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DRAFT FINAL
REMEDIAL INVESTIGATION REPORT
FOR THE
FORMER ARMCO HAMILTON PLANT SITE
401 Augspurger Road, New Miami, Ohio

APPENDIX E, F, G

Volume 10 of 10

KEMRON
ENVIRONMENTAL SERVICES

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Appendix E

Representative Data Validation Reports

ANALYTICAL QUALITY ASSOCIATES, INC.
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Memorandum

Date: September 18, 2008

To: Mary Lou Rochotte
Kemron Environmental Services, Inc.

From: Jeanne Peterson
Analytical Quality Associates, Inc.

Subject: Data Validation, PCDD/PCDF Analysis
Remedial Investigation
Former Armco Hamilton Plant Site, New Miami, OH
Columbia Analytical Services SDG E0800752

SUMMARY

Full validation was performed on the data for one soil sample analyzed for polychlorinated dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) by SW-846 method 8290. The sample was collected at the Former Armco Hamilton Plant site in New Miami, Ohio, on May 27, 2008, and was submitted to Columbia Analytical Services (CAS), in Houston, Texas, for analysis. CAS processed the sample and reported the results under sample delivery group (SDG) E0800752.

The analytical data were evaluated with reference to the "USEPA Analytical Services Branch (ASB) National Functional Guidelines for Chlorinated Dibenzo-p-dioxins (CDDs) and Chlorinated Dibenzofurans (CDFs) Data Review," EPA-540-R-05-001 (September 2005) and the quality control (QC) criteria specified in the analytical method and/or the site-specific Quality Assurance Project Plan (QAPP). Modification of the Functional Guidelines was performed to accommodate the SW-846 methodologies.

In general, the data are valid as reported and may be used for decision-making purposes. No data were rejected. Other qualifiers were applied to the data as specified in the Data Qualifiers section below.

SAMPLES

The sample included in this validation is listed below.

Sample ID	Laboratory ID	Matrix
AOC22RA18	E0800752-001	Soil

DATA QUALIFIERS (see following sections for detailed explanations)

Sample	Analyte	Qualifier	Reason
AOC22RA18	All target analytes *except*: 2,3,7,8-TCDD OCDD 1,2,3,4,6,7,8-HpCDF	J	Extraction beyond holding time and high recovery standard area counts
	2,3,7,8-TCDD OCDD 1,2,3,4,6,7,8-HpCDF	J	Extraction beyond holding time, high LCS recoveries, and high recovery standard area counts

REVIEW ELEMENTS

Sample data were reviewed for the following parameter, where applicable to method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Initial and continuing calibrations
- Method blank/equipment blank/field blank
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Field duplicate results
- Internal and clean-up standard recoveries
- Recovery standards
- Sample quantitation/detection limit results
- Data Package Completeness

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancies were found.

Holding Times and Sample Preservation

Upon receipt, the cooler temperatures were within the acceptance criteria of 4±2°C.

The sample was extracted and analyzed within the method specified holding times and was properly preserved with the following exception:

The sample was extracted beyond the holding time. The associated sample results were detects and, therefore, were qualified J.

Initial and Continuing Calibrations

All PFK check, GC column performance check, and initial and continuing calibration QC acceptance criteria were met with the following exceptions:

There were insufficient data to verify that the mass of m/z 380.9760 was within 5 ppm of the required value for the DB-5 column. The laboratory confirmed that the mass was within criteria.

The 1,2,3,7,8,9-HxCDF relative retention time (RRT) for the initial calibration level 2 standard was >0.005 RT units of the other associated initial calibration standard RRTs. No sample data were qualified based on professional judgment.

The 1,2,3,4,7,8,9-HpCDF and 2,3,4,6,7,8-HxCDF RRTs for the beginning and ending daily calibration standards were >0.005 RT units of the associated initial calibration standard RRTs. No sample data were qualified based on professional judgment.

Method Blank/Equipment Blank/Field Blank

1,2,3,4,6,7,8-HpCDD; OCDD; 1,2,3,4,6,7,8-HpCDF; OCDF; total hepta dioxins; and total hepta furans were detected in the method blank. The associated sample results were detects greater than the action levels for these analytes and, therefore, were not qualified.

Field blanks and equipment blanks were not collected with this SDG.

MS/MSD Results

MS/MSD analyses were not performed on the sample in this SDG.

LCS/LCSD Results

The recoveries and relative percent differences (RPDs) for all spiked compounds were within the laboratory QC acceptance criteria with the following exceptions:

The LCS and/or LCSD recoveries for 2,3,7,8-TCDD; OCDD; and 1,2,3,4,6,7,8-HpCDF were above the laboratory upper acceptance limits. The associated sample results were detects and, therefore, were qualified J.

Field Duplicate Results

A field duplicate was not collected with this SDG.

Internal and Clean-up Standard Recoveries

All internal and clean-up standard recoveries met QC acceptance criteria.

Recovery Standards

All recovery standard area counts were within QC acceptance criteria with the following exceptions:

The $^{13}C_{12}$-1,2,3,4-TCDD area counts for the method blank, LCS, LCSD, and sample AOC22RA18 were above the upper acceptance limits. The associated results for sample AOC22RA18 were detects and, therefore, were qualified J. The MB, LCS, and LCSD are QC samples and, therefore, were not qualified.

Sample Quantitation/Detection Limit Results

The signal-to-noise ratios and ion abundance ratios met method acceptance criteria with the following exceptions:

The 1,2,3,7,8,9-HxCDF ion abundance ration for sample AOC22RA18 was below the lower acceptance limit and the signal-to-noise ratio was >2.5. The associated sample result was therefore reported by the laboratory as an estimated maximum possible concentration as noted by the K flag on the sample result form. Further qualification was not necessary.

Calculations were spot-checked. No discrepancies were noted. The sample was not diluted.

The sample results were reported in dry weight, and all associated estimated detection limits (EDLs) and method reporting limits (MRLs) were adjusted accordingly. It should be noted that some individual sample EDLs and MRLs may be higher than those listed in the QAPP due to sample extraction procedures and percent solids.

Data Package Completeness

The data package was complete with the following exceptions:

There were insufficient data to verify that the cycle time was less than or equal to one second. The laboratory confirmed that the cycle time was within criteria.

Retention times were only provided for one ion for each target analyte and therefore could not be verified to maximize simultaneously. The laboratory stated that the retention time provided on the quantitation report was for both ions.

There were insufficient data to verify the amount of sample injected and the standard concentrations. The laboratory confirmed that the amount of sample injected was as specified in the method (1 μL) for all samples, blanks, and standards.

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Memorandum

Date: August 13, 2008

To: Mary Lou Rochotte
Kemron Environmental Services, Inc.

From: Jessica Jorvig
Analytical Quality Associates, Inc.

Subject: Data Validation, VOC Analysis
Remedial Investigation
Former Armco Hamilton Plant Site, New Miami, OH
Microbac SDG L08060372

SUMMARY

Full validation was performed on the data for three water samples analyzed for volatile organic compounds (VOCs) by SW-846 method 8260B. The samples were collected at the Former Armco Hamilton Plant site in New Miami, Ohio, on June 12, 2008, and were submitted to Microbac Laboratories, Inc., in Marietta, OH, for analysis. Microbac processed the samples and reported the results under sample delivery group (SDG) L08060372.

The analytical data were evaluated with reference to the USEPA Region V Standard Operating Procedure for Validation of CLP Organic Data, the USEPA Contract Laboratory Program National Functional Guidelines for Organic Review (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, most of the data are valid as reported and may be used for decision-making purposes; however, the results for acetone and 4-methyl-2-pentanone for samples MW-2D and MW-3S were rejected due to relative response factors <0.05. These results are not usable for project decisions. No other qualifiers were applied to the data.

SAMPLES

The samples included in this validation are listed below.

Sample ID	Laboratory ID	Matrix
MW-2D	L08060372-01	Water
MW-3S	L08060372-05	Water

Sample ID	Laboratory ID	Matrix
MW-7M	L08060372-10	Water

REVIEW ELEMENTS

Sample data were reviewed for the following parameter, where applicable to method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Initial and continuing calibrations
- Method blanks/equipment blanks/field blanks
- Surrogate spike recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- Field duplicate results
- Internal standard recoveries
- Compound identification
- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC.

Holding Times and Sample Preservation

Upon receipt, two of the cooler temperatures were not within the acceptance criteria of 4±2°C. The coolers were received at 1°C. However, the cooler temperatures were <6°C and, therefore, the sample results were not qualified based on professional judgment. The other sample coolers were received within the acceptance criteria of 4±2°C.

The samples were extracted and analyzed within the method specified holding time and were properly preserved.

Instrument Tunes

All instrument tune requirements were met.

Initial and Continuing Calibrations

All initial and continuing calibration QC acceptance criteria were met with the following exceptions:

The initial calibration average relative response factors (RRFs) for acetone and 4-methyl-2-pentanone were <0.05. The associated results for samples MW-2D, MW-3S, and MW-7M were non-detects and, therefore, were qualified R.

The continuing calibration verification percent differences were above the upper acceptance limits for carbon disulfide and methyl acetate for the analysis on June 19, 2008. The associated sample results were non-detects and, therefore, were not qualified.

Method Blanks/Equipment Blanks/Field Blanks

1,2,4-Trichlorobenzene was detected in both method blanks and methylene chloride was detected in the trip blank at concentrations greater than (>) the method detection limits (MDLs) but less than (<) the reporting limits (RLs). The associated results for samples MW-2D, MW-3S, and MW-7M were non-detects and, therefore, were not qualified.

Equipment and field blanks were not collected with this SDG.

Surrogate Spike Recoveries

Surrogate recoveries were within the QC acceptance criteria provided in the project QAPP for the sample analysis.

MS/MSD Results

MS/MSD analyses were not performed on any samples in this SDG.

LCS/LCSD Results

The recoveries for all spiked compounds were within the laboratory QC acceptance criteria for the LCS analysis with the following exceptions:

The methyl acetate recoveries for the LCS and LCSD associated with sample MW-2D were > the laboratory upper acceptance limit. The associated sample result was a non-detect and, therefore, was not qualified.

Field Duplicate Results

A field duplicate was not performed on any samples in this SDG.

Internal Standard Recoveries

All internal standards met QC acceptance criteria.

Compound Identification

All compound identification acceptance criteria were met.

Compound Quantitation

Calculations were spot-checked. No discrepancies were noted.

Quantitation Limits and Sample Results

The samples were not diluted.

Individual sample MDLs and RLs may be higher than those listed in the QAPP due to sample extraction procedures.

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Memorandum

Date: August 13, 2008

To: Mary Lou Rochotte
Kemron Environmental Services, Inc.

From: Jessica Jorvig
Analytical Quality Associates, Inc.

Subject: Data Validation, SVOC Analysis
Remedial Investigation
Former Armco Hamilton Plant Site, New Miami, OH
Microbac SDG L08060372

SUMMARY

Full validation was performed on the data for three water samples analyzed for semivolatile organic compounds (SVOCs) by SW-846 method 8270C. The samples were collected at the Former Armco Hamilton Plant site in New Miami, Ohio, on June 12, 2008, and were submitted to Microbac Laboratories, Inc., in Marietta, OH, for analysis. Microbac processed the samples and reported the results under sample delivery group (SDG) L08060372.

The analytical data were evaluated with reference to the USEPA Region V Standard Operating Procedure for Validation of CLP Organic Data, the USEPA Contract Laboratory Program National Functional Guidelines for Organic Review (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision-making purposes. No data were rejected. No other qualifiers were applied to the data.

SAMPLES

The samples included in this validation are listed below.

Sample ID	Laboratory ID	Matrix
MW-2D	L08060372-01	Water
MW-3S	L08060372-05	Water
MW-7M	L08060372-10	Water

REVIEW ELEMENTS

Sample data were reviewed for the following parameter, where applicable to method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Initial and continuing calibrations
- Method blanks/equipment blanks/field blanks
- Surrogate spike recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- Field duplicate results
- Internal standard recoveries
- Compound identification
- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC.

Holding Times and Sample Preservation

Upon receipt, two of the cooler temperatures were not within the acceptance criteria of 4±2°C. The coolers were received at 1°C. However, the cooler temperatures were <6°C and, therefore, the sample results were not qualified based on professional judgment. The other sample coolers were received within the acceptance criteria of 4±2°C.

The samples were extracted and analyzed within the method specified holding time and were properly preserved.

Instrument Tunes

All instrument tune requirements were met. The raw data for the DFTPP tune associated with the ICAL analyzed on HPMS5 on June 5, 2008, is missing from the data package. The missing raw data was previously submitted by the laboratory for SDG L08050623, and that submittal was also used for validation of this package.

Initial and Continuing Calibrations

All initial and continuing calibration QC acceptance criteria were met.

Method Blanks/Equipment Blanks/Field Blanks

No target compounds were detected in the method blank associated with this SDG. Equipment and field blanks were not collected with this SDG.

Surrogate Spike Recoveries

Surrogate recoveries were within the QC acceptance criteria provided in the project QAPP with the following exception:

The terphenyl-d14 surrogate percent recovery (%R) for sample MW-3S was less than (<) the lower acceptance limit but greater than or equal to (≥) 10%. However, only one surrogate was outside of specification for the base/neutral fraction and, therefore, no sample data were qualified.

MS/MSD Results

MS/MSD analyses were not performed on any samples in this SDG.

LCS/LCSD Results

The recoveries and relative percent differences for all spiked compounds were within the laboratory QC acceptance criteria for the LCS and LCSD analyses.

Field Duplicate Results

A field duplicate was not performed on any samples in this SDG.

Internal Standard Recoveries

All internal standards met QC acceptance criteria.

Compound Identification

All compound identification acceptance criteria were met.

Compound Quantitation

Calculations were spot-checked. No discrepancies were noted.

Quantitation Limits and Sample Results

The samples were not diluted.

Individual sample method detection limits and reporting limits may be higher than those listed in the QAPP due to sample extraction procedures.

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Memorandum

Date: August 13, 2008

To: Mary Lou Rochotte
Kemron Environmental Services, Inc.

From: Jessica Jorvig
Analytical Quality Associates, Inc.

Subject: Data Validation, PAH Analysis
Remedial Investigation
Former Armco Hamilton Plant Site, New Miami, OH
Microbac SDG L08060372

SUMMARY

Full validation was performed on the data for three water samples analyzed for polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C PAHL. The samples were collected at the Former Armco Hamilton Plant site in New Miami, Ohio, on June 12, 2008, and were submitted to Microbac Laboratories, Inc., in Marietta, OH, for analysis. Microbac processed the samples and reported the results under sample delivery group (SDG) L08060372.

The analytical data were evaluated with reference to the USEPA Region V Standard Operating Procedure for Validation of CLP Organic Data, the USEPA Contract Laboratory Program National Functional Guidelines for Organic Review (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision-making purposes. No data were rejected. No other qualifiers were applied to the data.

SAMPLES

The samples included in this validation are listed below.

Sample ID	Laboratory ID	Matrix
MW-2D	L08060372-01	Water
MW-3S	L08060372-05	Water
MW-7M	L08060372-10	Water

REVIEW ELEMENTS

Sample data were reviewed for the following parameter, where applicable to method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Initial and continuing calibrations
- Method blanks/equipment blanks
- Surrogate spike recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory control sample (LCS) results
- Field duplicate results
- Internal standard recoveries
- Compound identification
- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC.

Holding Times and Sample Preservation

Upon receipt, two of the cooler temperatures were not within the acceptance criteria of 4±2°C. The coolers were received at 1°C. However, the cooler temperatures were less than (<) 6°C and, therefore, the sample results were not qualified based on professional judgment. The other sample coolers were received within the acceptance criteria of 4±2°C.

The samples were extracted and analyzed within the method specified holding times and was properly preserved.

Instrument Tunes

All instrument tune requirements were met.

Initial and Continuing Calibrations

All initial and continuing calibration QC acceptance criteria were met.

Method Blanks/Equipment Blanks

No target compounds were detected in the method blank associated with this SDG. Equipment and field blanks were not collected with this SDG.

Surrogate Spike Recoveries

Surrogate recoveries were within the QC acceptance criteria provided in the project QAPP with the following exception:

The terphenyl-d14 surrogate percent recovery (%R) for sample MW-3S was < the lower acceptance limit but greater than or equal to (≥) 10%. However, only one surrogate was outside of specification for the base/neutral fraction and, therefore, no sample data were qualified.

MS/MSD Results

MS/MSD analyses were not performed on any samples in this SDG.

LCS/LCSD Results

The recoveries and relative percent differences for all spiked compounds were within the laboratory QC acceptance criteria for the LCS and LCSD analyses.

Field Duplicate Results

A field duplicate was not performed on any samples in this SDG.

Internal Standard Recoveries

All internal standards met QC acceptance criteria.

Compound Identification

All compound identification acceptance criteria were met.

Compound Quantitation

Calculations were spot-checked. No discrepancies were noted.

Quantitation Limits and Sample Results

The samples were not diluted.

Individual sample method detection limits and reporting limits may be higher than those listed in the QAPP due to sample extraction procedures.

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Memorandum

Date: August 13, 2008

To: Mary Lou Rochotte
Kemron Environmental Services, Inc.

From: Jessica Jorvig
Analytical Quality Associates, Inc.

Subject: Data Validation, Metals Analysis
Remedial Investigation
Former Armco Hamilton Plant Site, New Miami, OH
Microbac SDG L08060372

SUMMARY

Full validation was performed on the data for three water samples analyzed for metals by SW-846 methods 6010B (ICP-AES), 6020 (ICP-MS), and 7471A (Hg). The samples were collected at the Former Armco Hamilton Plant site in New Miami, Ohio, on June 12, 2008, and were submitted to Microbac Laboratories, Inc., in Marietta, OH, for analysis. Microbac processed the samples and reported the results under sample delivery group (SDG) L08060372.

The analytical data were evaluated with reference to the USEPA Region V Standard Operating Procedure for Validation of CLP Organic Data, the USEPA Contract Laboratory Program National Functional Guidelines for Organic Review (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision-making purposes. No data were rejected. The following qualifiers were applied to the data:

The Al result for sample MW-7M was qualified 0.100U due to blank contamination.

The Be and Cr results for samples MW-2D, MW-3S, and MW-7M were qualified 0.00200U due to blank contamination.

The Cu result for sample MW-3S was qualified U due to blank contamination.

The Cu results for samples MW-2D and MW-7M were qualified 0.00200U due to blank contamination.

The Ni results for samples MW-2D and MW-7M were qualified U due to blank contamination.

SAMPLES

The samples included in this validation are listed below.

Sample ID	Laboratory ID	Matrix
MW-2D	L08060372-02	Water
MW-3S	L08060372-05	Water
MW-7M	L08060372-10	Water

REVIEW ELEMENTS

Sample data were reviewed for the following parameter, where applicable to method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Initial and continuing calibrations
- Method blanks/equipment blanks
- Surrogate spike recoveries
- Interference check sample (ICS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field duplicate results
- Laboratory control sample (LCS) results
- Serial dilution results
- Internal standard recoveries
- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC.

Holding Times and Sample Preservation

Upon receipt, two of the cooler temperatures were not within the acceptance criteria of 4±2°C. The coolers were received at 1°C. However, the cooler temperatures were less than (<) 6°C and, therefore, the sample results were not qualified based on professional judgment. The other sample coolers were received within the acceptance criteria of 4±2°C.

The samples were extracted and analyzed within the method specified holding times and were properly preserved.

Instrument Tunes

All ICP-MS tune requirements were met.

Initial and Continuing Calibrations

All initial and continuing calibration QC acceptance criteria were met.

Method Blanks/Equipment Blanks

Be, Ca, Cu, Ni, and Cr were detected in the method blank (MB); Fe was detected in the initial calibration blank (ICB); Al was detected in the MB and the ICB; Ba was detected in the MB, ICB, and continuing calibration blanks (CCBs); and Sb was detected in the ICB and CCBs at concentrations greater than (>) the method detection limits (MDLs) but < the reporting limits (RLs). The associated Be and Cr sample results were detects <5X the respective MB concentrations and < the RLs and, therefore, were qualified U at the reporting limits (0.00200U). The Cu result for sample MW-3S was a detect > the RL but <5X the MB concentration and, therefore, was qualified U. The Cu results for samples MW-2D and MW-7M were detects <5X the MB concentration and < the RL and, therefore, were qualified U at the reporting limit (0.00200U). The Ni results for samples MW-2D and MW-7M were detects > the RL but <5X the MB concentration and, therefore, were qualified U. The Al result for sample MW-7M was a detect < the RL and <5X the highest associated blank concentration and, therefore, was qualified U at the RL (0.100U). All other associated sample results were either detects > the RL and >5X the respective blank concentrations or non-detects and, therefore, were not qualified.

Equipment and field blanks were not collected with this SDG.

Interference Check Sample Results

Results of the ICS A and ICS AB analyses were within QC acceptance limits with the following exceptions:

The ICS A Sb, Cd, Cu, Pb, Ni, Zn, and Cr results were > MDLs with a positive bias. The ICS A K result was > the MDL with a negative bias. The sample concentrations of the interferents (Al, Ca, Fe, and Mg) were < the concentrations of the interferents in the ICS A solution. Therefore, no sample data were qualified.

MS/MSD Results

The MS/MSD analyses for all analytes were performed on samples that were not site-specific and, therefore, the results were not evaluated.

Laboratory Duplicate Results

The laboratory duplicate analyses for all analytes were performed on samples that were not site-specific and, therefore, the results were not evaluated.

Field Duplicate Results

A field duplicate was not performed on any samples in this SDG.

LCS Results

The recoveries for all spiked compounds were within the laboratory QC acceptance criteria for the LCS analyses.

Serial Dilution Results

The serial dilution analyses for all analytes were performed on samples that were not site-specific and, therefore, the results were not evaluated.

Internal Standard Recoveries

All ICP-MS internal standards met QC acceptance criteria.

Compound Quantitation

Calculations for ICP and ICP-MS analyses were spot-checked. No discrepancies were noted. Calculations for Hg sample analyses could not be performed due to lack of adequate raw data. In addition, Hg results were based on one replicate. No sample data were qualified as a result.

Quantitation Limits and Sample Results

Samples MW-2D, MW-3S, and MW-7M were diluted 5X for V in order to obtain results within the linear range. Individual sample MDLs and RLs were adjusted accordingly. All other analytes were reported from undiluted analyses and, therefore, the MDLs and RLs were not adjusted for dilution.

Individual sample MDLs and RLs may be higher than those listed in the QAPP due to sample extraction procedures.

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Memorandum

Date: August 13, 2008

To: Mary Lou Rochotte
Kemron Environmental Services, Inc.

From: Jeanne Peterson
Analytical Quality Associates, Inc.

Subject: Data Validation, Cyanide Analysis
Remedial Investigation
Former Armco Hamilton Plant Site, New Miami, OH
Microbac SDG L08060372

SUMMARY

Full validation was performed on the data for three water samples analyzed for cyanide by SW-846 method 9014 (with extraction by SW-846 method 9010C). The samples were collected at the Former Armco Hamilton Plant site in New Miami, Ohio, on June 12, 2008, and were submitted to Microbac Laboratories, Inc., in Marietta, OH, for analysis. Microbac processed the samples and reported the results under sample delivery group (SDG) L08060372.

The analytical data were evaluated with reference to the USEPA Region V Standard Operating Procedure for Validation of CLP Organic Data, the USEPA Contract Laboratory Program National Functional Guidelines for Organic Review (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision-making purposes. No data were rejected. No other qualifiers were applied to the data:

SAMPLES

The sample included in this validation is listed below.

Sample ID	Laboratory ID	Matrix
MW-2D	L08060372-01	Water
MW-3S	L08060372-05	Water
MW-7M	L08060372-10	Water

REVIEW ELEMENTS

Sample data were reviewed for the following parameter, where applicable to method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Initial and continuing calibrations
- Method blanks/equipment blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field duplicate results
- Laboratory control sample (LCS) results
- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. The samples were analyzed by SW-846 methods 9014/9010C instead of SW-846 method 9012B.

Holding Times and Sample Preservation

Upon receipt, two of the cooler temperatures were not within the acceptance criteria of 4±2°C. The coolers were received at 1°C. However, the cooler temperatures were less than (<) 6°C and, therefore, the sample results were not qualified based on professional judgment. The other sample coolers were received within the acceptance criteria of 4±2°C.

The samples were extracted and analyzed within the method specified holding times and were properly preserved.

Initial and Continuing Calibrations

All initial and continuing calibration QC acceptance criteria were met.

Method Blanks/Equipment Blanks

The target analyte was not detected in the method blanks. Equipment and field blanks were not collected with this SDG.

MS/MSD Results

An MS was performed on sample MW-2D. The MS recoveries were within QC limits.

Laboratory Duplicate Results

A laboratory duplicate was performed on sample MW-2D. The results for the sample and its duplicate were both non-detects and, therefore, the relative percent difference (RPD) criteria is not applicable.

Field Duplicate Results

A field duplicate was not performed on any samples in this SDG.

LCS Results

The percent recoveries for cyanide were within the QC acceptance criteria for the LCS analyses.

Compound Quantitation

Calculations were spot-checked. No discrepancies were noted. The MS and duplicate summaries were not included in the data package; therefore, the MS recoveries and duplicate percent RPDs were hand-calculated from the raw data for data validation.

Quantitation Limits and Sample Results

The samples were not diluted. The reported method detection limits (MDLs) and reporting limits (RLs) met the project MDLs and RLs listed in the QAPP.

ANALYTICAL QUALITY ASSOCIATES, INC.
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Memorandum

Date: August 1, 2008

To: Mary Lou Rochotte
Kemron Environmental Services, Inc.

From: Jeanne Peterson
Analytical Quality Associates, Inc.

Subject: Data Validation, VOC Analysis
Remedial Investigation
Former Armco Hamilton Plant Site, New Miami, OH
Microbac SDG L08060478

SUMMARY

Full validation was performed on the data for five water field samples, one field duplicate, one matrix spike/matrix spike duplicate (MS/MSD) pair, one trip blank, and one equipment rinse were analyzed for volatile organic compounds (VOCs) by SW-846 method 8260B. The samples were collected at the Former Armco Hamilton Plant site in New Miami, Ohio, on June 17, 2008, and were submitted to Microbac Laboratories, Inc., in Marietta, OH, for analysis. Microbac processed the samples and reported the results under sample delivery group (SDG) L08060478.

The analytical data were evaluated with reference to the USEPA Region V Standard Operating Procedure for Validation of CLP Organic Data, the USEPA Contract Laboratory Program National Functional Guidelines for Organic Review (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, most of the data are valid as reported and may be used for decision-making purposes; however, the results for 4-methyl-2-pentanone for all samples *except* samples MW-13M-MS and MW-13M-MSD and the acetone results for all samples *except* samples Equip Rinse, MW-13M-MS, and MW-13M-MSD were rejected due to relative response factors <0.05. These results are not usable for project decisions. Other qualifiers were applied to the data as specified in the Data Qualifiers section below.

SAMPLES

The samples included in this validation are listed below.

Sample ID	Laboratory ID	Matrix
MW-18S	L08060478-01	Water
MW-18S/D	L08060478-03	Water
MW-13M	L08060478-05	Water
MW-13M-MS	L08060478-07	Water
MW-13M-MSD	L08060478-09	Water
MW-13S	L08060478-11	Water
MW-14M	L08060478-13	Water
MW-14S	L08060478-14	Water
Equip Rinse	L08060478-15	Water
Trip Blank	L08060478-16	Water

DATA QUALIFIERS (see following sections for detailed explanations)

Sample	Analyte	Qualifier	Reason
MW-18S	4-Methyl-2-pentanone Acetone	R	Relative response factors <0.05
MW-18S/D	4-Methyl-2-pentanone Acetone	R	Relative response factors <0.05
MW-13M	4-Methyl-2-pentanone Acetone	R	Relative response factors <0.05
	Methylcyclohexane Toluene	J	Low surrogate recovery
	All target compounds *except*: Methylcyclohexane Toluene 4-Methyl-2-pentanone Acetone	UJ	Low surrogate recovery
MW-13M-MS	4-Methyl-2-pentanone Acetone	J	Relative response factor <0.05
	Vinyl chloride	J	High matrix spike recovery
	Methyl acetate Methyl tert-butyl ether	J	High LCS recovery

MW-13M-MSD	4-Methyl-2-pentanone Acetone	J	Relative response factor <0.05
	Methyl acetate Methyl tert-butyl ether	J	High LCS recovery
MW-13S	4-Methyl-2-pentanone Acetone	R	Relative response factors <0.05
MW-14M	4-Methyl-2-pentanone Acetone	R	Relative response factors <0.05
MW-14S	4-Methyl-2-pentanone Acetone	R	Relative response factors <0.05
Equip Rinse	4-Methyl-2-pentanone	R	Relative response factor <0.05
	Acetone	J	Relative response factor <0.05 and low surrogate recovery
	Methylene chloride	J	Low surrogate recovery
	All target compounds *except*: Acetone Methylene chloride 4-Methyl-2-pentanone	UJ	Low surrogate recovery
Trip Blank	4-Methyl-2-pentanone Acetone	R	Relative response factors <0.05
	Methylene chloride	J	Low surrogate recovery
	All target compounds *except*: Methylene chloride 4-Methyl-2-pentanone Acetone	UJ	Low surrogate recovery

REVIEW ELEMENTS

Sample data were reviewed for the following parameter, where applicable to method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Instrument tunes
- Initial and continuing calibrations
- Method blanks/equipment blanks/field blanks
- Surrogate spike recoveries
- MS/MSD results
- Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- Field duplicate results
- Internal standard recoveries
- Compound identification
- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC.

Holding Times and Sample Preservation

Upon receipt, six of the cooler temperatures were not within the acceptance criteria of 4±2°C. The coolers were received at 1°C and 0°C. However, the cooler temperatures were <6°C and, therefore, the sample results were not qualified based on professional judgment. The other sample coolers were received within the acceptance criteria of 4±2°C.

The samples properly preserved and extracted and analyzed within the method specified holding time with the following exception:

Sample MW-13M-MSD had a pH of 7, indicating that it was not preserved. The sample was analyzed beyond the seven-day holding time for unpreserved samples; however, because the sample is was spiked with all target analytes and the results do not indicate any sample deterioration, no data were qualified.

Instrument Tunes

All instrument tune requirements were met.

Initial and Continuing Calibrations

All initial and continuing calibration QC acceptance criteria were met with the following exceptions:

The initial calibration average relative response factors (RRFs) for acetone and 4-methyl-2-pentanone were less than (<) 0.05. The acetone result for sample Equip Rinse and the 4-methyl-2-pentanone and acetone results for samples MW-13M-MS and MW-13M-MSD were detects and, therefore, were qualified J. The remaining associated sample results were non-detects and, therefore, were qualified R.

Method Blanks/Equipment Blanks/Field Blanks

1,2,4-Trichlorobenzene and 1,4-dichlorobenzene were detected in the method blank analyzed on June 25, 2008, and 1,2,4-trichlorobenzene was detected in the method blank analyzed on June 26, 2008, at concentration greater than (>) the method detection limits (MDLs) but less than (<) the reporting limits (RLs). The associated sample results were either non-detects or detects > the RL and >5X the associated method blank concentration and, therefore, were not qualified.

Methylene chloride was detected in the trip blank and in the equipment rinse at concentrations > the MDL but < the RL. The associated sample results were either non-detects or detects > the RL and >10X the associated method blank concentration and, therefore, were not qualified.

Field blanks were not collected with this SDG.

Surrogate Spike Recoveries

All surrogate recoveries were within the QC acceptance criteria provided in the project QAPP with the following exceptions:

The dibromofluoromethane surrogate recoveries were < the lower acceptance limit but >10% for samples MW-13M, Equip Rinse, and Trip Blank. The associated sample results that were detects were qualified J, and the associated sample results that were non-detects were qualified UJ.

MS/MSD Results

The MS/MSD recoveries for all spiked compounds were within laboratory QC acceptance criteria with the following exception:

The MS recovery for vinyl chloride was > the upper acceptance limit. Sample MW-13M-MS was qualified J based on professional judgment. Sample MW-13M-MSD met recovery criteria and, therefore, was not qualified based on professional judgment. The remaining associated sample results were non-detects and, therefore, were not qualified.

The relative percent differences (RPDs) between the MS and the MSD compounds were within QC acceptance criteria.

LCS/LCSD Results

The LCS/LCSD results for all spiked compounds were within laboratory QC acceptance criteria with the following exceptions:

The methyl acetate and methyl tert-butyl ether recoveries for the LCS analyzed on June 25, 2008, and the LCS and LCSD analyzed on June 26, 2008 were > the upper acceptance limit. The methyl acetate and methyl tert-butyl ether results for samples MW-13M-MS and MW-13M-MSD were detects and, therefore, were qualified J. The remaining associated sample results were non-detects and, therefore, were not qualified.

Field Duplicate Results

The results for sample MW-18S and its duplicate, sample MW-18S/D, were all non-detects and, therefore, the RPD criteria is not applicable.

Internal Standard Recoveries

All internal standards met QC acceptance criteria.

Compound Identification

All compound identification acceptance criteria were met with the following exceptions:

Ion ratios for methylcyclohexane were not within acceptance limits for sample MW-13M. Ion ratios for acetone and methylene chloride were not within acceptance limits for sample Equip

Rinse. An ion ratio for methylene chloride was not within acceptance limits for sample Trip Blank. Based on professional judgment, no sample data were qualified.

Compound Quantitation

Calculations were spot-checked. No discrepancies were noted.

Quantitation Limits and Sample Results

The samples were not diluted. The reported MDLs and RLs met the project MDLs and RLs listed in the QAPP.

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Memorandum

Date: August 4, 2008

To: Mary Lou Rochotte
Kemron Environmental Services, Inc.

From: Jeanne Peterson
Analytical Quality Associates, Inc.

Subject: Data Validation, SVOC Analysis
Remedial Investigation
Former Armco Hamilton Plant Site, New Miami, OH
Microbac SDG L08060478

SUMMARY

Full validation was performed on the data five water field samples, one field duplicate, one matrix spike/matrix spike duplicate (MS/MSD) pair, and one equipment rinse analyzed for semivolatile organic compounds (SVOCs) by SW-846 method 8270C. The samples were collected at the Former Armco Hamilton Plant site in New Miami, Ohio, on June 17, 2008, and were submitted to Microbac Laboratories, Inc., in Marietta, OH, for analysis. Microbac processed the samples and reported the results under sample delivery group (SDG) L08060478.

The analytical data were evaluated with reference to the USEPA Region V Standard Operating Procedure for Validation of CLP Organic Data, the USEPA Contract Laboratory Program National Functional Guidelines for Organic Review (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision-making purposes. No data were rejected. Other qualifiers were applied to the data as specified in the Data Qualifiers section below.

SAMPLES

The samples included in this validation are listed below.

Sample ID	Laboratory ID	Matrix
MW-18S	L08060478-01	Water
MW-18S/D	L08060478-03	Water

Sample ID	Laboratory ID	Matrix
MW-13M	L08060478-05	Water
MW-13M-MS	L08060478-07	Water
MW-13M-MSD	L08060478-09	Water
MW-13S	L08060478-11	Water
MW-14M	L08060478-13	Water
MW-14S	L08060478-14	Water
Equip Rinse	L08060478-15	Water

DATA QUALIFIERS (see following sections for detailed explanations)

Sample	Analyte	Qualifier	Reason
MW-13M-MS	4-Nitrophenol	J	High calibration verification positive bias
MW-13M-MSD	4-Nitrophenol	J	High calibration verification positive bias

REVIEW ELEMENTS

Sample data were reviewed for the following parameter, where applicable to method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Instrument tunes
- Initial and continuing calibrations
- Method blanks/equipment blanks/field blanks
- Surrogate spike recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory control sample (LCS) results
- Field duplicate results
- Internal standard recoveries
- Compound identification
- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC.

Holding Times and Sample Preservation

Upon receipt, six of the cooler temperatures were not within the acceptance criteria of 4±2°C. The coolers were received at 1°C and 0°C. However, the cooler temperatures were <6°C and, therefore, the sample results were not qualified based on professional judgment. The other sample coolers were received within the acceptance criteria of 4±2°C.

The samples were extracted and analyzed within the method specified holding time and were properly preserved.

Instrument Tunes

All instrument tune requirements were met.

Initial and Continuing Calibrations

All initial and continuing calibration QC acceptance criteria were met with the following exceptions:

The continuing calibration verification percent difference for 4-nitrophenol was greater than (>) the QC acceptance criteria. The 4-nitrophenol results for samples MW-13M-MS and MW-13M-MSD were detects and, therefore, were qualified J. The remaining associated sample results were non-detects and, therefore, were not qualified.

Method Blanks/Equipment Blanks/Field Blanks

No target compounds were detected in the method blank or equipment rinse associated with this SDG. Field blanks were not collected with this SDG.

Surrogate Spike Recoveries

Surrogate recoveries were within the QC acceptance criteria provided in the project QAPP.

MS/MSD Results

The MS/MSD recoveries for all spiked compounds were within laboratory QC acceptance criteria. The relative percent differences (RPDs) between the MS and the MSD compounds were within QC acceptance criteria.

LCS Results

The recoveries for all spiked compounds were within the laboratory QC acceptance criteria for the LCS analysis.

Field Duplicate Results

The results for sample MW-18S and its duplicate, sample MW-18S/D, were all non-detects and, therefore, the RPD criteria is not applicable.

Internal Standard Recoveries

All internal standards met QC acceptance criteria. The internal standard summary lists an incorrect phenanthrene-d10 area count for sample Equip Rinse. The 8270 quantitation report for the sample provides the true area count. The laboratory submitted a corrected internal standard summary and a corrected quantitation report for sample Equip Rinse.

Compound Identification

All compound identification acceptance criteria were met.

Compound Quantitation

Calculations were spot-checked. The re-calculated ICAL percent relative standard deviations (%RSDs) for 1,1'-biphenyl did not match the laboratory-reported %RSDs on all instruments. The laboratory verified that an error occurred on the ICAL summary for only 1,1-biphenyl and submitted a corrected ICAL summary. Recalculated %RSDs were used for data validation. No other discrepancies were noted.

Quantitation Limits and Sample Results

The samples were not diluted.

Individual sample method detection limits and reporting limits may be higher than those listed in the QAPP due to sample extraction procedures.

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Memorandum

Date: August 4, 2008

To: Mary Lou Rochotte
Kemron Environmental Services, Inc.

From: Jeanne Peterson
Analytical Quality Associates, Inc.

Subject: Data Validation, PAH Analysis
Remedial Investigation
Former Armco Hamilton Plant Site, New Miami, OH
Microbac SDG L08060478

SUMMARY

Full validation was performed on the data for five water field samples, one field duplicate, one matrix spike/matrix spike duplicate (MS/MSD) pair, and one equipment rinse analyzed for polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C PAHL. The samples were collected at the Former Armco Hamilton Plant site in New Miami, Ohio, on June 17, 2008, and were submitted to Microbac Laboratories, Inc., in Marietta, OH, for analysis. Microbac processed the samples and reported the results under sample delivery group (SDG) L08060478.

The analytical data were evaluated with reference to the USEPA Region V Standard Operating Procedure for Validation of CLP Organic Data, the USEPA Contract Laboratory Program National Functional Guidelines for Organic Review (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision-making purposes. No data were rejected. Other qualifiers were applied to the data as specified in the Data Qualifiers section below.

SAMPLES

The samples included in this validation are listed below.

Sample ID	Laboratory ID	Matrix
MW-18S	L08060478-01	Water
MW-18S/D	L08060478-03	Water

Sample ID	Laboratory ID	Matrix
MW-13M	L08060478-05	Water
MW-13M-MS	L08060478-07	Water
MW-13M-MSD	L08060478-09	Water
MW-13S	L08060478-11	Water
MW-14M	L08060478-13	Water
MW-14S	L08060478-14	Water
Equip Rinse	L08060478-15	Water

DATA QUALIFIERS (see following sections for detailed explanations)

No data qualifiers were applied to PAH sample results in this data package.

REVIEW ELEMENTS

Sample data were reviewed for the following parameter, where applicable to method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Instrument tunes
- Initial and continuing calibrations
- Method blanks/equipment blanks
- Surrogate spike recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory control sample (LCS) results
- Field duplicate results
- Internal standard recoveries
- Compound identification
- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC.

Holding Times and Sample Preservation

Upon receipt, six of the cooler temperatures were not within the acceptance criteria of 4±2°C. The coolers were received at 1°C and 0°C. However, the cooler temperatures were less than (<)

6°C and, therefore, the sample results were not qualified based on professional judgment. The other sample coolers were received within the acceptance criteria of 4±2°C.

The samples were extracted and analyzed within the method specified holding times and was properly preserved.

Instrument Tunes

All instrument tune requirements were met.

Initial and Continuing Calibrations

All initial and continuing calibration QC acceptance criteria were met.

Method Blanks/Equipment Blanks

No target compounds were detected in the method blank or equipment blank associated with this SDG. Field blanks were not collected with this SDG.

Surrogate Spike Recoveries

Surrogate recoveries were within the QC acceptance criteria provided in the project QAPP with the following exception:

The 2-fluorobiphenyl surrogate recovery for sample MW-13M-MS was greater than (>) the upper acceptance limit. However, only one surrogate was outside of specification for this fraction and, therefore, no sample data were qualified.

MS/MSD Results

The MS/MSD recoveries for all spiked compounds were within laboratory QC acceptance criteria. The relative percent differences (RPDs) between the MS and the MSD compounds were within QC acceptance criteria.

LCS Results

The LCS results for all spiked compounds were within laboratory QC acceptance criteria.

Field Duplicate Results

The results for sample MW-18S and its duplicate, sample MW-18S/D, were all non-detects and, therefore, the RPD criteria is not applicable.

Internal Standard Recoveries

All internal standards met QC acceptance criteria.

Compound Identification

All compound identification acceptance criteria were met.

Compound Quantitation

Calculations were spot-checked. No discrepancies were noted.

Quantitation Limits and Sample Results

The samples were not diluted.

Individual sample method detection limits and reporting limits may be higher than those listed in the QAPP due to sample extraction procedures.

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Memorandum

Date: August 4, 2008

To: Mary Lou Rochotte
Kemron Environmental Services, Inc.

From: Jeanne Peterson
Analytical Quality Associates, Inc.

Subject: Data Validation, Metals Analysis
Remedial Investigation
Former Armco Hamilton Plant Site, New Miami, OH
Microbac SDG L08060478

SUMMARY

Full validation was performed on the data for five water field samples, one field duplicate, one matrix spike/matrix spike duplicate (MS/MSD) pair, and one equipment rinse analyzed for metals by SW-846 methods 6010B (ICP-AES), 6020 (ICP-MS), and 7470A (Hg). The samples were collected at the Former Armco Hamilton Plant site in New Miami, Ohio, on June 17, 2008, and were submitted to Microbac Laboratories, Inc., in Marietta, OH, for analysis. Microbac processed the samples and reported the results under sample delivery group (SDG) L08060478.

The analytical data were evaluated with reference to the USEPA Region V Standard Operating Procedure for Validation of CLP Organic Data, the USEPA Contract Laboratory Program National Functional Guidelines for Organic Review (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision-making purposes. No data were rejected. Other qualifiers were applied to the data as specified in the Data Qualifiers section below.

SAMPLES

The samples included in this validation are listed below.

Sample ID	Laboratory ID	Matrix
MW-18S	L08060478-02	Water
MW-18S/D	L08060478-04	Water

Sample ID	Laboratory ID	Matrix
MW-13M	L08060478-06	Water
MW-13M-MS	L08060478-08	Water
MW-13M-MSD	L08060478-10	Water
MW-13S	L08060478-12	Water
MW-14M	L08060478-13	Water
MW-14S	L08060478-14	Water
Equip Rinse	L08060478-15	Water

DATA QUALIFIERS (see following sections for detailed explanations)

Sample	Analyte	Qualifier	Reason
MW-18S	Sb	0.00100U	Blank contamination
	Cr	0.0100U	Blank contamination and equipment rinse contamination
	Hg	UJ	Negative blank result and negative result > the MDL but < the RL
MW-18S/D	Sb	0.00100U	Blank contamination
	Hg	UJ	Negative blank result and negative result > the MDL but < the RL
	Cr	U	Equipment rinse contamination
	Cu	0.00200U	Equipment rinse contamination
MW-13M	Sb	0.00100U	Blank contamination
	Hg	UJ	Negative blank result
	Fe	0.100U	Equipment rinse contamination
	Cr	U	Equipment rinse contamination
	Cu	0.00200U	Equipment rinse contamination
MW-13M-MS	Zn	J	Equipment rinse contamination
	Cd	J+	Positive ICS A result
MW-13M-MSD	Zn	J	Equipment rinse contamination
	Cd	J+	Positive ICS A result
MW-13S	Sb	0.00100U	Blank contamination
	Cr	0.0100U	Blank contamination and equipment rinse contamination
	Cd	J+	Positive ICS A result
MW-14M	Sb	0.00100U	Blank contamination
	Cr	U	Equipment rinse contamination

Sample	Analyte	Qualifier	Reason
	Cu	0.00200U	Equipment rinse contamination
	Zn	0.0250U	Equipment rinse contamination
	Cd	J+	Positive ICS A result
MW-14S	Cr	U	Equipment rinse contamination
	Cu	U	Equipment rinse contamination
	Zn	0.0250U	Equipment rinse contamination
	Cd	J+	Positive ICS A result
Equip Rinse	Cr	0.00200U	Blank contamination

REVIEW ELEMENTS

Sample data were reviewed for the following parameter, where applicable to method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Instrument tunes
- Initial and continuing calibrations
- Method blanks/equipment blanks
- Interference check sample (ICS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field duplicate results
- Laboratory control sample (LCS) results
- Serial dilution results
- Internal standard recoveries
- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC.

Holding Times and Sample Preservation

Upon receipt, six of the cooler temperatures were not within the acceptance criteria of 4±2°C. The coolers were received at 1°C and 0°C. However, the cooler temperatures were less than (<) 6°C and, therefore, the sample results were not qualified based on professional judgment. The other sample coolers were received within the acceptance criteria of 4±2°C.

The samples were extracted and analyzed within the method specified holding times and were properly preserved.

Instrument Tunes

All ICP-MS tune requirements were met.

Initial and Continuing Calibrations

All initial and continuing calibration QC acceptance criteria were met.

Method Blanks/Equipment Blanks

Sb was detected in the initial calibration blank and in one or more of the continuing calibration blanks (CCBs) at concentrations greater than (>) the method detection limit (MDL) but < the reporting limit (RL). The Sb results for samples MW-18S, MW-18S/D, MW-13M, MW-13S, and MW-14M were detects > the MDL but < the RL and, therefore, were qualified U at the RL (0.00100U). The remaining associated sample results were either non-detects or detects> the RL and >5X the highest blank concentration and, therefore, were not qualified.

Cr was detected in the method blank at a concentration > the MDL but < the RL. The Cr results for samples MW-18S, MW-13S, and Equip Rinse were detects < the RL and, therefore, were qualified U at the RL (0.0100U, 0.0100U, and 0.00200U, respectively). The remaining associated sample results were detects > the RL and >5X the highest blank concentration and, therefore, were not qualified.

CCB and method blank results for Hg batch WG275062 were negative with absolute values > the MDL but < the RL. The Hg results for samples MW-18S, MW-18S/D, and MW-13M were non-detects and, therefore, were qualified UJ. The remaining associated sample results were detects >10X the highest absolute value and, therefore, were not qualified.

Ba, Ca, Fe, Na, Cr, Cu, and Zn were detected in the equipment rinse (sample Equip Rinse) at concentrations > the MDLs but < the RLs. The Fe result for sample MW-13M was a detect > the MDL but < the RL and, therefore, was qualified U at the RL (0.100U). The Cr results for samples MW-18S and MW-13S were detects > the MDL but < the RL and, therefore, were qualified U at the RL (0.0100U). The Cr results for samples MW-18S/D, MW-13M, MW-14M, and MW-14S were detects > the RL but <5X the equipment rinse concentration and, therefore, were qualified U at their respective reported results. The Cu results for samples MW-18S/D, MW-13M, and MW-14M were detects > the MDL but < the RL and, therefore, were qualified U at the RL (0.00200U). The Cu result for sample MW-14S was a detect > the RL but <5X the equipment rinse concentration and, therefore, was qualified U at the reported result. The Zn results for samples MW-14M and MW-14S were detects > the MDL but < the RL and, therefore, were qualified U at the RL (0.0250U). Samples MW-13M-MS and MW-13M-MSD were spiked samples whose results were > the RL but < the 5X the equipment rinse concentration and, therefore, were qualified J based on professional judgment. The remaining associated sample results were either non-detects or detects > the RL and >5X the equipment rinse concentration and, therefore, were not qualified.

Field blanks were not collected with this SDG.

Interference Check Sample Results

Results of the ICS A and ICS AB analyses were within QC acceptance limits with the following exceptions:

The ICS A Cd result was > MDL with a positive bias, and sample concentrations of one or more of the interferents (Al, Ca, Fe, and Mg) were > the concentrations of the interferents in the ICS A solution for all samples *except* sample Equip Rinse. The Cd results for samples MW-13M-MS, MW-13M-MSD, MW-13S, MW-14M, andMW-14S were detects and, therefore, were qualified J+. The remaining associated sample results were non-detects and, therefore, were not qualified. The concentration of the interferents in sample Equip Rinse were < the concentrations of the interferents in the ICS A and, therefore, the Cd result for sample Equip Rinse was not qualified.

The ICS A Ba and K results were > the MDL with negative bias. The concentrations of the interferents in all samples *except* sample MW-14M were < the concentrations of the interferents in the ICS A solution and, therefore, the associated sample data were not qualified. The Ba and K results for sample MW-14M were detects >10X the ICS A concentration and, therefore, were not qualified.

The recovery of AG for the ICS AB analyzed on June 24, 2008, was <80% but ≥50%; however, there were no Ag results reported from this analysis and, therefore, no sample results were qualified.

MS/MSD Results

The MS/MSD recoveries were within QC acceptance limits with the following exceptions:

The MS recovery for Ca and the MSD recovery for Mg were outside the acceptance limits. However, the parent sample concentrations were >4X the spike concentrations and, therefore, no sample data were qualified.

The relative percent differences (RPDs) between the MS and the MSD compounds were within QC acceptance criteria.

The MS/MSD analyses for Hg batch WG275493 were performed on a site-specific sample from another SDG.

The MS/MSD analyses for ICP-AES batch WG274739 were performed on a sample that was not site-specific and, therefore, the results were not evaluated.

Laboratory Duplicate Results

The laboratory duplicate results were all within QC acceptance limits.

The laboratory duplicate analysis for Hg batch WG275493 was performed on a site-specific sample from another SDG.

The laboratory duplicate analysis for ICP-AES batch WG274739 was performed on a sample that was not site-specific and, therefore, the results were not evaluated.

Field Duplicate Results

The RPDs between the results for sample MW-18S and its duplicate, sample MW-18S/D, were within laboratory QC limits.

LCS Results

The recoveries for all spiked compounds were within the laboratory QC acceptance criteria for the LCS analyses.

Serial Dilution Results

The ICP-AES serial dilution analyses met all QC acceptance criteria; however, the serial dilution for batch WG275427 was performed on the equipment rinse, sample Equip Rinse.

The ICP-MS serial dilution analysis was performed on a sample that was not site-specific and, therefore, the results were not evaluated.

Internal Standard Recoveries

All ICP-MS internal standards met QC acceptance criteria.

Compound Quantitation

The Hg results for samples MW-18S and MW-18S/D were > the MDL but < the RL with negative bias. The sample result were reported as non-detects and, therefore, were qualified UJ based on professional judgment.

Calculations for ICP and ICP-MS analyses were spot-checked. No discrepancies were noted. Calculations from the raw data for Hg sample analyses could not be performed due to lack of adequate raw data. In addition, Hg results were based on one replicate. No sample data were qualified as a result.

Quantitation Limits and Sample Results

Sample MW-14M was diluted 10X for Na in order to obtain results within the linear range. Samples MW-18S and MW-13S were diluted 5X for As, Co, Cr, Cu, Ni, Se, and Zn due to internal standard failure. Individual sample MDLs and RLs were adjusted accordingly. All other analytes were reported from undiluted analyses and, therefore, the MDLs and RLs were not adjusted for dilution.

As a result of dilution, several analytes may not meet the project objectives for samples MW-18S and MW-13S.

Other Discrepancies

The post spike recovery for Ca was incorrectly reported as 151.5%. The true recovery for Ca is -100%. A corrected form was requested from the laboratory but has not yet been received.

The sample IDs on the ICP-MS run log for runs EL.062408.113947, EL.062408.114801, EL.062408.115615, and EL.062408.120430 do not match the raw data. Re-calculations showed that the sample IDs on the run log were correct. Revised data were requested from the laboratory but have not yet been received.

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Memorandum

Date: August 4, 2008

To: Mary Lou Rochotte
Kemron Environmental Services, Inc.

From: Jeanne Peterson
Analytical Quality Associates, Inc.

Subject: Data Validation, Cyanide Analysis
Remedial Investigation
Former Armco Hamilton Plant Site, New Miami, OH
Microbac SDG L08060478

SUMMARY

Full validation was performed on the data for five water field samples, one field duplicate, one matrix spike/matrix spike duplicate (MS/MSD) pair, one trip blank, and one equipment rinse analyzed for cyanide by SW-846 method 9014 (with extraction by SW-846 method 9010C). The samples were collected at the Former Armco Hamilton Plant site in New Miami, Ohio, on June 17, 2008, and were submitted to Microbac Laboratories, Inc., in Marietta, OH, for analysis. Microbac processed the samples and reported the results under sample delivery group (SDG) L08060478.

The analytical data were evaluated with reference to the USEPA Region V Standard Operating Procedure for Validation of CLP Organic Data, the USEPA Contract Laboratory Program National Functional Guidelines for Organic Review (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision-making purposes. No data were rejected. Other qualifiers were applied to the data as specified in the Data Qualifiers section below.

SAMPLES

The sample included in this validation is listed below.

Sample ID	Laboratory ID	Matrix
MW-18S	L08060478-01	Water
MW-18S/D	L08060478-03	Water

Sample ID	Laboratory ID	Matrix
MW-13M	L08060478-05	Water
MW-13M-MS	L08060478-07	Water
MW-13M-MSD	L08060478-09	Water
MW-13S	L08060478-11	Water
MW-14M	L08060478-13	Water
MW-14S	L08060478-14	Water
Equip Rinse	L08060478-15	Water

DATA QUALIFIERS (see following sections for detailed explanations)

No data qualifiers were applied to cyanide sample results in this data package.

REVIEW ELEMENTS

Sample data were reviewed for the following parameter, where applicable to method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Initial and continuing calibrations
- Method blanks/equipment blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field duplicate results
- Laboratory control sample (LCS) results
- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. The samples were analyzed by SW-846 methods 9014/9010C instead of SW-846 method 9012B.

Holding Times and Sample Preservation

Upon receipt, six of the cooler temperatures were not within the acceptance criteria of 4±2°C. The coolers were received at 1°C and 0°C. However, the cooler temperatures were less than (<) 6°C and, therefore, the sample results were not qualified based on professional judgment. The other sample coolers were received within the acceptance criteria of 4±2°C.

The samples were extracted and analyzed within the method specified holding times and were properly preserved.

Initial and Continuing Calibrations

All initial and continuing calibration QC acceptance criteria were met.

Method Blanks/Equipment Blanks

The target analyte was not detected in the method blank or equipment blank. Field blanks were not collected with this SDG.

MS/MSD Results

The MS/MSD recoveries were within laboratory QC acceptance criteria. The relative percent differences (RPDs) between the MS and the MSD compounds were within QC acceptance criteria.

Laboratory Duplicate Results

An internal laboratory duplicate was performed on sample MW-13M. The results for the sample and its duplicate were both <5X the RL and, therefore, the RPD criteria is not applicable.

Field Duplicate Results

The RPD for sample MW-18S and its duplicate, sample MW-18S/D, was within QC acceptance criteria.

LCS Results

The LCS recoveries for cyanide were within the QC acceptance criteria.

Compound Quantitation

Calculations were spot-checked. No discrepancies were noted. The laboratory duplicate summary was not included in the data package; therefore, the laboratory duplicate RPD was hand-calculated from the raw data for data validation.

Quantitation Limits and Sample Results

The samples were not diluted. The reported method detection limits (MDLs) and reporting limits (RLs) met the project MDLs and RLs listed in the QAPP.

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Memorandum

Date: July 28, 2008

To: Mary Lou Rochotte
Kemron Environmental Services, Inc.

From: Jessica Jorvig
Analytical Quality Associates, Inc.

Subject: Data Validation, SVOC Analysis
Remedial Investigation
Former Armco Hamilton Plant Site, New Miami, OH
Microbac SDG L08060263

SUMMARY

Full validation was performed on the data for one soil sample analyzed for semivolatile organic compounds (SVOCs) by SW-846 method 8270C. The sample was collected at the Former Armco Hamilton Plant site in New Miami, Ohio, on June 10, 2008, and was submitted to Microbac Laboratories, Inc., in Marietta, OH, for analysis. Microbac processed the sample and reported the results under sample delivery group (SDG) L08060263.

The analytical data were evaluated with reference to the USEPA Region V Standard Operating Procedure for Validation of CLP Organic Data, the USEPA Contract Laboratory Program National Functional Guidelines for Organic Review (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, most of the data are valid as reported and may be used for decision-making purposes. No data were rejected. The base/neutral fraction results for the original analysis of sample AOC20CA12SB4D13A were qualified UJ due to low surrogate recoveries.

SAMPLES

The sample included in this validation is listed below.

Sample ID	Laboratory ID	Matrix
AOC20CA12SB4D13A	L08060263-10	Soil

REVIEW ELEMENTS

Sample data were reviewed for the following parameter, where applicable to method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Initial and continuing calibrations
- Method blanks/equipment blanks/field blanks
- Surrogate spike recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory control sample (LCS) results
- Field duplicate results
- Internal standard recoveries
- Compound identification
- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC.

Holding Times and Sample Preservation

Upon receipt, one of the cooler temperatures was not within the acceptance criteria of 4±2°C. The cooler was received at 1°C. However, the cooler temperature was less than (<) 6°C and, therefore, the sample results were not qualified based on professional judgment. The other sample cooler was received within the acceptance criteria of 4±2°C.

The sample was extracted and analyzed within the method specified holding time and was properly preserved.

Instrument Tunes

All instrument tune requirements were met. The raw data for the DFTTP tunes associated with ICAL analyzed on HPMS5 on June 5, 2008 and on HPMS12 on June 6, 2008, are missing from the data package. The missing raw data were previously submitted by the laboratory for SDG L08050623, and that submittal was also used for validation of this package.

Initial and Continuing Calibrations

All initial and continuing calibration QC acceptance criteria were met with the following exceptions:

The laboratory-reported percent relative standard deviation (%RSD) for 1,1-biphenyl on instrument HPMS5 was outside of acceptance criteria; however, the recalculated %RSD for 1,1-biphenyl was used for data validation and met all acceptance criteria.

Method Blanks/Equipment Blanks/Field Blanks

No target compounds were detected in the method and field blanks associated with this SDG. An equipment blank was not collected with this SDG.

Surrogate Spike Recoveries

Surrogate recoveries were within the QC acceptance criteria provided in the project QAPP with the following exception:

All base/neutral surrogate percent recoveries (%Rs) for the original analysis of sample AOC20CA12SB4D13A were < the lower acceptance limit but greater than or equal to (≥) 10%. All associated base/neutral fraction sample results were non-detects and, therefore, were qualified UJ.

MS/MSD Results

MS/MSD analyses were not performed on any samples in this SDG.

LCS Results

The %Rs for all spiked compounds were within the laboratory QC acceptance criteria for the LCS analysis with the following exceptions:

The n-nitrosodiphenylamine %R for the LCS associated with the original analysis of sample AOC20CA12SB4D13A was below the laboratory lower acceptance limit but greater than 10%. Because all target analytes were spiked and only one target analyte was outside of criteria, no sample results should be qualified based on professional judgment.

The second page of the LCS summary associated with the field blank was missing from the data package. This page was requested from the laboratory but has not yet been received.

Field Duplicate Results

The relative percent difference between the results for sample AOC20CA4SB3AD02A and its duplicate, sample AOC20CA4SB3AD02B, were within laboratory QC limits.

Internal Standard Recoveries

All internal standards met QC acceptance criteria.

Compound Identification

All compound identification acceptance criteria were met.

Compound Quantitation

Calculations were spot-checked. The re-calculated ICAL %RSDs for 1,1'-biphenyl did not match the laboratory-reported %RSDs on all instruments. The laboratory was asked to verify

their results but has yet to respond. Recalculated %RSDs were used for data validation. No other discrepancies were noted.

Quantitation Limits and Sample Results

The samples were not diluted. Sample AOC20CA12SB4D13A was re-extracted and re-analyzed within holding times due to low surrogate recoveries. Both the original and re-extracted analyses were reported.

The sample results were reported in dry weight, and all associated method detection limits (MDLs) and reporting limits (RLs) were adjusted accordingly. Some individual sample MDLs and RLs may be higher than those listed in the QAPP due to sample extraction procedures and percent solids.

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Memorandum

Date: July 28, 2008

To: Mary Lou Rochotte
Kemron Environmental Services, Inc.

From: Jessica Jorvig
Analytical Quality Associates, Inc.

Subject: Data Validation, PAH Analysis
Remedial Investigation
Former Armco Hamilton Plant Site, New Miami, OH
Microbac SDG L08060263

SUMMARY

Full validation was performed on the data for one soil sample analyzed for polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C PAH. The sample was collected at the Former Armco Hamilton Plant site in New Miami, Ohio, on June 10, 2008, and was submitted to Microbac Laboratories, Inc., in Marietta, OH, for analysis. Microbac processed the sample and reported the results under sample delivery group (SDG) L08060263.

The analytical data were evaluated with reference to the USEPA Region V Standard Operating Procedure for Validation of CLP Organic Data, the USEPA Contract Laboratory Program National Functional Guidelines for Organic Review (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision-making purposes. No data were rejected. For sample AOC20CA12SB4D13A, the following qualifications were applied due to blank contamination:

Target Compound	Result	Qualifier
Naphthalene	10.5	10.5U
Acenaphthylene	13.9	13.9U
Fluorene	19.8	19.8U
Phenanthrene	110	110U
Anthracene	18.6	18.6U

Fluoranthene	109	109U
Pyrene	81.0	81.0U
Benzo(a)anthracene	32.0	32.0U
Chrysene	25.1	25.1U
Benzo(k)fluoranthene	18.3	18.3U
Benzo(a)pyrene	20.9	20.9U

SAMPLES

The sample included in this validation is listed below.

Sample ID	Laboratory ID	Matrix
AOC20CA12SB4D13A	L08060263-10	Soil

REVIEW ELEMENTS

Sample data were reviewed for the following parameter, where applicable to method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Initial and continuing calibrations
- Method blanks/equipment blanks
- Surrogate spike recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory control sample (LCS) results
- Field duplicate results
- Internal standard recoveries
- Compound identification
- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC.

Holding Times and Sample Preservation

Upon receipt, one of the cooler temperatures was not within the acceptance criteria of 4±2°C. The cooler was received at 1°C. However, the cooler temperature was <6°C and, therefore, the sample results were not qualified based on professional judgment. The other sample cooler was received within the acceptance criteria of 4±2°C.

The sample was extracted and analyzed within the method specified holding times and was properly preserved.

Instrument Tunes

All instrument tune requirements were met.

Initial and Continuing Calibrations

All initial and continuing calibration QC acceptance criteria were met.

Method Blanks/Equipment Blanks

13 target compounds were detected in the field blank at concentrations greater than (>) the method detection limits (MDLs) but less than (<) the reporting limits (RLs). The associated sample results that were <5X the respective field blank concentrations were qualified U at their concentration levels. The associated sample results that were either >5X the field blank concentrations or non-detects were not qualified.

No target analytes were detected in the method blank. An equipment blank was not collected with this SDG.

Surrogate Spike Recoveries

Surrogate recoveries were within the QC acceptance criteria provided in the project QAPP for the sample analysis.

MS/MSD Results

MS/MSD analyses were not performed on any samples in this SDG.

LCS/LCSD Results

The percent recoveries and relative percent differences (RPDs) for all spiked compounds were within the laboratory QC acceptance criteria for the LCS and LCSD analyses.

Field Duplicate Results

The RPDs between the results for sample AOC20CA4SB3AD02A and its duplicate, sample AOC20CA4SB3AD02B, were within laboratory QC limits.

Internal Standard Recoveries

All internal standards met QC acceptance criteria.

Compound Identification

All compound identification acceptance criteria were met with the following exceptions:

Ion ratios for benzo(a)anthracene; benzo(k)fluoranthene; and benzo(g,h,i)perylene were not within acceptance limits for sample AOC20CA12SB4D13A. Based on professional judgment, no sample data were qualified.

Compound Quantitation

Calculations were spot-checked. No discrepancies were noted.

Quantitation Limits and Sample Results

The samples were not diluted.

The sample results were reported in dry weight, and all associated MDLs and RLs were adjusted accordingly. Some individual sample MDLs and RLs may be higher than those listed in the QAPP due to sample extraction procedures and percent solids.

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Memorandum

Date: August 12, 2008

To: Mary Lou Rochotte
Kemron Environmental Services, Inc.

From: Jessica Jorvig
Analytical Quality Associates, Inc.

Subject: Data Validation, PCB Analysis
Remedial Investigation
Former Armco Hamilton Plant Site, New Miami, OH
Microbac SDG L08060263

SUMMARY

Full validation was performed on the data for one soil sample analyzed for polychlorinated biphenyls (PCBs) by SW-846 method 8082. The sample was collected at the Former Armco Hamilton Plant site in New Miami, Ohio, on June 10, 2008, and was submitted to Microbac Laboratories, Inc.(Microbac), in Marietta, OH, for analysis. Microbac processed the sample and reported the results under sample delivery group (SDG) L08060263.

The analytical data were evaluated with reference to the USEPA Region V Standard Operating Procedure for Validation of CLP Organic Data, the USEPA Contract Laboratory Program National Functional Guidelines for Organic Review (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision-making purposes. No data were rejected. All aroclor results for sample AOC20CA12SB4D13A were qualified UJ due to high calibration verification negative bias.

SAMPLES

The sample included in this validation is listed below.

Sample ID	Laboratory ID	Matrix
AOC20CA12SB4D13A	L08060263-10	Soil

REVIEW ELEMENTS

Sample data were reviewed for the following parameter, where applicable to method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Initial and continuing calibrations
- Method blanks/equipment blanks
- Surrogate spike recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory control sample (LCS) results
- Field duplicate results
- Compound identification
- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC.

Holding Times and Sample Preservation

Upon receipt, one of the cooler temperatures was not within the acceptance criteria of 4±2°C. The cooler was received at 1°C. However, the cooler temperature was <6°C and, therefore, the sample results were not qualified based on professional judgment. The other sample cooler was received within the acceptance criteria of 4±2°C.

The sample was extracted and analyzed within the method specified holding time and was properly preserved.

Initial and Continuing Calibrations

All initial and continuing calibration QC acceptance criteria were met with the following exception:

One of the bracketing re-calculated continuing calibration verification (CCV) percent differences (%Ds) (see Compound Quantitation section below) was negative with an absolute value >15% for aroclor-1260. All results for sample AOC20CA12SB4D13A were non-detects and, therefore, were qualified UJ.

Method Blanks/Equipment Blanks

No target analytes were detected in the method blank. The soil method blank summary form was not included in the data package. The results were calculated from the raw data. The missing form was requested from the laboratory but has not yet been received.

No target compounds were detected in the field blank. An equipment blank was not collected with this SDG.

Surrogate Spike Recoveries

Surrogate recoveries were within the QC acceptance criteria provided in the project QAPP for all sample analyses with the following exception:

The tetrachloro-m-xylene surrogate percent recovery (%R) for the field blank (sample AOC20CA4SB3AD00C) was below the lower acceptance limit provided in the QAPP but >10%. This sample was not requested for data validation and, therefore, no sample data were qualified.

MS/MSD Results

MS/MSD analyses were not performed on any samples in this SDG.

LCS/LCSD Results

The %Rs for all spiked compounds were within the laboratory QC acceptance criteria for the LCS analysis.

Field Duplicate Results

The RPDs between the results for sample AOC20CA4SB3AD02A and its duplicate, sample AOC20CA4SB3AD02B were within laboratory QC limits.

Compound Identification

All continuing calibration verification compounds were within the established daily retention time windows. The associated sample results were non-detects; therefore, confirmation analyses were not required.

Compound Quantitation

Calculations were spot-checked. The following discrepancies were found:

The re-calculated CCV %Ds did not match the laboratory-reported CCV %Ds. The laboratory was asked to verify their results but has yet to respond. Re-calculated CCV %Ds were used for data validation.

The re-calculated LCS sample concentrations and %Rs did not match the laboratory-reported concentrations and %Rs. The laboratory was asked to verify their results but has yet to respond. Re-calculated concentrations and %Rs were used for data validation and met all acceptance criteria.

Quantitation Limits and Sample Results

The sample was not diluted.

The sample results were reported in dry weight, and all associated method detection limits (MDLs) and reporting limits (RLs) were adjusted accordingly. Some individual sample MDLs and RLs may be higher than those listed in the QAPP due to sample extraction procedures and percent solids.

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Memorandum

Date: September 8, 2008

To: Mary Lou Rochotte
Kemron Environmental Services, Inc.

From: Jessica Jorvig
Analytical Quality Associates, Inc.

Subject: Data Validation, Metals Analysis
Remedial Investigation
Former Armco Hamilton Plant Site, New Miami, OH
Microbac SDG L08060263

SUMMARY

Full validation was performed on the data for one soil sample analyzed for metals by SW-846 methods 6010B (ICP-AES), 6020 (ICP-MS), and 7471A (Hg). The sample was collected at the Former Armco Hamilton Plant site in New Miami, Ohio, on June 5, 2008, and was submitted to Microbac Laboratories, Inc., in Marietta, OH, for analysis. Microbac processed the sample and reported the results under sample delivery group (SDG) L08060263.

The analytical data were evaluated with reference to the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Review (10/04) and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, most of the data are valid as reported and may be used for decision-making purposes. However, the method 6020 Sb result for sample AOC20CA12SB4D13A was qualified R due to an inappropriate digestion procedure. The Sb result from the method 6010B analysis was acceptable with qualification as specified in the Data Qualifiers section below. Other qualifiers were applied to the data as specified in the Data Qualifiers section below.

SAMPLES

The sample included in this validation is listed below.

Sample ID	Laboratory ID	Matrix
AOC20CA12SB4D13A	L08060263-10	Soil

DATA QUALIFIERS (see following sections for detailed explanations)

Sample	Analyte	Qualifier	Reason
AOC20CA12SB4D13A	Method 6020 Sb	R	Inappropriate digestion procedure
	Method 6010B Sb Cr Ni	J+	Positive ICS A result
	Zn	15.0U	Blank contamination

REVIEW ELEMENTS

Sample data were reviewed for the following parameter, where applicable to method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Initial and continuing calibrations
- Method blanks/equipment blanks
- Surrogate spike recoveries
- Interference check sample (ICS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field duplicate results
- Laboratory control sample (LCS) results
- Serial dilution results
- Internal standard recoveries
- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC.

Holding Times and Sample Preservation

Upon receipt, one of the cooler temperatures was not within the acceptance criteria of 4±2°C. The cooler was received at 1°C. However, the cooler temperature was <6°C and, therefore, the sample results were not qualified based on professional judgment. The other sample cooler was received within the acceptance criteria of 4±2°C.

The samples were extracted and analyzed within the method specified holding time and were properly preserved with the following exceptions:

An incorrect digestion technique was used for the analysis of Sb using method 6020. All Sb results obtained from the method 6020 analysis were qualified R.

Instrument Tunes

All ICP-MS tune requirements were met.

Initial and Continuing Calibrations

All initial and continuing calibration QC acceptance criteria were met.

Method Blanks/Equipment Blanks

Ca, Cr, and Zn were detected in the method blank (MB) and Sb was detected in the initial calibration blank (ICB) and continuing calibration blanks (CCBs) at concentrations > the method detection limits (MDLs) but < the reporting limits (RLs). The associated Zn result was a detect <5X the MB concentration and, therefore, was qualified U at the reporting limit (RL), 15.0U. The remaining associated sample results were either non-detects or detects >5X the respective blank concentration and > the RL and, therefore, were not qualified.

Ca, Cr, and Zn were detected in the field blank, sample AOC20CA4SB3AD00C, at concentrations above the MDLs but below the RLs. However, there was Cr MB contamination associated with the field blank resulting in a U qualifier for the field blank result. Therefore, the Cr result for the field blank was not applied to sample AOC20CA12SB4D13A. The associated Ca sample result was a detect >5X the field blank concentration and, therefore, was not qualified. The associated Zn sample result was a detect <5X the field blank concentration and, therefore, was qualified U at the RL, 15.0U.

An equipment blank was not collected with this SDG.

Incorrect units were listed on all the ICB summary forms. Revised forms were requested from the laboratory but have not yet been received.

Interference Check Sample Results

Results of the ICS A and ICS AB analyses were within QC acceptance limits with the following exceptions:

The ICS A Sb (method 6010B), Cd, Cr, Ni, and Zn results were > MDLs with a positive bias. The Cd and Zn results were either non-detects or qualified non-detects due to blank contamination and, therefore, were not qualified. All other associated sample results were detects and, therefore, were qualified J+.

MS/MSD Results

The MS/MSD analyses for all analytes were performed on samples that were not site-specific and, therefore, the results were not evaluated.

Laboratory Duplicate Results

The laboratory duplicate analyses for all analytes were performed on samples that were not site-specific and, therefore, the results were not evaluated.

Field Duplicate Results

The relative percent differences between the results for sample AOC20CA4SB3AD02A and its duplicate, sample AOC20CA4SB3AD02B, were within laboratory QC limits.

LCS Results

The percent recoveries for all spiked compounds were within the laboratory QC acceptance criteria for the LCS analyses.

Serial Dilution Results

The serial dilution analyses for all analytes were performed on samples that were not site-specific and, therefore, the results were not evaluated.

Incorrect units were listed on all the serial dilution summary forms. Revised forms were requested from the laboratory but have not yet been received.

Internal Standard Recoveries

All ICP-MS internal standards met QC acceptance criteria.

Compound Quantitation

Calculations for ICP and ICP-MS analyses were spot-checked. No discrepancies were noted. Calculations for Hg sample analyses could not be performed due to lack of adequate raw data. In addition, Hg results were based on one replicate. No sample data were qualified as a result.

Quantitation Limits and Sample Results

Sample AOC20CA12SB4D13A was diluted 5X for all ICP-MS target analytes and 50X for Al, Ca, and Mn in order to obtain results within the linear range. Individual sample MDLs and RLs were adjusted accordingly. All other analytes were reported from undiluted analyses and, therefore, the MDLs and reporting limits (RLs) were not adjusted for dilution.

The sample results were reported in dry weight, and all associated MDLs and reporting limits RLs were adjusted accordingly. Some individual sample MDLs and RLs may be higher than those listed in the QAPP due to sample extraction procedures and percent solids.

ANALYTICAL QUALITY ASSOCIATES, INC.
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Memorandum

Date: July 28, 2008

To: Mary Lou Rochotte
Kemron Environmental Services, Inc.

From: Jessica Jorvig
Analytical Quality Associates, Inc.

Subject: Data Validation, VOC Analysis
Remedial Investigation
Former Armco Hamilton Plant Site, New Miami, OH
Microbac SDG L08060178

SUMMARY

Full validation was performed on the data for one soil sample analyzed for volatile organic compounds (VOCs) by SW-846 method 8260B. The sample was collected at the Former Armco Hamilton Plant site in New Miami, Ohio, on June 5, 2008, and was submitted to Microbac Laboratories, Inc., in Marietta, OH, for analysis. Microbac processed the sample and reported the results under sample delivery group (SDG) L08060178.

The analytical data were evaluated with reference to the USEPA Region V Standard Operating Procedure for Validation of CLP Organic Data, the USEPA Contract Laboratory Program National Functional Guidelines for Organic Review (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision-making purposes. No data were rejected. No other qualifiers were applied to the data.

SAMPLES

The sample included in this validation is listed below.

Sample ID	Laboratory ID	Matrix
MW23SD22A	L08060178-06	Soil

REVIEW ELEMENTS

Sample data were reviewed for the following parameter, where applicable to method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Initial and continuing calibrations
- Method blanks/equipment blanks/field blanks
- Surrogate spike recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory control sample (LCS) results
- Field duplicate results
- Internal standard recoveries
- Compound identification
- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC.

Holding Times and Sample Preservation

Upon receipt, the cooler temperatures were within the acceptance criteria of 4±2°C.

The sample was extracted and analyzed within the method specified holding time and was properly preserved.

Instrument Tunes

All instrument tune requirements were met.

Initial and Continuing Calibrations

All initial and continuing calibration QC acceptance criteria were met with the following exceptions:

The continuing calibration verification percent difference was above the upper acceptance limit for bromomethane for the analysis on June 16, 2008. The associated sample result was a non-detect and, therefore, was not qualified.

Method Blanks/Equipment Blanks/Field Blanks

Methylene chloride was detected in the trip blank at a concentration greater than (>) the method detection limit (MDL) but less than (<) the reporting limit (RL). The associated result for sample MW23SD22A was a non-detect and, therefore, was not qualified.

No target analytes were detected in the method blank. Equipment and field blanks were not collected with this SDG.

Surrogate Spike Recoveries

Surrogate recoveries were within the QC acceptance criteria provided in the project QAPP for the sample analysis.

MS/MSD Results

The MS and/or the MSD percent recoveries (%Rs) and relative percent differences (RPDs) were within the laboratory QC acceptance criteria with the following exceptions:

The MS and/or MSD %Rs for 1,1,2-trichloro-1,2,2-trifluroethane; methyl acetate; and vinyl chloride were outside the laboratory acceptance limits. However, the parent sample was not requested for data validation and, therefore, no sample date were qualified.

LCS Results

The %Rs for all spiked compounds were within the laboratory QC acceptance criteria for the LCS analysis with the following exceptions:

The bromomethane, methyl acetate, and vinyl chloride %Rs for the LCS associated with sample MW23SD22A were above the laboratory upper acceptance limits. The associated sample results were non-detects and, therefore, were not qualified.

Field Duplicate Results

A field duplicate was not performed on any samples in this SDG.

Internal Standard Recoveries

All internal standards met QC acceptance criteria.

Compound Identification

All compound identification acceptance criteria were met.

Compound Quantitation

Calculations were spot-checked. No discrepancies were noted.

Quantitation Limits and Sample Results

The sample was not diluted.

The sample results were reported in dry weight, and all associated MDLs and RLs were adjusted accordingly. Some individual sample MDLs and RLs may be higher than those listed in the QAPP due to sample extraction procedures and percent solids.

ANALYTICAL QUALITY ASSOCIATES, INC.
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Memorandum

Date: July 28, 2008

To: Mary Lou Rochotte
Kemron Environmental Services, Inc.

From: Jessica Jorvig
Analytical Quality Associates, Inc.

Subject: Data Validation, SVOC Analysis
Remedial Investigation
Former Armco Hamilton Plant Site, New Miami, OH
Microbac SDG L08060178

SUMMARY

Full validation was performed on the data for one soil sample analyzed for semivolatile organic compounds (SVOCs) by SW-846 method 8270C. The sample was collected at the Former Armco Hamilton Plant site in New Miami, Ohio, on June 5, 2008, and was submitted to Microbac Laboratories, Inc., in Marietta, OH, for analysis. Microbac processed the sample and reported the results under sample delivery group (SDG) L08060178.

The analytical data were evaluated with reference to the USEPA Region V Standard Operating Procedure for Validation of CLP Organic Data, the USEPA Contract Laboratory Program National Functional Guidelines for Organic Review (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision-making purposes. No data were rejected. No other qualifiers were applied to the data.

SAMPLES

The sample included in this validation is listed below.

Sample ID	Laboratory ID	Matrix
MW23SD22A	L08060178-06	Soil

REVIEW ELEMENTS

Sample data were reviewed for the following parameter, where applicable to method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Initial and continuing calibrations
- Method blanks/equipment blanks
- Surrogate spike recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory control sample (LCS) results
- Field duplicate results
- Internal standard recoveries
- Compound identification
- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC.

Holding Times and Sample Preservation

Upon receipt, the cooler temperatures were within the acceptance criteria of 4±2°C.

The sample was extracted and analyzed within the method specified holding times and was properly preserved.

Instrument Tunes

All instrument tune requirements were met. The raw data for the DFTTP tune associated with ICAL analyzed on HPMS4 on June 6, 2008, is missing from the data package. The missing raw data were previously submitted by the laboratory for SDG L08060035, and that submittal was also used for validation of this package.

Initial and Continuing Calibrations

All initial and continuing calibration QC acceptance criteria were met with the following exceptions:

The continuing calibration verification percent differences were above the upper acceptance limit for 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol for the analysis on June 11, 2008. The associated sample results were non-detects and, therefore, were not qualified.

Method Blanks/Equipment Blanks

No target compounds were detected in the method blank associated with this SDG. Equipment and field blanks were not collected with this SDG.

Surrogate Spike Recoveries

Surrogate recoveries were within the QC acceptance criteria provided in the project QAPP.

MS/MSD Results

The MS and/or the MSD percent recoveries (%Rs) and relative percent differences (RPDs) were within the laboratory QC acceptance criteria with the following exceptions:

The MS and/or MSD %Rs for several analytes were outside the laboratory acceptance limits. However, the parent sample was not requested for data validation and, therefore, no sample date were qualified.

LCS/LCSD Results

The %Rs and relative percent differences (RPDs) for all spiked compounds were within the laboratory QC acceptance criteria for the LCS and LCSD analyses.

Field Duplicate Results

A field duplicate was not performed on any samples in this SDG.

Internal Standard Recoveries

All internal standards met QC acceptance criteria.

Compound Identification

All compound identification acceptance criteria were met.

Compound Quantitation

Calculations were spot-checked. The re-calculated ICAL percent relative standard deviation (%RSD) for 1,1'-biphenyl did not match the laboratory-reported %RSD. The laboratory was asked to verify their results but has yet to respond. The recalculated %RSD was used for data validation. No other discrepancies were noted.

Quantitation Limits and Sample Results

The sample was not diluted.

The sample results were reported in dry weight, and all associated method detection limits (MDLs) and reporting limits (RLs) were adjusted accordingly. Some individual sample MDLs and RLs may be higher than those listed in the QAPP due to sample extraction procedures and percent solids.

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Memorandum

Date: July 28, 2008

To: Mary Lou Rochotte
Kemron Environmental Services, Inc.

From: Jessica Jorvig
Analytical Quality Associates, Inc.

Subject: Data Validation, PAH Analysis
Remedial Investigation
Former Armco Hamilton Plant Site, New Miami, OH
Microbac SDG L08060178

SUMMARY

Full validation was performed on the data for one soil sample analyzed for polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 8270C PAH. The sample was collected at the Former Armco Hamilton Plant site in New Miami, Ohio, on June 5, 2008, and was submitted to Microbac Laboratories, Inc., in Marietta, OH, for analysis. Microbac processed the sample and reported the results under sample delivery group (SDG) L08060178.

The analytical data were evaluated with reference to the USEPA Region V Standard Operating Procedure for Validation of CLP Organic Data, the USEPA Contract Laboratory Program National Functional Guidelines for Organic Review (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision-making purposes. No data were rejected. No other qualifiers were applied to the data.

SAMPLES

The sample included in this validation is listed below.

Sample ID	Laboratory ID	Matrix
MW23SD22A	L08060178-02	Soil

REVIEW ELEMENTS

Sample data were reviewed for the following parameter, where applicable to method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Initial and continuing calibrations
- Method blanks/equipment blanks
- Surrogate spike recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory control sample (LCS) results
- Field duplicate results
- Internal standard recoveries
- Compound identification
- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC.

A case narrative was not submitted with this SDG. A request for a case narrative was submitted to the laboratory, but one has not yet been received.

Holding Times and Sample Preservation

Upon receipt, the cooler temperatures were within the acceptance criteria of 4±2°C.

The sample was extracted and analyzed within the method specified holding times and was properly preserved.

Instrument Tunes

All instrument tune requirements were met.

Initial and Continuing Calibrations

All initial and continuing calibration QC acceptance criteria were met.

Method Blanks/Equipment Blanks

Phenanthrene was detected in the method blank at a concentration greater than (>) the method detection limit (MDL) but less than (<) the reporting limit (RL). The associated sample result was a non-detect and, therefore, was not qualified.

Equipment and field blanks were not collected with this SDG.

Surrogate Spike Recoveries

Surrogate recoveries were within the QC acceptance criteria provided in the project QAPP for the sample analysis.

MS/MSD Results

The MS and/or the MSD percent recoveries (%Rs) and relative percent differences (RPDs) were within the laboratory QC acceptance.

LCS/LCSD Results

The %Rs and RPDs for all spiked compounds were within the laboratory QC acceptance criteria for the LCS and LCSD analyses.

Field Duplicate Results

A field duplicate was not performed on any samples in this SDG.

Internal Standard Recoveries

All internal standards met QC acceptance criteria.

Compound Identification

All compound identification acceptance criteria were met.

Compound Quantitation

Calculations were spot-checked. No discrepancies were noted.

Quantitation Limits and Sample Results

The sample was diluted 2X in order to obtain results within the calibration range. Undiluted analyses were not reported. All sample MDLs and RLs were adjusted accordingly.

The sample results were reported in dry weight, and all associated MDLs and RLs were adjusted accordingly. Some individual sample MDLs and RLs may be higher than those listed in the QAPP due to sample extraction procedures and percent solids.

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Memorandum

Date: August 12, 2008

To: Mary Lou Rochotte
Kemron Environmental Services, Inc.

From: Jessica Jorvig
Analytical Quality Associates, Inc.

Subject: Data Validation, PCB Analysis
Remedial Investigation
Former Armco Hamilton Plant Site, New Miami, OH
Microbac SDG L08060178

SUMMARY

Full validation was performed on the data for one soil sample analyzed for polychlorinated biphenyls (PCBs) by SW-846 method 8082. The sample was collected at the Former Armco Hamilton Plant site in New Miami, Ohio, on June 5, 2008, and was submitted to Microbac Laboratories, Inc. (Microbac), in Marietta, OH, for analysis. Microbac processed the sample and reported the results under sample delivery group (SDG) L08060178.

The analytical data were evaluated with reference to the USEPA Region V Standard Operating Procedure for Validation of CLP Organic Data, the USEPA Contract Laboratory Program National Functional Guidelines for Organic Review (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision-making purposes. No data were rejected. No other qualifiers were applied to the data.

SAMPLES

The sample included in this validation is listed below.

Sample ID	Laboratory ID	Matrix
MW23SD22A	L08060178-06	Soil

REVIEW ELEMENTS

Sample data were reviewed for the following parameter, where applicable to method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Initial and continuing calibrations
- Method blanks/equipment blanks
- Surrogate spike recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory control sample (LCS) results
- Field duplicate results
- Compound identification
- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC.

Holding Times and Sample Preservation

Upon receipt, the cooler temperature was within the acceptance criteria of 4±2°C.

The sample was extracted and analyzed within the method specified holding times and was properly preserved.

Initial and Continuing Calibrations

All initial and continuing calibration QC acceptance criteria were met.

Method Blanks/Equipment Blanks

No target analytes were detected in the method blank. Equipment and field blanks were not collected with this SDG.

Surrogate Spike Recoveries

Surrogate recoveries were within the QC acceptance criteria provided in the project QAPP for all sample analyses.

MS/MSD Results

The MS and/or the MSD percent recoveries (%Rs) and relative percent differences (RPDs) were within the laboratory QC acceptance criteria with the following exceptions:

The MS/MSD %Rs for aroclor-1016 and the RPD for aroclor-1016 were outside the laboratory acceptance limits. However, the parent sample was not requested for data validation and, therefore, no sample data were qualified.

LCS/LCSD Results

The %Rs for all spiked compounds were within the laboratory QC acceptance criteria for the LCS analysis.

Field Duplicate Results

A field duplicate was not performed on any samples in this SDG.

Compound Identification

All continuing calibration verification compounds were within the established daily retention time windows. The associated sample results were non-detects; therefore, confirmation analyses were not required.

Compound Quantitation

Calculations were spot-checked. No discrepancies were noted.

Quantitation Limits and Sample Results

The sample was not diluted.

The sample results were reported in dry weight, and all associated method detection limits (MDLs) and reporting limits (RLs) were adjusted accordingly. Some individual sample MDLs and RLs may be higher than those listed in the QAPP due to sample extraction procedures and percent solids.

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Memorandum

Date: September 8, 2008

To: Mary Lou Rochotte
Kemron Environmental Services, Inc.

From: Jessica Jorvig
Analytical Quality Associates, Inc.

Subject: Data Validation, Metals Analysis
Remedial Investigation
Former Armco Hamilton Plant Site, New Miami, OH
Microbac SDG L08060178

SUMMARY

Full validation was performed on the data for one soil sample analyzed for metals by SW-846 methods 6010B (ICP-AES), 6020 (ICP-MS), and 7471A (Hg). The sample was collected at the Former Armco Hamilton Plant site in New Miami, Ohio, on June 5, 2008, and was submitted to Microbac Laboratories, Inc., in Marietta, OH, for analysis. Microbac processed the sample and reported the results under sample delivery group (SDG) L08060178.

The analytical data were evaluated with reference to the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Review (10/04) and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, most of the data are valid as reported and may be used for decision-making purposes. However, the method 6020 Sb result for sample MW23SD22A was qualified R due to an inappropriate digestion procedure. The Sb result from the method 6010B analysis was acceptable with qualification as specified in the Data Qualifiers section below. Other qualifiers were applied to the data as specified in the Data Qualifiers section below.

SAMPLES

The sample included in this validation is listed below.

Sample ID	Laboratory ID	Matrix
MW23SD22A	L08060178-06	Soil

DATA QUALIFIERS (see following sections for detailed explanations)

Sample	Analyte	Qualifier	Reason
MW23SD22A	Method 6020 Sb	R	Inappropriate digestion procedure
	Method 6010B Sb	UJ	Low matrix spike recovery
	Cr Ni Tl	J+	Positive ICS A result
	Zn	J+	Positive ICS A result and high and low matrix spike recoveries
	K V Cu	J+	High matrix spike recoveries
	Se Ag	UJ	Low matrix spike recoveries
	As	J-	Low matrix spike recoveries
	Al Ca	J	Poor replicate precision
	Fe	J	Poor serial dilution precision
	Mn	J+	Positive ICS A result and poor serial dilution precision

REVIEW ELEMENTS

Sample data were reviewed for the following parameter, where applicable to method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Initial and continuing calibrations
- Method blanks/equipment blanks
- Surrogate spike recoveries
- Interference check sample (ICS) results
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field duplicate results
- Serial dilution results
- Internal standard recoveries
- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC.

Holding Times and Sample Preservation

Upon receipt, the cooler temperatures were within the acceptance criteria of 4±2°C.

The samples were extracted and analyzed within the method specified holding time and were properly preserved with the following exceptions:

An incorrect digestion technique was used for the analysis of Sb using method 6020. All Sb results obtained from the method 6020 analysis were qualified R.

Instrument Tunes

All ICP-MS tune requirements were met.

Initial and Continuing Calibrations

All initial and continuing calibration QC acceptance criteria were met.

Method Blanks/Equipment Blanks

Fe was detected in the continuing calibration blank (CCB); Sb was detected in the method blank (MB), initial calibration blank (ICB) and CCB; and Cr was detected in the MB at concentrations > the method detection limits (MDLs) but < the reporting limits (RLs). All associated sample results were either non-detects or detects >5X the highest blank concentration and > the RL and, therefore, were not qualified.

Equipment and field blanks were not collected with this SDG.

Incorrect units were listed on all the ICB summary forms. Revised forms were requested from the laboratory but have not yet been received.

Interference Check Sample Results

Results of the ICS A and ICS AB analyses were within QC acceptance limits with the following exceptions:

The ICS A Mn, Sb (method 6010B), Cd, Cr, Ni, Tl, and Zn results were > MDLs with a positive bias. The Sb and Cd results were non-detects and, therefore, were not qualified. All other associated sample results were detects and, therefore, were qualified J+.

MS/MSD Results

The MS/MSD %Rs were within QC acceptance limits with the following exceptions:

The method 6020 MS and MSD %Rs for Sb were <30%. A post digestion spike (PDS) was performed but was on a different parent sample than the parent sample used for the MS/MSD. Therefore, the PDS was not in conjunction with the MS/MSD for qualifier evaluation. The associated sample result was a non-detect and, therefore, was qualified R.

The method 6010B MS and MSD %Rs for Sb were below the lower acceptance limit but >30%. A post digestion spike (PDS) was performed but was on a different parent sample than the parent sample used for the MS/MSD. Therefore, the PDS was not in conjunction with the MS/MSD for qualifier evaluation. The associated sample result was a non-detect and, therefore, was qualified UJ.

The MS and/or MSD %Rs for K, V, and Cu were >125%. All associated sample results were detects and, therefore, were qualified J+.

The MS and/or MSD %Rs for Se and Ag were <75% but >30%. All associated sample results were non-detects and, therefore, were qualified UJ.

The MS and MSD %Rs for As were <30%. The associated sample result was a detect and, therefore, was qualified J-.

The MS %R for Zn was >125% and the MSD %R was <30%. The associated sample result was a detect and, therefore, was qualified J based on professional judgment.

The MS and/or MSD %Rs for Al, Ba, Fe, Mg, Mn, and Ca were outside the acceptance limits. However, the parent sample concentrations were >4X the spike concentrations and, therefore, no sample data were qualified.

Laboratory Duplicate Results

The laboratory duplicate results were all within QC acceptance limits with the following exceptions:

The relative percent differences (RPDs) for Al and Ca were >35%. The associated sample results were detects and, therefore, were qualified J.

Field Duplicate Results

A field duplicate was not performed on any samples in this SDG.

LCS Results

The %Rs for all spiked compounds were within the laboratory QC acceptance criteria for the LCS analyses.

Serial Dilution Results

The ICP-AES serial dilution analyses met all QC acceptance criteria with the following exceptions:

The serial dilution percent differences for Fe and Mn were >10%. The associated sample results were detects and, therefore, were qualified J.

The serial dilution analyses for the ICP-MS analytes were performed on sample that was not site-specific and, therefore, the results were not evaluated.

Incorrect units were listed on all the serial dilution summary forms. Revised forms were requested from the laboratory but have not yet been received.

Internal Standard Recoveries

All ICP-MS internal standards met QC acceptance criteria.

Compound Quantitation

Calculations for ICP and ICP-MS analyses were spot-checked. No discrepancies were noted. Calculations for Hg sample analyses could not be performed due to lack of adequate raw data. In addition, Hg results were based on one replicate. No sample data were qualified as a result.

Quantitation Limits and Sample Results

Sample MW23SD22A was diluted 5X for all ICP-MS target analytes and 100X for Ca in order to obtain results within the linear range. Individual sample MDLs and RLs were adjusted accordingly. All other analytes were reported from undiluted analyses and, therefore, the MDLs and RLs were not adjusted for dilution.

The sample results were reported in dry weight, and all associated MDLs and RLs were adjusted accordingly. Some individual sample MDLs and RLs may be higher than those listed in the QAPP due to sample extraction procedures and percent solids.

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Memorandum

Date: July 28, 2008

To: Mary Lou Rochotte
Kemron Environmental Services, Inc.

From: Jessica Jorvig
Analytical Quality Associates, Inc.

Subject: Data Validation, VOC Analysis
Remedial Investigation
Former Armco Hamilton Plant Site, New Miami, OH
Microbac SDG L08060067

SUMMARY

Full validation was performed on the data for one soil sample analyzed for volatile organic compounds (VOCs) by SW-846 method 8260B. The sample was collected at the Former Armco Hamilton Plant site in New Miami, Ohio, on June 3, 2008, and was submitted to Microbac Laboratories, Inc., in Marietta, OH, for analysis. Microbac processed the sample and reported the results under sample delivery group (SDG) L08060067.

The analytical data were evaluated with reference to the USEPA Region V Standard Operating Procedure for Validation of CLP Organic Data, the USEPA Contract Laboratory Program National Functional Guidelines for Organic Review (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision-making purposes. No data were rejected. No other qualifiers were applied to the data.

SAMPLES

The sample included in this validation is listed below.

Sample ID	Laboratory ID	Matrix
MW32SD03A	L08060067-02	Soil

REVIEW ELEMENTS

Sample data were reviewed for the following parameter, where applicable to method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Initial and continuing calibrations
- Method blanks/equipment blanks/field blanks
- Surrogate spike recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory control sample (LCS) results
- Field duplicate results
- Internal standard recoveries
- Compound identification
- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC.

Holding Times and Sample Preservation

Upon receipt, one of the cooler temperature was not within the acceptance criteria of 4±2°C. The cooler was received at 0°C. However, the cooler temperature was <6°C and, therefore, the sample results were not qualified based on professional judgment. The other sample cooler was received within the acceptance criteria of 4±2°C.

The sample was extracted and analyzed within the method specified holding time and was properly preserved.

Instrument Tunes

All instrument tune requirements were met.

Initial and Continuing Calibrations

All initial and continuing calibration QC acceptance criteria were met with the following exceptions:

The continuing calibration verification percent differences were above the upper acceptance limits for bromoform and bromomethane for the analysis on June 13, 2008. The associated sample results were non-detects and, therefore, were not qualified.

Method Blanks/Equipment Blanks/Field Blanks

Methylene chloride was detected in the method blank at a concentration greater than (>) the method detection limit (MDL) but less than (<) the reporting limit (RL). The associated result for sample MW32SD03A was a non-detect and, therefore, was not qualified.

No target analytes were detected in the trip blank. Equipment and field blanks were not analyzed with this SDG.

Surrogate Spike Recoveries

Surrogate recoveries were within the QC acceptance criteria provided in the project QAPP for the sample analysis.

MS/MSD Results

MS/MSD analyses were not performed on any samples in this SDG.

LCS/LCSD Results

The percent recoveries (%Rs) and relative percent differences (RPDs) for all spiked compounds were within the laboratory QC acceptance criteria for the LCS and LCSD analyses with the following exceptions:

The bromomethane, methyl acetate, and vinyl chloride %Rs for the LCS and/or LCSD associated with sample MW32SD03A were above the laboratory upper acceptance limits. The associated sample results were non-detects and, therefore, were not qualified.

Field Duplicate Results

The RPD between the results for sample MW24SD07A and its duplicate, sample MW24SD07B, were within laboratory QC limits with the following exceptions:

The RPDs for acetone and carbon disulfide were > the acceptance limits. However, samples MW24SD07A and MW24SD07B were not requested for data validation and, therefore, were not qualified.

Internal Standard Recoveries

All internal standards met QC acceptance criteria.

Compound Identification

All compound identification acceptance criteria were met.

Compound Quantitation

Calculations were spot-checked. No discrepancies were noted.

Quantitation Limits and Sample Results

The sample was not diluted.

The sample results were reported in dry weight, and all associated MDLs and RLs were adjusted accordingly. Some individual sample MDLs and RLs may be higher than those listed in the QAPP due to sample extraction procedures and percent solids.

ANALYTICAL QUALITY ASSOCIATES, INC.
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Memorandum

Date: July 28, 2008

To: Mary Lou Rochotte
Kemron Environmental Services, Inc.

From: Jessica Jorvig
Analytical Quality Associates, Inc.

Subject: Data Validation, SVOC Analysis
Remedial Investigation
Former Armco Hamilton Plant Site, New Miami, OH
Microbac SDG L08060067

SUMMARY

Full validation was performed on the data for one soil sample analyzed for semivolatile organic compounds (SVOCs) by SW-846 method 8270C. The sample was collected at the Former Armco Hamilton Plant site in New Miami, Ohio, on June 2, 2008, and was submitted to Microbac Laboratories, Inc., in Marietta, OH, for analysis. Microbac processed the sample and reported the results under sample delivery group (SDG) L08060067.

The analytical data were evaluated with reference to the USEPA Region V Standard Operating Procedure for Validation of CLP Organic Data, the USEPA Contract Laboratory Program National Functional Guidelines for Organic Review (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision-making purposes. No data were rejected. No other qualifiers were applied to the data.

SAMPLES

The sample included in this validation is listed below.

Sample ID	Laboratory ID	Matrix
MW32SD03A	L08060067-02	Soil

REVIEW ELEMENTS

Sample data were reviewed for the following parameter, where applicable to method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Initial and continuing calibrations
- Method blanks/equipment blanks
- Surrogate spike recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory control sample (LCS) results
- Field duplicate results
- Internal standard recoveries
- Compound identification
- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC.

Holding Times and Sample Preservation

Upon receipt, one of the cooler temperature was not within the acceptance criteria of 4±2°C. The cooler was received at 0°C. However, the cooler temperature was <6°C and, therefore, the sample results were not qualified based on professional judgment. The other sample cooler was received within the acceptance criteria of 4±2°C.

The sample was extracted and analyzed within the method specified holding times and was properly preserved.

Instrument Tunes

All instrument tune requirements were met. The raw data for the DFTTP tune associated with the ICAL analyzed on HPMS12 on June 6, 2008, is missing from the data package. The missing raw data were previously submitted by the laboratory for SDG L08050623, and that submittal was also used for validation of this package.

Initial and Continuing Calibrations

All initial and continuing calibration QC acceptance criteria were met with the following exceptions:

The di-n-butylphthalate raw data shows that a quadratic curve was used, and the caprolactam raw data shows that a linear curve was used. However, both of these analytes were listed on the ICAL summary as being quantitated using average response factors. The laboratory previously

submitted a corrected ICAL summary for SDG L08050623, and that summary was used for validation of this package.

The continuing calibration verification percent difference was above the upper acceptance limit for 4,6-dinitro-2-methylphenol for the analysis on June 10, 2008. The associated sample result was a non-detect and, therefore, was not qualified.

Method Blanks/Equipment Blanks

No target compounds were detected in the method blank associated with this SDG. Equipment and field blanks were not collected with this SDG.

Surrogate Spike Recoveries

Surrogate recoveries were within the QC acceptance criteria provided in the project QAPP.

MS/MSD Results

MS/MSD analyses were not performed on any samples in this SDG.

LCS/LCSD Results

The percent recoveries (%Rs) and relative percent differences (RPDs) for all spiked compounds were within the laboratory QC acceptance criteria for the LCS and LCSD analyses.

Field Duplicate Results

Sample MW24SD07A and its duplicate, sample MW24SD07B, were both non-detects and, therefore, the RPD criteria is not applicable.

Internal Standard Recoveries

All internal standards met QC acceptance criteria.

Compound Identification

All compound identification acceptance criteria were met with the following exceptions:

Ion ratios for benzo(b)fluoranthene and benzo(k)fluoranthene were not within acceptance limits for sample MW32SD03A. Based on professional judgment, no sample data were qualified.

Compound Quantitation

Calculations were spot-checked. The re-calculated ICAL %RSDs for 1,1'-biphenyl did not match the laboratory-reported %RSDs on all instruments. The laboratory was asked to verify their results but has yet to respond. Recalculated %RSDs were used for data validation. No other discrepancies were noted.

Quantitation Limits and Sample Results

The sample was not diluted.

The sample results were reported in dry weight, and all associated method detection limits (MDLs) and reporting limits (RLs) were adjusted accordingly. Some individual sample MDLs and RLs may be higher than those listed in the QAPP due to sample extraction procedures and percent solids.