August 9, 2007

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

for Joseph Kubale

Enclosure

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# Technical Memorandum

# Kuhlman Electric Corporation (KEC)

# Crystal Springs, Mississippi

**TECHNICAL MEMORANDUM**

August 9, 2007

To: Robert Martin
Martin and Slagle

From: Joseph Kubale
ECCS

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

## Introduction

This Technical Memorandum provides documentation of the field analytical test methods used to analyze water samples collected in June 2007 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 |

| | Purge and Trap GC/MSD |
|---|---|
| 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 Paradigm Labs
C) Chain of custody sheets for samples sent to Paradigm Labs

## VOC Method Summary

Water Samples

Water samples were provided by the client to the field 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 Field Logbook 150.

## 1,4-Dioxane Method Summary

Water Samples

Water samples were provided by the client to the field lab in 500mL 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 Field Logbook 150.

# Table 1

## Sample Results Volatiles– June

TABLE 1

Kuhlman Electric - Crystal Springs, M[illegible]ssippi - Volatiles Detected in Water

| | | W1902 | W1903 | W1904 | W1905 | W1906 | W1907 | W1908 | W1909 | W1910 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | CSW | CSW | CSW | CSW | CSW | CSW | CSW | CSW | CSW |
| | | WA8 | WA3 | FB | WA1 | WA2 | WA5 | WA6 | TP | Duplicate |
| | | 012 | 012 | 012 | 012 | 012 | 008 | 008 | 012 | |
| | Depth | - | - | - | - | - | - | - | - | |
| | Date Collected | 19-Jun-07 | 19-Jun-07 | 19-Jun-07 | 19-Jun-07 | 19-Jun-07 | 19-Jun-07 | 19-Jun-07 | 19-Jun-07 | 19-Jun-07 |
| | Time Collected | 8:20 | 8:30 | 8:50 | 8:55 | 9:04 | 9:25 | 9:31 | 9:45 | - |
| | Date Analyzed | 20-Jun-07 | 20-Jun-07 | 20-Jun-07 | 20-Jun-07 | 20-Jun-07 | 20-Jun-07 | 20-Jun-07 | 20-Jun-07 | 20-Jun-07 |
| | 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 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| 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 | **1.1** | < 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 | **1.9** | < 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, M sippi - Volatiles Detected in Water

| | | W1902 | W1903 | W1904 | W1905 | W1906 | W1907 | W1908 | W1909 | W1910 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | CSW | CSW | CSW | CSW | CSW | CSW | CSW | CSW | CSW |
| | | WA8 | WA3 | FB | WA1 | WA2 | WA5 | WA6 | TP | Duplicate |
| | | 012 | 012 | 012 | 012 | 012 | 008 | 008 | 012 | |
| | Depth | - | - | - | - | - | - | - | - | |
| | Date Collected | 19-Jun-07 | 19-Jun-07 | 19-Jun-07 | 19-Jun-07 | 19-Jun-07 | 19-Jun-07 | 19-Jun-07 | 19-Jun-07 | 19-Jun-07 |
| | Time Collected | 8:20 | 8:30 | 8:50 | 8:55 | 9:04 | 9:25 | 9:31 | 9:45 | - |
| | Date Analyzed | 20-Jun-07 | 20-Jun-07 | 20-Jun-07 | 20-Jun-07 | 20-Jun-07 | 20-Jun-07 | 20-Jun-07 | 20-Jun-07 | 20-Jun-07 |
| **VOLATILES** | Reporting Limit 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 | **1.4** | < 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 | % | 103 | 100 | 102 | 96.2 | 102 | 107 | 124 | 95.7 | 112 |
| Toluene-D8 | % | 72.7 | 107 | 76.4 | 108 | 109 | 107 | 108 | 108 | 109 |
| 4-Bromofluorobenzene | % | 92.5 | 93.0 | 92.4 | 90.4 | 89.6 | 90.6 | 89.4 | 91.4 | 93.3 |

# Table 2

## Sample Results 1,4-Dioxane– June

TABLE 2

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

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | W1902 | W1903 | W1904 | W1905 | W1906 | W1907 | W1908 | W1909 | W1910 |
| | | CSW | CSW | CSW | CSW | CSW | CSW | CSW | CSW | CSW |
| | | WA8 | WA3 | FB | WA1 | WA2 | WA5 | WA6 | TP | Duplicate |
| | | 012 | 012 | 012 | 012 | 012 | 008 | 008 | 012 | |
| | Depth | - | - | - | - | - | - | - | - | |
| | Date Collected | 19-Jun-07 | 19-Jun-07 | 19-Jun-07 | 19-Jun-07 | 19-Jun-07 | 19-Jun-07 | 19-Jun-07 | 19-Jun-07 | 19-Jun-07 |
| | Time Collected | 8:20 | 8:30 | 8:50 | 8:55 | 9:04 | 9:25 | 9:31 | 9:45 | - |
| | Date Analyzed | 22-Jun-07 | 22-Jun-07 | 22-Jun-07 | 22-Jun-07 | 22-Jun-07 | 22-Jun-07 | 22-Jun-07 | 22-Jun-07 | 22-Jun-07 |
| **VOLATILES** | Reporting Limit ug/L | | | | | | | | | |
| | | | | | | | | | | |
| 1,4-Dioxane | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| | | | | | | | | | | |
| Surrogates: | | | | | | | | | | |
| 1,4-Dioxane-D8 | % | 88.6 | 88.8 | 92.6 | 86.2 | 103 | 92.7 | 97.8 | 88.8 | 101 |
| | | | | | | | | | | |

# Table 3

## QC Results Volatiles– June

TABLE 3
QC Report

Lab # associated with qc samples: W1902 through W1910

| | Matrix Spike W1902 | Matrix Spike Duplicate W1902 | | Blank |
|---|---|---|---|---|
| Date Analyzed: | 6/20/07 | 6/20/07 | | 6/20/07 |

| Compound | % Rec | | % Rec | RPD | | ug/L |
|---|---|---|---|---|---|---|
| Dichlorodifluoromethane | 87.0% | | 85.2% | 2.1% | | < 1.0 |
| Chloromethane | 97.0% | | 94.8% | 2.3% | | < 1.0 |
| Vinyl chloride | 94.4% | | 93.2% | 1.3% | | < 1.0 |
| Bromomethane | 95.8% | | 102% | 6.1% | | < 1.0 |
| Chloroethane | 99.8% | | 98.6% | 1.2% | | < 1.0 |
| Trichlorofluoromethane | 100% | | 94.6% | 5.7% | | < 1.0 |
| 1,1-Dichloroethene | 98.8% | | 96.6% | 2.3% | | < 1.0 |
| Methylene chloride | 99.4% | | 106% | 6.2% | | < 1.0 |
| trans-1,2-Dichloroethene | 99.6% | | 94.6% | 5.1% | | < 1.0 |
| 1,1-Dichloroethane | 104% | | 98.8% | 4.9% | | < 1.0 |
| cis-1,2-Dichloroethene | 99.2% | | 103% | 3.4% | | < 1.0 |
| 2,2-Dichloropropane | 93.2% | | 95.2% | 2.1% | | < 1.0 |
| Bromochloromethane | 99.2% | | 100% | 1.2% | | < 1.0 |
| Chloroform | 103% | | 103% | 0.2% | | < 1.0 |
| 1,1,1-Trichloroethane | 100% | | 96.4% | 4.1% | | < 1.0 |
| 1,1-Dichloropropene | 87.4% | | 78.6% | 10.6% | | < 1.0 |
| Carbon tetrachloride | 100% | | 96.2% | 3.9% | | < 1.0 |
| Benzene | 72.4% | | 72.2% | 0.3% | | < 1.0 |
| 1,2-Dichloroethane | 90.2% | | 86.4% | 4.3% | | < 1.0 |
| Trichloroethene | 102% | | 95.8% | 6.1% | | < 1.0 |
| 1,2-Dichloropropane | 98.4% | | 99.6% | 1.2% | | < 1.0 |
| Dibromomethane | 95.8% | | 95.2% | 0.6% | | < 1.0 |
| Bromodichloromethane | 101% | | 93.8% | 7.4% | | < 1.0 |
| cis-1,3-Dichloropropene | 94.0% | | 97.2% | 3.3% | | < 2.0 |
| Toluene | 105% | | 106% | 0.9% | | < 1.0 |
| trans-1,3-Dichloropropene | 94.4% | | 91.0% | 3.7% | | < 1.0 |
| 1,1,2-Trichloroethane | 96.2% | | 102% | 6.0% | | < 1.0 |
| Tetrachloroethene | 98.8% | | 103% | 4.2% | | < 1.0 |
| 1,3-Dichloropropane | 98.0% | | 96.4% | 1.6% | | < 1.0 |
| Dibromochloromethane | 97.4% | | 97.2% | 0.2% | | < 1.0 |
| 1,2-Dibromoethane | 94.8% | | 93.0% | 1.9% | | < 1.0 |
| Chlorobenzene | 99.2% | | 100% | 0.8% | | < 1.0 |
| 1,1,1,2-Tetrachloroethane | 93.2% | | 95.8% | 2.8% | | < 1.0 |
| Ethyl benzene | 98.0% | | 95.0% | 3.1% | | < 1.0 |
| Xylenes, Total | 97.1% | | 94.9% | 2.3% | | < 2.0 |
| Styrene | 95.4% | | 94.2% | 1.3% | | < 1.0 |
| Bromoform | 88.2% | | 85.2% | 3.5% | | < 2.0 |

TABLE 3
QC Report

Lab # associated with qc samples: W1902 through W1910

| | Matrix Spike W1902 | Matrix Spike Duplicate W1902 | Blank |
|---|---|---|---|
| Date Analyzed: | 6/20/07 | 6/20/07 | 6/20/07 |

| Compound | % Rec | | % Rec | RPD | | ug/L |
|---|---|---|---|---|---|---|
| Isopropylbenzene | 91.2% | | 93.6% | 2.6% | | < 1.0 |
| 1,1,2,2-Tetrachloroethane | 85.0% | | 89.0% | 4.6% | | < 2.0 |
| Bromobenzene | 95.0% | | 93.8% | 1.3% | | < 1.0 |
| 1,2,3-Trichloropropane | 89.0% | | 87.2% | 2.0% | | < 2.0 |
| n-Propylbenzene | 92.8% | | 94.8% | 2.1% | | < 1.0 |
| 2-Chlorotoluene | 92.0% | | 92.2% | 0.2% | | < 1.0 |
| 1,3,5-Trimethylbenzene | 95.6% | | 95.2% | 0.4% | | < 1.0 |
| 4-Chlorotoluene | 91.4% | | 97.0% | 5.9% | | < 1.0 |
| tert-Butylbenzene | 91.4% | | 91.4% | 0.0% | | < 1.0 |
| 1,2,4-Trimethylbenzene | 94.0% | | 93.8% | 0.2% | | < 1.0 |
| sec-Butylbenzene | 93.6% | | 94.8% | 1.3% | | < 1.0 |
| 1,3-Dichlorobenzene | 101% | | 98.2% | 2.8% | | < 1.0 |
| p-Isopropyltoluene | 96.8% | | 97.0% | 0.2% | | < 1.0 |
| 1,4-Dichlorobenzene | 97.2% | | 99.4% | 2.2% | | < 1.0 |
| n-Butylbenzene | 94.8% | | 98.2% | 3.5% | | < 1.0 |
| 1,2-Dichlorobenzene | 94.6% | | 94.6% | 0.0% | | < 1.0 |
| 1,2-Dibromo-3-chloropropane | 78.6% | | 83.2% | 5.7% | | < 2.0 |
| 1,3,5-Trichlorobenzene | 93.4% | | 95.8% | 2.5% | | < 1.0 |
| 1,2,4-Trichlorobenzene | 89.6% | | 89.4% | 0.2% | | < 1.0 |
| Hexachlorobutadiene | 96.4% | | 99.6% | 3.3% | | < 1.0 |
| Naphthalene | 80.4% | | 81.0% | 0.7% | | < 3.0 |
| 1,2,3-Trichlorobenzene | 87.6% | | 87.6% | 0.0% | | < 1.0 |

## Table 4

## QC Results 1,4-Dioxane– June

TABLE 4
QC Report

Lab # associated with qc samples: W1902 through W1910

| | Matrix Spike | Matrix Spike Duplicate | | LCS | Blank |
|---|---|---|---|---|---|
| | W1902 | W1902 | | | |
| Date Extracted: | 06/20/07 | 06/20/07 | | 06/20/07 | 06/20/07 |
| Date Analyzed: | 06/22/07 | 06/22/07 | | 06/22/07 | 06/22/07 |

| Compound | % Rec | | % Rec | RPD | | % Rec | ug/L |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| 1,4-Dioxane | 87.8% | | 88.5% | 0.8% | | 88.6% | < 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. 012736 *

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 | CRYSTAL SPRINGS | Address: | Invoice To: |
| Sampled By (Print) | Charles Peel | | Company: |
| | | | Address: |
| | | | P.O. No.: Quote No.: |

| Sample Description | Collection Date | Collection Time | Matrix | Total Bottles | Preserv* | Analysis Requested | Comments | Laboratory Number |
|---|---|---|---|---|---|---|---|---|
| CSW-WA8-012 | 6/19/07 | 0820 | W | 4 | A/B | 1,4 Dioxane + 8260B | | W1902 |
| CSW-WA3-012 | | 0830 | W | 4 | A/B | | | W1903 |
| CSW-FB-012 | | 0850 | W | 4 | A/B | | | W1904 |
| CSW-WA1-012 | | 0855 | W | 13 | A/B | | | W1905 |
| CSW-WA2-012 | | 0904 | W | 4 | A/B | | | W1906 |
| CSW-WA5-008 | | 0925 | W | 4 | A/B | | | W1907 |
| CSW-WA6-008 | | 0931 | W | 4 | A/B | | | W1908 |
| CSW-TP-012 | | 0945 | W | 4 | A/B | | | W1909 |
| DUPLICATE | | — | W | 10 | A/B | | | W1910 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

| | | | | |
|---|---|---|---|---|
| Relinquished By | Charles Peel | Date/Time: | 6/19/07 1000 | Received By: |
| Relinquished By | | Date/Time: | | Received By: |

Date/Time: 6/19/07 1000

Date/Time:

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

# Appendix B

## FEDEX shipping label for Paradigm Labs

FedEx Express **US Airbill**

FedEx Tracking Number 8613 1266 2890

MJR11

Form 0215

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

Date 6/20/07 Sender's FedEx Account Number 1811-4189-1

Sender's Name Phone (910) 350-1903

Company SGS ENVIRONMENTAL SVC

Address 5500 BUSINESS DR

Dept./Floor/Suite/Room

City WILMINGTON State NC ZIP 28405-8446

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

**3 To**

Recipient's Name SAMPLE CUSTODIAN Phone ( )

Company SGS ENVIRONMENTAL

Recipient's Address

We cannot deliver to P.O. boxes or P.O. ZIP codes. Dept./Floor/Suite/Room

Address 5500 BUSINESS DR

To request a package be held at a specific FedEx location, print FedEx address here.

City WILMINGTON State NC ZIP 28405-8446

0356033367

**Find drop-off locations at fedex.com**
Simplify your shipping. Manage your account. Access all the tools you need.

**4a Express Package Service** *Packages up to 150 lbs.*

- [X] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations.* Saturday Delivery NOT available
- [ ] FedEx 2Day — Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

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

* To most locations.

**4b Express Freight Service** *Packages over 150 lbs.*

- [ ] FedEx 1Day Freight* — Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 2Day Freight — Second business day.** Thursday shipments will be delivered on Monday, unless SATURDAY Delivery is selected.
- [ ] FedEx 3Day Freight — Third business day.** Saturday Delivery NOT available

* Call for Confirmation. ** To most locations.

**5 Packaging**

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

* Declared value limit $500.

**6 Special Handling** Include FedEx address in Section 2.

- [ ] **SATURDAY Delivery** NOT Available for FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.
- [ ] **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. 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. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

**8 Residential Delivery Signature Options** If you require a signature, check Direct or Indirect.

- [ ] No Signature Required — Package may be left without obtaining a signature for delivery.
- [ ] Direct Signature — Someone at recipient's address may sign for delivery. *Fee applies.*
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. *Fee applies.*

519

Rev. Date 10/06 Part #156279 ©1994–2006 FedEx PRINTED IN U.S.A. SRF

# Appendix C

## Chain of Custody Sheets for samples sent to Paradigm Labs

SGS

# CHAIN OF CUSTODY RECORD
## SGS Environmental Services Inc.

Locations Nationwide
- Alaska
- Hawaii
- Ohio
- Maryland
- New Jersey
- North Carolina
- West Virginia

www.us.sgs.com

074071

(1)

CLIENT: MARTIN & SLAGLE

CONTACT: ROBERT MARTIN PHONE NO:( )

PROJECT: KUTTAWAY ELECTRIC SITE/PWSID# :

REPORTS TO: E-MAIL:

SAME FAX NO.:( )

INVOICE TO: QUOTE #

SAME P.O. NUMBER

SGS Reference:

PAGE 1 OF 1

(2)

| LAB NO. | SAMPLE IDENTIFICATION | DATE | TIME | MATRIX | No CONTAINERS | SAMPLE TYPE C=COMP G=GRAB | Preservatives Used | HCL | SAME | | | | | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Analysis Required (3) | 8260B | 1,4 Dioxane | | | | | | | | MOBILE LAB # |
| | C560-WA1-012 | 6/19/07 | 0855 | W | 6 | | | X | X | | | | | | | | W1905 |
| | DUPLICATE | 6/19/07 | — | W | 6 | | | X | X | | | | | | | | W1910 |
| | TRIP BLANK | — | — | W | 2 | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | Must 0.5 µg/L Limit for 1,4 Dioxane |

(5)

| Collected/Relinquished By:(1) | Date | Time | Received By: | Date | Time |
|---|---|---|---|---|---|
| Charles Fox | 6/20/07 | 1400 | | | |
| Relinquished By: (2) | Date | Time | Received By: | Date | Time |
| Relinquished By: (3) | Date | Time | Received By: | Date | Time |
| Relinquished By: (4) | Date | Time | Received By: | Date | Time |

(4)

Shipping Carrier: Samples Received Cold? (Circle) YES NO

Shipping Ticket No: Temperature °C: _____ °F: _____

Special Deliverable Requirements: Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Special Instructions:

Requested Turnaround Time:

☐ RUSH _____ (Date Needed) ☐ STD


☐ 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301
☐ 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557
☐ 1270 Greenbrier Street Charleston, WV 25311 Tel: (304) 346-0725 Fax: (304) 346-0761


White - Retained by Lab
Yellow - Returned with Report
Pink - Retained by Sampler