

KUHLMAN ELECTRIC CORPORATION PLANT SITE REMEDIATION REPORT

APPENDIX 1 On-Site Laboratory Analytical Data Sheets With Chains of Custody

Volume III



**Kuhlman Electric Corporation
Crystal Springs, Mississippi**

Prepared for

BorgWarner Inc.

June 2004

ECC



February 10, 2003

Robert Martin
Martin & Slagle, LLC
P.O. Box 1023
Black Mountain, NC 28711

Dear Mr. Martin,

Enclosed is the Technical Memorandum for work completed at the former Borg Warner and current Kuhlman Electric facility in Crystal Springs, Mississippi during the month of January. If you have any questions concerning this information, please give me a call.

Sincerely,

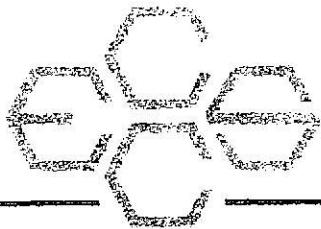
Keri Ann Kilian
for Richard Johnson

Enclosure

Technical Memorandum

Borg Warner / Kuhlman Electric

Crystal Springs, Mississippi



TECHNICAL MEMORANDUM

February 10, 2003

To: Robert Martin
Martin Slagle Inc.

From: Richard Johnson *rkj*
ECCS, Inc.

Re: Field Analytical Methods – QC Summary
Borg Warner – Kuhlman Electric Facility
Crystal Springs, Mississippi

INTRODUCTION

This Technical Memorandum provides documentation of the field analytical test methods used to analyze soil samples collected from excavation areas during January 2003 an accelerated site investigation episode around the former Borg Warner and current Kuhlman Electric facility in Crystal Springs, Mississippi. Soil samples were analyzed for polychlorinated biphenyls (PCBs) and chlorinated benzenes by gas chromatography (GC) in accordance with ECCS's Polychlorinated Biphenyl (PCB) Mini Extraction Screening Procedure. A summary of test results is provided in Table 1. A summary of method blanks, laboratory control samples and matrix spike/matrix spike duplicate data is provided in Table 2.

In addition copies of the chain of custody sheets and shipping sheets can be found in appendix A through D.

- A) Chain of custody sheets for mobile lab PCB analysis for Excavation samples
- B) Chain of custody sheets for mobile lab PCB analysis for Backfill samples
- C) FEDEX shipping label for Paradigm Labs
- D) Chain of custody sheets for samples sent to Paradigm Labs

The PCB mini-extraction procedure is based on the existing EPA SW846 methods 8082/8141. The procedure incorporates all the quality control rigors of the full 8082/8141 methods including quantification based on 6-point calibration with continuing calibration verification, surrogate method performance monitoring, method blanks, laboratory control samples (LCS), and matrix spike/matrix spike (MS/MSD) duplicate samples. As such, you should consider these test results as comparable to what you would get from a fixed-based laboratory using the more-widely accepted extraction procedure.

The primary project objective of the sampling and testing episode was to delineate the PCB contamination at and around the site using the accelerated site characterization approach. The mobile laboratory was required to provide data as quickly as possible to keep the accelerated site investigation process on track while trying to maintain a goal of level three data quality.

CASE NARRATIVE

During the episode, all samples collected were analyzed. To maintain rapid turnaround and to meet the project objective, three GCs were operated on a nearly continuous basis.

Quality control including proper calibration, continuing calibration verification, surrogates, method blanks, laboratory control samples and matrix spike/matrix spike duplicate samples was performed at the method-specified intervals. Overall quality of the data is very good. The following quality related issues should be noted:

1. All surrogate recoveries were within acceptable ranges.
2. All LCS recoveries were within acceptable ranges. See Table 2.
3. All MS/MSD recoveries were within acceptable ranges. Percent repeatability was also within acceptable ranges. See Table 2.
4. Since electron capture of detectors tend to have a very narrow linear range, many sample extracts required dilution. Dilutions were accurately done.

METHOD SUMMARY

This method employs a mini-extraction procedure and gas chromatography analysis for the detection of PCBs and chlorinated benzenes. Reporting limits are provided in the results Tables. Four grams of sample are dried with anhydrous sodium sulfate and extracted with eight mLs of 80/20 iso-octane/acetone. The extract is then analyzed by Gas Chromatography-Electron Capture Detector (GC-ECD).

Procedure

1. Standards Preparation - Primary standards are prepared from a solution purchased from various vendors at Certified concentrations. Stock standards are prepared in suitable solvents and stored in a freezer when not in use. Secondary standards are prepared in 80/20 iso-octane/acetone and stored in a freezer when not in use. Standard curve mixes for this project was prepared at six concentrations: PCBs – 0.05, 0.10, 0.20, 0.50, 1.0 and 2.0 ug/ml; chlorinated benzenes – 0.005, 0.01, 0.02, 0.05, 0.10 and 0.20 ug/ml.

2. Sample Preparation - SOILS: Each sample or quality control sample is prepared in identical fashion. Approximately four grams of silica sand (blanks and control spikes) or sample is transferred into a clean scintillation vial. Ten grams of anhydrous sodium sulfate are added to the vial and mixed well. Extra sodium sulfate is added when necessary to assure the sample is dried. A surrogate, spike compound mix (if necessary) and eight mLs of 80/20 iso-octane/acetone are added to the vial. The vial is shaken for 30 seconds, allowed to settle for 2 minutes, shaken again for 30 seconds, and allowed to settle for 10 minutes. An aliquot of the extract is transferred to an autosampler vial for injection into the GC-ECD.

3. Quality Control - Quality control consisted of the following items:

- Continuing calibration standards analyzed every ten samples or less and at the end of a run.
- Blank and LCS samples analyzed every twenty sample or less with a minimum of one per day.
- MS/MSD samples analyzed every twenty samples or less with a minimum of one per day.
- Information is documented in logbook 45 and January run sheets.

4. Instrument Conditions - Two HP5890 gas chromatographs were equipped with RTX-35 capillary columns. Each system had a Leap Technologies A200S auto-sampler and an HP ChemStation for data handling.

Table 1
Sample Results – January

Table 1
Kuhlman Electric
Crystal Springs, Mississippi
PCB Concentrations as Aroclor 1260 Detected

					Field Laboratory	
Field Lab Sample ID	Sample ID	Sample Depth	Date Collected	Time Collected	Date Analyzed	Concentration (mg/kg)
E378	SOJ-BK-001	-	14-Jan-03	950	14-Jan-03	< 0.10
E379	SOJ-BK-002	-	14-Jan-03	1048	14-Jan-03	< 0.10
E380	SOJ BK Duplicate	-	14-Jan-03	-	14-Jan-03	< 0.10
E381	SOJ-BK-003	-	14-Jan-03	1422	14-Jan-03	< 0.10
E382	SOJ-BK-004	-	15-Jan-03	841	15-Jan-03	< 0.10
E383	SOJ-BK-005	-	15-Jan-03	905	15-Jan-03	< 0.10
E384	SOJ BK Duplicate	-	15-Jan-03	-	15-Jan-03	< 0.10
E385	SOJ-BK-006	-	15-Jan-03	1105	15-Jan-03	< 0.10
E386	SOJ-BK-007	-	15-Jan-03	1445	15-Jan-03	< 0.10
E387	SOJ-BK-008	-	17-Jan-03	902	17-Jan-03	< 0.10
E388	SOJ-BK-009	-	17-Jan-03	1000	17-Jan-03	< 0.10
E389	SOJ-BK-010	-	17-Jan-03	1047	17-Jan-03	< 0.10
E390	SOJ BK Duplicate	-	17-Jan-03	-	17-Jan-03	< 0.10
E391	KEP-PEX-242	-	17-Jan-03	1430	17-Jan-03	< 0.10
E392	KEP-PEX-243	-	17-Jan-03	1434	17-Jan-03	0.24
E393	KEP-PEX-244	-	17-Jan-03	1437	17-Jan-03	< 0.10
E394	KEP-PEX-245	-	17-Jan-03	1440	17-Jan-03	< 0.10
E395	KEP-PEX-246	-	17-Jan-03	1444	17-Jan-03	< 0.10
E396	KEP-PEX-247	-	17-Jan-03	1448	17-Jan-03	< 0.10
E397	KEP PEX Duplicate	-	17-Jan-03	-	17-Jan-03	< 0.10
E398	KEP-PEX-248	-	17-Jan-03	1452	17-Jan-03	0.17
E399	KEP-PEX-249	-	17-Jan-03	1458	17-Jan-03	< 0.10
E400	SOJ-BK-011	-	17-Jan-03	1206	17-Jan-03	< 0.10
E401	SOJ-BK-012	-	17-Jan-03	1317	17-Jan-03	< 0.10
E402	SOJ-BK-013	-	18-Jan-03	1025	19-Jan-03	< 0.10
E403	SOJ-BK-014	-	18-Jan-03	1035	19-Jan-03	< 0.10
E404	SOJ-BK-015	-	18-Jan-03	1047	19-Jan-03	< 0.10
E405	SOJ BK Duplicate	-	18-Jan-03	-	19-Jan-03	< 0.10
E406	SOJ-BK-016	-	18-Jan-03	1128	19-Jan-03	< 0.10
E407	SOJ-BK-017	-	18-Jan-03	1130	19-Jan-03	< 0.10
E408	SOJ-BK-018	-	18-Jan-03	1205	19-Jan-03	< 0.10
E409	SOJ-BK-019	-	20-Jan-03	1050	20-Jan-03	< 0.10
E410	SOJ-BK-020	-	20-Jan-03	1055	20-Jan-03	< 0.10
E411	SOJ-BK-021	-	20-Jan-03	1056	20-Jan-03	< 0.10
E412	SOJ BK Duplicate	-	20-Jan-03	-	20-Jan-03	< 0.10
E413	SOJ-BK-022	-	20-Jan-03	1136	20-Jan-03	< 0.10
E414	SOJ-BK-023	-	20-Jan-03	1140	20-Jan-03	< 0.10
E415	SOJ-BK-024	-	20-Jan-03	1328	20-Jan-03	< 0.10
E416	SOJ-BK-025	-	20-Jan-03	1558	20-Jan-03	< 0.10
E417	SOJ-BK-026	-	23-Jan-03	1030	24-Jan-03	< 0.10
E418	SOJ-BK-027	-	23-Jan-03	1035	24-Jan-03	< 0.10
E419	SOJ-BK-028	-	23-Jan-03	1045	24-Jan-03	< 0.10
E420	SOJ-BK-029	-	23-Jan-03	1130	24-Jan-03	< 0.10
E421	SOJ-BK-030	-	23-Jan-03	1145	24-Jan-03	< 0.10
E422	SOJ-BK-031	-	23-Jan-03	1205	24-Jan-03	< 0.10

Table 1
Kuhlman Electric
Crystal Springs, Mississippi
PCB Concentrations as Aroclor 1260 Detected

					Field Laboratory	
Field Lab Sample ID	Sample ID	Sample Depth	Date Collected	Time Collected	Date Analyzed	Concentration (mg/kg)
E423	SOJ BK Duplicate	-	23-Jan-03	-	24-Jan-03	< 0.10
E424	KEP-PEX-250	-	24-Jan-03	1245	24-Jan-03	< 0.10
E425	KEP-PEX-251	-	24-Jan-03	1248	24-Jan-03	< 0.10
E426	KEP-PEX-252	-	24-Jan-03	1252	24-Jan-03	< 0.10
E427	KEP-PEX-253	-	24-Jan-03	1256	24-Jan-03	< 0.10
E428	KEP-PEX-254	-	24-Jan-03	1259	24-Jan-03	< 0.10
E429	KEP-PEX-255	-	24-Jan-03	1304	24-Jan-03	< 0.10
E430	KEP-PEX-256	-	24-Jan-03	1307	24-Jan-03	< 0.10
E431	KEP-PEX-257	-	24-Jan-03	1310	24-Jan-03	< 0.10
E432	KEP PEX Duplicate	-	24-Jan-03	-	24-Jan-03	< 0.10
E433	KEP-PEX-258	-	24-Jan-03	1500	24-Jan-03	< 0.10
E434	KEP-PEX-259	-	24-Jan-03	1503	24-Jan-03	< 0.10
E435	KEP-PEX-260	-	24-Jan-03	1508	24-Jan-03	< 0.10
E436	KEP-PEX-261	-	24-Jan-03	1511	24-Jan-03	< 0.10
E437	KEP-PEX-262	-	24-Jan-03	1515	24-Jan-03	< 0.10
E438	KEP-PEX-263	-	28-Jan-03	1545	28-Jan-03	< 0.10
E439	KEP PEX Duplicate	-	28-Jan-03	-	28-Jan-03	< 0.10
E440	KEP-PEX-264	-	28-Jan-03	1550	28-Jan-03	< 0.10
E441	KEP-PEX-265	-	28-Jan-03	1554	28-Jan-03	< 0.10
E442	KEP-PEX-266	-	28-Jan-03	1559	28-Jan-03	< 0.10

Table 2
QC Samples - January

Table 2
QC Results

Lab # associated with qc samples: E378 through E381

Matrix	Matrix			
Matrix	Spike	Duplicate	Blank	LCS
E378	E378		463	463

Date Analyzed: 1/14/03 1/14/03 1/14/03 1/14/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	93.5		91.5		2%	< 0.10	87.8

Table 2
QC Results

Lab # associated with qc samples: E382 through E386

Matrix	Matrix			
Spike	Spike	Duplicate	Blank	LCS
E383		E383	464	464

Date Analyzed: 1/15/03 1/15/03 1/15/03 1/15/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	85.6		101		-17%	< 0.10	85.2

Table 2
QC Results

Lab # associated with qc samples: E387 through E390
Lab # associated with qc samples: E400 through E401

Matrix					
Matrix	Spike				
Spike	Duplicate			Blank	LCS
E387	E387			465	465

Date Analyzed: 1/17/03 1/17/03 1/17/03 1/17/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	94.0		93.7		0%	< 0.10	95.2

Table 2
QC Results

Lab # associated with qc samples: E391 through E399

Matrix	Matrix	Matrix	Blank	LCS
Spike	Duplicate	E387	465	465

Date Analyzed: 1/17/03 1/17/03 1/17/03 1/17/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	94.0		93.7		0%	< 0.10	95.2

Table 2
QC Results

Lab # associated with qc samples: E402 through E408

Matrix	Matrix	Spike	Duplicate	Blank	LCS
E402		E402		466	466

Date Analyzed: 1/19/03 1/19/03 1/18/03 1/18/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	88.4		92.6		-5%	< 0.10	92.4

Table 2
QC Results

Lab # associated with qc samples: E409 through E416

Matrix	Matrix			
Matrix	Spike	Duplicate	Blank	LCS
E409		E409		
			468	468

Date Analyzed: 1/20/03 1/20/03 1/20/03 1/20/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	87.8		101		-14%	< 0.10	86.3

Table 2
QC Results

Lab # associated with qc samples: E417 through E423

Matrix	Matrix	Spike	Duplicate	Blank	LCS
E417		E417		469	469

Date Analyzed: 1/23/03 1/23/03 1/23/03 1/23/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	92.6		89.9		3%	< 0.10	86.9

Table 2
QC Results

Lab # associated with qc samples: E424 through E437

Matrix	Matrix			
Matrix	Spike	Duplicate	Blank	LCS
R673A	R673A		470	470

Date Analyzed: 1/24/03 1/24/03 1/24/03 1/24/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	93.5		95.0		-2%	< 0.10	88.9

Table 2
QC Results

Lab # associated with qc samples: E438 through E442

Matrix	Matrix	Matrix	Blank	LCS
Spike	Spike	Duplicate		
E438	E438		471	471

Date Analyzed: 1/28/03 1/28/03 1/28/03 1/28/03 1/28/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	113		109		4%	< 0.10	102

Appendix A

Chain of Custody Sheets for mobile lab PCB analysis Excavation Samples

Appendix B

Chain of Custody Sheets for mobile lab PCB analysis Backfill Samples



**Environmental Chemistry
Consulting Services, Inc.**

2525 Advances Road
Madison, WI 53718
Phone 608-221-8700 FAX 608-221-4889

CHAIN OF CUSTODY

Project Number:		Mail Report To:		Invoice To:		Page _____ of _____		No. 005737	
Project Name:	Kirkland Labs Inc.	Company:	Wiffle Ball + S.A. LLC	Company:		Turn Around (circle one)	Normal	Rush	
Project Location:	CR 41112, CR 41115	Address:		Address:		Report Due:			
Sampled By (Print):	Chuck Paul	P.O. No.:	Quote No.:	Laboratory Number					
Sample Description	Collection Date	Time	Matrix	Total Bottles	Present*	Analysis Requested	Comments		
SOT-BK-004	15 Mar 0841	5	1	Not	Not			E3P2	
SOT-BK-005	0905	1	1	Not	Not			E3P3	
BLK-BK-006	—	—	—	Not	Not			E3P4	
SOT-BK-006	1105	—	—	Not	Not			E3P5	
SOT-BK-007	1445	—	—	Not	Not			E3P6	
*Preservation Code A=None B=HCl C=H ₂ SO ₄ D=HNO ₃ E=EnCore F=Methanol G=NaOH O=Other(Indicate)									
Custody Seal: Present/Absent		Intact/Not Intact		Seal #s		Receipt Temp: Temp Blank Y N			
Shipped Via:									
WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER/SUBMITTER									

Appendix C

FEDEX shipping label for Paradigm Labs

FedEx USA Airbill
Express

FedEx
Tracking
Number

8348 8554 6202

01/27/03 Sender's FedEx
Account Number

Chuck Pei
Pei Consulting
140 Chapel Lane

Madison State MS ZIP 39110

or Internal Billing Reference
if checked will appear on invoice

OPTIONAL

Recipient's
Name SAMPLE CUSTODIAN Phone (910) 350-1903

Paradigm Analytical Labs

Address 2627 NORTHCHASE PKWY SE
We cannot deliver to P.O. boxes or P.O. ZIP codes

Address WILMINGTOM State NC ZIP 28405

Try online shipping at fedex.com

By using this Airbill you agree to the service conditions on the back of this Airbill
and to our current Service Guide, including terms that limit our liability.

Questions? Visit our Web site at fedex.com
or call 1-800-Go-FedEx® 800-463-3339.

0219964548

MUR42

0215

Sender's Copy

4a Express Package Service

- FedEx Priority Overnight
Next business morning
- FedEx Standard Overnight
Next business afternoon
- FedEx First Overnight
FedEx next business morning
Delivery to collect locations
- FedEx 2Day
Second business day
- FedEx Express Saver
Third business day
- FedEx Envelopes not available. Minimum charge One-pound rate.

4b Express Freight Service

- FedEx 1Day Freight*
Next business day
- FedEx 2Day Freight
Second business day
- FedEx 3Day Freight
Third business day
- Delivery commitment may be later in some areas.

*Carrier Confirmation

- 5 Packaging
- FedEx Envelope*
- FedEx Pak*
Includes FedEx Small Pak, FedEx Large Pak, and FedEx Study Pak
- Other
- *Declared value facilitation

6 Special Handling

- HOLD Saturday
at FedEx Location
NOT Available for
FedEx Priority Overnight and
FedEx Day to collect locations
- HOLD Wednesday
at FedEx Location
NOT Available for
FedEx First Overnight
- HOLD Saturday
at FedEx Location
Available ONLY for
FedEx Priority Overnight and
FedEx Day to collect locations
- Does this shipment contain dangerous goods?
One box must be checked.

- No Yes
As per attached
Shipper's Declaration Yes Shipper's Declaration
not required Dry Ice
Dry Ice & CM 1000 Cargo Aircraft Only
- Dangerous Goods including Dry Ice cannot be shipped in FedEx packaging.

- 7 Payment Bill to:
Enter FedEx Acct. No. or Credit Card No. below.
 Sender Recipient Third Party Credit Card Cash/Check

FedEx Acct. No.
Credit Card No. 1811-4107-1
Ex. Date Total Packages Total Weight Total Declared Value
\$.00

*Our liability is limited to \$100 unless you declare a higher value. See back for details.

8 Release Signature Sign to authorize delivery without obtaining signature.

By signing you authorize us to deliver this shipment without obtaining a signature
and agree to indemnify and hold us harmless from any resulting claims.

447

FedEx USA Airbill
Express

FedEx
Tracking
Number

8348 8554 6382

01/27/03 Sender's FedEx
Account Number

Chuck Pei
Pei Consulting
140 Chapel Lane

Madison State MS ZIP 39110

or Internal Billing Reference
if checked will appear on invoice

OPTIONAL

Recipient's
Name SAMPLE CUSTODIAN Phone (910) 350-1903

Paradigm Analytical Labs

Address 2627 NORTHCHASE PKWY SE
We cannot deliver to P.O. boxes or P.O. ZIP codes

Address WILMINGTOM State NC ZIP 28405

Try online shipping at fedex.com

By using this Airbill you agree to the service conditions on the back of this Airbill
and to our current Service Guide, including terms that limit our liability.

Questions? Visit our Web site at fedex.com

MUR42

0215

Sender's Copy

4a Express Package Service

- FedEx Priority Overnight
Next business morning
- FedEx Standard Overnight
Next business afternoon
- FedEx First Overnight
FedEx next business morning
Delivery to collect locations
- FedEx 2Day
Second business day
- FedEx Express Saver
Third business day
- FedEx Envelopes not available. Minimum charge One-pound rate.

4b Express Freight Service

- FedEx 1Day Freight*
Next business day
- FedEx 2Day Freight
Second business day
- FedEx 3Day Freight
Third business day
- Delivery commitment may be later in some areas.

*Carrier Confirmation

- 5 Packaging
- FedEx Envelope*
- FedEx Pak*
Includes FedEx Small Pak, FedEx Large Pak, and FedEx Study Pak
- Other
- *Declared value facilitation

6 Special Handling

- HOLD Saturday
at FedEx Location
NOT Available for
FedEx First Overnight
- HOLD Wednesday
at FedEx Location
NOT Available for
FedEx Priority Overnight
- HOLD Saturday
at FedEx Location
Available ONLY for
FedEx Priority Overnight and
FedEx Day to collect locations
- Does this shipment contain dangerous goods?
One box must be checked.

- No Yes
As per attached
Shipper's Declaration Yes Shipper's Declaration
not required Dry Ice
Dry Ice & CM 1000 Cargo Aircraft Only
- Dangerous Goods including Dry Ice cannot be shipped in FedEx packaging.

- 7 Payment Bill to:
Enter FedEx Acct. No. or Credit Card No. below.
 Sender Recipient Third Party Credit Card Cash/Check

FedEx Acct. No.
Credit Card No. 1811-4107-1
Ex. Date Total Packages Total Weight Total Declared Value
\$.00

*Our liability is limited to \$100 unless you declare a higher value. See back for details.

8 Release Signature Sign to authorize delivery without obtaining signature.

447

Appendix D

Chain of Custody Sheets for samples sent to Paradigm Labs

PARADIGM ANALYTICAL LABORATORIES, INC.

2627 Northchase Parkway SE, Wilmington, NC 28405
Phone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

COC# 29575

Page 1 of 1

Client: *MATHIS + SCHEID*

Address: _____

Address: Black Mountain NC

Quote #: _____

Project ID: 641144 and Element

Contact: Robert Marder

Phone: _____

Fax: _____

2

Date: _____

JULIU:

100

3/03

70

1

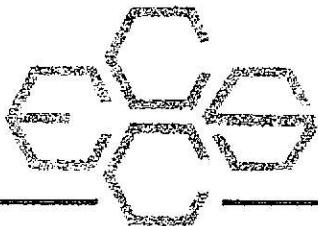
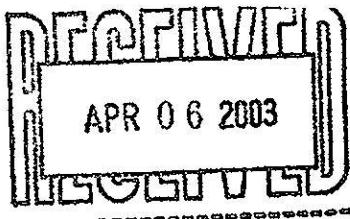
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Report No.:

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CHAP. VI.



March 5, 2003

Robert Martin
Martin & Slagle, LLC
P.O. Box 1023
Black Mountain, NC 28711

Dear Mr. Martin,

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Sincerely,

Kari Ann Killian

for Richard Johnson

Enclosure

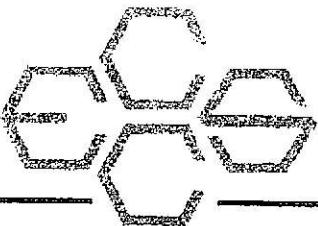
Environmental Chemistry Consulting Services, Inc.

2525 Advance Road • Madison, WI 53718 • Phone (608) 221-8700 • FAX (608) 221-4889

Technical Memorandum

Borg Warner / Kuhlman Electric

Crystal Springs, Mississippi



TECHNICAL MEMORANDUM

March 5, 2003

To: Robert Martin
Martin Slagle Inc.

From: Richard Johnson *RJL*
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The primary project objective of the sampling and testing episode was to delineate the PCB contamination at and around the site using the accelerated site characterization approach. The mobile laboratory was required to provide data as quickly as possible to keep the accelerated site investigation process on track while trying to maintain a goal of level three data quality.

CASE NARRATIVE

During the episode, all samples collected were analyzed. To maintain rapid turnaround and to meet the project objective, three GCs were operated on a nearly continuous basis.

Quality control including proper calibration, continuing calibration verification, surrogates, method blanks, laboratory control samples and matrix spike/matrix spike duplicate samples was performed at the method-specified intervals. Overall quality of the data is very good. The following quality related issues should be noted:

1. All surrogate recoveries were within acceptable ranges.
2. All LCS recoveries were within acceptable ranges. See Table 2.
3. All MS/MSD recoveries were within acceptable ranges. Percent repeatability was also within acceptable ranges. See Table 2.
4. Since electron capture of detectors tend to have a very narrow linear range, many sample extracts required dilution. Dilutions were accurately done.

METHOD SUMMARY

This method employs a mini-extraction procedure and gas chromatography analysis for the detection of PCBs and chlorinated benzenes. Reporting limits are provided in the results Tables. Four grams of sample are dried with anhydrous sodium sulfate and extracted with eight mLs of 80/20 iso-octane/acetone. The extract is then analyzed by Gas Chromatography-Electron Capture Detector (GC-ECD).

Procedure

1. Standards Preparation - Primary standards are prepared from a solution purchased from various vendors at Certified concentrations. Stock standards are prepared in suitable solvents and stored in a freezer when not in use. Secondary standards are prepared in 80/20 iso-octane/acetone and stored in a freezer when not in use. Standard curve mixes for this project was prepared at six concentrations: PCBs – 0.05, 0.10, 0.20, 0.50, 1.0 and 2.0 ug/m; chlorinated benzenes – 0.005, 0.01, 0.02, 0.05, 0.10 and 0.20 ug/ml.
2. Sample Preparation - SOILS: Each sample or quality control sample is prepared in identical fashion. Approximately four grams of silica sand (blanks and control spikes) or sample is transferred into a clean scintillation vial. Ten grams of anhydrous sodium sulfate are added to the vial and mixed well. Extra sodium sulfate is added when necessary to assure the sample is dried. A surrogate, spike compound mix (if necessary) and eight mLs of 80/20 iso-octane/acetone are added to the vial. The vial is shaken for 30 seconds, allowed to settle for 2 minutes, shaken again for 30 seconds, and allowed to settle for 10 minutes. An aliquot of the extract is transferred to an autosampler vial for injection into the GC-ECD.
3. Quality Control - Quality control consisted of the following items:
 - Continuing calibration standards analyzed every ten samples or less and at the end of a run.
 - Blank and LCS samples analyzed every twenty sample or less with a minimum of one per day.
 - MS/MSD samples analyzed every twenty samples or less with a minimum of one per day.
 - Information is documented in logbook 45 and February run sheets.
4. Instrument Conditions - Two HP5890 gas chromatographs were equipped with RTX-35 capillary columns. Each system had a Leap Technologies A200S auto-sampler and an HP ChemStation for data handling.

Table 1
Sample Results – February

Table 1
Kuhlman Electric
Crystal Springs, Mississippi
PCB Concentrations as Aroclor 1260 Detected

					Field Laboratory			
Field Lab Sample ID	Sample ID	Sample Depth	Date Collected	Time Collected	Date Analyzed	Concentration (mg/kg)	Surrogate TCMX(%)	Surrogate DCBP(%)
E462	SOJ-BK-32	-	11-Feb-03	935	11-Feb-03	< 0.10	104	93.9
E463	SOJ-BK-33	-	11-Feb-03	1012	11-Feb-03	< 0.10	94.8	92.0
E464	SOJ-BK-34	-	11-Feb-03	1015	11-Feb-03	< 0.10	98.1	91.3
E465	SOJ-BK-35	-	11-Feb-03	1030	11-Feb-03	< 0.10	94.9	90.3
E466	BK Duplicate	-	11-Feb-03	-	12-Feb-03	< 0.10	94.4	89.0
E467	SOJ-BK-36	-	11-Feb-03	1150	12-Feb-03	< 0.10	105	98.2
E468	SOJ-BK-37	-	11-Feb-03	1152	12-Feb-03	< 0.10	95.0	91.9
E469	SOJ-BK-38	-	11-Feb-03	1155	12-Feb-03	< 0.10	96.2	92.8
E470	SOJ-BK-39	-	11-Feb-03	1235	12-Feb-03	< 0.10	99.0	93.3
E471	SOJ-BK-40	-	11-Feb-03	1406	12-Feb-03	< 0.10	94.6	89.1
E482	SOJ-BK-041	-	12-Feb-03	909	12-Feb-03	< 0.10	97.3	94.1
E483	SOJ-BK-042	-	12-Feb-03	952	12-Feb-03	< 0.10	98.1	94.2
E484	SOJ-BK-043	-	12-Feb-03	1016	12-Feb-03	< 0.10	99.9	96.4
E485	SOJ-BK-044	-	12-Feb-03	1030	12-Feb-03	< 0.10	96.3	95.6
E486	SOJ-BK-045	-	12-Feb-03	1100	12-Feb-03	< 0.10	99.1	102
E487	SOJ-BK-046	-	12-Feb-03	1115	12-Feb-03	< 0.10	96.4	95.1
E488	SOJ-BK-047	-	12-Feb-03	1141	12-Feb-03	< 0.10	96.1	94.2
E489	SOJ-BK-048	-	12-Feb-03	1155	12-Feb-03	< 0.10	99.2	95.8
E490	SOJ-BK-049	-	12-Feb-03	1157	12-Feb-03	< 0.10	99.3	97.6
E491	SOJ-BK-050	-	12-Feb-03	1310	12-Feb-03	< 0.10	97.4	92.6
E492	SOJ-BK-051	-	12-Feb-03	1312	12-Feb-03	< 0.10	92.1	88.9
E496	SOJ-BK-052	-	18-Feb-03	817	18-Feb-03	< 0.10	97.2	100
E497	SOJ-BK-053	-	18-Feb-03	823	18-Feb-03	< 0.10	97.4	100
E498	SOJ-BK-054	-	18-Feb-03	828	18-Feb-03	< 0.10	97.4	99.7
E499	SOJ-BK-055	-	18-Feb-03	908	18-Feb-03	< 0.10	98.0	99.0
E500	SOJ-BK-056	-	18-Feb-03	910	18-Feb-03	< 0.10	96.6	98.4
E501	SOJ-BK-057	-	18-Feb-03	914	18-Feb-03	< 0.10	97.1	100
E502	BK Duplicate	-	18-Feb-03	-	18-Feb-03	< 0.10	97.8	101
E503	SOJ-BK-058	-	18-Feb-03	956	18-Feb-03	< 0.10	97.2	99.5
E504	SOJ-BK-059	-	18-Feb-03	958	18-Feb-03	< 0.10	96.3	100
E505	SOJ-BK-060	-	18-Feb-03	1008	18-Feb-03	< 0.10	97.2	102
E506	SOJ-BK-061	-	18-Feb-03	1042	18-Feb-03	< 0.10	100	105
E507	SOJ-BK-062	-	18-Feb-03	1138	18-Feb-03	< 0.10	98.2	103
E508	SOJ-BK-063	-	18-Feb-03	1140	18-Feb-03	< 0.10	99.5	104
E509	SOJ-BK-064	-	18-Feb-03	1144	18-Feb-03	< 0.10	97.9	103
E510	SOJ-BK-065	-	18-Feb-03	1216	18-Feb-03	< 0.10	96.6	101
E511	SOJ-BK-066	-	18-Feb-03	1219	18-Feb-03	< 0.10	96.2	101
E512	SOJ-BK-067	-	18-Feb-03	1228	18-Feb-03	< 0.10	95.7	99.7
E513	SOJ-BK-068	-	18-Feb-03	1302	18-Feb-03	< 0.10	95.6	102
E514	SOJ-BK-069	-	18-Feb-03	1304	18-Feb-03	< 0.10	97.3	112
E515	SOJ-BK-070	-	18-Feb-03	1324	18-Feb-03	< 0.10	96.1	102
E516	SOJ-BK-071	-	18-Feb-03	1333	18-Feb-03	< 0.10	99.6	100
E517	SOJ-BK-072	-	18-Feb-03	1351	18-Feb-03	< 0.10	96.2	100
E518	SOJ-BK-073	-	18-Feb-03	1420	18-Feb-03	< 0.10	97.2	102
E531	SOJ-BK-074	-	24-Feb-03	1124	24-Feb-03	< 0.10	99.9	103

Table 1
Kuhlman Electric
Crystal Springs, Mississippi
PCB Concentrations as Aroclor 1260 Detected

					Field Laboratory			
Field Lab Sample ID	Sample ID	Sample Depth	Date Collected	Time Collected	Date Analyzed	Concentration (mg/kg)	Surrogate TCMX(%)	Surrogate DCBP(%)
E532	SOJ-BK-075	-	24-Feb-03	1126	24-Feb-03	< 0.10	99.7	105
E533	BK-Duplicate	-	24-Feb-03	-	24-Feb-03	< 0.10	98.8	102
E534	SOJ-BK-076	-	24-Feb-03	1134	24-Feb-03	< 0.10	100	104
E535	SOJ-BK-077	-	24-Feb-03	1137	24-Feb-03	< 0.10	97.7	99.3
E536	SOJ-BK-078	-	24-Feb-03	1303	24-Feb-03	< 0.10	98.7	102
E537	SOJ-BK-079	-	24-Feb-03	1306	24-Feb-03	< 0.10	93.6	87.4
E538	SOJ-BK-080	-	24-Feb-03	1357	24-Feb-03	< 0.10	102	102
E539	SOJ-BK-081	-	24-Feb-03	1358	24-Feb-03	< 0.10	103	78.8
E540	SOJ-BK-082	-	24-Feb-03	1539	24-Feb-03	< 0.10	102	103

Table 2
QC Samples - February

Table 2
QC Results

Lab # associated with qc samples: E462 through E471

Matrix	Matrix	Spike	Duplicate	Blank	LCS
	E462		E462	475	475

Date Analyzed: 2/11/03 2/11/03 2/11/03 2/11/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	107		111		-4%	< 0.10	98.0

Table 2
QC Results

Lab # associated with qc samples: E482 through E492

Matrix	Matrix	Blank	LCS
Matrix	Spike		
Spike	Duplicate		
E491	E491	477	477

Date Analyzed: 2/12/03 2/12/03 2/12/03 2/12/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	91.8		92.9		-1%	< 0.10	92.6

Table 2
QC Results

Lab # associated with qc samples: E496 through E515

Matrix	Matrix		
Matrix	Spike		
Spike	Duplicate	Blank	LCS
E500	E500	478	478

Date Analyzed: 2/18/03 2/18/03 2/18/03 2/18/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	96.6		97.7		-1%	< 0.10	99.0

Table 2
QC Results

Lab # associated with qc samples: E516 through E518

Matrix	Matrix		
Matrix	Spike		
Spike	Duplicate	Blank	LCS
E516	E516	479	479

Date Analyzed: 2/18/03 2/18/03 2/18/03 2/18/03 2/18/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	102		104		-2%	< 0.10	110

Table 2
QC Results

Lab # associated with qc samples: E531 through E540

Matrix	Matrix	Matrix	Blank	LCS
Matrix	Spike	Duplicate		
Spike				
E531	E531		481	481

Date Analyzed: 2/24/03 2/24/03 2/24/03 2/24/03 2/24/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	98.0		90.9		8%	< 0.10	99.8

Appendix A

Chain of Custody Sheets for mobile lab PCB analysis Backfill Samples



**Environmental Chemistry
Consulting Services, Inc.**

2525 Advance Road
Madison, WI 53718
Phone 608-221-8700 FAX 608-221-4888

File
CHAIN OF CUSTODY
No. 005192 *

(1 P&O3

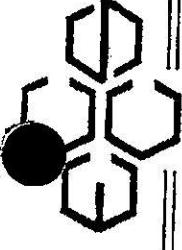
Project Number:	Mail Report To:	Invoice To:	Page _____ of _____	Turn Around (circle one) Normal Rush						
Project Name: KUHLNTA RCL&C 701C	Company:			Report Due:						
Project Location: CITYSTAC SPRINGS 015	Address:									
Sampled By (Print): CHUCK PFEL										
Sample Description	Collection Date	Collection Time	Matrix	Total Bottles	Preserv*	P.C.B. ²	Analysis Requested	P.O. No.:	Quots. No.:	Laboratory Number
SO5-PLC-241	12/03	0909	S	1	N/A					E482
042	0952	1								E483
043	1016									E484
044	1030									E485
045	1108									E486
046	1115									E487
047	1141									E488
048	1155									E489
049	1157									E490
050	1310									E491
051	1312									E492
*Preservation Code						Relinquished By:	Date/Time:	Received By:	Date/Time:	
						<i>Chuck Pfel</i>	<i>12/02/2003</i>	<i>RJ Soto</i>	<i>12/02/2003</i>	<i>1315</i>
						Relinquished By:	Date/Time:	Received By:	Date/Time:	
Custody Seal: Present/Absent						Seal #'s	Receipt Temp:			
Shipped Via:							Temp Blank	Y N		
WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER SUBMITTER										



**Environmental Chemistry
Consulting Services, Inc.**
2625 Arboretum Road
Madison, WI 53713
Phone 608-221-8700 FAX 608-221-4888

BULK AND CUSTODY
CHAIN OF CUSTODY
197E03

Project Number:	Mail Report To:		
Project Name:	Company: MARTIN & SCAGG CO		
Project Location: CYRUS SPRINGS, WI/SS	Address:		
Sampled By (Print): Chuck Peeler			
Sample Description	Collection Date	Time	Matrix
S0J-BK-052	18/Fe/03	0817	S
-053		0923	
-054		0928	
-055		0908	
-056		0910	
-057		0914	
BK - Duplicate			
S0J-BK-058	0956		
-059	0958		
-060		1008	
-061		1042	
↓	-062	1138	↓
*Preservation Code		Relinquished By:	Date/Time:
A=None	B=HCl	C=H ₂ SO ₄	Received By:
D=HNO ₃	E=EnCore	F=Methanol	Date/Time:
G=NaOH	H=Other(Indicate)	I=	Received By:
Custody Seal: Present/Absent		Intact/Not Intact	Seal #'s
Shipped Via:		Temp: Blank Y N	Receipt Temp:
		Temp: Blank Y N	PINK - SAMPLER/SUBMITTER
		WHITE - REPORT COPY	YELLOW - LABORATORY COPY



**Environmental Chemistry
Consulting Services, Inc.**

2525 Advanced Road
Madison, WI 53718

Phone 608-221-9700 FAX 608-221-4888

Excavation Backfill

CHAIN OF CUSTODY

1/17/03

No. 005195

Page 2 of 2

		Turn Around (circle one)		Normal	Rush
		Report Due:			
Project Number:	Mail Report To:		Invoice To:		
Project Name: <i>Kuhmann Electric</i>	Company: <i>Mgmt & Sci LLC</i>		Company:		
Project Location: <i>CRYSTAL SPRINGS</i>	Address:		Address:		
Sampled By (Print): <i>Chuck Paul</i>					
Sample Description	Collection Date	Time	Matrix	Total Bottles	Preserv*
SOT-BK - 067	1/16/03	1140	S	1	N/A
-064		1144			
-065		1216			
-066		1219			
-067		1220			
-068		1302			
-069		1704			
-070		1324			
-071		1333			
-072		1351			
-073		1420			
<i>JK</i>					
*Preservation Code	Relinquished By:	<i>Chuck Paul</i>	Date/Time:	Received By:	
A=None B=HCl C=H ₂ SO ₄			<i>1/17/03 10:00</i>	<i>Ray Marshall</i>	
D=HNO ₃ E=EnCore F=Methanol					
G=NaOH O=Other(Indicate)					
Custody Seal: Present/Absent	Intact/Not Intact	Seal #'s			
Shipped Via:					
Receipt Temp: _____					
Temp	Blank	Y	N		
WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER/SUBMITTER					



**Environmental Chemistry
Consulting Services, Inc.**

2825 Avenue Road
Madison, WI 53718
Phone 608-221-8700 FAX 608-221-4889

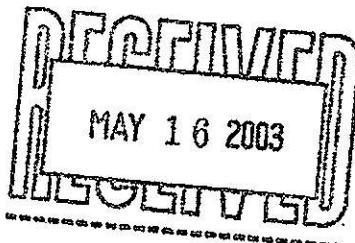
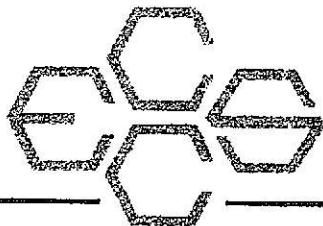
**Excavation No. 4
CHAIN OF CUSTODY**

24FEB03

No. 005210 *

Page 1 of 1

Turn Around (circle one)						Normal	Rush			
Report Due:										
Invoice To:										
Project Number:	Mail Report To:									
Project Name:	Company: MARTIN SERVICE									
Project Location:	Address:									
Sampled By (Print):	Chuck Paul									
Sample Description	Collection		Matrix	Total Bottles	Preserv*	Analysis Requested		Comments	P.O. No.: Quote No.:	Laboratory Number
	Date	Time								
SOT-BK-074	2/22/03	1124	5	1	NA	PCBS			E531	
↓ ↓ -075		1126	1	1					E532	
BK DIACTIC										
SOT-BK-076		1134							E533	
↓ -077		1137							E534	
-078		1303							E535	
↓ -079		1306							E536	
-080		1357							E537	
↓ -081		1358							E538	
-082		1539	↓						E539	
↓ -083		1540	↓						E540	
Reinstituted By:										
Preservation Code	Reinstituted By:		Date/Time:		Received By:		Date/Time:			
A=None B=HCl C=H ₂ SO ₄	<i>[Signature]</i>		2/24/03 17:00		<i>[Signature]</i>		24FEB03 12:00			
D=HNO ₃ E=EnCore F=Methanol	Reinstituted By:		Date/Time:		Received By:		Date/Time:			
G=NaOH O=Other (Indicate)										
Custody Seal: Present/Absent	Seal #3									
Shipped Via:										
Receipt Temp:										
Temp Blank Y N										
WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER SUBMITTER										



Martin 507

April 28, 2003

Robert Martin
Martin & Slagle, LLC
P.O. Box 1023
Black Mountain, NC 28711

Dear Mr. Martin,

Enclosed is the Technical Memorandum for work completed at the former Borg Warner and current Kuhlman Electric facility in Crystal Springs, Mississippi during the month of March. If you have any questions concerning this information, please give me a call.

Sincerely,

Kari-Anne Killian
for
Richard Johnson

Enclosure

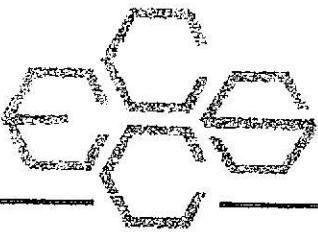
Environmental Chemistry Consulting Services, Inc.

2525 Advance Road • Madison, WI 53718 • Phone (608) 221-8700 • FAX (608) 221-4889

Technical Memorandum

Borg Warner / Kuhlman Electric

Crystal Springs, Mississippi



TECHNICAL MEMORANDUM

April 28, 2003

To: Robert Martin
Martin Slagle Inc.

From: Richard Johnson *ret*
ECCS, Inc. *f*

Re: Field Analytical Methods – QC Summary
Borg Warner – Kuhlman Electric Facility
Crystal Springs, Mississippi

INTRODUCTION

This Technical Memorandum provides documentation of the field analytical test methods used to analyze soil samples collected from backfill areas during March 2003 an accelerated site investigation episode around the former Borg Warner and current Kuhlman Electric facility in Crystal Springs, Mississippi. Soil samples were analyzed for polychlorinated biphenyls (PCBs) and chlorinated benzenes by gas chromatography (GC) in accordance with ECCS's Polychlorinated Biphenyl (PCB) Mini Extraction Screening Procedure. A summary of test results is provided in Table 1. A summary of method blanks, laboratory control samples and matrix spike/matrix spike duplicate data is provided in Table 2.

In addition copies of the chain of custody sheets can be found in appendix A.

The PCB mini-extraction procedure is based on the existing EPA SW846 methods 8082/8141. The procedure incorporates all the quality control rigors of the full 8082/8141 methods including quantification based on 6-point calibration with continuing calibration verification, surrogate method performance monitoring, method blanks, laboratory control samples (LCS), and matrix spike/matrix spike (MS/MSD) duplicate samples. As such, you should consider these test results as comparable to what you would get from a fixed-based laboratory using the more-widely accepted extraction procedure.

The primary project objective of the sampling and testing episode was to delineate the PCB contamination at and around the site using the accelerated site characterization approach. The mobile laboratory was required to provide data as quickly as possible to keep the accelerated site investigation process on track while trying to maintain a goal of level three data quality.

CASE NARRATIVE

During the episode, all samples collected were analyzed. To maintain rapid turnaround and to meet the project objective, three GCs were operated on a nearly continuous basis.

Quality control including proper calibration, continuing calibration verification, surrogates, method blanks, laboratory control samples and matrix spike/matrix spike duplicate samples was performed at the method-specified intervals. Overall quality of the data is very good. The following quality related issues should be noted:

1. All surrogate recoveries were within acceptable ranges.
2. All LCS recoveries were within acceptable ranges. See Table 2.
3. All MS/MSD recoveries were within acceptable ranges. Percent repeatability was also within acceptable ranges. See Table 2.
4. Since electron capture of detectors tend to have a very narrow linear range, many sample extracts required dilution. Dilutions were accurately done.

METHOD SUMMARY

This method employs a mini-extraction procedure and gas chromatography analysis for the detection of PCBs and chlorinated benzenes. Reporting limits are provided in the results Tables. Four grams of sample are dried with anhydrous sodium sulfate and extracted with eight mLs of 80/20 iso-octane/acetone. The extract is then analyzed by Gas Chromatography-Electron Capture Detector (GC-ECD).

Procedure

1. Standards Preparation - Primary standards are prepared from a solution purchased from various vendors at Certified concentrations. Stock standards are prepared in suitable solvents and stored in a freezer when not in use. Secondary standards are prepared in 80/20 iso-octane/acetone and stored in a freezer when not in use. Standard curve mixes for this project was prepared at six concentrations: PCBs – 0.05, 0.10, 0.20, 0.50, 1.0 and 2.0 ug/m; chlorinated benzenes – 0.005, 0.01, 0.02, 0.05, 0.10 and 0.20 ug/ml.
2. Sample Preparation - SOILS: Each sample or quality control sample is prepared in identical fashion. Approximately four grams of silica sand (blanks and control spikes) or sample is transferred into a clean scintillation vial. Ten grams of anhydrous sodium sulfate are added to the vial and mixed well. Extra sodium sulfate is added when necessary to assure the sample is dried. A surrogate, spike compound mix (if necessary) and eight mLs of 80/20 iso-octane/acetone are added to the vial. The vial is shaken for 30 seconds, allowed to settle for 2 minutes, shaken again for 30 seconds, and allowed to settle for 10 minutes. An aliquot of the extract is transferred to an autosampler vial for injection into the GC-ECD.
3. GC-ECD Analysis - A sample aliquot is injected into an HP5890 GC with an ECD equipped with an HP ChemStation for data processing. PCBs were identified by matching retention times of standards to the same retention time in the sample. Regression analysis was performed on each of the selected peak's height versus concentration of the standard using a LN/LN transformed linear regression. For PCBs nine peaks were selected for quantification. The ug/mL value for each peak was added together and divided by the number of peaks selected to obtain the total PCB ug/mL result. If interference occurred at any of the peaks, these peaks were not included in the total, and the divisor was reduced accordingly.
4. Quality Control - Quality control consisted of the following items:
 - Continuing calibration standards analyzed every ten samples or less and at the end of a run.
 - Blank and LCS samples analyzed every twenty sample or less with a minimum of one per day.
 - MS/MSD samples analyzed every twenty samples or less with a minimum of one per day.
 - Information is documented in logbook 45 and March run sheets.
5. Instrument Conditions - Two HP5890 gas chromatographs were equipped with RTX-35 capillary columns. Each system had a Leap Technologies A200S auto-sampler and an HP ChemStation for data handling.

Table 1
Sample Results – March

Table 1
Kuhlman Electric
Crystal Springs, Mississippi
PCB Concentrations as Aroclor 1260 Detected

					Field Laboratory			
Field Lab Sample ID	Sample ID	Sample Depth	Date Collected	Time Collected	Date Analyzed	Concentration (mg/kg)	Surrogate TCMX(%)	Surrogate DCBP(%)
E548	SOJ-BK-083	-	28-Feb-03	825	28-Feb-03	< 0.10	95.2	105
E549	SOJ-BK-084	-	28-Feb-03	826	28-Feb-03	< 0.10	97.0	110
E550	SOJ-BK-085	-	28-Feb-03	827	28-Feb-03	< 0.10	98.2	83.3
E551	SOJ-BK-086	-	28-Feb-03	831	28-Feb-03	< 0.10	96.6	108
E552	SOJ-BK-087	-	28-Feb-03	900	28-Feb-03	< 0.10	94.7	110
E553	SOJ-BK-088	-	28-Feb-03	913	28-Feb-03	< 0.10	93.0	108
E554	SOJ-BK-089	-	28-Feb-03	930	28-Feb-03	< 0.10	94.6	109
E555	SOJ-BK-090	-	28-Feb-03	932	28-Feb-03	< 0.10	96.7	110
E556	SOJ-BK-091	-	28-Feb-03	947	28-Feb-03	< 0.10	94.2	117
E557	SOJ-BK-092	-	28-Feb-03	958	28-Feb-03	< 0.10	94.9	105
E558	SOJ-BK-093	-	28-Feb-03	1026	28-Feb-03	< 0.10	91.4	113
E559	SOJ-BK-094	-	28-Feb-03	1027	28-Feb-03	< 0.10	98.7	114
E560	SOJ-BK-095	-	28-Feb-03	1039	28-Feb-03	< 0.10	96.4	113
E561	SOJ-BK-096	-	28-Feb-03	1041	28-Feb-03	< 0.10	97.0	115
E562	SOJ-BK-097	-	28-Feb-03	1126	28-Feb-03	< 0.10	96.6	112
E563	SOJ-BK-098	-	28-Feb-03	1128	28-Feb-03	< 0.10	96.3	112
E564	SOJ-BK-099	-	28-Feb-03	1155	28-Feb-03	< 0.10	95.0	117
E565	SOJ-BK-100	-	28-Feb-03	1158	28-Feb-03	< 0.10	97.9	112
E566	SOJ-BK-101	-	28-Feb-03	1218	28-Feb-03	< 0.10	96.8	89.5
E567	SOJ-BK-102	-	28-Feb-03	1220	28-Feb-03	< 0.10	94.8	111
E568	SOJ-BK-103	-	28-Feb-03	1240	28-Feb-03	< 0.10	95.7	108
E569	BK-Duplicate	-	28-Feb-03	-	28-Feb-03	< 0.10	94.3	105
E570	SOJ-BK-104	-	28-Feb-03	1310	28-Feb-03	< 0.10	96.8	106
E571	SOJ-BK-105	-	28-Feb-03	1312	1-Mar-03	< 0.10	95.4	111
E575	SOJ-BK-106	-	28-Feb-03	1313	1-Mar-03	< 0.10	100	116
E576	SOJ-BK-107	-	28-Feb-03	1320	1-Mar-03	< 0.10	96.8	111
E577	SOJ-BK-108	-	28-Feb-03	1404	1-Mar-03	< 0.10	97.2	113
E578	SOJ-BK-109	-	28-Feb-03	1405	1-Mar-03	< 0.10	98.5	114
E579	SOJ-BK-110	-	28-Feb-03	1407	1-Mar-03	< 0.10	98.3	112
E580	SOJ-BK-111	-	28-Feb-03	1412	1-Mar-03	< 0.10	97.4	108
E581	SOJ-BK-112	-	28-Feb-03	1500	1-Mar-03	< 0.10	96.5	107
E582	SOJ-BK-113	-	28-Feb-03	1502	1-Mar-03	< 0.10	96.3	109
E583	SOJ-BK-114	-	28-Feb-03	1504	1-Mar-03	< 0.10	97.8	110
E605	SOJ-BK-115	-	7-Mar-03	903	7-Mar-03	< 0.10	91.0	97.4
E606	SOJ-BK-116	-	7-Mar-03	904	7-Mar-03	< 0.10	91.2	95.5
E607	SOJ-BK-117	-	7-Mar-03	905	7-Mar-03	< 0.10	91.7	89.9
E608	SOJ-BK-118	-	7-Mar-03	1011	7-Mar-03	< 0.10	98.4	101
E609	SOJ-BK-119	-	7-Mar-03	1012	7-Mar-03	< 0.10	92.9	94.6
E610	SOJ-BK-120	-	7-Mar-03	1020	7-Mar-03	< 0.10	92.9	96.9
E611	SOJ-BK-121	-	7-Mar-03	1048	7-Mar-03	< 0.10	92.4	97.2
E612	SOJ-BK-122	-	7-Mar-03	1058	7-Mar-03	< 0.10	94.8	95.0
E613	BK-Duplicate	-	7-Mar-03	-	7-Mar-03	< 0.10	88.4	90.7
E13A	SOJ-BK-123	-	7-Mar-03	1142	7-Mar-03	< 0.10	90.2	93.4
E14	SOJ-BK-124	-	7-Mar-03	1143	7-Mar-03	< 0.10	89.3	94.1
E615	SOJ-BK-125	-	7-Mar-03	1145	7-Mar-03	< 0.10	91.9	96.2
E616	SOJ-BK-126	-	7-Mar-03	1147	7-Mar-03	< 0.10	96.0	86.7

Table 1
Kuhlman Electric
Crystal Springs, Mississippi
PCB Concentrations as Aroclor 1260 Detected

					Field Laboratory			
Field Lab Sample ID	Sample ID	Sample Depth	Date Collected	Time Collected	Date Analyzed	Concentration (mg/kg)	Surrogate TCMX(%)	Surrogate DCBP(%)
E617	SOJ-BK-127	-	7-Mar-03	1155	7-Mar-03	< 0.10	98.9	90.1
E618	SOJ-BK-128	-	7-Mar-03	1157	7-Mar-03	< 0.10	89.9	96.2
E619	SOJ-BK-129	-	7-Mar-03	1210	7-Mar-03	< 0.10	95.1	95.6
E620	SOJ-BK-130	-	7-Mar-03	1212	7-Mar-03	< 0.10	89.5	93.9
E625	SOJ-BK-131	-	7-Mar-03	1315	7-Mar-03	< 0.10	98.1	89.9
E626	SOJ-BK-132	-	7-Mar-03	1320	7-Mar-03	< 0.10	91.3	95.9
E627	SOJ-BK-133	-	7-Mar-03	1322	7-Mar-03	< 0.10	94.0	94.3
E628	SOJ-BK-134	-	7-Mar-03	1340	7-Mar-03	< 0.10	91.0	93.7
E629	SOJ-BK-135	-	7-Mar-03	1447	7-Mar-03	< 0.10	92.1	95.2
E630	SOJ-BK-136	-	7-Mar-03	1449	7-Mar-03	< 0.10	91.4	94.7
E631	SOJ-BK-137	-	7-Mar-03	1508	7-Mar-03	< 0.10	95.1	96.9
E632	SOJ-BK-138	-	7-Mar-03	1510	8-Mar-03	< 0.10	96.7	89.7
E633	SOJ-BK-139	-	7-Mar-03	1511	8-Mar-03	< 0.10	93.9	93.2
E634	SOJ-BK-140	-	8-Mar-03	830	8-Mar-03	< 0.10	93.6	95.1
E635	SOJ-BK-141	-	8-Mar-03	832	8-Mar-03	< 0.10	93.6	93.8
E636	SOJ-BK-142	-	8-Mar-03	837	8-Mar-03	< 0.10	98.0	96.2
E637	SOJ-BK-143	-	8-Mar-03	926	8-Mar-03	< 0.10	95.0	95.4
E638	SOJ-BK-144	-	8-Mar-03	937	8-Mar-03	< 0.10	95.3	94.5
E639	SOJ-BK-145	-	8-Mar-03	939	8-Mar-03	< 0.10	92.7	94.1
E640	SOJ-BK-146	-	8-Mar-03	944	8-Mar-03	< 0.10	90.1	85.6
E641	SOJ-BK-147	-	8-Mar-03	1021	8-Mar-03	< 0.10	107	105
E642	SOJ-BK-148	-	8-Mar-03	1029	8-Mar-03	< 0.10	95.3	96.0
E643	SOJ-BK-149	-	8-Mar-03	1030	8-Mar-03	< 0.10	94.5	95.5
E644	SOJ-BK-150	-	8-Mar-03	1034	8-Mar-03	< 0.10	94.6	95.5
E645	BK-Duplicate	-	8-Mar-03	-	8-Mar-03	< 0.10	85.4	87.2
E668	SOJ-BK-151	-	21-Mar-03	830	21-Mar-03	< 0.10	90.4	96.4
E669	SOJ-BK-152	-	21-Mar-03	833	21-Mar-03	< 0.10	89.8	96.9
E670	SOJ-BK-153	-	21-Mar-03	835	21-Mar-03	< 0.10	89.1	98.5
E671	SOJ-BK-154	-	21-Mar-03	915	21-Mar-03	< 0.10	89.1	95.1
E672	SOJ-BK-155	-	21-Mar-03	916	21-Mar-03	< 0.10	89.5	96.1
E673	SOJ-BK-156	-	21-Mar-03	935	21-Mar-03	< 0.10	88.0	96.8
E674	SOJ-BK-157	-	21-Mar-03	1005	21-Mar-03	< 0.10	89.4	99.1
E675	SOJ-BK-158	-	21-Mar-03	1006	21-Mar-03	< 0.10	88.2	98.1
E676	SOJ-BK-159	-	21-Mar-03	1030	21-Mar-03	< 0.10	86.7	95.9
E677	SOJ-BK-160	-	21-Mar-03	1045	21-Mar-03	< 0.10	88.2	98.6
E678	SOJ-BK-161	-	21-Mar-03	1145	21-Mar-03	< 0.10	90.9	99.9
E679	SOJ-BK-162	-	21-Mar-03	1147	21-Mar-03	< 0.10	88.0	97.5
E680	BK-Duplicate	-	21-Mar-03	-	21-Mar-03	< 0.10	87.5	99.9
E702	TOPSOIL-01	-	29-Mar-03	927	29-Mar-03	< 0.10	102	100
E703	TOPSOIL-02	-	29-Mar-03	928	29-Mar-03	< 0.10	103	101
E704	TOPSOIL-03	-	29-Mar-03	1024	29-Mar-03	< 0.10	110	110
E705	TOPSOIL-04	-	29-Mar-03	1335	29-Mar-03	< 0.10	107	107
E706	TOPSOIL-05	-	29-Mar-03	1338	29-Mar-03	< 0.10	105	99.6
E714	TOPSOIL-06	-	29-Mar-03	1546	29-Mar-03	< 0.10	104	111
E715	TOPSOIL-07	-	29-Mar-03	1548	29-Mar-03	< 0.10	101	108
E716	TOPSOIL-08	-	29-Mar-03	1550	29-Mar-03	< 0.10	100	111

Table 2

QC Samples - March

Table 2
QC Results

Lab # associated with qc samples: E548 through E567

Matrix	Matrix	Matrix	Spike	Duplicate	Blank	LCS
E548			E548		487	487

Date Analyzed: 2/28/03 2/28/03 2/28/03 2/28/03 2/28/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	93.1		97.6		-5%	< 0.10	95.2

Table 2
QC Results

Lab # associated with qc samples: E568 through E571
Lab # associated with qc samples: E575 through E583

Matrix	Spike	Blank	LCS
Matrix	Duplicate		
Spike	E583		
E583	E583	488	488

Date Analyzed: 2/28/03 2/28/03 2/28/03 2/28/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	95.2		84.9		11%	< 0.10	99.6

Table 2
QC Results

Lab # associated with qc samples: E605 through E620
Lab # associated with qc samples: E625 through E627

Matrix				
Matrix	Spike	Duplicate	Blank	LCS
Spike	E615	E615	486	486

Date Analyzed: 3/7/03 3/7/03 3/7/03 3/7/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	94.5		94.8		0%	< 0.10	100

Table 2
QC Results

Lab # associated with qc samples: E628 through E633

Matrix	Matrix	Spike	Duplicate	Blank	LCS
E633		E633		490	490

Date Analyzed: 3/8/03 3/8/03 3/7/03 3/7/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	94.9		94.0		1%	< 0.10	95.5

Table 2
QC Results

Lab # associated with qc samples: E634 through E645

Matrix	Matrix	Spike	Duplicate	Blank	LCS
Spike	E634	E634		491	491

Date Analyzed: 3/8/03 3/8/03 3/8/03 3/8/03 3/8/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	98.2		97.4		1%	< 0.10	97.7

Table 2
QC Results

Lab # associated with qc samples: E668 through E680

Matrix	Matrix	Spike	Duplicate	Blank	LCS
E679		E679		495	495

Date Analyzed: 3/21/03 3/21/03 3/21/03 3/21/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	98.0		98.8		-1%	< 0.10	95.0

Table 2
QC Results

Lab # associated with qc samples: E702 through E706
Lab # associated with qc samples: E714 through E716

Matrix	Spike	Blank	LCS
Matrix	Duplicate		
Spike	E702		
E702		501	501

Date Analyzed: 3/29/03 3/29/03 3/29/03 3/29/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	109		110		-1%	< 0.10	106

Appendix A

Chain of Custody Sheets for mobile lab PCB analysis Backfill Samples



**Environmental Chemistry
Consulting Services, Inc.**

2525 Advance Road
Madison, WI 53718

Phone 608-221-8700

FAX 608-221-4889

EXCA
1100 BACKFILE
CHAIN OF CUSTODY

28/03

No. 005212 *

Page 1 of 3

Project Number:		Mail Report To:		Invoice To:					
Project Name:	Project Location:	Company:	Address:	Company:	Address:				
KATHY BUEHL	CITY SPRINGS, MISS	H&R TAG & CHECK							
Sampled By (Print):	CHUCK PEELE								
Sample Description	Collection Date	Total Time	Matrix	Bottles	Preserv*	Analysis Requested	P.O. No.:	Quote No.:	Laboratory Number
SOJ-BK-083	28/03 0825	S	1	NA	DCBZ				B548
-084		0826							B549
-085		0827							B550
-086		0831							E551
-087		0905							E552
-088		0913							E553
-089		0920							E554
-090		0932							E555
-091		0947							E556
-092		0958							E557
-093		1026							E558
-094		1027							E559
*Preservation Code	Relinquished By:	Date/Time:	Received By:						
A=None B=HCl C=H ₂ SO ₄		28/03 1100	R. Johnson 28/03						
D=HNO ₃ E=EnCore F=Methanol	Relinquished By:	Date/Time:	Received By:						
G=NaOH O=Other(Indicate)									
Custody Seal: Present/Absent	Intact/Not Intact	Seal #'s							
Shipped Via:									
Temp: Blank Y N									
Receipt Temp: Y N									
WHITE - REPORT COPY	YELLOW - LABORATORY COPY								
PINK - SAMPLER/SUBMITTER									

A=None B=HCl C=H₂SO₄

D=HNO₃ E=EnCore F=Methanol

G=NaOH O=Other(Indicate)

Custody Seal: Present/Absent

Intact/Not Intact

Seal #'s

Shipped Via:

Turn Around (circle one)

Normal

Rush

Report Due:

28/03

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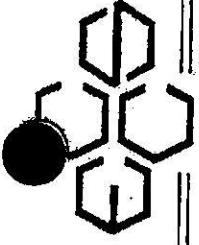
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**Environmental Chemistry
Consulting Services, Inc.**

2525 Adavans Road
Madison, WI 53718
Phone 608-221-8700 FAX 608-221-4888

EXCEL ANALYSIS BACKFILE
CHAIN OF CUSTODY No. 005213 *

Page 2 of 3

Turn Around (circle one)

Normal Rush

Report Due:

Mail Report To:

Company:

MARATHON SCAFFAGE

Address:

Invoiced To:

Company:

Address:

Project Number:

KWAKIUTL FCB701C
Project Location: SPRINGS OTIS
Sampled By (Print): CLUCK PERE

Collection Date

Time

Matrix

Total Bottles

Preserv*

Analysis Requested

P.O. No.: Quote No.:

Comments

Laboratory Number

S05 - BK - 095	28/03	1039	1	S	WT	PCB2		B560
-096		1041						B561
-097		1126						B562
-098		1128						B563
-099		1153						B564
-100		1158						E565
-101		1218						E566
-102		1220						E567
-103		1240						E568
S05 DUPLICATE	28/03	-						B569
S05 - BK - 104		1310						E570
S05 - 105		1312	✓	✓	✓			E571

*Preservation Code

Relinquished By: Zach

Date/Time: 2/2/03 13:10

Received By: Kelton

Date/Time: 28/03 03

A=None B=HCl C=H2SO4

D=HNO3 E=EnCore F=Methanol

G=NaOH O=Other(Indicate)

Custody Seal: Present/Absent: Intact/Not Intact

Seal #'s

Shipped Via:

Date/Time:

1310

Date/Time:

Received Temp:

Temp Blank: Y

Temp: N

Report Temp:

Report Type:

WHITE - REPORT COPY

YELLOW - LABORATORY COPY

PINK - SAMPLER SUBMITTER

**Environmental Chemistry
Consulting Services, Inc.**

2825 Avenue Road
Phone 608-221-8700

Madison, WI 53718
FAX 608-221-4889



**BACK FILL
CHAIN OF CUSTODY**

No. 005215 *

Page 3 of 3

28Feb03

Project Number:	Mail Report To:			Turn Around (circle one)	Normal	Rush	
Project Name:	Company:			Report Due:			
Project Location:	Address:			Invoice To:			
Sampled By (Print):				P.O. No.:	Quote No.:		
Sample Description	Collection		Total Bottles	Analysis Requested	Comments		Laboratory Number
	Date	Time	Matrix				
SOS-BLK-166	2/28/03	1313	S	1	PCB ²		E575
-167		1320		1			E576
-108				1404			E577
-109				1405			E578
-116				1407			E579
-111				1412			E580
-112				1500			E581
-113				1502			E582
-114				1504			E583
*Preservation Code				Relinquished By	Received By		Date/Time:
A=None	B=HCl	C=H ₂ SO ₄	D=HNO ₃	E=EnCore	F=Methanol	G=NaOH	H=Other(indicate)
Custody Seal: Present/Absent				Intact/Not Intact	Seal #'s	Received By:	
Shipped Via:						Temp Blank	Y N
WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER/SUBMITTER							



**Environmental Chemistry
Consulting Services, Inc.**

2625 Advance Road
Madison, WI 53718
Phone 608-221-8700 FAX 608-221-4889

EX-001 ON BACB111
CHAIN OF CUSTODY No. 005228
070103

Project Number:

Project Name: **KOHLER ELECTRIC**
Project Location: CRYSTAL SPRINGS, MISS
Sampled By (Print): **CHUCK REEL**

Mail Report To: Company: **MARTIN SCAGG**
Address:

Sample Description	Collection			Analysis			P.O. No.:	Quote No.:
	Date	Time	Matrix	Total Bottles	Preserv*	Requested		
S05-BK-115	07/04/0903	5:1	N/A	PCB 2			E605	E665
-116	07/04/0904						E606	E666
-117	07/05/0905						E607	E667
-118	07/01/0911						E608	E668
-119	07/02/0912						#103	E609 E669
-120	07/02/0920						A801	E610 E670
-121	07/02/0928						B611	E671
-122	07/02/1058						E612	E672
-DPL-CAT7E	-						E613	E673
BK-123	1142						E613A	E673A
-124	1143						E614	E674
-125	1145						E615	E675
Relinquished By:		Received By:			Date/Time:			
<i>[Signature]</i>		<i>[Signature]</i>			3/3/03 1200			
Relinquished By:		Received By:			Date/Time:			
<i>[Signature]</i>		<i>[Signature]</i>			Date/Time:			
Present/Absent		Seal #'s			Date/Temp:			
Intact/Not Intact					Temp Blank Y N			
Custody Seal:					Receipt Temp:			
Shipped Via:					Temp Blank Y N			
WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER SUBMITTER								

*Preservation Code

A=None B=HCl C=H2SO4
D=HNO3 E=EnCore F=Methanol
G=NaOH O=Other(indicate)

Custody Seal: Present/Absent

Shipped Via:

Date/Time:
12:50

Date/Time:

Date/Time:
070103

Date/Time:

**Environmental Chemistry
Consulting Services, Inc.**

2525 Advance Road

Phone 608-221-8700

FAX 608-221-4889

Page 3 of 3

CHAIN OF CUSTODY NO. 005233 *

Turn Around (circle one) Normal Rush

Report Due:

Mail Report To:

Company:

Address:

Project Number:

KUTTER'S LABORATORY

Company:

Address:

Project Name:

CRYSTAL SPRINGS MSS

Project Location:

Address:

Sampled By (Print):

Chuck PZEL

P.O. No.:

Quote No.:

Laboratory
Number

Invoice To:

Company:

Address:

Analysis
Requested

Comments

Preserv*

Matrix

Total
Bottles

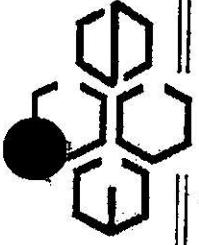
Date

Time

Collection

PCB

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**Environmental Chemistry
Consulting Services, Inc.**

2825 Advance Road
Phone 608-221-8700

Madison, WI 53718
FAX 608-221-4899

CHAIN OF CUSTODY

08/07/03

Project Number:	Sample Description	Collection Date	Time	Matrix	Total Bottles	Preserv*	Analysis Requested	P.O. No.:	Quote No.:	Comments	Laboratory Number
SOJ-BK-140	8/6/03 0830	5.1	PM	PCB ²				E694	634		
141	-	0832	1					E635			
142	-	0837	1					E636			
143	-	0916						E637			
144	-	0937						E638			
145	-	0939						E639			
146	-	0944						E640			
147	-	1021						E641			
148	-	1029						E642			
149	-	1020						E643			
150	-	1034						E644			
→ DUPLICATE →											
*Preservation Code	Retain/Released By:	Date/Time:	Received By:	Date/Time:							
A=None B=HCl C=H ₂ SO ₄	<i>Chad</i>	7/9/03 1100	<i>R. Jelley</i>	08/07/03							
D=HNO ₃ E=EnCore F=Methanol	Retain/Released By:	Date/Time:	Received By:	Date/Time:							
G=NaOH H=Other(indicate)	Custody Seal: Present/Absent	Intact/Not Intact	Seal #'s	Shipped Via:	Temp Blank	Y	N	Receipt Temp:			

A=None B=HCl C=H₂SO₄
D=HNO₃ E=EnCore F=Methanol
G=NaOH H=Other(indicate)

WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER/SUBMITTER



**Environmental Chemistry
Consulting Services, Inc.**

2525 Adverse Road
Phone 608-221-8700

Madison, WI 53718
FAX 608-221-4889

Project Number: KUFCM-A Project Name: KUFCM-A

Project Location: CRYSTAL SPRINGS Sampled By (Print): Chuck Lul

Sample Description	Collection		Matrix	Total Bottles	Present*	Analysis Requested	P.O. No.:	Quote No.:	Comments	Laboratory Number
	Date	Time								
S0J-BK-151	2/1/03	0830	S	1	WT	PCBS	E668			
152		0833					E669			
153		0935					E670			
154		0935					E671			
155		0916					E672			
156		0935					E673			
157		1005					E674			
158		1001					E675			
159		1030					E676			
160		1045					E677			
161		1145					E678			
162		1143					E679			
*Preservation Code	Relinquished By:		Received By:		Date/Time:		Date/Time:		Date/Time:	
A=Non	B=HCl	C=H ₂ SO ₄	D=HNO ₃	E=EnCore	F=Methanol	G=NaOH	H=Other (Indicate)	I=Intact/Not Intact	J=Seal #'s	K=
Present/Absent										
Shipped Via:										
Turn Around (circle one)	Normal	Rush								
Report Due:										
Invoice To:										
Company:										
Address:										
Page <u>1</u> of <u>2</u>										

Date/Time:
2/1/03
12:00



**Environmental Chemistry
Consulting Services, Inc.**

2625 Avenue Road
Phone 608-221-8700

Madison, WI 53718
FAX 608-221-4889

CHAIN OF CUSTODY

21 MILU 3

Page 2 of 2
Turn Around (circle one) Normal Rush

Report Due:

Project Number:

Project Name: Kuttman Electronics
Project Location: CRYSTAL SPRINGS
Sampled By (Print): Chuck Lul

Mail Report To:

Company: MATTレス Surface
Address:

P.O. No.:

Quote No.:

Sample Description	Collection Date	Time	Matrix	Total Bottles	Preserv*	Analysis Requested	Comments	Laboratory Number
BK - Duplicate	21/1/03	-	5	1	N/A	118		EL 80

*Preservation Code	Retrived By:	Date/Time:	Received By:	Date/Time:
A=None B=HCl C=H ₂ SO ₄	<u>Chuck Lul</u>	2/21/03 170	<u>Jeanne Hubel</u>	2/20/03 17:00
D=HNO ₃ E=EnCore F=Methanol	Retrived By:	Date/Time:	Received By:	Date/Time:
G=NaOH O=Other(indicate)				
Custody Seal: Present/Absent	Intact/Not Intact	Seal #'s	Receipt Temp:	
Shipped Via:	Temp Blank	Y N		

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**Environmental Chemistry
Consulting Services, Inc.**

2525 Avenues Road

Madison, WI 53718

FAX 608-221-4889

Phone 608-221-8700

**Excluded
CHAIN OF CUSTODY**

Page 1 of 1

Turn Around (circle one)

Normal

Rush

Report Due:

Invoice To:

Project Number:

KUHN-BLUE TIE

Mail Report To:

CRYSTAL SPRINGS, MISS

Company:

Address:

Address:

Sampled By (Print):

Chuck Peck

P.O. No.:

Quote No.:

Sample Description	Collection		Matrix	Total Bottles	Preserv'	Analysis Requested	Comments	Laboratory Number
	Date	Time						
TOPSOIL 01	2/16/03	09:27	S	1	NA	PCB's		E702
TOPSOIL 02		09:28						E703
TOPSOIL 03		10:24						E704
04		13:35						E705
05		13:38						E706
06		15:46						E714
07		15:48						E715
08		15:50						E716

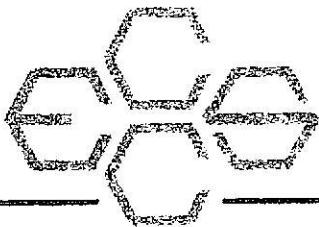
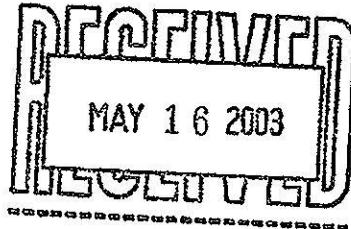
Preservation Code

Retain

Date/Time:

Received By:

WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER/SUBMITTER



May 9, 2003

L.A.J.
5/9/03

Robert Martin
Martin & Slagle, LLC
P.O. Box 1023
Black Mountain, NC 28711

Dear Mr. Martin,

Enclosed is the Technical Memorandum for work completed at the former Borg Warner and current Kuhlman Electric facility in Crystal Springs, Mississippi during the month of April. If you have any questions concerning this information, please give me a call.

Sincerely,

Kari-Ann Gillian

Richard Johnson

Enclosure

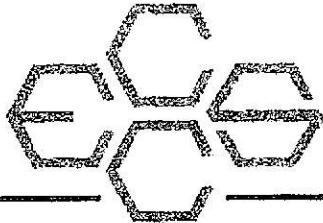
Environmental Chemistry Consulting Services, Inc.

2525 Advance Road • Madison, WI 53718 • Phone (608) 221-8700 • FAX (608) 221-4889

Technical Memorandum

Borg Warner / Kuhlman Electric

Crystal Springs, Mississippi



TECHNICAL MEMORANDUM

May 9, 2003

To: Robert Martin
Martin Slagle Inc.

From: Richard Johnson *lak*
ECCS, Inc. *jcr*

Re: Field Analytical Methods – QC Summary
Borg Warner – Kuhlman Electric Facility
Crystal Springs, Mississippi

INTRODUCTION

This Technical Memorandum provides documentation of the field analytical test methods used to analyze soil samples collected from backfill areas during April 2003 an accelerated site investigation episode around the former Borg Warner and current Kuhlman Electric facility in Crystal Springs, Mississippi. Soil samples were analyzed for polychlorinated biphenyls (PCBs) and chlorinated benzenes by gas chromatography (GC) in accordance with ECCS's Polychlorinated Biphenyl (PCB) Mini Extraction Screening Procedure. A summary of test results is provided in Table 1. A summary of method blanks, laboratory control samples and matrix spike/matrix spike duplicate data is provided in Table 2.

In addition copies of the chain of custody sheets can be found in appendix A and B.

- A) Chain of custody sheets Excavation Backfill
- B) Chain of custody sheets Excavation Topsoil

The PCB mini-extraction procedure is based on the existing EPA SW846 methods 8082/8141. The procedure incorporates all the quality control rigors of the full 8082/8141 methods including quantification based on 6-point calibration with continuing calibration verification, surrogate method performance monitoring, method blanks, laboratory control samples (LCS), and matrix spike/matrix spike (MS/MSD) duplicate samples. As such, you should consider these test results as comparable to what you would get from a fixed-based laboratory using the more-widely accepted extraction procedure.

The primary project objective of the sampling and testing episode was to delineate the PCB contamination at and around the site using the accelerated site characterization approach. The mobile laboratory was required to provide data as quickly as possible to keep the accelerated site investigation process on track while trying to maintain a goal of level three data quality.

CASE NARRATIVE

During the episode, all samples collected were analyzed. To maintain rapid turnaround and to meet the project objective, three GCs were operated on a nearly continuous basis.

Quality control including proper calibration, continuing calibration verification, surrogates, method blanks, laboratory control samples and matrix spike/matrix spike duplicate samples was performed at the method-specified intervals. Overall quality of the data is very good. The following quality related issues should be noted:

1. All surrogate recoveries were within acceptable ranges.
2. All LCS recoveries were within acceptable ranges. See Table 2.
3. All MS/MSD recoveries were within acceptable ranges. Percent repeatability was also within acceptable ranges. See Table 2.

METHOD SUMMARY

This method employs a mini-extraction procedure and gas chromatography analysis for the detection of PCBs and chlorinated benzenes. Reporting limits are provided in the results Tables. Four grams of sample are dried with anhydrous sodium sulfate and extracted with eight mLs of 80/20 iso-octane/acetone. The extract is then analyzed by Gas Chromatography-Electron Capture Detector (GC-ECD).

Procedure

1. Standards Preparation - Primary standards are prepared from a solution purchased from various vendors at Certified concentrations. Stock standards are prepared in suitable solvents and stored in a freezer when not in use. Secondary standards are prepared in 80/20 iso-octane/acetone and stored in a freezer when not in use. Standard curve mixes for this project was prepared at six concentrations: PCBs – 0.05, 0.10, 0.20, 0.50, 1.0 and 2.0 ug/m; chlorinated benzenes – 0.005, 0.01, 0.02, 0.05, 0.10 and 0.20 ug/ml.
2. Sample Preparation - SOILS: Each sample or quality control sample is prepared in identical fashion. Approximately four grams of silica sand (blanks and control spikes) or sample is transferred into a clean scintillation vial. Ten grams of anhydrous sodium sulfate are added to the vial and mixed well. Extra sodium sulfate is added when necessary to assure the sample is dried. A surrogate, spike compound mix (if necessary) and eight mLs of 80/20 iso-octane/acetone are added to the vial. The vial is shaken for 30 seconds, allowed to settle for 2 minutes, shaken again for 30 seconds, and allowed to settle for 10 minutes. An aliquot of the extract is transferred to an autosampler vial for injection into the GC-ECD.
3. GC-ECD Analysis - A sample aliquot is injected into an HP5890 GC with an ECD equipped with an HP ChemStation for data processing. PCBs were identified by matching retention times of standards to the same retention time in the sample. Regression analysis was performed on each of the selected peak's height versus concentration of the standard using a LN/LN transformed linear regression. For PCBs nine peaks were selected for quantification. The ug/mL value for each peak was added together and divided by the number of peaks selected to obtain the total PCB ug/mL result. If interference occurred at any of the peaks, these peaks were not included in the total, and the divisor was reduced accordingly.
4. Quality Control - Quality control consisted of the following items:
 - Continuing calibration standards analyzed every ten samples or less and at the end of a run.
 - Blank and LCS samples analyzed every twenty sample or less with a minimum of one per day.
 - MS/MSD samples analyzed every twenty samples or less with a minimum of one per day.
 - Information is documented in logbook 45 and April run sheets.
4. Instrument Conditions - Two HP5890 gas chromatographs were equipped with RTX-35 capillary columns. Each system had a Leap Technologies A200S auto-sampler and an HP ChemStation for data handling.

Table 1
Sample Results – April

Table 1
Kuhlman Electric
Crystal Springs, Mississippi
PCB Concentrations as Aroclor 1260 Detected

					Field Laboratory			
Field Lab Sample ID	Sample ID	Sample Depth	Date Collected	Time Collected	Date Analyzed	Concentration (mg/kg)	Surrogate TCMX(%)	Surrogate DCBP(%)
E717	SOJ-BK-163	-	31-Mar-03	900	31-Mar-03	< 0.10	104	123
E718	SOJ-BK-164	-	31-Mar-03	1003	31-Mar-03	< 0.10	104	110
E719	SOJ-BK-165	-	31-Mar-03	1154	31-Mar-03	< 0.10	104	108
E720	BK-Duplicate	-	31-Mar-03	-	31-Mar-03	< 0.10	106	109
E721	TOPSOIL-09	-	31-Mar-03	1159	31-Mar-03	< 0.10	107	112
E722	TOPSOIL-10	-	31-Mar-03	1200	31-Mar-03	< 0.10	110	97.5
E723	SOJ-BK-166	-	31-Mar-03	1227	31-Mar-03	< 0.10	105	114
E724	TOPSOIL-11	-	31-Mar-03	1250	31-Mar-03	< 0.10	107	114
E725	SOJ-BK-167	-	31-Mar-03	1312	31-Mar-03	< 0.10	106	103
E726	SOJ-BK-168	-	31-Mar-03	1445	31-Mar-03	< 0.10	107	104
E727	SOJ-BK-169	-	31-Mar-03	1451	31-Mar-03	< 0.10	108	118
E728	SOJ-BK-170	-	31-Mar-03	1530	31-Mar-03	< 0.10	104	113
E729	TOPSOIL-12	-	31-Mar-03	1532	31-Mar-03	< 0.10	111	118
E734	SOJ-BK-171	-	1-Apr-03	930	1-Apr-03	< 0.10	105	107
E735	SOJ-BK-172	-	1-Apr-03	933	1-Apr-03	< 0.10	105	130
E736	SOJ-BK-173	-	1-Apr-03	935	1-Apr-03	< 0.10	105	113
E737	SOJ-BK-174	-	1-Apr-03	936	1-Apr-03	< 0.10	107	119
E738	BK-Duplicate	-	1-Apr-03	-	1-Apr-03	< 0.10	105	114
E739	TOPSOIL-13	-	1-Apr-03	945	1-Apr-03	< 0.10	112	120
E740	SOJ-BK-175	-	1-Apr-03	1015	1-Apr-03	< 0.10	111	120
E741	SOJ-BK-176	-	1-Apr-03	1016	1-Apr-03	< 0.10	108	129
E742	TOPSOIL-14	-	1-Apr-03	1025	1-Apr-03	< 0.10	112	130
E743	SOJ-BK-177	-	1-Apr-03	1045	1-Apr-03	< 0.10	115	130
E744	SOJ-BK-178	-	1-Apr-03	1048	1-Apr-03	< 0.10	112	130
E745	SOJ-BK-179	-	1-Apr-03	1049	1-Apr-03	< 0.10	107	116
E746	SOJ-BK-180	-	1-Apr-03	1051	1-Apr-03	< 0.10	112	112
E747	SOJ-BK-181	-	1-Apr-03	1220	1-Apr-03	< 0.10	118	134
E748	SOJ-BK-182	-	1-Apr-03	1223	1-Apr-03	< 0.10	112	114
E749	SOJ-BK-183	-	1-Apr-03	1225	1-Apr-03	< 0.10	110	116
E750	SOJ-BK-184	-	1-Apr-03	1227	1-Apr-03	< 0.10	110	121
E751	SOJ-BK-185	-	1-Apr-03	1228	1-Apr-03	< 0.10	113	132
E752	TOPSOIL-15	-	1-Apr-03	1312	1-Apr-03	< 0.10	120	120
E753	SOJ-BK-186	-	1-Apr-03	1346	1-Apr-03	< 0.10	115	135
E754	SOJ-BK-187	-	1-Apr-03	1347	1-Apr-03	< 0.10	114	113
E755	SOJ-BK-188	-	1-Apr-03	1348	1-Apr-03	< 0.10	112	114
E756	SOJ-BK-189	-	1-Apr-03	1400	1-Apr-03	< 0.10	114	115
E757	SOJ-BK-190	-	1-Apr-03	1512	1-Apr-03	< 0.10	102	110
E758	SOJ-BK-191	-	1-Apr-03	1513	1-Apr-03	< 0.10	100	98.2
E759	SOJ-BK-192	-	1-Apr-03	1516	1-Apr-03	< 0.10	102	109
E760	SOJ-BK-193	-	2-Apr-03	921	2-Apr-03	< 0.10	97.2	102
E761	SOJ-BK-194	-	2-Apr-03	922	2-Apr-03	< 0.10	93.7	92.8
E762	SOJ-BK-195	-	2-Apr-03	924	2-Apr-03	< 0.10	90.4	94.1
E763	SOJ-BK-196	-	2-Apr-03	925	2-Apr-03	< 0.10	94.7	93.1
E764	SOJ-BK-197	-	2-Apr-03	926	2-Apr-03	< 0.10	92.2	89.2
E765	BK-Duplicate	-	2-Apr-03	-	2-Apr-03	< 0.10	100	108
E766	TOPSOIL-16	-	2-Apr-03	928	2-Apr-03	< 0.10	98.4	95.3

Table 1
Kuhlman Electric
Crystal Springs, Mississippi
PCB Concentrations as Aroclor 1260 Detected

					Field Laboratory			
Field Lab Sample ID	Sample ID	Sample Depth	Date Collected	Time Collected	Date Analyzed	Concentration (mg/kg)	Surrogate TCMX(%)	Surrogate DCBP(%)
E767	SOJ-BK-198	-	2-Apr-03	936	2-Apr-03	< 0.10	99.5	112
E768	SOJ-BK-199	-	2-Apr-03	937	2-Apr-03	< 0.10	100	117
E769	SOJ-BK-200	-	2-Apr-03	1025	2-Apr-03	< 0.10	102	109
E770	SOJ-BK-201	-	2-Apr-03	1027	2-Apr-03	< 0.10	99.9	116
E771	TOPSOIL-17	-	2-Apr-03	1035	2-Apr-03	< 0.10	100	107
E772	SOJ-BK-202	-	2-Apr-03	1040	2-Apr-03	< 0.10	101	97.8
E773	TOPSOIL-18	-	2-Apr-03	1047	2-Apr-03	< 0.10	102	109
E774	SOJ-BK-203	-	2-Apr-03	1110	2-Apr-03	< 0.10	96.4	96.1
E775	SOJ-BK-204	-	2-Apr-03	1112	2-Apr-03	< 0.10	97.2	94.2
E776	SOJ-BK-205	-	2-Apr-03	1138	2-Apr-03	< 0.10	99.1	96.3
E777	TOPSOIL-19	-	2-Apr-03	1200	2-Apr-03	< 0.10	99.2	101
E778	TOPSOIL-20	-	2-Apr-03	1201	2-Apr-03	< 0.10	99.1	103
E779	SOJ-BK-206	-	2-Apr-03	1236	2-Apr-03	< 0.10	99.8	109
E780	SOJ-BK-207	-	2-Apr-03	1238	2-Apr-03	< 0.10	98.6	107
E781	SOJ-BK-208	-	2-Apr-03	1239	2-Apr-03	< 0.10	101	116
E782	SOJ-BK-209	-	2-Apr-03	1310	2-Apr-03	< 0.10	97.0	104
E783	SOJ-BK-210	-	2-Apr-03	1312	2-Apr-03	< 0.10	99.3	106
E784	TOPSOIL-21	-	2-Apr-03	1322	2-Apr-03	< 0.10	108	120
E792	TOPSOIL-22	-	3-Apr-03	805	3-Apr-03	< 0.10	94.9	81.1
E797	SOJ-BK-211	-	10-Apr-03	905	10-Apr-03	< 0.10	99.7	110
E798	SOJ-BK-212	-	10-Apr-03	907	10-Apr-03	< 0.10	93.2	93.8
E799	SOJ-BK-213	-	10-Apr-03	909	10-Apr-03	< 0.10	94.5	92.5
E800	SOJ-BK-214	-	10-Apr-03	927	10-Apr-03	< 0.10	92.3	95.2
E801	SOJ-BK-215	-	10-Apr-03	1002	10-Apr-03	< 0.10	90.2	93.7
E802	SOJ-BK-216	-	10-Apr-03	1005	10-Apr-03	< 0.10	96.8	103
E803	SOJ-BK-217	-	10-Apr-03	1122	10-Apr-03	< 0.10	94.9	102
E804	SOJ-BK-218	-	10-Apr-03	1123	10-Apr-03	< 0.10	89.9	91.8
E805	SOJ-BK-219	-	10-Apr-03	1125	10-Apr-03	< 0.10	94.9	104
E806	SOJ-BK-220	-	10-Apr-03	1142	10-Apr-03	< 0.10	96.5	102
E807	BK-Duplicate	-	10-Apr-03	-	10-Apr-03	< 0.10	92.5	103
E808	SOJ-BK-221	-	10-Apr-03	1210	10-Apr-03	< 0.10	98.2	107
E809	SOJ-BK-222	-	10-Apr-03	1212	10-Apr-03	< 0.10	95.9	106
E810	SOJ-BK-223	-	10-Apr-03	1237	10-Apr-03	< 0.10	94.0	94.2
E811	SOJ-BK-224	-	10-Apr-03	1331	10-Apr-03	< 0.10	99.0	106
E812	SOJ-BK-225	-	10-Apr-03	1333	10-Apr-03	< 0.10	96.7	107
E813	SOJ-BK-226	-	10-Apr-03	1335	10-Apr-03	< 0.10	97.7	106
E814	SOJ-BK-227	-	10-Apr-03	1413	10-Apr-03	< 0.10	98.1	106
E815	SOJ-BK-228	-	10-Apr-03	1414	10-Apr-03	< 0.10	97.6	107
E816	SOJ-BK-229	-	10-Apr-03	1416	10-Apr-03	< 0.10	98.8	109
E817	SOJ-BK-230	-	10-Apr-03	1456	10-Apr-03	< 0.10	92.8	94.6
E818	SOJ-BK-231	-	10-Apr-03	1457	10-Apr-03	< 0.10	90.6	106
E819	SOJ-BK-232	-	10-Apr-03	1458	10-Apr-03	< 0.10	96.0	108
E825	SOJ-BK-233	-	11-Apr-03	857	11-Apr-03	< 0.10	91.0	99.9
E826	SOJ-BK-234	-	11-Apr-03	858	11-Apr-03	< 0.10	92.5	100
E827	SOJ-BK-235	-	11-Apr-03	859	11-Apr-03	< 0.10	89.3	97.4
E828	SOJ-BK-236	-	11-Apr-03	900	11-Apr-03	< 0.10	96.8	98.3

Table 1
Kuhiman Electric
Crystal Springs, Mississippi
PCB Concentrations as Aroclor 1260 Detected

					Field Laboratory			
Field Lab Sample ID	Sample ID	Sample Depth	Date Collected	Time Collected	Date Analyzed	Concentration (mg/kg)	Surrogate TCMX(%)	Surrogate DCBP(%)
E829	SOJ-BK-237	-	11-Apr-03	930	11-Apr-03	< 0.10	92.7	101
E830	SOJ-BK-238	-	11-Apr-03	931	11-Apr-03	< 0.10	94.5	99.9
E831	SOJ-BK-239	-	11-Apr-03	932	11-Apr-03	< 0.10	92.7	99.1
E832	BK-Duplicate	-	11-Apr-03	-	11-Apr-03	< 0.10	89.7	102
E833	SOJ-BK-240	-	11-Apr-03	1015	11-Apr-03	< 0.10	87.6	90.0
E834	SOJ-BK-241	-	11-Apr-03	1016	11-Apr-03	< 0.10	91.9	98.5
E835	SOJ-BK-242	-	11-Apr-03	1017	11-Apr-03	< 0.10	94.9	94.7
E836	SOJ-BK-243	-	11-Apr-03	1018	11-Apr-03	< 0.10	91.4	97.9
E837	SOJ-BK-244	-	11-Apr-03	1137	11-Apr-03	< 0.10	96.4	91.8
E838	SOJ-BK-245	-	11-Apr-03	1141	11-Apr-03	< 0.10	90.7	115
E839	SOJ-BK-246	-	11-Apr-03	1142	11-Apr-03	< 0.10	95.8	99.6
E860	SOJ-BK-247	-	16-Apr-03	847	16-Apr-03	< 0.10	95.0	107
E861	SOJ-BK-248	-	16-Apr-03	901	16-Apr-03	< 0.10	93.4	93.8
E862	SOJ-BK-249	-	16-Apr-03	902	16-Apr-03	< 0.10	97.5	101
E863	SOJ-BK-250	-	16-Apr-03	924	16-Apr-03	< 0.10	91.0	106
E864	SOJ-BK-251	-	16-Apr-03	926	16-Apr-03	< 0.10	94.0	94.1
E865	SOJ-BK-252	-	16-Apr-03	947	16-Apr-03	< 0.10	92.6	103
E866	SOJ-BK-253	-	16-Apr-03	953	16-Apr-03	< 0.10	91.8	103
E867	SOJ-BK-254	-	16-Apr-03	1026	16-Apr-03	< 0.10	94.5	95.5
E868	SOJ-BK-255	-	16-Apr-03	1036	16-Apr-03	< 0.10	93.0	93.1
E869	SOJ-BK-256	-	16-Apr-03	1145	16-Apr-03	< 0.10	89.1	88.3
E870	SOJ-BK-257	-	16-Apr-03	1146	16-Apr-03	< 0.10	97.0	92.2
E871	SOJ-BK-258	-	16-Apr-03	1147	16-Apr-03	< 0.10	93.4	94.5
E872	SOJ-BK-259	-	16-Apr-03	1159	16-Apr-03	< 0.10	94.8	91.9
E873	SOJ-BK-260	-	16-Apr-03	1203	16-Apr-03	< 0.10	96.8	98.0
E874	SOJ-BK-261	-	16-Apr-03	1205	16-Apr-03	< 0.10	94.6	96.3
E875	SOJ-BK-262	-	16-Apr-03	1246	16-Apr-03	< 0.10	96.6	95.1
E876	SOJ-BK-263	-	16-Apr-03	1247	16-Apr-03	< 0.10	93.0	95.1
E877	BK-Duplicate	-	16-Apr-03	-	16-Apr-03	< 0.10	91.7	94.8
E886	SOJ-BK-264	-	21-Apr-03	1000	22-Apr-03	< 0.10	102	127
E887	SOJ-BK-265	-	21-Apr-03	1002	22-Apr-03	< 0.10	105	117
E888	SOJ-BK-266	-	21-Apr-03	1018	22-Apr-03	< 0.10	101	106
E889	SOJ-BK-267	-	21-Apr-03	1039	22-Apr-03	< 0.10	102	98.2
E890	SOJ-BK-268	-	21-Apr-03	1047	22-Apr-03	< 0.10	97.9	95.8
E891	SOJ-BK-269	-	21-Apr-03	1130	22-Apr-03	< 0.10	107	119
E892	SOJ-BK-270	-	21-Apr-03	1131	22-Apr-03	< 0.10	106	118
E893	SOJ-BK-271	-	21-Apr-03	1145	22-Apr-03	< 0.10	98.2	97.4
E894	SOJ-BK-272	-	21-Apr-03	1216	22-Apr-03	< 0.10	94.7	95.6
E895	SOJ-BK-273	-	21-Apr-03	1217	22-Apr-03	< 0.10	98.1	93.8
E896	SOJ-BK-274	-	21-Apr-03	1224	22-Apr-03	< 0.10	100	99.1
E897	BK-Duplicate	-	21-Apr-03	-	22-Apr-03	< 0.10	104	121
E898	SOJ-BK-275	-	22-Apr-03	820	22-Apr-03	< 0.10	96.4	122
E899	SOJ-BK-276	-	22-Apr-03	935	22-Apr-03	< 0.10	99.4	111
E900	SOJ-BK-277	-	22-Apr-03	937	22-Apr-03	< 0.10	97.6	99.7
E901	SOJ-BK-278	-	22-Apr-03	941	22-Apr-03	< 0.10	95.9	116
E902	BK-Duplicate	-	22-Apr-03	-	22-Apr-03	< 0.10	101	110

Table 1
Kuhlman Electric
Crystal Springs, Mississippi
PCB Concentrations as Aroclor 1260 Detected

					Field Laboratory			
Field Lab Sample ID	Sample ID	Sample Depth	Date Collected	Time Collected	Date Analyzed	Concentration (mg/kg)	Surrogate TCMX(%)	Surrogate DCBP(%)
E903	SOJ-BK-279	-	22-Apr-03	1019	22-Apr-03	< 0.10	97.5	108
E904	SOJ-BK-280	-	22-Apr-03	1022	22-Apr-03	< 0.10	96.6	110
E905	SOJ-BK-281	-	22-Apr-03	1140	22-Apr-03	< 0.10	103	115
E906	SOJ-BK-282	-	22-Apr-03	1141	22-Apr-03	< 0.10	102	97.5
E907	SOJ-BK-283	-	22-Apr-03	1142	22-Apr-03	< 0.10	98.5	98.1
E908	SOJ-BK-284	-	22-Apr-03	1145	22-Apr-03	< 0.10	97.2	110
E909	SOJ-BK-285	-	22-Apr-03	1222	22-Apr-03	< 0.10	102	114
E910	SOJ-BK-286	-	22-Apr-03	1300	22-Apr-03	< 0.10	99.1	107
E911	SOJ-BK-287	-	22-Apr-03	1301	22-Apr-03	< 0.10	99.9	108
E912	SOJ-BK-288	-	22-Apr-03	1302	22-Apr-03	< 0.10	105	110
E913	SOJ-BK-289	-	22-Apr-03	1447	22-Apr-03	< 0.10	102	112
E914	SOJ-BK-290	-	22-Apr-03	1448	22-Apr-03	< 0.10	99.7	114
E915	SOJ-BK-291	-	22-Apr-03	1449	22-Apr-03	< 0.10	98.1	106
E919	TOPSOIL-23	-	22-Apr-03	1100	22-Apr-03	< 0.10	108	89.9
E920	TOPSOIL-24	-	22-Apr-03	1302	22-Apr-03	< 0.10	100	105
E921	TOPSOIL-Dup	-	22-Apr-03	-	22-Apr-03	< 0.10	99.8	113
E922	TOPSOIL-25	-	23-Apr-03	1520	23-Apr-03	< 0.10	110	118
E923	TOPSOIL-26	-	23-Apr-03	1523	23-Apr-03	< 0.10	102	81.8
E924	TOPSOIL-Dup	-	23-Apr-03	-	23-Apr-03	< 0.10	101	105
E937	SOJ-BK-292	-	29-Apr-03	830	29-Apr-03	< 0.10	96.0	99.4
E938	SOJ-BK-293	-	29-Apr-03	835	29-Apr-03	< 0.10	98.6	99.9
E939	SOJ-BK-294	-	29-Apr-03	900	29-Apr-03	< 0.10	97.3	100
E940	SOJ-BK-295	-	29-Apr-03	905	29-Apr-03	< 0.10	99.5	101
E941	SOJ-BK-296	-	29-Apr-03	930	29-Apr-03	< 0.10	102	99.4
E942	SOJ-BK-297	-	29-Apr-03	935	29-Apr-03	< 0.10	97.6	94.6
E943	SOJ-BK-298	-	29-Apr-03	940	29-Apr-03	< 0.10	102	96.6
E944	BK-Duplicate	-	29-Apr-03	-	29-Apr-03	< 0.10	97.6	93.7
E945	SOJ-BK-299	-	29-Apr-03	1020	29-Apr-03	< 0.10	102	102
E946	SOJ-BK-300	-	29-Apr-03	1025	29-Apr-03	< 0.10	99.1	99.9
E947	SOJ-BK-301	-	29-Apr-03	1035	29-Apr-03	< 0.10	100	100
E948	SOJ-BK-302	-	29-Apr-03	1143	29-Apr-03	< 0.10	102	101
E949	SOJ-BK-303	-	29-Apr-03	1144	29-Apr-03	< 0.10	98.1	97.4
E950	SOJ-BK-304	-	29-Apr-03	1145	29-Apr-03	< 0.10	96.0	95.6
E951	SOJ-BK-305	-	29-Apr-03	1150	29-Apr-03	< 0.10	105	87.0
E952	SOJ-BK-306	-	29-Apr-03	1151	29-Apr-03	< 0.10	98.6	97.5
E953	SOJ-BK-307	-	29-Apr-03	1222	29-Apr-03	< 0.10	99.8	98.8
E954	SOJ-BK-308	-	29-Apr-03	1225	29-Apr-03	< 0.10	98.5	98.9
E955	SOJ-BK-309	-	29-Apr-03	1231	29-Apr-03	< 0.10	102	102
E956	SOJ-BK-310	-	29-Apr-03	1312	29-Apr-03	< 0.10	100	103
E957	SOJ-BK-311	-	29-Apr-03	1315	29-Apr-03	< 0.10	102	113
E958	SOJ-BK-312	-	29-Apr-03	1326	29-Apr-03	< 0.10	107	101
E959	SOJ-BK-313	-	29-Apr-03	1400	29-Apr-03	< 0.10	107	100
E960	SOJ-BK-314	-	29-Apr-03	1403	29-Apr-03	< 0.10	112	99.8
E961	SOJ-BK-315	-	29-Apr-03	1405	29-Apr-03	< 0.10	113	120
E962	SOJ-BK-316	-	29-Apr-03	1505	29-Apr-03	< 0.10	115	126
E966	SOJ-BK-317	-	30-Apr-03	825	30-Apr-03	< 0.10	92.4	98.2

Table 1
Kuhlman Electric
Crystal Springs, Mississippi
PCB Concentrations as Aroclor 1260 Detected

					Field Laboratory			
Field Lab Sample ID	Sample ID	Sample Depth	Date Collected	Time Collected	Date Analyzed	Concentration (mg/kg)	Surrogate TCMX(%)	Surrogate DCBP(%)
E967	SOJ-BK-318	-	30-Apr-03	855	30-Apr-03	< 0.10	92.0	96.6
E968	SOJ-BK-319	-	30-Apr-03	955	30-Apr-03	< 0.10	93.6	94.9
E969	SOJ-BK-320	-	30-Apr-03	956	30-Apr-03	< 0.10	92.1	91.9
E970	SOJ-BK-321	-	30-Apr-03	1000	30-Apr-03	< 0.10	102	103
E971	SOJ-BK-322	-	30-Apr-03	1002	30-Apr-03	< 0.10	92.1	92.8
E972	BK-Duplicate	-	30-Apr-03	-	30-Apr-03	< 0.10	94.1	96.4
E973	SOJ-BK-323	-	30-Apr-03	1039	30-Apr-03	< 0.10	96.8	102
E974	SOJ-BK-324	-	30-Apr-03	1041	30-Apr-03	< 0.10	98.2	101

Table 2
QC Samples - April

Table 2
QC Results

Lab # associated with qc samples: E717 through E720
Lab # associated with qc samples: E723, E725 through 728

Matrix				
Matrix	Spike	Duplicate	Blank	LCS
Spike	E718	E718		
E718			502	502

Date Analyzed: 3/31/03 3/31/03 3/31/03 3/31/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	100		117		-16%	< 0.10	106

Table 2
QC Results

Lab # associated with qc samples: E721 through E722, E724 and E729

Matrix	Matrix	Spike	Duplicate	Blank	LCS
	Spike E721		E721	503	503

Date Analyzed: 3/31/03 3/31/03 3/31/03 3/31/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	117		112		4%	< 0.10	103

Table 2
QC Results

Lab # associated with qc samples: E734 through E738, E740-E741
Lab # associated with qc samples: E743-E751 and E753-E756

Matrix	Matrix	Spike	Duplicate	Blank	LCS
Spike	E734	E734		504	504

Date Analyzed: 4/1/03 4/1/03 4/1/03 4/1/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	115		97.8		16%	< 0.10	107

Table 2
QC Results

Lab # associated with qc samples: E739, E742 and E752

Lab # associated with qc samples: E757 through E759

Matrix				Blank	LCS
Matrix	Spike	Duplicate			
E739	E739			505	505

Date Analyzed: 4/1/03 4/1/03 4/1/03 4/1/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	116		103		12%	< 0.10	106

Table 2
QC Results

Lab # associated with qc samples: E760-E765, E767-E770, E772, E774-E776, E779-E783

Matrix	Matrix	Blank	LCS
Matrix	Spike		
Spike	Duplicate		
E760	E760	506	506

Date Analyzed: 4/2/03 4/2/03 4/2/03 4/2/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	115		114		1%	< 0.10	121

Table 2
QC Results

Lab # associated with qc samples: E766, E771, E773, E777, E778 and E784

Matrix	Matrix	Spike	Duplicate	Blank	LCS
E766		E766		507	507

Date Analyzed: 4/2/03 4/2/03 4/2/03 4/2/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	104		126		-19%	< 0.10	102

Table 2
QC Results

Lab # associated with qc samples: E792

Matrix	Matrix	Spike	Duplicate	Blank	LCS
Spike	E792	E792		508	508

Date Analyzed: 4/3/03 4/3/03 4/3/03 4/3/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	108		110		-2%	< 0.10	116

Table 2
QC Results

Lab # associated with qc samples: E797 through E816

Matrix				Blank	LCS
Matrix	Spike	Duplicate			
Spike	E797	E797		509	509

Date Analyzed: 4/10/03 4/10/03 4/10/03 4/10/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	108		110		-2%	< 0.10	112

Table 2
QC Results

Lab # associated with qc samples: E817 through E819

Matrix	Matrix	Spike	Duplicate	Blank	LCS
Spike	E817	E817			
E817				510	510

Date Analyzed: 4/10/03 4/11/03 4/10/03 4/10/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	109		104		5%	< 0.10	105

Table 2
QC Results

Lab # associated with qc samples: E825 through E839

Matrix	Matrix	Spike	Duplicate	Blank	LCS
Spike	E825	E825		512	512

Date Analyzed: 4/12/03 4/12/03 4/11/03 4/11/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	97.4		93.3		4%	< 0.10	97.2

Table 2
QC Results

Lab # associated with qc samples: E860 through E877

Matrix	Matrix	Spike	Duplicate	Blank	LCS
E860		E860		518	518

Date Analyzed: 4/17/03 4/17/03 4/16/03 4/17/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	98.2		97.4		1%	< 0.10	97.1

Table 2
QC Results

Lab # associated with qc samples: E886 through E897

Matrix	Matrix	Spike	Duplicate	Blank	LCS
E883		E883		519	519

Date Analyzed: 4/22/03 4/22/03 4/22/03 4/22/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	107		115		-7%	< 0.10	118

Table 2
QC Results

Lab # associated with qc samples: E898 through E915

Matrix	Matrix	Spike	Duplicate	Blank	LCS
Spike	E900	E900		520	520

Date Analyzed: 4/22/03 4/22/03 4/22/03 4/22/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	109		105		4%	< 0.10	108

Table 2
QC Results

Lab # associated with qc samples: E919 through E921

Matrix	Matrix	Spike	Duplicate	Blank	LCS
Matrix	Spike	Duplicate			
E916	E916			521	521

Date Analyzed: 4/22/03 4/22/03 4/22/03 4/22/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	116		113		3%	< 0.10	114

Table 2
QC Results

Lab # associated with qc samples: E922 through E924

Matrix	Matrix	Spike	Duplicate	Blank	LCS
Spike	E923	E923		522	522

Date Analyzed: 4/23/03 4/23/03 4/23/03 4/23/03 4/23/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	106		114		-7%	< 0.10	110

Table 2
QC Results

Lab # associated with qc samples: E937 through E956

Matrix	Matrix	Spike	Duplicate	Blank	LCS
Spike	E940	E940		524	524

Date Analyzed: 4/29/03 4/29/03 4/29/03 4/29/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	91.6		90.3		1%	< 0.10	94.0

Table 2
QC Results

Lab # associated with qc samples: E957 through E962

Matrix	Matrix	Spike	Duplicate	Blank	LCS
Spike	E958	E958		525	525

Date Analyzed: 4/29/03 4/29/03 4/29/03 4/29/03 4/29/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	86.8		95.6		-10%	< 0.10	95.1

Table 2
QC Results

Lab # associated with qc samples: E966 through E974

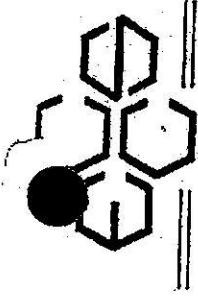
Matrix	Matrix	Spike	Duplicate	Blank	LCS
Spike	E970	E970		526	526

Date Analyzed: 4/30/03 4/30/03 4/30/03 4/30/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	95.7		98.5		-3%	< 0.10	97.4

Appendix A

Chain of Custody Sheets for mobile lab PCB analysis Excavation Backfill Samples



**Environmental Chemistry
Consulting Services, Inc.**
2525 Adverse Road
Madison, WI 53718
Phone 608-221-8700 FAX 608-221-4889

Excavation Backfill

CHAIN OF CUSTODY

Project Number: **KU16703**

Address: **1015 S. 61st Street**

Phone 608-221-8700

FAX 608-221-4889

Turn Around (circle one) Normal Rush
Report Due:

Project Name: **KU16703 B6C7K**

Company: **WANTON STACE**

Address:

Invoice To:

Company:

Address:

Project Location: **1015 S. 61st Street**

Address:

Sampled By (Print): **C Fluor PEE**

P.O. No.: **1083**

Quote No.: **1083**

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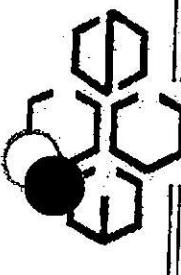
Comments:

Laboratory Number:

Analysis Requested:

P.O. No.: **1083**

Quote No.: **1083</b**



**Environmental Chemistry
Consulting Services, Inc.**
2825 Advance Road
Madison, WI 53718
Phone 608-221-3700 FAX 608-221-4889

CHAIN OF CUSTODY
02 Apr 03

No. 005297 *

Page 1 of 2

Project Number:	Mail Report To:	Turn Around (circle one)	Normal	Rush				
Project Name: <i>Kutherford Electric</i>	Company: <i>MARTIN SCALE CO.</i>	Report Due:						
Project Location: <i>Cheyenne SPRINGS</i>	Address:	Invoice To:						
Sampled By (Print): <i>check heel</i>		Comments:						
Sample Description	Collection Date	Time	Matrix	Total Bottles Present	Analysis Requested	P.O. No.:	Quote No.:	Laboratory Number
SOT-BK-193	02/02/03	0921	S	1	IA	PCB	E760	
194		0922					E761	
195		0924					E762	
196		0925					E763	
197		0926					E764	
BK Duplicate		—					E765	
SOT-BK-198		0936					E767	
199		0937					E768	
200		1025					E769	
201		1027					E770	
202		1040					E772	
203		1110					E774	
*Preservation Code	Relinquished By:	Date/Time:	Received By:	Date/Time:				
A=None B=HCl C=H ₂ SO ₄	<i>Chris</i>	<i>4/2/03</i>	<i>John</i>	<i>4/2/03</i>				
D=HNO ₃ E=Ecore F=Methanol								
G=NaOH O=Other(Indicate)								
Custody Seal: Present/Absent	Present/Not intact	Seal #'s						
Shipped Via:								
Temp: Blank Y N								
Receipt Temp:								

WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER/SUBMITTER

Excavation BACKFILE



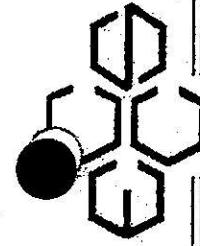
**Environmental Chemistry
Consulting Services, Inc.**

2825 Advance Road
Madison, WI 53718
Phone 608-221-8700 FAX 608-221-4889

CHAIN OF CUSTODY
11/12/03

No. 005308 *

		Page <u>1</u> of <u>2</u>		Turn Around (circle one) Normal Rush	
				Report Due:	
Project Number:	Mail Report To:	Company:	Address:	P.O. No.:	Quote No.:
Project Name: <i>Kuttlund Electric</i>	Company: <i>MATRIX + SOURCE</i>				Laboratory Number:
Project Location: <i>CRYSTAL SPRINGS</i>	Address:				
Sampled By (Print): <i>Chuck Piel</i>					
Collection Date	Total Bottles	Matrix	Preserv*	Analysis Requested	Comments
SO35-BK-233 11/03	1	S	H/A	PCB's	E825
234	1				E826
235	1				E827
236	1				E828
237	1				E829
238	1				E830
239	1				E831
SO35-BK-DUP	1				E832
SO35-BK-240	1				E833
241	1				E834
242	1				E835
243	1				E836
*Preservation Code	Received By:	Date/Time:	Received By:	Date/Time:	Date/Time:
A=None B=HCL C=H ₂ SO4	<i>John</i>	<i>11/13 10:00</i>	<i>John</i>	<i>11/13 10:00</i>	<i>11/13 05:00</i>
D=HNO3 E=EnCore F=Methanol					<i>11/13 12:00</i>
G=NaOH H=Other (Indicate)					Date/Time:
Custody Seal: Present/Absent	Seal #s:	Interact/Not Interact			
Shipped Via:			Temp Blank Y N	Receipt Temp:	
WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER/SUBMITTER					



**Environmental Chemistry
Consulting Services, Inc.**

26325 Advance Road Phone 608-221-8700
Madison, WI 53718 FAX 608-221-4889

CHAIN OF CUSTODY
64603

No. 005317
Page 2 of 2

Consulting Services, Inc.					
Project Number:		164603			
Project Name:		KUHLMAN ELECTRIC			
Project Location:		CRYSTAL SPRINGS			
Sampled By (Print):		Chuck Ross			
Mail Report To:					
Company:		MARTIN SLAB CO			
Address:					
Phone 608-221-8700		FAX 608-221-4889			
Madison, WI 53718					
Turn Around (circle one):		Normal			
Report Due:		Rush			
Page <u>2</u> of <u>2</u>		Quote No.:		Laboratory Number	
Invoice To:		P.O. No.:			
Company:		Comments			
Address:					
Sample Description		Collection		Analysis	
		Date	Time	Bottles	Preserv*
SOJ-BK-259		16-Nov	1159	5	1 MA PCB ⁵
260		1203			
261		1205			
262		1246			
263		1247			
SOJ-BK-DVP		—			
*Preservation Code		Relinquished By:		Received By:	
A=None B=HCl C=H ₂ SO ₄		<i>Mark J. D.</i>		<i>✓</i>	
D=HNO ₃ E=EnCore F=Methanol					
G=NaOH O=Other (Indicate)					
Custody Seal: Present/Absent		Intact/Not Intact		Seal #s	
Shipped Via:				Receipt Temp:	
				Temp Blank Y N	
				Date/Time: <i>16 Apr 3 300</i>	
				Date/Time: <i>16 Apr 3 300</i>	
				Date/Time: <i>16 Apr 3 300</i>	



**Environmental Chemistry
Consulting Services, Inc.**

2225 Adelaine Road
Madison, WI 53718
Phone 608-221-8700 FAX 608-221-4889

Environmental Chemistry
CHAIN OF CUSTODY

214003

No. 005320 *

Project Number:	Mail Report To:	Turn Around (circle one)	Normal	Rush
Project Name:	Company:	Report Due:		
Project Location:	Address:			
Sampled By (Print):	Quoted By:	P.O. No.:	Quote No.:	Laboratory Number
		Collection Date	Total Bottles	Analysis Requested
		Time	Matrix	
205-8K-264	2/14/03	1000	S	1 At PCK,
-265	1002	1		
-266	1018			
-267	1039			
-268	1043			
-269	1130			
-270	1131			
-271	1135			
-272	1216			
-273	1217			
-274	1224			
BK - Duplicate				
*Preservation Code	Reinquished By:	Date/Time:	Received By:	Date/Time:
A=None B=HCl C=H ₂ SO ₄	Jane	1/21/03 1804	Jeff Shabot	2/14/03 2104
D=HNO ₃ E=Et ₂ Core F=Methanol				
G=NaOH O=Other(indicate)				
Custody Seal: Present/Absent	Intact/Not Intact	Seal #s:		Date/Time:
Shipped Via:				
WHITE - REPORT COPY				
YELLOW - LABORATORY COPY				
PINK - SAMPLER/SUBMITTER				
Temp: Blank	Y	N	Temp: Blank	Y



**Environmental Chemistry
Consulting Services, Inc.**

2825 Advance Road
Madison, WI 53718
Phone 608-221-8700 FAX 608-221-4889

Project Number:

Project Name: **KULLMAN CUSTODY**

Project Location: **CRYSTAL SPRINGS**

Sampled By (Print): **CHUCK PEEC**

Mail Report To:

Company: **MAC THERM STATE**

Address:

Invoiced To:

Company:

Address:

Turn Around (circle one) Normal Rush Report Due:

Page 1 of 2

No. **005321 ***

Page 1 of 2

Sample Description	Collection Date	Time	Matrix	Total Bottles	Preserv	Analysis Requested	P.O. No.:	Quote No.:	Laboratory Number
SOT-BK-275	22/10/03	0820	S	1	WT	PoE		E999	
-276		0935		1				E900	
-277		0937						E901	
↓ -278		0941						E902	
↓ -279								E903	
Duplicate								E904	
SOT-BK-279		1019						E905	
-280		1022						E906	
-281		1140						E907	
-282		1141						E908	
-283		1142						E909	
-284		1145						E910	
-285		1222							
Reinquished By:							Date/Time:		Received By:
<i>Chuck PEEC</i>							<i>Jeff Pfeifer</i>		
Reinquished By:							Date/Time:		Received By:
<i>Chuck PEEC</i>							<i>Jeff Pfeifer</i>		
Custody Seal: Present/Absent	Intact/Not Intact	Seal #s							
Shipped Via:									
Report Temp:									
Temp Blank Y N									
WHITE - REPORT COPY	YELLOW - LABORATORY COPY	PINK - SAMPLER/SUBMITTER							

*Preservation Code

A=None B=HCl C=H₂SO₄

D=HNO₃ E=EnCore F=Methanol

G=NaOH O=Other(Indicate)

Custody Seal: Present/Absent

Intact/Not Intact

Seal #s

Date/Time:

22/10/03 13:05

Received By:

Jeff Pfeifer

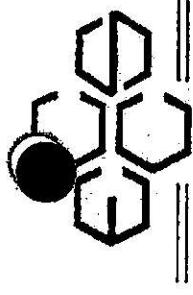
Date/Time:

22/10/03 13:05

Date/Time:

Received By:

WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER/SUBMITTER



**Environmental Chemistry
Consulting Services, Inc.**

2255 Advance Road
Madison, WI 53718
Phone 608-221-8700 FAX 608-221-4889

Project Number:
Project Name:
Project Location:
Sampled By (Print):

KUHLMAN ELECTRICAL
CRYSTAL SPRINGS

Chuck Peck

Sample Description	Collection Date	Total Time	Matrix	Bottles	Present*	Analysis Requested	P.O. No.:	Quote No.:	Comments	Laboratory Number
SDJ - 84 - 286	22APR03	1300	S	1	NH	PCB1				E 910
- 287		1301								E 911
- 288		1302								E 912
- 289		1447								E 913
- 290		1448								E 914
- 291		1449								E 915

*Preservation Code	Relinquished By	Date/Time:	Received By	Date/Time:
A=None B=HCl C=H ₂ SO ₄	J. Peck	4/22/03 1822	J. Peck	4/22/03 1822
D=HNO ₃ E=EnvCore F=Methanol				
G=NaOH H=Other (Indicate)				
Custody Seal: Present/Absent	Intact/Not Intact	Seal #'s	Temp Blank: Y N	Date/Time:
Shipped Via:				

WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER/SUBMITTER

No. 005322 *

Page 2 of 2

Turn Around (circle one) Normal Rush

Report Due:

Invoice To:

Company:

Address:

Mail Report To:

Comments:

P.O. No.:

Quote No.:

Turn Around (circle one) Normal Rush

Report Due:

Invoice To:

Company:

Address:

Mail Report To:

Comments:

P.O. No.:

Quote No.:

Turn Around (circle one) Normal Rush

Report Due:

Invoice To:

Company:

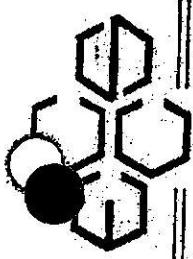
Address:

Mail Report To:

Comments:

P.O. No.:

Quote No.:



**Environmental Chemistry
Consulting Services, Inc.**

2525 Adams Road
Madison, WI 53718

FAX 608-221-4889

Phone 608-221-4700

Project Number: **29403** Page **1** of **1**
Turn Around (circle one) Normal Rush

Report Due:

Invoice To:

Mail Report To:

Company:

Address:

Project Name: **AUSTRALIAN CRYSTAL GLASS**
Project Location: **CRYSTAL GLASS**
Sampled By (Print): **Chuck Price**

Project Number: **29403**

Project Location: **CRYSTAL GLASS**

Sampled By (Print): **Chuck Price**

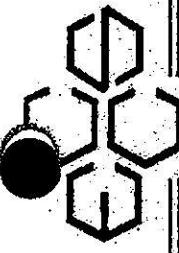
Sample Description	Collection		Matrix	Total Bottles	Preserv*	Analysis Requested	Comments	P.O. No.:	Quate No.:	Laboratory Number
	Date	Time								
SOT-BK-292	29403	0830	S	1	W	pres.		E937		
-293		0935						E938		
-294		0900						E939		
-295		0905						E940		
-296		0930						E941		
-297		0935						E942		
-298		0940						E943		
BK-Dif. licor								E944		
SOT-BK-299		1010						E945		
-300		1015						E946		
-301		1035						E947		
-302		1143						E948		
•Preservation Code	Reinstituted By:		Received By:		Date/Time:		Date/Time:		Date/Time:	
	<i>John Price</i>		<i>John Price</i>		11/26/03 10:55		11/26/03 10:55		11/26/03 10:55	
A=None B=HCl C=H ₂ SO ₄	D=HNO ₃ E=EnCore F=Methanol		G=NaOH O=Other(indicate)		Reinstituted By:		Received By:		Received By:	
Custody Seal: Present/Absent	Intact/Not Intact		Seal #'s		Temp/Temp		Temp/Blank		Temp/Blank	
Shipped Via:										

A=None B=HCl C=H₂SO₄
D=HNO₃ E=EnCore F=Methanol
G=NaOH O=Other(indicate)

Custody Seal: Present/Absent
Shipped Via:

WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER SUBMITTER

Date/Time: **11/26/03 10:55**
Date/Time: **11/26/03 10:55**
Date/Time: **11/26/03 10:55**
Date/Time: **11/26/03 10:55**



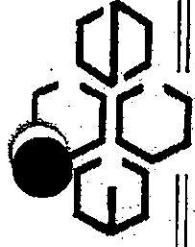
**Environmental Chemistry
Consulting Services, Inc.**

2825 Advance Road
Madison, WI 53718
Phone 608-221-8700 FAX 608-221-4889

**Excavation Breakoff 11
CHAIN OF CUSTODY**

294403

Project Number:	Project Name: KYU-MAN CRYSTAL SPK 12-6						Mail Report To:	Invoice To:	
Project Location:	Address:						Company:	Address:	
Sampled By (Print):							P.O. No.:	Quote No.:	Laboratory Number:
	Collection Date	Time	Matrix	Total Bottles	Present	Analysis Requested	Comments		
SOT-BK-315	294403	1105	S	1	NA	PbS		E961	
SOT-BK-316	294403	1505	S	1	NA	PbS		E962	
<i>[Large handwritten signature over the sample table]</i>									
•Preservation Code		Ret�eived By:		Date/Time:		Received By:		Date/Time:	
A=None	B=HCl	C=H ₂ SO ₄	D=HNO ₃	E=EnCore	F=Methanol	G=NaOH	H=Other(indicate)	I=Absent	J=Not In tact
Custody Seal:		Present		Seal #s:		Temp Blank Y N		Receipt Temp:	
Shipped Via:		Yellow - LABORATORY COPY		Pink - SAMPLER SUBMITTER					



**Environmental Chemistry
Consulting Services, Inc.**

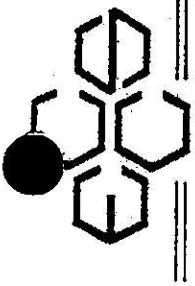
2225 Advance Road
Phone 608-221-8700 FAX 608-221-4839
Madison, WI 53718

Excavation Backfill
CHAIN OF CUSTODY
301103

Project Number:		Mail Report To:		Invoice To:		P.O. No.:		Quote No.:		Laboratory Number:	
Project Name:	Kuttemann Electric	Company:	MATRIX + SCACCS	Comments:			<th></th> <td> <th></th> <th></th> </td>		<th></th> <th></th>		
Project Location:	CIVIC SPKES	Address:			<th></th> <th></th> <th></th> <th></th> <th></th> <th></th>						
Sampled By (Print):	Chuck Paul										
Sample Description	Collection Date	Time	Matrix	Total Bottles	Present*	Analysis Requested					
SOJ-BK-312	30/03/03	0955	S	1	NA	PbS					E966
-316		0955									E967
-319		0955									E968
-320		0956									E969
-321		1000									E970
-322		1002									E971
BK-Duplicate		-									E972
SOJ-BK-323		1033									E973
SOJ-BK-324		1041									E974
*Preservation Code											
A=None		B=HCl		C=H ₂ SO ₄		D=HNO ₃		E=EnCore		F=Methanol	
G=NaOH		H=Other(Indicate)									
Custody Seal:		Present/Absent		Intact/Not Intact		Seal #'s					
Shipped Via:											
Date/Time: Received By: Date/Time: Received By: Date/Time:											
4/30/03		16:00		16:00		16:00		16:00		16:00	
Temp Blank Y N											
WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER/SUBMITTER											

Appendix B

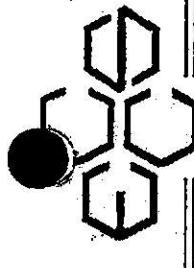
Chain of Custody Sheets for mobile lab PCB analysis Excavation Topsoil Samples



**Environmental Chemistry
Consulting Services, Inc.**
2825 Advance Road
Madison, WI 53718
Phone 608-221-8700 FAX 608-221-4889

No. 005290 *

Project Number:	Mail Report To:				Page <u>1</u> of <u>1</u>	Turn Around (circle one)	Normal	Rush	
Project Name: <i>Kuhns Electric</i>	Company: <i>MKT, NJ + SMC</i>				Report Due:				
Project Location: <i>C&T TOWER SPINNER</i>	Address:				Invoice To:				
Sampled By (Print):					P.O. No.:	Quote No.:			
Sample Description	Collection		Total Bottles	Preserv*	Analysis Requested		Comments		Laboratory Number
	Date	Time	Matrix						
T05014 - 09	3/14/03	1159	S	1	uA	neb1			E721
-10		1200							E722
-11		1250							E724
-12		1532							E729
<i>[Handwritten notes and signatures follow, including a large circle around "3/14/03 1735" and a signature over "Kuhns Electric".]</i>									
*Preservation Code	Retruequstioned By: <i>Chris L. Paul</i>		Received By: <i>Daryl J. Gammie</i>		Date/Time: <i>3/14/03 1735</i>		Date/Time: <i>3/14/03 1735</i>		
A=None B=HCl C=H ₂ SO ₄									
D=HNO ₃ E=EnCore F=Methanol									
G=NaOH O=Other(indicate)									
Custody Seal: Present/Absent		Intact/Not Intact		Seal #'s		Temp/Blank		Temp/N	
Shipped Via:									
WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER/SUBMITTER									



*Environmental Chemistry
Consulting Services, Inc.*
2825 Advances Road
Madison, WI 53718
Phone 608-221-8700 FAX 608-221-4889

No. 005298 *

Page / of /
Turn Around (circle one) Normal Rush
Report Due:

Mail Report To:

Company:

Address:

Invoice To:

Company:

Address:

P.O. No.: Quote No.:

Laboratory Number:

Comments:

Analysis Requested:

Preserv:

Bottles:

Matrix:

Total:

Collection Date:

Time:

Sample Description:

02/11/03 0929

S

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Presv:

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Project Number:

Project Name: *Kultimo Electric*
Project Location: *C.R.M.C. Services*

Sampled By (Print): *Check Peel*

Sample Description: *Check Peel*

Collection Date: *02/11/03*

Time: *0929*

Matrix: *S*

Preserv: *NA*

Bottles: *1*

Total: *1*

Analysis Requested:

Comments:

Preserv:

1

1

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1

*Preservation Code

Retainested By:

A=None

B=HCl

C=H₂SO₄

D=HNO₃

E=EnCore

F=Methanol

G=NaOH

O=Other(indicate)

Custody Seal: Present/Absent

Intact/Not Intact

Seal #'s

Shipped Via:

Date/Time:

Received By:

02/11/03 1715

Joseph Marshall

Retainested By:

Date/Time:

02/11/03

Received By:

Tempt Blank Y N

Date/Time:

Temp Blank Y N

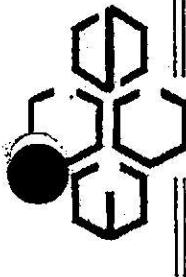
Date/Time:

Temp Blank Y N

Date/Time:

Temp Blank Y N

WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER/SUBMITTER



Evaluation
CHAIN OF CUSTODY
Consulting Services, Inc.
2825 Adverse Road
Madison, WI 53718

Phone 608-221-8700 FAX 608-221-4889

No. 005325 *

Page 1 of 1

Turn Around (Circle One) Normal Rush

Report Due:

Invoice To:

Company: **KUHLMAN ELECTRIC**

Address:

Project Number: **23AP03**

Mail Report To:

P.O. No.: **100271132A62**

Quote No.:

Laboratory Number:

E922

E923

E924

Project Name: **KUHLMAN ELECTRIC**

Project Location: **CRYSTAL SPRINGS**

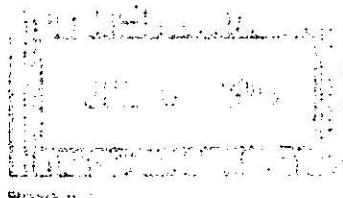
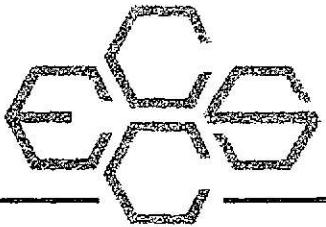
Sampled By (Print): **Chuck K 8662**

Sample Description	Collection		Matrix	Total Bottles	Present	Analyst Requested	Commitments	P.O. No.:	Quote No.:	Laboratory Number:
	Date	Time								
TDS016 - 25	23AP03	1520	S	1	W	pls				E922
TDS016 - 26		1523		1						E923
TDS016 Duplicate		-		1						E924

✓

•Preservation Code: A=None B=HCl C=H ₂ SO ₄ D=HNO ₃ E=EnCore F=Methanol G=NaOH O=Other(Indicate)	Reinquished By: <i>Chuck K</i>	Date/Time: <i>10/23/03 16:15</i>	Received By: <i>J. P. Shabek</i>	Date/Time: <i>10/23/03 16:15</i>						
Custody Seal: Present/Absent	Seal #s	Intact/Not Intact	Intact/Not Intact	Seal #s						

Shipped Via: Temp Blank Y N
White - REPORT COPY Yellow - LABORATORY COPY Pink - SAMPLER SUBMITTER



June 24, 2003

Robert Martin
Martin & Slagle, LLC
P.O. Box 1023
Black Mountain, NC 28711

Dear Mr. Martin,

Enclosed is the Technical Memorandum for work completed at the former Borg Warner and current Kuhlman Electric facility in Crystal Springs, Mississippi during the month of May. If you have any questions concerning this information, please give me a call.

Sincerely,

Kari-Ann Killeen
jor Richard Johnson

Enclosure

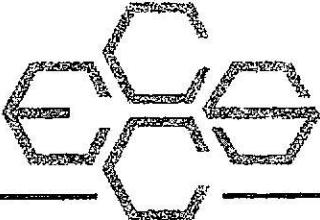
Environmental Chemistry Consulting Services, Inc.

2525 Advance Road • Madison, WI 53718 • Phone (608) 221-8700 • FAX (608) 221-4889

Technical Memorandum

Borg Warner / Kuhlman Electric

Crystal Springs, Mississippi



TECHNICAL MEMORANDUM

June 24, 2003

To: Robert Martin
Martin Slagle Inc.

From: Richard Johnson *Kak*
ECCS, Inc.

Re: Field Analytical Methods – QC Summary
Borg Warner – Kuhlman Electric Facility
Crystal Springs, Mississippi

INTRODUCTION

This Technical Memorandum provides documentation of the field analytical test methods used to analyze soil samples collected from backfill areas during May 2003 an accelerated site investigation episode around the former Borg Warner and current Kuhlman Electric facility in Crystal Springs, Mississippi. Soil samples were analyzed for polychlorinated biphenyls (PCBs) and chlorinated benzenes by gas chromatography (GC) in accordance with ECCS's Polychlorinated Biphenyl (PCB) Mini Extraction Screening Procedure. A summary of test results is provided in Table 1. A summary of method blanks, laboratory control samples and matrix spike/matrix spike duplicate data is provided in Table 2.

In addition copies of the chain of custody sheets can be found in appendix A and B.

A) Chain of custody sheets Excavation Backfill

The PCB mini-extraction procedure is based on the existing EPA SW846 methods 8082/8141. The procedure incorporates all the quality control rigors of the full 8082/8141 methods including quantification based on 6-point calibration with continuing calibration verification, surrogate method performance monitoring, method blanks, laboratory control samples (LCS), and matrix spike/matrix spike (MS/MSD) duplicate samples. As such, you should consider these test results as comparable to what you would get from a fixed-based laboratory using the more-widely accepted extraction procedure.

The primary project objective of the sampling and testing episode was to delineate the PCB contamination at and around the site using the accelerated site characterization approach. The mobile laboratory was required to provide data as quickly as possible to keep the accelerated site investigation process on track while trying to maintain a goal of level three data quality.

CASE NARRATIVE

During the episode, all samples collected were analyzed. To maintain rapid turnaround and to meet the project objective, three GCs were operated on a nearly continuous basis.

Quality control including proper calibration, continuing calibration verification, surrogates, method blanks, laboratory control samples and matrix spike/matrix spike duplicate samples was performed at the method-specified intervals. Overall quality of the data is very good. The following quality related issues should be noted:

1. All surrogate recoveries were within acceptable ranges.
2. All LCS recoveries were within acceptable ranges. See Table 2.
3. All MS/MSD recoveries were within acceptable ranges. Percent repeatability was also within acceptable ranges. See Table 2.

METHOD SUMMARY

This method employs a mini-extraction procedure and gas chromatography analysis for the detection of PCBs and chlorinated benzenes. Reporting limits are provided in the results Tables. Four grams of sample are dried with anhydrous sodium sulfate and extracted with eight mLs of 80/20 iso-octane/acetone. The extract is then analyzed by Gas Chromatography-Electron Capture Detector (GC-ECD).

Procedure

1. Standards Preparation - Primary standards are prepared from a solution purchased from various vendors at Certified concentrations. Stock standards are prepared in suitable solvents and stored in a freezer when not in use. Secondary standards are prepared in 80/20 iso-octane/acetone and stored in a freezer when not in use. Standard curve mixes for this project was prepared at six concentrations: PCBs – 0.05, 0.10, 0.20, 0.50, 1.0 and 2.0 ug/m; chlorinated benzenes – 0.005, 0.01, 0.02, 0.05, 0.10 and 0.20 ug/ml.
2. Sample Preparation - SOILS: Each sample or quality control sample is prepared in identical fashion. Approximately four grams of silica sand (blanks and control spikes) or sample is transferred into a clean scintillation vial. Ten grams of anhydrous sodium sulfate are added to the vial and mixed well. Extra sodium sulfate is added when necessary to assure the sample is dried. A surrogate, spike compound mix (if necessary) and eight mLs of 80/20 iso-octane/acetone are added to the vial. The vial is shaken for 30 seconds, allowed to settle for 2 minutes, shaken again for 30 seconds, and allowed to settle for 10 minutes. An aliquot of the extract is transferred to an autosampler vial for injection into the GC-ECD.
3. GC-ECD Analysis - A sample aliquot is injected into an HP5890 GC with an ECD equipped with an HP ChemStation for data processing. PCBs were identified by matching retention times of standards to the same retention time in the sample. Regression analysis was performed on each of the selected peak's height versus concentration of the standard using a LN/LN transformed linear regression. For PCBs nine peaks were selected for quantification. The ug/mL value for each peak was added together and divided by the number of peaks selected to obtain the total PCB ug/mL result. If interference occurred at any of the peaks, these peaks were not included in the total, and the divisor was reduced accordingly.
4. Quality Control - Quality control consisted of the following items:
 - Continuing calibration standards analyzed every ten samples or less and at the end of a run.
 - Blank and LCS samples analyzed every twenty sample or less with a minimum of one per day.
 - MS/MSD samples analyzed every twenty samples or less with a minimum of one per day.
 - Information is documented in logbook 45 and May run sheets.
4. Instrument Conditions - Two HP5890 gas chromatographs were equipped with RTX-35 capillary columns. Each system had a Leap Technologies A200S auto-sampler and an HP ChemStation for data handling.

Table 1
Sample Results – May

Table 1
Kuhlman Electric
Crystal Springs, Mississippi
PCB Concentrations as Aroclor 1260 Detected

					Field Laboratory			
Field Lab Sample ID	Sample ID	Sample Depth	Date Collected	Time Collected	Date Analyzed	Concentration (mg/kg)	Surrogate TCMX(%)	Surrogate DCBP(%)
E981	SOJ-BK-325	-	5-May-03	920	5-May-03	< 0.10	93.2	113
E982	SOJ-BK-326	-	5-May-03	922	5-May-03	< 0.10	95.6	95.8
E983	SOJ-BK-327	-	5-May-03	923	5-May-03	< 0.10	96.1	98.7
E984	SOJ-BK-328	-	5-May-03	928	5-May-03	< 0.10	96.4	111
E985	SOJ-BK-329	-	5-May-03	952	5-May-03	< 0.10	94.4	98.0
E986	BK-Duplicate	-	5-May-03	-	5-May-03	< 0.10	97.7	113
E987	SOJ-BK-330	-	5-May-03	1030	5-May-03	< 0.10	104	120
E988	SOJ-BK-331	-	5-May-03	1031	5-May-03	< 0.10	98.4	113
E989	SOJ-BK-332	-	5-May-03	1035	5-May-03	< 0.10	98.3	106
E990	SOJ-BK-333	-	5-May-03	1230	5-May-03	< 0.10	95.6	97.4
E991	SOJ-BK-334	-	5-May-03	1231	5-May-03	< 0.10	103	103
E992	SOJ-BK-335	-	5-May-03	1232	5-May-03	< 0.10	96.3	104
E1005	SOJ-BK-336	-	28-May-03	915	28-May-03	< 0.10	98.1	105
E1006	SOJ-BK-337	-	28-May-03	1000	28-May-03	< 0.10	100	106
E1007	SOJ-BK-338	-	28-May-03	1002	28-May-03	< 0.10	102	108
E1008	BK-Duplicate	-	28-May-03	-	28-May-03	< 0.10	100	103
E1009	SOJ-BK-339	-	28-May-03	1220	28-May-03	< 0.10	104	99.9
E1010	SOJ-BK-340	-	28-May-03	1222	28-May-03	< 0.10	99.0	79.8
E1011	SOJ-BK-341	-	28-May-03	1223	28-May-03	< 0.10	98.5	104

Table 2
QC Samples - May

Table 2
QC Results

Lab # associated with qc samples: E981 through E992

Matrix	Matrix	Blank	LCS
Spike	Duplicate		
E981	E981	528	528

Date Analyzed: 5/5/03 5/5/03 5/5/03 5/5/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	99.0		95.3		4%	< 0.10	99.6

Table 2
QC Results

Lab # associated with qc samples: E1005 through E1011

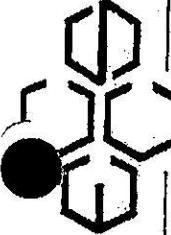
Matrix	Matrix	Matrix	Blank	LCS
Spike	Spike	Duplicate		
E1005		E1005	536	536

Date Analyzed: 5/28/03 5/28/03 5/28/03 5/28/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	93.7		86.4		8%	< 0.10	88.5

Appendix A

Chain of Custody Sheets for mobile lab PCB analysis Excavation Backfill Samples



**Environmental Chemistry
Consulting Services, Inc.**

2525 Advance Road

Madison, WI 53718

Phone 608-221-8700

FAX 608-221-4888

CHAIN OF CUSTODY

05 MAY 03

No. 005473 / *

Page 1 of 1

Turn Around (circle one): Normal Rush

Report Due:

Invoice To:

Company:

MARTIN SCAGGS

Address:

I.R.O. No.: Quote No.:

Sample Description	Collection Date	Time	Matrix	Total Bottles	Present	Analysis Requested	Commitments	Laboratory Number
S03-BK-325	03/03/03	0910	S	1	NA	PCB 2		E981
326		0922						E982
327		0913						E983
328		0918						E984
329		0952						E985
Duplicate		-						E986
BK-330		1020						E987
331		1031						E988
-332		1035						E989
-333		1230						E990
-334		1231						E991
-335		1232						E992

*Preservation Code

Relinquished By:

Date/Time:

Received By:

Date/Time:

A=None B=HCl C=H₂SO₄

D=HNO₃ E=EnCore F=Methanol

G=NaOH G=Other (Indicate)

Custody Seal: Present/Absent

Seal #s

Intact/Not Intact

Shipped Via:

Date/Time:

Received By:

Date/Time:

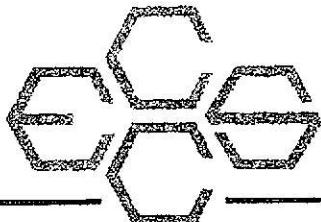
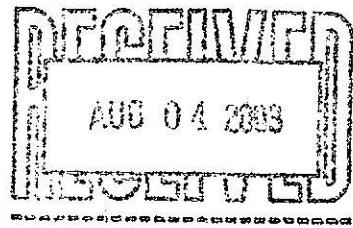
WHITE - REPORT COPY

YELLOW - LABORATORY COPY

RINK - SAMPLER SUBMITTER

Receipt Temp:

Temp Blank Y N



July 30, 2003

Robert Martin
Martin & Slagle, LLC
P.O. Box 1023
Black Mountain, NC 28711

Dear Mr. Martin,

Enclosed is the Technical Memorandum for work completed at the former Borg Warner and current Kuhlman Electric facility in Crystal Springs, Mississippi during the month of June. If you have any questions concerning this information, please give me a call.

Sincerely,

Karen Ann Johnson
for
Richard Johnson

Enclosure

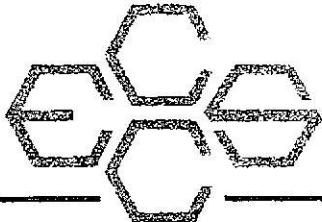
Environmental Chemistry Consulting Services, Inc.

2525 Advance Road • Madison, WI 53718 • Phone (608) 221-8700 • FAX (608) 221-4889

Technical Memorandum

Borg Warner / Kuhlman Electric

Crystal Springs, Mississippi



TECHNICAL MEMORANDUM

July 30, 2003

To: Robert Martin
Martin Slagle Inc.

From: Richard Johnson *RJL*
ECCS, Inc. *YR*

Re: Field Analytical Methods – QC Summary
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Crystal Springs, Mississippi

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 - MS/MSD samples analyzed every twenty samples or less with a minimum of one per day.
 - Information is documented in logbook 45 and June run sheets.
4. Instrument Conditions - Two HP5890 gas chromatographs were equipped with RTX-35 capillary columns. Each system had a Leap Technologies A200S auto-sampler and an HP ChemStation for data handling.

Table 1
Sample Results – June

Table 1
Kuhlman Electric
Crystal Springs, Mississippi
PCB Concentrations as Aroclor 1260 Detected

					Field Laboratory			
Field Lab Sample ID	Sample ID	Sample Depth	Date Collected	Time Collected	Date Analyzed	Concentration (mg/kg)	Surrogate TCMX(%)	Surrogate DCBP(%)
E1012	SOJ-BK-342		2-Jun-03	1130	2-Jun-03	< 0.10	108	119
E1013	BK-Duplicate		2-Jun-03	-	2-Jun-03	< 0.10	106	121
E1014	SOJ-BK-343		2-Jun-03	1134	2-Jun-03	< 0.10	107	118
E1015	SOJ-BK-345		2-Jun-03	1136	2-Jun-03	< 0.10	106	121
E1016	SOJ-BK-346		2-Jun-03	1138	2-Jun-03	< 0.10	108	113
E1017	SOJ-BK-347		2-Jun-03	1139	2-Jun-03	< 0.10	109	125
E1018	SOJ-BK-344		2-Jun-03	1155	2-Jun-03	< 0.10	109	124
E1019	SOJ-BK-348		2-Jun-03	1318	2-Jun-03	< 0.10	114	121
E1020	SOJ-BK-349		2-Jun-03	1320	2-Jun-03	< 0.10	111	126
E1036	SOJ-BK-350		9-Jun-03	1008	9-Jun-03	< 0.10	93.9	101
E1037	SOJ-BK-351		9-Jun-03	1010	9-Jun-03	< 0.10	93.2	98.8
E1038	SOJ-BK-352		9-Jun-03	1018	9-Jun-03	< 0.10	95.0	98.4
E1039	SOJ-BK-353		9-Jun-03	1035	9-Jun-03	< 0.10	93.7	100
E1040	BK-Duplicate		9-Jun-03	-	9-Jun-03	< 0.10	96.2	111
E1041	SOJ-BK-354		9-Jun-03	1229	9-Jun-03	< 0.10	101	104
E1042	SOJ-BK-355		9-Jun-03	1231	9-Jun-03	< 0.10	99.7	101
E1043	SOJ-BK-356		9-Jun-03	1232	9-Jun-03	< 0.10	96.4	106
E1044	SOJ-BK-357		9-Jun-03	1233	9-Jun-03	< 0.10	98.8	107
E1048	SOJ-BK-358		10-Jun-03	919	10-Jun-03	< 0.10	98.2	103
E1049	SOJ-BK-359		10-Jun-03	921	10-Jun-03	< 0.10	95.7	99.0
E1050	SOJ-BK-360		10-Jun-03	1010	10-Jun-03	< 0.10	99.5	108
E1051	SOJ-BK-361		10-Jun-03	1013	10-Jun-03	< 0.10	97.7	103
E1052	BK-Duplicate		10-Jun-03	-	10-Jun-03	< 0.10	104	116
E1053	SOJ-BK-362		10-Jun-03	1145	10-Jun-03	< 0.10	98.3	102
E1054	SOJ-BK-363		10-Jun-03	1147	10-Jun-03	< 0.10	104	94.8
E1055	SOJ-BK-364		10-Jun-03	1225	10-Jun-03	< 0.10	99.1	100
E1056	SOJ-BK-365		10-Jun-03	1230	10-Jun-03	< 0.10	102	114
E1057	SOJ-BK-366		10-Jun-03	1300	10-Jun-03	< 0.10	100	104
E1058	SOJ-BK-367		10-Jun-03	1310	10-Jun-03	< 0.10	99.8	100
E1071	SOJ-BK-368		19-Jun-03	1248	19-Jun-03	< 0.10	103	108
E1072	SOJ-BK-369		19-Jun-03	1250	19-Jun-03	< 0.10	103	108
E1073	SOJ-BK-370		19-Jun-03	1251	19-Jun-03	< 0.10	105	113
E1074	SOJ-BK-371		19-Jun-03	1253	19-Jun-03	< 0.10	107	114
E1075	BK-Duplicate		19-Jun-03	-	19-Jun-03	< 0.10	105	113
E1076	SOJ-BK-372		19-Jun-03	1314	19-Jun-03	< 0.10	105	112
E1077	SOJ-BK-373		19-Jun-03	1340	19-Jun-03	< 0.10	104	110
E1078	SOJ-BK-374		19-Jun-03	1341	19-Jun-03	< 0.10	104	118
E1079	SOJ-BK-375		19-Jun-03	1343	19-Jun-03	< 0.10	103	109
E1080	SOJ-BK-376		20-Jun-03	950	20-Jun-03	< 0.10	100	92.2
E1081	SOJ-BK-377		20-Jun-03	951	20-Jun-03	< 0.10	95.4	111
E1082	SOJ-BK-378		20-Jun-03	952	20-Jun-03	< 0.10	95.6	109
E1083	BK-Duplicate		20-Jun-03	-	20-Jun-03	< 0.10	94.2	96.3
E1084	SOJ-BK-379		20-Jun-03	959	20-Jun-03	< 0.10	95.7	110
E1085	SOJ-BK-380		20-Jun-03	1000	20-Jun-03	< 0.10	95.7	109
E1086	SOJ-BK-381		20-Jun-03	1028	20-Jun-03	< 0.10	99.2	99.7
E1087	SOJ-BK-382		20-Jun-03	1029	20-Jun-03	< 0.10	96.2	110

Table 1
Kuhlman Electric
Crystal Springs, Mississippi
PCB Concentrations as Aroclor 1260 Detected

					Field Laboratory			
Field Lab Sample ID	Sample ID	Sample Depth	Date Collected	Time Collected	Date Analyzed	Concentration (mg/kg)	Surrogate TCMX(%)	Surrogate DCBP(%)
E1088	SOJ-BK-383		20-Jun-03	1030	20-Jun-03	< 0.10	97.4	99.0
E1091	SOJ-BK-384		20-Jun-03	1207	20-Jun-03	< 0.10	99.5	99.7
E1092	SOF-BK-385		20-Jun-03	1208	20-Jun-03	< 0.10	97.9	99.1
E1106	SOJ-BK-376		26-Jun-03	903	26-Jun-03	< 0.10	91.1	104
E1107	BK-Duplicate		26-Jun-03	-	26-Jun-03	< 0.10	96.3	109
E1108	SOJ-BK-377		26-Jun-03	934	26-Jun-03	< 0.10	94.1	99.2
E1109	SOJ-BK-378		26-Jun-03	1003	26-Jun-03	< 0.10	94.4	113
E1110	SOJ-BK-379		26-Jun-03	1032	26-Jun-03	< 0.10	95.5	101
E1111	SOJ-BK-380		26-Jun-03	1034	26-Jun-03	< 0.10	100	101
E1112	SOJ-BK-381		26-Jun-03	1035	26-Jun-03	< 0.10	97.0	97.6
E1113	SOJ-BK-382		26-Jun-03	1138	26-Jun-03	< 0.10	94.4	108
E1114	SOJ-BK-383		26-Jun-03	1138	26-Jun-03	< 0.10	95.8	109
E1115	SOJ-BK-384		26-Jun-03	1140	26-Jun-03	< 0.10	96.2	104
E1116	SOJ-BK-385		26-Jun-03	1222	26-Jun-03	< 0.10	96.4	100
E1117	SOJ-BK-386		26-Jun-03	1224	26-Jun-03	< 0.10	97.1	98.3
E1118	SOJ-BK-387		26-Jun-03	1228	26-Jun-03	< 0.10	98.6	104

Table 2
QC Samples - June

Table 2
QC Results

Lab # associated with qc samples: E1012 through E1020

Matrix	Matrix	Spike	Duplicate	Blank	LCS
Spike	E1012	E1012		539	539

Date Analyzed: 6/2/03 6/2/03 6/2/03 6/2/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	91.8		95.1		-4%	< 0.10	95.2

Table 2
QC Results

Lab # associated with qc samples: E1036 through E1044

Matrix	Matrix	Spike	Duplicate	Blank	LCS
E1037		E1037		543	543

Date Analyzed: 6/9/03 6/9/03 6/9/03 6/9/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	102		104		-2%	< 0.10	101

Table 2
QC Results

Lab # associated with qc samples: E1048 through E1058

Matrix	Matrix	Spike	Duplicate	Blank	LCS
E1048		E1048		545	545

Date Analyzed: 6/10/03 6/10/03 6/10/03 6/10/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	102		101		1%	< 0.10	108

Table 2
QC Results

Lab # associated with qc samples: E1071 through E1079

Matrix	Matrix	Spike	Duplicate	Blank	LCS
Matrix	Spike	Duplicate	E1071	E1071	
				548	548

Date Analyzed: 6/19/03 6/19/03 6/19/03 6/19/03 6/19/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	108		114		-5%	< 0.10	113

Table 2
QC Results

Lab # associated with qc samples: E1080 through E1088 and E1091, E1092

Matrix	Matrix			
Matrix	Spike	Duplicate	Blank	LCS
Spike				
E1080	E1080		549	549

Date Analyzed: 6/20/03 6/20/03 6/20/03 6/20/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	107		99.2		8%	< 0.10	98.8

Table 2
QC Results

Lab # associated with qc samples: E1106 through E1118

Matrix	Matrix	Spike	Duplicate	Blank	LCS
E1106		E1106		553	553

Date Analyzed: 6/26/03 6/26/03 6/26/03 6/26/03 6/26/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	106		109		-3%	< 0.10	98.2

Appendix A

Chain of Custody Sheets for mobile lab PCB analysis Excavation Backfill Samples

Excavation Back File

CHAIN OF CUSTODY
(or Juno)

**Environmental Chemistry
Consulting Services, Inc.**

2208 Advanced Road
Madison, WI 53718
Phone 608-221-8700 FAX 608-221-4889

Project Number:

KU11MAN E&G 7215
Project Location: CRYSTAL SPRINGS

Sampled By (Print):

Chuck Rose

Sample Description		Collection Date	Time	Matrix	Total Bottles	Preserv*	Analysis Requested	P.O. No.:	Quote No.:
		Date	Time					Comments	Laboratory Number
S0J-BK-342		2/26/03	1130	S	1	M	PCB's	E1012	E1013
S0J-BK-Duplicate			—						E1014
S0J-BK-343			1134						E1015
S0J-BK-345			1136						E1016
S0J-BK-346			1138						E1017
S0J-BK-347			1139						E1018
S0J-BK-344			1155						E1019
S0J-BK-348			1318						E1020
S0J-BK-349			1320						
*Preservation Code		Relinquished By:		Date/Time:		Received By:		Date/Time:	
A=None	B=HCl	C=H2SO4	D=HNO3	E=EnCore	F=Methanol	G=NaOH	H=Other(Indicate)	I=Present/Absent	J=Seal #'s
Shipped Via:		Intact/Not Intact		Date/Time:		Date/Time:		Temp Blank Y N	
Custody Seal:		Present/Absent		Seal #'		Received Temp:		Temp Blank Y N	
Report Date:		Turn Around (circle one)		Normal		Rush		Date/Time:	
Mail Report To:		Company:		Address:		Company:		Address:	
Invoice To:		Address:		Address:		Address:		Address:	
P.O. No.:		Comments:		Comments:		Comments:		Comments:	
Quote No.:		Comments:		Comments:		Comments:		Comments:	

A=None B=HCl C=H2SO4
D=HNO3 E=EnCore F=Methanol
G=NaOH H=Other(Indicate)

Present/Absent Seal #'s

Shipped Via:

Temp Blank Y N

WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER SUBMITTER

Date/Time: 2/26/03
1330

Received By:

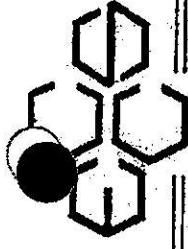
Date/Time: 2/26/03
1330

Received By:

Date/Time:

Received By:

Date/Time:



**Environmental Chemistry
Consulting Services, Inc.**

2225 Advance Road
Madison, WI 53718
Phone 608-221-8700

FAX 608-221-8789

Project Number: **10JN07**

Turn Around (circle one): Normal Rush
Report Due:

Project Name: Kittlman Electric - Crysta		Company: AMTRAC & SCAIC		Invoice To:	
Project Location: CRYSTAL SPRINGS		Address:			
Sampled By (Print): Chuck Pele					
Sample Description	Collection Date	Total Time	Matrix	Analysis Requested	P.O. No.
					Comments
S07-BK-358	10/22/09	0919	5'	NA	E1048
-359		0921			E1049
-360		1010			E1050
↓ -361		1013			E1051
BK-Duplicate		—			E1052
S07-BK-362		11:45			E1053
↓ -363		11:47			E1054
-364		1225			E1055
-365		1230			E1056
-366		1300			E1057
↓ -367		1310			E1058
*Preservation Code		Reinstituted By:		Date/Time:	Received By:
A=None B=HCl C=H ₂ SO ₄		<i>Chad Pele</i>		6/10/03 11:00	<i>John Hunkel</i>
D=HNO ₃ E=EnCore F=Methanol		Reinstituted By:		Date/Time:	Received By:
G=NaOH Other(Indicate)					
Custody Seal: Present/Absent		Intact/Not Intact		Seal #8	
Shipped Vial:					
Temp Blank: Y N					Receipt Temp:
WHITE - REPORT COPY		YELLOW - LABORATORY COPY		PINK - SAMPLER/SUBMITTER	



**Environmental Chemistry
Consulting Services, Inc.**

2525 Advance Road
Madison, WI 53718
Phone 608-221-8700

FAX 608-221-4889

CHAIN OF CUSTODY
26 JUN 03

No. 005568 *

Page / of

Turn Around (circle one) Normal Rush

Report Due:

Project Number: Mail Report To:

Project Name: Kullman & Guscott

Company: *Thermus Seals*

Address:

Project Location: Crystal Spring

Sampled By (Print):

Chuck Rose

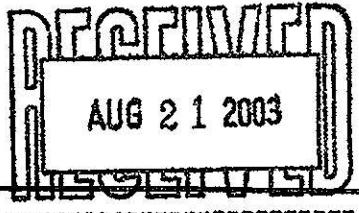
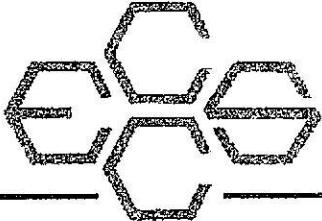
Sample Description	Collection Date	Collection Time	Matrix	Total Bottles	Preserv'	Analysis Requested	P.O. No.:	Quote No.:	Comments	Laboratory Number
SOJ BK 376	26 Jun 03	0903	S	1	4A	PCB		E1106		
SOJ BK DUE		—		1				E1107		
SOJ BK 377		0934						E1108		
	378		1003					E1109		
	379		1032					E1110		
	380		1034					E1111		
	381		1035					E1112		
	382		1038					E1113		
	383		1138					E1114		
	384		1140					E1115		
	385		1222					E1116		
	386		1224					E1117		
Preservation Code	Relinquished By			Date/Time:	Received By					Date/Time:
A=None B=HCl C=H ₂ SO ₄	<i>John Rose</i>			6/26/03 12:30	<i>John Rose</i>					6/26/03 12:30
D=HNO ₃ E=EnCore F=Methanol				Date/Time:						Date/Time:
G=NaOH O=Other(Indicate)	Custody Seal: Present/Absent	Intact/Not Intact	Seal #'s							
Shipped Via:										

WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER/SUBMITTER

Temp Blank Y N

Receipt Temp:

Date/Time:



August 8, 2003

Robert Martin
Martin & Slagle, LLC
P.O. Box 1023
Black Mountain, NC 28711

Dear Mr. Martin,

Enclosed is the Technical Memorandum for work completed at the former Borg Warner and current Kuhlman Electric facility in Crystal Springs, Mississippi during the month of July. If you have any questions concerning this information, please give me a call.

Sincerely,

Karinne Kuhlman
for Richard Johnson

Enclosure

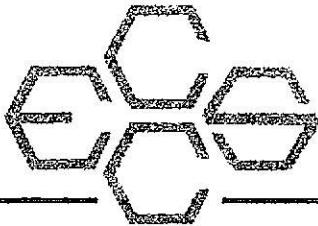
Environmental Chemistry Consulting Services, Inc.

2525 Advance Road • Madison, WI 53718 • Phone (608) 221-8700 • FAX (608) 221-4889

Technical Memorandum

Borg Warner / Kuhlman Electric

Crystal Springs, Mississippi



TECHNICAL MEMORANDUM

August 8, 2003

To: Robert Martin
Martin Slagle Inc.

From: Richard Johnson
ECCS, Inc.

Re: Field Analytical Methods – QC Summary
Borg Warner – Kuhlman Electric Facility
Crystal Springs, Mississippi

INTRODUCTION

This Technical Memorandum provides documentation of the field analytical test methods used to analyze soil samples collected from backfill areas during July 2003 an accelerated site investigation episode around the former Borg Warner and current Kuhlman Electric facility in Crystal Springs, Mississippi. Soil samples were analyzed for polychlorinated biphenyls (PCBs) and chlorinated benzenes by gas chromatography (GC) in accordance with ECCS's Polychlorinated Biphenyl (PCB) Mini Extraction Screening Procedure. A summary of test results is provided in Table 1. A summary of method blanks, laboratory control samples and matrix spike/matrix spike duplicate data is provided in Table 2.

In addition copies of the chain of custody sheets can be found in appendix A and B.

A) Chain of custody sheets Excavation Backfill

The PCB mini-extraction procedure is based on the existing EPA SW846 methods 8082/8141. The procedure incorporates all the quality control rigors of the full 8082/8141 methods including quantification based on 6-point calibration with continuing calibration verification, surrogate method performance monitoring, method blanks, laboratory control samples (LCS), and matrix spike/matrix spike (MS/MSD) duplicate samples. As such, you should consider these test results as comparable to what you would get from a fixed-based laboratory using the more-widely accepted extraction procedure.

The primary project objective of the sampling and testing episode was to delineate the PCB contamination at and around the site using the accelerated site characterization approach. The mobile laboratory was required to provide data as quickly as possible to keep the accelerated site investigation process on track while trying to maintain a goal of level three data quality.

CASE NARRATIVE

During the episode, all samples collected were analyzed. To maintain rapid turnaround and to meet the project objective, three GCs were operated on a nearly continuous basis.

Quality control including proper calibration, continuing calibration verification, surrogates, method blanks, laboratory control samples and matrix spike/matrix spike duplicate samples was performed at the method-specified intervals. Overall quality of the data is very good. The following quality related issues should be noted:

1. All surrogate recoveries were within acceptable ranges.
2. All LCS recoveries were within acceptable ranges. See Table 2.
3. All MS/MSD recoveries were within acceptable ranges. Percent repeatability was also within acceptable ranges. See Table 2.

METHOD SUMMARY

This method employs a mini-extraction procedure and gas chromatography analysis for the detection of PCBs and chlorinated benzenes. Reporting limits are provided in the results Tables. Four grams of sample are dried with anhydrous sodium sulfate and extracted with eight mLs of 80/20 iso-octane/acetone. The extract is then analyzed by Gas Chromatography-Electron Capture Detector (GC-ECD).

Procedure

1. Standards Preparation - Primary standards are prepared from a solution purchased from various vendors at Certified concentrations. Stock standards are prepared in suitable solvents and stored in a freezer when not in use. Secondary standards are prepared in 80/20 iso-octane/acetone and stored in a freezer when not in use. Standard curve mixes for this project was prepared at six concentrations: PCBs – 0.05, 0.10, 0.20, 0.50, 1.0 and 2.0 ug/m; chlorinated benzenes – 0.005, 0.01, 0.02, 0.05, 0.10 and 0.20 ug/ml.

2. Sample Preparation - SOILS: Each sample or quality control sample is prepared in identical fashion. Approximately four grams of silica sand (blanks and control spikes) or sample is transferred into a clean scintillation vial. Ten grams of anhydrous sodium sulfate are added to the vial and mixed well. Extra sodium sulfate is added when necessary to assure the sample is dried. A surrogate, spike compound mix (if necessary) and eight mLs of 80/20 iso-octane/acetone are added to the vial. The vial is shaken for 30 seconds, allowed to settle for 2 minutes, shaken again for 30 seconds, and allowed to settle for 10 minutes. An aliquot of the extract is transferred to an autosampler vial for injection into the GC-ECD.

3. GC-ECD Analysis - A sample aliquot is injected into an HP5890 GC with an ECD equipped with an HP ChemStation for data processing. PCBs were identified by matching retention times of standards to the same retention time in the sample. Regression analysis was performed on each of the selected peak's height versus concentration of the standard using a LN/LN transformed linear regression. For PCBs nine peaks were selected for quantification. The ug/mL value for each peak was added together and divided by the number of peaks selected to obtain the total PCB ug/mL result. If interference occurred at any of the peaks, these peaks were not included in the total, and the divisor was reduced accordingly.

4. Quality Control - Quality control consisted of the following items:

- Continuing calibration standards analyzed every ten samples or less and at the end of a run.
- Blank and LCS samples analyzed every twenty sample or less with a minimum of one per day.
- MS/MSD samples analyzed every twenty samples or less with a minimum of one per day.
- Information is documented in logbook 45 and July run sheets.

4. Instrument Conditions - Two HP5890 gas chromatographs were equipped with RTX-35 capillary columns. Each system had a Leap Technologies A200S auto-sampler and an HP ChemStation for data handling.

Table 1
Sample Results – July

Table 1
Kuhlman Electric
Crystal Springs, Mississippi
PCB Concentrations as Aroclor 1260 Detected

					Field Laboratory			
Field Lab Sample ID	Sample ID	Sample Depth	Date Collected	Time Collected	Date Analyzed	Concentration (mg/kg)	Surrogate TCMX(%)	Surrogate DCBP(%)
E1153	SOJ-BK-388	-	15-Jul-03	1000	15-Jul-03	< 0.10	104	119
E1154	BK-Duplicate	-	15-Jul-03	-	15-Jul-03	< 0.10	102	98.7
E1158	SOJ-BK-389	-	15-Jul-03	1235	15-Jul-03	< 0.10	103	103
E1159	SOJ-BK-390	-	16-Jul-03	1130	16-Jul-03	< 0.10	94.2	88.9
E1160	SOJ-BK-391	-	16-Jul-03	1134	16-Jul-03	< 0.10	94.0	86.5
E1161	SOJ-BK-392	-	16-Jul-03	1138	16-Jul-03	< 0.10	101	106
E1162	BK-Duplicate	-	16-Jul-03	-	16-Jul-03	< 0.10	94.2	90.7
E1166	SOJ-BK-393	-	16-Jul-03	1335	16-Jul-03	< 0.10	104	99.7
E1175	SOJ-BK-394	-	19-Jul-03	900	19-Jul-03	< 0.10	97.6	95.4
E1176	SOJ-BK-395	-	19-Jul-03	902	19-Jul-03	< 0.10	95.2	95.6
E1177	SOJ-BK-396	-	19-Jul-03	903	19-Jul-03	< 0.10	96.0	94.3
E1178	BK-Duplicate	-	19-Jul-03	-	19-Jul-03	< 0.10	95.3	104
E1179	SOJ-BK-397	-	19-Jul-03	1005	19-Jul-03	< 0.10	97.2	79.0
E1180	SOJ-BK-398	-	19-Jul-03	1006	19-Jul-03	< 0.10	95.9	89.5
E1184	SOJ-BK-399	-	21-Jul-03	1130	21-Jul-03	< 0.10	93.5	95.5
E1185	SOJ-BK-400	-	21-Jul-03	1145	21-Jul-03	< 0.10	92.8	104
E1186	SOJ-BK-401	-	21-Jul-03	1210	21-Jul-03	< 0.10	93.7	97.9
E1187	SOJ-BK-402	-	21-Jul-03	1211	21-Jul-03	< 0.10	89.8	93.8
E1188	SOJ-BK-403	-	21-Jul-03	1250	21-Jul-03	< 0.10	91.4	111
E1189	SOJ-BK-404	-	21-Jul-03	1251	21-Jul-03	< 0.10	90.8	108
E1190	BK-Duplicate	-	21-Jul-03	-	21-Jul-03	< 0.10	93.1	114
E1191	SOJ-BK-405	-	21-Jul-03	1334	21-Jul-03	< 0.10	92.3	95.7
E1192	SOJ-BK-406	-	21-Jul-03	1335	21-Jul-03	< 0.10	95.5	101

Table 2

QC Samples - July

Table 2
QC Results

Lab # associated with qc samples: E1153 through E1158

Matrix	Matrix	Spike	Duplicate	Blank	LCS
Spike	E1153	E1153		562	562

Date Analyzed: 7/15/03 7/15/03 7/15/03 7/15/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	104		104		0%	< 0.10	112

Table 2
QC Results

Lab # associated with qc samples: E1159 through E1162 and E1166

Matrix	Matrix	Spike	Duplicate	Blank	LCS
E1159		E1159		564	564

Date Analyzed: 7/16/03 7/16/03 7/16/03 7/16/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	85.7		94.2		-9%	< 0.10	86.4

Table 2
QC Results

Lab # associated with qc samples: E1175 through E1180

Matrix	Matrix	Spike	Duplicate	Blank	LCS
Spike	E1175	E1175			
				568	568

Date Analyzed: 7/19/03 7/19/03 7/19/03 7/19/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	97.4		99.4		-2%	< 0.10	96.7

Table 2
QC Results

Lab # associated with qc samples: E1184 through E1192

Matrix	Matrix	Spike	Duplicate	Blank	LCS
E1184		E1184		570	570

Date Analyzed: 7/21/03 7/21/03 7/21/03 7/21/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	96.4		92.7		4%	< 0.10	94.3

Appendix A

Chain of Custody Sheets for mobile lab PCB analysis Excavation Backfill Samples

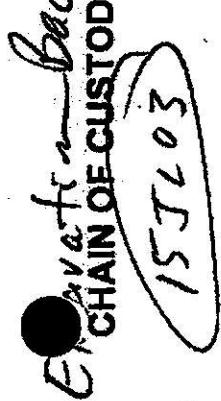
**Environmental Chemistry
Consulting Services, Inc.**

2825 Advance Road

Madison, WI 53718

FAX 608-221-4889

Phone 608-221-8700



No. 006611 *

Page 1 of 1

Turn Around (circle one) Normal Rush

Report Due:

Project Number: Mail Report To:

Company:

Address:

Project Name: **KUHMANN ELECTRIC**

Project Location: **CHICAGO SERVICES**

Sampled By (Print): **Chuck Paul**

Collection Date Time

Total Bottles

Preserv'

Analysis Requested

Comments

Laboratory Number

SOT-BK-3P9	15/10/03	1001	5	1	N/A	Perf	E 1153
BK-Duplicate	-	-	↓	↓	↓	↓	E 1154
SOT-BK-3P9	1235	↓	↓	↓	↓	↓	E 1157

✓

Date/Time:

Received By:

P.O. No.:

Date/Time:

Quote No.:



**Environmental
Consulting Services, Inc.**

2525 Advance Road
Madison, WI 53718

Phone 608-221-8700 FAX 608-221-4889

**Elevation ~
CHAIN OF CUSTODY**

21-JC03

Project Number:

Mail Report To:

Turn Around (circle one) Normal Rush

Report Due:

Invoice To:

Company:

Address:

Project Name:

Project Location:

Sampled By (Print):

Sample Description:

Collection Date:

Time:

Matrix:

Total Bottles:

Present:

Analysis Requested:

Comments:

P.O. No.:

Quote No.:

Laboratory Number:

Reinquished By:

Received By:

Date/Time:

Received By:

Date/Time:

Temp Blank Y N

Receipt Temp:

Shipped Via:

No. 006626
Page _____ of _____
Turn Around (circle one) Normal Rush

Project Number:

Project Name:

Project Location:

Sampled By (Print):

Sample Description:

Collection Date:

Time:

Matrix:

Total Bottles:

Present:

Analysis Requested:

Comments:

P.O. No.:

Quote No.:

Laboratory Number:

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Project Number:

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Sampled By (Print):

Sample Description:

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P.O. No.:

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Project Number:

Project Name:

Project Location:

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Sample Description:

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Matrix:

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Sampled By (Print):

Sample Description:

Collection Date:

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Analysis Requested:

Comments:

P.O. No.:

Quote No.:

Laboratory Number:

Reinquished By:

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Project Number:

Project Name:

Project Location:

Sampled By (Print):

Sample Description:

Collection Date:

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Matrix:

Total Bottles:

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Analysis Requested:

Comments:

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Laboratory Number:

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Project Location:

Sampled By (Print):

Sample Description:

Collection Date:

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Matrix:

Total Bottles:

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Analysis Requested:

Comments:

P.O. No.:

Quote No.:

Laboratory Number:

Reinquished By:

Received By:

Date/Time:

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Project Number:

Project Name:

Project Location:

Sampled By (Print):

Sample Description:

Collection Date:

Time:

Matrix:

Total Bottles:

Present:

Analysis Requested:

Comments:

P.O. No.:

Quote No.:

Laboratory Number:

Reinquished By:

Received By:

Date/Time:

Received By:

Date/Time:

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Receipt Temp:

Shipped Via:

Project Number:

Project Name:

Project Location:

Sampled By (Print):

Sample Description:

Collection Date:

Time:

Matrix:

Total Bottles:

Present:

Analysis Requested:

Comments:

P.O. No.:

Quote No.:

Laboratory Number:

Reinquished By:

Received By:

Date/Time:

Received By:

Date/Time:

Temp Blank Y N

Receipt Temp:

Shipped Via:

Project Number:

Project Name:

Project Location:

Sampled By (Print):

Sample Description:

Collection Date:

Time:

Matrix:

Total Bottles:

Present:

Analysis Requested:

Comments:

P.O. No.:

Quote No.:

Laboratory Number:

Reinquished By:

Received By:

Date/Time:

Received By:

Date/Time:

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Receipt Temp:

Shipped Via:

Project Number:

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Project Location:

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Sample Description:

Collection Date:

Time:

Matrix:

Total Bottles:

Present:

Analysis Requested:

Comments:

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Quote No.:

Laboratory Number:

Reinquished By:

Received By:

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Received By:

Date/Time:

Temp Blank Y N

Receipt Temp:

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Project Number:

Project Name:

Project Location:

Sampled By (Print):

Sample Description:

Collection Date:

Time:

Matrix:

Total Bottles:

Present:

Analysis Requested:

Comments:

P.O. No.:

Quote No.:

Laboratory Number:

Reinquished By:

Received By:

Date/Time:

Received By:

Date/Time:

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Receipt Temp:

Shipped Via:

Project Number:

Project Name:

Project Location:

Sampled By (Print):

Sample Description:

Collection Date:

Time:

Matrix:

Total Bottles:

Present:

Analysis Requested:

Comments:

P.O. No.:

Quote No.:

Laboratory Number:

Reinquished By:

Received By:

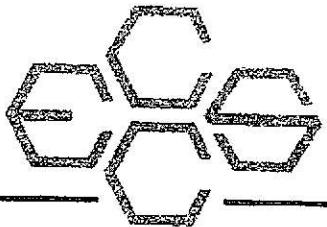
Date/Time:

Received By:

Date/Time:

Temp Blank Y N

</div



September 25, 2003

Robert Martin
Martin & Slagle, LLC
P.O. Box 1023
Black Mountain, NC 28711

Dear Mr. Martin,

Enclosed is the Technical Memorandum for work completed at the former Borg Warner and current Kuhlman Electric facility in Crystal Springs, Mississippi during the month of August. If you have any questions concerning this information, please give me a call.

Sincerely,

Kari Ann Killian
for Richard Johnson

Enclosure

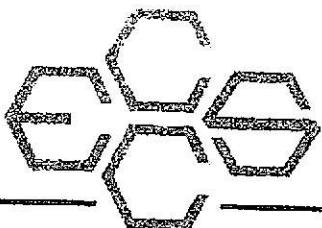
Environmental Chemistry Consulting Services, Inc.

2525 Advance Road • Madison, WI 53718 • Phone (608) 221-8700 • FAX (608) 221-4889

Technical Memorandum

Borg Warner / Kuhlman Electric

Crystal Springs, Mississippi



TECHNICAL MEMORANDUM

September 25, 2003

To: Robert Martin
Martin Slagle Inc.

From: Richard Johnson *Kirk
for*
ECCS, Inc.

Re: Field Analytical Methods – QC Summary
Borg Warner – Kuhlman Electric Facility
Crystal Springs, Mississippi

INTRODUCTION

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CASE NARRATIVE

During the episode, all samples collected were analyzed. To maintain rapid turnaround and to meet the project objective, three GCs were operated on a nearly continuous basis.

Quality control including proper calibration, continuing calibration verification, surrogates, method blanks, laboratory control samples and matrix spike/matrix spike duplicate samples was performed at the method-specified intervals. Overall quality of the data is very good. The following quality related issues should be noted:

1. All surrogate recoveries were within acceptable ranges.
2. All LCS recoveries were within acceptable ranges. See Table 2.
3. All MS/MSD recoveries were within acceptable ranges. Percent repeatability was also within acceptable ranges. See Table 2.

METHOD SUMMARY

This method employs a mini-extraction procedure and gas chromatography analysis for the detection of PCBs and chlorinated benzenes. Reporting limits are provided in the results Tables. Four grams of sample are dried with anhydrous sodium sulfate and extracted with eight mLs of 80/20 iso-octane/acetone. The extract is then analyzed by Gas Chromatography-Electron Capture Detector (GC-ECD).

Procedure

1. Standards Preparation - Primary standards are prepared from a solution purchased from various vendors at Certified concentrations. Stock standards are prepared in suitable solvents and stored in a freezer when not in use. Secondary standards are prepared in 80/20 iso-octane/acetone and stored in a freezer when not in use. Standard curve mixes for this project was prepared at six concentrations: PCBs – 0.05, 0.10, 0.20, 0.50, 1.0 and 2.0 ug/m; chlorinated benzenes – 0.005, 0.01, 0.02, 0.05, 0.10 and 0.20 ug/ml.
2. Sample Preparation - SOILS: Each sample or quality control sample is prepared in identical fashion. Approximately four grams of silica sand (blanks and control spikes) or sample is transferred into a clean scintillation vial. Ten grams of anhydrous sodium sulfate are added to the vial and mixed well. Extra sodium sulfate is added when necessary to assure the sample is dried. A surrogate, spike compound mix (if necessary) and eight mLs of 80/20 iso-octane/acetone are added to the vial. The vial is shaken for 30 seconds, allowed to settle for 2 minutes, shaken again for 30 seconds, and allowed to settle for 10 minutes. An aliquot of the extract is transferred to an autosampler vial for injection into the GC-ECD.
3. GC-ECD Analysis - A sample aliquot is injected into an HP5890 GC with an ECD equipped with an HP ChemStation for data processing. PCBs were identified by matching retention times of standards to the same retention time in the sample. Regression analysis was performed on each of the selected peak's height versus concentration of the standard using a LN/LN transformed linear regression. For PCBs nine peaks were selected for quantification. The ug/mL value for each peak was added together and divided by the number of peaks selected to obtain the total PCB ug/mL result. If interference occurred at any of the peaks, these peaks were not included in the total, and the divisor was reduced accordingly.
4. Quality Control - Quality control consisted of the following items:
 - Continuing calibration standards analyzed every ten samples or less and at the end of a run.
 - Blank and LCS samples analyzed every twenty sample or less with a minimum of one per day.
 - MS/MSD samples analyzed every twenty samples or less with a minimum of one per day.
 - Information is documented in logbook 45 and August run sheets.
4. Instrument Conditions - Two HP5890 gas chromatographs were equipped with RTX-35 capillary columns. Each system had a Leap Technologies A200S auto-sampler and an HP ChemStation for data handling.

Table 1
Sample Results – August

Table 1
Kuhlman Electric
Crystal Springs, Mississippi
PCB Concentrations as Aroclor 1260 Detected

					Field Laboratory			
Field Lab Sample ID	Sample ID	Sample Depth	Date Collected	Time Collected	Date Analyzed	Concentration (mg/kg)	Surrogate TCMX(%)	Surrogate DCBP(%)
E1235	SOJ-BK-407	-	14-Aug-03	840	14-Aug-03	< 0.10	97.8	102
E1236	BK-Duplicate	-	14-Aug-03	-	14-Aug-03	< 0.10	101	102
E1239	SOJ-BK-408	-	14-Aug-03	1005	14-Aug-03	< 0.10	99.8	92.7
E1240	SOJ-BK-409	-	14-Aug-03	1007	14-Aug-03	< 0.10	103	99.8
E1242	SOJ-BK-410	-	14-Aug-03	1210	14-Aug-03	< 0.10	106	103
E1243	SOJ-BK-411	-	14-Aug-03	1211	14-Aug-03	< 0.10	106	104
E1244	SOJ-BK-412	-	14-Aug-03	1213	14-Aug-03	< 0.10	104	104
E1262	SOJ-BK-413	-	23-Aug-03	918	23-Aug-03	< 0.10	104	104
E1263	BK-Duplicate	-	23-Aug-03	-	23-Aug-03	< 0.10	98.9	101
E1264	SOJ-BK-414	-	23-Aug-03	927	23-Aug-03	< 0.10	102	105
E1265	SOJ-BK-415	-	23-Aug-03	931	23-Aug-03	< 0.10	97.4	114
E1266	SOJ-BK-416	-	23-Aug-03	937	23-Aug-03	< 0.10	107	117
E1267	SOJ-BK-417	-	23-Aug-03	940	23-Aug-03	< 0.10	106	117
E1268	SOJ-BK-418	-	23-Aug-03	1007	23-Aug-03	< 0.10	104	107
E1269	SOJ-BK-419	-	23-Aug-03	1016	23-Aug-03	< 0.10	105	101
E1270	SOJ-BK-420	-	23-Aug-03	1021	23-Aug-03	< 0.10	103	107
E1271	SOJ-BK-421	-	23-Aug-03	1024	23-Aug-03	< 0.10	106	106
E1272	SOJ-BK-422	-	23-Aug-03	1054	23-Aug-03	< 0.10	105	105
E1273	SOJ-BK-423	-	23-Aug-03	1140	23-Aug-03	< 0.10	108	117
E1274	SOJ-BK-424	-	23-Aug-03	1141	23-Aug-03	< 0.10	111	111
E1275	SOJ-BK-425	-	23-Aug-03	1142	23-Aug-03	< 0.10	104	101
E1276	SOJ-BK-426	-	23-Aug-03	1143	23-Aug-03	< 0.10	108	121
E1277	SOJ-BK-427	-	23-Aug-03	1200	23-Aug-03	< 0.10	105	110
E1287	SOJ-BK-428	-	25-Aug-03	825	25-Aug-03	< 0.10	106	96.8
E1288	SOJ-BK-429	-	25-Aug-03	830	25-Aug-03	< 0.10	111	107
E1289	SOJ-BK-430	-	25-Aug-03	831	25-Aug-03	< 0.10	106	95.2
E1290	SOJ-BK-431	-	25-Aug-03	915	25-Aug-03	< 0.10	107	103
E1291	SOJ-BK-432	-	25-Aug-03	918	25-Aug-03	< 0.10	109	111
E1292	SOJ-BK-433	-	25-Aug-03	920	25-Aug-03	< 0.10	101	98.9
E1293	SOJ-BK-434	-	25-Aug-03	1050	25-Aug-03	< 0.10	102	103
E1294	SOJ-BK-435	-	25-Aug-03	1052	25-Aug-03	< 0.10	108	103
E1295	SOJ-BK-436	-	25-Aug-03	1054	25-Aug-03	< 0.10	107	108
E1296	BK-Duplicate	-	25-Aug-03	-	25-Aug-03	< 0.10	108	104
E1302	SOJ-BK-437	-	26-Aug-03	843	26-Aug-03	< 0.10	108	104
E1303	SOJ-BK-438	-	26-Aug-03	847	26-Aug-03	< 0.10	111	113
E1304	BK-Duplicate	-	26-Aug-03	-	26-Aug-03	< 0.10	106	103
E1305	SOJ-BK-439	-	26-Aug-03	935	26-Aug-03	< 0.10	107	106
E1306	SOJ-BK-440	-	26-Aug-03	945	26-Aug-03	< 0.10	107	109
E1320	SOJ-BK-441	-	26-Aug-03	1245	26-Aug-03	< 0.10	108	117
E1321	SOJ-BK-442	-	26-Aug-03	1247	26-Aug-03	< 0.10	107	112
E1327	SOJ-BK-443	-	26-Aug-03	1343	26-Aug-03	< 0.10	107	108
E1328	SOJ-BK-444	-	26-Aug-03	1345	26-Aug-03	< 0.10	112	110
E1329	SOJ-BK-445	-	26-Aug-03	1350	26-Aug-03	< 0.10	111	119
E1330	SOJ-BK-446	-	26-Aug-03	1435	26-Aug-03	< 0.10	111	120
E1331	SOJ-BK-447	-	26-Aug-03	1440	26-Aug-03	< 0.10	105	118
E1332	SOJ-BK-448	-	26-Aug-03	1447	26-Aug-03	< 0.10	107	123

Table 1
Kuhlman Electric
Crystal Springs, Mississippi
PCB Concentrations as Aroclor 1260 Detected

					Field Laboratory			
Field Lab Sample ID	Sample ID	Sample Depth	Date Collected	Time Collected	Date Analyzed	Concentration (mg/kg)	Surrogate TCMX(%)	Surrogate DCBP(%)
E1344	SOJ-BK-449	-	27-Aug-03	1030	27-Aug-03	< 0.10	85.6	83.0
E1345	SOJ-BK-450	-	27-Aug-03	1035	27-Aug-03	< 0.10	91.9	97.9
E1346	SOJ-BK-451	-	27-Aug-03	1039	27-Aug-03	< 0.10	92.0	95.1
E1347	BK-Duplicate	-	27-Aug-03	-	27-Aug-03	< 0.10	90.9	94.6
E1348	SOJ-BK-452	-	27-Aug-03	1114	27-Aug-03	< 0.10	96.4	97.4
E1349	SOJ-BK-453	-	27-Aug-03	1250	27-Aug-03	< 0.10	90.1	93.4
E1350	SOJ-BK-454	-	27-Aug-03	1255	27-Aug-03	< 0.10	88.5	79.4

Table 2

QC Samples - August

Table 2
QC Results

Lab # associated with qc samples: E1235, E1236, E1239, E1240
and E1242 through E1244

Matrix	Matrix	Spike	Duplicate	Blank	LCS
Spike E1235		E1235		596	596

Date Analyzed: 8/14/2003 8/14/2003 8/14/2003 8/14/2003 8/14/2003

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	106		100		6%	< 0.10	104

Table 2
QC Results

Lab # associated with qc samples: E1262 through E1277

Matrix	Matrix	Blank	LCS
Spike	Spike		
E1262	Duplicate		
	E1262	601	601

Date Analyzed: 8/23/2003 8/23/2003 8/23/2003 8/23/2003 8/23/2003

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	106		103		3%	< 0.10	103

Table 2
QC Results

Lab # associated with qc samples: E1287 through E1296

Matrix	Matrix	Matrix	Blank	LCS
Spike	Spike	Duplicate		
E1286	E1286		603	603

Date Analyzed: 8/25/2003 8/25/2003 8/25/2003 8/25/2003

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	98.4		98.7		0%	< 0.10	93.3

Table 2
QC Results

Lab # associated with qc samples: E1302 through E1306
E1320, E1321, E1327 through E1332

Matrix	Matrix	Blank	LCS
Matrix	Spike		
Spike	Duplicate		
E1320	E1320	607	607

Date Analyzed: 8/26/2003 8/26/2003 8/27/2003 8/27/2003

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	107		108		-1%	< 0.10	107

Table 2
QC Results

Lab # associated with qc samples: E1344 through E1350

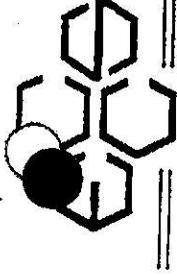
Matrix	Matrix	Matrix	Blank	LCS
Spike	Spike	Duplicate		
E1345	E1345		608	608

Date Analyzed: 8/27/2003 8/27/2003 8/27/2003 8/27/2003 8/27/2003

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	100		99.8		0%	< 0.10	99.9

Appendix A

Chain of Custody Sheets for mobile lab PCB analysis Excavation Backfill Samples



**Environmental Chemistry
Consulting Services, Inc.**

2525 Advances Road

Madison, WI 53718

Phone 608-221-8700

FAX 608-221-4889

Project Number:

KIRKMAN ELECTRIC
PROJECT SPRINGS, WI

Sampled By (Print):

CHUCK POWELL

Mail Report To:

Company: KIRKMAN ELECTRIC

Address:

Turn Around (circle one)

Normal

Rush

Report Due:

Invoice To:

Company:

Address:

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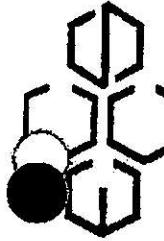
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Rush

Report Due:

Invoice To:

Company:</p



**Environmental Chemistry
Consulting Services, Inc.**

2525 Advance Road

Phone 608-221-8700

Madison, WI 53718

FAX 608-221-4889

EXCA VATION SAMPLE
CHAIN OF CUSTODY
25AU03

Project Number:

ULTRA ELECTRIC
CROSTON SPRINGS HS
Chuck Peet

Mail Report To:

MARTIN SCHEIB

Company:

Address:

Turn Around (circle one)

Normal

Rush

Report Due:

Invoice To:

Company:

Address:

Sample Description	Collection Date	Time	Matrix	Total Bottles	Present*	Analysis Requested	P.O. No.:	Quote No.:	Laboratory Number
SOT-BK-428	7/23	0815	S	1	NR	PCB2			E1287
429	7/23	0830		1					E1288
430	0831								E1289
431	0915								E1290
432	0918								E1291
433	0920								E1292
434	0950								E1293
435	1052								E1294
436	1054								E1295
SOT-BK-100075	-								E1296
*Preservation Code	Retirquished By:			Date/Time:	Received By:			Date/Time:	
A=None	B=HCl	C=H2SO4	D=HNO3	E=EnCore	F=Methanol	G=NaOH	H=Other/Indicate		
Custody Seal: Present/Absent	Intact/Not Intact	Seal #'s	Shipped Via:	Received By:	Date/Time:	Received By:	Date/Time:	Received By:	Date/Time:

WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER SUBMITTER

Receipt Temp:
Temp Blank Y N

Date/Time:

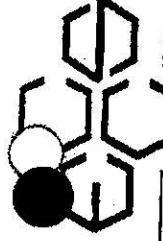
1205

Date/Time:

1203

Date/Time:

1200



**Environmental Chemistry
Consulting Services, Inc.**

2828 Advance Road
Madison, WI 53718
Phone 608-221-8700 FAX 608-221-4889

CHAIN OF CUSTODY
BACK PCL
268703

No. 006701 *
Page 1 of 2

Project Number:	Mail Report To:	Turn Around (circle one)	Normal	Rush
Project Name: KUTCHER ELECTRIC	Invoice To:			
Project Location: CALYPSO SPRINGS MUS	Company:			
Sampled By (Print): Chuck Peal	Address:			
Sample Description	Collection Date	Total Bottles	Analysis Requested	P.O. No.: Quote No.:
SOJ-BK-437	7/6/03	5	PA	E/302
✓ -438	08/03	1	PCB ²	E/303
DOPPELGEHR	-			E/304
BK-439	09/03			E/305
-440	09/05			E/306
-441	12/05			E/320
-442	12/07			E/321
-443	12/03			E/322
-444	12/05			E/328
-445	13/00			E/329
-446	14/05			E/330
✓ -447	14/00	✓	✓	E/331
Relinquished By: <i>Charles Peal</i>		Date/Time:	Received By: <i>R. Johnson</i>	Date/Time:
Relinquished By: <i>Charles Peal</i>		8/26/03 1000		8/26/03 1000
Custody Seal: Present/Absent	Intact/Not Intact	Seal #'s		
Shipped Vial:		Temp Blank Y N	Receipt Temp:	
WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER SUBMITTER				

*Preservation Code

A=None B=HCl C=H₂SO₄

D=HNO₃ E=EnCore F=Methanol

G=NaOH O=Other (Indicate)

Custody Seal: Present/Absent

Intact/Not Intact

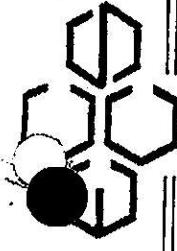
Seal #'s

Temp Blank Y N

Receipt Temp:

Temp Blank Y N

Date/Time:



**Environmental Chemistry
Consulting Services, Inc.**

2826 Advance Road

Madison, WI 53718

Phone 608-221-8700

FAX 608-221-4889

**EXCAVATION
CHAIN OF CUSTODY
BACKFILL**

Project Number: **KU44100 ELECTRIC**
Project Name: **KU44100 ELECTRIC**
Project Location: **CITY OF THE SPRINGS MISS**
Sampled By (Print): **HUCK PBL**

Project Number:

Project Name: **KU44100 ELECTRIC**

Project Location: **CITY OF THE SPRINGS MISS**

Sampled By (Print): **HUCK PBL**

Mail Report To:

Company: **MARSH SCAGG**

Address:

Turn Around (circle one) Normal Rush

Report Due:

Invoice To:

Company:

Address:

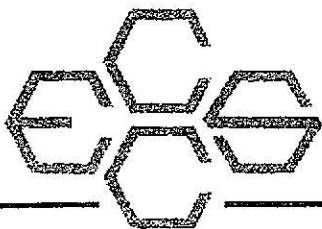
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Page 1 of 1

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Report Due:

Sample Description	Collection Date	Time	Matrix	Total Bottles	Preserv*	Analysis Requested	P.O. No.:	Quote No.:	Laboratory Number
SOT-BK - 449	27/03	1030	S	(NA	PCB's	E1344		
- 450	1035			/			E1345		
- 451	1039			/			E1346		
DUPPLICATE				-			E1347		
BK - 452		1144					E1348		
- 453		1158					E1349		
- 454		1255					E1350		
"Preservation Code	Received By:		Date/Time:		Received By:		Date/Time:		Date/Time:
A=None	B=HCL	C=H2SO4	<i>✓</i>		8/27/03 14:00		<i>✓</i>		8/27/03 14:00
D=HNO3	E=EnCore	F=Methanol	Relinquished By:		Date/Time:		Received By:		Date/Time:
G=NaOH	O=Other(Indicate)		<i>✓</i>						
Custody Seal: Present/Absent	Intact/Not Intact	Seal #'s	Shipped Vial:		Receipt Temp:		Temp Blank Y N		
			WHITE - REPORT COPY		YELLOW - LABORATORY COPY		PINK - SAMPLER SUBMITTER		



October 21, 2003

Robert Martin
Martin & Slagle, LLC
P.O. Box 1023
Black Mountain, NC 28711

Dear Mr. Martin,

Enclosed is the Technical Memorandum for work completed at the former Borg Warner and current Kuhlman Electric facility in Crystal Springs, Mississippi during the month of September. If you have any questions concerning this information, please give me a call.

Sincerely,

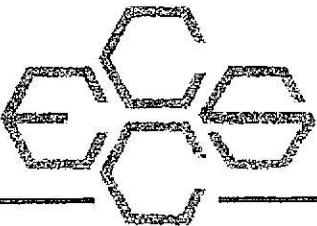
Kari-Anne Killian
for Richard Johnson

Enclosure

Technical Memorandum

Borg Warner / Kuhlman Electric

Crystal Springs, Mississippi



TECHNICAL MEMORANDUM

October 21, 2003

To: Robert Martin
Martin Slagle Inc.

From: Richard Johnson
ECCS, Inc.

Re: Field Analytical Methods – QC Summary
Borg Warner – Kuhlman Electric Facility
Crystal Springs, Mississippi

INTRODUCTION

This Technical Memorandum provides documentation of the field analytical test methods used to analyze soil samples collected from backfill areas during September 2003 an accelerated site investigation episode around the former Borg Warner and current Kuhlman Electric facility in Crystal Springs, Mississippi. Soil samples were analyzed for polychlorinated biphenyls (PCBs) and chlorinated benzenes by gas chromatography (GC) in accordance with ECCS's Polychlorinated Biphenyl (PCB) Mini Extraction Screening Procedure. A summary of test results is provided in Table 1. A summary of method blanks, laboratory control samples and matrix spike/matrix spike duplicate data is provided in Table 2.

In addition copies of the chain of custody sheets can be found in appendix A and B.

A) Chain of custody sheets Excavation Backfill

The PCB mini-extraction procedure is based on the existing EPA SW846 methods 8082/8141. The procedure incorporates all the quality control rigors of the full 8082/8141 methods including quantification based on 6-point calibration with continuing calibration verification, surrogate method performance monitoring, method blanks, laboratory control samples (LCS), and matrix spike/matrix spike (MS/MSD) duplicate samples. As such, you should consider these test results as comparable to what you would get from a fixed-based laboratory using the more-widely accepted extraction procedure.

The primary project objective of the sampling and testing episode was to delineate the PCB contamination at and around the site using the accelerated site characterization approach. The mobile laboratory was required to provide data as quickly as possible to keep the accelerated site investigation process on track while trying to maintain a goal of level three data quality.

CASE NARRATIVE

During the episode, all samples collected were analyzed. To maintain rapid turnaround and to meet the project objective, three GCs were operated on a nearly continuous basis.

Quality control including proper calibration, continuing calibration verification, surrogates, method blanks, laboratory control samples and matrix spike/matrix spike duplicate samples was performed at the method-specified intervals. Overall quality of the data is very good. The following quality related issues should be noted:

1. All surrogate recoveries were within acceptable ranges.
2. All LCS recoveries were within acceptable ranges. See Table 2.
3. All MS/MSD recoveries were within acceptable ranges. Percent repeatability was also within acceptable ranges. See Table 2.

METHOD SUMMARY

This method employs a mini-extraction procedure and gas chromatography analysis for the detection of PCBs and chlorinated benzenes. Reporting limits are provided in the results Tables. Four grams of sample are dried with anhydrous sodium sulfate and extracted with eight mLs of 80/20 iso-octane/acetone. The extract is then analyzed by Gas Chromatography-Electron Capture Detector (GC-ECD).

Procedure

1. Standards Preparation - Primary standards are prepared from a solution purchased from various vendors at Certified concentrations. Stock standards are prepared in suitable solvents and stored in a freezer when not in use. Secondary standards are prepared in 80/20 iso-octane/acetone and stored in a freezer when not in use. Standard curve mixes for this project was prepared at six concentrations: PCBs – 0.05, 0.10, 0.20, 0.50, 1.0 and 2.0 ug/m; chlorinated benzenes – 0.005, 0.01, 0.02, 0.05, 0.10 and 0.20 ug/ml.

2. Sample Preparation - SOILS: Each sample or quality control sample is prepared in identical fashion. Approximately four grams of silica sand (blanks and control spikes) or sample is transferred into a clean scintillation vial. Ten grams of anhydrous sodium sulfate are added to the vial and mixed well. Extra sodium sulfate is added when necessary to assure the sample is dried. A surrogate, spike compound mix (if necessary) and eight mLs of 80/20 iso-octane/acetone are added to the vial. The vial is shaken for 30 seconds, allowed to settle for 2 minutes, shaken again for 30 seconds, and allowed to settle for 10 minutes. An aliquot of the extract is transferred to an autosampler vial for injection into the GC-ECD.

3. GC-ECD Analysis - A sample aliquot is injected into an HP5890 GC with an ECD equipped with an HP ChemStation for data processing. PCBs were identified by matching retention times of standards to the same retention time in the sample. Regression analysis was performed on each of the selected peak's height versus concentration of the standard using a LN/LN transformed linear regression. For PCBs nine peaks were selected for quantification. The ug/mL value for each peak was added together and divided by the number of peaks selected to obtain the total PCB ug/mL result. If interference occurred at any of the peaks, these peaks were not included in the total, and the divisor was reduced accordingly.

4. Quality Control - Quality control consisted of the following items:

- Continuing calibration standards analyzed every ten samples or less and at the end of a run.
- Blank and LCS samples analyzed every twenty sample or less with a minimum of one per day.
- MS/MSD samples analyzed every twenty samples or less with a minimum of one per day.
- Information is documented in logbook 45 and September run sheets.

4. Instrument Conditions - Two HP5890 gas chromatographs were equipped with RTX-35 capillary columns. Each system had a Leap Technologies A200S auto-sampler and an HP ChemStation for data handling.

Table 1

Sample Results – September

Table 1
Kuhlman Electric
Crystal Springs, Mississippi
PCB Concentrations as Aroclor 1260 Detected

						Field Laboratory		
Field Lab Sample ID	Sample ID	Sample Depth	Date Collected	Time Collected	Date Analyzed	Concentration (mg/kg)	Surrogate TcMX(%)	Surrogate DCBP(%)
E1488	SOJ-BK-455	-	12-Sep-03	950	12-Sep-03	< 0.10	102	112
E1489	SOJ-BK-456	-	12-Sep-03	953	12-Sep-03	< 0.10	99.4	102
E1490	SOJ-BK-457	-	12-Sep-03	955	12-Sep-03	< 0.10	99.8	117
E1491	SOJ-BK-458	-	12-Sep-03	956	12-Sep-03	< 0.10	103	117
E1492	SOJ-BK-459	-	12-Sep-03	1045	12-Sep-03	< 0.10	101	105
E1493	SOJ-BK-460	-	12-Sep-03	1050	12-Sep-03	< 0.10	103	112
E1494	SOJ-BK-461	-	12-Sep-03	1052	12-Sep-03	< 0.10	101	107
E1495	BK-Duplicate	-	12-Sep-03	-	12-Sep-03	< 0.10	99.2	100
E1496	SOJ-BK-462	-	12-Sep-03	1150	12-Sep-03	< 0.10	99.0	115
E1497	SOJ-BK-463	-	12-Sep-03	1152	12-Sep-03	< 0.10	99.6	103
E1498	SOJ-BK-464	-	12-Sep-03	1154	12-Sep-03	< 0.10	94.8	123
E1499	SOJ-BK-465	-	12-Sep-03	1242	12-Sep-03	< 0.10	97.1	100
E1500	SOJ-BK-466	-	12-Sep-03	1245	12-Sep-03	< 0.10	99.1	102
E1501	SOJ-BK-467	-	12-Sep-03	1252	12-Sep-03	< 0.10	100	106

Table 2

QC Samples - September

Table 2
QC Results

Lab # associated with qc samples: E1488 through E1501

Matrix	Matrix	Matrix	Spike	Duplicate	Blank	LCS
Spike E1488			E1488		620	620

Date Analyzed: 9/12/2003 9/12/2003 9/12/2003 9/12/2003

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	108		112		-4%	< 0.10	111

Appendix A

Chain of Custody Sheets for mobile lab PCB analysis Excavation Backfill Samples



**Environmental Chemistry
Consulting Services, Inc.**

2626 Advances Road

Madison, WI 53718

Phone 608-221-8700

FAX 608-221-4889

Project Number:

K-HC-AN-Electnic
Contract Service

Project Name:

Project Location:

Sampled By (Print):

Chuck Paul

Mail Report To:
Company: MARKETING & SUPPORT
Address:

Turn Around (circle one) Normal Rush

Report Due:

Invoice To:

Company:

Address:

P.O. No.: Quote No.:

Laboratory

Number

Sample Description Collection Date Time Matrix Total Bottles Preserv* Analysis Requested Comments

E1498

E1499

E1490

E1491

E1492

E1493

E1494

E1495

E1496

E1497

E1498

E1499

E1490

E1491

E1492

E1493

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E1495

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E1494

E1495

E1496

E1497

E1498

E1499

E1490

E1491

E1492

E1493

E1494

E1495

E1496

Preservation Code Relinquished By Date/Time:

A=None B=HCl C=H₂SO₄

D=HNO₃ E=EnCore F=Methanol

G=NaOH O=Other(Indicate)

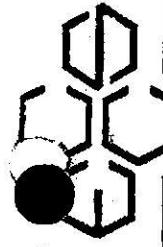
Custody Seal: Present/Absent Intact/Not Intact Seal #'s

Shipped Via:

Received By: Date/Time:

9/12/03 0330

WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER/SUBMITTER

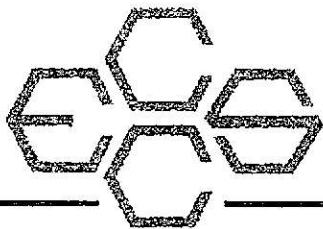


**Environmental Chemistry
Consulting Services, Inc.**

2525 Advance Road
Madison, WI 53718

Phone 608-221-8700 FAX 608-221-4888

CHAIN OF CUSTODY							No. 006753	
							Page <u>2</u> of <u>2</u>	
							Turn Around (circle one) Normal Rush	
							Report Due:	
							Invoice To:	
							Company:	
							Address:	
							P.O. No.:	
							Quote No.:	
							Laboratory Number	
Sample Description	Collection Date	Time	Matrix	Total Bottles	Preserv*	Analysis Requested	Comments	
SOT-BK-466	12/26/95	12:45	S	1	N/A	PCB	E1500	
SOT-BK-467	12/26/95	1:15	S	1	N/A	PCB	E1501	
<i>Chuck Pur</i>								
<i>JK</i>								
*Preservation Code	Relinquished By:						Date/Time:	
A=None B=HCl C=H ₂ SO ₄	<i>Charles</i>						<i>9/12/95 1345</i>	
D=HNO ₃ E=EnCore F=Methanol							Received By:	
G=NaOH O=Other(indicate)								
Custody Seal: Present/Absent	Intact/Not Intact						Seal #s	
Shipped Via:								
							Date/Time: <i>12/16/95 1:15:00</i>	
							Received By: <i>Jeffrey Winkler</i>	
							Date/Time: <i>12/16/95 1:15:00</i>	
							Date/Time: <i>12/16/95 1:15:00</i>	
							Receipt Tamp: <i>JK</i>	
							Temp Blank Y N	
							Temp: <i>Y</i>	
							Submitter: <i>PINK - SAMPLER/SUBMITTER</i>	



November 8, 2003

Robert Martin
Martin & Slagle, LLC
P.O. Box 1023
Black Mountain, NC 28711

Dear Mr. Martin,

Enclosed is the Technical Memorandum for work completed at the former Borg Warner and current Kuhlman Electric facility in Crystal Springs, Mississippi during the month of October. If you have any questions concerning this information, please give me a call.

Sincerely,

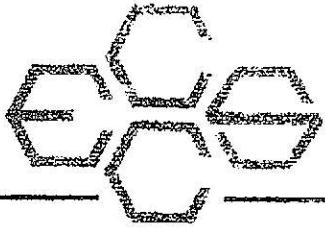
Richard Johnson

Enclosure

Technical Memorandum

Borg Warner / Kuhlman Electric

Crystal Springs, Mississippi



TECHNICAL MEMORANDUM

November 8, 2003

To: Robert Martin
Martin Slagle Inc.

From: Richard Johnson
ECCS, Inc.

Re: Field Analytical Methods – QC Summary
Borg Warner – Kuhlman Electric Facility
Crystal Springs, Mississippi

INTRODUCTION

This Technical Memorandum provides documentation of the field analytical test methods used to analyze soil samples collected from backfill areas during October 2003 an accelerated site investigation episode around the former Borg Warner and current Kuhlman Electric facility in Crystal Springs, Mississippi. Soil samples were analyzed for polychlorinated biphenyls (PCBs) and chlorinated benzenes by gas chromatography (GC) in accordance with ECCS's Polychlorinated Biphenyl (PCB) Mini Extraction Screening Procedure. A summary of test results is provided in Table 1. A summary of method blanks, laboratory control samples and matrix spike/matrix spike duplicate data is provided in Table 2.

In addition copies of the chain of custody sheets can be found in appendix A.

A) Chain of custody sheets Excavation Backfill

The PCB mini-extraction procedure is based on the existing EPA SW846 methods 8082/8141. The procedure incorporates all the quality control rigors of the full 8082/8141 methods including quantification based on 6-point calibration with continuing calibration verification, surrogate method performance monitoring, method blanks, laboratory control samples (LCS), and matrix spike/matrix spike (MS/MSD) duplicate samples. As such, you should consider these test results as comparable to what you would get from a fixed-based laboratory using the more-widely accepted extraction procedure.

The primary project objective of the sampling and testing episode was to delineate the PCB contamination at and around the site using the accelerated site characterization approach. The mobile laboratory was required to provide data as quickly as possible to keep the accelerated site investigation process on track while trying to maintain a goal of level three data quality.

CASE NARRATIVE

During the episode, all samples collected were analyzed. To maintain rapid turnaround and to meet the project objective, three GCs were operated on a nearly continuous basis.

Quality control including proper calibration, continuing calibration verification, surrogates, method blanks, laboratory control samples and matrix spike/matrix spike duplicate samples was performed at the method-specified intervals. Overall quality of the data is very good. The following quality related issues should be noted:

1. All surrogate recoveries were within acceptable ranges.
2. All LCS recoveries were within acceptable ranges. See Table 2.
3. All MS/MSD recoveries were within acceptable ranges. Percent repeatability was also within acceptable ranges. See Table 2.

METHOD SUMMARY

This method employs a mini-extraction procedure and gas chromatography analysis for the detection of PCBs and chlorinated benzenes. Reporting limits are provided in the results Tables. Four grams of sample are dried with anhydrous sodium sulfate and extracted with eight mLs of 80/20 iso-octane/acetone. The extract is then analyzed by Gas Chromatography-Electron Capture Detector (GC-ECD).

Procedure

1. Standards Preparation - Primary standards are prepared from a solution purchased from various vendors at Certified concentrations. Stock standards are prepared in suitable solvents and stored in a freezer when not in use. Secondary standards are prepared in 80/20 iso-octane/acetone and stored in a freezer when not in use. Standard curve mixes for this project was prepared at six concentrations: PCBs – 0.05, 0.10, 0.20, 0.50, 1.0 and 2.0 ug/ml; chlorinated benzenes – 0.005, 0.01, 0.02, 0.05, 0.10 and 0.20 ug/ml.
2. Sample Preparation - SOILS: Each sample or quality control sample is prepared in identical fashion. Approximately four grams of silica sand (blanks and control spikes) or sample is transferred into a clean scintillation vial. Ten grams of anhydrous sodium sulfate are added to the vial and mixed well. Extra sodium sulfate is added when necessary to assure the sample is dried. A surrogate, spike compound mix (if necessary) and eight mLs of 80/20 iso-octane/acetone are added to the vial. The vial is shaken for 30 seconds, allowed to settle for 2 minutes, shaken again for 30 seconds, and allowed to settle for 10 minutes. An aliquot of the extract is transferred to an autosampler vial for injection into the GC-ECD.
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 - MS/MSD samples analyzed every twenty samples or less with a minimum of one per day.
 - Information is documented in logbook 45 and October run sheets.
4. Instrument Conditions - Two HP5890 gas chromatographs were equipped with RTX-35 capillary columns. Each system had a Leap Technologies A200S auto-sampler and an HP ChemStation for data handling.

Table 1
Sample Results – October

Table 1
Kuhlman Electric
Crystal Springs, Mississippi
PCB Concentrations as Aroclor 1260 Detected

Field Lab Sample ID	Sample ID	Sample Depth	Date Collected	Time Collected	Date Analyzed	Field Laboratory		
						Concentration (mg/kg)	Surrogate TC MX(%)	Surrogate DC BP(%)
E1534	SOJ-BK-468	-	15-Oct-03	955	15-Oct-03	< 0.10	99.0	92.3
E1535	SOJ-BK-469	-	15-Oct-03	957	15-Oct-03	< 0.10	101	102
E1536	SOJ-BK-470	-	15-Oct-03	959	15-Oct-03	< 0.10	100	104
E1537	SOJ-BK-471	-	15-Oct-03	1225	15-Oct-03	< 0.10	101	93.5
E1538	SOJ-BK-472	-	15-Oct-03	1227	15-Oct-03	< 0.10	97.8	102
E1539	SOJ-BK-473	-	15-Oct-03	1228	15-Oct-03	< 0.10	98.3	100
E1540	SOJ-BK-474	-	15-Oct-03	1400	15-Oct-03	< 0.10	104	108
E1541	SOJ-BK-475	-	16-Oct-03	915	16-Oct-03	< 0.10	106	113
E1542	SOJ-BK-476	-	16-Oct-03	917	16-Oct-03	< 0.10	106	107
E1543	BK-Duplicate	-	16-Oct-03	-	16-Oct-03	< 0.10	107	109
E1544	SOJ-BK-477	-	16-Oct-03	1045	16-Oct-03	< 0.10	111	113
E1545	SOJ-BK-478	-	16-Oct-03	1048	16-Oct-03	< 0.10	109	113
E1546	SOJ-BK-479	-	16-Oct-03	1245	16-Oct-03	< 0.10	114	110
E1547	SOJ-BK-480	-	16-Oct-03	1247	16-Oct-03	< 0.10	112	111
E1548	SOJ-BK-481	-	16-Oct-03	1250	16-Oct-03	< 0.10	114	104
E1549	SOJ-BK-482	-	28-Oct-03	940	28-Oct-03	< 0.10	97.7	94.7
E1550	SOJ-BK-483	-	28-Oct-03	942	28-Oct-03	< 0.10	101	97.7
E1551	BK-Duplicate	-	28-Oct-03	-	28-Oct-03	< 0.10	98.8	97.9
E1552	SOJ-BK-484	-	28-Oct-03	1025	28-Oct-03	< 0.10	102	99.4
E1553	SOJ-BK-485	-	28-Oct-03	1029	28-Oct-03	< 0.10	98.1	100
E1554	SOJ-BK-486	-	28-Oct-03	1210	28-Oct-03	< 0.10	97.1	104
E1555	SOJ-BK-487	-	28-Oct-03	1214	28-Oct-03	< 0.10	103	96.6
E1556	SOJ-BK-488	-	29-Oct-03	955	29-Oct-03	< 0.10	101	97.1
E1557	SOJ-BK-489	-	29-Oct-03	1039	29-Oct-03	< 0.10	103	94.5
E1558	BK-Duplicate	-	29-Oct-03	-	29-Oct-03	< 0.10	103	91.6
E1559	SOJ-BK-490	-	29-Oct-03	1130	29-Oct-03	< 0.10	96.7	69.5
E1560	SOJ-BK-491	-	29-Oct-03	1133	29-Oct-03	< 0.10	102	92.3
E1561	SOJ-BK-492	-	29-Oct-03	1240	29-Oct-03	< 0.10	98.1	94.0
E1562	SOJ-BK-493	-	29-Oct-03	1242	29-Oct-03	< 0.10	96.9	101
E1563	SOJ-BK-494	-	29-Oct-03	1530	29-Oct-03	< 0.10	100	92.9

Table 2

QC Samples - October

Table 2
QC Results

Lab # associated with qc samples: E1534 through E1540

Matrix	Matrix	Spike	Duplicate	Blank	LCS
Spike E1534		E1534		642	642

Date Analyzed: 10/15/03 10/15/03 10/15/03 10/15/03 10/15/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	97.9		96.4		2%	< 0.10	94.1

Table 2
QC Results

Lab # associated with qc samples: E1541 through E1548

Matrix	Matrix	Matrix	Blank	LCS
Spike	Spike	Duplicate		
E1541	E1541		643	643

Date Analyzed: 10/16/03 10/16/03 10/16/03 10/16/03 10/16/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	100		102		-2%	< 0.10	103

Table 2
QC Results

Lab # associated with qc samples: E1549 through E1555

Matrix	Matrix		
Spike	Spike	Duplicate	Blank
E1549	E1549	E1549	649
LCS			649

Date Analyzed: 10/28/03 10/28/03 10/28/03 10/28/03 10/28/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	101		109		-8%	< 0.10	102

Table 2
QC Results

Lab # associated with qc samples: E1556 through E1563

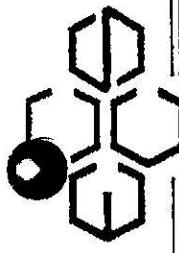
Matrix	Matrix	Spike	Duplicate	Blank	LCS
E1556		E1556		652	652

Date Analyzed: 10/29/03 10/29/03 10/29/03 10/29/03 10/29/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	106		103		3%	< 0.10	108

Appendix A

Chain of Custody Sheets for mobile lab PCB analysis Excavation Backfill Samples



**Environmental Chemistry
Consulting Services, Inc.**

2525 Advance Road
Phone 608-221-8700 FAX 608-221-4889
Madison, WI 53718

CHAIN OF CUSTODY
Buckfi. 1

No. 006492 *

		Page <u>1</u> of <u>1</u>		Normal	Rush
		Turn Around (circle one)			
Project Number:	1647000	Project Name:	Electroic	Report Due:	
Project Location:	CRASTIC SPRINGS	Company:	MARTIN & MULLER	Invoice To:	
Sampled By (Print):	Chuck Paul	Address:		Company:	
Mail Report To:		P.O. No.:		Quote No.:	
Sample Description	Collection Date	Matrix	Total Bottles	Analysis Requested	Comments
SOT-BK-482	2000-0940	5	1	NH	PCB's
SOT-BK-483	0942	—	—		E1549
BK-Dup 10-0th	—	—	—		E1550
SOT-BK-484	1025	—	—		E1551
SOT-BK-485	1029	—	—		E1552
SOT-BK-486	1216	—	—		E1553
SOT-BK-487	1214	—	—		E1554
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					E1596
					E1597
					E1598
					E1599
					E1500
Preservation Code	Relinquished By:	Date/Time:	Received By:	Date/Time:	Date/Time:
A=None B=HCL C=H2SO4	Chuck Paul	12/26/03 1:00	Jeanne Shabot	2000-12-26 1:00	2000-12-26 1:00
D=HNO3 E=EnCore F=Methanol					
G=NaOH O=Other(Indicate)					
Custody Seal: Present/Absent	Intact/Not Intact	Seal #3	Receipt Temp:	Temp Blank Y N	Temp Blank Y N
Shipped Via:					

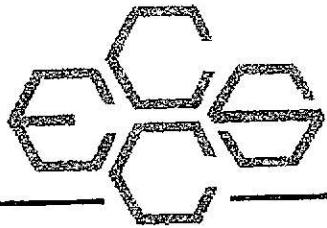
WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER/SUBMITTER

Date/Time:
2000-12-26 1:00

Date/Time:
2000-12-26 1:00

Receipt Temp:

Temp Blank Y N



January 22, 2004

Robert Martin
Martin & Slagle, LLC
P.O. Box 1023
Black Mountain, NC 28711

Dear Mr. Martin,

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Sincerely,

Kari-Lynn Killian
for Richard Johnson

Enclosure

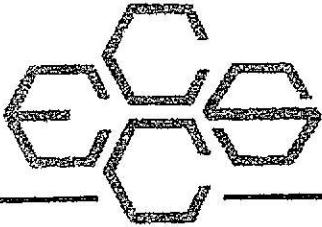
Environmental Chemistry Consulting Services, Inc.

2525 Advance Road • Madison, WI 53718 • Phone (608) 221-8700 • FAX (608) 221-4889

Technical Memorandum

Borg Warner / Kuhlman Electric

Crystal Springs, Mississippi



TECHNICAL MEMORANDUM

January 22, 2004

To: Robert Martin
Martin Slagle Inc.

From: Richard Johnson *Kak*
ECCS, Inc. *or*

Re: Field Analytical Methods – QC Summary
Borg Warner – Kuhlman Electric Facility
Crystal Springs, Mississippi

INTRODUCTION

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A) Chain of custody sheets Excavation Backfill

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The primary project objective of the sampling and testing episode was to delineate the PCB contamination at and around the site using the accelerated site characterization approach. The mobile laboratory was required to provide data as quickly as possible to keep the accelerated site investigation process on track while trying to maintain a goal of level three data quality.

CASE NARRATIVE

During the episode, all samples collected were analyzed. To maintain rapid turnaround and to meet the project objective, three GCs were operated on a nearly continuous basis.

Quality control including proper calibration, continuing calibration verification, surrogates, method blanks, laboratory control samples and matrix spike/matrix spike duplicate samples was performed at the method-specified intervals. Overall quality of the data is very good. The following quality related issues should be noted:

1. All surrogate recoveries were within acceptable ranges.
2. All LCS recoveries were within acceptable ranges. See Table 2.
3. All MS/MSD recoveries were within acceptable ranges. Percent repeatability was also within acceptable ranges. See Table 2.

METHOD SUMMARY

This method employs a mini-extraction procedure and gas chromatography analysis for the detection of PCBs and chlorinated benzenes. Reporting limits are provided in the results Tables. Four grams of sample are dried with anhydrous sodium sulfate and extracted with eight mLs of 80/20 iso-octane/acetone. The extract is then analyzed by Gas Chromatography-Electron Capture Detector (GC-ECD).

Procedure

1. Standards Preparation - Primary standards are prepared from a solution purchased from various vendors at Certified concentrations. Stock standards are prepared in suitable solvents and stored in a freezer when not in use. Secondary standards are prepared in 80/20 iso-octane/acetone and stored in a freezer when not in use. Standard curve mixes for this project was prepared at six concentrations: PCBs – 0.05, 0.10, 0.20, 0.50, 1.0 and 2.0 ug/m; chlorinated benzenes – 0.005, 0.01, 0.02, 0.05, 0.10 and 0.20 ug/ml.

2. Sample Preparation - SOILS: Each sample or quality control sample is prepared in identical fashion. Approximately four grams of silica sand (blanks and control spikes) or sample is transferred into a clean scintillation vial. Ten grams of anhydrous sodium sulfate are added to the vial and mixed well. Extra sodium sulfate is added when necessary to assure the sample is dried. A surrogate, spike compound mix (if necessary) and eight mLs of 80/20 iso-octane/acetone are added to the vial. The vial is shaken for 30 seconds, allowed to settle for 2 minutes, shaken again for 30 seconds, and allowed to settle for 10 minutes. An aliquot of the extract is transferred to an autosampler vial for injection into the GC-ECD.

3. GC-ECD Analysis - A sample aliquot is injected into an HP5890 GC with an ECD equipped with an HP ChemStation for data processing. PCBs were identified by matching retention times of standards to the same retention time in the sample. Regression analysis was performed on each of the selected peak's height versus concentration of the standard using a LN/LN transformed linear regression. For PCBs nine peaks were selected for quantification. The ug/mL value for each peak was added together and divided by the number of peaks selected to obtain the total PCB ug/mL result. If interference occurred at any of the peaks, these peaks were not included in the total, and the divisor was reduced accordingly.

4. Quality Control - Quality control consisted of the following items:

- Continuing calibration standards analyzed every ten samples or less and at the end of a run.
- Blank and LCS samples analyzed every twenty sample or less with a minimum of one per day.
- MS/MSD samples analyzed every twenty samples or less with a minimum of one per day.
- Information is documented in logbook 45 and December run sheets.

4. Instrument Conditions - Two HP5890 gas chromatographs were equipped with RTX-35 capillary columns. Each system had a Leap Technologies A200S auto-sampler and an HP ChemStation for data handling.

Table 1
Sample Results – December

Table 1
Kuhiman Electric
Crystal Springs, Mississippi
PCB Concentrations as Aroclor 1260 Detected

					Field Laboratory			
Field Lab Sample ID	Sample ID	Sample Depth	Date Collected	Time Collected	Date Analyzed	Concentration (mg/kg)	Surrogate TCMX(%)	Surrogate DCBP(%)
E1564	SOJ-BK-495	-	3-Dec-03	07:45	3-Dec-03	< 0.10	100	98.9
E1565	SOJ-BK-496	-	3-Dec-03	07:46	3-Dec-03	< 0.10	98.0	102
E1566	SOJ-Duplicate	-	3-Dec-03	-	3-Dec-03	< 0.10	97.2	89.6
E1567	SOJ-BK-497	-	3-Dec-03	08:55	3-Dec-03	< 0.10	97.6	96.4
E1568	SOJ-BK-498	-	3-Dec-03	08:56	3-Dec-03	< 0.10	98.7	92.4
E1569	SOJ-BK-499	-	3-Dec-03	08:57	3-Dec-03	< 0.10	102	101
E1570	SOJ-BK-500	-	3-Dec-03	08:59	3-Dec-03	< 0.10	99.7	93.1
E1571	SOJ-BK-501	-	3-Dec-03	09:58	3-Dec-03	< 0.10	108	104
E1572	SOJ-BK-502	-	3-Dec-03	09:59	3-Dec-03	< 0.10	104	98.0
E1573	SOJ-BK-503	-	3-Dec-03	10:00	3-Dec-03	< 0.10	106	104
E1574	SOJ-BK-504	-	3-Dec-03	14:43	3-Dec-03	< 0.10	102	101
E1575	SOJ-BK-505	-	3-Dec-03	14:45	3-Dec-03	< 0.10	112	111

Table 2

QC Samples - December

Table 2
QC Results

Lab # associated with qc samples: E1564 through E1575

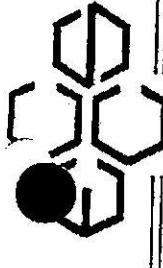
Matrix	Matrix	Spike	Duplicate	Blank	LCS
Spike	E1564	E1564			
E1564				664	664

Date Analyzed: 12/03/03 12/03/03 12/03/03 12/03/03 12/03/03

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	116		114		2%	< 0.10	123

Appendix A

Chain of Custody Sheets for mobile lab PCB analysis Excavation Backfill Samples



**Environmental Chemistry
Consulting Services, Inc.**

2525 Advance Road

Phone: 608-221-8700 FAX: 608-221-4889
Madison, WI 53718

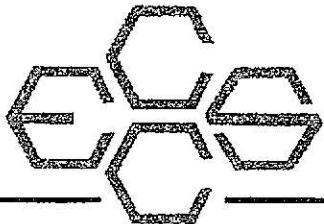
CHAIN OF CUSTODY
Backfill

No. 006506 *

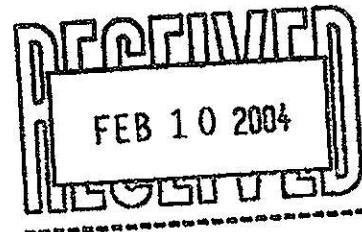
Page 1 of 1

Turn Around (Circle one)	Normal	Rush							
Report Due:									
Invoice To:									
Company:									
Address:									
Sample Description	Collection Date	Time	Matrix	Total Bottles	Preserv*	Analysis Requested	P.O. No.:	Quote No.:	Laboratory Number
SAS-BK-495	08/03/03	07:13	S	1	WA	PCB 21	E1564		
SAS-BK-496	08/03/03	07:46	S	1	WA	PCB 21	E1565		
SAS-DUP1CER							E1566		
SAS-BK-497							E1567		
							E1568		
							E1569		
							E1570		
							E1571		
							E1572		
							E1573		
							E1574		
							E1575		
Preservation Code	Retain/Discharge By:				Date/Time:		Received By:		Date/Time:
A=None B=HCl C=H ₂ SO ₄	Chris / Jan				12/15/03 1500		R. Gleason 53 Sec 03		1500
D=HNO ₃ E=EnCore F=Methanol	Retain/Discharge By:				Date/Time:		Received By:		Date/Time:
G=NaOH O=Other (Indicate)									
Custody Seal: Present/Absent	Intact/Not Intact				Seal #'s		Receipt Temp:		
Shipped Via:									
Temp Blank Y N									
WHITE - REPORT COPY YELLOW - LABORATORY COPY PINK - SAMPLER/SUBMITTER									

① WRONG 21612 60302 03



February 2, 2004



Robert Martin
Martin & Slagle, LLC
P.O. Box 1023
Black Mountain, NC 28711

Dear Mr. Martin,

Enclosed is the Technical Memorandum for work completed at the former Borg Warner and current Kuhlman Electric facility in Crystal Springs, Mississippi during the month of January. If you have any questions concerning this information, please give me a call.

Sincerely,

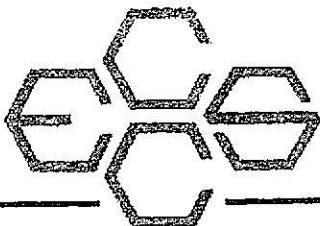
Karen Ann Killian
for Richard Johnson

Enclosure

Technical Memorandum

Borg Warner / Kuhlman Electric

Crystal Springs, Mississippi



TECHNICAL MEMORANDUM

February 2, 2004

To: Robert Martin
Martin Slagle Inc.

From: Richard Johnson *Va*
ECCS, Inc.

Re: Field Analytical Methods – QC Summary
Borg Warner – Kuhlman Electric Facility
Crystal Springs, Mississippi

INTRODUCTION

This Technical Memorandum provides documentation of the field analytical test methods used to analyze soil samples collected from backfill areas during January 2004 an accelerated site investigation episode around the former Borg Warner and current Kuhlman Electric facility in Crystal Springs, Mississippi. Soil samples were analyzed for polychlorinated biphenyls (PCBs) and chlorinated benzenes by gas chromatography (GC) in accordance with ECCS's Polychlorinated Biphenyl (PCB) Mini Extraction Screening Procedure. A summary of test results is provided in Table 1. A summary of method blanks, laboratory control samples and matrix spike/matrix spike duplicate data is provided in Table 2.

In addition copies of the chain of custody sheets can be found in appendix A.

A) Chain of custody sheets Excavation Backfill

The PCB mini-extraction procedure is based on the existing EPA SW846 methods 8082/8141. The procedure incorporates all the quality control rigors of the full 8082/8141 methods including quantification based on 6-point calibration with continuing calibration verification, surrogate method performance monitoring, method blanks, laboratory control samples (LCS), and matrix spike/matrix spike (MS/MSD) duplicate samples. As such, you should consider these test results as comparable to what you would get from a fixed-based laboratory using the more-widely accepted extraction procedure.

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During the episode, all samples collected were analyzed. To maintain rapid turnaround and to meet the project objective, three GCs were operated on a nearly continuous basis.

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METHOD SUMMARY

This method employs a mini-extraction procedure and gas chromatography analysis for the detection of PCBs and chlorinated benzenes. Reporting limits are provided in the results Tables. Four grams of sample are dried with anhydrous sodium sulfate and extracted with eight mLs of 80/20 iso-octane/acetone. The extract is then analyzed by Gas Chromatography-Electron Capture Detector (GC-ECD).

Procedure

1. Standards Preparation - Primary standards are prepared from a solution purchased from various vendors at Certified concentrations. Stock standards are prepared in suitable solvents and stored in a freezer when not in use. Secondary standards are prepared in 80/20 iso-octane/acetone and stored in a freezer when not in use. Standard curve mixes for this project was prepared at six concentrations: PCBs – 0.05, 0.10, 0.20, 0.50, 1.0 and 2.0 ug/m; chlorinated benzenes – 0.005, 0.01, 0.02, 0.05, 0.10 and 0.20 ug/ml.

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4. Quality Control - Quality control consisted of the following items:

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- MS/MSD samples analyzed every twenty samples or less with a minimum of one per day.
- Information is documented in logbook 45 and January run sheets.

4. Instrument Conditions - Two HP5890 gas chromatographs were equipped with RTX-35 capillary columns. Each system had a Leap Technologies A200S auto-sampler and an HP ChemStation for data handling.

Table 1
Sample Results – January

Table 1
Kuhlman Electric
Crystal Springs, Mississippi
PCB Concentrations as Aroclor 1260 Detected

					Field Laboratory			
Field Lab Sample ID	Sample ID	Sample Depth	Date Collected	Time Collected	Date Analyzed	Concentration (mg/kg)	Surrogate TCMX(%)	Surrogate DCBP(%)
E1578	SOJ-BK-506	-	27-Jan-04	15:30	27-Jan-04	< 0.10	110	122
E1579	SOJ-BK-507	-	27-Jan-04	15:31	27-Jan-04	< 0.10	109	106
E1580	SOJ-BK-508	-	27-Jan-04	15:33	27-Jan-04	< 0.10	105	106
E1581	SOJ-Duplicate	-	27-Jan-04	-	27-Jan-04	< 0.10	110	113
E1582	SOJ-BK-509	-	28-Jan-04	08:55	28-Jan-04	< 0.10	105	108
E1583	SOJ-BK-510	-	28-Jan-04	08:57	28-Jan-04	< 0.10	108	110
E1584	SOJ-BK-511	-	28-Jan-04	08:59	28-Jan-04	< 0.10	108	126
E1585	SOJ-Duplicate	-	28-Jan-04	-	28-Jan-04	< 0.10	109	129
E1586	SOJ-BK-512	-	28-Jan-04	09:10	28-Jan-04	< 0.10	106	126
E1587	SOJ-BK-513	-	28-Jan-04	09:11	28-Jan-04	< 0.10	107	110
E1588	SOJ-BK-514	-	28-Jan-04	10:04	28-Jan-04	< 0.10	108	126
E1589	SOJ-BK-515	-	28-Jan-04	10:05	28-Jan-04	< 0.10	108	108
E1590	SOJ-BK-516	-	28-Jan-04	10:30	28-Jan-04	< 0.10	104	126
E1591	SOJ-BK-517	-	28-Jan-04	11:39	28-Jan-04	< 0.10	110	118
E1592	SOJ-BK-518	-	28-Jan-04	11:41	28-Jan-04	< 0.10	107	125

Table 2
QC Samples - January

Table 2
QC Results

Lab # associated with qc samples: E1578 through E1581

Matrix	Matrix	Spike	Duplicate	Blank	LCS
Spike	E1578	E1578		684	684

Date Analyzed: 01/27/04 01/27/04 01/27/04 01/27/04

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	105		103		2%	< 0.10	109

Table 2
QC Results

Lab # associated with qc samples: E1582 through E1592

Matrix	Matrix	Spike	Duplicate	Blank	LCS
Spike	E1582	E1582			
				685	685

Date Analyzed: 01/28/04 01/28/04 01/28/04 01/28/04

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	116		118		-2%	< 0.10	112

Appendix A

Chain of Custody Sheets for mobile lab PCB analysis Excavation Backfill Samples

**Environmental Chemistry
Consulting Services, Inc.**

2626 Advance Road
Madison, WI 53718

Phone 608-221-8700 FAX 608-221-4889

KTP - excavation

BATCKFILL

Mail Report To:

MARTIN & SONS

Address:

Chuck Reid

Project Number:

Project Name:

Project Location:

Sampled By (Print):

Project ID:

Sample Description:

Collection Date:

Time:

Matrix:

Total Bottles

Preserv*

Analysis Requested

Comments

Laboratory Number

SOT-BK-501

01/24/04 1530

S

1

N/A

PCP

E1578

SOT-BK-507

1/24/04

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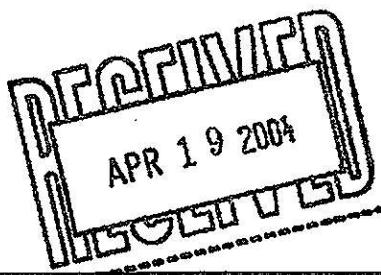
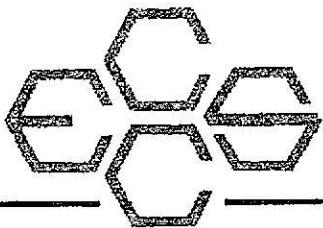
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April 1, 2004

Robert Martin
Martin & Slagle, LLC
P.O. Box 1023
Black Mountain, NC 28711

Dear Mr. Martin,

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Sincerely,

Karen Ann Killeen
for
Richard Johnson

Enclosure

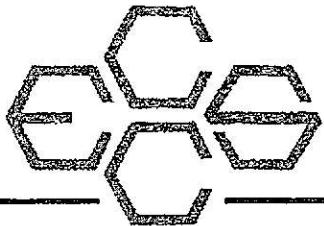
Environmental Chemistry Consulting Services, Inc.

2525 Alderwood Road • Madison WI 53718 • Phone (608) 221-8700 • FAX (608) 221-4889

Technical Memorandum

Borg Warner / Kuhlman Electric

Crystal Springs, Mississippi



TECHNICAL MEMORANDUM

February 2, 2004

To: Robert Martin
Martin Slagle Inc.

From: Richard Johnson *V.L.*
ECCS, Inc.

Re: Field Analytical Methods – QC Summary
Borg Warner – Kuhlman Electric Facility
Crystal Springs, Mississippi

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METHOD SUMMARY

This method employs a mini-extraction procedure and gas chromatography analysis for the detection of PCBs and chlorinated benzenes. Reporting limits are provided in the results Tables. Four grams of sample are dried with anhydrous sodium sulfate and extracted with eight mLs of 80/20 iso-octane/acetone. The extract is then analyzed by Gas Chromatography-Electron Capture Detector (GC-ECD).

Procedure

1. Standards Preparation - Primary standards are prepared from a solution purchased from various vendors at Certified concentrations. Stock standards are prepared in suitable solvents and stored in a freezer when not in use. Secondary standards are prepared in 80/20 iso-octane/acetone and stored in a freezer when not in use. Standard curve mixes for this project was prepared at six concentrations: PCBs – 0.05, 0.10, 0.20, 0.50, 1.0 and 2.0 ug/m; chlorinated benzenes – 0.005, 0.01, 0.02, 0.05, 0.10 and 0.20 ug/ml.
2. Sample Preparation - SOILS: Each sample or quality control sample is prepared in identical fashion. Approximately four grams of silica sand (blanks and control spikes) or sample is transferred into a clean scintillation vial. Ten grams of anhydrous sodium sulfate are added to the vial and mixed well. Extra sodium sulfate is added when necessary to assure the sample is dried. A surrogate, spike compound mix (if necessary) and eight mLs of 80/20 iso-octane/acetone are added to the vial. The vial is shaken for 30 seconds, allowed to settle for 2 minutes, shaken again for 30 seconds, and allowed to settle for 10 minutes. An aliquot of the extract is transferred to an autosampler vial for injection into the GC-ECD.
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 - MS/MSD samples analyzed every twenty samples or less with a minimum of one per day.
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4. Instrument Conditions - Two HP5890 gas chromatographs were equipped with RTX-35 capillary columns. Each system had a Leap Technologies A200S auto-sampler and an HP ChemStation for data handling.

Table 1

Sample Results – February

Table 1
Kuhlman Electric
Crystal Springs, Mississippi
PCB Concentrations as Aroclor 1260 Detected

Field Lab Sample ID	Sample ID	Sample Depth	Date Collected	Time Collected	Field Laboratory			
					Date Analyzed	Concentration (mg/kg)	Surrogate TCMX(%)	Surrogate DCBP(%)
E1593	SOJ-TS-027	-	04-Feb-04	10:45	04-Feb-04	< 0.10	108	128
E1594	SOJ-TS-028	-	04-Feb-04	10:48	04-Feb-04	< 0.10	110	101
E1595	SOJ-BK-519	-	16-Feb-04	09:05	16-Feb-04	< 0.10	104	126
E1596	SOJ-BK-520	-	16-Feb-04	09:07	16-Feb-04	< 0.10	109	118
E1597	SOJ-BK-521	-	16-Feb-04	09:08	16-Feb-04	< 0.10	111	122
E1598	SOJ-BK-522	-	16-Feb-04	09:09	16-Feb-04	< 0.10	103	120
E1599	SOJ-BK-523	-	16-Feb-04	11:35	16-Feb-04	< 0.10	109	116
E1600	SOJ-BK-524	-	16-Feb-04	11:36	16-Feb-04	< 0.10	111	119
E1601	SOJ-BK-525	-	16-Feb-04	11:38	16-Feb-04	< 0.10	107	113
E1602	SOJ-BK-526	-	16-Feb-04	11:39	16-Feb-04	< 0.10	112	117
E1603	SOJ-BK-527	-	21-Feb-04	08:00	21-Feb-04	< 0.10	93.5	94.5
E1604	SOJ-BK-528	-	21-Feb-04	08:03	21-Feb-04	< 0.10	91.8	99.3
E1605	SOJ-BK-529	-	21-Feb-04	08:04	21-Feb-04	< 0.10	92.7	94.9
E1606	SOJ- Duplicate	-	21-Feb-04	-	21-Feb-04	< 0.10	93.1	93.9
E1607	SOJ-BK-530	-	21-Feb-04	08:05	21-Feb-04	< 0.10	90.1	92.2
E1608	SOJ-BK-531	-	21-Feb-04	08:25	21-Feb-04	< 0.10	90.6	90.1
E1609	SOJ-BK-532	-	21-Feb-04	08:28	21-Feb-04	< 0.10	89.2	88.3
E1610	SOJ-BK-533	-	21-Feb-04	08:52	21-Feb-04	< 0.10	93.4	99.1

Table 2

QC Samples - February

Table 2
QC Results

Lab # associated with qc samples: E1593 through E1594

Matrix	Matrix	Matrix	Blank	LCS
Spike	Duplicate	R1951	688	688

Date Analyzed: 02/04/04 02/04/04 02/04/04 02/04/04

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	103		100		3%	< 0.10	108

Table 2
QC Results

Lab # associated with qc samples: E1595 through E1602

Matrix	Matrix	Spike	Duplicate	Blank	LCS
E1595		E1595		691	691

Date Analyzed: 02/16/04 02/16/04 02/16/04 02/16/04

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	104		103		1%	< 0.10	107

Table 2
QC Results

Lab # associated with qc samples: E1603 through E1610

Matrix	Matrix	Spike	Duplicate	Blank	LCS
Matrix	Spike	Duplicate	E1603	697	697

Date Analyzed: 02/21/04 02/21/04 02/21/04 02/21/04

Compound	% Rec		% Rec		% RPD	mg/kg	% Rec
PCB as 1260	101		107		-6%	< 0.10	110

Appendix A

Chain of Custody Sheets for mobile lab PCB analysis Excavation Backfill Samples

**Environmental Chemistry
Consulting Services, Inc.**

2825 Advance Road
Madison, WI 53718
Phone 608-221-8700 FAX 608-221-4888

Project Number:

Project Name: **Kutiman Electric**
Project Location: **CRVETTE SPRINGS**

Sampled By (Print):
Chad Peet

Mail Report To:

Company: **MARTIN + SIEBEL**
Address:

Turn Around (circle one)

Normal

Rush

Report Due:

Invoice To:

Company:

Address:

P.O. No.:

Quote No.:

Laboratory Number:

Comments:

Analysis Requested:

Total Bottles Present:

Matrix:

Collection Date:

Time:

Sample Description:

Relinquished By:

Date/Time:

Received By:

Date/Time:

Temp Blank Y N

Receipt Temp:

Shipped Via:

Custody Seal: Present/Absent

Intact/Not Intact

Seal #'s

White - REPORT COPY

Yellow - LABORATORY COPY

Pink - SAMPLER SUBMITTER

CHAIN OF CUSTODY

No. 007115 *

Project Number:	Sample Description:	Collection Date:	Time:	Matrix:	Total Bottles	Present*	Analysis Requested:	P.O. No.:	Quote No.:	Laboratory Number:
TOPSOIL 27	06-1045 S	1045	5	NA	1	NA	PCB 2			E1593
28	1048	1048	1	NA	1	1				E1594

**Environmental Chemistry
Consulting Services, Inc.**

2825 Advance Road
Madison, WI 53718
Phone 608-221-8700 FAX 608-221-4889

*

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Turn Around (circle one) Normal Rush

Report Due:

Project Number: 146-HM-001 Project Name: Electrolic

Project Location: CRVSMN SAWMWS Sampled By (Print): Chadfield

Mail Report To:

Company: MERRID & SONS

Address:

Invoice To:

Project Name: 146-HM-001 Project Location: CRVSMN SAWMWS

Sampled By (Print): Chadfield

Mail Report To:

Company: MERRID & SONS

Address:

P.O. No.: Quote No.:

Sample Description

Collection Date Time

Matrix

Total Bottles

Present*

Analysis Requested

Comments

Laboratory Number

SOT-BK-S27

07/21/04 0800

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NA

PRB,

E1103

S28

0803

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