Nationwide Mobile Laboratories
Pesticide Residue Laboratory
Chemistry Consulting

December 11, 2008

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

Dear Mr. Martin,

Enclosed is the Technical Memorandum for VOC work recently performed at the Kuhlman Electric Corporation (KEC) facility in Crystal Springs, MS. If you have any questions concerning this information, give me a call.

Sincerely,

Kari-Ann Killian

Joseph Kubale

Enclosure

Environmental Chemistry Consulting Services, Inc.

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Technical Memorandum

Kuhlman Electric Corporation (KEC)

Crystal Springs, Mississippi

TECHNICAL MEMORANDUM

December 11, 2008

To: Robert Martin
Martin and Slagle

From: Joseph Kubale
ECCS

Re: Analytical Methods
Volatile Organic Compounds (VOC) , 1,4-Dioxane
Kuhlman Electric Corporation (KEC)
Crystal Springs, MS

Introduction

This Technical Memorandum provides documentation of the analytical test methods used to analyze water samples collected in December 2008 during the city well groundwater sampling event near the Kuhlman Electric Corporation (KEC) facility in Crystal Springs, MS. The samples were analyzed by purge and trap GC/MSD for the VOCs listed below and by direct injection GC/MSD/SIM for 1,4-Dioxane.

Narrative

Waters
Water samples were analyzed for VOCs directly by purge and trap GC/MSD and for 1,4-Dioxane by direct injection GC/MSD/SIM.

The following report limits were used for water samples. The reporting limit units are in ug/L.

	Purge and Trap GC/MSD
Dichlorodifluoromethane	1.0
Chloromethane	1.0
Vinyl chloride	1.0
Bromomethane	1.0
Chloroethane	1.0
Trichlorofluoromethane	1.0

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1,1-Dichloroethene	1.0
Methylene chloride	1.0
trans-1,2-Dichloroethene	1.0
1,1-Dichloroethane	1.0
cis-1,2-Dichloroethene	1.0
2,2-Dichloropropane	1.0
Bromochloromethane	1.0
Chloroform	1.0
1,1,1-Trichloroethane	1.0
1,1-Dichloropropene	1.0
Carbon tetrachloride	1.0
Benzene	1.0
1,2-Dichloroethane	1.0
Trichloroethene	1.0
1,2-Dichloropropane	1.0
Dibromomethane	1.0
Bromodichloromethane	1.0
cis-1,3-Dichloropropene	1.0
Toluene	1.0
trans-1,3-Dichloropropene	1.0
1,1,2-Trichloroethane	1.0
Tetrachloroethene	1.0
1,3-Dichloropropane	2.0
Dibromochloromethane	1.0
1,2-Dibromoethane	1.0
Chlorobenzene	1.0
1,1,1,2-Tetrachloroethane	1.0
Ethyl benzene	1.0
Xylenes, total	2.0
Styrene	1.0
Bromoform	2.0
Isopropylbenzene	1.0
1,1,2,2-Tetrachloroethane	2.0
Bromobenzene	1.0
1,2,3-Trichloropropane	2.0
n-Propylbenzene	1.0
2-Chlorotoluene	1.0
1,3,5-Trimethylbenzene	1.0
4-Chlorotoluene	1.0
tert-Butylbenzene	1.0
1,2,4-Trimethylbenzene	1.0
sec-Butylbenzene	1.0
1,3-Dichlorobenzene	1.0
p-Isopropyltoluene	1.0
1,4-Dichlorobenzene	1.0
n-Butylbenzene	1.0
1,2-Dichlorobenzene	1.0
1,2-Dibromo-3-chloropropane	2.0
1,3,5-Trichlorobenzene	1.0
1,2,4-Trichlorobenzene	1.0
Hexachlorobutadiene	1.0

	Purge and Trap GC/MSD
Naphthalene	3.0
1,2,3-Trichlorobenzene	1.0
	Direct Injection GC/MSD/SIM
1,4-Dioxane	1.0

A summary of volatile test results is provided in Table 1. A summary of 1,4-Dioxane results is provided in table 2. A summary of method blanks and matrix spike/matrix spike duplicate data is provided in Table 3 and 4, respectively.

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

A) Chain of custody sheets for samples
B) FEDEX shipping label for Columbia Analytical Services, Inc.
C) Chain of custody sheets for samples sent to Columbia Analytical Services, Inc.

VOC Method Summary

Water Samples

Water samples were provided by the client to the lab in 40mL VOC vials. A 10mL aliquot of the sample was withdrawn from the vial with a 10mL Luer-Lok ™ syringe. 10 µL of a 25µg/mL surrogate and internal standard solution was added to the sample in the 10 mL syringe. The sample was then immediately loaded onto a Tekmar ALS 2016 autosampler with a Tekmar LSC 2000 purge and trap concentrator for GC\MSD analysis.

GC/MSD Procedure:

Identification of target compounds was done by matching retention times and mass spectra of peaks found in samples to those found in a VOC calibration standard using the internal standards as time reference peaks. Quantitation was performed by the internal standard technique using a seven point standard curve generated from 5, 10, 20, 50, 100, 250, and 500 ng standards. These levels equate to 0.5, 1.0, 2.0, 5.0, 10, 25 and 50 µg/L for water samples.

A Hewlett-Packard 5890 gas chromatograph with a 30m x 0.32mm RTX-624 micro-capillary column interfaced to a Hewlett-Packard 5972 MSD was used. The data system included a Hewlett-Packard Enviroquant chromatography workstation for data handling.

Quality control consisted of the following items:

- Initial calibration with % relative standard deviation less than 15% of individual response factors obtained from analysis of calibration standards
- Continuing Calibration Verification standards analyzed at a frequency of every ten samples or less
- Surrogate standard additions to samples
- Blank and LCS samples analyzed every twenty samples or less with a minimum of one per day per matrix.
- MS/MSD samples analyzed every twenty samples or less per matrix.
- Information documented in Logbook 150.

1,4-Dioxane Method Summary

Water Samples

Water samples were provided by the client to the lab in 1L amber bottle. 200 grams of sample was transferred to the filtering apparatus, spiked with 40uL 25ug/mL surrogate solution and 40uL 25ug/mL spike solution (if necessary) then filtered through a 3M 2272 activated carbon disk. The activated carbon disk was placed in a 3 dram vial containing 8mL methanol and sonicated for 15 minutes. A 0.8mL aliquot of the sample extract was spiked with 10uL 25ug/mL internal standard solution and analyzed by direct inject GC/MSD/SIM.

GC/MSD Procedure:

Identification of the target compound was done by matching retention times, quantitaion and qualifier ion relative responses to that of an authentic standard. Quantitation is accomplished by comparing the response of the major (quantitation) ion relative to an in internal standard using a seven point calibration curve. These levels equate to 0.5, 1.0, 2.5, 5.0, 10, 50 and 100 ug/L for water samples.

A Hewlett-Packard 5890 Series II gas chromatograph with a 30m x 0.32mm 1.8u film, RTX-624 micro-capillary column interfaced to a Hewlett-Packard 5972 MSD was used. The data system included a Hewlett-Packard Enviroquant chromatography workstation for data handling.

Quality control consisted of the following items:

- Initial calibration with % relative standard deviation less than 15% of individual response factors obtained from analysis of calibration standards
- Continuing Calibration Verification standards analyzed at a frequency of every ten samples or less
- Surrogate standard additions to samples
- Blank and LCS samples analyzed every twenty samples or less with a minimum of one per day per matrix.
- MS/MSD samples analyzed every twenty samples or less per matrix.
- Information documented in Logbook 196.

Table 1

Sample Results Volatiles– December

TABLE 1

Kuhlman Electric - Crystal Springs, Mississippi - Volatiles Detected in Water

VOLATILES	Reporting Limit ug/L	W2481 CSW WA8 031	W2482 CSW WA3 031	W2483 CSW WA1 031	W2484 CSW WA2 031	W2485 CSW FB 031	W2486 CSW WA5 026	W2487 CSW WA6 026	W2488 CSW TP 031	W2489 CSW Duplicate
Depth		-	-	-	-	-	-	-	-	
Date Collected		2-Dec-08	2-Dec-08	2-Dec-08	2-Dec-08	2-Dec-08	2-Dec-08	2-Dec-08	2-Dec-08	2-Dec-08
Time Collected		7:55	8:02	8:07	8:20	8:24	8:37	8:47	9:02	-
Date Analyzed		2-Dec-08	2-Dec-08	2-Dec-08	2-Dec-08	2-Dec-08	2-Dec-08	2-Dec-08	2-Dec-08	2-Dec-08
Dichlorodifluoromethane	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	1.0	< 1.0	< 1.0	**1.4**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.3**
Methylene Chloride	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Carbon Tetrachloride	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,3-Dichloropropene	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Toluene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,3-Dichloropropene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.1**	< 1.0
1,2-Dibromoethane	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethyl Benzene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

TABLE 1

Kuhlman Electric - Crystal Springs, Mississippi - Volatiles Detected in Water

VOLATILES	Reporting Limit ug/L	W2481 CSW WA8 031 - 2-Dec-08 7:55 2-Dec-08	W2482 CSW WA3 031 - 2-Dec-08 8:02 2-Dec-08	W2483 CSW WA1 031 - 2-Dec-08 8:07 2-Dec-08	W2484 CSW WA2 031 - 2-Dec-08 8:20 2-Dec-08	W2485 CSW FB 031 - 2-Dec-08 8:24 2-Dec-08	W2486 CSW WA5 026 - 2-Dec-08 8:37 2-Dec-08	W2487 CSW WA6 026 - 2-Dec-08 8:47 2-Dec-08	W2488 CSW TP 031 - 2-Dec-08 9:02 2-Dec-08	W2489 CSW Duplicate - 2-Dec-08 - 2-Dec-08
Xylenes, Total	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Styrene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Isopropylbenzene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Bromobenzene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichloropropane	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
n-Propylbenzene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Butylbenzene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-Chloropropane	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,3,5-Trichlorobenzene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2,3-Trichlorobenzene	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Surrogates:										
Dibromofluoromethane	%	102	101	101	104	101	104	103	102	102
Toluene-D8	%	111	110	102	106	104	104	104	109	102
4-Bromofluorobenzene	%	96.2	94.5	95.4	94.0	97.3	95.8	96.6	97.9	93.5

Table 2

Sample Results 1,4-Dioxane– December

TABLE 2

Kuhlman Electric - Crystal Springs, Mississippi - 1,4-Dioxane Detected in Water

		W2481	W2482	W2483	W2484	W2485	W2486	W2487	W2488	W2489
		CSW	CSW	CSW	CSW	CSW	CSW	CSW	CSW	CSW
		WA8	WA3	WA1	WA2	FB	WA5	WA6	TP	Duplicate
		031	031	031	031	031	026	026	031	
	Depth	-	-	-	-	-	-	-	-	
	Date Collected	2-Dec-08	2-Dec-08	2-Dec-08	2-Dec-08	2-Dec-08	2-Dec-08	2-Dec-08	2-Dec-08	2-Dec-08
	Time Collected	7:55	8:02	8:07	8:20	8:24	8:37	8:47	9:02	-
	Date Analyzed	3-Dec-08	3-Dec-08	3-Dec-08	3-Dec-08	3-Dec-08	3-Dec-08	3-Dec-08	3-Dec-08	3-Dec-08
VOLATILES	Reporting Limit ug/L									
1,4-Dioxane	1.0	< 1.0	< 1.0	**1.5**	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**1.3**
Surrogates:										
1,4-Dioxane-D8	%	111	104	116	114	112	118	104	105	102

Table 3

QC Results Volatiles– December

TABLE 3
QC Report

Lab # associated with qc samples: W2481 through W2489

	Matrix Spike W2481	Matrix Spike Duplicate W2481	Blank
Date Analyzed:	12/02/08	12/02/08	12/02/08

Compound	% Rec		% Rec	RPD		ug/L
Dichlorodifluoromethane	100%		100%	0.2%		< 1.0
Chloromethane	105%		106%	1.3%		< 1.0
Vinyl chloride	101%		103%	1.8%		< 1.0
Bromomethane	107%		111%	3.5%		< 1.0
Chloroethane	113%		104%	8.7%		< 1.0
Trichlorofluoromethane	110%		116%	4.6%		< 1.0
1,1-Dichloroethene	96.4%		102%	5.4%		< 1.0
Methylene chloride	100%		99.0%	1.2%		< 1.0
trans-1,2-Dichloroethene	103%		104%	1.2%		< 1.0
1,1-Dichloroethane	114%		113%	1.2%		< 1.0
cis-1,2-Dichloroethene	106%		103%	2.9%		< 1.0
2,2-Dichloropropane	105%		103%	1.5%		< 1.0
Bromochloromethane	104%		99.8%	4.5%		< 1.0
Chloroform	104%		104%	0.0%		< 1.0
1,1,1-Trichloroethane	105%		108%	2.4%		< 1.0
1,1-Dichloropropene	103%		106%	2.7%		< 1.0
Carbon tetrachloride	104%		105%	1.0%		< 1.0
Benzene	108%		108%	0.2%		< 1.0
1,2-Dichloroethane	107%		102%	5.2%		< 1.0
Trichloroethene	102%		101%	0.4%		< 1.0
1,2-Dichloropropane	98.0%		103%	5.4%		< 1.0
Dibromomethane	103%		99.0%	4.0%		< 1.0
Bromodichloromethane	95.8%		96.2%	0.4%		< 1.0
cis-1,3-Dichloropropene	91.2%		93.6%	2.6%		< 2.0
Toluene	104%		103%	0.4%		< 1.0
trans-1,3-Dichloropropene	92.4%		93.0%	0.6%		< 1.0
1,1,2-Trichloroethane	101%		98.6%	2.2%		< 1.0
Tetrachloroethene	99.0%		98.4%	0.6%		< 1.0
1,3-Dichloropropane	95.2%		98.4%	3.3%		< 1.0
Dibromochloromethane	91.6%		92.2%	0.7%		< 1.0
1,2-Dibromoethane	94.0%		88.8%	5.7%		< 1.0
Chlorobenzene	100%		107%	6.2%		< 1.0
1,1,1,2-Tetrachloroethane	93.4%		97.6%	4.4%		< 1.0
Ethyl benzene	102%		102%	0.0%		< 1.0
Xylenes, Total	102%		103%	1.5%		< 2.0
Styrene	103%		103%	0.6%		< 1.0
Bromoform	84.6%		94.6%	11.2%		< 2.0

TABLE 3
QC Report

Lab # associated with qc samples: W2481 through W2489

	Matrix Spike W2481	Matrix Spike Duplicate W2481	Blank
Date Analyzed:	12/02/08	12/02/08	12/02/08

Compound	% Rec		% Rec	RPD		ug/L
Isopropylbenzene	100%		102%	1.6%		< 1.0
1,1,2,2-Tetrachloroethane	95.4%		97.4%	2.1%		< 2.0
Bromobenzene	99.8%		101%	1.0%		< 1.0
1,2,3-Trichloropropane	99.2%		98.0%	1.2%		< 2.0
n-Propylbenzene	102%		105%	2.7%		< 1.0
2-Chlorotoluene	102%		103%	1.0%		< 1.0
1,3,5-Trimethylbenzene	98.0%		102%	4.2%		< 1.0
4-Chlorotoluene	102%		103%	1.8%		< 1.0
tert-Butylbenzene	97.4%		101%	3.4%		< 1.0
1,2,4-Trimethylbenzene	96.2%		104%	7.6%		< 1.0
sec-Butylbenzene	99.4%		104%	4.9%		< 1.0
1,3-Dichlorobenzene	105%		107%	2.1%		< 1.0
p-Isopropyltoluene	95.2%		104%	9.2%		< 1.0
1,4-Dichlorobenzene	101%		105%	4.3%		< 1.0
n-Butylbenzene	93.6%		106%	12.8%		< 1.0
1,2-Dichlorobenzene	98.4%		101%	2.8%		< 1.0
1,2-Dibromo-3-chloropropane	92.2%		97.4%	5.5%		< 2.0
1,3,5-Trichlorobenzene	87.0%		96.2%	10.0%		< 1.0
1,2,4-Trichlorobenzene	83.4%		93.0%	10.9%		< 1.0
Hexachlorobutadiene	97.4%		96.2%	1.2%		< 1.0
Naphthalene	78.6%		87.2%	10.4%		< 3.0
1,2,3-Trichlorobenzene	85.8%		92.8%	7.8%		< 1.0

Table 4

QC Results 1,4-Dioxane– December

TABLE 4
QC Report

Lab # associated with qc samples: W2481 through W2489

	Matrix Spike	Matrix Spike Duplicate		LCS	Blank
	W2481	W2481			
Date Extracted:	12/02/08	12/02/08		12/02/08	12/02/08
Date Analyzed:	12/03/08	12/03/08		12/03/08	12/03/08

Compound	% Rec		% Rec	RPD		% Rec	ug/L
1,4-Dioxane	102%		106%	3.8%		103%	< 1.0

Appendix A

Chain of Custody Sheets for Samples

Environmental Chemistry Consulting Services, Inc.

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

CHAIN OF CUSTODY

CITY WELLS

No. 013776 *

Page 1 of 1

Project Number:	Mail Report To:	Turn Around (circle one) Normal Rush
Project Name: KUHLMAN ELECTRIC	Company: MARTIN + SLAGLE	Report Due:
Project Location: CAPITAL SPRINGS	Address:	Invoice To:
Sampled By (Print): Chuck Paul		Company:
		Address:
		P.O. No.: Quote No.:

Sample Description	Collection Date	Collection Time	Matrix	Total Bottles	Preserv*	Analysis Requested	Comments	Laboratory Number
CSW-WA8-031	12/2/08	0755	W	4	A	1,4 Dioxane + 8260B		W2481
CSW-WA3-031		0802		4	A			W2482
CSW-WA1-031		0807		15	A/B			W2483
CSW-WA2-031		0820		4	A			W2484
CSW-FB-031		0824		4	A			W2485
CSW-WA5-026		0837		4	A			W2486
CSW-WA6-026		0847		4	A			W2487
CSW-TP-031		0902		7	A/B			W2488
CSW-DUPLICATE		—		9	A/B			W2489

*Preservation Code
A=None B=HCL C=H2SO4
D=HNO3 E=EnCore F=Methanol
G=NaOH O=Other(Indicate)

Relinquished By: Chuck Paul	Date/Time: 12/2/08 0910	Received By:	Date/Time: 12/2/08 0910
Relinquished By:	Date/Time:	Received By:	Date/Time:

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

Shipped Via:

Receipt Temp:
Temp Blank Y N n/a

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

Appendix B

FEDEX shipping label for Columbia Analytical Services, Inc.

FedEx Express **USA Airbill**

FedEx Tracking Number **837784146370**

Form I.D. No. 0200

Sender's Copy

From *Please print and press hard.*

Date 12/3/08

Sender's FedEx Account Number 2262 8199 1

Sender's Name JOE KUBALE

Phone (608) 345-1974

Company ECCS, INC

Address 2525 ADVANCE RD

Dept./Floor/Suite/Room

City MADISON State WI ZIP 53718

Your Internal Billing Reference
First 24 characters will appear on invoice.

To

Recipient's Name SAMPLE CUSTODIAN

Phone (360) 577-7222

Company COLUMBIA ANALYTICAL

Address

To "HOLD" at FedEx location, print FedEx address. We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address 1317 South 13th AVE

Dept./Floor/Suite/Room

City KELSO State WA ZIP 98626

Try online shipping at fedex.com

By using this Airbill you agree to the service conditions on the back of this Airbill and in 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.

4a Express Package Service — *Packages up to 150 lbs.* Delivery commitment may be later in some areas.

- [X] FedEx Priority Overnight — Next business morning
- [ ] FedEx Standard Overnight — Next business afternoon
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations
- [ ] FedEx 2Day — Second business day
- [ ] FedEx Express Saver — Third business day

FedEx Envelope rate not available. Minimum charge: One-pound rate

4b Express Freight Service — *Packages over 150 lbs.* Delivery commitment may be later in some areas.

- [ ] FedEx 1Day Freight* — Next business day
- [ ] FedEx 2Day Freight — Second business day
- [ ] FedEx 3Day Freight — Third business day

* Call for Confirmation:

5 Packaging — * Declared value limit $500

- [ ] FedEx Envelope*
- [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak
- [X] Other

6 Special Handling — Include FedEx address in Section 3.

- [ ] **SATURDAY Delivery** — Available ONLY for FedEx Priority Overnight and FedEx 2Day to select ZIP codes
- [ ] **HOLD Weekday at FedEx Location** — NOT Available for FedEx First Overnight
- [ ] **HOLD Saturday at FedEx Location** — Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

- [X] No
- [ ] Yes — As per attached Shipper's Declaration
- [ ] Yes — Shipper's Declaration not required
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg

Dangerous Goods (including Dry Ice) cannot be shipped in FedEx packaging.

- [ ] Cargo Aircraft Only

7 Payment *Bill to:* — Enter FedEx Acct. No. or Credit Card No. below.

- [X] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

FedEx Acct. No. / Credit Card No. 2262 8199 1 Exp. Date

Total Packages	Total Weight	Total Declared Value†	FedEx Use Only
		$ .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.

446

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Appendix C

Chain of Custody Sheets for samples sent to Columbia Analytical Services, Inc.

CHAIN OF CUSTODY

Columbia Analytical Services™

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

SR#: _____ PAGE 1 OF 1 COC # _____

PROJECT NAME: KUHLMAN ELECTRIC
PROJECT NUMBER:
PROJECT MANAGER: ROBERT MARTIN
COMPANY/ADDRESS: MARTIN + SLAGLE
CITY/STATE/ZIP: BLACK MOUNTAIN NC
E-MAIL ADDRESS:
PHONE #: FAX #:
SAMPLER'S SIGNATURE: [signature]

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625 ☐ 8270 ☐	Volatile Organics 624 ☐ 8270LL ☐	Hydrocarbons 8260 ☒ 8021 ☐ BTEX ☐ Gas ☐ Diesel ☐ Oil ☐ (*see below)	Fuel Fingerprint (FIQ) ☐ NW-HCID ☐	Oil & Grease/TRPH 1664 HEM ☐ 1664 SGT ☐	PCB's Aroclors ☐ Congeners ☐	Pesticides/Herbicides 608 ☐ 8081A ☐ 8141A ☐ 8151A ☐	Chlorophenolics - 8151M Tri ☐ Tetra ☐ PCP ☐	PAHS 8310 ☐ SIM ☐	Metals, Total or Dissolved (See list below)	Cyanide ☐	Hex-Chrom ☐	pH; Cond.; Cl, SO_4, PO_4, F, NO_2, NO_3; BOD, TSS, TDS (circle)	NH_3-N, COD, Total-P, TKN, TOC, DOC (circle) NO_2+NO_3	TOX 9020 ☐ AOX 1650 ☐ 506 ☐	1,4 Dioxane by 8270 SIM				REMARKS
CSW-WA1-031	12/2/08	0807		W	13		X														X				
CSW-DUPLICATE	12/2/08	—		W	5		X														X				
TRIP BLANK	—	—		W	2																				

REPORT REQUIREMENTS

___ I. Routine Report: Method Blank, Surrogate, as required
X II. Report Dup., MS, MSD as required
___ III. Data Validation Report (includes all raw data)
___ IV. CLP Deliverable Report
___ V. EDD

INVOICE INFORMATION

P.O. # _____
Bill To: BOB WARNER

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard (10-15 working days)
___ Provide FAX Results

Requested Report Date: _____

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

8260B – Kuhlman list
1,4 Dioxane – need 0.5 µg/L Report Limit
CSW-WA1-031 – extra volume for MS/MSD

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Charles Peel	Signature:	Signature:	Signature:
Date/Time: 11/3/08 1500	Date/Time:	Date/Time:	Date/Time:
Printed Name: Charles Peel	Printed Name:	Printed Name:	Printed Name:
Firm: Peel Consulting	Firm:	Firm:	Firm: