PCB Disposal by Non Thermal Alternative Method

Demonstration Test Report

Demonstration Test Report for
PCB Destruction Unit

"PCB-1000" Mobile Oil Processing Plant
Fabricated in Ontario, Canada by
Redragon Oil & Gas Systems International, Inc.
Operated by Florida Transformer, Inc.
DeFuniak Springs, FL

Demonstration Test Site

FLORIDA TRANSFORMER, INC
4509 State Highway 83 North
DeFuniak Springs, FL 32433

Submission Date

September 26, 2012

Submission

#1

Submitted by:

FLORIDA TRANSFORMER, INC
4509 State Highway 83 North
PO Box 507
DeFuniak Springs, FL 32435
850-892-2711

Environmental Compliance Manager
Project Manager/Permit Application/
Approval Process

Jessica Pennington
850-892-2711

Submitted to:

Director, Office of Resource Conservation and Recovery, Suzanne Rudzinski
5301P
U.S. Environmental Protection Agency
Potomac Yards North
2733 S. Crystal Drive
Room # N-6622
Arlington, VA 22202

CC: Lilybeth Colón
Office of Resource Conservation
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW (5303P)
Washington, DC 20460

Table of Contents

I. Summary

A demonstration was performed by Florida Transformer, Inc. (FTI) on September 11, 12 and 13 of 2012 of the dechlorination of Polychlorinated Byphenyls (PCBs) in mineral oil dielectric fluid (MODEF). The demonstration was completed by using equipment manufactured by Redragon Oil and Gas Systems International of Ontario, Canada (PCB-1000).

The unit uses metallic alloy sodium in oil dispersion to react with PCBs to strip the chlorine atoms leaving the MODEF free of PCBs (<2ppm PCB). The system is mobile, completely housed within a 40'9" container trailer. The demonstration was performed at 4509 State Highway 83 North, DeFuniak Springs, Florida 32433 (Florida Transformer, Inc.).

A Permit Application and Demonstration Test Plan for PCB Disposal by Non-Thermal Alternative Methods were submitted to the Environmental Protection Agency Headquarters (Washington D.C.) on May 3, 2012.

This Demonstration Test Report is being compiled in conformance with the guidelines published by the Agency (August 21, 1996). References are made to the aforementioned Permit Application and Demonstration Test Plan.

Please see Table 1 in Appendix A for a summary of the demonstration test results.

The facility met all performance requirements required by the Agency in the Approval Conditions to Demonstrate PCB disposal. No major problems were encountered that resulted in major deviations from the test plan.

II. Process Operation

A. Operation Parameters

Operation Parameters of the equipment during the demonstration are listed in Table 2 of Appendix A.

Physical characteristics of the waste feed were as listed in the Permit Application; Liquid Polychlorinated Biphenyls (PCBs) in Mineral Oil Dielectric Fluid (MODEF).

The permit application requests approval to dispose of PCBs in MODEF by dechlorination of levels up to but not exceeding 1,500ppm PCBs. The demonstration was performed on levels of PCBs up to but not exceeding 2,000ppm. Three required batches were dechlorinated at levels <2,000ppm PCBs. A fourth batch was dechlorinated due to time allowances of both FTI and the Agency. The fourth batch was performed on MODEF consisting of 107ppm PCBs. The PCB concentrations for each batch are listed in Table 1 of Appendix A.

The feed rate ranged from 22-32 LPM for a total feed quantity of 270 gallons per batch. The maximum reaction temperature during the demonstration was 94°C. The average starting reaction temperature was 81.75°C. The optimum reaction pressure in the mixing tanks is approximately one half of the pressure in the sodium mixing tank. (ex. If the pressure in the sodium mixing tank reads 4 psi, 2 psi should be maintained at the reaction mixing tank). The operator(s) maintained reaction pressure below 5 psi during the demonstration.

B. Deviations from Test Plan

No significant deviations from the Test Plan occurred. Minor issues that were encountered are as follows. All issues below were reported to the attending Agency representatives and this report shall serve as the required written documentation.

1) A restriction of inlet flow occurred during the initial batch run of No PCB (<2ppm PCB) feed. This batch was intended to demonstrate the normal operating conditions of the equipment and operator familiarization with operating procedures. The inlet flow restriction was the result of residue blockage in two small filter screens at the incoming pipe of the PCB-1000. Residue blockage in these screens will occur from buildup of small particles being pulled in with the oil. Resolution: The issue was quickly rectified by removing, cleaning and replacing the screens. Additionally, a moisture and particle filter mechanism will be installed in line but separate from the PCB-1000 to ensure the integrity of the equipment is kept in optimum performance and reduce stress of blockage in these screens.

2) During the second demonstration batch (9/11/12, first PCB dechlorination batch) a read out error occurred on the control panel of the PCB-1000 during the sodium dispersion phase that did not allow operators to observe the amount of sodium being transferred from the sodium mixing tank to the sodium measuring cylinder. The PCB-1000 has the ability to be operated in automatic or manual mode. The read out error occurred due to a loose wire connection. Resolution: The operating mode was switched to manual and the sodium dispersion was continued with no major malfunctions and resulted in a successfully demonstrated PCB

III. Sampling and Monitoring Procedures

Refer to sections V and VI of the Demonstration Test Plan for a summary of the procedures used for sampling and monitoring during the demonstration. Please see Table 3 in Appendix A for a list of samples retrieved, description and analysis results during the demonstration. Note: No solid waste samples were taken from any filter portion of the PCB-1000 at the time of Demonstration. Filter solid waste will be analyzed at the time of removal for disposal to establish the correct profile for transfer to the appropriate waste disposal facility.

IV. Analytical Procedures

Section VII of the Permit Application describes the analytical procedures used for samples submitted during the demonstration.

V. Test Results

Data retrieved by the operator(s) during the demonstration can be seen on the PCB-1000 Operator's Log (Appendix B, Attachment C). As a result of logging data during the Non PCB trial runs and demonstration PCB batches, the revised operator's log is provided in Appendix B (Attachment D).

Refer to Table 3 in Appendix A for a summary of influent and effluent stream analyses and system performance results.

Performance evaluation samples were submitted by the Agency to the FTI laboratory on 9/11/2012. Agency representatives informed laboratory associates of the approximate PCB concentration range of each sample. The analytical results were as follows.

	GC-1		GC-2		GC-3	
PE Sample	Detector A	Detector B	Detector A	Detector B	Detector A	Detector B
0809-12-04.1	0.47ppm	0.40ppm	0.32ppm	0.19ppm	0.41ppm	0.22ppm
0809-12-04.2	1389ppm	1450ppm	1293ppm	1248ppm	1166ppm	1081ppm

A copy of each chromatogram generated for the analysis of the performance evaluation samples may be found in Appendix B, Attachment A. Analytical results are calculated based on FTI's Standard Operating Procedure: Analysis of Polychlorinated Biphenyls (PCBs) in Insulating Liquids by Gas Chromatography (GC), RE: EPA SW-846 Method 8082 (December 1996).

Peaks generated from the analysis of each PCB in oil sample are evaluated and compared to the Aroclor standard used for quality control, calibration purposes (as described in section XIX, FTI PCB-1000 Quality Assurance Plan). Each aroclor peak generates a response factor as *group results* listed below the chromatograph display on the chromatogram. Quantization of the analytical result is achieved by averaging, at least, three of five response factors for each aroclor present in the oil sample.

VII. Demonstration Attendance

The following individuals were present for the demonstration of the PCB-1000.

Visitors/Auditors

Lilybeth Colón
Office of Resource Conservation and Recovery
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW (5303P)
Washington, DC 20460
(703) 308-2392

Amy Hensley
Cleanup Programs Branch
Program Implementation & Information Division
Office of Resource Conservation & Recovery
U.S. EPA
(703) 305-5084

Terri Crosby-Vega
Environmental Engineer
USEPA Region 4 RCRA Division
Atlanta Federal Center 9T25
61 Forsyth Street SW
Atlanta, Georgia 30303
(404) 562-8497

Aaron Mitchell
Environmental Specialist
Hazardous Waste Section
Florida Department of Environmental Protection
Northwest District
160 W. Government Street, Suite 308
Pensacola, FL 32502
(850) 595-0621

VIII. Closure

Refer to section XXI of the permit application for a description of the PCB-1000 Closure Plan. The demonstration of the PCB-1000 concluded with the successful dechlorination of the fourth demonstration batch.

All PCB contaminated oil was removed from the inlet hose by using compressed air to push the residual oil back into the PCB feed tank. Processed oil (<2ppm PCB) from the demonstration batches was used to flush inlet lines, piping and mixing tanks. Samples were retrieved from both mixing tanks to determine the PCB concentration of the flush. After which a sodium reaction was performed as needed to remove the remaining PCBs. The flush was transferred to an aboveground storage holding tank after achieving gas chromatograph results of <2ppm PCB. The same procedures and operating parameters were adhered to for these "flush" batches as were the demonstration batches.

The centrifuge sludge tank was completely emptied and cleaned. The liquid phase of the centrifugal waste that could be removed via pump was pumped out into 55 gallon steel drums. The solid phase (sludge) was scooped out by hand (associate equipped with personal protective equipment) and placed in 55 gallon steel drums as well.

IX. Waste Handling and Disposal

There are no manifests or continuation sheets for material disposal at this time. A small amount of PCB solid debris (sampling PPE) was generated during the demonstration. Any material generated from or came in contact with the centrifugal waste is considered caustic and hazardous. FTI is a small quantity generator of hazardous waste due to other operations at the facility. PCB solid debris and sludge liquid or solid debris will be disposed of via a long term contract with a TSCA/RCRA approved disposal facility with other hazardous waste generated by the facility. FTI contacts the disposal company to request a pick up when a full load quantity has been met within the storage time limit requirements for hazardous waste.

The waste disposal profile is being established at this time for disposal of centrifugal waste debris and liquid.

Refer to section IX of the permit application for a complete description of waste handling and disposal as it pertains to operation of the PCB-1000.

X. Appendices

Appendix A..... **Table 1** Demonstration Summary

Table 2 Operation Parameters

Table 3 Sample Summary

Appendix B..... **Attachment A**
PE Sample Chromatograms

Attachment B
Demonstration Sample
Chromatograms

Attachment C
Demonstration PCB-1000
Operator's Log

Attachment D
Revised PCB-1000
Operator's Log

Appendix A

Table 1
Appendix A

Florida Transformer, Inc.
Demonstration Test Report
September 2012

Test #	Test #1	Test #2	Test #3	Test #4
Date	9/11/2012	9/12/2012	9/12/2012	9/13/2012
Start Time (24hr)	11:00	9:30	14:30	8:10
End Time (24hr)	16:30	14:30	17:30	12:30
Operating Parameters				
Waste Feed Rate (kg/batch)	894	894	894	894
Waste Feed Rate (gal/batch)	270	270	270	270
Waste Feed Rate (LPM)	22	32	28	32
Waste Feed PCB Concentration	1756	1843	1690	107
Batch Reaction Time (Min)	63	50	42	51
Batch Max Reaction Temperature (°C)	89	90	87	94
Batch Reaction Pressure (N2 psi)	<5	<5	<5	<5
Additional Parameters				
Waste Feed Moisture Content (Pre Reaction)	63ppm	67ppm	2594ppm	178ppm
Catalyst Water (liter)	1	0	0	1
Kill Water (liter)	18	10	11	10
Product PCB Concentration (mg/kg)	<1	<1	<1	<1
Liquid Sludge PCB Concentration (mg/kg)				<1
Sludge PCB Concentration (mg/kg)				<2
Average Reaction Temperature (°C) (Batch 1-3)	89			
Average Reaction Pressure (Batch 1-3)	5			
Average Reaction Temperature (°C) (Batch 1-4)	90			
Average Reaction Pressure (Batch 1-4)	5			

Parameter	Anticipated Value	Control Limits	Actual
Feed Rate (kg/batch)	874	870-880	894
Feed Rate (gal/batch)	264	260-270	270
Feed Rate (LPM)	35	30-40	22-32
PCB Concentration in Feed (mg/kg)	≤2,000	≤2,000	107-1,843
Batch Residence Time	60min	≤60min	4-9hr*
Reaction Temperature (˚C)	87	85-95	87-94
Reactor Pressure (N2)	2-4psi	15psi	<5psi
Product PCB concentration (mg/kg)	<2	<2	<1
Byproduct PCB concentration (mg/kg)	<2	<2	<2**

*Batch residence times during operation and production will be less than that of the demonstration after additional tuning of standard operating procedures (i.e. reagent amount, kill water sequence, etc.)

**Two phases were analyzed for PCB content from the byproduct(centrifugal waste). The sludge phase resulted in <2ppm PCB, the liquid phase resulted in <1ppm PCB.

Demonstration Batch Samples

Sample ID	SampleDate	Sample Location	Sample Type	Description	Result (PPM PCB)	Result (PPM Moisture)
PO 1A 091112	9/11/2012	PCB Tank	oil	Demo Batch #1 Pre Reaction	1756	63
PO 1B 091112	9/11/2012	*MT-3	oil	Demo Batch #1 Post Reaction	<1	
PO 1A 091212	9/12/2012	PCB Tank	oil	Demo Batch #2 Pre Reaction	1843	67
PO 1B 091212	9/12/2012	*MT-3	oil	Demo Batch #2 Post Reaction	<1	
PO 2A 091212	9/12/2012	PCB Tank	oil	Demo Batch #3 Pre Reaction	1690	2595
PO 2B 091212	9/12/2012	*MT-4	oil	Demo Batch #3 Post Reaction	<1	
PO 1A 091312	9/13/2012	PCB Tank #2	oil	Demo Batch #4 Pre Reaction	107	178
PO 1B 091312	9/13/2012	*MT-3	oil	Demo Batch #4 Post Reaction (6 liters Na/20min react. time)	31	
PO 1B (1) 091312	9/13/2012	*MT-3	oil	Demo Batch #4 Pre 2nd Reaction Attempt (6 liters Na/20 min+ react. Time)	28	
PO 1B (2) 091312	9/13/2012	*MT-3	oil	Demo Batch #4 Post Reaction (total 10 liters Na/51 min react.	<1	

*MT - Mixing Tank

Miscellaneous Samples

TK-10A 091212	9/12/2012	**TK-10	oil	Liquid phase of sludge from Centrifuge sludge tank	<1	
48983	9/12/2012	**TK-10	sludge	Solid phase of sludge from Centrifuge sludge tank	<1	
PO 1A(1) 091312	9/13/2012	*MT-3	oil	duplicate sample of PO 1A 091312 after waste feed collected in mixing tank	114	

**TK - Tank

Appendix B

Attachment A

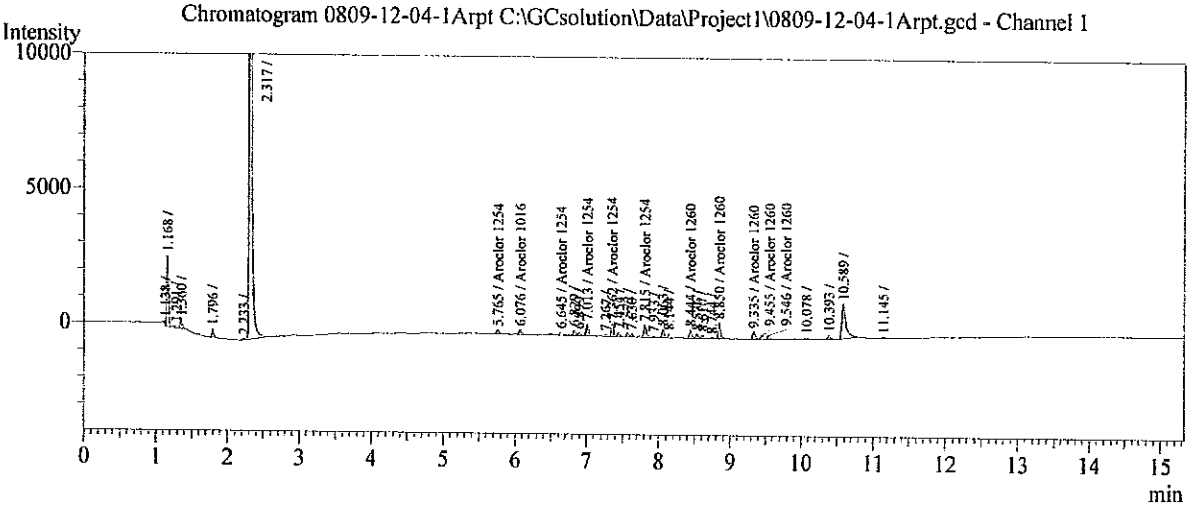
System Configuration

[Instrument]
Instrument Name : EQL-1
Instrument Type : GC-17A V3
Communication Type : RS-232C COM3

Analysis Date & Time : 9/12/2012 12:56:15 PM
User Name : Admin
Vial# : 149
Sample Name : 0809-12-04-1Arpt
Sample ID :
Sample Type : Unknown
Injection Volume : 1.00
Dilution Factor : 3
Sample Amount : 0.2005
Level# : 1
Data Name : C:\GCsolution\Data\Project1\0809-12-04-1Arpt.gcd
Method Name : C:\GCsolution\Data\Project1\1-8082 091112 new.gcm
Report Name : C:\GCsolution\Data\Project1\PCB Report.gcr
Batch Name : C:\GCsolution\Data\Project1\Batch Record LM091212.gcb

DETECTOR A

Chromatogram 0809-12-04-1Arpt C:\GCsolution\Data\Project1\0809-12-04-1Arpt.gcd - Channel 1



Group Results - Channel 1

Group#	Name	Conc.	Unit	Area	Height
1	Aroclor 1242	0.000	ppm	0	0
2	Aroclor 1242	0.000	ppm	0	0
3	Aroclor 1242	0.000	ppm	0	0
4	Aroclor 1242	0.000	ppm	0	0
5	Aroclor 1242	0.000	ppm	0	0
6	Aroclor 1016	0.000	ppm	0	0
7	Aroclor 1016	0.000	ppm	0	0
8	Aroclor 1016	0.000	ppm	0	0
9	Aroclor 1016	0.000	ppm	0	0
10	Aroclor 1016	0.246	ppm	371	176
11	Aroclor 1254	0.279	ppm	291	145
12	Aroclor 1254	0.270	ppm	346	116
13	Aroclor 1254	0.748	ppm	978	445
14	Aroclor 1254	1.427	ppm	1044	499
15	Aroclor 1254	1.086	ppm	1125	465
16	Aroclor 1260	-0.458	ppm	631	310
17	Aroclor 1260	0.387	ppm	1347	602
18	Aroclor 1260	0.292	ppm	732	291
19	Aroclor 1260	0.582	ppm	329	154
20	Aroclor 1260	0.606	ppm	356	162
21	TCMX	0.000	%	0	0
Total				7551	3364

1260 - 0.47

0.47

System Configuration

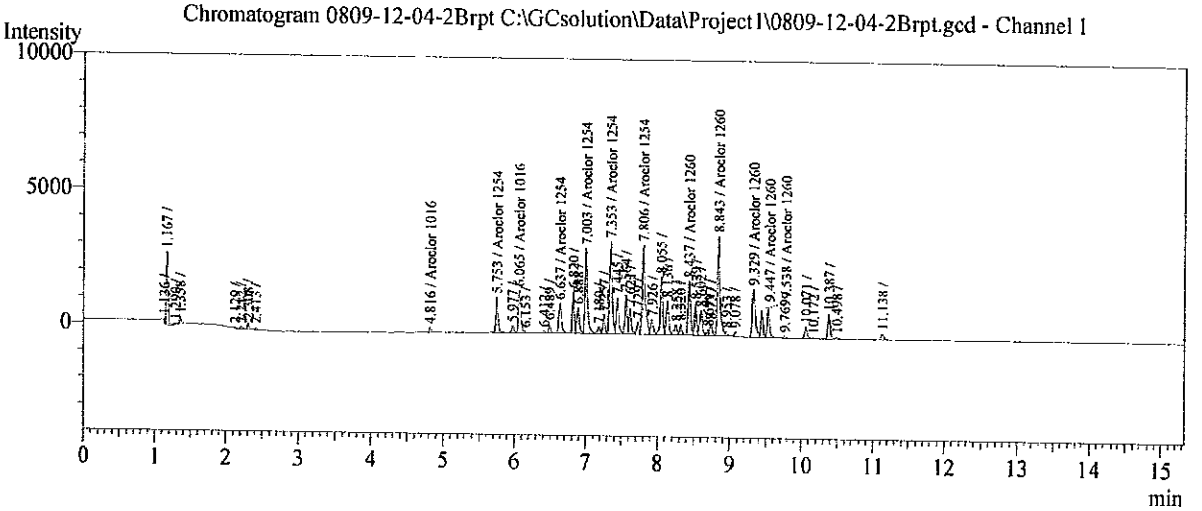
[Instrument]

Instrument Name	: EQL-1
Instrument Type	: GC-17A V3
Communication Type	: RS-232C COM3

Analysis Date & Time	: 9/12/2012 1:17:37 PM
User Name	: Admin
Vial#	: 150
Sample Name	: 0809-12-04-2Brpt
Sample ID	:
Sample Type	: Unknown
Injection Volume	: 1.00
Dilution Factor	: 100
Sample Amount	: 0.0313
Level#	: 1
Data Name	: C:\GCsolution\Data\Project1\0809-12-04-2Brpt.gcd
Method Name	: C:\GCsolution\Data\Project1\1-8082 091112 new.gcm
Report Name	: C:\GCsolution\Data\Project1\PCB Report.gcr
Batch Name	: C:\GCsolution\Data\Project1\Batch Record LM091212.gcb

DETECTOR A

Chromatogram 0809-12-04-2Brpt C:\GCsolution\Data\Project1\0809-12-04-2Brpt.gcd - Channel 1



Group Results - Channel 1

Group#	Name	Conc.	Unit	Area	Height
1	Aroclor 1242	0.000	ppm	0	0
2	Aroclor 1242	0.000	ppm	0	0
3	Aroclor 1242	0.000	ppm	0	0
4	Aroclor 1242	0.000	ppm	0	0
5	Aroclor 1242	0.000	ppm	0	0
6	Aroclor 1016	0.000	ppm	0	0
7	Aroclor 1016	14.288	ppm	352	186
8	Aroclor 1016	0.000	ppm	0	0
9	Aroclor 1016	0.000	ppm	0	0
10	Aroclor 1016	1510.358	ppm	3733	1591
11	Aroclor 1254	593.389	ppm	2902	1330
12	Aroclor 1254	556.407	ppm	3333	1110
13	Aroclor 1254	1353.313	ppm	8283	3192
14	Aroclor 1254	2349.500	ppm	8048	3450
15	Aroclor 1254	1963.413	ppm	9529	3333
16	Aroclor 1260	1286.035	ppm	4616	2015
17	Aroclor 1260	1459.995	ppm	9600	3717
18	Aroclor 1260	1466.379	ppm	5092	1805
19	Aroclor 1260	1372.097	ppm	2375	991
20	Aroclor 1260	1358.250	ppm	2710	1106
21	TCMX	0.000	%	0	0
Total				60573	23827

1260 - 1388.55

1389

System Configuration

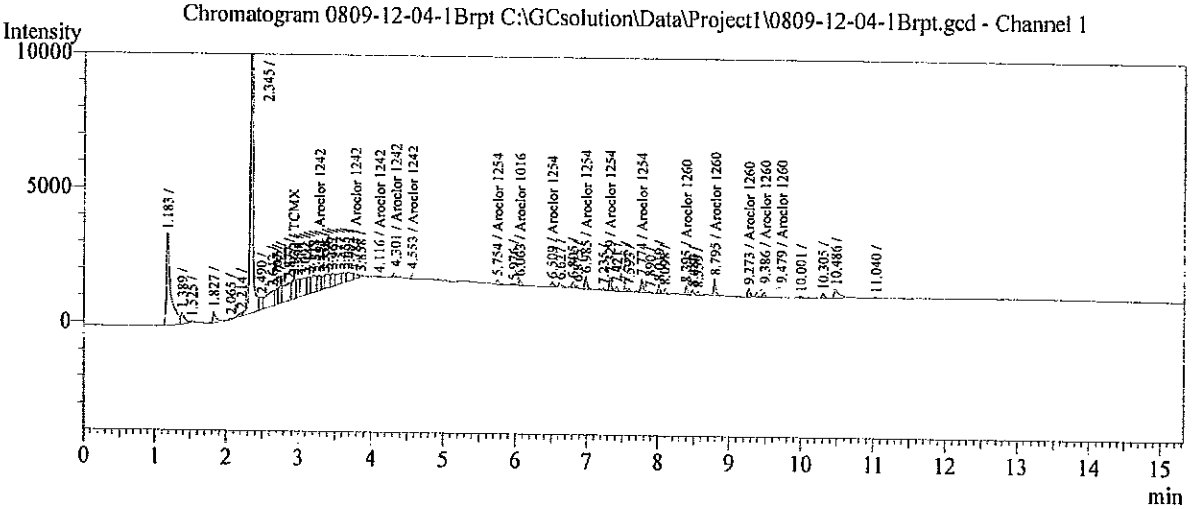
[Instrument]

Instrument Name	: EQL-1
Instrument Type	: GC-17A V3
Communication Type	: RS-232C COM3

Analysis Date & Time	: 9/12/2012 1:17:37 PM
User Name	: Admin
Vial#	: 149
Sample Name	: 0809-12-04-1Brpt
Sample ID	:
Sample Type	: Unknown
Injection Volume	: 1.00
Dilution Factor	: 3
Sample Amount	: 0.2005
Level#	: 1
Data Name	: C:\GCsolution\Data\Project1\0809-12-04-1Brpt.gcd
Method Name	: C:\GCsolution\Data\Project1\1-8082 091112 new.gcm
Report Name	: C:\GCsolution\Data\Project1\PCB Report.gcr
Batch Name	: C:\GCsolution\Data\Project1\Batch Record LM091212.gcb

DETECTOR B

Chromatogram 0809-12-04-1Brpt C:\GCsolution\Data\Project1\0809-12-04-1Brpt.gcd - Channel 1



Group Results - Channel 1

Group#	Name	Conc.	Unit	Area	Height
1	Aroclor 1242	3.098	ppm	2151	555
2	Aroclor 1242	0.957	ppm	671	187
3	Aroclor 1242	0.138	ppm	104	46
4	Aroclor 1242	0.066	ppm	131	43
5	Aroclor 1242	0.134	ppm	116	33
6	Aroclor 1016	0.000	ppm	0	0
7	Aroclor 1016	0.000	ppm	0	0
8	Aroclor 1016	0.000	ppm	0	0
9	Aroclor 1016	0.000	ppm	0	0
10	Aroclor 1016	0.075	ppm	408	198
11	Aroclor 1254	0.287	ppm	382	171
12	Aroclor 1254	0.316	ppm	559	183
13	Aroclor 1254	0.612	ppm	1033	469
14	Aroclor 1254	1.056	ppm	1046	518
15	Aroclor 1254	1.302	ppm	1236	502
16	Aroclor 1260	-1.128	ppm	649	323
17	Aroclor 1260	-0.172	ppm	1397	626
18	Aroclor 1260	-0.374	ppm	715	314
19	Aroclor 1260	0.076	ppm	316	161
20	Aroclor 1260	0.383	ppm	371	177
21	TCMX	105.262	%	2881	744
Total				14166	5250

1260 - 0.40

0.40

System Configuration

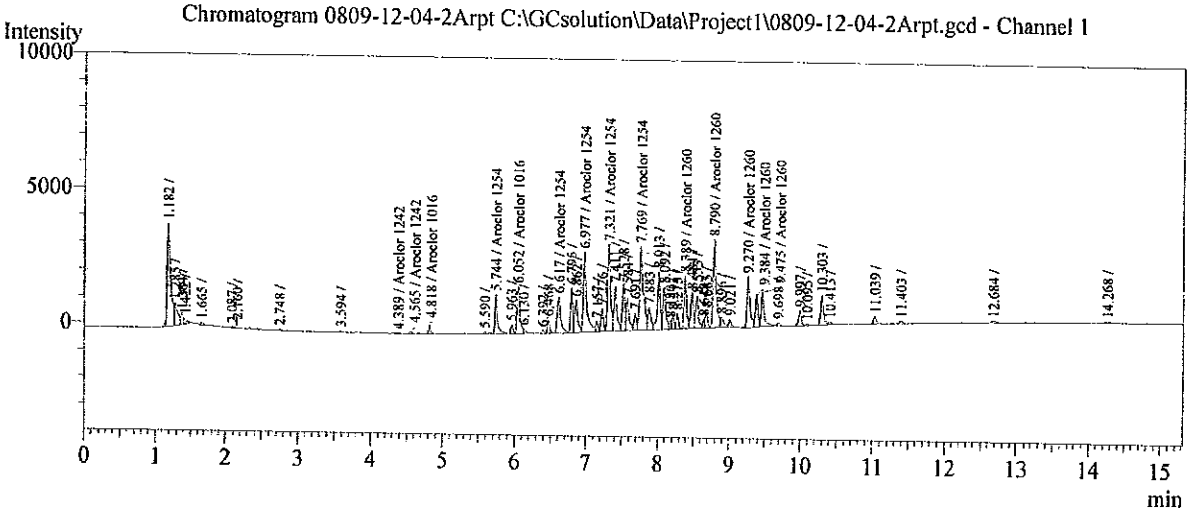
[Instrument]

Instrument Name	: EQL-1
Instrument Type	: GC-17A V3
Communication Type	: RS-232C COM3

Analysis Date & Time	: 9/12/2012 12:56:15 PM
User Name	: Admin
Vial#	: 150
Sample Name	: 0809-12-04-2Arpt
Sample ID	:
Sample Type	: Unknown
Injection Volume	: 1.00
Dilution Factor	: 100
Sample Amount	: 0.0313
Level#	: 1
Data Name	: C:\GCsolution\Data\Project1\0809-12-04-2Arpt.gcd
Method Name	: C:\GCsolution\Data\Project1\1-8082 091112 new.gcm
Report Name	: C:\GCsolution\Data\Project1\PCB Report.gcr
Batch Name	: C:\GCsolution\Data\Project1\Batch Record LM091212.gcb

DETECTOR B

Chromatogram 0809-12-04-2Arpt C:\GCsolution\Data\Project1\0809-12-04-2Arpt.gcd - Channel 1



Group Results - Channel 1

Group#	Name	Conc.	Unit	Area	Height
1	Aroclor 1242	0.000	ppm	0	0
2	Aroclor 1242	0.000	ppm	0	0
3	Aroclor 1242	0.000	ppm	0	0
4	Aroclor 1242	12.264	ppm	114	33
5	Aroclor 1242	35.447	ppm	143	68
6	Aroclor 1016	0.000	ppm	0	0
7	Aroclor 1016	24.024	ppm	488	245
8	Aroclor 1016	0.000	ppm	0	0
9	Aroclor 1016	0.000	ppm	0	0
10	Aroclor 1016	1386.724	ppm	4586	1745
11	Aroclor 1254	607.771	ppm	3788	1467
12	Aroclor 1254	567.318	ppm	4695	1350
13	Aroclor 1254	1306.841	ppm	10331	2978
14	Aroclor 1254	1891.348	ppm	8772	3228
15	Aroclor 1254	2474.157	ppm	11001	3105
16	Aroclor 1260	1295.009	ppm	4843	1963
17	Aroclor 1260	1471.955	ppm	10127	3268
18	Aroclor 1260	1546.497	ppm	5831	1900
19	Aroclor 1260	1558.270	ppm	3148	1216
20	Aroclor 1260	1378.136	ppm	3768	1275
21	TCMX	0.000	%	0	0
Total				71634	23839

1260 1449.97

1450

System Configuration

[Instrument]

Instrument Name	: EQL-2
Instrument Type	: GC-17A V3
Communication Type	: RS-232C COM4

Sample Information

Analysis Date & Time	: 9/11/2012 11:11:28 AM
User Name	: Admin
Vial#	: 1
Sample Name	: EQL-2A 0809-12-047-1
Sample ID	:
Sample Type	: Unknown
Injection Volume	: 2.00
Dilution Factor	: 3
Sample Amount	: 0.2005
Level#	: 1
Data Name	: C:\GCsolution\Data\Project1\EQL-2A 0809-12-047-1.gcd
Method Name	: C:\GCsolution\Data\Project1\(EQL-2) 8082-073112 eMDL.gcm
Report Name	: C:\GCsolution\Data\Project1\PCB RPT 042612 drop.gcr
Batch Name	: C:\GCsolution\Data\Project1\(EQL-2) TM091112.gcb

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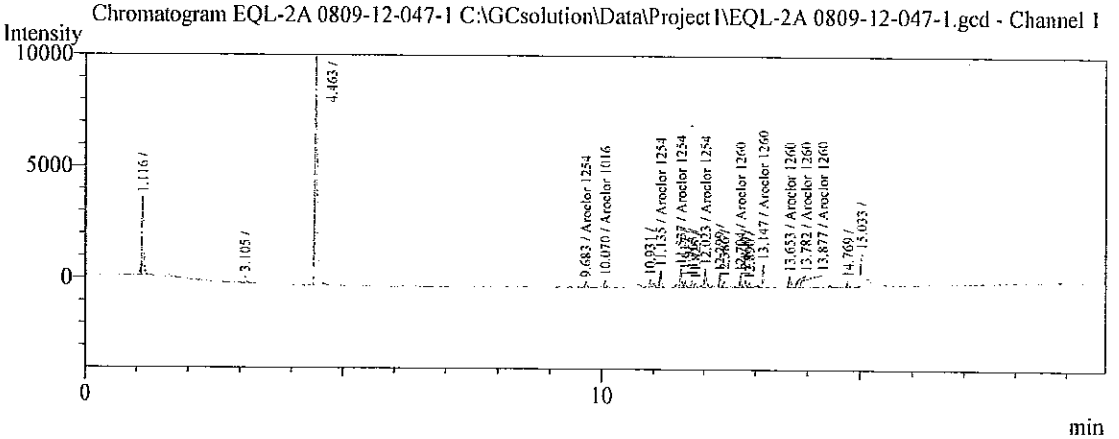


Group Results - Channel 1

Group#	Name	Conc.	Unit	Area	Height
1	Aroclor 1242	0.000	ppm	0	0
2	Aroclor 1242	0.000	ppm	0	0
3	Aroclor 1242	0.000	ppm	0	0
4	Aroclor 1242	0.000	ppm	0	0
5	Aroclor 1242	0.000	ppm	0	0
6	Aroclor 1016	0.000	ppm	0	0
7	Aroclor 1016	0.000	ppm	0	0
8	Aroclor 1016	0.000	ppm	0	0
9	Aroclor 1016	0.000	ppm	0	0
10	Aroclor 1016	0.005	ppm	671	323
11	Aroclor 1254	0.366	ppm	555	254
12	Aroclor 1254	0.000	ppm	0	0
13	Aroclor 1254	0.768	ppm	1692	728
14	Aroclor 1254	1.358	ppm	1882	840
15	Aroclor 1254	1.111	ppm	2125	829
16	Aroclor 1260	0.221	ppm	1166	533
17	Aroclor 1260	0.426	ppm	2438	1038
18	Aroclor 1260	0.225	ppm	1337	520
19	Aroclor 1260	0.279	ppm	646	270
20	Aroclor 1260	0.423	ppm	664	292
21	TCMX	0.000	%	0	0
Total				13176	5628

System Configuration

[Instrument]

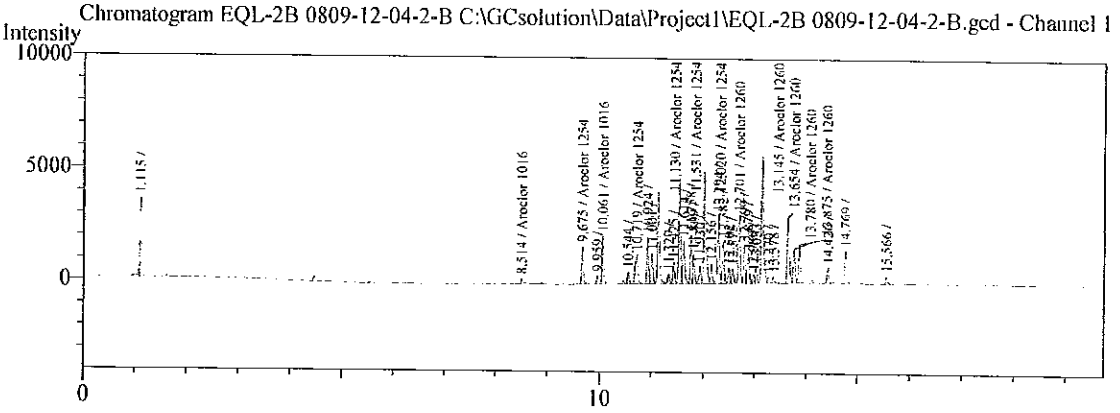
Instrument Name	: EQL-2
Instrument Type	: GC-17A V3
Communication Type	: RS-232C COM4

Sample Information

Analysis Date & Time	: 9/11/2012 12:02:06 PM
User Name	: Admin
Vial#	: 3
Sample Name	: EQL-2B 0809-12-04-2-B
Sample ID	:
Sample Type	: Unknown
Injection Volume	: 2.00
Dilution Factor	: 100
Sample Amount	: 0.0313
Level#	: 1
Data Name	: C:\GCsolution\Data\Project1\EQL-2B 0809-12-04-2-B.gcd
Method Name	: C:\GCsolution\Data\Project1\(EQL-2) 8082-073112 eMDL.gcm
Report Name	: C:\GCsolution\Data\Project1\PCB RPT 042612 drop.gcr
Batch Name	: C:\GCsolution\Data\Project1\(EQL-2) TM091112.gcb

Detector A

Chromatogram EQL-2B 0809-12-04-2-B C:\GCsolution\Data\Project1\EQL-2B 0809-12-04-2-B.gcd - Channel 1



Group Results - Channel 1

Group#	Name	Conc.	Unit	Area	Height
1	Aroclor 1242	0.000	ppm	0	0
2	Aroclor 1242	0.000	ppm	0	0
3	Aroclor 1242	0.000	ppm	0	0
4	Aroclor 1242	0.000	ppm	0	0
5	Aroclor 1242	0.000	ppm	0	0
6	Aroclor 1016	0.000	ppm	0	0
7	Aroclor 1016	11.936	ppm	487	240
8	Aroclor 1016	0.000	ppm	0	0
9	Aroclor 1016	0.000	ppm	0	0
10	Aroclor 1016	1438.397	ppm	4864	2089
11	Aroclor 1254	541.629	ppm	3843	1685
12	Aroclor 1254	475.249	ppm	4863	1276
13	Aroclor 1254	1105.492	ppm	11408	4108
14	Aroclor 1254	1745.267	ppm	11326	4640
15	Aroclor 1254	1676.781	ppm	15025	4922
16	Aroclor 1260	1254.989	ppm	7173	2975
17	Aroclor 1260	1370.878	ppm	15364	5701
18	Aroclor 1260	1374.609	ppm	8722	2902
19	Aroclor 1260	1206.228	ppm	3658	1510
20	Aroclor 1260	1260.373	ppm	4276	1677
21	TCMX	0.000	%	0	0
Total				91008	33725

1260 1293.4154

1293

System Configuration

[Instrument]

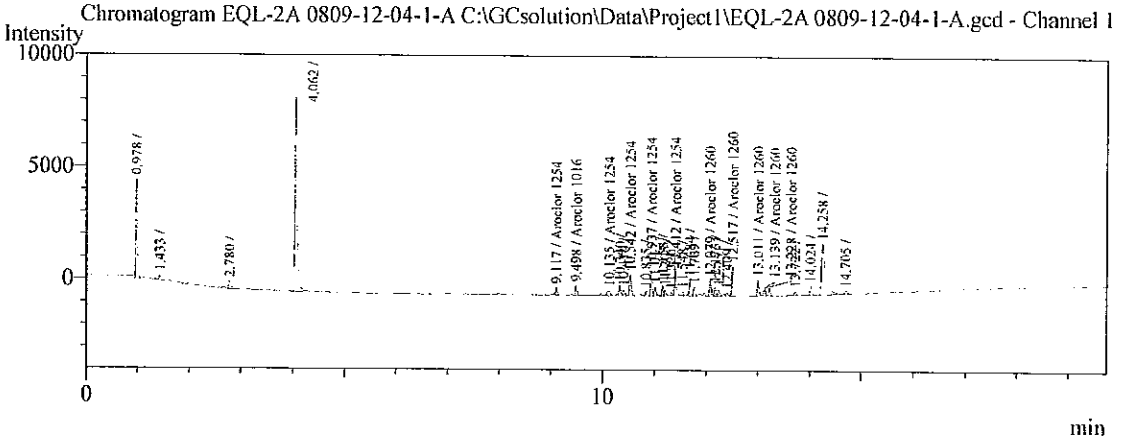
Instrument Name	: EQL-2
Instrument Type	: GC-17A V3
Communication Type	: RS-232C COM4

Sample Information

Analysis Date & Time	: 9/11/2012 12:02:06 PM
User Name	: Admin
Vial#	: 4
Sample Name	: EQL-2A 0809-12-04-1-A
Sample ID	:
Sample Type	: Unknown
Injection Volume	: 2.00
Dilution Factor	: 3
Sample Amount	: 0.2005
Level#	: 1
Data Name	: C:\GCsolution\Data\Project1\EQL-2A 0809-12-04-1-A.gcd
Method Name	: C:\GCsolution\Data\Project1\(EQL-2) 8082-073112 eMDL.gcm
Report Name	: C:\GCsolution\Data\Project1\PCB RPT 042612 drop.gcr
Batch Name	: C:\GCsolution\Data\Project1\(EQL-2) TM091112.gcb

DILUTION B

Chromatogram EQL-2A 0809-12-04-1-A C:\GCsolution\Data\Project1\EQL-2A 0809-12-04-1-A.gcd - Channel 1



Group Results - Channel 1

Group#	Name	Conc.	Unit	Area	Height
1	Aroclor 1242	0.000	ppm	0	0
2	Aroclor 1242	0.000	ppm	0	0
3	Aroclor 1242	0.000	ppm	0	0
4	Aroclor 1242	0.000	ppm	0	0
5	Aroclor 1242	0.000	ppm	0	0
6	Aroclor 1016	0.000	ppm	0	0
7	Aroclor 1016	0.000	ppm	0	0
8	Aroclor 1016	0.000	ppm	0	0
9	Aroclor 1016	0.000	ppm	0	0
10	Aroclor 1016	0.011	ppm	963	443
11	Aroclor 1254	0.353	ppm	709	336
12	Aroclor 1254	0.313	ppm	908	238
13	Aroclor 1254	0.773	ppm	2266	943
14	Aroclor 1254	1.313	ppm	2453	1111
15	Aroclor 1254	1.123	ppm	2912	1111
16	Aroclor 1260	0.100	ppm	1525	699
17	Aroclor 1260	0.158	ppm	3273	1346
18	Aroclor 1260	0.231	ppm	1767	689
19	Aroclor 1260	0.013	ppm	830	365
20	Aroclor 1260	0.283	ppm	896	402
21	TCMX	0.000	%	0	0
Total				18503	7681

1260 0.193

0.19

C:¥GCsolution¥Data¥Project1¥EQL-2B 0809-12-047-2.gcd

System Configuration

[Instrument]

Instrument Name	: EQL-2
Instrument Type	: GC-17A V3
Communication Type	: RS-232C COM4

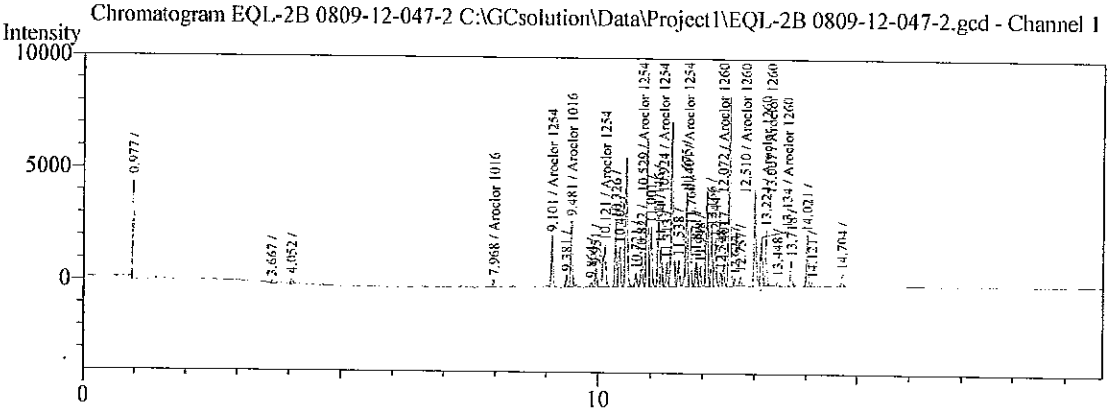
Sample Information

Analysis Date & Time	: 9/11/2012 11:11:28 AM
User Name	: Admin
Vial#	: 2
Sample Name	: EQL-2B 0809-12-047-2
Sample ID	:
Sample Type	: Unknown
Injection Volume	: 2.00
Dilution Factor	: 100
Sample Amount	: 0.0313
Level#	: 1
Data Name	: C:\GCsolution\Data\Project1\EQL-2B 0809-12-047-2.gcd
Method Name	: C:\GCsolution\Data\Project1\(EQL-2) 8082-073112 eMDL.gcm
Report Name	: C:\GCsolution\Data\Project1\PCB RPT 042612 drop.gcr
Batch Name	: C:\GCsolution\Data\Project1\(EQL-2) TM091112.gcb

EE TM 091112

DETECTOR B

Chromatogram EQL-2B 0809-12-047-2 C:\GCsolution\Data\Project1\EQL-2B 0809-12-047-2.gcd - Channel 1



Group Results - Channel 1

Group#	Name	Conc.	Unit	Area	Height
1	Aroclor 1242	0.000	ppm	0	0
2	Aroclor 1242	0.000	ppm	0	0
3	Aroclor 1242	0.000	ppm	0	0
4	Aroclor 1242	0.000	ppm	0	0
5	Aroclor 1242	0.000	ppm	0	0
6	Aroclor 1016	0.000	ppm	0	0
7	Aroclor 1016	-69.430	ppm	668	332
8	Aroclor 1016	0.000	ppm	0	0
9	Aroclor 1016	0.000	ppm	0	0
10	Aroclor 1016	1355.803	ppm	6693	2936
11	Aroclor 1254	550.980	ppm	5183	2273
12	Aroclor 1254	502.899	ppm	6834	1875
13	Aroclor 1254	1084.181	ppm	14884	5784
14	Aroclor 1254	1741.737	ppm	15238	6600
15	Aroclor 1254	1671.876	ppm	20303	7271
16	Aroclor 1260	1212.831	ppm	9745	4231
17	Aroclor 1260	1331.510	ppm	20971	8373
18	Aroclor 1260	1355.925	ppm	12112	4285
19	Aroclor 1260	1139.679	ppm	4875	2153
20	Aroclor 1260	1197.857	ppm	5831	2464
21	TCMX	0.000	%	0	0
Total				123335	48576

1260 1254 1260 1248

C:¥GCsolution¥Data¥Project1¥EQL-3A 0809-12-04-1.gcd

System Configuration

[Instrument]

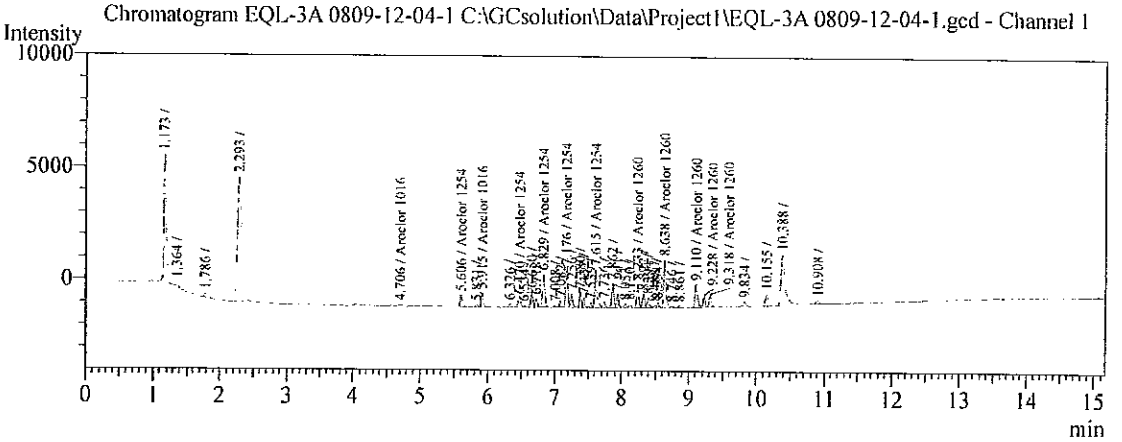
Instrument Name	: EQL-3
Instrument Type	: GC-17A V3
Communication Type	: RS-232C COM3

Sample Information

Analysis Date & Time	: 9/11/2012 11:22:10 AM
User Name	: Admin
Vial#	: 1
Sample Name	: EQL-3A 0809-12-04-1
Sample ID	:
Sample Type	: Unknown
Injection Volume	: 2.00
Dilution Factor	: 3
Sample Amount	: 0.2005
Level#	: 1
Data Name	: C:\GCsolution\Data\Project1\EQL-3A 0809-12-04-1.gcd
Method Name	: C:\GCsolution\Data\Project1\(EQL-3) 8082-091012 eMDL.gcm
Report Name	: C:\GCsolution\Data\Project1\PCB RPT 042612 drop.gcr
Batch Name	: C:\GCsolution\Data\Project1\EQL-3 TM091012.gcb

DETECTOR A

Chromatogram EQL-3A 0809-12-04-1 C:\GCsolution\Data\Project1\EQL-3A 0809-12-04-1.gcd - Channel 1



Group Results - Channel 1

Group#	Name	Conc.	Unit	Area	Height
1	Aroclor 1242	0.000	ppm	0	0
2	Aroclor 1242	0.000	ppm	0	0
3	Aroclor 1242	0.000	ppm	0	0
4	Aroclor 1242	0.000	ppm	0	0
5	Aroclor 1242	0.000	ppm	0	0
6	Aroclor 1016	0.000	ppm	0	0
7	Aroclor 1016	-0.799	ppm	119	62
8	Aroclor 1016	0.000	ppm	0	0
9	Aroclor 1016	0.000	ppm	0	0
10	Aroclor 1016	0.099	ppm	1341	634
11	Aroclor 1254	0.302	ppm	1059	504
12	Aroclor 1254	0.250	ppm	1247	421
13	Aroclor 1254	0.687	ppm	3392	1469
14	Aroclor 1254	1.271	ppm	3709	1693
15	Aroclor 1254	1.059	ppm	4362	1695
16	Aroclor 1260	0.278	ppm	2295	1068
17	Aroclor 1260	0.531	ppm	5002	2130
18	Aroclor 1260	0.408	ppm	2658	1025
19	Aroclor 1260	0.316	ppm	1227	527
20	Aroclor 1260	0.510	ppm	1289	564
21	TCMX	0.000	%	0	0
Total				27699	11792

1260 0.4086

0.41

C:¥GCsolution¥Data¥Project1¥EQL-3B 0809-12-04-2-B.gcd

System Configuration

[Instrument]

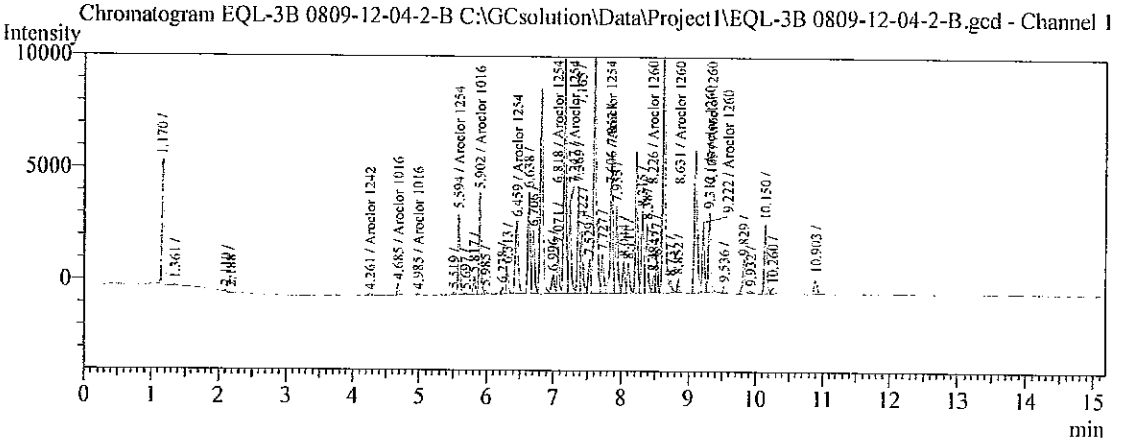
Instrument Name	: EQL-3
Instrument Type	: GC-17A V3
Communication Type	: RS-232C COM3

Sample Information

Analysis Date & Time	: 9/11/2012 11:43:19 AM
User Name	: Admin
Vial#	: 3
Sample Name	: EQL-3B 0809-12-04-2-B
Sample ID	:
Sample Type	: Unknown
Injection Volume	: 2.00
Dilution Factor	: 100
Sample Amount	: 0.0313
Level#	: 1
Data Name	: C:\GCsolution\Data\Project1\EQL-3B 0809-12-04-2-B.gcd
Method Name	: C:\GCsolution\Data\Project1\(EQL-3) 8082-091012 eMDL.gcm
Report Name	: C:\GCsolution\Data\Project1\PCB RPT 042612 drop.gcr
Batch Name	: C:\GCsolution\Data\Project1\EQL-3 TM091012.gcb

DETECTOR A

Chromatogram EQL-3B 0809-12-04-2-B C:\GCsolution\Data\Project1\EQL-3B 0809-12-04-2-B.gcd - Channel 1



Group Results - Channel 1

Group#	Name	Conc.	Unit	Area	Height
1	Aroclor 1242	0.000	ppm	0	0
2	Aroclor 1242	0.000	ppm	0	0
3	Aroclor 1242	0.000	ppm	0	0
4	Aroclor 1242	8.827	ppm	212	69
5	Aroclor 1242	0.000	ppm	0	0
6	Aroclor 1016	0.000	ppm	0	0
7	Aroclor 1016	-60.297	ppm	970	510
8	Aroclor 1016	-135.822	ppm	120	69
9	Aroclor 1016	0.000	ppm	0	0
10	Aroclor 1016	1181.397	ppm	10527	4535
11	Aroclor 1254	489.191	ppm	8033	3655
12	Aroclor 1254	426.541	ppm	9965	3255
13	Aroclor 1254	1026.807	ppm	23749	9214
14	Aroclor 1254	738.842	ppm	10096	4085
15	Aroclor 1254	1642.078	ppm	31664	11436
16	Aroclor 1260	1153.327	ppm	14686	6368
17	Aroclor 1260	1220.329	ppm	34323	13231
18	Aroclor 1260	1237.975	ppm	17822	6381
19	Aroclor 1260	1114.335	ppm	7374	3126
20	Aroclor 1260	1104.212	ppm	8726	3548
21	TCMX	0.000	%	0	0
Total				178267	69480

12460
1166.03564
1166

C:¥GCsolution¥Data¥Project1¥EQL-3A 0809-12-04-1-A.gcd

System Configuration

[Instrument]

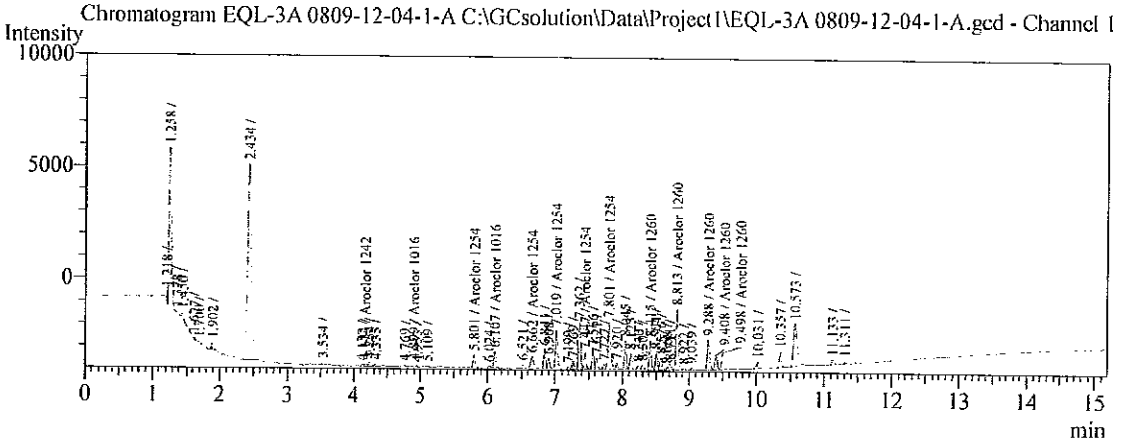
Instrument Name	: EQL-3
Instrument Type	: GC-17A V3
Communication Type	: RS-232C COM3

Sample Information

Analysis Date & Time	: 9/11/2012 11:43:19 AM
User Name	: Admin
Vial#	: 4
Sample Name	: EQL-3A 0809-12-04-1-A
Sample ID	:
Sample Type	: Unknown
Injection Volume	: 2.00
Dilution Factor	: 3
Sample Amount	: 0.2005
Level#	: 1
Data Name	: C:\GCsolution\Data\Project1\EQL-3A 0809-12-04-1-A.gcd
Method Name	: C:\GCsolution\Data\Project1\(EQL-3) 8082-091012 eMDL.gcm
Report Name	: C:\GCsolution\Data\Project1\PCB RPT 042612 drop.gcr
Batch Name	: C:\GCsolution\Data\Project1\EQL-3 TM091012.gcb

DETECTOR B

Chromatogram EQL-3A 0809-12-04-1-A C:\GCsolution\Data\Project1\EQL-3A 0809-12-04-1-A.gcd - Channel 1



Group Results - Channel 1

Group#	Name	Conc.	Unit	Area	Height
1	Aroclor 1242	0.000	ppm	0	0
2	Aroclor 1242	0.000	ppm	0	0
3	Aroclor 1242	0.091	ppm	270	111
4	Aroclor 1242	0.000	ppm	0	0
5	Aroclor 1242	0.000	ppm	0	0
6	Aroclor 1016	0.000	ppm	0	0
7	Aroclor 1016	-0.833	ppm	346	143
8	Aroclor 1016	0.000	ppm	0	0
9	Aroclor 1016	0.000	ppm	0	0
10	Aroclor 1016	-0.195	ppm	1577	749
11	Aroclor 1254	0.254	ppm	1331	600
12	Aroclor 1254	0.234	ppm	1751	551
13	Aroclor 1254	0.537	ppm	4165	1758
14	Aroclor 1254	0.338	ppm	1594	736
15	Aroclor 1254	0.856	ppm	5487	2143
16	Aroclor 1260	-0.002	ppm	2842	1312
17	Aroclor 1260	0.207	ppm	6327	2716
18	Aroclor 1260	0.188	ppm	3538	1351
19	Aroclor 1260	0.207	ppm	1521	658
20	Aroclor 1260	0.280	ppm	1701	736
21	TCMX	0.000	%	0	0
Total				32451	13566

12408 0.2005 0.22

C:¥GCsolution¥Data¥Project1¥EQL-3B 0809-12-04-2.gcd

System Configuration

[Instrument]

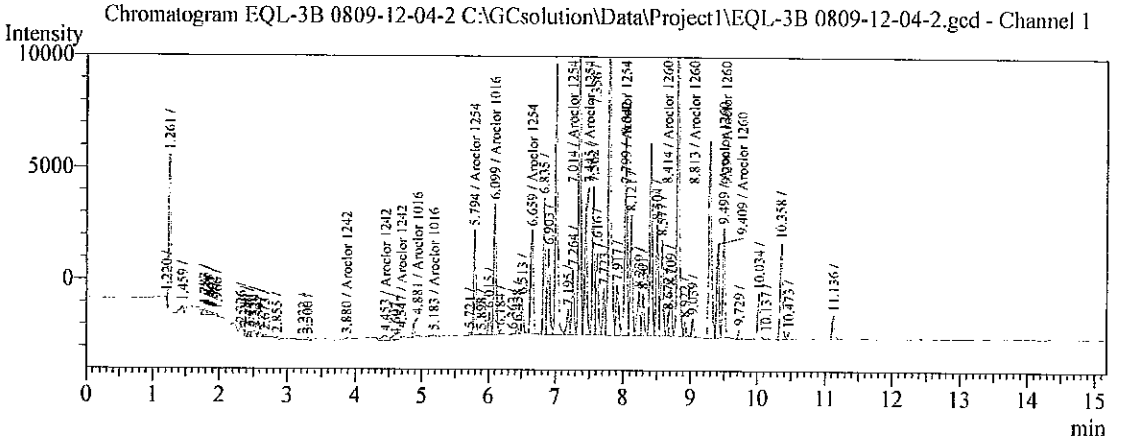
Instrument Name	: EQL-3
Instrument Type	: GC-17A V3
Communication Type	: RS-232C COM3

Sample Information

Analysis Date & Time	: 9/11/2012 11:22:10 AM
User Name	: Admin
Vial#	: 2
Sample Name	: EQL-3B 0809-12-04-2
Sample ID	:
Sample Type	: Unknown
Injection Volume	: 2.00
Dilution Factor	: 100
Sample Amount	: 0.0313
Level#	: 1
Data Name	: C:\GCsolution\Data\Project1\EQL-3B 0809-12-04-2.gcd
Method Name	: C:\GCsolution\Data\Project1\(EQL-3) 8082-091012 eMDL.gcm
Report Name	: C:\GCsolution\Data\Project1\PCB RPT 042612 drop.gcr
Batch Name	: C:\GCsolution\Data\Project1\EQL-3 TM091012.gcb

DETECTOR B

Chromatogram EQL-3B 0809-12-04-2 C:\GCsolution\Data\Project1\EQL-3B 0809-12-04-2.gcd - Channel 1



Group Results - Channel 1

Group#	Name	Conc.	Unit	Area	Height
1	Aroclor 1242	0.000	ppm	0	0
2	Aroclor 1242	7.683	ppm	102	56
3	Aroclor 1242	0.000	ppm	0	0
4	Aroclor 1242	39.216	ppm	1539	231
5	Aroclor 1242	20.843	ppm	337	132
6	Aroclor 1016	0.000	ppm	0	0
7	Aroclor 1016	-108.819	ppm	1126	573
8	Aroclor 1016	-177.669	ppm	124	73
9	Aroclor 1016	0.000	ppm	0	0
10	Aroclor 1016	991.102	ppm	13887	5868
11	Aroclor 1254	433.265	ppm	10616	4716
12	Aroclor 1254	380.048	ppm	13342	4632
13	Aroclor 1254	870.767	ppm	31647	12161
14	Aroclor 1254	603.020	ppm	13324	5506
15	Aroclor 1254	1457.997	ppm	43783	15731
16	Aroclor 1260	1056.922	ppm	20107	8735
17	Aroclor 1260	1081.960	ppm	44200	18049
18	Aroclor 1260	1118.108	ppm	25038	8948
19	Aroclor 1260	1056.425	ppm	9999	4197
20	Aroclor 1260	1092.383	ppm	12044	4902
21	TCMX	0.000	%	0	0
Total				241216	94509

1260
1081.1596
1081.16
1081

Attachment B

C:¥GCsolution¥Data¥Project1¥PO 1A 091112.gcd

PCB 1000
Demo Batch # 1
9-11-12

System Configuration

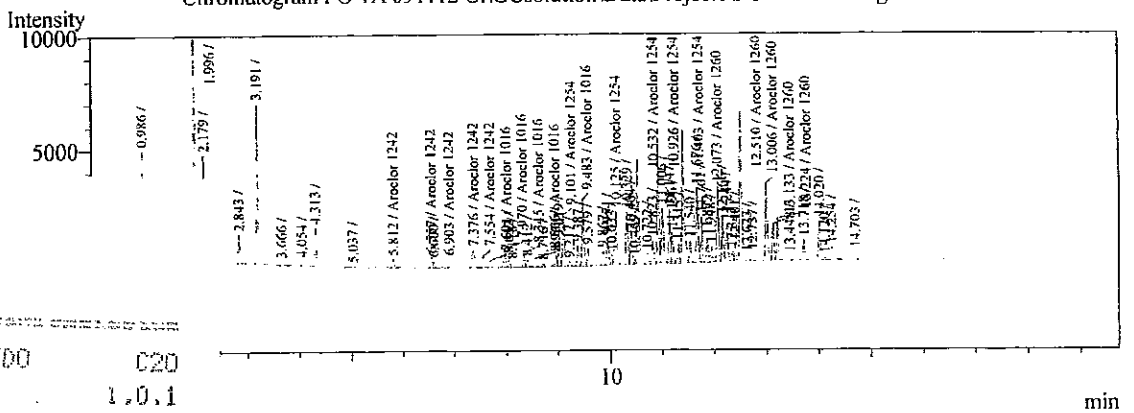
[Instrument]

Instrument Name	: EQL-2
Instrument Type	: GC-17A V3
Communication Type	: RS-232C COM4

Sample Information

Analysis Date & Time	: 9/11/2012 10:46:18 AM
User Name	: Admin
Vial#	: 150
Sample Name	: PO 1A 091112
Sample ID	:
Sample Type	: Unknown
Injection Volume	: 2.00
Dilution Factor	: 100
Sample Amount	: 0.0333
Level#	: 1
Data Name	: C:\GCsolution\Data\Project1\PO 1A 091112.gcd
Method Name	: C:\GCsolution\Data\Project1\(EQL-2) 8082-073112 eMDL.gcm
Report Name	: C:\GCsolution\Data\Project1\PCB RPT 042612 drop.gcr
Batch Name	: C:\GCsolution\Data\Project1\(EQL-2) TM091112.gcb

Chromatogram PO 1A 091112 C:\GCsolution\Data\Project1\PO 1A 091112.gcd - Channel 1



METTLER TOLEDO C20
Version 1.0.1
Serial No 5130295030
Titrator ID
Compact Titrator
09/11/2012 10:10:12 am
Administrator

Method ID ASTM1533
Sample series ID ---

Summary
Samples
No. 4
ID PO 1A 09-11-12
Sample size 3.5838 g
R1 (Content)
62.99698 ppm
R2 (Content) 0.0063 %

Group Results - Channel 1

Group#	Name	Conc.	Unit	Area	Height
1	Aroclor 1242	236.801	ppm	949	373
2	Aroclor 1242	190.260	ppm	1074	479
3	Aroclor 1242	156.062	ppm	807	384
4	Aroclor 1242	199.266	ppm	2738	763
5	Aroclor 1242	195.434	ppm	1170	508
6	Aroclor 1016	-10.591	ppm	690	310
7	Aroclor 1016	190.012	ppm	1922	851
8	Aroclor 1016	95.531	ppm	1461	643
9	Aroclor 1016	59.860	ppm	1164	408
10	Aroclor 1016	1254.762	ppm	6604	2932
11	Aroclor 1254	563.556	ppm	5640	2253
12	Aroclor 1254	506.592	ppm	7324	2388
13	Aroclor 1254	961.943	ppm	14050	4607
14	Aroclor 1254	1313.900	ppm	12229	5309
15	Aroclor 1254	1262.759	ppm	16314	5904
16	Aroclor 1260	841.544	ppm	7555	3314
17	Aroclor 1260	944.084	ppm	16510	6528
18	Aroclor 1260	945.817	ppm	9343	3391
19	Aroclor 1260	724.416	ppm	3562	1611
20	Aroclor 1260	801.357	ppm	4333	1855
21	TCMX	0.000	%	0	0
Total				115440	44810

1260 181.84
1254 607.36
1260 897.09
1765.71
1756

System Configuration

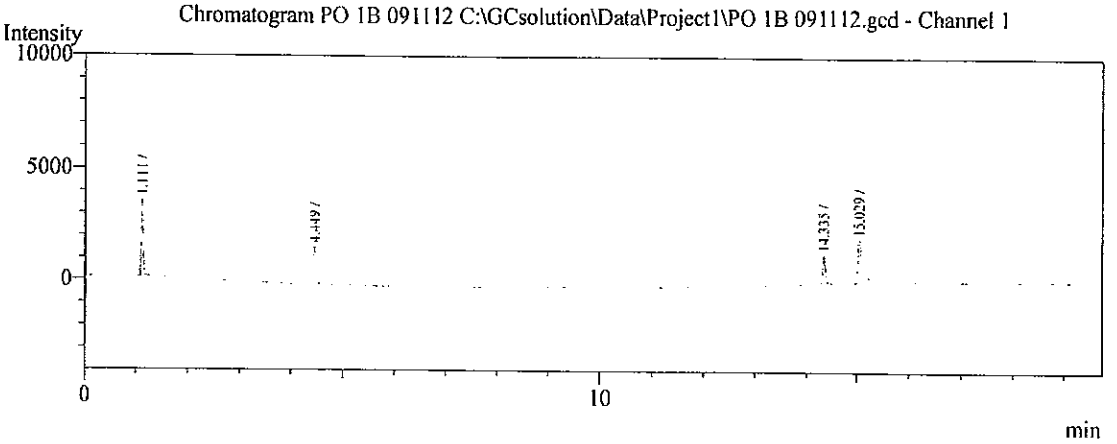
[Instrument]

Instrument Name	: EQL-2
Instrument Type	: GC-17A V3
Communication Type	: RS-232C COM4

Sample Information

Analysis Date & Time	: 9/11/2012 3:05:01 PM
User Name	: Admin
Vial#	: 149
Sample Name	: PO 1B 091112
Sample ID	:
Sample Type	: Unknown
Injection Volume	: 2.00
Dilution Factor	: 10
Sample Amount	: 0.0508
Level#	: 1
Data Name	: C:\GCsolution\Data\Project1\PO 1B 091112.gcd
Method Name	: C:\GCsolution\Data\Project1\(EQL-2) 8082-073112 eMDL.gcm
Report Name	: C:\GCsolution\Data\Project1\PCB RPT 042612 drop.gcr
Batch Name	: C:\GCsolution\Data\Project1\(EQL-2) TM091112.gcb

Chromatogram PO 1B 091112 C:\GCsolution\Data\Project1\PO 1B 091112.gcd - Channel 1



Group Results - Channel 1

Group#	Name	Conc.	Unit	Area	Height
1	Aroclor 1242	0.000	ppm	0	0
2	Aroclor 1242	0.000	ppm	0	0
3	Aroclor 1242	0.000	ppm	0	0
4	Aroclor 1242	0.000	ppm	0	0
5	Aroclor 1242	0.000	ppm	0	0
6	Aroclor 1016	0.000	ppm	0	0
7	Aroclor 1016	0.000	ppm	0	0
8	Aroclor 1016	0.000	ppm	0	0
9	Aroclor 1016	0.000	ppm	0	0
10	Aroclor 1016	0.000	ppm	0	0
11	Aroclor 1254	0.000	ppm	0	0
12	Aroclor 1254	0.000	ppm	0	0
13	Aroclor 1254	0.000	ppm	0	0
14	Aroclor 1254	0.000	ppm	0	0
15	Aroclor 1254	0.000	ppm	0	0
16	Aroclor 1260	0.000	ppm	0	0
17	Aroclor 1260	0.000	ppm	0	0
18	Aroclor 1260	0.000	ppm	0	0
19	Aroclor 1260	0.000	ppm	0	0
20	Aroclor 1260	0.000	ppm	0	0
21	TCMX	0.000	%	0	0
Total				0	0

21

C:¥GCsolution¥Data¥Project1¥PO 1A 091212.gcd

PCB 1000
Demo Batch #2
9-12-12

System Configuration

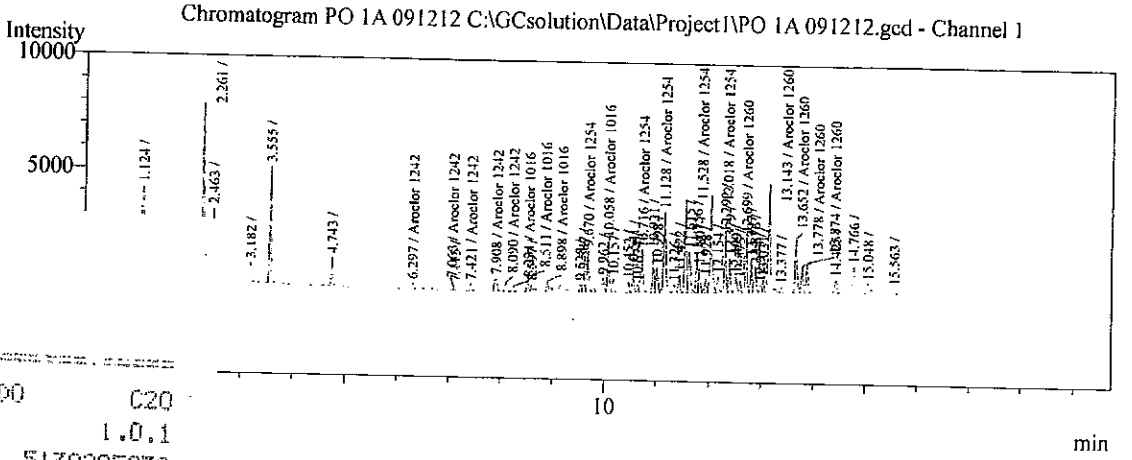
[Instrument]

Instrument Name	: EQL-2
Instrument Type	: GC-17A V3
Communication Type	: RS-232C COM4

Sample Information

Analysis Date & Time	: 9/12/2012 8:55:24 AM
User Name	: Admin
Vial#	: 150
Sample Name	: PO 1A 091212
Sample ID	:
Sample Type	: Unknown
Injection Volume	: 2.00
Dilution Factor	: 100
Sample Amount	: 0.0331
Level#	: 1
Data Name	: C:\GCsolution\Data\Project1\PO 1A 091212.gcd
Method Name	: C:\GCsolution\Data\Project1\(EQL-2) 8082-073112 eMDL.gcm
Report Name	: C:\GCsolution\Data\Project1\PCB RPT 042612 drop.gcr
Batch Name	: C:\GCsolution\Data\Project1\(EQL-2) TM091112 LL.gcb

Chromatogram PO 1A 091212 C:\GCsolution\Data\Project1\PO 1A 091212.gcd - Channel 1



METTLER TOLEDO C20
Version 1.0.1
Serial No 5130295030
Titrator ID
Compact Titrator
09/12/2012 08:06:26 am
Administrator

Method ID ASTM1533
Sample series ID --

Summary
Samples
No. 1
ID PO 1A 091212
Sample size 3.8078 g
1 (Content)
66.75648 ppm
2 (Content) 0.0067 %

Group Results - Channel 1

Group#	Name	Conc.	Unit	Area	Height
1	Aroclor 1242	204.669	ppm	530	257
2	Aroclor 1242	205.221	ppm	794	380
3	Aroclor 1242	179.689	ppm	665	303
4	Aroclor 1242	221.969	ppm	2095	568
5	Aroclor 1242	209.494	ppm	875	390
6	Aroclor 1016	21.768	ppm	494	225
7	Aroclor 1016	267.572	ppm	1413	658
8	Aroclor 1016	95.708	ppm	922	472
9	Aroclor 1016	0.000	ppm	0	0
10	Aroclor 1016	1523.108	ppm	5366	2258
11	Aroclor 1254	588.709	ppm	4417	1815
12	Aroclor 1254	524.419	ppm	5674	1774
13	Aroclor 1254	1065.612	ppm	11629	3549
14	Aroclor 1254	1401.748	ppm	9620	4067
15	Aroclor 1254	1344.696	ppm	12743	4309
16	Aroclor 1260	929.075	ppm	5818	2468
17	Aroclor 1260	969.447	ppm	11873	4689
18	Aroclor 1260	1018.753	ppm	7067	2392
19	Aroclor 1260	847.731	ppm	2844	1177
20	Aroclor 1260	894.590	ppm	3305	1323
21	TCMX	0.000	%	0	0
Total				88144	33073

1242 - 196.5

1254 - 726.2

1260 - 920.4

1843.1

(1843)

C:¥GCsolution¥Data¥Project1¥PO 1B 091212.gcd

System Configuration

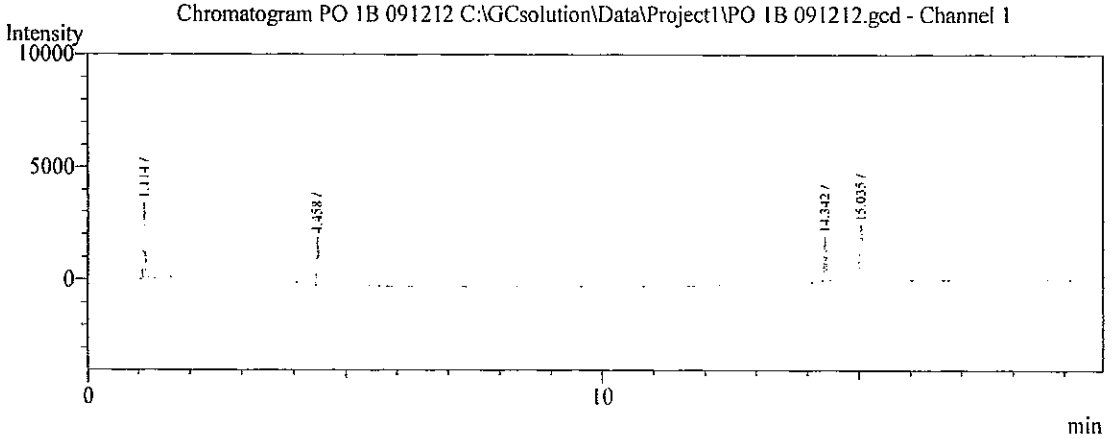
[Instrument]

Instrument Name	: EQL-2
Instrument Type	: GC-17A V3
Communication Type	: RS-232C COM4

Sample Information

Analysis Date & Time	: 9/12/2012 12:19:18 PM
User Name	: Admin
Vial#	: 149
Sample Name	: PO 1B 091212
Sample ID	:
Sample Type	: Unknown
Injection Volume	: 2.00
Dilution Factor	: 10
Sample Amount	: 0.0528
Level#	: 1
Data Name	: C:\GCsolution\Data\Project1\PO 1B 091212.gcd
Method Name	: C:\GCsolution\Data\Project1\(EQL-2) 8082-073112 eMDL.gcm
Report Name	: C:\GCsolution\Data\Project1\PCB RPT 042612 drop.gcr
Batch Name	: C:\GCsolution\Data\Project1\(EQL-2) TM091112 LL.gcb

Chromatogram PO 1B 091212 C:\GCsolution\Data\Project1\PO 1B 091212.gcd - Channel 1



Group Results - Channel 1

Group#	Name	Conc.	Unit	Area	Height
1	Aroclor 1242	0.000	ppm	0	0
2	Aroclor 1242	0.000	ppm	0	0
3	Aroclor 1242	0.000	ppm	0	0
4	Aroclor 1242	0.000	ppm	0	0
5	Aroclor 1242	0.000	ppm	0	0
6	Aroclor 1016	0.000	ppm	0	0
7	Aroclor 1016	0.000	ppm	0	0
8	Aroclor 1016	0.000	ppm	0	0
9	Aroclor 1016	0.000	ppm	0	0
10	Aroclor 1016	0.000	ppm	0	0
11	Aroclor 1254	0.000	ppm	0	0
12	Aroclor 1254	0.000	ppm	0	0
13	Aroclor 1254	0.000	ppm	0	0
14	Aroclor 1254	0.000	ppm	0	0
15	Aroclor 1254	0.000	ppm	0	0
16	Aroclor 1260	0.000	ppm	0	0
17	Aroclor 1260	0.000	ppm	0	0
18	Aroclor 1260	0.000	ppm	0	0
19	Aroclor 1260	0.000	ppm	0	0
20	Aroclor 1260	0.000	ppm	0	0
21	TCMX	0.000	%	0	0
Total				0	0

C:¥GCsolution¥Data¥Project1¥PO 2A 091212.gcd

PCB 1000
Demo Batch #3
9-12-12

System Configuration

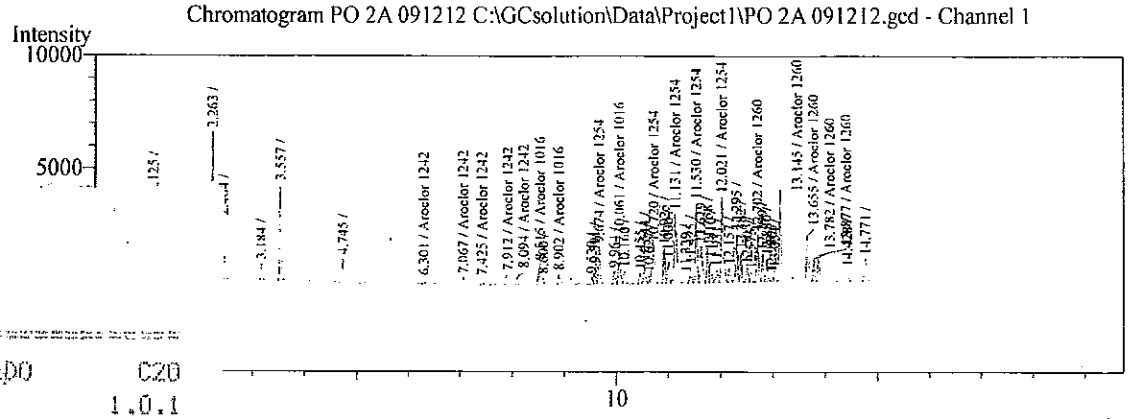
[Instrument]

Instrument Name	: EQL-2
Instrument Type	: GC-17A V3
Communication Type	: RS-232C COM4

Sample Information

Analysis Date & Time	: 9/12/2012 1:36:45 PM
User Name	: Admin
Vial#	: 1
Sample Name	: PO 2A 091212
Sample ID	:
Sample Type	: Unknown
Injection Volume	: 2.00
Dilution Factor	: 100
Sample Amount	: 0.0304
Level#	: 1
Data Name	: C:\GCsolution\Data\Project1\PO 2A 091212.gcd
Method Name	: C:\GCsolution\Data\Project1\(EQL-2) 8082-073112 eMDL.gcm
Report Name	: C:\GCsolution\Data\Project1\PCB RPT 042612 drop.gcr
Batch Name	: C:\GCsolution\Data\Project1\(EQL-2) TM091212.gcb

Chromatogram PO 2A 091212 C:\GCsolution\Data\Project1\PO 2A 091212.gcd - Channel 1



METTLER TOLEDO C20
Version 1.0.1
Serial No 5130295030
Titrator ID
Compact Titrator
09/12/2012 02:48:30 pm
Administrator

Method ID ASTM1533
Sample series ID --

Summary
Samples
No. 1
ID PO 2A 091212
Sample size 2.7847 g
R1 (Content)
2594.49036 ppm
R2 (Content) 0.2594 %

Group Results - Channel 1

Group#	Name	Conc.	Unit	Area	Height
1	Aroclor 1242	181.599	ppm	432	207
2	Aroclor 1242	116.314	ppm	413	242
3	Aroclor 1242	160.686	ppm	546	253
4	Aroclor 1242	194.866	ppm	1689	458
5	Aroclor 1242	177.156	ppm	679	314
6	Aroclor 1016	0.000	ppm	0	0
7	Aroclor 1016	262.461	ppm	1317	627
8	Aroclor 1016	80.513	ppm	844	430
9	Aroclor 1016	0.000	ppm	0	0
10	Aroclor 1016	1485.687	ppm	4877	2058
11	Aroclor 1254	580.791	ppm	4002	1645
12	Aroclor 1254	526.180	ppm	5229	1669
13	Aroclor 1254	1036.189	ppm	10385	3040
14	Aroclor 1254	1324.981	ppm	8351	3497
15	Aroclor 1254	1282.208	ppm	11159	3751
16	Aroclor 1260	825.325	ppm	4918	2085
17	Aroclor 1260	868.374	ppm	10037	4016
18	Aroclor 1260	915.066	ppm	6017	2043
19	Aroclor 1260	741.333	ppm	2381	993
20	Aroclor 1260	810.749	ppm	2816	1137
21	TCMX	0.000	%	0	0
Total				76094	28464

PCB 1016 152.866
PCB 1254 114.387
PCB 1260 822.383
1689.64
1690

C:¥GCsolution¥Data¥Project1¥PO 2B 0191212.gcd

System Configuration

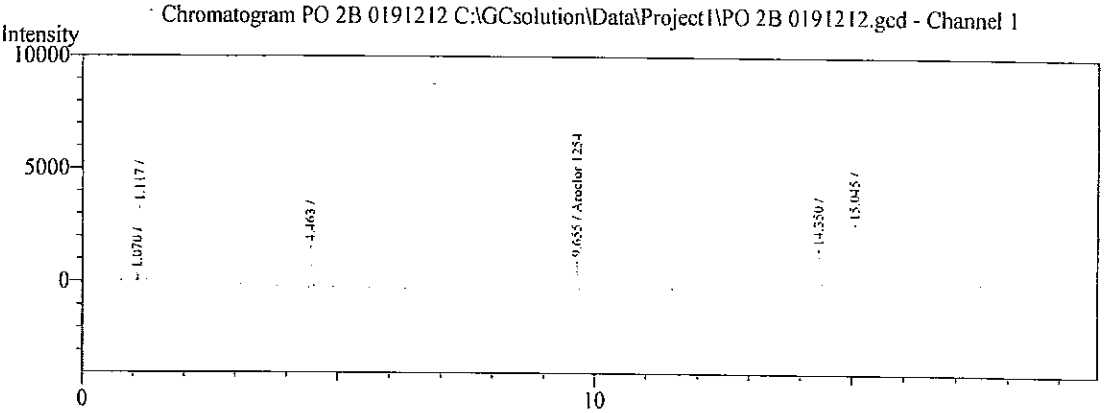
[Instrument]

Instrument Name	: EQL-2
Instrument Type	: GC-17A V3
Communication Type	: RS-232C COM4

Sample Information

Analysis Date & Time	: 9/12/2012 5:06:38 PM
User Name	: Admin
Vial#	: 4
Sample Name	: PO 2B 0191212
Sample ID	:
Sample Type	: Unknown
Injection Volume	: 2.00
Dilution Factor	: 10
Sample Amount	: 0.0548
Level#	: 1
Data Name	: C:\GCsolution\Data\Project1\PO 2B 0191212.gcd
Method Name	: C:\GCsolution\Data\Project1\(EQL-2) 8082-073112 eMDL.gcm
Report Name	: C:\GCsolution\Data\Project1\PCB RPT 042612 drop.gcr
Batch Name	: C:\GCsolution\Data\Project1\(EQL-2) TM091212.gcb

Chromatogram PO 2B 0191212 C:\GCsolution\Data\Project1\PO 2B 0191212.gcd - Channel 1



Group Results - Channel 1

Group#	Name	Conc.	Unit	Area	Height
1	Aroclor 1242	0.000	ppm	0	0
2	Aroclor 1242	0.000	ppm	0	0
3	Aroclor 1242	0.000	ppm	0	0
4	Aroclor 1242	0.000	ppm	0	0
5	Aroclor 1242	0.000	ppm	0	0
6	Aroclor 1016	0.000	ppm	0	0
7	Aroclor 1016	0.000	ppm	0	0
8	Aroclor 1016	0.000	ppm	0	0
9	Aroclor 1016	0.000	ppm	0	0
10	Aroclor 1016	0.000	ppm	0	0
11	Aroclor 1254	20.454	ppm	2541	1224
12	Aroclor 1254	0.000	ppm	0	0
13	Aroclor 1254	0.000	ppm	0	0
14	Aroclor 1254	0.000	ppm	0	0
15	Aroclor 1254	0.000	ppm	0	0
16	Aroclor 1260	0.000	ppm	0	0
17	Aroclor 1260	0.000	ppm	0	0
18	Aroclor 1260	0.000	ppm	0	0
19	Aroclor 1260	0.000	ppm	0	0
20	Aroclor 1260	0.000	ppm	0	0
21	TCMX	0.000	%	0	0
Total				2541	1224

21

C:\GCsolution¥Data¥Project1¥PO 1A 091312.gcd

PCB 1000 Demonstration Batch #4
9-13-12

Def 1

System Configuration

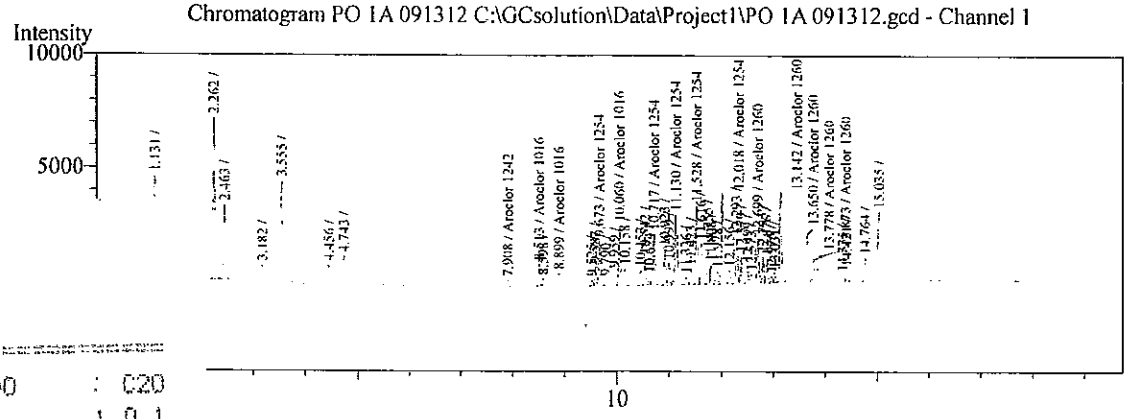
[Instrument]

Instrument Name	: EQL-2
Instrument Type	: GC-17A V3
Communication Type	: RS-232C COM4

Sample Information

Analysis Date & Time	: 9/13/2012 7:35:53 AM
User Name	: Admin
Vial#	: 150
Sample Name	: PO 1A 091312
Sample ID	:
Sample Type	: Unknown
Injection Volume	: 2.00
Dilution Factor	: 10
Sample Amount	: 0.0228
Level#	: 1
Data Name	: C:\GCsolution\Data\Project1\PO 1A 091312.gcd
Method Name	: C:\GCsolution\Data\Project1\(EQL-2) 8082-073112 eMDL.gcm
Report Name	: C:\GCsolution\Data\Project1\PCB RPT 042612 drop.gcr
Batch Name	: C:\GCsolution\Data\Project1\(EQL-2) TM091212.gcb

Chromatogram PO 1A 091312 C:\GCsolution\Data\Project1\PO 1A 091312.gcd - Channel 1



ETTLER TOLEDO : C20
ersion 1.0.1
erial No 5130295030
itrator ID
Compact Titrator
09/13/2012 07:09:40 am
dministrator

ethod ID ASTM1533
Sample series ID --

Summary
Samples
No. 1
ID PO 1A 091312
Sample size 4.5939 g
R1 (Content)
178.39706 ppm
R2 (Content) 0.3178 %

Group Results - Channel 1

Group#	Name	Conc.	Unit	Area	Height
1	Aroclor 1242	0.000	ppm	0	0
2	Aroclor 1242	0.000	ppm	0	0
3	Aroclor 1242	0.000	ppm	0	0
4	Aroclor 1242	14.843	ppm	965	268
5	Aroclor 1242	0.000	ppm	0	0
6	Aroclor 1016	0.000	ppm	0	0
7	Aroclor 1016	63.584	ppm	2028	965
8	Aroclor 1016	21.703	ppm	1114	559
9	Aroclor 1016	0.000	ppm	0	0
10	Aroclor 1016	262.051	ppm	6236	2653
11	Aroclor 1254	95.859	ppm	4954	2009
12	Aroclor 1254	87.133	ppm	6494	2265
13	Aroclor 1254	144.916	ppm	10893	3121
14	Aroclor 1254	173.233	ppm	8189	3514
15	Aroclor 1254	177.877	ppm	11611	4078
16	Aroclor 1260	99.402	ppm	4533	2000
17	Aroclor 1260	110.769	ppm	9668	3989
18	Aroclor 1260	113.936	ppm	5690	2093
19	Aroclor 1260	104.880	ppm	2496	978
20	Aroclor 1260	104.977	ppm	2746	1125
21	TCMX	0.000	%	0	0
Total				77618	29619

1260
106.19
107

C:¥GCsolution¥Data¥Project1¥PO 1B 091312r.gcd

System Configuration

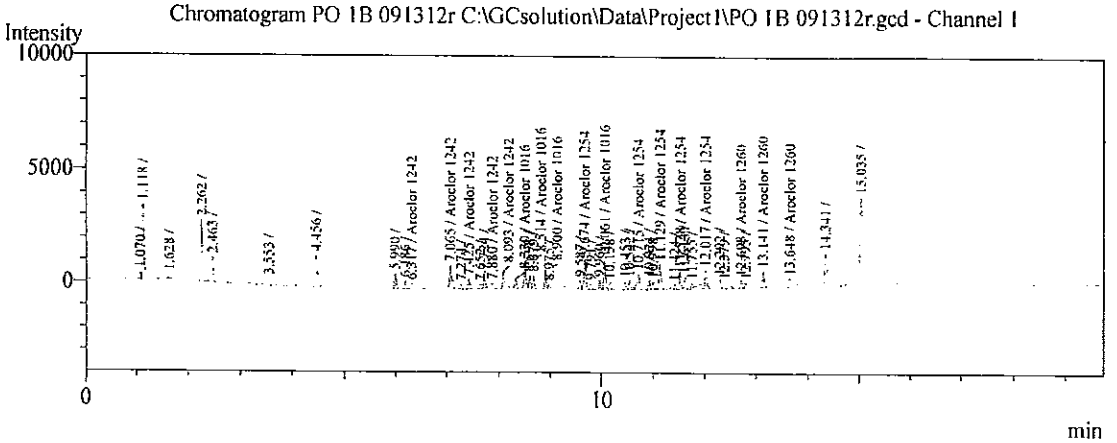
[Instrument]

Instrument Name	: EQL-2
Instrument Type	: GC-17A V3
Communication Type	: RS-232C COM4

Sample Information

Analysis Date & Time	: 9/13/2012 10:43:10 AM
User Name	: Admin
Vial#	: 149
Sample Name	: PO 1B 091312r
Sample ID	:
Sample Type	: Unknown
Injection Volume	: 2.00
Dilution Factor	: 10
Sample Amount	: 0.0483
Level#	: 1
Data Name	: C:\GCsolution\Data\Project1\PO 1B 091312r.gcd
Method Name	: C:\GCsolution\Data\Project1\(EQL-2) 8082-073112 eMDL.gcm
Report Name	: C:\GCsolution\Data\Project1\PCB RPT 042612 drop.gcr
Batch Name	: C:\GCsolution\Data\Project1\(EQL-2) TM091212.gcb

Chromatogram PO 1B 091312r C:\GCsolution\Data\Project1\PO 1B 091312r.gcd - Channel 1



Group Results - Channel 1

Group#	Name	Conc.	Unit	Area	Height
1	Aroclor 1242	20.009	ppm	756	237
2	Aroclor 1242	43.069	ppm	2431	955
3	Aroclor 1242	17.880	ppm	965	445
4	Aroclor 1242	6.122	ppm	843	259
5	Aroclor 1242	27.024	ppm	1646	729
6	Aroclor 1016	10.880	ppm	925	427
7	Aroclor 1016	40.788	ppm	2596	1178
8	Aroclor 1016	23.649	ppm	1812	817
9	Aroclor 1016	0.000	ppm	0	0
10	Aroclor 1016	52.645	ppm	3038	1280
11	Aroclor 1254	31.297	ppm	3427	1362
12	Aroclor 1254	15.770	ppm	2490	685
13	Aroclor 1254	18.799	ppm	2994	1094
14	Aroclor 1254	17.158	ppm	1718	789
15	Aroclor 1254	14.811	ppm	2048	806
16	Aroclor 1260	-1.649	ppm	806	382
17	Aroclor 1260	0.482	ppm	1596	695
18	Aroclor 1260	-2.773	ppm	831	348
19	Aroclor 1260	0.000	ppm	0	0
20	Aroclor 1260	0.000	ppm	0	0
21	TCMX	0.000	%	0	0
Total				30922	12487

1242 – 14.7

1254 – 16.7

31.4

(31)

C:¥GCsolution¥Data¥Project1¥PO 1B (1) 091312.gcd

System Configuration

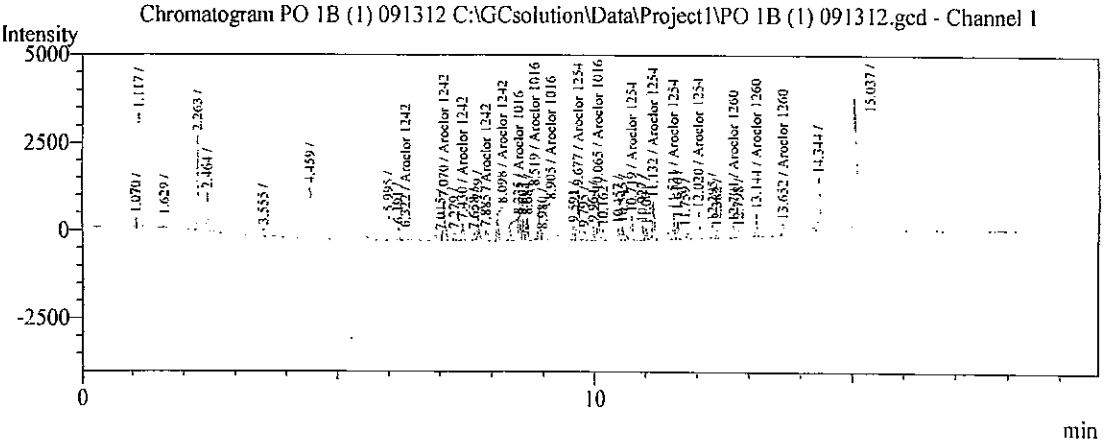
[Instrument]

Instrument Name	: EQL-2
Instrument Type	: GC-17A V3
Communication Type	: RS-232C COM4

Sample Information

Analysis Date & Time	: 9/13/2012 11:39:48 AM
User Name	: Admin
Vial#	: 150
Sample Name	: PO 1B (1) 091312
Sample ID	:
Sample Type	: Unknown
Injection Volume	: 2.00
Dilution Factor	: 10
Sample Amount	: 0.055
Level#	: 1
Data Name	: C:\GCsolution\Data\Project1\PO 1B (1) 091312.gcd
Method Name	: C:\GCsolution\Data\Project1\(EQL-2) 8082-073112 eMDL.gcm
Report Name	: C:\GCsolution\Data\Project1\2-PCB RPT 033012.gcr
Batch Name	:

Chromatogram PO 1B (1) 091312 C:\GCsolution\Data\Project1\PO 1B (1) 091312.gcd - Channel 1



Group Results - Channel 1

Group#	Name	Conc.	Unit	Area	Height
1	Aroclor 1242	18.328	ppm	789	250
2	Aroclor 1242	47.807	ppm	3073	1094
3	Aroclor 1242	16.327	ppm	1004	463
4	Aroclor 1242	5.606	ppm	879	271
5	Aroclor 1242	25.437	ppm	1765	774
6	Aroclor 1016	11.521	ppm	1028	461
7	Aroclor 1016	37.282	ppm	2684	1233
8	Aroclor 1016	22.152	ppm	1895	856
9	Aroclor 1016	0.000	ppm	0	0
10	Aroclor 1016	47.163	ppm	3085	1298
11	Aroclor 1254	30.306	ppm	3778	1417
12	Aroclor 1254	13.773	ppm	2476	673
13	Aroclor 1254	16.583	ppm	3007	1064
14	Aroclor 1254	14.140	ppm	1613	729
15	Aroclor 1254	12.016	ppm	1892	744
16	Aroclor 1260	-2.132	ppm	746	349
17	Aroclor 1260	-0.441	ppm	1442	650
18	Aroclor 1260	-3.230	ppm	753	318
19	Aroclor 1260	0.000	ppm	0	0
20	Aroclor 1260	0.000	ppm	0	0
21	TCMX	0.000	%	0	0
Total				31908	12646

1242 - 13.4

1254 - 14.1

27.5

28

C:¥GCsolution¥Data¥Project1¥PO 1B (2) 091312.gcd

System Configuration

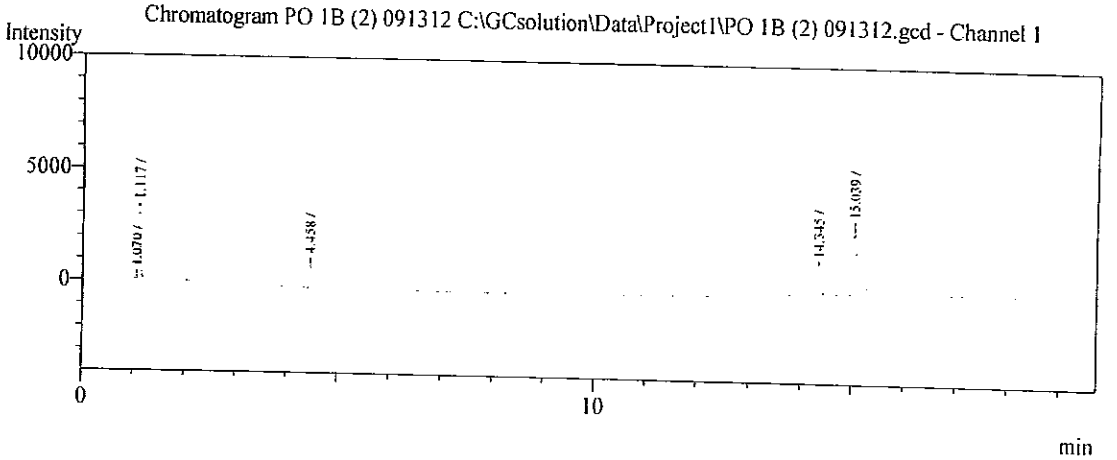
[Instrument]

Instrument Name	: EQL-2
Instrument Type	: GC-17A V3
Communication Type	: RS-232C COM4

Sample Information

Analysis Date & Time	: 9/13/2012 12:12:04 PM
User Name	: Admin
Vial#	: 149
Sample Name	: PO 1B (2) 091312
Sample ID	:
Sample Type	: Unknown
Injection Volume	: 2.00
Dilution Factor	: 10
Sample Amount	: 0.0526
Level#	: 1
Data Name	: C:\GCsolution\Data\Project1\PO 1B (2) 091312.gcd
Method Name	: C:\GCsolution\Data\Project1\(EQL-2) 8082-073112 eMDL.gcm
Report Name	: C:\GCsolution\Data\Project1\PCB RPT 042612 drop.gcr
Batch Name	: C:\GCsolution\Data\Project1\(EQL-2) TM091312.gcb

Chromatogram PO 1B (2) 091312 C:\GCsolution\Data\Project1\PO 1B (2) 091312.gcd - Channel 1



Group Results - Channel 1

Group#	Name	Conc.	Unit	Area	Height
1	Aroclor 1242	0.000	ppm	0	0
2	Aroclor 1242	0.000	ppm	0	0
3	Aroclor 1242	0.000	ppm	0	0
4	Aroclor 1242	0.000	ppm	0	0
5	Aroclor 1242	0.000	ppm	0	0
6	Aroclor 1016	0.000	ppm	0	0
7	Aroclor 1016	0.000	ppm	0	0
8	Aroclor 1016	0.000	ppm	0	0
9	Aroclor 1016	0.000	ppm	0	0
10	Aroclor 1016	0.000	ppm	0	0
11	Aroclor 1254	0.000	ppm	0	0
12	Aroclor 1254	0.000	ppm	0	0
13	Aroclor 1254	0.000	ppm	0	0
14	Aroclor 1254	0.000	ppm	0	0
15	Aroclor 1254	0.000	ppm	0	0
16	Aroclor 1260	0.000	ppm	0	0
17	Aroclor 1260	0.000	ppm	0	0
18	Aroclor 1260	0.000	ppm	0	0
19	Aroclor 1260	0.000	ppm	0	0
20	Aroclor 1260	0.000	ppm	0	0
21	TCMX	0.000	%	0	0
Total				0	0

System Configuration

[Instrument]

Instrument Name	: EQL-3
Instrument Type	: GC-17A V3
Communication Type	: RS-232C COM3

Sludge tank
liquid phase

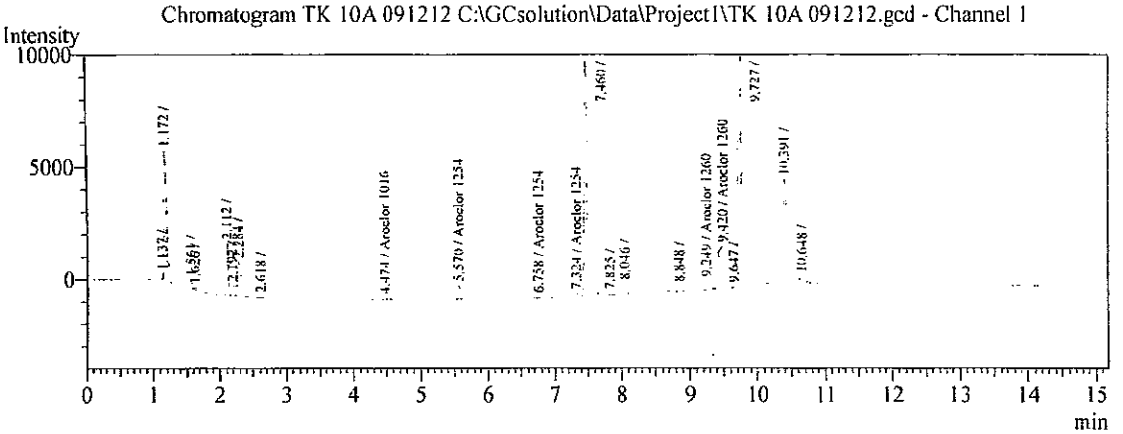
This is a true copy of original raw data.

By _____ Date 9/20/12

Sample Information

Analysis Date & Time	: 9/13/2012 8:38:23 AM
User Name	: Admin
Vial#	: 1
Sample Name	: TK 10A 091212
Sample ID	:
Sample Type	: Unknown
Injection Volume	: 2.00
Dilution Factor	: 10
Sample Amount	: 0.0628
Level#	: 1
Data Name	: C:\GCsolution\Data\Project1\TK 10A 091212.gcd
Method Name	: C:\GCsolution\Data\Project1\(EQL-3) 8082-091012 eMDL.gcm
Report Name	: C:\GCsolution\Data\Project1\PCB RPT 042612 drop.gcr
Batch Name	: C:\GCsolution\Data\Project1\EQL-3 TM091312.gcb

Chromatogram TK 10A 091212 C:\GCsolution\Data\Project1\TK 10A 091212.gcd - Channel 1



Group Results - Channel 1

Group#	Name	Conc.	Unit	Area	Height
1	Aroclor 1242	0.000	ppm	0	0
2	Aroclor 1242	0.000	ppm	0	0
3	Aroclor 1242	0.000	ppm	0	0
4	Aroclor 1242	0.000	ppm	0	0
5	Aroclor 1242	0.000	ppm	0	0
6	Aroclor 1016	-5.566	ppm	192	86
7	Aroclor 1016	0.000	ppm	0	0
8	Aroclor 1016	0.000	ppm	0	0
9	Aroclor 1016	0.000	ppm	0	0
10	Aroclor 1016	0.000	ppm	0	0
11	Aroclor 1254	3.598	ppm	1186	631
12	Aroclor 1254	0.000	ppm	0	0
13	Aroclor 1254	0.270	ppm	125	67
14	Aroclor 1254	1.343	ppm	368	165
15	Aroclor 1254	0.000	ppm	0	0
16	Aroclor 1260	0.000	ppm	0	0
17	Aroclor 1260	0.000	ppm	0	0
18	Aroclor 1260	0.000	ppm	0	0
19	Aroclor 1260	4.486	ppm	1359	428
20	Aroclor 1260	26.239	ppm	4409	1641
21	TCMX	0.000	%	0	0
Total				7640	3017

21

PPM TESTING

sludge tank
solid phase

FLORIDA TRANSFORMER, INC
P.O BOX 507
DEFUNIAK SPRINGS, FL 32435
ATTN: JESSICA PENNINGTON

JOB# 121512

PO# 12561
RUSH - 24 HR ANALYSIS

DATE RECEIVED: 9/18/2012
REPORT DATE: 9/19/2012

page 1 of 1

PCB IN SOIL ANALYSIS

LAB ID #	COMPANY #	SERIAL #	PCB Level
121512- 1	CAUSTIC PH-14 SOIL	48983	ND*

*ND is less than 1 ppm of any PCB Aroclor (Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor 1016, Aroclor 1248, Aroclor 1254, Aroclor 1260, Aroclor 1262, and Aroclor 1268.)

Robert J. Germon, Lab Manager

September 19, 2012
Date

C:¥GCsolution¥Data¥Project1¥PO 1A(1) 091312.gcd

System Configuration

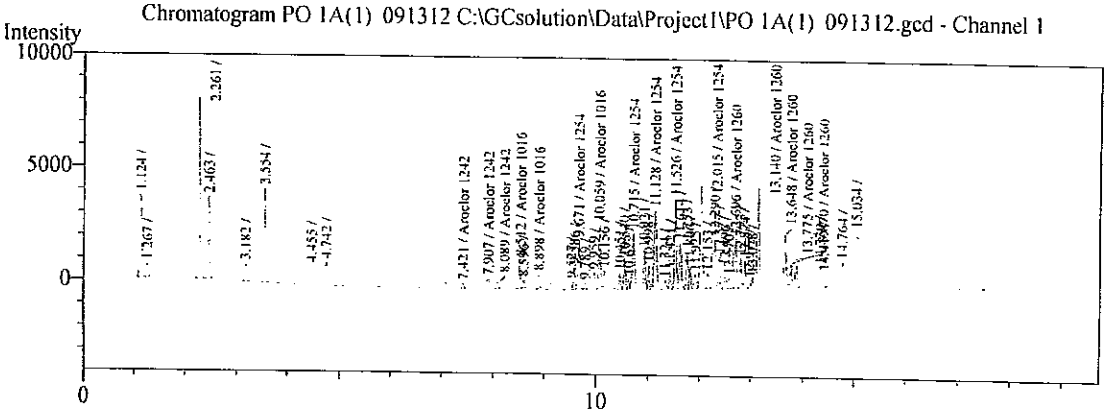
[Instrument]

Instrument Name	: EQL-2
Instrument Type	: GC-17A V3
Communication Type	: RS-232C COM4

Sample Information

Analysis Date & Time	: 9/13/2012 9:17:28 AM
User Name	: Admin
Vial#	: 150
Sample Name	: PO 1A(1) 091312
Sample ID	:
Sample Type	: Unknown
Injection Volume	: 2.00
Dilution Factor	: 10
Sample Amount	: 0.0282
Level#	: 1
Data Name	: C:\GCsolution\Data\Project1\PO 1A(1) 091312.gcd
Method Name	: C:\GCsolution\Data\Project1\(EQL-2) 8082-073112 eMDL.gcm
Report Name	: C:\GCsolution\Data\Project1\PCB RPT 042612 drop.gcr
Batch Name	: C:\GCsolution\Data\Project1\(EQL-2) TM091212.gcb

Chromatogram PO 1A(1) 091312 C:\GCsolution\Data\Project1\PO 1A(1) 091312.gcd - Channel 1



Group Results - Channel 1

Group#	Name	Conc.	Unit	Area	Height
1	Aroclor 1242	0.000	ppm	0	0
2	Aroclor 1242	0.000	ppm	0	0
3	Aroclor 1242	15.176	ppm	478	217
4	Aroclor 1242	19.206	ppm	1544	432
5	Aroclor 1242	17.788	ppm	633	297
6	Aroclor 1016	0.000	ppm	0	0
7	Aroclor 1016	54.183	ppm	2114	996
8	Aroclor 1016	20.810	ppm	1213	614
9	Aroclor 1016	0.000	ppm	0	0
10	Aroclor 1016	224.463	ppm	6567	2824
11	Aroclor 1254	83.850	ppm	5360	2127
12	Aroclor 1254	75.472	ppm	6957	2452
13	Aroclor 1254	130.043	ppm	12090	3450
14	Aroclor 1254	154.468	ppm	9032	3875
15	Aroclor 1254	159.970	ppm	12915	4529
16	Aroclor 1260	90.406	ppm	4983	2149
17	Aroclor 1260	100.525	ppm	10666	4363
18	Aroclor 1260	105.426	ppm	6357	2333
19	Aroclor 1260	93.448	ppm	2701	1045
20	Aroclor 1260	94.623	ppm	3017	1215
21	TCMX	0.000	%	0	0
Total				86628	32918

1242 7.39

1260 6689

114.28

114

Attachment C

FTI PCB-1000 Demonstration

pg 1 of 2

Date	Batch ID/FTI Job Number	Batch Residence Time Start	Pre Reaction PCB /Moisture (PPM)		Reagent Amount / Catalyst H2O (Liters)		Batch Reaction Time (Min)	Post Reaction PCB (PPM)	Batch Residence Time Stop	Batch Amount (Gallons)	Gallons Out / Destination Tank		Mixing Tank	Job Site Info	Operator
9-11-12	PO-1 091112	11:18a.m.	1756	63	~~10~~ 11.5	1	1:15 - 1:30	<1	6:00pm	270	270	tote	MT-3	70° react temp @ 12:30p.m. MAX react temp 89° @ 2:00p.m.	
		(12:04 O.L.)			~~10~~ 8	∅	~~1:35~~ 1:45 - 1:50							18 Liters kill water total for 29.5 Liters Na	
					~~10~~ 7	∅	1:58 - 2:02 2:22 end							total residence time - 6.75 hr	
				totals	29.5	1	1.3hr							total reaction time - 1.3hr (1hr 7min)	
							11:10 - 11:22							87° - 11:15	
9-12-12	PO-1 091212	9:33A.M.	1843	67	10	∅	11:31 - 11:38	<1	2:30p.m.	270	270	Tank 5	MT-3	85° react temp @ 10:50a.m. 90° - 11:22; MAX react temp 90° @ 11:22am 89° - 11:33; 89° - 11:37	
		(10:05 O.L.)			10	∅	12:00 end							10 Liters kill water total for 20 Liters Na	
				totals	20	∅	50min							total reaction time - 50min; residence time - 5hr	
														85° - 4:10	
9-12-12	PO-2 091212	2:34pm	1690	2594	8	∅	4:07 - 4:11	<1	6:30pm	270	270	tote	MT-4	84° react temp @ 3:51p.m. 87° - 4:12; MAX react temp 87° @ 4:12pm 86.6° - 4:23	
		(3:10 O.L.)			8	∅	4:21 - 4:29 4:49							87° - 4:25; 85.4° - 4:30	
				totals	16	∅	42min							11 Liters kill water	
														total reaction time 42min -	
														residence time - 4hr	

Tank 5 - Portable Tank

Destination Tank PO-1, Regenerated Oil for Repair
PO-2, Product for Vendor Transfer

Residence Time Stop - P-7 ON + oil exits trailer
Start - P-1 ON + oil enters trailer

FORM 2

Florida Transformer, Inc
PCB-1000 Operation Log

FTI PCB-1000 Demonstration cont.

Pg 2 of 2

Date	Batch ID/FTI Job Number	Batch Residence Time Start	Pre Reaction PCB /Moisture (PPM)		Reagent Amount / Catalyst H2O (Liters)		Batch Reaction Time (Min)	Post Reaction PCB (PPM)	Batch Residence Time Stop	Batch Amount (Gallons)	Gallons Out / Destination Tank		Mixing Tank	Job Site Info	Operator
9-13-12	PO-1091312	8:10 A.M. (8:42 0.D)	107	178	6	1	9:29 – 9:58 (9:38)	31	5:00pm	210	210	Tank 5	MT-3	react temp @ 9:15A.m. 88°C; 90°C 9:24	coffh[illegible]
				totals	6	1	29min							max react temp @ 9:39a.m. 93.8°C m.; 91°C – 9:31; 91.2°C 9:34	
														92°C 9:35; 93°C 9:37	
	PO-1091312 (x2)		28	—	4	∅	11:04 – 11:36 11:58	<1						total reaction time 29min; residence time 9hr	
				totals	4	∅	22min							82.6°C 11:35Am.	
														10 Liters kill water; 83.4°C = 11:38Am; 82.6°C = 11:42Am	
														reaction time 22 min	
														max react temp 83.4°C 11:38a.m.	
														51 min (10 liters)	

Tank 5 – Portable Tank

Destination Tank PO-1, Regenerated Oil for Repair
PO-2, Product for Vendor Transfer

Attachment D

Date	Batch ID/FTI Job Number	Pre Reaction PCB /Moisture (PPM)	Reagent Amount / Catalyst H2O (Liters)	Batch Reaction Time Start/Finish	Max Reaction Temp °C/Pressure-psi	Sample Time	Post Reaction PCB (PPM)	Kill Water (liters)	Gallons Out / Destination Tank	Mixing Tank	Comments	Operator Initials

Destination Tank PO-1, Regenerated Oil for Repair
PO-2, Product for Vendor Transfer

FORM 2

Florida Transformer, Inc
PCB-1000 Operation Log