082	17-Jul-10	19-Jul-10	IMR	1015161	
11104-28-2	Aroclor-1221	BRI.		µg/kg	87.6	1	ч	u		п	4	
	Aroclor-1232	BRL		μg/kg	87.6	1	u	Ш	д	d	rt.	
11141-16-5		BRL		μg/kg	87.6	1	ts.	4	te	**	es	
53469-21-9	Arodor-1242			µg/kg	87.6	1		Ħ	*	N	u	
12672-29-6	Aroctor-1248	BRL			87.6	1	**	n	æ	#	eq	
11097-69-1	Arodor-1254	8,530		hāykā			**	*	23		**	
11096-82-5	Aroclor-1260	2,070		µg/kg	87.6	1		**	4		п	
37324-23-5	Arodor-1262	BRL		þg/kg	87.6	1	ਜ				_	
11100-14-4	Arodor-1268	BRL		µg/kg	87.6	11						
Surrogale .	eroveries:						•	4	и	,		
10386-84-2	4,4-DB-Oclafluorobiphenyl (Sr)	121			30-150 %			•	4	79		
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	117			30-150 %		*					
2051-24-3	Decachlorobiphenyl (Sr)	114			30-150 %		н	ıı	n	"	u.	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	122			30-150 %		न	a a	н	41	•	

Sample Ide Joint -93 SB15274-				Client Project # Matrix 1-207319.02.36 Roof Parapet Cement				ction Date/ 5-Jul-10 15:			ccived Jul-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatil	le Organic Compounds by GC											
Polychlorin	nated Biphenyls by SW846 8082 by method SW846 3545A											
	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	н	**	*	•	ŧĸ	
11141-16-5	Aroclor-1232	BRL		µg/kg	83.1	1	rt.	9	#	*1	-	
53469-21-9	Aroclor-1242	BRL		µg/kg	83.1	1	**	**	R	u	**	
12672-29-6	Aroclor-1248	BRL		µg/kg	83.1	1	•	yt	61			
11097-69-1	Aroclor-1254	716,000	E	hū/kā	83.1	1	•	-	*	п	**	
11096-82-5	Aroclor-1260	174,000	E	µg/kg	83.1	1	v	*	ø	•	**	
37324-23-5	Arodor-1262	BRL		μg/kg	83.1	1	Ħ	vt.	77	a	**	
11100-14-4	Aroclor-1268	BRL		µg/kg	83.1	. 1	H	pt.	- H	я	h	
Surrogate i					-			-			•	
10386-84-2	4,4-DB-Octafluoroblphenyl (Sr)	110			30-150 %		,,	**	a	72	*	
	4,4-DB-Oclafluorobiphenyl (Sr) [2C]	106			30-150 %		и	*	хі	•	7	
2051-24-3	Decachlorobiphenyl (Sr)	170	S04		30-150 %		×		7		•	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	94			30-150 %		TT .	ĸ	*		71	
Re-analys	sis of Polychlorinated Biphenyls b by method SW846 3545A	y SW846 8082										
12674-11-2	Aroctor-1016	BRL		µg/kg	16600	200	SW846 8082	17-Jul-10	19-Jul-10	IMR	101516	1
11104-28-2	Aroclor-1221	BRL		µg/kg	16600	200	**		ч	В	*	
11141-16-5	Aroclor-1232	BRL		μg/kg	16600	200	12		ti	•	-	
53469-21-9	Aroclor-1242	BRL		µg/kg	16600	200	ь	16	u	te	*	
12672-29-6	Aroclor-1248	BRL		μg/kg	16600	200	*	ri	я	×	nt	
11097-69-1	Aroclor-1254	1,110,000		µg/kg	16600	200	4	*1	•		н	
11096-82-5	Aroclor-1260	221,000		μg/kg	16600	200	RE .	xi		15	n	
37324-23-5		BRL		μg/kg	16600	200	4		*	ú	Ħ	
11100-14-4		BRL		µg/kg	16600	200	a a	7	n	•	•	
							<u> </u>					
	recoveries: 4,4-DB-Octafluorobiphenyl (Sr)	0	S01		30-150 %			н		*	и	
10386-84-2 10386-84-2	4,4-DB-Oclafluorobiphenyl (Sr)	o	S01		30-150 %		ur.	n	#	я	k	
0054.04.5	[2C]	o	S01		30-150 %		n	*	ø	10	*	
2051-24-3	Decachlorobiphenyl (Sr)				20 150 0/		a	R		-	9	

30-150 %

0

Decachlorobiphenyl (Sr) [2C]

2051-24-3

S01

Sample Identification Joint -94 SB15274-05 CAS No. Analyte(s) Result				Roo	<u>Matrix</u> of Parapet C		Collection Date/Time 16-Jul-10 15:00			Received 16-Jul-10		
Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.	
Organic Compounds by GC ated Biphenyls by SW846 8082		GS1										
	RRI		uo/ka	961	10	SW846 8082	17-Jul-10	19-Jul-10	IMR	1015161		
	-			961	10	n	#	pt	11	**		
• • • • •				961	10	•	*	н	d	77		
			•	981	10		#	M	89	H		
						н	н	-	=			
Aroclor-1248						#	**	ø	p#	**		
Arador-1254						PF .	₩	16	sk			
Aroclor-1260	18,300						н		P			
Arodor-1262	BRL		µg/kg				**	ь	11	**		
Aroclor-1268	BRL		ha\ka	961	10							
coveries:						7	34	я	R	n		
4,4-DB-Octafluorobiphenyl (Sr)	130								a	¥		
4,4-DB-Octafluorobiphenyl (Sr)	120			30-150 %		•	_					
[2C] Decachloroblphenyl (Sr)	110			30-15 0 %		и	-	-	"	**		
	Analyte(s) Organic Compounds by GC ated Biphenyls by SW846 8082 Thethod SW846 3545A Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1260 Aroclor-1268 coveries: 4,4-DB-Octafluorobiphenyl (Sr) 4,4-DB-Octafluorobiphenyl (Sr)	Analyte(s) Result Organic Compounds by GC Ided Biphenyls by SW846 8082 I method SW846 3545A Aroclor-1016 BRL Aroclor-1221 BRL Aroclor-1222 BRL Aroclor-1242 BRL Aroclor-1248 BRL Aroclor-1254 56,100 Aroclor-1260 18,300 Aroclor-1260 BRL Aroclor-1262 BRL Aroclor-1268 BRL Aroclor-1268 BRL Aroclor-1268 BRL Aroclor-1269 BRL	O1-207 Analyte(s) Result Flag Organic Compounds by GC Aled Biphenyls by SW846 8082 Timethod SW846 3545A Aroclor-1016 BRL Aroclor-1221 BRL Aroclor-1232 BRL Aroclor-1242 BRL Aroclor-1248 BRL Aroclor-1254 56,100 Aroclor-1254 56,100 Aroclor-1260 18,300 Aroclor-1262 BRL Aroclor-1268 BRL Aroclor-1268 BRL Aroclor-1268 BRL Aroclor-1268 BRL Aroclor-1268 BRL Aroclor-1268 BRL Aroclor-1269 BRL	Analyte(s) Result Flag Units Organic Compounds by GC Ided Biphenyls by SW846 8082 I method SW846 3545A Aroclor-1016 BRL µg/kg Aroclor-1221 BRL µg/kg Aroclor-1222 BRL µg/kg Aroclor-1242 BRL µg/kg Aroclor-1242 BRL µg/kg Aroclor-1244 BRL µg/kg Aroclor-1254 56,100 µg/kg Aroclor-1260 18,300 µg/kg Aroclor-1260 BRL µg/kg Aroclor-1262 BRL µg/kg Aroclor-1263 BRL µg/kg Aroclor-1264 56,100 µg/kg Aroclor-1265 BRL µg/kg Aroclor-1260 18,300 µg/kg Aroclor-1260 18,300 µg/kg Aroclor-1261 BRL µg/kg Aroclor-1262 BRL µg/kg Aroclor-1263 BRL µg/kg Aroclor-1264 BRL µg/kg Aroclor-1265 BRL µg/kg Aroclor-1266 BRL µg/kg Aroclor-1267 BRL µg/kg Aroclor-1268 BRL µg/kg Aroclor-1268 BRL µg/kg	Analyte(s) Result Flag Units *RDL Organic Compounds by GC Med Biphenyls by SW846 8082 I method SW846 3545A Aroclor-1016 BRL µg/kg 961 Aroclor-1221 BRL µg/kg 961 Aroclor-1232 BRL µg/kg 961 Aroclor-1242 BRL µg/kg 961 Aroclor-1248 BRL µg/kg 961 Aroclor-1254 56,100 µg/kg 961 Aroclor-1260 18,300 µg/kg 961 Aroclor-1262 BRL µg/kg 961 Aroclor-1268 BRL µg/kg 961 Aroclor-1268 BRL µg/kg 961 Aroclor-1268 BRL µg/kg 961 Aroclor-1269 BRL µg/kg 961 Aroclor-1260 18,300 µg/kg 961 Aroclor-1260 18,300 µg/kg 961 Aroclor-1260 18,300 µg/kg 961 Aroclor-1260 BRL µg/kg 961	O1-207319.02.36 Roof Parapet C Analyte(s) Result Flag Units *RDL Dilution Organic Compounds by GC Aled Biphenyls by SW846 8082 Timethod SW846 3545A Aroclor-1016 BRL µg/kg 961 10 Aroclor-1221 BRL µg/kg 961 10 Aroclor-1232 BRL µg/kg 961 10 Aroclor-1242 BRL µg/kg 961 10 Aroclor-1242 BRL µg/kg 961 10 Aroclor-1248 BRL µg/kg 961 10 Aroclor-1254 56,100 µg/kg 961 10 Aroclor-1260 18,300 µg/kg 961 10 Aroclor-1260 BRL µg/kg 961 10	Organic Compounds by GC Ited Biphenyls by SW846 8082 I method SW846 3545A Aroclor-1016 BRL Aroclor-1221 BRL Aroclor-1224 BRL Aroclor-1242 BRL Aroclor-1248 BRL Aroclor-1254 Aroclor-1254 Aroclor-1254 Aroclor-1260 BRL Aroclor-1260 BRL Aroclor-1260 BRL Aroclor-1262 BRL Aroclor-1268 BRL Aroclor-1268 BRL Aroclor-1268 BRL Aroclor-1268 BRL Aroclor-1268 BRL Aroclor-1268 BRL Aroclor-1269 BRL Aroclor-1269 BRL Aroclor-1269 BRL Aroclor-1269 BRL Aroclor-1269 BRL Aroclor-1268 BRL Aroclor-1269 BRL Aroclor-1269 BRL Aroclor-1269 BRL Aroclor-1269 BRL Aroclor-1269 BRL Aroclor-1269 BRL Aroclor-1268 BRL Aroclor-1268 BRL Aroclor-1268 BRL Aroclor-1268 BRL Aroclor-1268 BRL Aroclor-1269 BRL Aroclor-1260 BRL Aroclor-1	O1-207319.02.36 Roof Parapet Cement 16-Jul-10 15: O1-207319.02.36 Roof Parapet Cement 16-Jul-10 15: O1-207319.02.36 R	O1-207319.02.36 Roof Parapet Cement 16-Jul-10 15:00 Analyte(s) Result Flag Units *RDL Dilution Method Ref. Prepared Analyzed Organic Compounds by GC Med Biphenyls by SW846 8082 Aroclor-1016 BRL µg/kg 961 10 SW846 8082 17-Jul-10 19-Jul-10 Aroclor-1221 BRL µg/kg 961 10 " " " " " " " " " " " " " " " " " "	O1-207319.02.36 Roof Parapet Cement 16-Jul-10 15:00 16- Analyte(s) Result Flag Units *RDL Dilutton Method Ref. Prepared Analyzed Analyst Organic Compounds by GC Aled Biphenyls by SW846 8082 Cest Aroctor-1016 BRL Pg/kg 961 10 SV886 8082 17-Jul-10 19-Jul-10 IMR Aroctor-1221 BRL Pg/kg 961 10 " " " " " " " " " " " " " " " " " "	O1-207319.02.36 Roof Parapet Cement 16-Jul-10 15:00 16-Jul-10 16-Jul	

30-150 %

105

2051-24-3 Decachlorobiphenyl (Sr) [2C]

Semivolatile Organic Compounds by GC - Quality Control

alyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
tch 1015161 - SW846 3545A									**	
Blank (1016161-BLK1)					Pre	epa <u>red:</u> 17-J	ul-10 Ana	lyzed: 19-Jul-	10	
Aroclor-1016	BRL		h8/kg	20.0						
Aroclor-1016 (2C)	BRL		իმ∖¢ն	20.0						
Arodor-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						
Arodor-1242	BRL	•	µg/kg	20.0						
Arodor-1242 [2C]	BRL		µg/kg	20.0						
Aroclor-1248	BRL		µg/kg	20.0						
Aroctor-1248 [2C]	BRL		µg/kg	20.0						
Aroclor-1254	BRL		μg/kg	20.0						
Aroclor-1254 (2C)	BRL		ug/kg	20.0						
Arodor-1260	BRL		µg/k g	20.0						
• • • • • • • • • • • • • • • • • • • •	BRL		μg/kg	20.0						
Arodor-1260 [2C]	BRL		µg/kg	20.0						
Aroclor-1262	BRL		µg/кд	20.0						
Aroclor-1262 (2C)	BRL		μg/kg	20.0						
Arodor-1268 Arodor-1268 [2C]	BRL		µg/kg	20.0						
			μg/kg		20.0		96	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	19.2				20.0		96	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	19.2		µg/kg		20.0		101	30-150		
Surrogate; Decachlorobiphenyl (Sr)	20.1		µg/k g		20.0		88	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	17.6		h8/k8			47		alyzed; 19-Jul	L10	
LCS (1015161-BS1)						repared: 17-		50-140	310	
Arodor-1016	226		µg/kg	20.0	250		91			
Aredor-1016 [2C]	202		µg/kg	20.0	250		81	50-140		
Arodor-1260	214		µg/kg	20.0	250		85	50-140		
Arodor-1260 [2C]	198		h8/k8	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		
LCS Dup (1015161-BSD1)					<u> </u>	repared: 17-	-Jul-10 An	aiyzed: 19-Ju	1-1 <u>0</u>	
Arodor-1016	225		µg/kg	20.0	250		90	50-140	0.5	30
Araclor-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
	20.6		μg/kg		20.0		103	30-150		
Surrogate: 4,4-DB-Octaffuorobiphenyl (Sr)	21.0		µg/kg		20.0		105	30-150		
Surrogale: 4,4-DB-Octaffuoroblphenyl (Sr) [2C]			µg/kg		20.0		119	30-150		
Surrogate: Decachlorobiphenyl (Sr)	23.7		havea		20.0		99	30-150		
Surrogate: Decachloroblphenyl (Sr) [2C]	19.8			D48974 AC		Proporad: 17		alyzed: 19-Ju	K-10	
<u>Duplicate</u> (1015161-DUP1)				B15274-05	1	BRL	- <u>50) 10 14</u>	<u>,</u>		40
Aroclor-1016	BRL		pg/kg	859		BRL				40
Aroclor-1221	BRI.		h8\ka	859						41
Arodor-1232	BRL		µg/kg	859		BRL				40
Aroclor-1242	BRL		hâ\yâ	859		BRL				4
Arodor-1248	BRI.		µg/kg	859		BRI.			47	4
Arodor-1254 [2C]	47300		μg/kg	859		56100			17	
Aroclor-1260 [2C]	14000		µg/kg	859		18300			27	4
Aroclor-1262	BRL		μ g/kg	859		BRL				4
Aroclor-1268	BRI.		μg/kg	859		BRL				40

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: SE	3 <u>15274-05</u>	Po	pared; 17-	Jul-10 Ana	ılγzed; 19-Ju	<u>1-10</u>	,
Surrogate: 4,4-DB-Octafluoroblphenyl (Sr)	125		μg/kg		85.9		145	30-150		
Surrogate: 4,4-D8-Octafluorobiphenyl (Sr) [2C]	116		μg/kg		85.9		135	30-150		
Surrogate: Decachloroblphenyl (Sr)	125		µg/kg		85.9		145	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	98.8		µg/kg		85.9		115	30-150		

Notes and Definitions

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

GS1 Sample dilution required for high concentration of target analytes to be within the instrument calibration range.

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

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.

<u>Laboratory Control Sample (LCS)</u>: 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.

<u>Surrogate</u>: 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

Lahor	atory Name: Spe	ectrum Analytical, Inc.		Project #: 01-207	319.02.36	
		son/Field Roof - UMA	SS Amherst, MA	RTN:		
		tifications for the follo		B15274-01 through SB15	274-05	
	ces: Roof Parap					
	Protocol					
82	60 VOC AM 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
	70 SVOC AM 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
	10 Metals AM 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 response	s to questions A through)	are required for "Presu	mptive Certainty" status	
A	Were all samples preserved (includings?	received in a condition	n consistent with those des effeld or laboratory, and pr	cribed on the Chain of Cu	stody, properly	Yes ✓ No
В	Were the analyti protocol(s) follo		ssociated QC requirements	specified in the selected	CAM	✓ Yes No
С	Were all require	d coπective actions and emented for all identifie	analytical response action d performance standard no	s specified in the selected on-conformances?	CAM	✓ Yes No
D	Does the laborat	ory report comply with Quality Control Guidelin	all the reporting requirements	ents specified in CAM VI Reporting of Analytical l	A, "Quality Data"?	✓ Yes No
E	a VPH EPH ar	nd APH Methods only:	Was each method conducti the complete analyte list re	ed without significant mo		Yes No Yes No
F	Were all applica	ble CAM protocol OC	and performance standard uding all "No" responses to	non-conformances identif	ied and	✓ Yes No
			estions G, H and I below a			
G	Were the report		I CAM reporting limits spe			Yes ✓ No
Data :	User Note: Data th		Certainty" status may not ne			
Н			ecified in the CAM protoco	ol(s) achieved?		Yes ✓ No
I	Were results rep	orted for the complete	analyte list specified in the	selected CAM protocol(s)?	✓ Yes No
			rrative on the cover page of th			
I, the Infort	undersigned, alles nation, the materia	t under the pains and pen d contained in this analyt	alties of perjury that, based to ical report is, to the best of m	opon my personal inquiry of y knowledge and belief, acc	those responsible for obtain urate and complete.	ing the
					6N4	2
					Hanibal C. Tayeh, I President/Laborator	

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Date: Time: Temp'C C FOID Format	Rejinguishertay: Bereived by:
\$\times \times \	- of Joint-94 7/16/10 3:00
O X	CF - DOINT-93 V. 3:00
\$\times \times \	36
G X-	- Janut - 12 - 13
G X	54
# of	Lab id: Sample id: Date: Time:
ix VOA Amb Clean Plass	G~Grab C~Composite
Gla Gla Ge B	6.5
doss es	Х3-
Contisiners: Alialyses: Al Provide MA DEP MCP CAM Repair Diracide CT DPH RCP Repair	DW=Drinking Water GW=Groundwater WW=Wastewater
	And the second s
6=Accorbin Avid 7=C11,OH List preservative code below: QA/QC Reparing Notes:	଼ା
.: RON: 6777 Sampler(s): //2 GAO187	Project Mar. Mr. 42 Const.
Location: UMuss, Ambous t State: 92.5	(())
Site Name: Treld (GREYSON) ROOF	The state of the s
ECS ASQUIRA Project No.: Ol-3	Report To: Ses, Agastette Invoice To:
Page of Samples disposed of after 60 days unless where ise instructed.	NECTRI MANAMERICAL PCC. NECTRI MANAMERICAL PCC.
CHAIN OF CUSTODY RECORD RESULT Date Needed: 7/19/10	CHAIN
Special Handling:	

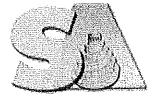
Appendix E

PCB Analytical Reports

Substrate Sampling (Post-Additional Cleaning)



Report Date: 05-Aug-10 14:38



SPECTRUM ANALYTICAL, INC. Featuring HANIBAL TECHNOLOGY Laboratory Report

Environmental Compliance Services

588 Silver Street Agawam, MA 01001

Attn: Mike Grover

Project: Grayson/Field Roof - UMASS Amherst, MA

☐ Final Report

□ Re-Issued Report

Project #: 207319.02.36

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

Matrix Roof Parapet Cement Collection Date/Time 26-Jul-10 10:30

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	_Ce
Semivolatil	e Organic Compounds by GC											
	nated Biphenyls by SW846 8082 by method SW846 3550B/C											
12674-11-2	Aroclor-1016	BRL		μg/kg	61.6	1	SW846 8082	26-Jul-10	27-Jul-10	IMR	1015754	
1104-28-2	Aroclor-1221	BRL		μg/kg	61.6	1	ąt	τl	ri	н	Ħ	
11141-16-5	Aroclor-1232	BRL		μg/kg	61.6	1	**	47	п	"	*	
3469-21-9	Aroclor-1242	BRL		μg/kg	61.6	1	п	P	R	n	и	
2672-29-6	Aroclor-1248	BRL		μg/kg	61.6	1	Ħ	н	Ħ	Ħ	R	
1097-69-1	Aroclor-1254	5,340		μg/kg	61.6	1	17	п	77	п	"	
1096-82-5	Aroclor-1260	BRL		μg/kg	61.6	1	n	H	Ħ	ij	Ħ	
7324-23-5	Aroclor-1262	BRL.		μg/kg	61.6	1	w	u	77	77	P2	
1100-14-4	Aroclor-1268	BRL		µg/kg	61.6	1		**	*	*	ы 	
Surrogate r	ecoveries:									**	-	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	110			30-150 %		π	**	M			
0386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	90			30-150 %		•	**	•	ĸ		
1051-24-3	Decachlorobiphenyl (Sr)	120			30-150 %		н	Ħ	n	Ħ		
051-24-3	Decachlorobiphenyl (Sr) [2C]	77			30-150 %		#	Ħ	e	44	#	
	is of Polychlorinated Biphenyls b by method SW846 3540C	y SW846 8082	2									
12674-11-2	Aroclor-1016	BRL		μg/kg	66.5	1	SW846 8082	26-Jul-10	03-Aug-10	IMR	1016372	3
1104-28-2	Aroclor-1221	BRL		μg/kg	66.5	1	н	4	и	*	ĸ	
1141-16-5	Aroclor-1232	BRL		h8/kg	66.5	1	ps.	D	Ħ	н	6	
3469-21-9	Aroclor-1242	BRL		µg/kg	66.5	1	Ħ	**	,	n	Ħ	
2672-29-6	Aroclor-1248	BRL		μg/kg	66.5	1	n	n	315	и	н	
11097-69-1	Aroctor-1254	3,890		µg/kg	66.5	1	#	47	04-Aug-10		Ç4	
11096-82-5	Aroclor-1260	BRL		μg/kg	66.5	1	H	*	03-Aug-10	*	н	
37324-23-5	Aroclor-1262	BRL		μg/kg	66.5	1	N	Ħ	*	н	н	
11100-14-4	Arocler-1268	BRL		μg/kg	66.5	1	¥	•	π	n		
Surrogate	recoveries:											
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	91			30-150 %		n	п	04-Aug-10		н	
	1, 22 001011001111,011,011,011	87			30-150 %		nt.	Ħ	स	R	Ħ	
10386-84-2	[2C]											
10386-84-2 2051-24-3	[2C] Decachlorobiphenyl (Sr)	98			30-150 %		20	"	и	12	×	

<u>Matrix</u> Roof Parapet Cement Collection Date/Time 26-Jul-10 10:30

AS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Ce
emivolati	le Organic Compounds by GC											
olychlorii repared l	nated Biphenyls by SW846 8082 by method SW846 3550B/C											
	Aroclor-1016	BRL.		μg/kg	57.6	1	SW846 8082	26-Jul-10	27-Jul-10	IMR	1015754	
1104-28-2	Aroclor-1221	BRL		µg/kg	57.6	1	15	п	н	**	38	
1141-16-5	Aroclor-1232	BRL		µg/kg	57.6	1	**	п	54	**	*	
3469-21-9	Aroctor-1242	BRL		µ ց/kg	57.6	1	u	#	π	н	*	
2672-29-6	Aroclor-1248	BRL		µg/kg	57.6	1	•	**	Ħ	P	n	
1097-69-1	Aroclor-1254	BRL		μg/kg	57.6	1	38	19	п		4	
1096-82-5	Aroclor-1260	BRL.		μg/kg	57.6	1	я.	Ħ	Ħ	п	я	
7324-23-5	Aroclor-1262	BRL		µg/kg	57.6	1	•	11	**	"		
1100-14-4	Aroclor-1268	BRL.		µg/kg	57.6	1	n .	N	4	n	*	
urrogate r	recoveries:	ar area										
0386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	123			30-150 %		-	H	ĸ	Ħ	н	
0386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	116			30-150 %		*1	n	•	*	п	
051-24-3	Decachlorobiphenyl (Sr)	134			30-150 %		Ħ	**		Ħ	**	
051-24-3	Decachlorobiphenyl (Sr) [2C]	84			30-150 %		Ħ	п	Я	el	н	
	sis of Polychlorinated Biphenyls b by method SW846 3540C	y SW846 808	2									
2674-11-2	Aroclor-1016	BRL.		µg/kg	65.6	1	SW846 8082	26-Jul-10	03-Aug-10	IMR	1016372	2
1104-28-2	Aroclor-1221	BRI.		μg/kg	65.6	1	п	31	*	**	*	
1141-16-5	Aroclor-1232	BRI.		μg/kg	65,6	1	PÉ	29	ĸ	**	Ħ	
3469-21-9	Aroclor-1242	BRL		μg/kg	65.6	1	42	n	н	*	я	
2672-29-6	Aroclor-1248	BRL		µg/kg	65.6	1	н	**	*	н	71	
1097-69-1	Aroclor-1254	BRL		µg/kg	65.6	1	u	\$ \$	**	n	*	
1096-82-5	Aroclor-1260	BRL.		μg/kg	65.6	1	п	н	н	**	**	
7324-23-5	Aroclor-1262	BRL		µg/kg	65.6	1	47	н	#	Ħ	Ħ	
1100-14-4	Aroclor-1268	BRL		µg/kg	65.6	1	4	**)¢	*	11	
Surrogate	recoveries:						-					
0386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	98			30-150 %		н	•1	vr	н	**	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	85			30-150 %		Ħ	¥f	Ħ	H	11	
	Decachlorobiphenyl (Sr)	104			30-150 %		**	•	H	**	11	
2051-24-3	Decachiorouphenyi (Gi)											

Matrix Roof Parapet Cement Collection Date/Time 26-Jul-10 10:30

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cei
Semivolati	le Organic Compounds by GC											
olychlorit	nated Biphenyls by SW846 8082		•									
repared	by method SW846 3550B/C									44.00	4046754	
2674-11-2	Aroclor-1016	BRL		µg/kg	65.6	1	SW846 8082	26-Jul-10 "	2/-Jul-10	IMR "	1015754	
1104-28-2	Aroclor-1221	BRL		µg/kg	65.6	1	n	•	 N	 H		
1141-16-5	Aroclor-1232	BRL		hãykã	65.6	1	н	14		н		
3469-21-9	Aroclor-1242	BRL		hā\kā	65.6	1	**	*	**		*	
2672-29-6	Aroclor-1248	BRL		µg/kg	65.6	1	Ħ	H	H	41		
1097-69-1	Aroclor-1254	745		µg/kg	65.6	1	п	**	n		,	
1096-82-5	Aroclor-1260	BRL		μg/kg	65.6	1	ਜ	**	19	H		
37324-23-5	Aroclor-1262	BRL		µg/kg	65.6	1	41	п	**	Ħ	**	
11100-14-4	Aroclor-1268	BRL		µg/kg	65.6	1		**	H	"	**	
Surrogate i	recoveries:						и					
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	113			30-150 %	•		_				
0386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	122			.30-150 %		н				 H	
2051-24-3	Decachlorobiphenyl (Sr)	112			30-150 %		п	**		** **		
2051-24-3	Decachlorobiphenyl (Sr) [2C]	89			30-150 %		#	ŧı	н	•	•	
	sis of Polychlorinated Biphenyls b by method SW846 3540C	y SW846 8082	•									
12674-11-2	Aroclor-1016	BRL		μg/kg	64.1	1	SW846 8082	26-Jul-10	03-Aug-10	IMR	1016372	2
11104-28-2	Aroctor-1221	BRL		µg/kg	64.1	1	N	41	म	r	w	
11141-16-5	Aroclor-1232	BRL		μg/kg	64.1	1	•	**	tz	61	н	
53469-21-9	Aroclor-1242	BRL		µg/kg	64.1	1	**	n	n	21	•	
12672-29-6	Aroclor-1248	BRL		μg/kg	64.1	1	n	**	58	**	*	
12012-200	4t 4054	499		μg/kg	64.1	1	n	**	н	**	92	
	Arocior-1254					1	*	H	н	n	я	
11097-69-1		BRL		μg/kg	64.1	•						
11097-69-1 11096-82-5	Aroclor-1260			ha/ka ha/ka	64.1 64.1	1		**	**		,,	
11097-69-1 11096-82-5 37324-23-5	Aroclor-1260 Aroclor-1262	BRL					11	6	H	er Pa	n	
11097-69-1 11096-82-5 37324-23-5 11100-14-4	Aroclor-1260 Aroclor-1262	BRL BRL		µg/kg	64.1	1	M M	6		R	н	
11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate	Aroclor-1260 Aroclor-1262 Aroclor-1268 recoveries:	BRL BRL		µg/kg	64.1	1	e e	11	ħ	ri It		
11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate	Aroclor-1260 Aroclor-1262 Aroclor-1268 recoveries: 4,4-DB-Octafluorobiphenyl (Sr) 4,4-DB-Octafluorobiphenyl (Sr)	BRL BRL		µg/kg	64.1 64.1	1		n 6		ri tt	н	
11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate 10386-84-2	Aroclor-1260 Aroclor-1262 Aroclor-1268 recoveries: 4,4-DB-Octafluorobiphenyl (Sr)	BRL BRL BRL		µg/kg	64.1 64.1 30-150 %	1		n n	ħ	ri It	н	

Sample Identification Joint-12-3" SB15728-04

Client Project # 207319.02.36

Matrix Roof Parapet Cement Collection Date/Time 26-Jul-10 10:30

AS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Ce
emivolati	le Organic Compounds by GC											
_	nated Biphenyls by SW846 8082											
	by method SW846 3550B/C			_		_		00 1 1 40	07 1-140		4045754	
	Aroclor-1016	BRL		µg/kg	63.0	1	SW846 8082	26-Jul-10	27-Jul-10	IMR	1015754	
1104-28-2	Aroclor-1221	BRL		µg/kg	63.0	1	, H	_	,,			
141-16-5	Aroclor-1232	BRL		µg/kg	63.0	1			,, B			
3469-21-9	Aroclor-1242	BRL		hā\kā	63.0	1	н				_	
2672-29-6	Aroclor-1248	BRL		μg/kg	63.0	1		и	,	•		
1097-69-1	Aroclor-1254	BRL		µg/kg	63.0	1	я	**	**	"	•	
1096-82-5	Aroclor-1260	BRL		μg/kg	63.0	1	n	"	**	**	*	
7324-23-5	Aroclor-1262	BRL		µg/kg	63.0	1	н	#	*	41	*	
1100-14-4	Aroclor-1268	BRL		μg/kg	63.0	1	п	er	rt .		Ħ	
urrogate r	recoveries:											
0386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	96			30-150 %		#	Ħ		ri	н	
0386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	83			30-150 %		ĸ	**	п	**	•	
051-24-3	Decachlorobiphenyl (Sr)	90			30-150 %		es .	**	,,,	**	22	
051-24-3	Decachlorobiphenyl (Sr) [2C]	67			30-150 %		11	11	н		н	
	sis of Polychlorinated Biphenyls b by method SW846 3540C	y SW846 8082	<u>≥</u>									
2674-11-2	Aroclor-1016	BRL		μg/kg	64.5	1	SW846 8082	26-Jul-10	03-Aug-10	IMR	1016372	!
1104-28-2	Aroclor-1221	BRL		μg/kg	64.5	1	n	и		*	n	
1141-16-5	Aroclor-1232	BRL		μg/kg	64.5	1	Ħ	H	и	ж	н	
3469-21-9	Aroclor-1242	BRL		µg/kg	64.5	1	•	**	и	**	н	
2672-29-6	Aroclor-1248	BRL.		μg/kg	64.5	1	w	n	**	žŦ.	Я	
1097-69-1	Aroclor-1254	BRL		μg/kg	64.5	1	n	**	77	н	•	
1096-82-5	Aroclor-1260	BRL		μg/kg	64.5	1	**	n	17	н	**	
7324-23-5		BRL.		μg/kg	64.5	1	*	п	#	n	n	
1100-14-4		· BRL		μg/kg	64.5	1	ø	н	ж	*	π	
urrogate	recoveries:					•						
0386-84-2		91			30-150 %		e	75	n	*	н	
	4,4-DB-Oclafluorobiphenyl (Sr)	92			30-150 %		11	н	н	•	л	
0386-84-2	[2C]											
0386-84-2 051-24-3	[2C] Decachlorobiphenyl (Sr)	90	•		30-150 %		rt	"	n.	"		

Matrix Roof Parapet Cement Collection Date/Time 26-Jul-10 10:30

AS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	
emivolatil	le Organic Compounds by GC											
	nated Biphenyls by SW846 8082											
	by method SW846 3550B/C	an.			61.2	1	SW846 8082	26-Jul-10	27-Jul-10	IMR	1015754	
	Arocler-1016	BRL		µg/kg ····**-		1	*	n .	и	++	и	
	Aroclor-1221	BRL.		µg/kg	61.2	1	71	**	и	**	n	
1141-16-5	Aroclor-1232	BRL		µg/kg	61.2		n	**	41	п	я	
3469-21-9	Araclor-1242	BRL		ha\ka	61.2	1	21	11	45	**		
2672-29-6	Aroclor-1248	BRL		μg/kg	61.2	1		78		π	п	
1097-69-1	Aroclor-1254	172		µg/kg	61.2	1	n n	76	#1	11	*	
1096-82-5	Aroclor-1260	BRL		μg/kg	61.2	1.			**	n	,	
7324-23-5	Aroclor-1262	BRL		μg/kg	61.2	1	*	rı	,,		и	
1100-14-4	Aroclor-1268	BRL.		µg/kg	61.2	1	**					
urrogate i	recoveries:								_		n	
0386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	130			30-150 %		ŧŧ	13			-	
0386-84-2	4,4-DB-Octafluoroblphenyl (Sr) [2C]	95			30-150 %		Ħ	**	*	•		
051-24-3	Decachlorobiphenyl (Sr)	145			30-150 %		n	n	н	Ħ	n	
051-24-3	Decachlorobiphenyl (Sr) [2C]	99			30-150 %		* f		41	**	#	
	sis of Polychlorinated Biphenyls by by method SW846 3540C	y SW846 808	2									
	Aroclor-1016	BRL		µg/kg	59.8	1	SW846 8082	26-Jul-10	03-Aug-10	IMR	1016372	2
1104-28-2	Aroclor-1221	BRL		µg/kg	59.8	1	14	41	я	n	**	
1141-16-5	Aroclor-1232	BRL		μg/kg	59.8	1	Ħ	Ħ		н	н	
3469-21-9	Aroclor-1242	BRL		μg/kg	59.8	1	н	IP	п	er	н	
2672-29-6	Aroclor-1248	BRL.		μg/kg	59.8	1	Ħ	P	**	H	11	
1097-69-1	Arodor-1254	175		µg/kg	59.8	1	#	H	Ħ	н	11	
1096-82-5	Aroclor-1260	BRL		µg/kg	59.8	1	•	Ħ	н	**	N	
37324-23-5		BRL		μg/kg	59.8	1	И	H	31	N	p	
	Arodor-1268	BRL		μg/kg	59.8	1	ĸ	21	н	эr	**	
Surmate	recoveries:											
-	4,4-DB-Octafluorobiphenyl (Sr)	88			30-150 %		×	•	**	**	n	
10386-84-2		85			30-150 %		Ħ	3 9	μ	н	36	
	4											
10386-84-2 10386-84-2 2051-24-3	[2C] Decachlorobiphenyl (Sr)	92			30-150 %			π	77	π	ĸ	

<u>Matrix</u> Roof Parapet Cement Collection Date/Time 26-Jul-10 10:30

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Ce
iemivolatil	e Organic Compounds by GC											
	nated Biphenyls by SW846 8082 by method SW846 3550B/C											
	Aroclor-1016	BRL		μg/kg	65.1	1 '	SW846 8082	26-Jul-10	27-Jul-10	IMR	1015754	
1104-28-2	Aroclor-1221	BRL		µg/kg	65.1	1	**	H	(f	Ħ	н	
1141-16-5	Aroclor-1232	BRL		μg/k g	65.1	1		п	"	47	n	
3469-21-9	Aroclor-1242	BRL		µg/kg	65.1	1		**	п	н	Ħ	
2672-29-6	Aroclor-1248	BRL		µg/kg	65.1	1	π	46	М	Ħ	н	
1097-69-1	Aroclor-1254	147		µg/kg	65.1	1	**	19	**	**	**	
1096-82-5	Aroclor-1260	BRL		µg/kg	65.1	1 ·	श	Ħ	aq	Я	**	
7324-23-5	Aroclor-1262	BRL		µg/kg	65.1	1	**	ŧ		*	n	
1100-14-4	Aroclor-1268	BRŁ		μg/kg	65.1	1	11	**	п	\$1 -	N	
Surrogate re	ecoveries:											
0386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	121			30-150 %		и	er		н	7	
0386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	118			30-150 %		•	11	H	"	n	
051-24-3	Decachlorobiphenyl (Sr)	94			30-150 %		41	**	•	ft.	*	
051-24-3	Decachloroblphenyl (Sr) [2C]	98			30-150 %		н	11	n	Ħ	**	
	ils of Polychlorinated Biphenyls by by method SW846 3540C	SW846 8082										
1104-28-2	Arodor-1221	BRL		µg/kg	62.2	1	SW846 8082	26-Jul-10	04-Aug-10	IMR	1016372	ī
1141-16-5	Arodor-1232	BRL		μg/k g	62.2	1	к	71	н	sı	*	
3469-21-9	Aroclor-1242	BRL		μg/kg	62.2	1	и	H	78	**	**	
2672-29-6	Aroclor-1248	BRL		μg/kg	62.2	1	n	2 4	n	9	Ħ	
1097-69-1	Aroclor-1254	476		μg/kg	62.2	1	**	n	03-Aug-10	#1	**	
1096-82-5	Arodor-1260	BRL		μg/kg	62.2	1	m2	FF	04-Aug-10	Ħ	n	
7324-23-5	Aroclor-1262	BRL		µg/kg	62.2	1	**	**	•	н	n	
1100-14-4	Arodor-1268	BRI.		µg/kg	62.2	1	¥	19	8	н	*	
	recoveries:											
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	96			30-150 %		п	#	03-Aug-10		n	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	91			30-150 %		N	*	Ħ	n	#	
2051-24-3	Decachlorobiphenyl (Sr)	101			30-150 %		Ħ	n	н	e f	1)	
	Decachlorobiphenyl (Sr) [2C]	80			30-150 %		_		**	10	**	

Semivolatile Organic Compounds by GC - Quality Control

analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
atch 1015754 - SW846 3550B/C										
Blank (1015754-BLK1)					Pro	epared: 26	Jul-10 Ana	lyzed: 27-Jul	<u>-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	BRI.		µg/kg	20.0						
Aroclor-1248 (2C)	BRL		µg/kg	20.0						
Aroclor-1254	BRL		µg/kg	20.0						
Aroctor-1254 [2C]	BRL		µg/kg	20.0						
Aroctor-1260	BRL		µg/k g	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		
LCS (1015754-BS1)					Pr	epared: 26-	Jul-10 Ana	lyzed: 27-Ju	<u>-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		pg/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: Decachloroblphenyl (Sr) [2C]	15.1		μg/kg		20.0		76	30-150		
LCS Dup (1015754-BSD1)					<u>Pr</u>	epared: 26-	Jul-10 Ana	alyzed: 27-Ju	<u>l-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										
Blank (1016372-BLK1)					<u>P</u> :	repared: 02-	Aug-10 Ar	nalyzed: 03-A	ug-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						
Aroclar-1232 [2C]	BRL		μg/kg	20.0						
Aroclor-1242	BRL		μg/kg	20.0						
Aroclor-1242 [2C]	BRL		μg/kg	20.0						

Semivolatile Organic Compounds by GC - Quality Control

					Spike	Source		%REC		RPD
analyte(s)	Result	Flag	Units	*RDL	Level	Result	%REC	Limits	RPD	Limi
Batch 1016372 - SW846 3540C										
Blank (1016372-BLK1)					Pre	epared: 02-	Aug-10 An	alyzed: 03-A	<u>ug-10</u>	
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						
Surrogale: 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)					Pro	epared: 02-	Aug-10 An	alyzed: 03-A	ug-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)					Po	epared: 02-	Aug-10 An	alyzed: 03-A	<u>\ug-10</u>	
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		
Surrogale: Decachlorobiphenyl (Sr) [2C]	16.6		μg/kg		20.0		83	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.

<u>Laboratory Control Sample (LCS)</u>: 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.

<u>Matrix Spike</u>: 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.

<u>Surrogate</u>: 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

Labo		ectrum Analytical, Inc.		Project #: 207319	.02.36	
		son/Field Roof - UMA	SS Amherst, MA	RTN:		
		tifications for the follo		SB15728-01 through SB15	5728-06	
	ices: Roof Parap					
CAM	Protocol					
	260 VOC AM 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
	270 SVOC AM 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
	010 Metals AM 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	s to questions A through	F are required for "Presu	mptive Certainty" status	
٨				scribed on the Chain of Cu repared/analyzed within m		Yes ✓ No
В	Were the analytic protocol(s) follow		sociated QC requirements	s specified in the selected (CAM	✓ Yes No
С			analytical response action d performance standard no	ns specified in the selected on-conformances?	CAM	✓ Yes No
D				ents specified in CAM VII I Reporting of Analytical E		✓ Yes No
Е	3	•	Was each method conduction the complete analyte list re	ed without significant mod eported for each method?	lification(s)?	Yes No Yes No
F	Were all applicat evaluated in a lat	ole CAM protocol QC a poratory narrative (inclu	nd performance standard ading all "No" responses to	non-conformances identifi o questions A through E)?	ied and	✓ Yes No
	· · ·	Responses to ques	stions G, H and I below a	re required for "Presump	tive Certainty" status	
G	Were the reporting	ng limits at or below all	CAM reporting limits spe	ecified in the selected CAN	vl protocol(s)?	✓ Yes No
		nt achieve "Presumptive C n 310 CMR 40. 1056 (2)(k	-	cessarily meet the data usabi	lity and representativeness	
П	Were all QC perf	formance standards spe-	cified in the CAM protoco	ol(s) achieved?		✓ Yes No
I	Were results repo	orted for the complete a	nalyte list specified in the	selected CAM protocol(s))?	✓ Yes No
All ne	gative responses ar	e addressed in a case nari	rative on the cover page of th	his report.		
				upon my personal inquiry of a ny knowledge and belief, accu	those responsible for obtaining urate and complete.	ng the
					10M da	

Hanibal C. Tayeh, Ph.D. President/Laboratory Director Date: 8/5/2010

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V	
Special Handling: Standard TAT - 7 to 10 business days Rush TAT - Date Needed: 7/67//0 All TATs subject to leheratory approval. Min. 24-hour notification needed for nushes. Samples disposed of after 60 days unless otherwise instructed.	SS 157786

CHAIN OF CUSTODY RECORD

	New Simme Dy	While The Rich	Relixonisted by:			7-1	1 - 05 Km + -93 -1"	1 . Chi 2 m - 13-2"	1 . Contrad -1	1-0 15-3-6-30 /	728-01 Just 6=1" 1766/16	Lab Id: Sample Id: Case:	ikana	G=Grab C=Composite	COMUNT	of Amort XI	O-OH SW-Surface Water SO-Soil SL-X		1Na ₂ S2O ₃ 2HCl 3-H ₂ SO ₂ 4-HNO ₃	Project Mar. MIJCA GROUP	Telephone # 1/3 - 348-2302	er en		Salar	N	ロンメニアに ゴルドニングにひたい
Q	7/24/10	Horan Malo	Received by:		•		10:30 6 1		1X & 08:00	10:30 PX1	6 6:30 CX		l'ype Matrix	OA V		S	SI = Shudge A=Air		5=NaOH 6=Ascorbic Acid	P.O. No.:		description of the control of the co		Involve To	70	
	· XXX 82:	19:10 X mar 10	Time: Tear C o EDD Format			- マ よ	X	\\ \tag{\frac{1}{2}}	Challe beautiful control of the Challe of th	× ×			y or c	lear (ila Ž	s 845,	1	The state of the s	7=CH ₂ OH List preservative code below:	XQN: 88 // sampler(s):	1	Location: U	Site Name: 64	Kandard Project No.:		
Francisco Dies Chemistra Director comp. C Develor comp. "C.	and of	10 Coulhanteesconsult com	ormat		d	C[cn+cc 8/2]	Sage per,						State specific reporting standards:	O Color	O Standard O No QC	OAOOTeparnage Level	SEE TOWARD DEE MOP CAM Report		1	Mitted STAGE		Location: Mass Campus State M.F.	Site Name: GREYSW/Frod - KOOF UMOSS Andred	3073190236		THE COURT OF THE PARTY OF THE P

11 Almeren Drive - Agawam, MA 01001 - 413-789-9018 - FAX 413-789-4076 - www.spectrimennalytical.com

Report Date: 04-Aug-10 14:24



SPECTRUM ANALYTICAL, INC. Featuring HANIBAL TECHNOLOGY Laboratory Report

Environmental Compliance Services

588 Silver Street Agawam, MA 01001 Attn: Mike Grover Project: Grayson/Field Hall-UMASS Amherst

Project #: 01-207319.02.36

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

☑ Final Report

□ Re-Issued Report□ Revised Report

Technical Reviewer's Initial:

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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.

Joint 56-1" SB16061-0	*			Project # 319.02.36	Roof	<u>Matrix</u> Parapet C		ection Date. -Aug-10 11			ceived Aug-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile	e Organic Compounds by GC											
	nated Biphenyls by SW846 8082 by method SW846 3540C							-				
	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	ır	n		**	P	
11141-16-5	Aroclor-1232	BRL		µg/kg	62.7	1	н	•	**	*\$	R	
53469-21-9	Aroclor-1242	BRL		μg/kg	62.7	1	**	n		н	#1	
12672-29-6	Aroclor-1248	BRL		µg/kg	62.7	1	#	rŧ	-	*	**	
11097-69-1	Aroclor-1254	455		µg/kg	62.7	1	н	и	vi	#1	215	
11096-82-5	Aroclor-1260	BRL.		μg/kg	62.7	1	w	71	H	•	н	
37324-23-5	Aroclor-1262	BRL		µg/kg	62.7	1	#	Ħ	Ħ	H	•	
11100-14-4	Aroclor-1268	BRL		µg/kg	62.7	1	н	п	н	19	R	
Surrogate re	ecoveries:										_	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	98			30-150 %		ď	**	Ħ	•		
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	88			30-150 %		п	ਜ	н	ч	н	
2051-24-3	Decachlorobiphenyl (Sr)	98			30-150 %		и	*	11	•	H	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	78			30-150 %		# I	vi	я	4	*	
<u>angraphic peranggan ara</u>		kennengan ing ligging dipunk dipu Pengan bergan pengan dipunk	terment out of the second	<u> </u>	The state of the s	ergenbasiska ndomerana	and the second second second second second					Pro-1258/
Sample Ide	entification		Client	t Project#		Matrix	Col	lection Date	/Time	Re	ceived	
Joint 56-3	at .			7319.02.36	Roo	f Parapet (2-Aug-10 1		02-	Aug-10	
SB16061-	ሰን					-		_				
55,0001	· -											
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cen
CAS No.		Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cen
CAS No. Semivolatil	Analyte(s) le Organic Compounds by GC nated Biphenyls by SW846 8082	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Ceri
CAS No. Semivolatil	Analyte(s)		Flag						<u> </u>			
CAS No. Semivolatil Polychlorir Prepared I	Analyte(s) le Organic Compounds by GC nated Biphenyls by SW846 8082	BRL	Flag	µg/kg	64.5	1	SW846 8082		Analyzed		Batch 1016372	•
CAS No. Semivolatil Polychlorir Prepared I	Analyte(s) le Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C	8RL BRL	Flag	hā\kā hā\kā	64.5 64.5	1	SW846 8082		<u> </u>			•
CAS No. Semivolatil Polychlorir Prepared I 12674-11-2 11104-28-2	Analyte(s) le Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroctor-1016	BRL BRL BRL	Flag	ha\ka ha\ka	64.5 64.5 64.5	1 1 1	SW846 8082		<u> </u>			•
CAS No. Semivolatil Polychlorir Prepared I 12674-11-2 11104-28-2	Analyte(s) le Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221	8RL BRL BRL 8RL	Flag	halya halya halya	64.5 64.5 64.5 64.5	1 1 1	SW846 8082		<u> </u>			•
CAS No. Semivolatil Polychlorir Prepared I 12674-11-2 11104-28-2 11141-16-5	Analyte(s) le Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232	BRL BRL BRL BRL BRL	Flag	halya halya halya halya	64.5 64.5 64.5 64.5 64.5	1 1 1 1	SW846 8082		<u> </u>			•
CAS No. Semivolatil Polychlorin Prepared I 12674-11-2 11104-28-2 11141-16-5 53469-21-9	Analyte(s) le Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242	BRL BRL BRL BRL BRL BRL	Flag	hayka hayka hayka hayka hayka	64.5 64.5 64.5 64.5 64.5 64.5	1 1 1 1 1	SW846 8082		<u> </u>		1016372	•
CAS No. Semivolatil Polychlorir Prepared I 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6	Analyte(s) le Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248	BRL BRL BRL BRL BRL BRL	Flag	halya halya halya halya halya halya	64.5 64.5 64.5 64.5 64.5 64.5	1 1 1 1 1	SW846 8082		<u> </u>		1016372	•
CAS No. Semivolatil Polychlorir Prepared I 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1	Analyte(s) le Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroctor-1016 Aroctor-1221 Aroctor-1232 Aroctor-1242 Aroctor-1248 Aroctor-1254	BRL BRL BRL BRL BRL BRL BRL	Flag	ha\ka ha\ka ha\ka ha\ka ha\ka ha\ka ha\ka	64.5 64.5 64.5 64.5 64.5 64.5 64.5	1 1 1 1 1 1	SW846 8082	02-Aug-10	04-Aug-10 " " " "	IMR n n n	1016372	
CAS No. Semivolatil Polychlorin Prepared I 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5	Analyte(s) le Organic Compounds by GC mated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1260	BRL BRL BRL BRL BRL BRL	Flag	halya halya halya halya halya halya	64.5 64.5 64.5 64.5 64.5 64.5	1 1 1 1 1	SW846 8082		<u> </u>		1016372	
CAS No. Semivolatil Polychlorin Prepared I 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5	Analyte(s) le Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268	BRL BRL BRL BRL BRL BRL BRL	Flag	ha\ka ha\ka ha\ka ha\ka ha\ka ha\ka ha\ka	64.5 64.5 64.5 64.5 64.5 64.5 64.5 64.5	1 1 1 1 1 1	SW846 8082	02-Aug-10	04-Aug-10 " " " "	IMR n n n	1016372	
CAS No. Semivolatil Polychlorin Prepared I 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4	Analyte(s) le Organic Compounds by GC mated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268 recoveries:	BRL BRL BRL BRL BRL BRL BRL	Flag	ha\ka ha\ka ha\ka ha\ka ha\ka ha\ka ha\ka	64.5 64.5 64.5 64.5 64.5 64.5 64.5	1 1 1 1 1 1	SW846 8082	02-Aug-10	9 04-Aug-10	IMR n n n n	1016372	•
CAS No. Semivolatil Polychlorin Prepared I 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate I	Analyte(s) le Organic Compounds by GC mated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268 recoveries: 4,4-DB-Octafluorobiphenyl (Sr)	BRL BRL BRL BRL BRL BRL BRL BRL	Flag	ha\ka ha\ka ha\ka ha\ka ha\ka ha\ka ha\ka	64.5 64.5 64.5 64.5 64.5 64.5 64.5 64.5	1 1 1 1 1 1	SW846 8082	02-Aug-10	04-Aug-10 " " " "	IMR n n n	1016372	•
CAS No. Semivolatil Polychlorir Prepared I 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate r 10386-84-2	Analyte(s) le Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268 recoveries: 4,4-DB-Octafluorobiphenyl (Sr) 4,4-DB-Octafluorobiphenyl (Sr)	BRL BRL BRL BRL BRL BRL BRL BRL	Flag	ha\ka ha\ka ha\ka ha\ka ha\ka ha\ka ha\ka	64.5 64.5 64.5 64.5 64.5 64.5 64.5 64.5	1 1 1 1 1 1	SW846 8082	02-Aug-10	9 04-Aug-10	IMR n n n n	1016372	•

Joint 62-1 SB16061-			•	Project # 319.02.36	Roof	<u>Matrix</u> f Parapet C		ection <u>Date</u> -Aug-10 12			ceived Aug-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatil	le Organic Compounds by GC											
	nated Biphenyls by SW846 8082 by method SW846 3540C											
	Aroclor-1016	BRL.		µg/kg	61.1	1	SW846 8082	02-Aug-10	04-Aug-10	1MR	1016372	
11104-28-2	Aroclor-1221	BRL		μg/kg	61.1	1	**	*	28	rŧ	*1	
11141-16-5	Aroclor-1232	BRL		μg/kg	61.1	1	le .	×	н	н	**	
53469-21-9	Aroclor-1242	BRL		µg/kg	61.1	1	n	13	н	н	#	
12672-29-6	Aroclor-1248	BRL		μg/kg	61,1	1	п	Ħ	B	4	R	
11097-69-1	Aroclor-1254	537		µg/kg	61.1	1	*	и	4	7	н	
11096-82-5	Aroclor-1260	BRL		μg/kg	61.1	- 1	14	Ŋ	71	#	61	
37324-23-5	Aroclor-1262	BRL		μg/kg	61.1	1	#	#	¥	В	П	
11100-14-4		BRL		µg/kg	61.1	1	н	я	H	п	**	
Surrogate r	recoveries:	· - • - • · ·			- 44							
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	89		;	30-150 %		14	Ħ	п	**	n	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	78		;	30-150 %		N	п	TE.	н	п	
2051-24-3	Decachlorobiphenyl (Sr)	96		;	30-150 %		н	*	Ħ	HZ	**	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	68		;	30-150 %		н	Ħ	Б	Ħ	Ħ	
**************************************					Taka yani baha Sala		The state of the s	er termen general bereigt der er gelter betreit betreit.	A Security of the security of		<u> Singipologia ettertitt</u>	<u> </u>
	dentification		Clien	t Project#		Matrix	Col	lection Date	/Time	Re	ceived	
Joint 62-3			•	7319.02.36	Roo	f Parapet C	Cement 02	2-Aug-10 12	2:00	02-	Aug-10	
SB16061-	-04											
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert
		1100111	ring									
Semivolati	ile Organic Compounds by GC	1100111	Tang		100							
Polychlori	inated Biphenyls by SW846 8082		Trug							·		
Polychlori Prepared	-		Tag	hā/kā	63.5	1	SW846 8082	02-Aug-10	04-Aug-10	IMR	1016372	<u>;</u>
Polychlori Prepared	inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016		Tag	hā\kā			SW846 8082	02-Aug-10 *		IMR	1016372	<u>}</u>
Polychlori Prepared 12674-11-2 11104-28-2	inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016	BRL.	Tag	•	63.5	1	SW846 8082	02-Aug-10 "				?
Polychlori Prepared 12674-11-2 11104-28-2	inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232	BRL BRL	Tag	µg/kg	63.5 63.5	1	SW846 8082 " "	02-Aug-10 " "		N	*	<u>?</u>
Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5	inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242	BRL BRL BRL	Tag	µg/kg µg/kg	63.5 63.5 63.5	1 1 1	SW846 8082 " " "	02-Aug-10 " " "		N	*	<u>?</u>
Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9	inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248	BRI. BRL BRL BRL	Tag	halka halka	63.5 63.5 63.5 63.5	1 1 1	SW846 8082 H H H H	02-Aug-10 " " " "		N	*	2
Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6	inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254	BRL BRL BRL BRL BRL	Tag	halya halya halya	63.5 63.5 63.5 63.5 63.5	1 1 1 1	SW846 8082 " " " "	02-Aug-10 " " " "		N	*	<u>?</u>
Polychlori Prepared 12674-11-2 11104-28-2 111141-16-5 53469-21-9 12672-29-6 11097-69-1	inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260	BRL BRL BRL BRL BRL 82.8	Tag	halka halka halka	63.5 63.5 63.5 63.5 63.5 63.5	1 1 1 1 1	SW846 8082 " " " "	02-Aug-10 " " " "		N 71 95 95 95 95 95 95 95 95 95 95 95 95 95	*	2
Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5	inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262	BRI. BRL BRI. BRL BRL 82.8 BRL	Tag	halka halka halka halka	63.5 63.5 63.5 63.5 63.5 63.5	1 1 1 1 1	SW846 8082	02-Aug-10 " " " " "		N 71 95 95 95 95 95 95 95 95 95 95 95 95 95	л 11 14 14 15 18	2
Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4	inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268	BRL BRL BRL BRL BRL 82.8 BRL BRL	Tag	halya halya halya halya halya halya	63.5 63.5 63.5 63.5 63.5 63.5 63.5	1 1 1 1 1 1	SW846 8082	02-Aug-10 " " " "		N 71 95 95 95 95 95 95 95 95 95 95 95 95 95	л 11 14 14 15 18	
Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate	inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262	BRL BRL BRL BRL BRL 82.8 BRL BRL	Tag	hayka hayka hayka hayka hayka hayka	63.5 63.5 63.5 63.5 63.5 63.5 63.5	1 1 1 1 1 1	SW846 8082 N N N N N N N N N N N N N	02-Aug-10		N 71 95 95 95 95 95 95 95 95 95 95 95 95 95	л 11 14 14 15 18	
Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate	inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268 recoveries: 4,4-DB-Octafluorobiphenyl (Sr)	BRI. BRL BRL BRL 82.8 BRL BRL BRL	Tag	halya halya halya halya halya halya	63.5 63.5 63.5 63.5 63.5 63.5 63.5 63.5	1 1 1 1 1 1	SW846 8082	02-Aug-10 " " " " " "		N 71 95 95 95 95 95 95 95 95 95 95 95 95 95	# # # # # # # # # # # # # # # # # # #	?
Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate 10386-84-2	inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268 recoveries: 4,4-DB-Octafluorobiphenyl (Sr)	BRL BRL BRL BRL 82.8 BRL BRL BRL	Tag	halya halya halya halya halya halya	63.5 63.5 63.5 63.5 63.5 63.5 63.5 63.5	1 1 1 1 1 1	SW846 8082 ** ** ** ** ** ** ** ** **	02-Aug-10		N 71 95 95 95 95 95 95 95 95 95 95 95 95 95	# # # # # # # # # # # # # # # # # # #	

Joint 71-1" SB16061-0				<u>Project #</u> 319.02.36	Roof	<u>Matrix</u> Parapet C		ection Date -Aug-10 13			<u>xeived</u> Aug-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile	e Organic Compounds by GC								,			
	nated Biphenyls by SW846 8082 by method SW846 3540C											
	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	н	n	11	ч	π	
11141-16-5	Aroclor-1232	BRL		µg/kg	65.5	1	R	n	#	H	н	
53469-21-9	Aroclor-1242	BRL		µg/kg	65.5	1	w	#	Ħ	Ħ	B†	
12672-29-6	Aroclor-1248	BRL		μg/kg	65.5	1	n	п	T	R	**	
11097-69-1	Arocler-1254	300		µg/kg	65.5	1	Ħ	H	к	н	r	
11096-82-5	Aroclor-1260	BRL		μg/kg	65.5	1	п	#	wi .	#	н	
37324-23-5	Aroclor-1262	BRL.		µg/kg	65.5	1	п	#	TF	п	**	
11100-14-4	Aroclor-1268	BRL		µg/kg	65.5	1	4	N .	к	п	#	
Surrogate re	ecoveries:									pt .	Ħ	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	95			30-150 %		Я	Ħ	,,			
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	98			30-150 %		и	н	п	a	*	
2051-24-3	Decachlorobiphenyl (Sr)	98			30-150 %		71	**	Ħ	Te .	п	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	76			30-150 %		Ħ	F	π	BT	**	
			daga guddin Their gang glafe	the state of probabilities and a state of	A consisting the foreign the second budge is the foreign to the second budge is the second budge in the second budge is the second budge in the second budge in the second budge is the second budge in the se	the liver and the live of the property of	en permanen artikat bir en	Parties and Annual Prof. of the Control of the Cont	ing and here the proper sections.			
	entification		Client	Project #		<u>Matrix</u>	· · · · · · · · · · · · · · · · · · ·	lection Date			ceived	
Joint 71-3	,		01-203	7319.02.36	Roo	f Parapet (Cement 0:	2 - Aug-10 1:	3:02	02	Aug-10	
SB16061-	06		0			-						
SB16061-	06 Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
CAS No.		Result		Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
CAS No. Semivolati	Analyte(s) lle Organic Compounds by GC nated Biphenyls by SW846 8082			Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
CAS No. Semivolati Polychloria Prepared	Analyte(s) The Organic Compounds by GC The nated Biphenyls by SW846 8082 The nated Biphenyls by SW846 8082 The nated Biphenyls by M846 3540C											
CAS No. Semivolati Polychloric Prepared 12674-11-2	Analyte(s) Ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016	BRL		hâ\kâ	60.3	1	Method Ref. SW846 8082		Analyzed O4-Aug-10		Batch 1016372	
CAS No. Semivolati Polychlorii Prepared 12674-11-2 11104-28-2	Analyte(s) Ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221	BRL BRI.		hâykâ hâykâ	60.3 60.3	1	SW846 8082		04-Aug-10	IMR	1016372	
CAS No. Semivolati Polychlorir Prepared 12674-11-2 11104-28-2 11141-16-5	Analyte(s) Ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232	BRL BRL BRL		halya halya halya	60.3 60.3 60.3	1 1 1	SW846 8082	02-Aug-16 "	9 04-Aug-10	IMR	1016372	
CAS No. Semivolatii Polychlorii Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9	Analyte(s) le Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242	BRL BRL BRL BRL		halya halya halya halya	60.3 60.3 60.3 60.3	1 1 1	SW846 8082	02-Aug-16 "	9 04-Aug-10	IMR	1016372	
CAS No. Semivolatii Polychlorii Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6	Analyte(s) Ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248	BRL BRL BRL BRL BRL		hālyā hālyā hālyā hālyā	60.3 60.3 60.3 60.3	1 1 1 1	SW846 8082	02-Aug-16 "	9 04-Aug-10	IMR	1016372	
CAS No. Semivolatii Polychlorii Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1	Analyte(s) lle Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254	BRL BRL BRL BRL BRL BRL		hayka hayka hayka hayka hayka	60.3 60.3 60.3 60.3 60.3	1 1 1 1 1	SW846 8082	02-Aug-16 "	9 04-Aug-10	IMR	1016372	
CAS No. Semivolatii Polychlorii Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5	Analyte(s) le Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260	BRL BRL BRL BRL BRL BRL BRL		hayka hayka hayka hayka hayka hayka	60.3 60.3 60.3 60.3 60.3 60.3	1 1 1 1 1	SW846 8082	02-Aug-16 "	9 04-Aug-10 11 12 13 14 14	IMR	1016372	
CAS No. Semivolatii Polychlorii Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5	Analyte(s) Ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1260	BRL BRL BRL BRL BRL BRL BRL		hâykâ hâykâ hâykâ hâykâ hâykâ hâykâ	60.3 60.3 60.3 60.3 60.3 60.3 60.3	1 1 1 1 1 1	SW846 8082	02-Aug-16 "	9 04-Aug-10 n n n n	IMR	1016372 W W H , H	
CAS No. Semivolatii Polychlorii Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5	Analyte(s) Ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1260	BRL BRL BRL BRL BRL BRL BRL		hayka hayka hayka hayka hayka hayka	60.3 60.3 60.3 60.3 60.3 60.3	1 1 1 1 1	SW846 8082	02-Aug-16 "	9 04-Aug-10 n n n n	IMR	1016372 W W H , H	
CAS No. Semivolatii Polychlorii Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate	Analyte(s) Ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1222 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268	BRL BRL BRL BRL BRL BRL BRL BRL		hâykâ hâykâ hâykâ hâykâ hâykâ hâykâ	60.3 60.3 60.3 60.3 60.3 60.3 60.3	1 1 1 1 1 1	SW846 8082	02-Aug-16 "	9 04-Aug-10 n n n n	IMR	1016372 W W H , H	
CAS No. Semivolatii Polychlorii Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate i 10386-84-2	Analyte(s) Ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268 recoveries: 4,4-DB-Octafluorobiphenyl (Sr)	BRL BRL BRL BRL BRL BRL BRL BRL		hâykâ hâykâ hâykâ hâykâ hâykâ hâykâ	60.3 60.3 60.3 60.3 60.3 60.3 60.3 60.3	1 1 1 1 1 1	SW846 8082	02-Aug-16 "	9 04-Aug-10 n n n n	IMR	1016372	
CAS No. Semivolatii Polychlorii Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate	Analyte(s) Ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268 recoveries: 4,4-DB-Octafluorobiphenyl (Sr)	BRL BRL BRL BRL BRL BRL BRL BRL		hâykâ hâykâ hâykâ hâykâ hâykâ hâykâ	60.3 60.3 60.3 60.3 60.3 60.3 60.3 30-150 %	1 1 1 1 1 1	SW846 8082	02-Aug-16 "	9 04-Aug-10	IMR	1016372	
CAS No. Semivolatii Polychlorii Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate i 10386-84-2	Analyte(s) Ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268 recoveries: 4,4-DB-Octafluorobiphenyl (Sr) 4,4-DB-Octafluorobiphenyl (Sr)	BRL BRL BRL BRL BRL BRL BRL BRL		hâykâ hâykâ hâykâ hâykâ hâykâ hâykâ	60.3 60.3 60.3 60.3 60.3 60.3 60.3 60.3	1 1 1 1 1 1	SW846 8082	02-Aug-16 "	9 04-Aug-10 n n n n	IMR	1016372	

Semivolatile Organic Compounds by GC - Quality Control

alyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
tch 1016372 - SW846 3540C										
Blank (1016372-BLK1)					Pro	epared: 02-/	<u> Aug-10 An</u>	alyzed: 03-A	<u>ig-10</u>	
Arocler-1016	BRL		μg/kg	20.0						
Aroclor-1016 [2C]	BRL.		μg/kg	20.0						
Aroclor-1221	BRL		ha\ka	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		
LCS (1016372-BS1)					<u>P</u>	repared: 02-	Aug-10 Ar	nalyzed: 03-A	<u>uq-10</u>	
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)					<u>P</u>	repared: 02	-Aug-10 A	nalyzed: 03- <i>F</i>	<u>ug-10</u>	
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		
Duplicate (1016372-DUP1)			Source: S	B16061-01	<u>P</u>	repared: 02	-Aug-10 A	natyzed: 03-/	<u> 10 - 10 </u>	
Aroclor-1016	BRL.		μg/kg	61.7		BRL				40
Aroclor-1221	BRL		μg/kg	61.7		BRL				40
Aroclor-1221	BRL		μg/kg	61.7		BRL				40
Aroclor-1242	BRL		μg/kg	61.7		BRŁ				40
Aroclor-1248	BRL.		μg/kg	61.7		BRL.				40
Aroclor-1254	310		μg/kg	61.7		455			38	40
	BRL		μg/kg	61.7		BRL				40
Aroclor-1260	BRL.		µg/kg	61.7		BRL				40
Aroclor-1262 Aroclor-1268	BRL		μg/kg	61.7		BRL				46

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>			Source: SE	3160 <u>61-01</u>	<u>Pre</u>	epared: 02-	Aug-10 Ar	alyzed: 03-A	ug-10	
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.

<u>Laboratory Control Sample (LCS)</u>: 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.

<u>Surrogate</u>: 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

Labor	ratory Name: Sp	ectrum Analytical, Inc.		Project #: 01-207	319.02.36	
Proje	et Location: Gra	yson/Field Hall-UMAS	S Amherst	RTN:	and the state of t	
This f	orm provides ce	rtifications for the foll	owing data set:	SB16061-01 through SB16	5061-06	
Matri	ices: Roof Para	pet Cement				
CAM	Protocol					
	60 VOC AM II A	7470/7471 Hg CAM III B	MassDEP VPII CAM IV A	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
	70 SVOC AM 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
	110 Metals AM 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 response	es to questions A through	F are required for "Presu	amptive Certainty" status	
A			n consistent with those desertield or laboratory, and pr			Yes ✔ No
В	Were the analyt protocol(s) follo		ssociated QC requirements	specified in the selected	CAM	✓ Yes No
С	-		l analytical response action ed performance standard no	=	CAM	✓ Yes No
D			all the reporting requiremenes for the Acquisition and			✓ Yes No
E	•		Was each method conducte the complete analyte list re		dification(s)?	Yes No Yes No
F		_	and performance standard auding all "No" responses to			✓ Yes No
		Responses to que	estions G, H and I below ar	re required for "Presump	tive Certainty" status	
G	Were the report	ing limits at or below al	l CAM reporting limits spe	cified in the selected CA	M protocol(s)?	✓ Yes No
		nat achieve "Presumptive in 310 CMR 40. 1056 (2)(Certainty" status may not nee k) and WSC-07-350.	cessarily meet the data usab	ility and representativeness	
Н	Were all QC pe	rformance standards spe	cified in the CAM protoco	ol(s) achieved?		✓ Yes No
1	Were results rep	ported for the complete	analyte list specified in the	selected CAM protocol(s)?	✓ Yes No
All ne	gative responses a	re addressed in a case nai	rative on the cover page of th	ils report.		
			alties of perjury that, based u			ing the

1001

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

Date: 8/4/2010

		Religional Received by		1.02 1/ XI	A STATE OF THE PARTY OF THE PAR	ですりませい。	5107-62-11	26-311	1 29/0	Lub Id: Sample Id: Date: Time: Type	G=Gmb C=Composite	ement X2	OwOil SW=Surface Water SO=Soil SL=Sludge A=Air	Control of the Contro	\$20; 2=HQI_3=H_\$O; 4=HNO; 5=N#OH 6=Ascor	Telephone #: 413-318-3333 Project Men. 1918-336 CABVES. P.O. No.:		livoice To: ECS	MECHANICALINA ALIVA. PERE AMANDE ANALYTA ALIVA. PERE AMANDE ANALYTA ALIVA.	CHAIN OF CU	STOCKE ST
Binthias □ local □ Relfigerand □ Fixige temp To □ Freeze with	Cockray Dresconsult Con	Date: Time: Temp'C FDD Fromst			Saxolet Extraction	Method 3540c	米力家外人		Cone Samples	# of	Ambe Clear Plasti	Villis r Glass GLa	Surancis:	Arta Jusace.	void 7=CH5OII List preservative code below: QA/QC Reporting Notes:	RON: 6377 Sampler(s): B. Gredue A. Kool Suite: (11).	7,002	Project No.: 01-307319,03,36	Of A southern the instruction accuracy to a name otherwise instruction.	ECORD A	

Appendix F

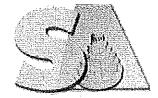
PCB Analytical Reports

Wipe Sampling (Post-Encapsulation)



Report Date: 19-Aug-10 15:32

Attn: Mike Grover



SPECTRUM ANALYTICAL, INC. Featuring HANIBAL TECHNOLOGY Laboratory Report

Project: Grayson/Field Hall-UMASS Amherst

Project #: 01-207319.02.36

Environmental Compliance Services 588 Silver Street Agawam, MA 01001

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

Final Report

□ Re-Issued Report

☐ Revised Report

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.

Joint-2-W SB16756-	· •			Project # 7319.02.36	Caull	<u>Matrix</u> king/Sealar Product		ection <u>Date</u> -Aug-10 14			ceived Aug-10	_
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cerl.
Semivolati	le Organic Compounds by GC											
	nated Biphenyls by SW846 8082 by method SW846 3540C				•							
12674-11-2	Aroclor-1016	BRL		μg∕Wiρe	0.20	1	SW846 8082	17-Aug-10	18-Aug-10	TG	1017547	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	я	н	т	11	n	
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	н	π	н	rŧ	*	
53469-21-9	Aroclor-1242	BRL		μg/Wipe	0.20	1	14	**	n	**	**	
12672-29-6	Aroclor-1248	BRL		μg/Wipe	0.20	1	π	**	и	и		
11097-69-1	Aroclor-1254	BRL		μg/Wipe	0.20	1	**	**	11	*	н	
11096-82-5	Aroclor-1260	BRL		μg/Wipe	0,20	1	ч	n) F	n	n	
37324-23-5	Aroclor-1262	BRL		μg/Wipe	0.20	1	n	44	**	**	n	
11100-14-4	Aroclor-1268	BRL		µg∕Wipe	0.20	1	त	п	¥t.	п	Ħ	
Surrogate i	recoveries:											
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	78			30-150 %		77	69	R	н	м	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	76			30-150 %		Ħ	**	H	п	Ħ	
2051-24-3	Decachlorobiphenyl (Sr)	99			30-150 %		ri	и	н	**	ar a	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	96			30-150 %		н	31	n	n	*	
Joint-6-W	<u>lentification</u> Vipe			t Project #		<u>Matrix</u>		ection Date		· · · · · · · · · · · · · · · · · · ·	<u>ceived</u>	
SB16756-	-02		01-20	7319,02.36	Caul	king/Seala Product		-Aug-10 14	1:00	17-7	Aug-10	
CAS No.	-02 Analyte(s)	Result	01-20 Flag	7319.02.36 Units	Caul	_			Analyzed			Cert.
CAS No.	Analyte(s)	Result				Product						Cert.
CAS No. Semivolati	Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082	Result				Product						Cert.
CAS No. Semivolati Polychlori Prepared	Analyte(s) ile Organic Compounds by GC inaled Biphenyls by SW846 8082 by method SW846 3540C	Result BRL				Product		Prepared				- · · · ·
CAS No. Semivolati Polychlori Prepared	Analyte(s) ile Organic Compounds by GC inaled Biphenyls by SW846 8082 by method SW846 3540C			Units	*RDL	Product Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	- · · · ·
CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2	Analyte(s) ile Organic Compounds by GC inaled Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016	BRL		<i>Units</i> µg/Wipe	*RDL	Product Dilution	Method Ref.	Prepared 17-Aug-10	Analyzed	Analyst TG	Batch 1017547	- · · · ·
CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2	Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221	BRL BRL		Units µg/Wipe µg/Wipe	*RDL 0.20 0.20	Product Dilution 1 1	Method Ref.	Prepared 17-Aug-10	Analyzed 18-Aug-10	Analyst TG	Batch 1017547	- · · · ·
CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5	Analyte(s) ile Organic Compounds by GC inaled Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232	BRL BRL BRL		Units ug/Mipe ug/Mipe ug/Mipe	*RDL 0.20 0.20 0.20	Product Dilution 1 1 1	Method Ref.	Prepared 17-Aug-10	Analyzed 18-Aug-10	Analyst TG	Batch 1017547	- · · · ·
CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9	Analyte(s) ile Organic Compounds by GC inaled Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242	BRL BRL BRL BRL		Units µg/Mipe µg/Mipe µg/Mipe µg/Mipe	*RDL 0.20 0.20 0.20 0.20 0.20	Product Dilution 1 1 1 1	Method Ref.	Prepared 17-Aug-10	Analyzed 18-Aug-10	Analyst TG	Batch 1017547	- · · · ·
CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53459-21-9 12672-29-6	Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248	BRL BRL BRL BRL BRL		Units ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20	Product Dilution 1 1 1 1 1	Method Ref.	Prepared 17-Aug-10	Analyzed 18-Aug-10	Analyst TG	Batch 1017547	- · · · ·
CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1	Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254	BRL BRL BRL BRL BRL BRL		Units ug/Mpe ug/Mpe ug/Mpe ug/Mpe ug/Mpe ug/Mpe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20	Product Dilution 1 1 1 1 1 1 1 1 1	Method Ref.	Prepared 17-Aug-10	Analyzed 18-Aug-10	TG "	Batch 1017547	- · · · ·
CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53459-21-9 12672-29-6 11097-69-1 11096-82-5	Analyte(s) ile Organic Compounds by GC inaled Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1260	BRL BRL BRL BRL BRL BRL		Units ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	Product Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Method Ref.	Prepared 17-Aug-10	Analyzed 18-Aug-10	TG "	Batch 1017547	- · · · ·
CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4	Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262	BRL BRL BRL BRL BRL BRL BRL		Units ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	Product Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Method Ref.	Prepared 17-Aug-10	Analyzed 18-Aug-10 " " " "	TG "	Batch 1017547	- · · · ·
CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4	Analyte(s) ile Organic Compounds by GC inaled Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268 recoveries:	BRL BRL BRL BRL BRL BRL BRL		Units ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	Product Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Method Ref.	Prepared 17-Aug-10	Analyzed 18-Aug-10 " " " "	TG "	Batch 1017547	- · · · ·
CAS' No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate	Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1260 Aroclor-1268 recoveries: 4,4-DB-Octafluorobiphenyl (Sr) 4,4-DB-Octafluorobiphenyl (Sr)	BRL BRL BRL BRL BRL BRL BRL BRL		Units ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	Product Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Method Ref.	Prepared 17-Aug-10	Analyzed 18-Aug-10 " " " "	TG "	Batch 1017547	- · · · ·
CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53459-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate 10386-84-2	Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1260 Aroclor-1268 recoveries: 4,4-DB-Octafluorobiphenyl (Sr)	BRL BRL BRL BRL BRL BRL BRL BRL		Units ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	Product Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Method Ref.	Prepared 17-Aug-10	Analyzed 18-Aug-10 " " " " "	TG "	Batch 1017547	- · · · ·

Sample Id Joint-9-W SB16756-	-			Project # 319.02.36	Caull	<u>Matrix</u> sing/Sealar Product		ection Date -Aug-10 14			ceived Aug-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolati	le Organic Compounds by GC											
	nated Biphenyls by SW846 8082 by method SW846 3540C											
	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	rt	n	11	н	10	
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	н	п	**	п	н	
53469-21-9	Aroclor-1242	BRL		μg/Wipe	0.20	1	N	n	m	**	н	
12872-29-6	Aroclor-1248	BRL		μg/Wipe	0.20	1	ħ	ar	Ħ	Ħ	n	
11097-69-1	Aroclor-1254	BRŁ		μg/Wipe	0,20	1	**	**	36	n	*	
11096-82-5	Aroclor-1260	BRL.		μg∕Wipe	0.20	1	F	н	Ħ	"	π	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	**	**		**	n	
11100-14-4	Aroclor-1268	BRL		µg∕Мре	0.20	1	71	**	n	**	я	
Surrogate i	recoveries:											
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	73			30-150 %		н	11	п	ri	17	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	80			30-150 %		#\$	H	kţ	*	Ħ	
2051-24-3	Decachlorobiphenyl (Sr)	93			30-150 %		34	**	**	28	R	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	98			30-150 %		Ħ	tr	*	H	10	
Joint-12- SB16756				<u>1 Project #</u> 7319.02.36	Caul	<u>Matrix</u> king/Seala Product	nt Sika 13	ection Date 3-Aug-10 14			ceived Aug-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolat	ile Organic Compounds by GC				•							
	inated Biphenyls by SW846 8082 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	<i>t</i>
11104-28-2	Aroclor-1221	BRL.		μg∕Wipe	0.20	1	*		H	#	ж	
11141-16-5	Aroclor-1232	BRL.		µg/Wipe	0.20	1	Ħ	n	11	•	и	
53469-21-9	Aroclor-1242	BRL		µg∕Wipe	0.20	1	T T	×	n	n	H	
12672-29-6		BRL.		µg∕Міре	0.20	1		**	H	rı	*	
11097-69-1	Aroclor-1254	BRL		μg/Wipe	0.20	1	*	я	н	sr	**	
11096-82-5		BRL		µg∕Wipe	0.20	1	п	п		*	н	
					0.20	1	π	н	**		n	
37324-23-5	Aroclor-1262	BRL.		harance	0	•						
37324-23-5 11100-14-4		BRI. BRL		hâ∖Mjbe hã∖Mbe	0.20	1	nt	н	н	n	el	
11100-14-4	Aroclor-1268						p	Ħ	и	n	Þ	
11100-14-4	Aroclor-1268 recoveries:						pt 94	FF	н	11	17	
11100-14-4 Surrogate	Aroclor-1268 recoveries: 4,4-DB-Octafluorobiphenyl (Sr) 4,4-DB-Octafluorobiphenyl (Sr)	BRL			0.20		19 19	11 11	H FT	tt ft H	n n	
11100-14-4 Surrogate 10386-84-2	Aroclor-1268 recoveries: 4,4-DB-Octafluorobiphenyl (Sr)	BRL 78			0.20 30-150 %		# N	n	r	n	n n x	

Semivolatile Organic Compounds by GC - Quality Control

nalyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limi
ntch 1017547 - SW846 3540C										
Blank (1017547-BLK1)					₽r	epared: 17-	Aug-10 An	alyzed: 18-A	\ug-10	
Arocior-1016	BRL.		µg∕Мре	0.20						
Aroctor-1016 [2C]	BRL		μg/Wipe	0,20						
Arodor-1221	BRL		μg/ W ipe	0.20						
Arodor-1221 [2C]	BRL		μg∕Wipe	0.20						
Aroctor-1232	BRL		μg/Wipe	0.20						
Aroclor-1232 [2C]	BRL		µg∕Міре	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						
Araclor-1254 [2C]	BRL.		μg/Wipe	0.20						
Aroclor-1260	BRŁ		µg∕Міре	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	BRI.		µg∕Міре	0.20						
Aroclor-1268 [2C]	BRL		µд∕Міре	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∕Mipe		0.200		88	30-150		
Surrogate: Decachlorobiphenyl (Sr)	0.231		µg∕Mipe		0.200		116	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.234		μg∕Wipe		0.200		117	30-150		
LCS (1017547-BS1)					Pı	epared: 17	-Aug-10 A	nalyzed: 18-	Aug-10	
Aroclor-1016	2.47		μg∕Wipe	0.20	2.50		99	50-140		
Aroclor-1016 [2C]	2.60		hg/Mibe	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		μд∕Мре		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/Mipe		0.200		99	30-150		
LCS Dup (1017547-BSD1)					<u>P</u>	repared: 17	-Aug-10 A	nalyzed: 18-	Aug-10	
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/ W ipe	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		
Surrogale: Decachlorobiphenyl (Sr)	0,215		µg/ W ipe		0.200		108	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.201		μg/Wipe		0.200		101	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.

<u>Laboratory Control Sample (LCS)</u>: 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.

<u>Matrix Spike</u>: 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.

<u>Method Blank</u>: 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.

<u>Surrogate</u>: 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

Labor	atory Name: Spe	etrum Analytical, Inc.		Project #: 01-207	319.02.36		
Projec	et Location: Gray	son/Field Hall-UMASS	Amherst	RTN:			
This f	orm provides cer	tifications for the follo	wing data set:	B16756-01 through SB10	5756-04		
Matri	ces: Caulking/S	ealant Sika Product					
CAM	Protocol		-				
	60 VOC VM 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 APF CAM IX A	1
	70 SVOC VM 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	
	10 Metals AM 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 response	s to questions A through		mptive Certainty" status		
A	Were all samples preserved (includings?	received in a condition	consistent with those des field or laboratory, and pr	cribed on the Chain of Cu	stody, properly	✓ Yes	No
В	Were the analyti protocol(s) follo		sociated QC requirements	specified in the selected	CAM	✓ Yes	No
С	Were all require protocol(s) imple	d corrective actions and emented for all identifie	analytical response action d performance standard n	s specified in the selected on-conformances?	I CAM	✓ Yes	No
D	Does the laborat Assurance and C	✓ Yes	No				
E	a. VPH, EPH, ar b. APH and TO-	nd APH Methods only: 15 Methods only: Was	Was each method conduct the complete analyte list re	ed without significant mo eported for each method?	dification(s)?	Yes Yes	No No
F	Were all applica evaluated in a la	ble CAM protocol QC a boratory narrative (incl	and performance standard uding all "No" responses t	non-conformances identito questions A through E)	fied and	✓ Yes	No
		Responses to que	stions G, H and I below a	re required for "Presump	otive Certainty" status		
G	Were the reporti		CAM reporting limits sp			✓ Yes	No
<u>Data</u> requi	1 <u>User Note:</u> Data th rements described i	at achieve "Presumptive (n 310 CMR 40, 1056 (2)(i	Certainty" status may not ne k) and WSC-07-350.	cessarily meet the data usab	ility and representativeness		
Н	Were all QC per	formance standards spe	cified in the CAM protoco	ol(s) achieved?		✓ Yes	No
I	Were results rep	orted for the complete	analyte list specified in the	selected CAM protocol(s	s)?	✓ Yes	No
All ne	gative responses a	re addressed in a case nai	rative on the cover page of t	his report.			
I, the infori	undersigned, attes nation, the materia	t under the pains and pen I contained in this analyt	alties of perjury that, based i ical report is, to the best of n	upon my personal inquiry o ny knowledge and belief, acc	Those responsible for obtain curate and complete.	ing the	
					MA	2	

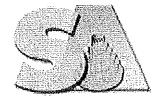
Hanibal C. Tayeh, Ph.D.
President/Laboratory Director

Date: 8/19/2010

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11 Almgren Drive - Agavam. MA 01001 - 413-789-9018 - FAX 413-789-4076 - www.specirum-spalytical.com

Report Date: 19-Aug-10 15:35



SPECTRUM ANALYTICAL, INC. Featuring HANIBAL TECHNOLOGY Laboratory Report

. .

Project: Grayson/Field Hall-UMASS Amherst

Final Report

☐ Re-Issued Report

□ Revised Report

Project #: 01-207319.02.36

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

Laboratory ID	Client Sample ID	<u>Matrix</u>	Date Sampled	Date Received
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.

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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 Id Joint-17-1 SB16757-	•			Project # /319.02.36	Caull	<u>Matrix</u> king/Sealar Product	nt Sika 17	ection Date -Aug-10 09	· ·		<u>ceived</u> Aug-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolati	ile Organic Compounds by GC											
	nated Biphenyls by SW846 8082 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	Aroctor-1221	BRL		μg∕Wipe	0.20	1	òя	77	લ	7	**	
11141-16-5	Aroclor-1232	BRL		μg∕Wipe	0.20	1	Ħ	14	##	*	Ħ	
53469-21-9	Aroclor-1242	BRL		μg∕Wipe	0.20	1	я	N	**	п	*	
12672-29-6	Aroclor-1248	BRL		μg/Wipe	0,20	1	**	ñ	1¢	н	Ħ	
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	π	н	**	n		
11096-82-5	Aroclor-1260	BRL		μg∕Mipe	0.20	1	ম	NT .	π	45	N	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	19	11	N	21		
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	н	11	"	п	и	
Surrogate i	recoveries:											
iu386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	87			30-150 %		*	Ħ	H	n	Ħ	
10386-84-2	4,4-DB-Oclafluorobiphenyl (Sr) [2C]	85			30-150 %		**	N	TF.	H	n	
2051-24-3	Decachlorobiphenyl (Sr)	104			30-150 %		**	*	**	**		
2051-24-3	Decachlorobiphenyl (Sr) [2C]	106			30-150 %		n	я	H	н	•	
Joint-22- SB16757-	=			<u>t Project #</u> 7319.02.36	Caul	<u>Matrix</u> king/Seala Product	nt Sika 17	ection Date 7-Aug-10 09			ceived Aug-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolat	ile Organic Compounds by GC											
Polychlori	inated Biphenyls by SW846 8082 by method SW846 3540C											
	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	н	н	ж	•	*	
11141-18-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	Ħ	Ħ	31	n	**	
53469-21-9	Aroclor-1242	BRL		μg∕Wipe	0.20	1	n	n	¥£	н	R	
12672-29-6	Aroclor-1248	BRL.		μg∕Wipe	0.20	1	**	n	**	**		
11097-69-1	Aroclor-1254	BRL		µg∕Wipe	0.20	1	#	**	п	38	ri	
11096-82-5		BRL.		µg∕Wipe	0.20	1	•	и	n	17	*	
37324-23-5	Aroclor-1262	BRL		µg/Mipe	0.20	1	Ħ	ri	п	п	*1	
11100-14-4	Aroclor-1268	BRL.		µg/Wipe	0.20	1	n	**	**	**	Ħ	
Surrogate	recoveries:											
10386-84-2	*** **							.,				
	4,4-DB-Octafluorobiphenyl (Sr)	84			30-150 %		**					
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	84 82			30-150 % 30-150 %		16	н	и	in	4	
10386-84-2 2051-24-3	, , , , , , , , , , , , , , , , , , , ,						20 56 F1	H 41	 श	n	u н	

Sample Ic Joint-29- SB16757-				<u>Project #</u> /319.02.36	Caul	<u>Matrix</u> king/Sealar Product		ection Date -Aug-10 09			ceived Aug-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolati	ile Organic Compounds by GC											
	nated Biphenyls by SW846 8082 by method SW846 3540C											
12674-11-2	Aroclor-1016	BRL		µg∕Міре	0.20	1	SW846 8082	17-Aug-10	18-Aug-10	TG	1017547	
11104-28-2	Aroclor-1221	BRL		μg/Wipe	0.20	1	46	tr	#	н	¥ŧ	
11141-16-5	Aroclor-1232	BRL		μg/Міре	0.20	1	n	**	11	**	H	
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	н	**	π		н	
12672-29-6	Aroclor-1248	BRL		μg/Wipe	0.20	1	24	*	n	41	h	
11097-69-1	Aroclor-1254	BRL		μg/Міре	0.20	1	41	27	π	••	N	
11096-82-5	Aroclor-1260	BRL	•	μg∕Міре	0.20	1	# .	**	*	**	e e	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	**	s ¢	31	41	**	
11100-14-4	Aroclor-1268	BRL		µg∕Mipe	0.20	1	π	49	Ħ	**		
Surrogate	recoveries:											
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	86			30-150 %		**	n .	#	**	ır	
10386-84-2	4,4-DB-Oclafluorobiphenyl (Sr) [2C]	84			30-150 %		72	n	Ħ	**	R	
2051-24-3	Decachlorobiphenyl (Sr)	106			30-150 %		π	n	π			
2051-24-3	Decachlorobiphenyl (Sr) [2C]	106			30-150 %		P	Ħ	म	#	R	
Sample lo	1entification											
Joint-34- SB16757	•			t Project # 7319.02.36	Caul	<u>Matrix</u> king/Sealar Product		ection Date -Aug-10 09			ceived Aug-10	
Joint-34-	Wipe	Result		-	Caul	king/Seala		-Aug-10 09		17-2	Aug-10	Cert.
Joint-34- SB16757 CAS No.	Wipe -04	Result	01-201	7319.02.36		king/Seala Product	nt Sika 17	-Aug-10 09	9:40	17-2	Aug-10	Cert.
Joint-34- SB16757- CAS No. Semivolat Polychlor	Wipe -04 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082	Result	01-201	7319.02.36		king/Seala Product	nt Sika 17	-Aug-10 09	9:40	17-2	Aug-10	Cert.
Joint-34- SB16757- CAS No. Semivolat Polychlori Prepared	Wipe -04 Analyte(s) ile Organic Compounds by GC	Result BRL	01-201	7319.02.36		king/Seala Product	nt Sika 17	Prepared	9:40	17-2	Aug-10	
Joint-34- SB16757- CAS No. Semivolat Polychlori Prepared	Wipe -04 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C		01-201	7319.02.36 Units	*RDL	king/Sealar Product Dilution	nt Sika 17 Method Ref.	Prepared	Analyzed	17-Analyst	Aug-10 Batch	
SB16757- CAS No. Semivolat Polychlori Prepared 12874-11-2 11104-28-2	Wipe -04 Analyte(s) ite Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016	BRL	01-201	7319.02.36 <i>Units</i> μg/Wipe	*RDL	king/Sealar Product Dilution	Method Ref. SW846 8082	Prepared	Analyzed	17-Analyst	Aug-10 Batch	
SB16757- CAS No. Semivolat Polychlori Prepared 12874-11-2 11104-28-2	Wipe -04 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221	BRL BRL	01-201	Units μg/Wipe μg/Wipe	*RDL 0.20 0.20	king/Sealar Product Dilution	Method Ref. SW846 8082	Prepared	Analyzed	Analyst TG	Aug-10 Batch	
Joint-34- SB16757- CAS No. Semivolat Polychlor: Prepared 12674-11-2 11104-28-2 11141-16-5	Wipe -04 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232	BRL BRL BRL	01-201	Units Units µg/Wipe µg/Wipe µg/Wipe	*RDL 0.20 0.20 0.20	king/Sealar Product Dilution	Method Ref. SW846 8082	Prepared	Analyzed	Analyst TG	Aug-10 Batch	
Joint-34- SB16757- CAS No. Semivolat Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9	Wipe -04 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242	BRL BRL BRL BRL	01-201	Units Units units units units units units units units	*RDL 0.20 0.20 0.20 0.20 0.20	king/Sealar Product Dilution 1 1 1 1	Method Ref. SW846 8082	Prepared	Analyzed	Analyst TG	Aug-10 Batch	
Joint-34- SB16757 CAS No. Semivolat Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6	Wipe -04 Analyte(s) ite Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248	BRL BRL BRL BRL BRL	01-201	Units ugMipe ugMipe ugMipe ugMipe ugMipe ugMipe ugMipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20	king/Sealar Product Dilution 1 1 1 1 1	Method Ref. SW846 8082	Prepared	Analyzed	Analyst TG	Aug-10 Batch	
Joint-34- SB16757 CAS No. Semivolat Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1	Wipe -04 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254	BRL BRL BRL BRL BRL	01-201	Units µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20	king/Sealar Product Dilution 1 1 1 1 1 1	Method Ref. SW846 8082	Prepared	Analyzed	Analyst TG	Aug-10 Batch	
Joint-34- SB16757- CAS No. Semivolat Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5	Wipe -04 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260	BRL BRL BRL BRL BRL BRL	01-201	Units µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	king/Sealar Product Dilution	Method Ref. SW846 8082	Prepared 17-Aug-10 " " " "	Analyzed	Analyst TG	Aug-10 Batch	
Joint-34- SB16757- CAS No. Semivolat Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4	Wipe -04 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262	BRL BRL BRL BRL BRL BRL BRL	01-201	Units Units units units units units units units units units units units units units	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	king/Sealar Product Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Method Ref. SW846 8082	Prepared 17-Aug-10	Analyzed	TG "	Aug-10 Batch	
Joint-34- SB16757. CAS No. Semivolat Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate	Wipe -04 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268	BRL BRL BRL BRL BRL BRL BRL	01-201	Units Units units units units units units units units units units units units units	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	king/Sealar Product Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Method Ref. SW846 8082	Prepared 17-Aug-10	Analyzed	TG "	Aug-10 Batch	
Joint-34- SB16757. CAS No. Semivolat Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate	Wipe -04 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268 recoveries: 4,4-DB-Octafluorobiphenyl (Sr)	BRL BRL BRL BRL BRL BRL BRL BRL	01-201	Units Units units units units units units units units units units units units units	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	king/Sealar Product Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Method Ref. SW846 8082	Prepared 17-Aug-10	Analyzed	TG "	Aug-10 Batch	
Joint-34- SB16757 CAS No. Semivolat Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate 10386-84-2	Wipe -04 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268 recoveries: 4,4-DB-Octafluorobiphenyl (Sr) 4,4-DB-Octafluorobiphenyl (Sr)	BRL BRL BRL BRL BRL BRL BRL	01-201	Units Units units units units units units units units units units units units units	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	king/Sealar Product Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Method Ref. SW846 8082	Prepared 17-Aug-10	Analyzed	TG "	Aug-10 Batch	

Sample Id Joint-89-3 SB16757-	-			<u>t Project #</u> 7319.02.36	Caul	<u>Matrix</u> king/Seala	nt Sika 17	lection Date I-Aug-10 10		-	<u>ceived</u> Aug-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Product Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolati	ile Organic Compounds by GC											
	inated Biphenyls by SW846 8082 by method SW846 3540C											
	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	п	Ħ	N4	н		
11141-16-5	Aroclor-1232	BRL		µg∕Wipe	0.20	1	Ħ	*	н	n	н	
53469-21-9	Aroclor-1242	BRL		µg∕Wipe	0.20	1	**	10	n	н	R	
12672-29-6	Aroclor-1248	BRL		µg∕Wipe	0.20	1	29	n		'n	H	
11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	**	**	н	n		
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	ж	**	•	**		
37324-23-5	Aroclor-1262	BRL		µg∕Мре	0.20	1	**	**	•	я	ч	
11100-14-4	Aroclor-1268	BRL		µg∕Wipe	0.20	1	**		я	*1	4	
Surrogate I	recoveries;	·										
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	76			30-150 %		ta	H.	स	41	71	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	87			30-150 %		Bay	н	31	8	я	
2051-24-3	Decachlorobiphenyl (Sr)	107			30-150 %		pt.	n	**	10		
2051-24-3	Decachlorobiphenyl (Sr) [2C]	110			30-150 %		Ħ	и	34	n	स	
Joint-93- SB16757-	=			<u>t Project #</u> 7319.02.36	Caul	<u>Matrix</u> king/Seala Product	nt Sika 17	lection Date 7-Aug-10 10			ceived Aug-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolat	ile Organic Compounds by GC	•										
Polychlori	inated Biphenyls by SW846 8082 by method SW846 3540C											
	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	H	н	FI	¥†	**	
11141-16-5	Aroclor-1232	BRL.	4	μg∕Wiρe	0.20	1	н		n	Ħ	**	
53469-21-9	Aroclor-1242	BRL.		μg/Wipe	0.20	1	н	н	Tr	ti	н	
12672-29-6	Aroclor-1248	BRL		μg/Wipe	0.20	1	н	-	н	*	**	
11097-69-1	Aroclor-1254	BRL		μg/Wipe	0.20	1	N	m	n	×	#	
11096-82-5	Aroclor-1260	BRL		μg/Wipe	0.20	1	n	n	11	*1	н	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1	п	n	**	Ħ	и	
11100-14-4	Aroctor-1268	BRL.		µg∕Wipe	0.20	1	W	Я	π	Ħ	14	
Surrogate			'						**			
	recovenes:											
10386-84-2		88			30-150 %		**	н	**	*	=1	
10386-84-2 10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	88 88			30-150 % 30-150 %		át 32	E1	11 Ti	Ħ Ħ	# 7	
	4,4-DB-Octafluorobiphenyl (Sr) 4,4-DB-Octafluorobiphenyl (Sr)						96 32 48	11)) TI	# #1	#3 64 77	

Joint-99-1 SB16757-	•			<u>t Project #</u> 7319.02.36	Caul	<u>Matrix</u> king/Scala Product		ection Date -Aug-10 11			ceived Aug-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolati	ile Organic Compounds by GC											
	inated Biphenyls by SW846 8082 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	*	π	nt	H	н	
11141-16-5	Aroclor-1232	BRL		µg∕Wipe	0.20	1	#	**	м	Я	fP	
53469-21-9	Aroclor-1242	BRL		µg∕Мі́ре	0.20	1	Ħ	**	и	77	*	
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	*	41	Я	**	Ħ	
11097-69-1	Aroclor-1254	BRL		µg∕Wipe	0.20	1	π	**	н	•	**	
11096-82-5	Aroclor-1260	BRL		μg/Wiρe	0.20	1	*	+6	π	79	14	
37324-23-5	Aroclor-1262	BRL.		μg/Wipe	0.20	1	#	स	Ħ	н	n	
11100-14-4	Aroclor-1268	BRL		µg∕Міре	0.20	1	n	**	н	п	и	
Surrogate i	recoveries:											
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	83			30-150 %			n	•	†•	м	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	82			30-150 %		n	ri	st	**	н	
2051-24-3	Decachlorobiphenyl (Sr)	103			30-150 %			4	н	34	ж	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	108			30-150 %		. "	**	H	27	31	
Joint-105	dentification		Clion	Drainat #		N / - 4	C 11		km*	D.	ceived	
SB16757-	•			<u>t Project #</u> 7319.02.36	Caul	<u>Matrix</u> king/Seala Product		ection Date. '-Aug-10 11			Aug-10	
	•	Result		' - '	**************************************	king/Seala		'-Aug-10 11		17-	Aug-10	Cert.
SB16757-	-08	Result	01-20	7319.02.36		king/Seala Product	nt Sika 17	'-Aug-10 11	:20	17-	Aug-10	Cert.
SB16757- CAS No. Semivolati Polychlori	-08 Analyte(s)	Result	01-20	7319.02.36		king/Seala Product	nt Sika 17	'-Aug-10 11	:20	17-	Aug-10	Cert.
SB16757- CAS No. Semivolati Polychlori Prepared	-08 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082	Result BRL	01-20	7319.02.36		king/Seala Product	nt Sika 17	Prepared	:20	17-	Aug-10	
SB16757- CAS No. Semivolati Polychlori Prepared	-08 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016	· · · · · · · · · · · · · · · · · · ·	01-20	7319.02.36 Units	*RDL	king/Seala Product Dilution	nt Sika 17	Prepared	:20 Analyzed	17-i	Aug-10	
SB16757- CAS No. Semivolati Polychlori Prepared 12674-11-2	-08 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221	BRL	01-20	7319.02.36 <i>Units</i> μg/Wipe	*RDL	king/Seafar Product Dilution	nt Sika 17 Method Ref. SW846 8082	Prepared	:20 Analyzed	17-1	Aug-10	
SB16757- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2	-08 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221	BRL BRL	01-20	Units Units	*RDL 0.20 0.20	king/Sealar Product Dilution 1 1	Method Ref. SW846 8082	Prepared	:20 Analyzed	17-1 Analyst TG	Batch 1017547	
SB16757- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5	-08 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232	BRL BRL BRL	01-20	Units Units µg/Mpe µg/Mpe µg/Mpe	*RDL 0.20 0.20 0.20	king/Sealar Product Dilution 1 1	Method Ref. SW846 8082	Prepared	:20 Analyzed	17-1 Analyst TG	Batch 1017547	
SB16757- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9	Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242	BRL BRL BRL BRL	01-20	Units Units units units	*RDL 0.20 0.20 0.20 0.20 0.20	king/Sealar Product Dilution 1 1 1 1	Method Ref. SW846 8082	Prepared	:20 Analyzed	17-1 Analyst TG	Batch 1017547	
SB16757- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6	Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248	BRL BRL BRL BRL BRL	01-20	Units ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20	king/Sealar Product Dilution 1 1 1 1 1	Method Ref. SW846 8082	Prepared	:20 Analyzed	17-1 Analyst TG	Batch 1017547	
SB16757- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1	Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260	BRL BRL BRL BRL BRL	01-20	Units µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20	king/Sealar Product Dilution	Method Ref. SW846 8082	Prepared	:20 Analyzed	TG "	Batch 1017547	
SB16757- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5	Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262	BRL BRL BRL BRL BRL BRL	01-20	Units Units ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe ug/Mipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20	king/Sealar Product Dilution	Method Ref. SW846 8082	Prepared	:20 Analyzed	TG "	Batch 1017547	
SB16757- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4	Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262	BRL BRL BRL BRL BRL BRL BRL	01-20	Units Units Units Units Units	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	Product Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Method Ref. SW846 8082	Prepared 17-Aug-10 11	:20 Analyzed 18-Aug-10 """ """ """ """ """	17-Analyst	Aug-10 Batch 1017547	
SB16757- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate	Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268	BRL BRL BRL BRL BRL BRL BRL	01-20	Units Units Units Units Units	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	Product Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Method Ref. SW846 8082	Prepared 17-Aug-10 11	:20 Analyzed 18-Aug-10 """ """ """ """ """	17-Analyst	Aug-10 Batch 1017547	
SB16757- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate	Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1260 Aroclor-1268 recoveries: 4,4-DB-Octafluorobiphenyl (Sr)	BRL BRL BRL BRL BRL BRL BRL BRL	01-20	Units Units Units Units Units	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	Product Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Method Ref. SW846 8082	Prepared 17-Aug-10 11	:20 Analyzed 18-Aug-10 """ """ """ """ """	TG "	Aug-10 Batch 1017547	
SB16757- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate 1 10386-84-2	Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268 recoveries: 4,4-DB-Octafluorobiphenyl (Sr) 4,4-DB-Octafluorobiphenyl (Sr)	BRL BRL BRL BRL BRL BRL BRL	01-20	Units Units Units Units Units	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	Product Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Method Ref. SW846 8082	Prepared 17-Aug-10 11	:20 Analyzed 18-Aug-10 """ """ """ """ """	TG "	Aug-10 Batch 1017547	

Sample Id Joint-112 SB16757-	•			<u>l Project #</u> /319.02.36	Caul	<u>Matrix</u> king/Sealar Product		ection Date 7-Aug-10 11		•	ceived Aug-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolati	ile Organic Compounds by GC											
	nated Biphenyls by SW846 8082											
	by method SW846 3540C											
	Aroclor-1016	BRL		µg∕Мі́ре	0,20	1	SW846 8082	17-Aug-10	18-Aug-10	TG	1017547	,
11104-28-2	Aroclor-1221	BRL		μg/Wipe 	0.20	1		95 85	_	n n	*1	
11141-16-5	Aroclor-1232	BRL		μg/Wipe	0.20	1	**		_	" n	,	
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1		**	ж		"	
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	**		*	Ħ		
11097-69-1	Aroclor-1254	BRL		µg∕Wipe	0.20	1		**	**	21.		
11096-82-5	Aroclor-1260	BRŁ		µg∕Wipe	0,20	1	н				*	
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0.20	1		n	**	#1		
11100-14-4	Aroclor-1268	BRL.		µд∕Міре	0,20	1				н		
Surrogate I	recoveries:											
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	81			30-150 %		**	n	π	п	Ħ	
10386-84-2	4,4-DB-Oclafluorobiphenyl (Sr) [2C]	82			30-150 %		स	tt	Ħ	±1	Ħ	
2051-24-3	Decachlorobiphenyl (Sr)	100			30-150 %		n	#	н	44	R	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	100			30-150 %		п	Ħ	ri	n	**	
			an and an early and an early			nent Granderstein nacht (and research the second of the second se	Committee of National		1301500000
Joint-113	lentification Wine		Client	t Project #		<u>Matrix</u>	Col	ection Date	<u>Time</u>	Re	ceived	
SB16757-	•		01-207	7319.02.36	Caul	king/Sealar	nt Sika 17	7-Aug-10 11	:50	17-	Aug-10	
<u> </u>		 				Product						
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolati	ile Organic Compounds by GC											
	inated Biphenyls by SW846 8082											
	by method SW846 3540C Aroclor-1016	DDI			0.20	4	SW846 8082	17-Aug-10	19 Aug 10	TC	1017547	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	3000 000Z	17-Mug-10	10-Aug-10	TG "	1017347	
11141-16-5	Aroclor-1232	BRL		hã∖Wibe	0.20	1		**	12	**	11	
		BRL		µg/Wipe	0.20	1	Ħ	#1	n	н	Ħ	
53469-21-9 12672-29-6	Aroclor-1242	BRL		hg/Wibe	0.20	1	N	,,	н	,,		
11097-69-1	Aroclor-1248	BRL		hg\Mibe	0.20	1	и	n		n	#	
	Aroclor-1254	0.44		µg/Wipe	0,20	1	13		п	pi .	T	
11096-82-5	Aroclor-1260	BRL		hâ⁄Mibe	0,20	1		n				
37324-23-5	Aroclor-1262	BRL		µg/Wipe	0,20	1	_	··	л п	n n	n	
11100-14-4	Aroclor-1268	BRL		hâWibe	0,20	1						
-	recoveries:											
	4,4-DB-Octafluorobiphenyl (Sr)	82			30-150 %		н	17	71	Ħ	н	
40000 04 0									_			
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	82			30-150 %		н	n	7	н	*	
2051-24-3	7	82 98			30-150 % 30-150 %		# #	11	*	n	ĸ	

Semivolatile Organic Compounds by GC - Quality Control

nalyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPI Lim
atch 1017547 - SW846 3540C		·								
Blank (1017547-BLK1)					D.		A 40 A	-1 d. 40 A	40	
Aroclor-1016	BRL.			0.20	Pit	:pareo: 17-	Aug-10 An	alyzed: 18-A	<u>.ug-10</u>	
Aroclor-1016 [2C]	BRL		µg/Wipe va^∧fac	0.20						
Aroclor-1221	BRL		havveo	0.20						
Aroclor-1221 [2C]	BRL		µg/Wipe	0.20 0.20						
Aroclor-1232	BRL		µg/Wipe µg/Wipe	0.20						
Aroclor-1232 [2C]	BRL									
Aroclor-1242	BRL		µg∕Wipe	0.20 0.20						
Aroclor-1242 [2C]	BRL		µg/Wipe							
Aroclor-1248	BRL BRL		µg/Wipe	0.20						
Aroclor-1248 [2C]			µg/Wipe	0.20						
Aroclor-1246 [20]	BRL		µg/Wipe ug/M5oo	0.20						
Arodor-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						
	BRL.		μg/Wipe	0.20						
Aroclor-1262 [2C] Aroclor-1268	BRL		μg/Wipe	0.20						
Aroclor-1268 [2C]	BRL		µg∕Wipe	0.20						
	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∕Mipe		0.200		- 88	30-150		
Surrogate: Decachlorobiphenyl (Sr)	0.231		μg/Wipe		0.200		116	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.234		µg∕Міре		0.200		117	30-150		
LCS (1017547-BS1)					Pre	pared: 17-	Aug-10 An	alyzed: 18-A	ug-10	
Aroclor-1016	2.47		µg/Wipe	0.20	2.50		99	50-140		
Aroclor-1016 [2C]	2.60		µg∕Міре	0.20	2.50		104	50-140		
Aroclor-1260	1.82		µд∕Міре	0,20	2.50		73	50-140		
Aroclor-1260 [2C]	2.25		µд∕Мре	0.20	2.50		90	50-140		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0.167		µg∕Міре		0.200		84	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	0.163		μg∕Mipe		0.200		82	30-150		
Surrogate: Decachlorobiphenyl (Śr)	0.199		µg/Wipe		0.200		100	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	0.198		μg∕Wipe		0,200		99	30-150		
LCS Dup (1017547-BSD1)					Pre	pared: 17-	Aug-10 An	alyzed: 18-A	սգ-10	
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		

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.

<u>Laboratory Control Sample (LCS)</u>: 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.

<u>Matrix Spike</u>: 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.

<u>Surrogate</u>: 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

Labor	ratory Name: Spe	etrum Analytical, Inc.		Project #: 01-207.	319.02.36		
Proje	et Location: Gray	son/Field Hall-UMASS A	Amherst	RTN:			
		tifications for the follow	ing data set: S	B16757-01 through SB16	757-10		
Matri	ces: Caulking/S	ealant Sika Product					
CAM	Protocol						
	60 VOC AM 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 API CAM IX A	I
	70 SVOC AM 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 JX B	
	10 Metals \M 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 t	o questions A through 1	are required for "Presu	mptive Certainty" status		
A	_			cribed on the Chain of Cus epared/analyzed within m		✓ Yes	No
В	Were the analytic protocol(s) follow		ciated QC requirements	specified in the selected (CAM	✓ Yes	No
С		I corrective actions and ar mented for all identified		s specified in the selected on-conformances?	CAM .	✓ Yes	No
D				ents specified in CAM VII Reporting of Analytical D		✓ Yes	No
E		d APH Methods only: Wa 15 Methods only: Was the		ed without significant mod ported for each method?	lification(s)?	Yes Yes	No No
F		ble CAM protocol QC and poratory narrative (includi		non-conformances identifi questions A through E)?	ed and	✓ Yes	No
	, ,	Responses to questi	ons G, H and I below at	re required for "Presump	tive Certainty" status	<u> </u>	
G	Were the reporting	ng limits at or below all C	AM reporting limits spe	cified in the selected CAN	/ protocol(s)?	✓ Yes	No
		it achieve "Presumptive Cer i 310 CMR 40, 1056 (2)(k) a		essarily meet the data usabi	lity and representativeness		
Н	Were all QC peri	formance standards specif	ied in the CAM protoco	l(s) achieved?		✓ Yes	No
I	Were results repo	orted for the complete ana	llyte list specified in the	selected CAM protocol(s)	?	✓ Yes	No
All ne	gative responses ar	e addressed in a case narrat	ive on the cover page of th	is report.			
	-			pon my personal inquiry of a w knowledge and belief, accu	those responsible for obtaining trate and complete.	g the	
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					Hanibal C. Tayeh, Ph. President/Laboratory l Date: 8/19/2010		

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Report Date: 26-Aug-10 13:41



SPECTRUM ANALYTICAL, INC. Featuring HANIBAL TECHNOLOGY Laboratory Report

Environmental Compliance Services

588 Silver Street Agawam, MA 01001 Attn: Mike Grover Project: UMASS - Amherst, MA

Project #: 01-207319.02.36

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Laboratory ID	Client Sample ID	<u>Matrix</u>	Date Sampled	Date Received
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

Final Report

☐ Re-Issued Report

☐ Revised Report

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 Ide Joint-41 SB17069-	entification 01			Project # /319.02.36	Caul	<u>Matrix</u> king/Sealar Product		ection <u>Date</u> -Aug-10 11			ccived Aug-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatil	le Organic Compounds by GC											
	nated Biphenyls by SW846 8082 by method SW846 3540C											
	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	п	п	#	и	n	
11141-16-5	Aroclor-1232	BRL		µg∕Мре	0.20	1	Ħ	N	**	Ħ	n	
53469-21-9	Aroclor-1242	BRL		μg/Wipe	0.20	1	н	н	**	Ħ	н	
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0,20	1	я	π	17	я	H	
11097-69-1	Aroclor-1254	BRL		µg∕Мі́ре	0.20	1	**	ĸ	н	н	11	
11096-82-5	Aroclor-1260	BRL		μg/Wipe	0.20	1	16	65	м	**	и	
37324-23-5	Aroclor-1262	BRL		μg/Wipe	0.20	1	•	n	st.	Ħ	n	
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0,20	1	*	п	*	R	н	
Surrogale i	recoveries:											
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	91			30-150 %		14	45	41	n	н	
10386-84-2	4,4-DB-Octaffuorobiphenyl (Sr) [2C]	75			30-150 %		Ħ	n	я	f	**	
2051-24-3	Decachlorobiphenyl (Sr)	86			30-150 %		и	н	*1	rs	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	102			30-150 %		π	#	R	rr	N	
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Joint-45				<u>t Project #</u> 7319.02.36	Caul	king/Seala	nt/Sika 23	ection Date B-Aug-10 1			ceived Aug-10	
Joint-45 SB17069-	-02	D K	01-20	7319.02.36		king/Seala Product	nt/Sika 23	3-Aug-10 1	l:42	23-2	Aug-10	Cert.
Joint-45		Result			Caul	king/Seala	nt/Sika 23	3-Aug-10 1		23-2	Aug-10	Cert.
Joint-45 SB17069- CAS No. Semivolati	-02 Analyte(s) ile Organic Compounds by GC	Result	01-20	7319.02.36		king/Seala Product	nt/Sika 23	3-Aug-10 1	l:42	23-2	Aug-10	Cert.
Joint-45 SB17069- CAS No. Semivolati	-02 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082	Result	01-20	7319.02.36		king/Seala Product	nt/Sika 23	3-Aug-10 1	l:42	23-2	Aug-10	Cert.
Joint-45 SB17069- CAS No. Semivolati Polychlori Prepared	-02 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C		01-20	7319.02.36 Units	*RDL	king/Seala Product Dilution	nt/Sika 23	Prepared	Analyzed	23-4	Aug-10	-
Joint-45 SB17069- CAS No. Semivolati Polychlori Prepared 12674-11-2	-02 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016	BRL.	01-20	7319.02.36 <i>Units</i> μg/Wipe	*RDL	king/Seala Product Dilution	nt/Sika 23	Prepared	l:42	23-2	Aug-10	-
Joint-45 SB17069- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2	-02 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroctor-1016 Aroctor-1221	BRL BRL	01-20	Units μg/Wipe μg/Wipe	*RDL 0.20 0.20	king/Seala Product Dilution	nt/Sika 23 Method Ref. SW846 8082	Prepared	Analyzed	23-4	Aug-10	-
Joint-45 SB17069- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5	-02 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232	BRL BRL BRL	01-20	Units μg/Wipe μg/Wipe μg/Wipe	*RDL 0.20 0.20 0.20 0.20	king/Seala Product Dilution 1 1 1	nt/Sika 23 Method Ref. SW846 8082	Prepared 23-Aug-10	Analyzed 25-Aug-10	23-Analyst	Aug-10 <i>Batch</i> 101797-	-
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Joint-45 SB17069- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1	Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254	BRL BRL BRL BRL BRL BRL	01-20	Units µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20	king/Seala Product Dilution 1 1 1 1 1 1 1	nt/Sika 23 Method Ref. SW846 8082	Prepared 23-Aug-10	Analyzed 25-Aug-10 "	Analyst SM	Aug-10 Batch 101797-	-
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Joint-45 SB17069- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5	Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroctor-1016 Aroctor-1221 Aroctor-1232 Aroctor-1242 Aroctor-1248 Aroctor-1254 Aroctor-1254 Aroctor-1260 Aroctor-1262	BRL BRL BRL BRL BRL BRL BRL	01-20	Units µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	king/Seala Product Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	nt/Sika 23 Method Ref. SW846 8082	Prepared 23-Aug-10	25-Aug-10 " " " "	23-, Analyst SM	Aug-10 Batch 1017974	-
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Joint-45 SB17069- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate 10386-84-2	Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268 recoveries: 4,4-DB-Octafluorobiphenyl (Sr) 4,4-DB-Octafluorobiphenyl (Sr)	BRL BRL BRL BRL BRL BRL BRL BRL	01-20	Units µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	king/Seala Product Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	nt/Sika 23 Method Ref. SW846 8082	Prepared 23-Aug-10	Analyzed 25-Aug-10	23-, Analyst SM	Aug-10 Batch 101797-	-

Joint-50 SB17069-	entification 03			<u>Project #</u> /319.02.36	Caull	<u>Matrix</u> king/Sealar Product		ection Date -Aug-10 11			ceived Aug-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolati	le Organic Compounds by GC											
	nated Biphenyls by SW846 8082											
	by method SW846 3540C	201		045	0.00	4	CIMO46 0000	22 Aug. 10	25-Aug-10	SM	1017974	1
	Aroclor-1016	BRL		μg/Wipe	0.20	1	SW846 8082	23-Mug-10 #	23-Aug-10	SIVI B	1017314	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	14	R	et.	н	я	
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	at.	Ħ	el	н	R	
53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	5	я	n	*		
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0.20	1	н	n	s 1	7	я	
11097-69-1	Aroclor-1254	BRL		μg/Wipe	0.20	1				R		
11096-82-5	Arocler-1260	BRL		µg∕Wipe	0.20	1	я				**	
37324-23-5	Aroctor-1262	BRL		µg/Wipe	0.20	1		-	ĸ	,	 	
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	*	В				
Surrogate	recoveries:											
10386-84-2	4,4-DB-Octafluorooiphenyl (Sr)	80			30-150 %		r	"	,	*	ж	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	78			30-150 %		n	Ħ	л	Ħ	п	
2051-24-3	Decachlorobiphenyl (Sr)	88			30-150 %		**	71	я	15	Ħ	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	102			30-150 %		¥	R	rt	*	**	
	er beste takanak zentren erakanak alama. Ientification					Mately	Call	action Date	/Time	De.	ceived	
	lentification	anta (a la latera de la latera d	Clien	t Project # 7319.02.36		<u>Matrix</u> king/Seala Product	nt/Sika 23	ection Date 3-Aug-10 12			ceived Aug-10	
Sample Id Joint-55	lentification	Result	Clien	t Project#		king/Seala	nt/Sika 23	3-Aug-10 12		23-	Aug-10	Cert.
Sample Id Joint-55 SB17069 CAS'No.	lentification -04 Analyte(s)		<u>Clien</u> 01-20	<u>t Project #</u> 7319.02.36	Caul	king/Seala Product	nt/Sika 23	3-Aug-10 12	2:05	23-	Aug-10	Cert.
Sample Id Joint-55 SB17069 CAS No.	lentification -04 Analyte(s) ile Organic Compounds by GC		<u>Clien</u> 01-20	<u>t Project #</u> 7319.02.36	Caul	king/Seala Product	nt/Sika 23	3-Aug-10 12	2:05	23-	Aug-10	Cert.
Sample Id Joint-55 SB17069 CAS No. Semivolat Polychlor	lentification -04 Analyte(s)		<u>Clien</u> 01-20	<u>t Project #</u> 7319.02.36	Caul	king/Seala Product	nt/Sika 23	3-Aug-10 12	2:05	23-	Aug-10	Cert.
Sample Id Joint-55 SB17069 CAS No. Semivolat Polychlor Prepared	Identification -04 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082		<u>Clien</u> 01-20	<u>t Project #</u> 7319.02.36	Caul	king/Seala Product	nt/Sika 23	3-Aug-10 12	2:05	23-	Aug-10	
Sample Id Joint-55 SB17069 CAS No. Semivolat Polychlor Prepared	dentification -04 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016	Result	<u>Clien</u> 01-20	t Project # 7319.02.36 Units	Caul *RDL	king/Seala Product Dilution	nt/Sika 23	3-Aug-10 12	Analyzed	23-,	Aug-10	
Sample Id Joint-55 SB 17069 CAS No. Semivolat Polychlor Prepared 12674-11-2 11104-28-2	dentification -04 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016	Result BRL	<u>Clien</u> 01-20	t <u>Project #</u> 7319.02.36 <i>Units</i> µg/Wipe	***RDL *********************************	king/Seala Product Dilution	Method Ref. SW846 8082	3-Aug-10 12	Analyzed	23-,	Aug-10	
Sample Id Joint-55 SB 17069 CAS No. Semivolat Polychlor Prepared 12674-11-2 11104-28-2	Identification -04 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232	Result BRL BRL	<u>Clien</u> 01-20	t Project # 7319.02.36 Units μg/Wipe μg/Wipe	*RDL 0.20 0.20	king/Seala Product Dilution	Method Ref. SW846 8082	3-Aug-10 12	Analyzed 25-Aug-10	23-,	Aug-10 <i>Batch</i> 1017974	
Sample Id Joint-55 SB17069 CAS No. Semivolat Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5	Identification -04 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242	Result BRL BRL BRL	<u>Clien</u> 01-20	t Project # 7319.02.36 Units µg/Wipe µg/Wipe µg/Wipe	Caul *RDL 0.20 0.20 0.20	king/Seala Product Dilution 1 1 1	Method Ref. SW846 8082	3-Aug-10 12	Analyzed 25-Aug-10	23-,	Aug-10 <i>Batch</i> 1017974	
Sample Id Joint-55 SB17069 CAS No. Semivolat Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9	dentification -04 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248	Result BRL BRL BRL BRL	<u>Clien</u> 01-20	t Project # 7319.02.36 Units µg/Wipe µg/Wipe µg/Wipe µg/Wipe	*RDL 0.20 0.20 0.20 0.20 0.20	king/Seala Product Dilution 1 1 1 1	Method Ref. SW846 8082	3-Aug-10 12	Analyzed 25-Aug-10	23-,	Aug-10 <i>Batch</i> 1017974	
Sample Id Joint-55 SB 17069 CAS No. Semivolat Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6	dentification -04 Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248	Result BRL BRL BRL BRL BRL	<u>Clien</u> 01-20	Units µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe	*RDL *RDL 0.20 0.20 0.20 0.20 0.20 0.20	king/Seala Product Dilution 1 1 1 1 1	Method Ref. SW846 8082	3-Aug-10 12	Analyzed 25-Aug-10	23-,	Aug-10 <i>Batch</i> 1017974	
Sample Id Joint-55 SB 17069 CAS No. Semivolat Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1	Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260	Result BRL BRL BRL BRL BRL BRL	<u>Clien</u> 01-20	t Project # 7319.02.36 Units µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe	Caul *RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20	king/Seala Product Dilution 1 1 1 1 1 1	Method Ref. SW846 8082	3-Aug-10 12	Analyzed 25-Aug-10 "" "" ""	23-,	Aug-10 <i>Batch</i> 1017974	
Sample Id Joint-55 SB17069 CAS No. Semivolat Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11096-82-5	Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262	Result BRL BRL BRL BRL BRL BRL BRL	<u>Clien</u> 01-20	t Project # 7319.02.36 Units µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	king/Seala Product Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Method Ref. SW846 8082	3-Aug-10 12	25-Aug-10 " " " "	23-,	Aug-10 <i>Batch</i> 1017974	
Sample Id Joint-55 SB 17069 CAS No. Semivolat Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4	Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262	Result BRL BRL BRL BRL BRL BRL BRL BR	<u>Clien</u> 01-20	t Project # 7319.02.36 Units µg/Wipe	*RDL *RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	king/Seala Product Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Method Ref. SW846 8082	3-Aug-10 12	25-Aug-10	Analyst SM """ """ """ """ """ """ """	Aug-10 Batch 1017974	
Sample Id Joint-55 SB 17069 CAS No. Semivolat Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4	Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268 recoveries:	Result BRL BRL BRL BRL BRL BRL BRL BR	<u>Clien</u> 01-20	t Project # 7319.02.36 Units µg/Wipe	*RDL *RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	king/Seala Product Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Method Ref. SW846 8082	3-Aug-10 12	25-Aug-10	Analyst SM """ """ """ """ """ """ """	Aug-10 Batch 1017974	
Sample Id Joint-55 SB17069 CAS No. Semivolat Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate	Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1260 Aroclor-1263 recoveries: 4,4-DB-Octafluorobiphenyl (Sr)	Result BRL BRL BRL BRL BRL BRL BRL BR	<u>Clien</u> 01-20	t Project # 7319.02.36 Units µg/Wipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	king/Seala Product Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Method Ref. SW846 8082	3-Aug-10 12	25-Aug-10 "" "" "" "" "" ""	Analyst SM """ """ """ """ """ """ """	Aug-10 Batch 1017974	
Sample Id Joint-55 SB17069 CAS No. Semivolat Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate 10386-84-2	Analyte(s) ile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1260 Aroclor-1268 recoveries: 4,4-DB-Octafluorobiphenyl (Sr) 4,4-DB-Octafluorobiphenyl (Sr)	Result BRL BRL BRL BRL BRL BRL BRL BR	<u>Clien</u> 01-20	t Project # 7319.02.36 Units µg/Wipe	*RDL *RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	king/Seala Product Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Method Ref. SW846 8082	3-Aug-10 12	25-Aug-10	Analyst SM """ """ """ """ """ """ """	Aug-10 Batch 1017974	

Sample Ide Joint-62 SB17069-0				t Project # 7319.02.36	Caull	<u>Matrix</u> king/Seafar Product		llection Date 23-Aug-10 12		-	ceived Aug-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatif	e Organic Compounds by GC											
	nated Biphenyls by SW846 8082 by method SW846 3540C											
12674-11-2	Aroclor-1016	BRL		μg∕Wiρe	0.20	1	SW846 8082	23-Aug-10	25-Aug-10	SM	1017974	
11104-28-2	Aroclor-1221	BRL		μg∕Wipe	0.20	1	11	п	н	11	P	
11141-16-5	Aroclor-1232	BRL		μg∕Wipe	0,20	1	N	н	N	**	N	
53469-21-9	Aroclor-1242	BRL		µg∕Wipe	0.20	1	11	и	#	*	*1	
12672-29-6	Arocior-1248	BRL		μg/Wipe	0.20	1	H	**	*1	ĸ	"	
11097-69-1	Aroclor-1254	0.32		µg/Wipe	0.20	1	Ħ	76	**	H	п	
11096-82-5	Aroclor-1260	0.58	G	μg/Wipe	0.20	1	n	R	tj	#1	#5	
37324-23-5	Aroctor-1262	BRL.	0.7	∕µg∕Wipe	0.20	1	И	Ħ	н	71	Ħ	
11100-14-4	Aroclor-1268	BRL		μg/Wipe	0,20	1	н	***		**	n .	
Surrogate re	ecoveries:											
10036-84-2	4,4-DB-Octafluorobiphenyl (Sr)	74			30-150 %		ь	31	н	H	**	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	63			30-150 %		n	н	n	n	*	
2051-24-3	Decachlorobiphenyl (Sr)	72			30-150 %		**	7	**	#	R	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	92			30-150 %		M	11		***************************************	n and markey a well of the con-	e dominio participado
Somple Id	entification	o por firm and the first f	yy, may 200 to the first to be not done							_		
Joint-66	<u>ORTHORION</u>			nt Project#		<u>Matrix</u>		Illection Date			ceived	
SB17069-	06		01-20	7319.02.36	Caul	king/Seala Product		23-Aug-10 1	2:20	23	Aug-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolati	le Organic Compounds by GC											
Polychlori	nated Biphenyls by SW846 8082 by method SW846 3540C											
	Aroclor-1016	BRL		μg/Wipe	0.20	1	SW846 8082	23-Aug-10	25-Aug-10	SM	1017974	1
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	и	**	н	п	н	
	Aroclor-1232	BRL		μg/Wipe	0.20	1	Ħ	п	n	P)	**	
53469-21-9	Aroclor-1242	BRL		µg∕Wipe	0.20	1	**	н	н	#		
12672-29-6	Aroclor-1248	BRL.		μg/Wipe	0.20	1	н	**	**	*	*	
11097-69-1	Aroclor-1254	BRL		μg/Wipe	0.20	1	н	Ħ	"	14	rf	
11096-82-5	Aroclor-1260	BRL		μg/Wipe	0.20	1	w			H	4	
37324-23-5	Aroclor-1262	BRL		μg/Wipe	0.20	1	п	н	п	12	Ħ	
11100-14-4		BRL		µg/Wipe	0.20	1	n	•	#	•		
Surrogate i	recoveries:											
10386-84-2		67			30-150 %		27	п	*	**	ĸ	
10386-84-2	, , ,	80			30-150 %		#	Ħ	н	R	11	
2051-24-3	Decachlorobiphenyl (Sr)	88			30-150 %		n	ध	,,	**	я	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	106			30-150 %		*1	Ħ	π	п	Ħ	
	aret e											

Joint-70 SB17069-	lentification 07		-	Project # 319.02.36	Caull	<u>Matrix</u> king/Sealar Product		ection Date/ -Aug-10 12			ceived Aug-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolati	le Organic Compounds by GC											
	nated Biphenyls by SW846 8082											
	by method SW846 3540C				0.00		SW846 8082	22 Aug 10	25-Aug-10	SM	1017974	
	Aroclor-1016	BRL		µg/Wipe	0.20	1	500846 8082	23-Aug-10	23-Aug-10	W W	1017374	
11104-28-2	Aroclor-1221	BRL		µg/Wipe	0.20	1	n	pt.	н	н	51	
11141-16-5	Aroclor-1232	BRL		µg∕Wipe	0.20	1		n	#		н	
53469-21-9	Aroclor-1242	BRL		µg∕Wipe	0.20	1	15	er	•	,,	71	
12672-29-6	Arodor-1248	BRL		µg/Wipe	0.20	1		,,	 #t	 H		
11097-69-1	Aroclor-1254	BRL		µg∕Mpe	0.20	1	n		,,	_		
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0,20	1	п	*				
37324-23-5	Aroclor-1262	BRL.		µg∕Wîpe	0.20	1	14	n	N			
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	H.		#1	-	n	
Surrogate i	recoveries:								_	_	к	
10386-84-2	4,4-DB-Oclafluorobiphenyl (Sr)	94			30-150 %		n	π	R	**		
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	76			30-150 %		軒		и	'n		
2051-24-3	Decachlorobiphenyl (Sr)	90			30-150 %		п	**	*	•		
2051-24-3	Decachlorobiphenyl (Sr) [2C]	101			30-150 %	a Wantana and a Restrict to the			M.	я		e propinsionale
edictionalization												
	dentification -08			<u>t Project #</u> 7319.02.36	Caul	<u>Matrix</u> king/Seala Product	nt/Sika 23	lection Date 3-Aug-10 12			ceived Aug-10	
Sample Id Joint-73		Result			Caul	king/Seala	nt/Sika 23	3-Aug-10 12		23	Aug-10	Cert.
Sample Id Joint-73 SB17069 CAS No.	-08 Analyte(s)	Result	01-20	7319.02.36		king/Seala Product	nt/Sika 23	3-Aug-10 12	2:29	23	Aug-10	Cert.
Sample Id Joint-73 SB17069 CAS No.	-08 Analyte(s) life Organic Compounds by GC	Result	01-20	7319.02.36		king/Seala Product	nt/Sika 23	3-Aug-10 12	2:29	23	Aug-10	Cert.
Sample Id Joint-73 SB17069 CAS No. Semivolat Polychlor	-08 Analyte(s)	Result	01-20	7319.02.36		king/Seala Product	nt/Sika 23	3-Aug-10 12	2:29 Analyzed	23-,	Aug-10 Batch	
Sample Id Joint-73 SB17069 CAS No. Semivolate Polychlor Prepared	-08 Analyte(s) tile Organic Compounds by GC inated Biphenyls by SW846 8082	Result BRL	01-20	7319.02.36		king/Seala Product	nt/Sika 23	3-Aug-10 12	2:29	23-,	Aug-10	
Sample Id Joint-73 SB17069 CAS No. Semivolat Polychlor Prepared 12674-11-2	-08 Analyte(s) life Organic Compounds by GC inated Biphenyls by SW846 8082 I by method SW846 3540C		01-20	7319.02.36 Units	*RDL	king/Seala Product Dilution	nt/Sika 23	3-Aug-10 12	Analyzed 25-Aug-10	23-,	Aug-10 Batch	
Sample Id Joint-73 SB17069 CAS No. Semivolat Polychlor Prepared 12674-11-2 11104-28-2	-08 Analyte(s) tile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016	BRL	01-20	7319.02.36 <i>Units</i> μg/Wipe	*RDL	king/Seala Product Dilution	nt/Sika 23 Method Ref. SW846 8082	3-Aug-10 12	2:29 Analyzed	23-,	Aug-10 Batch	
Sample Id Joint-73 SB17069 CAS No. Semivolat Polychlor Prepared 12674-11-2 11104-28-2	Analyte(s) title Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232	BRL BRL	01-20	Units Ug/Wipe ug/Wipe	*RDL 0.20 0.20	king/Seala Product Dilution	nt/Sika 23 Method Ref. SW846 8082	3-Aug-10 12	Analyzed 25-Aug-10	23-,	Aug-10 Batch	
Sample Id Joint-73 SB17069 CAS No. Semivolat Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5	Analyte(s) dile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroctor-1016 Aroctor-1221 Aroctor-1232 Aroctor-1242	BRL BRL BRL	01-20	Units UgWipe µgWipe µgWipe	*RDL 0.20 0.20 0.20 0.20	king/Seala Product Dilution 1 1	nt/Sika 23 Method Ref. SW846 8082	3-Aug-10 12	Analyzed 25-Aug-10	23-,	Aug-10 Batch	
Sample Id Joint-73 SB17069 CAS No. Semivolate Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9	Analyte(s) life Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroctor-1016 Aroctor-1221 Aroctor-1232 Aroctor-1242 Aroctor-1248	BRL BRL BRL BRL	01-20	Units ug/Wipe ug/Wipe ug/Wipe ug/Wipe ug/Wipe	*RDL 0.20 0.20 0.20 0.20 0.20	king/Seala Product Dilution 1 1 1	nt/Sika 23 Method Ref. SW846 8082	3-Aug-10 12	Analyzed 25-Aug-10	23-, Analyst	Aug-10 Batch	
Sample Id Joint-73 SB17069 CAS No. Semivolat Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6	Analyte(s) tile Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254	BRL BRL BRL BRL BRL	01-20	Units µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe µg/Wipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20	king/Seala Product Dilution 1 1 1 1 1	nt/Sika 23 Method Ref. SW846 8082	3-Aug-10 12	Analyzed 25-Aug-10	23-, Analyst	Aug-10 Batch	
Sample Id Joint-73 SB17069 CAS No. Semivolat Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1	Analyte(s) dite Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1254 Aroclor-1260	BRL BRL BRL BRL BRL BRL	01-20	Units ug/Wipe ug/Wipe ug/Wipe ug/Wipe ug/Wipe ug/Wipe ug/Wipe ug/Wipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20	king/Seala Product Dilution 1 1 1 1 1 1	nt/Sika 23 Method Ref. SW846 8082	3-Aug-10 12	Analyzed 25-Aug-10	23-, Analyst	Aug-10 Batch	
Sample Id Joint-73 SB17069 CAS No. Semivolate Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5	Analyte(s) Analyte(s) title Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroctor-1016 Aroctor-1221 Aroctor-1232 Aroctor-1242 Aroctor-1248 Aroctor-1254 Aroctor-1254 Aroctor-1260 Aroctor-1262	BRL BRL BRL BRL BRL BRL BRL	01-20	Units ug/Wipe ug/Wipe ug/Wipe ug/Wipe ug/Wipe ug/Wipe ug/Wipe ug/Wipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	king/Seala Product Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	nt/Sika 23 Method Ref. SW846 8082	3-Aug-10 12	Analyzed 25-Aug-10	23-, Analyst	Aug-10 Batch	
Sample Id Joint-73 SB17069 CAS No. Semivolate Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4	Analyte(s) Analyte(s) title Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroctor-1016 Aroctor-1221 Aroctor-1232 Aroctor-1242 Aroctor-1248 Aroctor-1254 Aroctor-1254 Aroctor-1260 Aroctor-1262	BRL BRL BRL BRL BRL BRL BRL BRL	01-20	Units Units ug/Wipe ug/Wipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	king/Seala Product Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	nt/Sika 23 Method Ref. SW846 8082	Prepared 23-Aug-10 " " " " " "	Analyzed 25-Aug-10	SM n n	Aug-10 Batch	
Sample Id Joint-73 SB17069 CAS No. Semivolate Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4	Analyte(s) life Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroctor-1016 Aroctor-1221 Aroctor-1232 Aroctor-1242 Aroctor-1248 Aroctor-1254 Aroctor-1260 Aroctor-1260 Aroctor-1262 Aroctor-1268	BRL BRL BRL BRL BRL BRL BRL BRL	01-20	Units Units ug/Wipe ug/Wipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	king/Seala Product Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	nt/Sika 23 Method Ref. SW846 8082	Prepared 23-Aug-10 " " " " " "	Analyzed 25-Aug-10	SM n n	Aug-10 Batch	
Sample Id Joint-73 SB17069 CAS No. Semivolate Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate	Analyte(s) Analyte(s) title Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroctor-1016 Aroctor-1221 Aroctor-1232 Aroctor-1242 Aroctor-1248 Aroctor-1254 Aroctor-1254 Aroctor-1260 Aroctor-1268 Precoveries: 4,4-DB-Octafluorobiphenyl (Sr)	BRL BRL BRL BRL BRL BRL BRL BRL BRL	01-20	Units Units ug/Wipe ug/Wipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	king/Seala Product Dilution 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	nt/Sika 23 Method Ref. SW846 8082	Prepared 23-Aug-10 " " " " " "	Analyzed 25-Aug-10	SM n n	Aug-10 Batch	
Sample Id Joint-73 SB17069 CAS No. Semivolat Polychlor Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1 11096-82-5 37324-23-5 11100-14-4 Surrogate 10386-84-2	Analyte(s) Analyte(s) tite Organic Compounds by GC inated Biphenyls by SW846 8082 by method SW846 3540C Aroctor-1016 Aroctor-1221 Aroctor-1232 Aroctor-1242 Aroctor-1248 Aroctor-1254 Aroctor-1254 Aroctor-1260 Aroctor-1262 Aroctor-1268 Precoveries: 4,4-DB-Octafluorobiphenyl (Sr)	BRL BRL BRL BRL BRL BRL BRL BRL	01-20	Units Units ug/Wipe ug/Wipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	king/Seala Product Dilution 1 1 1 1 1 1 1 1 1 1 1	nt/Sika 23 Method Ref. SW846 8082	Prepared 23-Aug-10 " " " " " "	Analyzed 25-Aug-10	SM n n	Aug-10 Batch	

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 " " " " " " " " " " " " " " " " " "	<u>Sample Id</u> Joint-77 SB17069-	entification 09		•	Project # 319.02.36	Caull	<u>Matrix</u> cing/Sealar Product	nt/Sika 23	ection Date -Aug-10 12			ceived Aug-10	
Property December Property Property	CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Transpare W	Semivolati	le Organic Compounds by GC											
11094-00-00 1													
1101-14-2 Anocho-1221 BRL 197/Mpc 0.20 1			BRL		µg/Wipe	0.20	1	SW846 8082	23-Aug-10	25-Aug-10	SM	1017974	ŀ
Section Sect	11104-28-2	Aroclor-1221	BRL		µg∕Міре	0.20	1	**	н	**	и	10	
Statistical Project	11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	11	ri	Ħ	н	п	
1997/2996 Arocko-1284 BRL 1997/690 0.20 1	53469-21-9	Aroclor-1242	BRL		μg/Wipe	0.20	1	45	п	Ħ	π	n	
11006-49-5 Arcolor-1254	12672-29-6	Aroclor-1248	BRL		µд∕Міре	0.20	1	n	**	**	rt	*1	
1100-14 Arcolo-1280 BRL			BRL		µg∕Міре	0,20	1	n	Ħ	#	в	41	
Sample			BRL		μg/Wipe	0.20	1	21	н	W	**	*	
Surrogate						0.20	1	19	Ν	н	**	ri	
10386-84-2 4,4-DB-Octaflurorbiphenyl (Sr) 204 30-150 % 3						0,20	1	м	n	Ħ	я	ır	
10386-84-2 4,4-DB-Octaflurorbiphenyl (Sr) 204 30-150 % 3	Surrogate	recoveries:			· · · · · · <u>-</u> ·								
10386-8-2			104			30-150 %		п	τi	н	ər	и	
2051-24-3 Decachlorobiphenyl (Sr) 2051-24-3 Decachlorobiphenyl (Sr) 2CI 109 30-150 % Sample Identification CI Project # Matrix Collection Date/Time Received Joint-82 O1-207319.02.36 Caulking/Scalant/Sika 23-Aug-10 12:45 23-Aug-10 CAS No. Analyte(s) Result Flag Units *RDL Dilution Method Ref. Prepared Analyzed Analy	10386-84-2	7,	82			30-150 %		**	н	**	Ħ		
Sample Identification Client Project # Matrix Collection Date/Time Received Joint-82 SB17069-10 Caulking/Sealant/Sika 23-Aug-10 12:45 23-Aug-10 25-Aug-10 12:45 23-Aug-10	2051-24-3	Decachlorobiphenyl (Sr)	93			30-150 %		ж	**	Ħ	н	н	
Sample	2051-24-3	Decachlorobiphenyl (Sr) [2C]	109			30-150 %		н	я	и	ਜ	n	
Semivolatile Organic Compounds by GC Polychlorinated Biphenyls by SW846 8082 Prepared by method SW846 3540C 12674-11-2 Arcolor-1016 BRL µg/Wipe 0.20 1 SW846 8082 23-Aug-10 25-Aug-10 SM 1017974 11104-28-2 Arcolor-1221 BRL µg/Wipe 0.20 1 " " " " " " " " "	Joint-82			•		Caul	king/Seala	int/Sika 2:					
Polychlorinated Biphenyls by SW846 8082 Prepared by method SW846 3540C 12674-11-2	CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Polychlorinated Biphenyls by SW846 8082 Prepared by method SW846 3540C 12674-11-2	Semiyolat	ile Organic Compounds by GC											
12674-11-2 Aroclor-1016 BRL µg/Wpe 0.20 1 SW846 8082 23-Aug-10 25-Aug-10 SM 1017974 11104-28-2 Aroclor-1221 BRL µg/Wpe 0.20 1 " " " " " " " " " " " " " " " " " "	Polychlor	inated Biphenyls by SW846 8082											
11141-16-5 Aroclor-1232 BRL µg/Wipe 0.20 1 " " " " " " " " " " " " " " " " " "			BRL		µд∕Мре	0.20	1	SW846 8082	23-Aug-10	25-Aug-10	SM	101797	4
11141-16-5 Aroclor-1232 BRL µg/Wipe 0.20 1 " " " " " " " " " " " " " " " " " "	11104-28-2	Aroclor-1221	BRL		μg/Wipe	0.20	1	*	"	н	Ħ	н	
12672-29-6 Aroclor-1248 BRL µg/Wipe 0.20 1 " " " " " " " " " " " " " " " " " "	11141-16-5	Aroclor-1232	BRL		μg/Wipe	0.20	1	к	н	ď	76	Я	
11097-69-1 Aroclor-1254 BRL µg/Wipe 0.20 1 " " " " " " " " 11096-82-5 Aroclor-1260 BRL µg/Wipe 0.20 1 " " " " " " " " " " " " " " " " " "	53469-21-9	Aroclor-1242	BRL		µg/Wipe	0.20	1	NI .	п		H	*	
11097-69-1 Aroclor-1254 BRI. µg/Wipe 0.20 1 " " " " " " " " " " " " " " " " " "	12672-29-6	Aroclor-1248	BRL		μg/Wipe	0.20	1	41	×	*	*1	*	
11096-82-5 Aroclor-1260 BRL μg/Wipe 0.20 1 " " " " " " " " " " " " " " " " " "	11097-69-1	Aroclor-1254	BRL		µg/Wipe	0.20	1	P ⁺	n	Ħ	91	π	
37324-23-5 Aroclor-1262 BRL μg/Wipe 0.20 1 " " " " " " " " " " " " " " " " " "	11096-82-5		BRL		µg/Wipe	0.20	1	w	я	#	H	*	
11100-14-4 Aroclor-1288 BRL μg/Wipe 0.20 1 " " " " " " " " " " " " " " " " " "			BRL		µg∕Wipe	0.20	1	16	Ħ		в	н	
10386-84-2 4,4-DB-Octafluorobiphenyl (Sr) 69 30-150 % " " " " " " " " " " " " " " " " " "			BRL		µg/Wipe	0.20	1	н	и	я	н	H	
10386-84-2 4,4-DB-Octafluorobiphenyl (Sr) 69 30-150 % " " " " " " " " " " " " " " " " " "	Surrogate	recoveries:											
10386-84-2 4,4-DB-Octafluorobiphenyl (Sr) 76 30-150 % [2C] 2051-24-3 Decachlorobiphenyl (Sr) 84 30-150 % """" """" """"" """"" """"" """"" """"			69			30-150 %		6	#	n	*	#	
2051-24-3 Decachlorobiphenyl (Sr) 84 30-150 % " " " " " " " " " " " " " " " " " "	10386-84-2	4. = =	76			30-150 %		н	Ħ	н	n	н	
2051-24-3 Decachlorobiphenyl (Sr) [2C] 100 30-150 % " " " "	2051-24-3	= -	84			30-150 %		rt	**	et	T	•	
	2051-24-3	Decachlorobiphenyl (Sr) [2C]	100			30-150 %		16	**	н	н	et	

Joint-85-\ SB17069-	= •			Project # /319.02.36	Caul	<u>Matrix</u> king/Scalat Product		ection Date 3-Aug-10 12		•	ceived Aug-10	
CAS No.	Analyte(s)	Result	Flag	Units	*RDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolati	le Organic Compounds by GC											
	nated Biphenyls by SW846 8082 by method SW846 3540C											
12674-11-2	Aroclor-1016	BRL		µg∕Wipе	0.20	1	SW846 8082	23-Aug-10	25-Aug-10	SM	1017974	ļ
11104-28-2	Aroclor-1221	BRL		μg∕Wiρe	0.20	1	•	*1		**	π	
11141-16-5	Aroclor-1232	BRL		µg/Wipe	0.20	1	M	Ħ	ч	**	н	
53469-21-9	Aroclor-1242	BRL		μg/Wipe	0.20	1	п	11	H	Ħ	n	
12672-29-6	Aroclor-1248	BRL		µg/Wipe	0,20	1	*	41	π	R	n	
11097-69-1	Aroclor-1254	BRL.		µg/Wipe	0.20	1	**	11	π	*	н	
11096-82-5	Aroclor-1260	BRL		µg/Wipe	0.20	1	n	*		**	H	
37324-23-5	Aroclor-1262	BRL		μg/Wipe	0.20	1	R	Я	н	п	n	
11100-14-4	Aroclor-1268	BRL		µg/Wipe	0.20	1	ti	94	N	11	π	
Surrogate i	recoveries:			•								
10386-84-2	4,4-DB-Octafluorobiphenyi (Sr)	72		;	30-150 %		ħ	71	Ħ	rs	41	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	78		:	30-150 %		14	к	78	R	н	
2051-24-3	Decachlorobiphenyl (Sr)	87		;	30-150 %		r	п	**	п	н	
	Decachlorobiphenyl (Sr) [2C]	105			30-150 %		R	н	н	Я	н	
Sample Id	lentification			t Project #		<u>Matrix</u>		lection Date		<u>Re</u>	ceived	
<u>Lebendaria addresa fizarrat d</u>	lentification Wipe		<u>Clien</u>				nt/Sika 2	lection Date 3-Aug-10 13			ceived Aug-10	
Sample Id	lentification Wipe		<u>Clien</u>	t Project#		<u>Matrix</u> king/Seala	nt/Sika 2	3-Aug-10 13		23-2	Aug-10	Cert.
Sample Ic Joint-87- SB17069- CAS No.	lentification Wipe -12 Analyte(s)	ere to de l'engagnes de productiva de l'engagnes de l'engagnes de l'engagnes de l'engagnes de l'engagnes de l'e	<u>Clien</u> 01-20	t Project # 7319.02.36	Caul	<u>Matrix</u> king/Seala Product	nt/Sika 2	3-Aug-10 13	3:00	23-2	Aug-10	Cert.
Sample Ic Joint-87- SB17069- CAS No. Semivolati Polychlori	lentification Wipe -12 Analyte(s) ile Organic Compounds by GC mated Biphenyls by SW846 8082	ere to de l'engagnes de productiva de l'engagnes de l'engagnes de l'engagnes de l'engagnes de l'engagnes de l'e	<u>Clien</u> 01-20	t Project # 7319.02.36	Caul	<u>Matrix</u> king/Seala Product	nt/Sika 2	3-Aug-10 13	3:00	23-2	Aug-10	Cert
Sample Ic Joint-87- SB17069- CAS No. Semivolati Polychlori	lentification Wipe -12 Analyte(s) ile Organic Compounds by GC mated Biphenyls by SW846 8082 by method SW846 3540C	ere to de l'engagnes de productiva de l'engagnes de l'engagnes de l'engagnes de l'engagnes de l'engagnes de l'e	<u>Clien</u> 01-20	t Project # 7319.02.36	Caul	<u>Matrix</u> king/Seala Product	nt/Sika 2	3-Aug-10 13	3:00	23-Analyst	Aug-10	
Sample Id Joint-87- SB17069- CAS No. Semivolati Polychlori Prepared	lentification Wipe -12 Analyte(s) Ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016	Result	<u>Clien</u> 01-20	t Project # 7319.02.36 <i>Units</i>	Caul * <i>RDL</i>	<u>Matrix</u> king/Sealar Product <i>Dilution</i>	nt/Sika 2 Method Ref.	3-Aug-10 13	Analyzed	23-Analyst	Aug-10 Batch	
Sample Ic Joint-87- SB17069- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2	lentification Wipe -12 Analyte(s) Ile Organic Compounds by GC mated Biphenyls by SW846 8082 by method SW846 3540C Aroctor-1016 Aroctor-1221	Result BRL	<u>Clien</u> 01-20	t Project # 7319.02.36 <i>Units</i> μg/Wipe μg/Wipe	***RDL	Matrix king/Seala Product Dilution	Method Ref. SW846 8082	3-Aug-10 13	Analyzed	23-Analyst	Aug-10 Batch	
Sample Ic Joint-87- SB17069- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5	lentification Wipe -12 Analyte(s) ile Organic Compounds by GC mated Biphenyls by SW846 8082 by method SW846 3540C Aroctor-1016 Aroctor-1221 Aroctor-1232	Result BRL BRL BRL BRL	<u>Clien</u> 01-20	t Project # 7319.02.36 <i>Units</i> μg/Wipe μg/Wipe μg/Wipe	*RDL 0.20 0.20	Matrix king/Sealar Product Dilution	Method Ref. SW846 8082	3-Aug-10 13	Analyzed 25-Aug-10	23-Analyst	Aug-10 Batch 1017974	
Sample Ic Joint-87-' SB17069- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9	lentification Wipe -12 Analyte(s) Ile Organic Compounds by GC mated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242	Result BRL BRL BRL BRL	<u>Clien</u> 01-20	t Project # 7319.02.36 Units μg/Wipe μg/Wipe μg/Wipe μg/Wipe	*RDL 0.20 0.20 0.20 0.20 0.20	Matrix king/Sealar Product Dilution	Method Ref. SW846 8082	3-Aug-10 13	Analyzed 25-Aug-10	23-Analyst	Aug-10 Batch 1017974	
Sample Ic Joint-87-' SB17069- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6	lentification Wipe -12 Analyte(s) Ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248	Result BRL BRL BRL BRL BRL	<u>Clien</u> 01-20	t Project # 7319.02.36 Units μg/Wipe μg/Wipe μg/Wipe μg/Wipe μg/Wipe μg/Wipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20	Matrix king/Seala Product Dilution 1 1 1 1 1	Method Ref. SW846 8082	3-Aug-10 13	Analyzed 25-Aug-10	23-Analyst	Aug-10 Batch 1017974	
Sample Ic Joint-87- SB17069- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1	lentification Wipe -12 Analyte(s) ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254	Result BRL BRL BRL BRL BRL BRL	<u>Clien</u> 01-20	t Project # 7319.02.36 Units μg/Wipe μg/Wipe μg/Wipe μg/Wipe μg/Wipe μg/Wipe μg/Wipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20	Matrix king/Sealar Product Dilution	Method Ref. SW846 8082	3-Aug-10 13	Analyzed 25-Aug-10	23-Analyst	Aug-10 Batch 1017974	
Sample Id Joint-87-1 SB17069- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11096-82-5	lentification Wipe -12 Analyte(s) ile Organic Compounds by GC mated Biphenyls by SW846 8082 by method SW846 3540C Aroctor-1016 Aroctor-1221 Aroctor-1232 Aroctor-1242 Aroctor-1248 Aroctor-1254 Aroctor-1254	Result BRL BRL BRL BRL BRL BRL BRL BR	<u>Clien</u> 01-20	t Project # 7319.02.36 Units μg/Wipe μg/Wipe μg/Wipe μg/Wipe μg/Wipe μg/Wipe μg/Wipe μg/Wipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	Matrix king/Sealar Product Dilution	Method Ref. SW846 8082	3-Aug-10 13	Analyzed 25-Aug-10	23-Analyst	Aug-10 Batch 1017974	
Sample Ic Joint-87- SB17069- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11097-69-1	lentification Wipe -12 Analyte(s) ile Organic Compounds by GC nated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254	Result BRL BRL BRL BRL BRL BRL	<u>Clien</u> 01-20	t Project # 7319.02.36 Units μg/Wipe μg/Wipe μg/Wipe μg/Wipe μg/Wipe μg/Wipe μg/Wipe	*RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20	Matrix king/Sealar Product Dilution	Method Ref. SW846 8082	3-Aug-10 13	25-Aug-10	23-Analyst	Aug-10 Batch 1017974	
Sample Id Joint-87- SB17069- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11096-82-5 37324-23-5 11100-14-4	lentification Wipe -12 Analyte(s) ile Organic Compounds by GC mated Biphenyls by SW846 8082 by method SW846 3540C Aroctor-1016 Aroctor-1221 Aroctor-1232 Aroctor-1242 Aroctor-1248 Aroctor-1254 Aroctor-1260 Aroctor-1262 Aroctor-1268	Result BRL BRL BRL BRL BRL BRL BRL BR	<u>Clien</u> 01-20	t Project # 7319.02.36 Units μg/Wipe μg/Wipe μg/Wipe μg/Wipe μg/Wipe μg/Wipe μg/Wipe μg/Wipe μg/Wipe	**RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	Matrix king/Sealar Product Dilution	Method Ref. SW846 8082	3-Aug-10 13	25-Aug-10	23-Analyst	Aug-10 Batch 1017974	
Sample Id Joint-87- SB17069- CAS No. Semivolati Polychlori Prepared 12674-11-2 11104-28-2 11141-16-5 53469-21-9 12672-29-6 11096-82-5 37324-23-5 11100-14-4	lentification Wipe -12 Analyte(s) ile Organic Compounds by GC mated Biphenyls by SW846 8082 by method SW846 3540C Aroclor-1016 Aroclor-1221 Aroclor-1222 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268	Result BRL BRL BRL BRL BRL BRL BRL BR	<u>Clien</u> 01-20	# Project # 7319.02.36 Units μg/Wipe	**RDL 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.	Matrix king/Sealar Product Dilution	Method Ref. SW846 8082	3-Aug-10 13	25-Aug-10	23-Analyst	Aug-10 Batch 1017974	
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Semivolatile Organic Compounds by GC - Quality Control

nalyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
itch 1017974 - SW846 3540C										
Blank (1017974-BLK1)					Pre	epared: 23-	Aug-10 An	alyzed; 25-A	ug-10	
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/Wiρe	0.20						
Aroclor-1248	BRL		μg/Wipe	0.20						
Aroclor-1248 [2C]	BRL		μg/Wipe	0.20						
Aroclor-1254	BRL		μα∕Μίρε	0.20						
Aroclor-1254 [2C]	BRL		μg∕Wipe	0.20						
Aroclor-1260	BRL		μg/W{pe	0.20						
Aroclur 1260 [2C]	BRL		µg/Wipe	0.20						
Areclor-1262	BRŁ.		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		
LCS (1017974-BS1)					<u>P</u> 1	repared: 23	-Aug-10 Ar	nalyzed: 25-	<u> 4ug-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		µд∕Міре		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		
LCS Dup (1017974-BSD1)					Р	repared: 23	3-Aug-10 A	nalyzed: 25-	Aug-10	
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
			µg/Wipe		0.200		71	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	0,142				0.200		74	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	0.148		µg/Wipe		0.200		86	30-150		
Surrogate: Decachlorobiphenyl (Sr)	0.172		μg/Wipe μg/Wipe		0.200		91	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.

<u>Laboratory Control Sample (LCS)</u>: 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.

<u>Matrix Spike</u>: 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.

<u>Surrogate</u>: 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

Labor	ratory Name: Spe	ectrum Analytical, Inc.	14.54	Project #: 01-2073	319.02.36		
		ASS - Amherst, MA		RTN:		-	
This f	orm provides cei	tifications for the follow	ring data set:	B17069-01 through SB17	069-12		
Matri	ices: Caulking/S	ealant/Sika Product					
CAM	Protocol						
[60 VOC AM 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 AP CAM IX A	Н
ſ	70 SVOC AM 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	
1	010 Metals AM 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 l	F are required for "Presu	mptive Certainty" status		
A	Were all samples preserved (include times?	s received in a condition ding temperature) in the f	consistent with those des field or laboratory, and pr	cribed on the Chain of Curepared/analyzed within m	stody, properly ethod holding	✓ Yes	No
В	Were the analyti protocol(s) follo		ociated QC requirements	specified in the selected (CAM	✓ Yes	No
С		d corrective actions and a emented for all identified		s specified in the selected on-conformances?	CAM	✓ Yes	No
D	Does the laborate Assurance and Q	ory report comply with a Quality Control Guideline	ll the reporting requireme s for the Acquisition and	ents specified in CAM VII Reporting of Analytical I	A, "Quality Data"?	✓ Yes	No
E				ed without significant mode eported for each method?	lification(s)?	Yes Yes	No No
F	Were all applica evaluated in a la	ble CAM protocol QC ar boratory narrative (includ	nd performance standard ling all "No" responses to	non-conformances identification questions A through E)?	ied and	✓ Yes	No
		Responses to quest	ions G, H and I below a	re required for "Presump	tive Certainty" status		
G	Were the reporti	ng limits at or below all	CAM reporting limits spe	cified in the selected CAN	M protocol(s)?	✓ Yes	No
		at achieve "Presumptive Co n 310 CMR 40. 1056 (2)(k)		cessarily meet the data usabi	lity and representativeness		
н	Were all QC per	formance standards spec	ified in the CAM protoco	ol(s) achieved?		✓ Yes	No
I	Were results rep	orted for the complete ar	alyte list specified in the	selected CAM protocol(s))?	✓ Yes	No
All ne	egative responses ar	e addressed in a case narro	ntive on the cover page of th	ils report.			
I, the infort	undersigned, attest nation, the materia	under the pains and penal l contained in this analytic	ties of perjury that, based u al report is, to the best of m	pon my personal inquiry of y knowledge and belief, acci	those responsible for obtain trate and complete.	ing the	

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

Date: 8/26/2010

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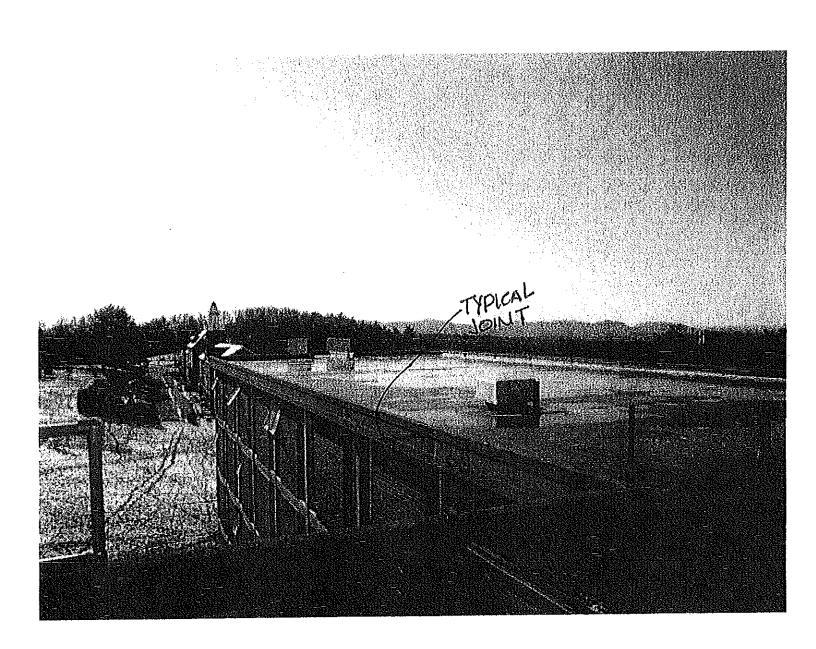
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## Appendix G

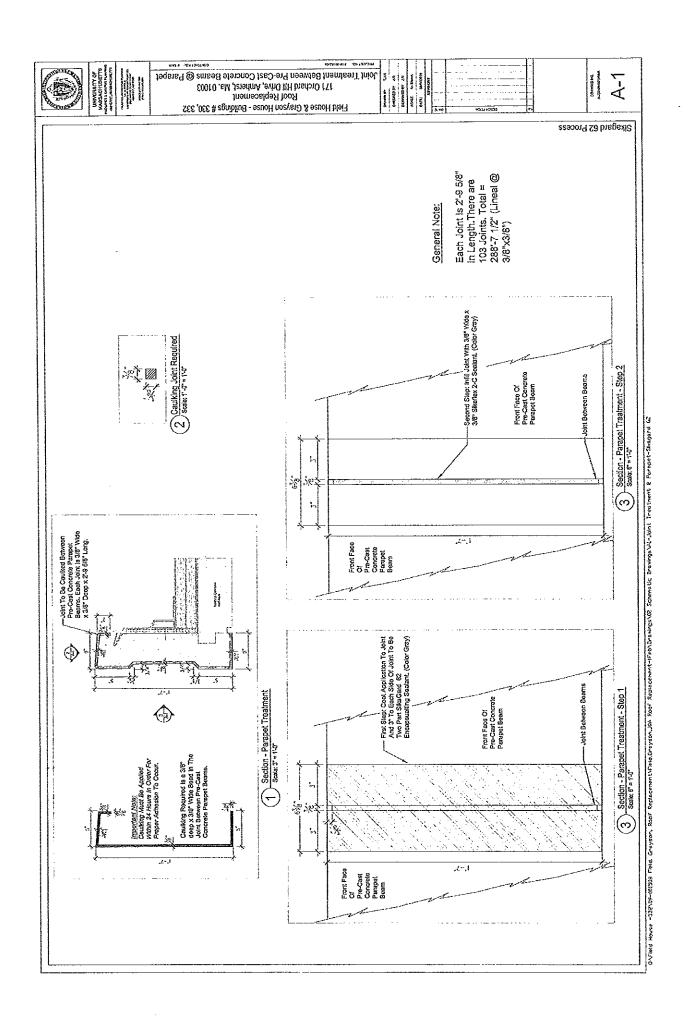
**Site Photos (Before Remediation)** 





## Appendix H Joint Treatment Detail



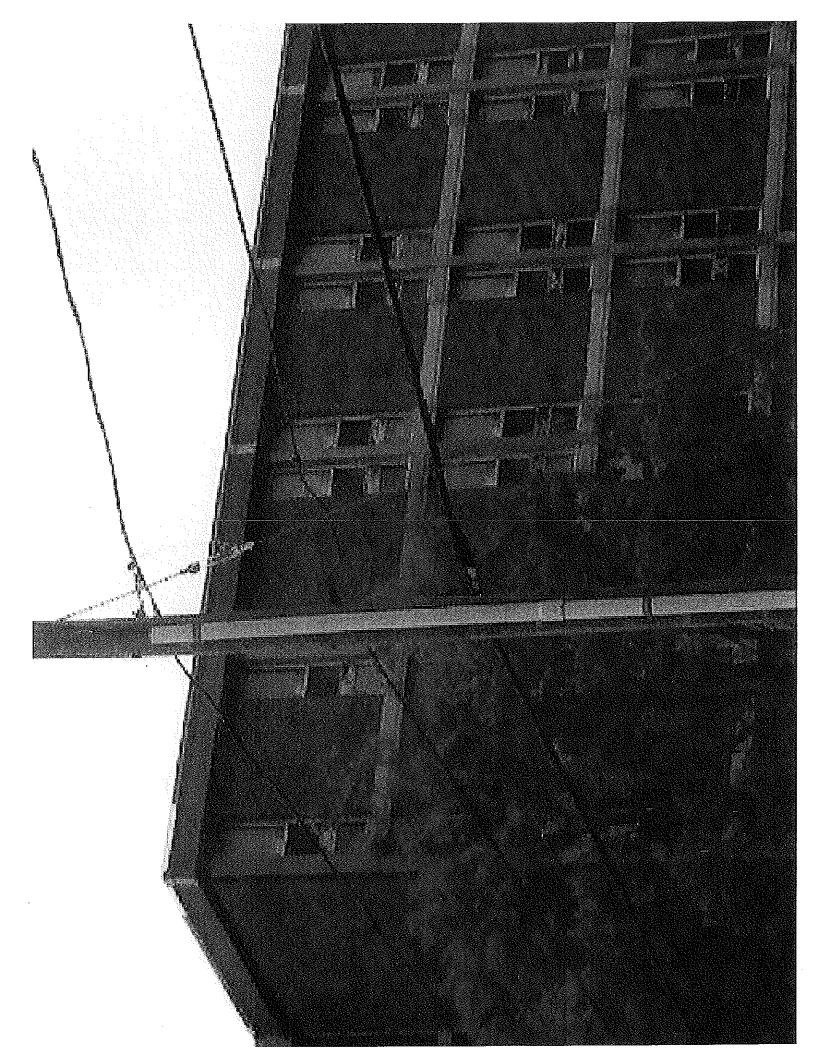


### Appendix I

Site Photos (Post Remediation)







## Appendix J

### Waste Manifest



Cl: Generator State

Form Approved. OMB \$200,000,0039 Please print or type. (Form designed for use on elite (12-pitch) typewriter.) 4. Manifest Tracking Number UNIFORM HAZARDOUS 1. Generator ID Number 2. Page 1 of 3. Emergency Response Phone 002878369 200 966 9282 MAD000844670 WASTE MANUEST Generator's Site Address (if different than mailing address) 5. Generator's Name and Mailing Address KH&S/117 Draper Hall University of Massachusetts - Amherst University of Massachusetts Amherst 40 Campus Cente EH&S/117 Draper Hall 40 Campus Center Way EHeavilla 61003 Amherst, MA 61003 (41<u>1) 545-5122</u> Amherst, MA 01003 <u>Attn: Jim</u> Field Generator's Phone: 6. Transporter 1 Company Name U.S. EPAID Number MAD985286988 Triumvirate Environmental, Inc U.S. EPA ID Number · 7. Transporter 2 Company Name · i, j. U.S. EPAID Number 8. Designated Facility Name and Site Address Triumvirste Environmental (NYC), LLC 42-14 19th Avenue Astoria, NY 11105 NYDO77444263 (718) 274-3339 Facility's Phone: 10. Containers 11. Total 12. Unit 9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, 13. Waste Codes Quantity Wt./Vol. Type and Packing Group (if any)) НМ B007 MA02 UN3432, RQ: Polychlorinated biphenyls, solid 9, II GENERATOR X K 002 DM00060 14, Special Handling Instructions and Additional Information 4 co (2 x 85 ) NY C19952 PLG#Field/Grays 3 -OUD OUTOFSEINGO 9-21-2010 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 EPAAcknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity general on in (b) (if I am Offeror's Printed Typed Name transporter According agent of Receipt of Malerials Transporter 2 Printed/Typed Name 18. Discrepancy Full Rejection Partial Rejection 18a, Discrepancy Indication Space Quantity Marrifest-Reference Number: U.S. EPA ID Number . .... 18b. Alternate Facility (or Generator) Year Month Day 18c, Signature of Alternate Facility (or Generator) 19, Hazardous Wasta Report Management Method Codes (i.e., codes for hazardous waste treatment disposal, and tecycling systems) 20. Designated Facility Owner or Operator: Certification of reception hazardous materials covered by the DESIGNATED FACILITY TO GENERATOR EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

# Appendix K Sikaguard 62 Product Specifications





#### 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 diglycidilether 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.

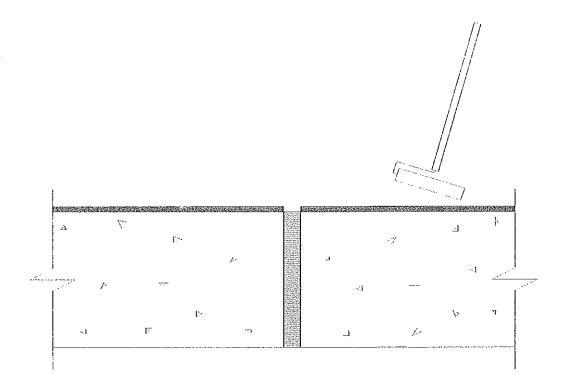
#### 3.02 Mixing and Application

- A. Mixing: Premix each component. Proportion equal parts by volume of Component A and Component B into a clean, dry mixing pail. Mix throughly 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 procedeure 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.

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# Appendix L Long Term Maintenance Checklist



Bldg Name	Date
Address	Inspector's Name
Address	Inspector's Signature
Faccia Lavol	
Fascia Level Tour the perimeter of the buil	ding from the ground and conduct a review using high-powered
billocalare once per year. De	ocument any deterioration e.g. pealing, fading, chipping) in the coating s
	ocument any deterioration e.g. pealing, fading, chipping) in the coating s
CHECK	ocument any deterioration e.g. pealing, fading, chipping) in the coating s
CHECKInspect the fascia/joints u	sing ground based inspections and high power binoculars.
CHECKInspect the fascia/joints u	
CHECKInspect the fascia/joints u	sing ground based inspections and high power binoculars.
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CHECKInspect the fascia/joints u	sing ground based inspections and high power binoculars.
CHECKInspect the fascia/joints uInspect the fascia/joints fi	using ground based inspections and high power binoculars.  rom adjacent building using high-powered binoculars