July 30, 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 Kubale

Joseph Kubale

Enclosure

Environmental Chemistry Consulting Services, Inc.
2525 Advance Road • Madison, WI 53718 • Phone (608) 221-8700 • FAX (608) 221-4889

# Technical Memorandum

# Kuhlman Electric Corporation (KEC)

# Crystal Springs, Mississippi

**TECHNICAL MEMORANDUM**

July 30, 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 July 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 |

| | |
|---|---|
| 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 150.

# Table 1

## Sample Results Volatiles– July

TABLE 1

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

| | | W2373 | W2374 | W2375 | W2376 | W2377 | W2378 | W2379 | W2380 | W2381 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | CSW | CSW | CSW | CSW | CSW | CSW | CSW | CSW | CSW |
| | | WA8 | WA3 | WA1 | WA2 | FB | WA5 | WA6 | TP | Duplicate |
| | | 026 | 026 | 026 | 026 | 026 | 021 | 021 | 026 | |
| | Depth | - | - | - | - | - | - | - | - | |
| | Date Collected | 8-Jul-08 | 8-Jul-08 | 8-Jul-08 | 8-Jul-08 | 8-Jul-08 | 8-Jul-08 | 8-Jul-08 | 8-Jul-08 | 8-Jul-08 |
| | Time Collected | 7:15 | 7:24 | 7:35 | 7:48 | 7:33 | 8:25 | 8:36 | 8:53 | - |
| | Date Analyzed | 9-Jul-08 | 9-Jul-08 | 9-Jul-08 | 9-Jul-08 | 9-Jul-08 | 9-Jul-08 | 9-Jul-08 | 9-Jul-08 | 9-Jul-08 |
| | Reporting Limit | | | | | | | | | |
| **VOLATILES** | ug/L | | | | | | | | | |
| 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 | **1.2** | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | **1.1** |
| 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 | **2.7** | < 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

| | | W2373 | W2374 | W2375 | W2376 | W2377 | W2378 | W2379 | W2380 | W2381 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | CSW | CSW | CSW | CSW | CSW | CSW | CSW | CSW | CSW |
| | | WA8 | WA3 | WA1 | WA2 | FB | WA5 | WA6 | TP | Duplicate |
| | | 026 | 026 | 026 | 026 | 026 | 021 | 021 | 026 | |
| | Depth | - | - | - | - | - | - | - | - | |
| | Date Collected | 8-Jul-08 | 8-Jul-08 | 8-Jul-08 | 8-Jul-08 | 8-Jul-08 | 8-Jul-08 | 8-Jul-08 | 8-Jul-08 | 8-Jul-08 |
| | Time Collected | 7:15 | 7:24 | 7:35 | 7:48 | 7:33 | 8:25 | 8:36 | 8:53 | - |
| | Date Analyzed | 9-Jul-08 | 9-Jul-08 | 9-Jul-08 | 9-Jul-08 | 9-Jul-08 | 9-Jul-08 | 9-Jul-08 | 9-Jul-08 | 9-Jul-08 |
| | Reporting Limit | | | | | | | | | |
| **VOLATILES** | ug/L | | | | | | | | | |
| 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 | **4.5** | < 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 | % | 104 | 106 | 107 | 106 | 104 | 104 | 103 | 113 | 107 |
| Toluene-D8 | % | 96.1 | 101 | 99.8 | 101 | 99.2 | 101 | 104 | 104 | 99.9 |
| 4-Bromofluorobenzene | % | 93.8 | 100 | 99.6 | 97.4 | 95.6 | 96.9 | 97.9 | 106 | 102 |

## Table 2

## Sample Results 1,4-Dioxane– July

TABLE 2

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

| | | W2373 | W2374 | W2375 | W2376 | W2377 | W2378 | W2379 | W2380 | W2381 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | CSW | CSW | CSW | CSW | CSW | CSW | CSW | CSW | CSW |
| | | WA8 | WA3 | WA1 | WA2 | FB | WA5 | WA6 | TP | Duplicate |
| | | 026 | 026 | 026 | 026 | 026 | 021 | 021 | 026 | |
| | Depth | - | - | - | - | - | - | - | - | |
| | Date Collected | 8-Jul-08 | 8-Jul-08 | 8-Jul-08 | 8-Jul-08 | 8-Jul-08 | 8-Jul-08 | 8-Jul-08 | 8-Jul-08 | 8-Jul-08 |
| | Time Collected | 7:15 | 7:24 | 7:35 | 7:48 | 7:33 | 8:25 | 8:36 | 8:53 | - |
| | Date Analyzed | 9-Jul-08 | 9-Jul-08 | 9-Jul-08 | 9-Jul-08 | 9-Jul-08 | 9-Jul-08 | 9-Jul-08 | 9-Jul-08 | 9-Jul-08 |
| **VOLATILES** | Reporting Limit ug/L | | | | | | | | | |
| 1,4-Dioxane | 1.0 | < 1.0 | < 1.0 | **1.1** | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | **1.0** |
| Surrogates: | | | | | | | | | | |
| 1,4-Dioxane-D8 | % | 101 | 90.2 | 93.3 | 90.5 | 96.8 | 93.6 | 94.3 | 94.7 | 81.7 |

**Table 3**

**QC Results Volatiles– July**

TABLE 3
QC Report

Lab # associated with qc samples: W2373 through W2381

| | Matrix Spike W2373 | Matrix Spike Duplicate W2373 | | | Blank |
|---|---|---|---|---|---|
| Date Analyzed: | 07/09/08 | 07/09/08 | | | 07/09/08 |

| Compound | % Rec | | % Rec | RPD | | ug/L |
|---|---|---|---|---|---|---|
| Dichlorodifluoromethane | 130% | | 116% | 10.9% | | < 1.0 |
| Chloromethane | 162% | | 143% | 12.3% | | < 1.0 |
| Vinyl chloride | 125% | | 117% | 6.0% | | < 1.0 |
| Bromomethane | 147% | | 139% | 5.7% | | < 1.0 |
| Chloroethane | 132% | | 121% | 8.3% | | < 1.0 |
| Trichlorofluoromethane | 115% | | 116% | 1.5% | | < 1.0 |
| 1,1-Dichloroethene | 108% | | 108% | 0.2% | | < 1.0 |
| Methylene chloride | 123% | | 121% | 1.6% | | < 1.0 |
| trans-1,2-Dichloroethene | 129% | | 124% | 4.4% | | < 1.0 |
| 1,1-Dichloroethane | 107% | | 107% | 0.1% | | < 1.0 |
| cis-1,2-Dichloroethene | 104% | | 107% | 3.1% | | < 1.0 |
| 2,2-Dichloropropane | 93.7% | | 97.9% | 4.4% | | < 1.0 |
| Bromochloromethane | 102% | | 102% | 0.4% | | < 1.0 |
| Chloroform | 103% | | 104% | 0.5% | | < 1.0 |
| 1,1,1-Trichloroethane | 105% | | 104% | 1.1% | | < 1.0 |
| 1,1-Dichloropropene | 96.7% | | 99.6% | 3.0% | | < 1.0 |
| Carbon tetrachloride | 99.0% | | 102% | 3.4% | | < 1.0 |
| Benzene | 102% | | 105% | 2.9% | | < 1.0 |
| 1,2-Dichloroethane | 101% | | 99.8% | 1.0% | | < 1.0 |
| Trichloroethene | 99.0% | | 101% | 1.8% | | < 1.0 |
| 1,2-Dichloropropane | 99.3% | | 102% | 2.9% | | < 1.0 |
| Dibromomethane | 99.6% | | 103% | 3.3% | | < 1.0 |
| Bromodichloromethane | 100% | | 101% | 1.0% | | < 1.0 |
| cis-1,3-Dichloropropene | 93.5% | | 95.9% | 2.5% | | < 2.0 |
| Toluene | 109% | | 108% | 1.6% | | < 1.0 |
| trans-1,3-Dichloropropene | 93.3% | | 98.1% | 5.0% | | < 1.0 |
| 1,1,2-Trichloroethane | 101% | | 102% | 0.3% | | < 1.0 |
| Tetrachloroethene | 101% | | 102% | 1.1% | | < 1.0 |
| 1,3-Dichloropropane | 99.0% | | 98.8% | 0.2% | | < 1.0 |
| Dibromochloromethane | 101% | | 99.6% | 1.7% | | < 1.0 |
| 1,2-Dibromoethane | 99.6% | | 97.8% | 1.8% | | < 1.0 |
| Chlorobenzene | 103% | | 102% | 1.6% | | < 1.0 |
| 1,1,1,2-Tetrachloroethane | 93.8% | | 92.5% | 1.4% | | < 1.0 |
| Ethyl benzene | 101% | | 98.9% | 2.1% | | < 1.0 |
| Xylenes, Total | 102% | | 99.4% | 2.3% | | < 2.0 |
| Styrene | 103% | | 99.2% | 3.9% | | < 1.0 |
| Bromoform | 93.8% | | 88.9% | 5.4% | | < 2.0 |

TABLE 3
QC Report

Lab # associated with qc samples: W2373 through W2381

| | Matrix Spike W2373 | Matrix Spike Duplicate W2373 | | Blank |
|---|---|---|---|---|
| Date Analyzed: | 07/09/08 | 07/09/08 | | 07/09/08 |

| Compound | % Rec | | % Rec | RPD | | ug/L |
|---|---|---|---|---|---|---|
| Isopropylbenzene | 101% | | 96.2% | 4.8% | | < 1.0 |
| 1,1,2,2-Tetrachloroethane | 104% | | 95.1% | 8.7% | | < 2.0 |
| Bromobenzene | 106% | | 103% | 2.9% | | < 1.0 |
| 1,2,3-Trichloropropane | 106% | | 99.3% | 6.4% | | < 2.0 |
| n-Propylbenzene | 108% | | 104% | 4.2% | | < 1.0 |
| 2-Chlorotoluene | 110% | | 105% | 5.3% | | < 1.0 |
| 1,3,5-Trimethylbenzene | 110% | | 102% | 7.3% | | < 1.0 |
| 4-Chlorotoluene | 111% | | 105% | 5.5% | | < 1.0 |
| tert-Butylbenzene | 106% | | 101% | 5.7% | | < 1.0 |
| 1,2,4-Trimethylbenzene | 112% | | 104% | 7.4% | | < 1.0 |
| sec-Butylbenzene | 110% | | 101% | 7.8% | | < 1.0 |
| 1,3-Dichlorobenzene | 102% | | 103% | 0.9% | | < 1.0 |
| p-Isopropyltoluene | 101% | | 99.6% | 1.3% | | < 1.0 |
| 1,4-Dichlorobenzene | 99.4% | | 102% | 3.0% | | < 1.0 |
| n-Butylbenzene | 103% | | 103% | 0.2% | | < 1.0 |
| 1,2-Dichlorobenzene | 99.4% | | 101% | 1.7% | | < 1.0 |
| 1,2-Dibromo-3-chloropropane | 96.0% | | 90.0% | 6.5% | | < 2.0 |
| 1,3,5-Trichlorobenzene | 99.1% | | 98.1% | 1.0% | | < 1.0 |
| 1,2,4-Trichlorobenzene | 96.5% | | 97.9% | 1.4% | | < 1.0 |
| Hexachlorobutadiene | 97.7% | | 96.2% | 1.5% | | < 1.0 |
| Naphthalene | 92.6% | | 92.3% | 0.3% | | < 3.0 |
| 1,2,3-Trichlorobenzene | 96.5% | | 97.4% | 0.9% | | < 1.0 |

**Table 4**

**QC Results 1,4-Dioxane– July**

TABLE 4
QC Report

Lab # associated with qc samples: W2373 through W2381

| | Matrix Spike | Matrix Spike Duplicate | | LCS | Blank |
|---|---|---|---|---|---|
| | W2373 | W2373 | | | |
| Date Extracted: | 07/08/08 | 07/08/08 | | 07/08/08 | 07/08/08 |
| Date Analyzed: | 07/09/08 | 07/09/08 | | 07/09/08 | 07/09/08 |

| Compound | % Rec | | % Rec | RPD | | % Rec | ug/L |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| 1,4-Dioxane | 103% | | 102% | 1.0% | | 100% | < 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 Well

No. 013740 *

Page 1 of 1

| | |
|---|---|
| Project Number: | Mail Report To: |
| Project Name: KUHLMAN ELECTRIC | Company: MARTIN + SLAGLE |
| Project Location: CRYSTAL SPRINGS | Address: |
| Sampled By (Print): Chuck Paul | |

Turn Around (circle one) Normal Rush
Report Due:
Invoice To:
Company:
Address:
P.O. No.: Quote No.:

| Sample Description | Collection Date | Collection Time | Matrix | Total Bottles | Preserv* | Analysis Requested | Comments | Laboratory Number |
|---|---|---|---|---|---|---|---|---|
| CSW-WA8-026 | 7/8/08 | 0715 | W | 4 | A | PZCOR + 1,4Dioxane | | W2373 |
| CSW-WA3-026 | | 0724 | | 4 | A | | | W2374 |
| CSW-WA1-026 | | 0735 | | 11 | A/B | | | W2375 |
| CSW-WA2-026 | | 0748 | | 4 | A | | | W2376 |
| CSW-FB-026 | | 0733 | | 4 | A | | | W2377 |
| CSW-WA5-021 | | 0825 | | 4 | A | | | W2378 |
| CSW-WA6-021 | | 0936 | | 4 | A | | | W2379 |
| CSW-TP-026 | | 0853 | | 7 | A/B | | | W2380 |
| DUPLICATE | | — | | 7 | A/B | | | W2381 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

| | | | |
|---|---|---|---|
| Relinquished By: Charles A. Paul | Date/Time: 7/8/08 0905 | Received By: | Date/Time: 7/8/08 0905 |
| 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 on ice

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 **837784146462**

Form I.D. No. **0200**

**From** *Please print and press hard.*

Date 7/9/08 Sender's FedEx Account Number 226281991

Name Jim Kubala Phone (608) 345-1974

Company ECCS, INC

Address ~~701 K~~ 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 S. 13th AVE

Dept./Floor/Suite/Room

City KELSO State WA ZIP 98626

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 2

- [ ] **SATURDAY Delivery** — Available ONLY to 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. 226281991 Exp. 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. FedEx Use Only

**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

Rev. Date 10/01 • Part #157612 • ©1994–2001 FedEx • PRINTED IN U.S.A. WCSL 02

# Appendix C

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

# CHAIN OF CUSTODY

Columbia Analytical Services, Inc.
An Employee - Owned Company

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 WC
E-MAIL ADDRESS:
PHONE #: FAX#:
SAMPLER'S SIGNATURE:

| SAMPLE I.D. | DATE | TIME | LAB I.D. | MATRIX | NUMBER OF CONTAINERS | Semivolatile Organics by GC/MS 625☐ 8270☐ 8270LL☐ | Volatile Organics 624☐ 8260☒ | Hydrocarbons (*see below) Gas☐ Diesel☐ Oil☐ ☐Fuel Fingerprint (FIO) ☐NW-HCID Screen | 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☐ | 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-WA1-026 | 7/8/08 | 0735 | | W | 6 | | X | | | | | | | | | | | | | X | | | | |
| DUPLICATE | 7/8/08 | — | | 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: BORG 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 list Kuhlman list

1,4 Dioxane - need 0.5 µg/L report limit

| RELINQUISHED BY: | RECEIVED BY: | RELINQUISHED BY: | RECEIVED BY: |
|---|---|---|---|
| Signature / Date/Time | Signature / Date/Time | Signature / Date/Time | Signature / Date/Time |
| Printed Name / Firm | Printed Name / Firm | Printed Name / Firm | Printed Name / Firm |

September 24, 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

for Joseph Kubale

Enclosure

Environmental Chemistry Consulting Services, Inc.
2525 Advance Road • Madison, WI 53718 • Phone (608) 221-8700 • FAX (608) 221-4889

# Technical Memorandum

# Kuhlman Electric Corporation (KEC)

# Crystal Springs, Mississippi