



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
Environmental Sciences Center
701 Mapes Road
Fort Meade, Maryland 20755-5350**

DATE : July 14, 2010

SUBJECT: Region III Data QA Review

FROM: Colleen Walling *CF Wallace*
Region III ESAT RPO (3EA20)

TO: Michael Towle
Regional Project Manager (3HS31)

Attached is the PCB Congeners data validation report for the Lin Electric Co. site (Case #: 40105; SDG#: C01J6) completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2763.

Attachment

cc: Gene Nance (Tech Law)

TO: #0027 TDF: #07006

OFFICE OF ANALYTICAL SERVICES AND QUALITY ASSURANCE

Lockheed Martin IS & GS – Civil
Energy & Environment
ESAT Region 3
US EPA Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Telephone 410-305-3037 Facsimile 410-305-3597



DATE: July 12, 2010

SUBJECT: Organic Data Validation (Level M2)
Site: Lin Electric Company
Case 40105, SDG C01J6

FROM: Mahboobeh Mecanic^{MM}
Senior Data Reviewer

Hoang M. Nguyen[✓]
Senior Data Reviewer

TO: Colleen Walling
ESAT Region 3 Project Officer

OVERVIEW

Case 40105, Sample Delivery Group (SDG) C01J6, consisted of six (6) aqueous samples submitted to SGS Environmental Services, Incorporated (SGS) for determination of all PCB Congeners (mono to deca). The sample set included one (1) field blank, one (1) rinsate blank and one (1) field duplicate pair. The PCB congener (CBs) analyses were performed by High Resolution Gas Chromatography/High Resolution Mass Spectrometry (HRGC/HRMS) in accordance with USEPA Method 1668A with modification 1915.1. Modification requested determination of Method Detection Limit (MDL) and inclusion of data in electronic format. Samples were analyzed through the Delivery of Analytical Services (DAS) program.

The twelve (12) 2005 World Health Organization (WHO) list congeners have toxicity equivalents (TEQ) similar to dioxin. The TEQ for these CBs are summarized on the Data Summary Forms (DSFs) for these samples.

PCB Congeners Analytical Methodology Comments

- Two (2) ions were monitored for identification of each CB congener.
- The laboratory utilized a total of twenty-seven (27) labeled extraction standards for quantitation of native CB congeners. Three (3) cleanup standards were used to monitor method cleanup procedure efficiencies.

QA/QC Comments

- Any congener with an ion ratio within Region III expanded $\pm 25\%$ theoretical ion abundance ratio but outside the fifteen percent (15%) theoretical limit was considered by the reviewer as a true congener and was reported on the DSFs and qualified "J" unless superseded by "B". Any congener with an ion ratio outside the $\pm 25\%$ criterion was not reported on the DSF by the reviewer.
- Recoveries and Relative Percent Differences (RPDs) of PCB congeners in the On Going Precision/On Going Precision Duplicate (OPR/OPRD) analyses were all within control limits with the exception of RPD for PeCB – 118.
- Sample volumes other than one (1) liter were used in the analyses of these samples. The dilution factors on the DSFs reflect this variance in sample volumes.
- Compounds detected below Reporting Limits (RLs) were qualified "J" on the DSFs unless superseded by "B".
- The requested Quantitation Limit (QL) of 10 pg/L was met by the laboratory per method 1668A.
- The field and rinsate blanks associated with samples in this data set reported positive results for many congeners. The rinsate blank had the higher concentration for most congeners. Positive results in field samples are mostly qualified "B" on the DSFs for having the concentrations of CBs less than five times ($<5X$) the blank concentrations. Due to the numerous contaminated CBs in the field or rinsate blanks, data are not tabulated in the narrative. TEQs for results qualified "B" are not calculated.
- Concentrations of PCB congeners found in the analyses of associated method blank (LMB 18209) are listed below. Only compounds used to qualify data are listed. The field and/or rinsate blanks, sample C01J6 and C01J7, respectively, had concentrations of CBs listed below less than five times ($<5X$) the blank concentration have been qualified "B". TEQs for results qualified "B" are not calculated.

| <u>PCB Congener</u> | <u>Concentration (pg/L)</u> | <u>Affected Samples</u> |
|---------------------|-----------------------------|-------------------------|
| DiCB-8 | 4.97 J | C01J6, C01J7 |
| DiCB-11 | 14.0 | C01J6, C01J7 |
| DiCB-15 | 4.06 J | C01J6, C01J7 |
| TriCB-18 + 30 | 8.25 J | C01J6, C01J7 |
| TriCB-22 | 6.26 J | C01J6 |
| TriCB-26 + 29 | 4.35 J | C01J6, C01J7 |
| TriCB-27 | 4.24 J | C01J6, C01J7 |
| TriCB-31 | 11.9 J | C01J6, C01J7 |
| TriCB-32 | 11.1 | C01J6 |
| TetraCB-40 + 71 | 11.8 J | C01J6 |

| <u>PCB Congener</u> | <u>Concentration (pg/L)</u> | <u>Affected Samples</u> |
|----------------------------|-----------------------------|-------------------------|
| TetraCB-49 + 69 | 18.9 J | C01J6 |
| TetraCB-50 + 53 | 6.59 J | C01J6, C01J7 |
| TetraCB-52 | 30.8 | C01J6 |
| TetraCB-61 + (70,74,76) | 30.3 | C01J6 |
| TetraCB-64 | 15.6 J | C01J6 |
| PentaCB-86+(87,97,108,119) | 18.6 | C01J6 |
| PentaCB-99 | 16.8 | C01J6 |
| PentaCB-110 + 115 | 23.4 | C01J6 |
| HexaCB-129 + (138,163) | 19.0 J | C01J6 |
| HexaCB-153 + 168 | 18.2 | C01J6 |

- Reported results for field duplicate pair, samples C07K0/C07K1, were comparable.
- Determination of MDL study was requested for this data set. A summary of MDL data was not submitted but should be available upon EPA request.

All data for Case 40105, SDG C01J6, were reviewed in accordance with EPA Region III Interim Guidelines for Validation of Data Generated Using Method 1668 PCB Congeners Data April 2004 and Region III Innovative Approaches for Validation of Organic Data, Level M2, June 1995.

ATTACHMENTS

- 1) Appendix A - Glossary of Data Qualifiers
- 2) Appendix B - Data Summary Forms
- 3) Appendix C - Chain of Custody (COC) Records
- 4) Appendix D - Laboratory Case Narrative

DCN: 40105_PCB_M2

Appendix A

Glossary of Data Qualifier Codes

GLOSSARY OF DATA QUALIFIER CODES (ORGANIC)

CODES RELATED TO IDENTIFICATION

(confidence concerning presence or absence of compounds)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

NO CODE = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

R = Unusable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

N = Tentative identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.

CODES RELATED TO QUANTITATION

(can be used for both positive results and sample quantitation limits):

J = Analyte present. Reported value may not be accurate or precise.

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

UL = Not detected, quantitation limit is probably higher.

OTHER CODES

NJ = Qualitative identification questionable due to poor resolution. Presumptively present at approximate quantity.

Q = No analytical result.

Appendix B

Data Summary Forms

DATA SUMMARY FORM: 1668A

Page 1_ of 14_

Case #: 40105

SDG : C01J6

Number of Soil Samples : 0

Site :

LIN ELECTRIC COMPANY

Number of Water Samples : 6

Lab. :

SGS

| | | | | | | | | | | | |
|------------------------|----|-------------|------|---------------|------|----------|------|----------|------|---------------|------|
| Sample Number : | | C01J6 | | C01J7 | | C01J8 | | C01J9 | | C01K0 | |
| Sampling Location : | | FB01 | | RB01 | | TW01 | | TW02 | | TW03 | |
| Field QC: | | Field Blank | | Rinsate Blank | | | | | | Dup. of C01K1 | |
| Matrix : | | Aqueous | | Aqueous | | Aqueous | | Aqueous | | Aqueous | |
| Units : | | pg/L | | pg/L | | pg/L | | pg/L | | pg/L | |
| Date Sampled : | | 6/1/2010 | | 6/1/2010 | | 6/1/2010 | | 6/1/2010 | | 6/1/2010 | |
| Time Sampled : | | 15:45 | | 17:25 | | 14:45 | | 17:05 | | 20:20 | |
| Dilution Factor : | | 0.96 | | 0.97 | | 1.05 | | 1.04 | | 1.03 | |
| PCB Chlorination Level | QL | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag |
| MoCB (#1) | 10 | 14.1 | | | | 3.93 | B | 3.16 | B | 35.8 | B |
| MoCB (#2) | 10 | | | 5.44 | J | 6.03 | B | | | 13.0 | B |
| MoCB (#3) | 10 | 6.49 | J | 6.04 | J | 7.90 | B | | | 10.0 | B |
| DiCB (#4) | 10 | 17.7 | | 17.1 | | 12.9 | B | 300 | | 410 | |
| DiCB (#5) | 10 | | | | | | | | | | |
| DiCB (#6) | 10 | 4.36 | J | | | 5.94 | B | | | 12.4 | B |
| DiCB (#7) | 10 | | | | | | | | | | |
| DiCB (#8) | 10 | 13.1 | B | 14.2 | B | 13.4 | B | 29.4 | B | 42.8 | B |
| DiCB (#9) | 10 | | | | | | | | | 9.31 | J |
| DiCB (#10) | 10 | | | | | | | 51.3 | | 9.34 | J |
| DiCB (#11) | 10 | 31.0 | B | 28.5 | B | 33.2 | B | 20.1 | B | 20.8 | B |
| DiCB (#12 + #13) | 10 | | | | | | | 9.46 | J | 18.8 | J |
| DiCB (#14) | 10 | | | | | | | | | | |
| DiCB (#15) | 10 | 5.71 | B | 7.25 | B | 22.1 | B | 168 | | 29.0 | |
| TriCB (#16) | 10 | 12.0 | J | 13.0 | | | | 213 | | 35.4 | B |
| TriCB (#17) | 10 | | | | | 36.5 | | 159 | | 47.8 | |
| TriCB (#18 + #30) | 10 | 24.4 | B | 32.4 | B | 50.8 | B | 495 | | 103 | B |
| TriCB (#19) | 10 | 13.1 | | 19.9 | | 29.2 | B | 1490 | | 95.0 | B |
| TriCB (#20 + #28) | 10 | 127 | | 182 | | 302 | B | 588 | B | 770 | B |
| TriCB (#21 + #33) | 10 | 8.38 | J | 11.3 | J | 20.4 | B | 57.2 | | 26.7 | B |
| TriCB (#22) | 10 | 23.9 | B | 37.2 | | 61.2 | B | 132 | B | 222 | |
| TriCB (#23) | 10 | | | | | | | | | | |
| TriCB (#24) | 10 | | | | | | | 13.5 | | 16.4 | |
| TriCB (#25) | 10 | 3.38 | J | 4.89 | J | 9.65 | B | 30.2 | | 26.5 | |
| TriCB (#26 + #29) | 10 | 12.1 | B | 17.9 | B | | | 71.2 | B | 88.3 | B |
| TriCB (#27) | 10 | 11.1 | B | 12.4 | B | | | 251 | | | |
| TriCB (#31) | 10 | 33.8 | B | 48.3 | B | 88.5 | B | 214 | B | 206 | B |
| TriCB (#32) | 10 | 52.7 | B | 63.1 | | 80.2 | B | 658 | | 92.7 | B |
| TriCB (#34) | 10 | | | | | | | | | 3.28 | J |
| TriCB (#35) | 10 | | | | | | | 5.45 | J | | |
| TriCB (#36) | 10 | | | | | | | | | | |

QL = Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (QL * Dilution Factor)

#12 & #13 coelute, #18 & #30 coelute, #26 & #29 coelute, #20 & #28 coelute, # 21 & #33 coelute

Case #: 40105

SDG : C01J6

Site :

LIN ELECTRIC COMPANY

Lab. :

SGS

| | | | | | | | | | | | |
|---------------------------------|----|-------------|------|---------------|------|----------|------|----------|------|---------------|------|
| Sample Number : | | C01J6 | | C01J7 | | C01J8 | | C01J9 | | C01K0 | |
| Sampling Location : | | FB01 | | RB01 | | TW01 | | TW02 | | TW03 | |
| Field QC: | | Field Blank | | Rinsate Blank | | | | | | Dup. of C01K1 | |
| Matrix : | | Aqueous | | Aqueous | | Aqueous | | Aqueous | | Aqueous | |
| Units : | | pg/L | | pg/L | | pg/L | | pg/L | | pg/L | |
| Date Sampled : | | 6/1/2010 | | 6/1/2010 | | 6/1/2010 | | 6/1/2010 | | 6/1/2010 | |
| Time Sampled : | | 15:45 | | 17:25 | | 14:45 | | 17:05 | | 20:20 | |
| Dilution Factor : | | 0.96 | | 0.97 | | 1.05 | | 1.04 | | 1.03 | |
| PCB Chlorination Level | QL | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag |
| TriCB (#37) | 10 | 6.04 | J | 8.91 | J | 23.8 | B | 116 | | 95.1 | |
| TRICB (#38) | 10 | | | | | | | | | | |
| TriCB (#39) | 10 | | | | | | | | | | |
| TetraCB (#40 + #71) | 10 | 52.1 | B | 83.0 | | 123 | B | 536 | | 173 | B |
| TetraCB (#41) | 10 | 8.75 | J | | | 24.4 | B | | | 12.6 | B |
| TetraCB (#42) | 10 | 34.8 | J | 58.7 | | 88.1 | B | 304 | | 240 | B |
| TetraCB (#43) | 10 | | | | | | | 27.4 | J | 18.8 | J |
| TetraCB (#44 + #47 + #65) | 10 | 126 | | 195 | | 320 | B | 1200 | | 858 | B |
| TetraCB (#45 + #51) | 10 | | | 35.4 | J | 53.7 | B | 743 | | 133 | B |
| TetraCB (#46) | 10 | 4.99 | J | | | 11.7 | B | 276 | | 14.1 | B |
| TetraCB (#48) | 10 | 13.4 | | 24.5 | | 33.3 | B | 58.5 | B | 53.2 | B |
| TetraCB (#49 + #69) | 10 | 90.2 | B | 146 | | 230 | B | 544 | B | 489 | B |
| TetraCB (#50 + #53) | 10 | 19.7 | B | 23.3 | B | 38.5 | B | 605 | | 39.7 | B |
| TetraCB (#52) | 10 | 149 | B | 253 | | 450 | B | 1530 | | 917 | B |
| TetraCB (#54) | 10 | | | | | | | 19.0 | | | |
| TetraCB (#55) | 10 | | | | | | | | | | |
| TetraCB (#56) | 10 | 13.2 | | 25.3 | | 49.4 | B | 234 | | 340 | |
| TetraCB (#57) | 10 | | | | | | | | | | |
| TetraCB (#58) | 10 | | | | | 8.29 | J | 39.6 | | 18.1 | J |
| TetraCB (#59 + #62 + #75) | 10 | 16.8 | J | 27.5 | | 39.2 | B | 88.4 | B | 91.9 | B |
| TetraCB (#60) | 10 | 37.9 | J | 75.3 | | 83.5 | B | 127 | B | 233 | B |
| TetraCB (#61 + #70 + #74 + #76) | 10 | 145 | B | 243 | | 364 | B | 632 | B | 939 | B |
| TetraCB (#63) | 10 | 7.01 | J | | | | | | | 33.9 | B |
| TetraCB (#64) | 10 | 76.1 | B | 119 | | 164 | B | 359 | B | 449 | B |
| TetraCB (#66) | 10 | 150 | | 265 | | 355 | B | 575 | B | 782 | B |
| TetraCB (#67) | 10 | | | | | | | | | 20.2 | B |
| TetraCB (#68) | 10 | | | | | | | | | | |
| TetraCB (#72) | 10 | | | | | | | | | | |
| TetraCB (#73) | 10 | | | | | | | | | | |
| TetraCB (#77) | 10 | | | 6.07 | J | 16.6 | B | 65.1 | | 43.8 | |
| TetraCB (#78) | 10 | | | | | | | | | | |

QL = Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (QL * Dilution Factor)

#40 & #71 coelute, #44,#47,#65 coelute, #45 & #51 coelute, #50 & #53 coelute, #49 & #69 coelute, #59,#62,#75 c #61,#70 #74,#76 coelute

Case #: 40105

SDG : C01J6

Site :

LIN ELECTRIC COMPANY

Lab. :

SGS

| | | | | | | | | | | | |
|--|----|-------------|------|---------------|------|----------|------|----------|------|---------------|------|
| Sample Number : | | C01J6 | | C01J7 | | C01J8 | | C01J9 | | C01K0 | |
| Sampling Location : | | FB01 | | RB01 | | TW01 | | TW02 | | TW03 | |
| Field QC: | | Field Blank | | Rinsate Blank | | | | | | Dup. of C01K1 | |
| Matrix : | | Aqueous | | Aqueous | | Aqueous | | Aqueous | | Aqueous | |
| Units : | | pg/L | | pg/L | | pg/L | | pg/L | | pg/L | |
| Date Sampled : | | 6/1/2010 | | 6/1/2010 | | 6/1/2010 | | 6/1/2010 | | 6/1/2010 | |
| Time Sampled : | | 15:45 | | 17:25 | | 14:45 | | 17:05 | | 20:20 | |
| Dilution Factor : | | 0.96 | | 0.97 | | 1.05 | | 1.04 | | 1.03 | |
| PCB Chlorination Level | QL | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag |
| TetraCB (#79) | 10 | | | | | | | | | | |
| TetraCB (#80) | 10 | | | | | | | | | | |
| TetraCB (#81) | 10 | | | | | | | | | | |
| PentaCB (#82) | 10 | | | | | 34.9 | | 146 | | 87.3 | |
| PentaCB (#83) | 10 | | | | | | | 43.5 | J | | |
| PentaCB (#84) | 10 | | | | | 66.1 | | 532 | | 189 | |
| PentaCB (#85 + #116 + #117) | 10 | 22.5 | | 49.7 | J | 67.8 | B | 192 | B | 119 | B |
| PentaCB (#86 + #87 + #97 + #108 + #119 | 10 | 78.9 | B | 135 | | 214 | B | 739 | | 476 | B |
| PentaCB (#88 + #91) | 10 | 17.7 | | 30.9 | | 50.4 | B | 220 | | 135 | B |
| PentaCB (#89) | 10 | | | | | | | 23.6 | J | | |
| PentaCB (#90 + #101 + #113) | 10 | 141 | J | 238 | | 369 | B | 1100 | B | 768 | B |
| PentaCB (#92) | 10 | 22.0 | | 39.8 | | 57.3 | B | 216 | | 114 | B |
| PentaCB (#93 + #100) | 10 | | | | | | | | | | |
| PentaCB (#94) | 10 | | | | | | | | | | |
| PentaCB (#95) | 10 | 73.7 | | 132 | | 236 | B | 1460 | | 606 | B |
| PentaCB (#96) | 10 | | | | | | | 18.6 | | | |
| PentaCB (#98 + #102) | 10 | | | | | | | | | | |
| PentaCB (#99) | 10 | 73.9 | B | 103 | | 194 | B | 470 | B | 336 | B |
| PentaCB (#103) | 10 | | | | | | | | | | |
| PentaCB (#104) | 10 | | | | | | | | | | |
| PentaCB (#105) | 10 | | | 57.1 | | 98.2 | B | 204 | B | 212 | B |
| PentaCB (#106) | 10 | | | | | | | | | | |
| PentaCB (#107 + #124) | 10 | | | | | | | | | 18.6 | J |
| PentaCB (#109) | 10 | | | | | 15.7 | | 38.3 | | | |
| PentaCB (#110 + #115) | 10 | 102 | B | 203 | | 344 | B | 1280 | | 803 | B |
| PentaCB (#111) | 10 | | | | | | | | | | |
| PentaCB (#112) | 10 | | | | | | | | | | |
| PentaCB (#114) | 10 | | | | | | | | | | |
| PentaCB (#118) | 10 | 96.2 | | 170 | | 289 | B | 519 | B | 504 | B |
| PentaCB (#120) | 10 | | | | | | | | | | |
| PentaCB (#121) | 10 | | | | | | | | | | |

QL = Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (QL * Dilution Factor)

#85,#116,#117 coelute, #86,#87,#97,#108,#119, #125 coelute, #88 & #91 coelute, #90,#101,#113 coelute, #93 & #100 coelute, #98 & #102 coelute
 #107,#124 coelute, #110,#115 coelute

Case #: 40105

SDG : C01J6

Site :

LIN ELECTRIC COMPANY

Lab. :

SGS

| | | | | | | | | | | | |
|-----------------------------|----|-------------|------|---------------|------|----------|------|----------|------|---------------|------|
| Sample Number : | | C01J6 | | C01J7 | | C01J8 | | C01J9 | | C01K0 | |
| Sampling Location : | | FB01 | | RB01 | | TW01 | | TW02 | | TW03 | |
| Field QC: | | Field Blank | | Rinsate Blank | | | | | | Dup. of C01K1 | |
| Matrix : | | Aqueous | | Aqueous | | Aqueous | | Aqueous | | Aqueous | |
| Units : | | pg/L | | pg/L | | pg/L | | pg/L | | pg/L | |
| Date Sampled : | | 6/1/2010 | | 6/1/2010 | | 6/1/2010 | | 6/1/2010 | | 6/1/2010 | |
| Time Sampled : | | 15:45 | | 17:25 | | 14:45 | | 17:05 | | 20:20 | |
| Dilution Factor : | | 0.96 | | 0.97 | | 1.05 | | 1.04 | | 1.03 | |
| PCB Chlorination Level | QL | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag |
| PentaCB (#122) | 10 | | | | | | | | | | |
| PentaCB (#123) | 10 | | | | | | | | | | |
| PentaCB (#126) | 10 | | | | | | | | | | |
| PentaCB (#127) | 10 | | | | | | | | | | |
| HexaCB (#128 + #166) | 10 | | | 20.5 | | 44.2 | B | 153 | | 65.6 | B |
| HexaCB (#129 + #138 + #163) | 10 | 84.6 | B | 148 | | 254 | B | 867 | | 480 | B |
| HexaCB (#130) | 10 | | | | | | | 64.3 | | 23.2 | |
| HexaCB (#131) | 10 | | | | | | | | | | |
| HexaCB (#132) | 10 | 22.7 | | 44.8 | | 83.5 | B | 430 | | 254 | |
| HexaCB (#133) | 10 | | | | | | | | | | |
| HexaCB (#134) | 10 | | | | | | | 77.6 | | | |
| HexaCB (#135 + #151) | 10 | 22.2 | | | | 66.2 | B | 294 | | 266 | |
| HexaCB (#136) | 10 | 8.05 | J | 12.7 | J | 23.0 | B | 157 | | 104 | |
| HexaCB (#137) | 10 | | | | | | | 50.8 | | | |
| HexaCB (#139 + #140) | 10 | | | | | | | | | | |
| HexaCB (#141) | 10 | | | 21.0 | | 37.8 | B | 165 | | 126 | |
| HexaCB (#142) | 10 | | | | | | | | | | |
| HexaCB (#143) | 10 | | | | | | | | | | |
| HexaCB (#144) | 10 | | | | | 12.2 | | 46.0 | | 34.9 | J |
| HexaCB (#145) | 10 | | | | | | | | | | |
| HexaCB (#146) | 10 | | | 23.6 | J | 30.8 | B | 112 | B | 84.4 | B |
| HexaCB (#147 + #149) | 10 | 66.8 | | 122 | | 192 | B | 873 | | 615 | |
| HexaCB (#148) | 10 | | | | | | | | | | |
| HexaCB (#150) | 10 | | | | | | | | | | |
| HexaCB (#152) | 10 | | | | | | | | | | |
| HexaCB (#153 + #168) | 10 | 84.3 | B | 136 | | 219 | B | 706 | | 591 | B |
| HexaCB (#154) | 10 | | | | | | | | | | |
| HexaCB (#155) | 10 | | | | | | | | | | |
| HexaCB (#156 + #157) | 10 | 8.17 | J | 15.2 | | 28.0 | B | 69.4 | B | 39.9 | B |
| HexaCB (#158) | 10 | | | 12.9 | | 26.2 | B | 80.4 | | 39.1 | B |
| HexaCB (#159) | 10 | | | | | | | | | | |

QL = Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (QL * Dilution Factor)

#128, #166 coelute, #129, #138, #163 coelute, #135 & #151 coelute, #139 & #140 coelute, #147 & #149 coelute, #153 & #168 coelute,

#156, #157 coelute

Case #: 40105

SDG : C01J6

Site :

LIN ELECTRIC COMPANY

Lab. :

SGS

| Sample Number : | | C01J6 | | C01J7 | | C01J8 | | C01J9 | | C01K0 | |
|------------------------|----|-------------|------|---------------|------|----------|------|----------|------|---------------|------|
| Sampling Location : | | FB01 | | RB01 | | TW01 | | TW02 | | TW03 | |
| Field QC: | | Field Blank | | Rinsate Blank | | | | | | Dup. of C01K1 | |
| Matrix : | | Aqueous | | Aqueous | | Aqueous | | Aqueous | | Aqueous | |
| Units : | | pg/L | | pg/L | | pg/L | | pg/L | | pg/L | |
| Date Sampled : | | 6/1/2010 | | 6/1/2010 | | 6/1/2010 | | 6/1/2010 | | 6/1/2010 | |
| Time Sampled : | | 15:45 | | 17:25 | | 14:45 | | 17:05 | | 20:20 | |
| Dilution Factor : | | 0.96 | | 0.97 | | 1.05 | | 1.04 | | 1.03 | |
| PCB Chlorination Level | QL | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag |
| HexaCB (#160) | 10 | | | | | | | | | | |
| HexaCB (#161) | 10 | | | | | | | | | | |
| HexaCB (#162) | 10 | | | | | | | | | | |
| HexaCB (#164) | 10 | | | | | | | 60.1 | | 32.0 | |
| HexaCB (#165) | 10 | | | | | | | | | | |
| HexaCB (#167) | 10 | | | 6.64 | J | 10.8 | B | 33.5 | B | 15.1 | B |
| HexaCB (#169) | 10 | | | | | | | | | | |
| HeptaCB (#170) | 10 | 13.3 | | 26.0 | | 46.7 | B | 166 | | | |
| HeptaCB (#171 + #173) | 10 | | | | | | | 51.2 | | 35.5 | |
| HeptaCB (#172) | 10 | | | | | | | 37.6 | J | | |
| HeptaCB (#174) | 10 | | | 17.3 | | | | 161 | | 112 | |
| HeptaCB (#175) | 10 | | | | | | | | | | |
| HeptaCB (#176) | 10 | | | | | | | 25.8 | J | 18.2 | J |
| HeptaCB (#177) | 10 | | | 12.8 | J | 19.5 | B | 96.9 | | 61.8 | B |
| HeptaCB (#178) | 10 | | | | | | | 39.0 | J | 23.1 | |
| HeptaCB (#179) | 10 | | | | | 10.5 | J | 77.6 | | 54.6 | |
| HeptaCB (#180 + #193) | 10 | 29.7 | | 47.6 | | 72.6 | B | 339 | | 186 | B |
| HeptaCB (#181) | 10 | | | | | | | | | | |
| HeptaCB (#182) | 10 | | | | | | | | | | |
| HeptaCB (#183 + #185) | 10 | 12.7 | | 19.1 | J | | | 113 | | 85.9 | B |
| HeptaCB (#184) | 10 | | | | | | | | | | |
| HeptaCB (#186) | 10 | | | | | | | | | | |
| HeptaCB (#187) | 10 | 25.4 | | 41.8 | | 65.2 | B | 238 | | 157 | B |
| HeptaCB (#188) | 10 | | | | | | | | | | |
| HeptaCB (#189) | 10 | | | | | | | | | | |
| HeptaCB (#190) | 10 | | | | | | | 33.9 | J | 18.6 | |
| HeptaCB (#191) | 10 | | | | | | | | | | |
| HeptaCB (#192) | 10 | | | | | | | | | | |
| OctaCB (#194) | 10 | | | | | 9.59 | J | 58.3 | | | |
| OctaCB (#195) | 10 | | | | | | | 20.6 | | 12.4 | |
| OctaCB (#196) | 10 | | | | | | | 45.3 | | 18.9 | |

QL = Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (QL * Dilution Factor)

#171 & #173 coelute, # 180 & #193 coelute, #183 & #185 coelute

Case #: 40105

SDG : C01J6

Site :

LIN ELECTRIC COMPANY

Lab. :

SGS

| | | | | | | | | | | | |
|------------------------|----|-------------|------|---------------|------|----------|------|----------|------|---------------|------|
| Sample Number : | | C01J6 | | C01J7 | | C01J8 | | C01J9 | | C01K0 | |
| Sampling Location : | | FB01 | | RB01 | | TW01 | | TW02 | | TW03 | |
| Field QC: | | Field Blank | | Rinsate Blank | | | | | | Dup. of C01K1 | |
| Matrix : | | Aqueous | | Aqueous | | Aqueous | | Aqueous | | Aqueous | |
| Units : | | pg/L | | pg/L | | pg/L | | pg/L | | pg/L | |
| Date Sampled : | | 6/1/2010 | | 6/1/2010 | | 6/1/2010 | | 6/1/2010 | | 6/1/2010 | |
| Time Sampled : | | 15:45 | | 17:25 | | 14:45 | | 17:05 | | 20:20 | |
| Dilution Factor : | | 0.96 | | 0.97 | | 1.05 | | 1.04 | | 1.03 | |
| PCB Chlorination Level | QL | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag |
| OctaCB (#197 + #200) | 10 | | | | | | | 14.3 | | | |
| OctaCB (#198 + #199) | 10 | 10.1 | J | 13.3 | J | | | 101 | | 52.2 | B |
| OctaCB (#201) | 10 | | | | | | | | | | |
| OctaCB (#202) | 10 | | | | | | | 23.7 | | 13.8 | |
| OctaCB (#203) | 10 | | | | | | | 63.2 | J | 37.6 | |
| OctaCB (#204) | 10 | | | | | | | | | | |
| OctaCB (#205) | 10 | | | | | | | | | | |
| NanoCB (#206) | 10 | | | | | | | 34.8 | | 15.4 | J |
| NanoCB (#207) | 10 | | | | | | | | | | |
| NanoCB (#208) | 10 | | | | | | | 14.4 | J | | |
| DecaCB (#209) | 10 | | | | | | | | | | |

QL = Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (QL * Dilution Factor)

, #197 & #200 coelute, #198 & #199 coelute

Case #: 40105

SDG : C01J6

Site :

LIN ELECTRIC COMPANY

Lab. :

SGS

| Sample Number : | | C01K1 | | | | | | | | | |
|------------------------|----|---------------|------|--------|------|--------|------|--------|------|--------|------|
| Sampling Location : | | TW10 | | | | | | | | | |
| Field QC: | | Dup. of C01K0 | | | | | | | | | |
| Matrix : | | Aqueous | | | | | | | | | |
| Units : | | pg/L | | | | | | | | | |
| Date Sampled : | | 6/1/2010 | | | | | | | | | |
| Time Sampled : | | 20:32 | | | | | | | | | |
| Dilution Factor : | | 0.96 | | | | | | | | | |
| PCB Chlorination Level | QL | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag |
| MoCB (#1) | 10 | 35.1 | B | | | | | | | | |
| MoCB (#2) | 10 | | | | | | | | | | |
| MoCB (#3) | 10 | 9.54 | B | | | | | | | | |
| DiCB (#4) | 10 | 394 | | | | | | | | | |
| DiCB (#5) | 10 | | | | | | | | | | |
| DiCB (#6) | 10 | 12.2 | B | | | | | | | | |
| DiCB (#7) | 10 | | | | | | | | | | |
| DiCB (#8) | 10 | 43.4 | B | | | | | | | | |
| DiCB (#9) | 10 | 9.84 | J | | | | | | | | |
| DiCB (#10) | 10 | 8.92 | J | | | | | | | | |
| DiCB (#11) | 10 | 19.5 | B | | | | | | | | |
| DiCB (#12 + #13) | 10 | 21.9 | | | | | | | | | |
| DiCB (#14) | 10 | | | | | | | | | | |
| DiCB (#15) | 10 | 30.6 | B | | | | | | | | |
| TriCB (#16) | 10 | 41.8 | B | | | | | | | | |
| TriCB (#17) | 10 | 53.2 | | | | | | | | | |
| TriCB (#18 + #30) | 10 | 113 | B | | | | | | | | |
| TriCB (#19) | 10 | 93.3 | B | | | | | | | | |
| TriCB (#20 + #28) | 10 | 586 | B | | | | | | | | |
| TriCB (#21 + #33) | 10 | 36.7 | B | | | | | | | | |
| TriCB (#22) | 10 | 168 | B | | | | | | | | |
| TriCB (#23) | 10 | | | | | | | | | | |
| TriCB (#24) | 10 | 11.9 | | | | | | | | | |
| TriCB (#25) | 10 | 22.5 | B | | | | | | | | |
| TriCB (#26 + #29) | 10 | 69.1 | B | | | | | | | | |
| TriCB (#27) | 10 | 17.6 | B | | | | | | | | |
| TriCB (#31) | 10 | 180 | B | | | | | | | | |
| TriCB (#32) | 10 | 77.1 | B | | | | | | | | |
| TriCB (#34) | 10 | | | | | | | | | | |
| TriCB (#35) | 10 | | | | | | | | | | |
| TriCB (#36) | 10 | | | | | | | | | | |

QL = Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (QL * Dilution Factor)

#12 & #13 coelute, #18 & #30 coelute, #26 & #29 coelute, #20 & #28 coelute, # 21 & #33 coelute

Case #: 40105

SDG : C01J6

Site :

LIN ELECTRIC COMPANY

Lab. :

SGS

| Sample Number : | C01K1 | | | | | | | | | | |
|---------------------------------|---------------|--------|------|--------|------|--------|------|--------|------|--------|------|
| Sampling Location : | TW10 | | | | | | | | | | |
| Field QC: | Dup. of C01K0 | | | | | | | | | | |
| Matrix : | Aqueous | | | | | | | | | | |
| Units : | pg/L | | | | | | | | | | |
| Date Sampled : | 6/1/2010 | | | | | | | | | | |
| Time Sampled : | 20:32 | | | | | | | | | | |
| Dilution Factor : | 0.96 | | | | | | | | | | |
| PCB Chlorination Level | QL | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag |
| TriCB (#37) | 10 | 72.0 | | | | | | | | | |
| TriCB (#38) | 10 | | | | | | | | | | |
| TriCB (#39) | 10 | | | | | | | | | | |
| TetraCB (#40 + #71) | 10 | 129 | B | | | | | | | | |
| TetraCB (#41) | 10 | | | | | | | | | | |
| TetraCB (#42) | 10 | 164 | B | | | | | | | | |
| TetraCB (#43) | 10 | | | | | | | | | | |
| TetraCB (#44 + #47 + #65) | 10 | 601 | B | | | | | | | | |
| TetraCB (#45 + #51) | 10 | 102 | B | | | | | | | | |
| TetraCB (#46) | 10 | | | | | | | | | | |
| TetraCB (#48) | 10 | 39.0 | B | | | | | | | | |
| TetraCB (#49 + #69) | 10 | 362 | B | | | | | | | | |
| TetraCB (#50 + #53) | 10 | 37.3 | B | | | | | | | | |
| TetraCB (#52) | 10 | 658 | B | | | | | | | | |
| TetraCB (#54) | 10 | | | | | | | | | | |
| TetraCB (#55) | 10 | | | | | | | | | | |
| TetraCB (#56) | 10 | 192 | | | | | | | | | |
| TetraCB (#57) | 10 | | | | | | | | | | |
| TetraCB (#58) | 10 | | | | | | | | | | |
| TetraCB (#59 + #62 + #75) | 10 | 68.1 | B | | | | | | | | |
| TetraCB (#60) | 10 | 146 | B | | | | | | | | |
| TetraCB (#61 + #70 + #74 + #76) | 10 | 669 | B | | | | | | | | |
| TetraCB (#63) | 10 | 28.6 | B | | | | | | | | |
| TetraCB (#64) | 10 | 314 | B | | | | | | | | |
| TetraCB (#66) | 10 | 474 | B | | | | | | | | |
| TetraCB (#67) | 10 | 12.2 | B | | | | | | | | |
| TetraCB (#68) | 10 | | | | | | | | | | |
| TetraCB (#72) | 10 | | | | | | | | | | |
| TetraCB (#73) | 10 | | | | | | | | | | |
| TetraCB (#77) | 10 | | | | | | | | | | |
| TetraCB (#78) | 10 | | | | | | | | | | |

QL = Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (QL * Dilution Factor)

#40 & #71 coelute, #44,#47,#65 coelute, #45 & #51 coelute, #50 & #53 coelute, #49 & #69 coelute, #59,#62,#75 & #61,#70 #74,#76 coelute

Case #: 40105

SDG : C01J6

Site :

LIN ELECTRIC COMPANY

Lab. :

SGS

| Sample Number : | C01K1 | | | | | | | | | | |
|---|---------------|--------|------|--------|------|--------|------|--------|------|--------|------|
| Sampling Location : | TW10 | | | | | | | | | | |
| Field QC: | Dup. of C01K0 | | | | | | | | | | |
| Matrix : | Aqueous | | | | | | | | | | |
| Units : | pg/L | | | | | | | | | | |
| Date Sampled : | 6/1/2010 | | | | | | | | | | |
| Time Sampled : | 20:32 | | | | | | | | | | |
| Dilution Factor : | 0.96 | | | | | | | | | | |
| PCB Chlorination Level | QL | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag |
| TetraCB (#79) | 10 | | | | | | | | | | |
| TetraCB (#80) | 10 | | | | | | | | | | |
| TetraCB (#81) | 10 | | | | | | | | | | |
| PentaCB (#82) | 10 | 54.1 | J | | | | | | | | |
| PentaCB (#83) | 10 | | | | | | | | | | |
| PentaCB (#84) | 10 | 122 | J | | | | | | | | |
| PentaCB (#85 + #116 + #117) | 10 | 91.5 | B | | | | | | | | |
| PentaCB (#86 + #87 + #97 + #108 + #119) | 10 | 309 | B | | | | | | | | |
| PentaCB (#88 + #91) | 10 | 92.0 | B | | | | | | | | |
| PentaCB (#89) | 10 | | | | | | | | | | |
| PentaCB (#90 + #101 + #113) | 10 | 551 | B | | | | | | | | |
| PentaCB (#92) | 10 | 75.4 | B | | | | | | | | |
| PentaCB (#93 + #100) | 10 | | | | | | | | | | |
| PentaCB (#94) | 10 | | | | | | | | | | |
| PentaCB (#95) | 10 | 418 | B | | | | | | | | |
| PentaCB (#96) | 10 | | | | | | | | | | |
| PentaCB (#98 + #102) | 10 | | | | | | | | | | |
| PentaCB (#99) | 10 | 215 | B | | | | | | | | |
| PentaCB (#103) | 10 | | | | | | | | | | |
| PentaCB (#104) | 10 | | | | | | | | | | |
| PentaCB (#105) | 10 | | | | | | | | | | |
| PentaCB (#106) | 10 | | | | | | | | | | |
| PentaCB (#107 + #124) | 10 | | | | | | | | | | |
| PentaCB (#109) | 10 | | | | | | | | | | |
| PentaCB (#110 + #115) | 10 | 526 | B | | | | | | | | |
| PentaCB (#111) | 10 | | | | | | | | | | |
| PentaCB (#112) | 10 | | | | | | | | | | |
| PentaCB (#114) | 10 | | | | | | | | | | |
| PentaCB (#118) | 10 | 357 | B | | | | | | | | |
| PentaCB (#120) | 10 | | | | | | | | | | |
| PentaCB (#121) | 10 | | | | | | | | | | |

QL = Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (QL * Dilution Factor)

#85,#116,#117 coelute, #86,#87,#97,#108,#119, #125 coelute, #88 & #91 coelute, #90,#101,#113 coelute, #93 & #100 coelute, #98 & #102 coelute

#107,#124 coelute, #110,#115 coelute

Case #: 40105

SDG : C01J6

Site :

LIN ELECTRIC COMPANY

Lab. :

SGS

| Sample Number : | C01K1 | | | | | | | | | | |
|-----------------------------|---------------|--------|------|--------|------|--------|------|--------|------|--------|------|
| Sampling Location : | TW10 | | | | | | | | | | |
| Field QC: | Dup. of C01K0 | | | | | | | | | | |
| Matrix : | Aqueous | | | | | | | | | | |
| Units : | pg/L | | | | | | | | | | |
| Date Sampled : | 6/1/2010 | | | | | | | | | | |
| Time Sampled : | 20:32 | | | | | | | | | | |
| Dilution Factor : | 0.96 | | | | | | | | | | |
| PCB Chlorination Level | QL | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag |
| PentaCB (#122) | 10 | | | | | | | | | | |
| PentaCB (#123) | 10 | | | | | | | | | | |
| PentaCB (#126) | 10 | | | | | | | | | | |
| PentaCB (#127) | 10 | | | | | | | | | | |
| HexaCB (#128 + #166) | 10 | 42.5 | B | | | | | | | | |
| HexaCB (#129 + #138 + #163) | 10 | 350 | B | | | | | | | | |
| HexaCB (#130) | 10 | | | | | | | | | | |
| HexaCB (#131) | 10 | | | | | | | | | | |
| HexaCB (#132) | 10 | 163 | B | | | | | | | | |
| HexaCB (#133) | 10 | | | | | | | | | | |
| HexaCB (#134) | 10 | | | | | | | | | | |
| HexaCB (#135 + #151) | 10 | 205 | | | | | | | | | |
| HexaCB (#136) | 10 | 85.1 | | | | | | | | | |
| HexaCB (#137) | 10 | | | | | | | | | | |
| HexaCB (#139 + #140) | 10 | | | | | | | | | | |
| HexaCB (#141) | 10 | 101 | B | | | | | | | | |
| HexaCB (#142) | 10 | | | | | | | | | | |
| HexaCB (#143) | 10 | | | | | | | | | | |
| HexaCB (#144) | 10 | | | | | | | | | | |
| HexaCB (#145) | 10 | | | | | | | | | | |
| HexaCB (#146) | 10 | 58.0 | B | | | | | | | | |
| HexaCB (#147 + #149) | 10 | 464 | B | | | | | | | | |
| HexaCB (#148) | 10 | | | | | | | | | | |
| HexaCB (#150) | 10 | | | | | | | | | | |
| HexaCB (#152) | 10 | | | | | | | | | | |
| HexaCB (#153 + #168) | 10 | 489 | B | | | | | | | | |
| HexaCB (#154) | 10 | | | | | | | | | | |
| HexaCB (#155) | 10 | | | | | | | | | | |
| HexaCB (#156 + #157) | 10 | | | | | | | | | | |
| HexaCB (#158) | 10 | | | | | | | | | | |
| HexaCB (#159) | 10 | | | | | | | | | | |

QL = Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (QL * Dilution Factor)

#128, #166 coelute, #129, #138, #163 coelute, #135 & #151 coelute, #139 & #140 coelute, #147 & #149 coelute, #153 & #168 coelute,

#156, #157 coelute

Case #: 40105

SDG : C01J6

Site :

LIN ELECTRIC COMPANY

Lab. :

SGS

| Sample Number : | | C01K1 | | | | | | | | | |
|------------------------|----|---------------|------|--------|------|--------|------|--------|------|--------|------|
| Sampling Location : | | TW10 | | | | | | | | | |
| Field QC: | | Dup. of C01K0 | | | | | | | | | |
| Matrix : | | Aqueous | | | | | | | | | |
| Units : | | pg/L | | | | | | | | | |
| Date Sampled : | | 6/1/2010 | | | | | | | | | |
| Time Sampled : | | 20:32 | | | | | | | | | |
| Dilution Factor : | | 0.96 | | | | | | | | | |
| PCB Chlorination Level | QL | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag |
| HexaCB (#160) | 10 | | | | | | | | | | |
| HexaCB (#161) | 10 | | | | | | | | | | |
| HexaCB (#162) | 10 | | | | | | | | | | |
| HexaCB (#164) | 10 | | | | | | | | | | |
| HexaCB (#165) | 10 | | | | | | | | | | |
| HexaCB (#167) | 10 | | | | | | | | | | |
| HexaCB (#169) | 10 | | | | | | | | | | |
| HeptaCB (#170) | 10 | | | | | | | | | | |
| HeptaCB (#171 + #173) | 10 | | | | | | | | | | |
| HeptaCB (#172) | 10 | | | | | | | | | | |
| HeptaCB (#174) | 10 | 105 | J | | | | | | | | |
| HeptaCB (#175) | 10 | | | | | | | | | | |
| HeptaCB (#176) | 10 | 19.1 | | | | | | | | | |
| HeptaCB (#177) | 10 | 56.5 | B | | | | | | | | |
| HeptaCB (#178) | 10 | 23.4 | | | | | | | | | |
| HeptaCB (#179) | 10 | 57.9 | | | | | | | | | |
| HeptaCB (#180 + #193) | 10 | 164 | B | | | | | | | | |
| HeptaCB (#181) | 10 | | | | | | | | | | |
| HeptaCB (#182) | 10 | | | | | | | | | | |
| HeptaCB (#183 + #185) | 10 | 74.2 | B | | | | | | | | |
| HeptaCB (#184) | 10 | | | | | | | | | | |
| HeptaCB (#186) | 10 | | | | | | | | | | |
| HeptaCB (#187) | 10 | 133 | B | | | | | | | | |
| HeptaCB (#188) | 10 | | | | | | | | | | |
| HeptaCB (#189) | 10 | | | | | | | | | | |
| HeptaCB (#190) | 10 | | | | | | | | | | |
| HeptaCB (#191) | 10 | | | | | | | | | | |
| HeptaCB (#192) | 10 | | | | | | | | | | |
| OctaCB (#194) | 10 | 22.3 | J | | | | | | | | |
| OctaCB (#195) | 10 | | | | | | | | | | |
| OctaCB (#196) | 10 | 17.5 | J | | | | | | | | |

QL = Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (QL * Dilution Factor)

#171 & #173 coelute, # 180 & #193 coelute, #183 & #185 coelute

Case #: 40105

SDG : C01J6

Site :

LIN ELECTRIC COMPANY

Lab. :

SGS

| Sample Number : | | C01K1 | | | | | | | | | |
|------------------------|----|---------------|------|--------|------|--------|------|--------|------|--------|------|
| Sampling Location : | | TW10 | | | | | | | | | |
| Field QC: | | Dup. of C01K0 | | | | | | | | | |
| Matrix : | | Aqueous | | | | | | | | | |
| Units : | | pg/L | | | | | | | | | |
| Date Sampled : | | 6/1/2010 | | | | | | | | | |
| Time Sampled : | | 20:32 | | | | | | | | | |
| Dilution Factor : | | 0.96 | | | | | | | | | |
| PCB Chlorination Level | QL | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag |
| OctaCB (#197 + #200) | 10 | | | | | | | | | | |
| OctaCB (#198 + #199) | 10 | 49.9 | B | | | | | | | | |
| OctaCB (#201) | 10 | | | | | | | | | | |
| OctaCB (#202) | 10 | | | | | | | | | | |
| OctaCB (#203) | 10 | 26.5 | J | | | | | | | | |
| OctaCB (#204) | 10 | | | | | | | | | | |
| OctaCB (#205) | 10 | | | | | | | | | | |
| NanoCB (#206) | 10 | 8.53 | J | | | | | | | | |
| NanoCB (#207) | 10 | | | | | | | | | | |
| NanoCB (#208) | 10 | | | | | | | | | | |
| DecaCB (#209) | 10 | | | | | | | | | | |

QL = Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (QL * Dilution Factor)

, #197 & #200 coelute, #198 & #199 coelute

DATA SUMMARY FORM: TOX

Page 13 of 14

Aqueous Samples (pg/L)

Case #: 40105

SDG : C01J6

Number of Aqueous Samples : 6

Site :

LIN ELECTRIC COMPANY

Lab. :

SGS

| | | | | | | | | | | | | | | | | |
|------------------------|-------------|---------------|----------|----------|---------------|-----------|---|------|-----|---|------|--------|---|------|-----|---|
| Sample Number : | C01J6 | C01J7 | C01J8 | C01J9 | C01K0 | | | | | | | | | | | |
| Sample Location : | FB01 | RB01 | TW01 | TW02 | TW03 | | | | | | | | | | | |
| Field QC : | Field Blank | Rinsate Blank | | | Dup. of C01K1 | | | | | | | | | | | |
| Matrix: | Aqueous | Aqueous | Aqueous | Aqueous | Aqueous | | | | | | | | | | | |
| Units: | pg/L | pg/L | pg/L | pg/L | pg/L | | | | | | | | | | | |
| Date Sampled : | 6/1/2010 | 6/1/2010 | 6/1/2010 | 6/1/2010 | 6/1/2010 | | | | | | | | | | | |
| Time Sampled : | 15:45 | 17:25 | 14:45 | 17:05 | 20:20 | | | | | | | | | | | |
| Dilution Factor : | 0.96 | 0.97 | 1.05 | 1.04 | 1.03 | | | | | | | | | | | |
| Analyte / TEF | RL | CONC | TEQ | Q | CONC | TEQ | Q | CONC | TEQ | Q | CONC | TEQ | Q | CONC | TEQ | Q |
| TetraCB #77 (0.0001) | 10 | | 0 | | 6.07 | 0.000607 | J | 16.6 | 0 | B | 65.1 | 0.0065 | | 43.8 | 0 | |
| TetraCB #81 (0.0003) | 10 | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | |
| PeCB #105 (0.0003) | 10 | | 0 | | 57.1 | 0.01713 | | 98.2 | 0 | B | 204 | 0 | B | 212 | 0 | B |
| PeCB #114 (0.0003) | 10 | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | |
| PeCB #118 (0.0003) | 10 | 98.2 | 0.0289 | | 170 | 0.051 | | 289 | 0 | B | 519 | 0 | B | 504 | 0 | B |
| PeCB #123 (0.0003) | 10 | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | |
| PeCB #126 (0.1) | 10 | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | |
| HxCB #156/157 (0.0003) | 10 | 8.17 | 0.0025 | J | 15.2 | 0.00456 | | 28.0 | 0 | B | 69.4 | 0 | B | 39.9 | 0 | B |
| HxCB #167 (0.00001) | 10 | | 0 | | 6.64 | 0.0000664 | J | 10.8 | 0 | B | 33.5 | 0 | | 15.1 | 0 | B |
| HxCB #169 (0.03) | 10 | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | |
| HpCB #189 (0.0003) | 10 | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | |
| TOTAL TEQ | | | 0.0313 | | | 0.0733634 | | | 0 | | | 0.0065 | | | 0 | |

RL = Reporting Limit

To calculate sample quantitation limits: (RL * Dilution Factor)

DATA SUMMARY FORM: TOX

Page 14 of 14

Aqueous Samples (pg/L)

Case #: 40105

SDG : C01J6

Site :

LIN ELECTRIC COMPANY

Lab. :

SGS

| Sample Number : Prefix of MC08- | | C01K1 | | | | | | | | | | | | | | |
|-----------------------------------|----|---------------|-----|---|------|-----|---|------|-----|---|------|-----|---|------|-----|---|
| Sample Location : Prefix of MC08- | | TW10 | | | | | | | | | | | | | | |
| Field QC | | Dup. of C01K0 | | | | | | | | | | | | | | |
| Matrix: | | Aqueous | | | | | | | | | | | | | | |
| Units: | | pg/L | | | | | | | | | | | | | | |
| Date Sampled : | | 6/1/2010 | | | | | | | | | | | | | | |
| Time Sampled : | | 20:32 | | | | | | | | | | | | | | |
| Dilution Factor : | | 0.96 | | | | | | | | | | | | | | |
| Analyte / TEF | RL | CONC | TEQ | Q | CONC | TEQ | Q | CONC | TEQ | Q | CONC | TEQ | Q | CONC | TEQ | Q |
| TetraCB #77 (0.0001) | 10 | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | |
| TetraCB #81 (0.0003) | 10 | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | |
| PeCB #105 (0.0003) | 10 | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | |
| PeCB #114 (0.0003) | 10 | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | |
| PeCB #118 (0.0003) | 10 | 357 | 0 | B | | 0 | | | 0 | | | 0 | | | 0 | |
| PeCB #123 (0.0003) | 10 | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | |
| PeCB #126 (0.1) | 10 | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | |
| HxCB #156/157 (0.0003) | 10 | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | |
| HxCB #167 (0.00001) | 10 | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | |
| HxCB #169 (0.03) | 10 | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | |
| HpCB #189 (0.0003) | 10 | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | |
| TOTAL TEQ | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | |

RL = Reporting Limit

To calculate sample quantitation limits: (RL * Dilution Factor)

Appendix C

Chain of Custody Records



USEPA Contract Laboratory Program Organic Traffic Report & Chain of Custody Record

Case No: 40105
DAS No:

R

| | | | |
|---|----------------------------|------------------------|--|
| Region: 3 | Date Shipped: 6/2/2010 | Carrier Name: FedEx | Shipped to: SGS North America 5500 Business Drive Wilmington NC 28405 (910) 350-1903 |
| Project Code: R33460 | Airbill: 8713 3012 8641 | | |
| Account Code: 10T03N302DC6CA3CNRV00 | | | |
| CERCLIS ID: WVN000306141 | | | |
| Spill ID: A3CN | | | |
| Site Name/State: Lin Electric Company/WV | | | |
| Project Leader: Gene Nance | | | |
| Action: Removal Action | | | |
| Sampling Co: TechLaw, Inc. | | | |

| | | |
|-------------------------|---------------|---------------------------|
| Chain of Custody Record | | Sampler Signature: |
| Relinquished By | (Date / Time) | Received By (Date / Time) |
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |

| ORGANIC SAMPLE No. | MATRIX/ SAMPLER | CONC/ TYPE | ANALYSS/ TURNAROUND | PRESERVATIVE/ Bottles | TAG No./ | STATION LOCATION | SAMPLE COLLECT DATE/TIME | INORGANIC SAMPLE No. | QC Type |
|--------------------|-----------------------------|------------|---------------------|--|----------------------|------------------|--------------------------|----------------------|-------------|
| C01J6 | Field QC/ Gene Nance | L/G | PCB_C_209 (14) | 31515 (Ice Only), 31516 (Ice Only) (2) | 31516 (Ice Only) (2) | FB01 | S: 6/1/2010 15:45 | | Field Blank |
| C01J7 | Field QC/ Gene Nance | L/G | PCB_C_209 (14) | 31517 (Ice Only), 31518 (Ice Only) (2) | 31518 (Ice Only) (2) | RB01 | S: 6/1/2010 17:25 | | Rinsate |
| C01J8 | Ground Water/ Gene Nance | L/G | PCB_C_209 (14) | 31519 (Ice Only), 31520 (Ice Only) (2) | 31520 (Ice Only) (2) | TW01 | S: 6/1/2010 14:45 | | - |
| C01J9 | Ground Water/ Gene Nance | L/G | PCB_C_209 (14) | 31521 (Ice Only), 31522 (Ice Only) (2) | 31522 (Ice Only) (2) | TW02 | S: 6/1/2010 17:05 | | - |

| | | | |
|--|--|---|-------------------------------|
| Shipment for Case Complete? Y | Sample(s) to be used for laboratory QC: | Additional Sampler Signature(s): | Chain of Custody Seal Number: |
| Analysis Key: PCB_C_209 = PCB CONGENERs_209_Aqueous | Concentration: L = Low, M = Low/Medium, H = High | Type/Designate: Composite = C, Grab = G | Shipment Iced? _____ |

TR Number: 3-174383947-060210-0002

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, 2000 Edmund Halley Dr., Reston, VA. 20191-3400 Phone 703/264-9348 Fax 703/264-9222

REGION COPY



EPA USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No: 40105

R

DAS No:

| | | | |
|---|--|---|---|
| Region: Project Code: Account Code: CERCLIS ID: Spill ID: Site Name/State: Project Leader: Action: Sampling Co: | 3 R33460 10TO3N302DC6CA3CNRV00 WVN000306141 A3CN Lin Electric Company/WV Gene Nance Removal Action TechLaw, Inc. | Date Shipped: 6/2/2010 Carrier Name: FedEx Airbill: 8713 3012 8619 Shipped to: SGS North America 5500 Business Drive Wilmington NC 28405 (910) 350-1903 | Chain of Custody Record Relinquished By (Date / Time) 1 2 3 4 Sampler Signature: Received By (Date / Time) |
|---|--|---|---|

| ORGANIC SAMPLE No. | MATRIX/ SAMPLER | CONC/ TYPE | ANALYSIS/ TURNAROUND | TAG No./ PRESERVATIVE/ Bottles | STATION LOCATION | SAMPLE COLLECT DATE/TIME | INORGANIC SAMPLE No. | QC Type |
|-----------------------|-----------------------------|---------------|-------------------------|--|---------------------|-----------------------------|-------------------------|-------------------------|
| C01K0 | Ground Water/ Gene Nance | L/G | PCB_C_209 (14) | 31523 (Ice Only), 31524 (Ice Only), 31525 (Ice Only), 31526 (Ice Only), 31527 (Ice Only), 31528 (Ice Only) (6) 31529 (Ice Only), 31530 (Ice Only) (2) | TW03 | S: 6/1/2010 20:20 | | Field Duplicate of TW10 |
| C01K1 | Ground Water/ Gene Nance | L/G | PCB_C_209 (14) | | TW10 | S: 6/1/2010 20:32 | | Field Duplicate of TW03 |

| | | | |
|---|--|---|-------------------------------|
| Shipment for Case Complete? Y | Sample(s) to be used for laboratory QC: C01K0 | Additional Sampler Signature(s): | Chain of Custody Seal Number: |
| Analysis Key: PCB_C_209 = PCB CONGENERES_209_Aqueous | Concentration: L = Low, M = Low/Medium, H = High | Type/Designate: Composite = C, Grab = G | Shipment iced? _____ |

TR Number: 3-174383947-060210-0003

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, 2000 Edmund Halley Dr., Reston, VA. 20191-3400 Phone 703/264-9348 Fax 703/264-9222

REGION COPY

U.S EPA Region III Analytical Request Form

975 4-22-10

| | |
|---------------|---------|
| OASO USE ONLY | |
| Control # | CT4950 |
| DAS# | R33460 |
| PES# | |
| | 14 days |

40105

| | | |
|--|---|--|
| Date: 4/20/10 | Site Activity: Removal | |
| Site Name: Lin Electric Company | | Street Address: 1400 Bluefield Avenue |
| City: Bluefield | State: WV | Latitude: |
| Program: Superfund | Acct #: 2010 TO3N302DC6CA3CNRV00 | CERCLIS #: WVN000306141 |
| Site ID: A3CN | Spill ID: | Operable Unit: |
| Site Specific QA Plan Submitted: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes | Title: Sampling QA/QC Work Plan Addendum 6 | Date Approved: 4/20/10 |
| EPA Project Leader: Mike Towle | Phone#: 215-287-2443 | Cell Phone #: 215-287-2443 |
| Request Preparer: Gene Nance | Phone#: 740-867-0968 | Cell Phone #: 304-830-1442 |
| Site Leader: Gene Nance | Phone#: 740-867-0968 | Cell Phone #: 304-830-1442 |
| Contractor: TechLaw, Inc | EPA CO/PO: A. Blaney/K. Wodarcysk/D. Jones | |
| #Samples 6 | Matrix: groundwater | Parameter: PCB Congeners (209) |
| #Samples | Matrix: | Method: CBC01.2/Method 1668A, or equiv |
| #Samples | Matrix: | Method: |
| #Samples | Matrix: | Method: |
| #Samples | Matrix: | Method: |
| #Samples | Matrix: | Method: |
| #Samples | Matrix: | Method: |
| #Samples | Matrix: | Method: |
| Ship Date From: May 24, 2010 | Ship Date To: May 28, 2010 | Inorg. Validation Level IM1 |
| Unvalidated Data Requested: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes | If Yes, TAT Needed: <input checked="" type="checkbox"/> 14 days <input type="checkbox"/> 7 days <input type="checkbox"/> 48hrs <input type="checkbox"/> 24hrs <input type="checkbox"/> Other: | |
| Validated Data Package Due: <input type="checkbox"/> 42 days <input checked="" type="checkbox"/> 30 days <input type="checkbox"/> 14 days <input type="checkbox"/> Other (Specify) | 14/16 | |
| Electronic Data Deliverables Required: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes (EDDs will be provided in Region 3 EDD Format) | | |
| Special Instructions: Detection Levels - Method CRQLs For SOM01.2. TCL attached. QL = 20 pg/L for PCB Congeners. PCB compound list for CBC01.2 attached. | | |

Request for Quote (RFQ)

Date: May 3, 2010

Subject: RFQ Reference Number: 1915.1

Title: Congeners by CBC01.2 with Excel Deliverable

Method: Congeners Statement of Work - CBC01.2

Purpose:

The Laboratory is requested to perform the following analyses under the Statement of Work (SOW) CBC01.2. Unless specifically modified, all analyses, Quality Control (QC), and reporting requirements specified in SOW CBC01.2 remain unchanged and in full force and effect. The number of samples requested in this RFQ is not guaranteed.

Please note that accepting an RFQ is voluntary, and that the Laboratory is not required to accept the analysis. There will be no adverse effect to the Laboratory for not accepting the RFQ. However, once the Laboratory is awarded the project, it shall perform the analysis in accordance with all modifications specified in this document and as specified in SOW CBC01.2.

The Laboratory is requested to review the modification described herein, determine whether or not it shall accept the requested analyses, and complete the attached response form. The Laboratory shall provide comments in response to the required changes in the designated area, in order to ensure that the analysis can be completed in accordance with the specifications described herein.

The Region has 30 calendar days from the date of data package submittal to accept or reject the data package. Payment will be made within 30 calendar days of acceptance.

Modification to the SOW Specifications:

The Laboratory shall analyze samples using the parameters, sample preparation method, sample clean up method, detection limits, and reporting limits from SOW CBC01.2 Exhibits C and D.

Note the QC limits defined in Table 6 of CBC01.0 (based on Method 1668A) will be required.

For each matrix and extraction/cleanup procedure, the Laboratory shall carry out an MDL study meeting the requirements in 40 CFR Part 136, Appendix B, for each CB Congener. The MDLs for each congener determined by these studies will be less than the CRQL listed for that CB Congener and matrix in Exhibit C of CBC01.2 SOW. Summary MDL data for all CB Congener compounds from the MDL study is required to be provided upon the request of EPA.

The Laboratory will document all SOW non-compliances in the SDG Narrative. The Narrative will be submitted as part of the deliverable.

Reporting Requirements:

The Laboratory will be required to **submit both a hard copy and electronic copy of analytical results in Excel (see attachment for an example)**. The electronic data files must be sent to the EPA Contracting Officer within 7 days following a verbal or written request.

1. Each delivery package will be comprised of all report forms required for 209 congeners including total homologue as specified in Exhibit B.
2. Reporting of all data should be done by Case Number and SDG Number.
3. DC-1 and DC-2 Forms should be submitted for each SDG. The data package should be paginated for easy cross reference between the table of contents and relevant portions of the data.

Electronic Reporting Requirements:

1. Hard copies of the data and EDDs shall be provided in the time specified. If one of the items (EDD or hardcopy) is delivered on a later date, the Data Receipt Date (DRD) for SDG will be the later of the two dates.
2. A CD with the data package shall be provided with submission of hard copy data package (in PDF format).

The project shall be identified by the Laboratory on all deliverables using the Case Number as indicated in the task order, and the SDG Number.

All hardcopy and electronic data shall be adjusted to incorporate modified specifications. If problems occur with incorporating the method modifications into the hardcopy and/or electronic deliverable, the Laboratory shall contact the Regional TOPO for guidance.

The sample data package is expected to be complete at the time of delivery. However, if the sample data package contains errors or omissions or requires further clarification, the Laboratory must respond within seven (7) calendar days to requests for additional documentation, information, or explanations that result from the Government's inspection activities. Additionally, where re-extraction/reanalyses are requested as a result of the Government's inspection activities, the complete data package associated with these analyses must be submitted within seven additional days of the prescribed TAT.

The Laboratory shall not include data for different statements of work in the same SDG. Dioxin and Congeners must be reported in different SDGs with unique SDG names.

The Laboratory shall document the RFQ Reference Number and the Purchase Order Number on the SDG Coversheet.

Clarifications/Revisions to the RFQ for Modified Analysis:

Laboratory Name:

Appendix D

Laboratory Case Narrative



Laboratory Results

Mr. Daniel Slizys
EPA Region 3
U. S. EPA III RSCC
701 Mapes RD
Fort Meade MD 20755-5350

Phone: 410-305-2734
Fax:

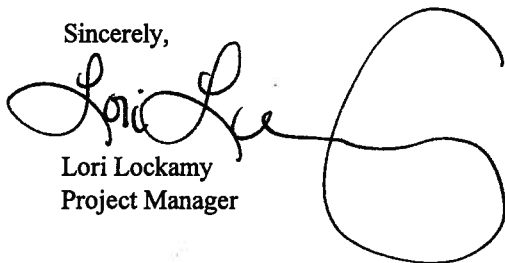
Dear Mr. Slizys:

Enclosed is a full data package containing the final results for samples received by SGS Environmental Services, Inc. on June 3, 2010 under your project name "40105". The samples were analyzed by Method 1668A following SGS's Standard Operating Procedures and are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards.

| | |
|-----------------------------|----------|
| Number of Samples Received: | 6 |
| Your Project Reference: | 40105 |
| PAL Project Number: | G556-213 |

We appreciate your business and look forward to working with you again. Please contact me at 910-350-1903 if you have questions or need additional technical support.

Sincerely,



Lori Lockamy
Project Manager

29 June 2010
Date

Data Qualifiers: PCB's

| | |
|------------|---|
| B | Analyte was detected in the Lab Method Blank (LMB) at a concentration greater than 20pg/L or 5 pg/g, and the concentration in the associated sample is less than 10 times the LMB concentration. |
| U | Identifies a compound as not being detected. |
| NR | Analyte not reported because of problems in sample preparation or analysis. |
| C | Data refers to the first of the co-eluting congeners. |
| Cx | Data is listed under the lowest numerical congener number in the group where 'x' references the lowest congener. |
| EDL | Estimated Detection Limit |
| T | Retention time shift. |
| ppt | Parts-per-trillion (pg/g; ng/L) |
| V | Recovery is below quality control limit. The data has been validated based on a favorable signal-to-noise and detection limit. An average uncertainty of 30% can be routinely achieved as concluded from the evaluation of HRGC-HRMS standard operating procedures. The following flags warn the data user of situations where the uncertainty may be greater than stated. |
| A | Amount detected is less than the Lower Calibration Limit. |
| J | Amount detected is between the Method Detection Limit and the Lower Calibration Limit. |
| K | Data is being reported with a failing ratio and should be considered as an estimated value. |
| E | Amount detected is greater than the Upper Calibration Limit. |
| S | The amount of analyte present has saturated the detector. This situation results in an underestimation of the affected analyte(s). |
| Q | Indicates the presence of a quantitative interference. This situation generally results in an underestimation of the affected analyte(s). |
| I | Indicates the presence of a qualitative interference that could cause a false positive or an overestimation of the affected analyte(s). |
| # | Outside quality control limits |
| • | See case narrative |

SDG Narrative
SGS Project: G556-213
DAS: 40105
EPA SDG: C01J6

Samples: 6
Matrix: 6 Waters
Receipt Dates: June 3rd, 2010
Method: 1668A-CBC

Notes:

- The submitted samples were accepted into the lab on June 3rd, 2010 and extracted on June 4th, 2010 by method 3520C. The sample extracts and associated QC extracts were then processed through clean-up and analyzed by HRGC/HRMS for method 1688A-CBC.
- There is no MS/MSD with this SDG.
- The LMB associated with WG18209 contains 52-TeCB, 66-TeCB and 118-PeCB present with a reported concentration greater than 20pg/L. Affected samples are 'B' flagged indicating that these compounds are present in the blank at a concentration greater than the reporting limit and the concentration in the samples is less than 10 times the LMB concentrations.
- The ICAL for PCBs by method 1668A (m1668a-b062210c) passed all quantitation criteria as established by the method. The ion ratios for the following did not meet the method criteria of 85-115% in the lowest calibration standard (CS0.5): 118-pentabiphenyl and 167-hexabiphenyl. For the CS1 calibration standard, the curve did not meet the method criteria for the ion ratios in the following: 114-pentabiphenyl and 202-octabiphenyl. This will not affect in any way the accurate quantitation of the results for the analysis. The associated data is considered valid based on favorable signal to noise and EDL recoveries.

Ex. Calculations:

- An example calculation can be found on the quant report for each sample submitted

$$\text{Native Concentration} = \frac{(A1_N + A2_N)(ES \text{ Amount})}{(A1_{ES} + A2_{ES})(RRF)(Weight)(\% \text{ Solids})}$$

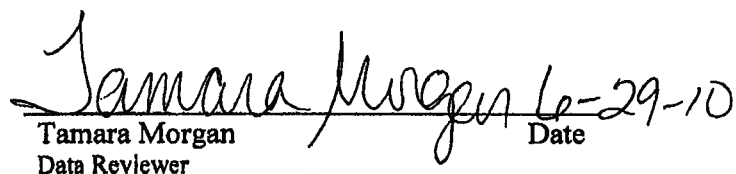
$$ES \%R = \frac{(A1_{ES} + A2_{ES})(\# \text{ of fractions}^1)(Amount \text{ JS})}{(A1_{JS} + A1_{JS})(RRF)(CS \text{ Amount})} \times 100$$

$$CS \%R = \frac{(A1_{CS} + A2_{CS})(\# \text{ of fractions}^1)(Amount \text{ JS})}{(A1_{JS} + A1_{JS})(RRF)(CS \text{ Amount})} \times 100$$

$$\text{Extract Concentration} = \frac{(A1_N + A2_N)(ES \text{ Amount})}{(A1_{ES} + A2_{ES})(RRF)(Final \text{ Volume})}$$

$$\text{Reporting Limit} = \frac{(\text{Extract Concentration at LCL})(Final \text{ Volume})}{(Weight)(\% \text{ Solids})}$$

¹If an extract was split between spike additions, the split must be taken into account.

 6-29-10
Tamara Morgan Date
Data Reviewer