

PERFORMANCE EVALUATION

First Choice for Quality |



Quarterly Study

WP09-3B

WPCHEM / DMRQA 29

8-Jul-2009 through 21-Aug-2009

RT1068

RTC Labcode

WY00006

US EPA Labcode

Energy Laboratories
Terry Friedlan
400 West Boxelder Rd.
Gillette WY 82718

Thank you for participating in study WP09-3B. Additional information about this study may be found online at www.rt-corp.com. If you have any questions or comments about this study please contact me.

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Sincerely,

A handwritten signature in black ink, appearing to read "Chris Rucinski", is written over a white background.

Christopher Rucinski
Quality Director

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Dataset

WP09-3DJK**Dataset Analyst**

Kaufmann, Daniel

Include in DMRQA Study

Evaluations from this dataset will be included in DMRQA 29.

Accreditors

Evaluations of this dataset will be sent to the accretitor(s) listed below using your laboratory's labcode listed above each accrediting agency. If any of the information listed below is incorrect, please contact RTC immediately.

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Wyoming DEQ

Water Quality Division

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Miscellaneous Analytes

Analysis
EPA 1664A - Analyst: D. Kaufmann Method Number 10127603

	Result Units	Assigned Value	Accept.	Z	Evaluation
Oil & Grease 1, 3, 4 1860 / I-029 - Lot 014844 /Analyst: DJK/ Analysis Date: 7/21/09	47.8 mg/L	45.50	31.2 to 59.7	0.49	Acceptable

Petroleum Hydrocarbons in Water

Analysis
EPA 1664A (HEM) (1999) - Analyst: D. Kaufmann Method Number 10127807

	Result Units	Assigned Value	Accept.	Z	Evaluation
Total Petroleum Hydrocarbons (TPH), (C6-C35) 1, #050 / O-115 - Lot 014358 /Analyst: DJK/ Analysis Date: 7/20/09	16.5 mg/L	18.20	7.60 to 28.9	-0.48	Acceptable



Petroleum Hydrocarbons in Water (continued)

End of WP09-3DJK



Dataset

WP09-3JJB**Dataset Analyst**

Barnes, John

Include in DMRQA Study

Evaluations from this dataset will be included in DMRQA 29.

Accreditors

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Minerals

Analysis

SM/APHA 2510 B 20th ED (1998) - Analyst: J. Barnes

Method Number 20048208

	Result Units	Assigned Value	Accept.	Z	Evaluation
Specific conductance, Conductivity (25°C) 1, 3, 4 1610 / I-027-12 - Lot 014774/0 /Analyst: JJB/ Analysis Date: 7/15/09	410 µmhos/cm	416.00	372 to 459	-0.41	Acceptable

Miscellaneous Analytes

Analysis

SM/APHA 4500-H+ B 20th ED (1998) - Analyst: J. Barnes

Method Number 20104807

	Result Units	Assigned Value	Accept.	Z	Evaluation
pH 1, 3, 4 1900 / I-027-3 - Lot 014794 /Analyst: JJB/ Analysis Date: 7/15/09	9.25 Units	9.39	9.05 to 9.74	-1.22	Acceptable



Miscellaneous Analytes (continued)

End of WP09-3JJB



Dataset

WP09-3KLR**Dataset Analyst**

Ruff, Kasey

Include in DMRQA Study

Evaluations from this dataset will be included in DMRQA 29.

Accreditors

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Miscellaneous Analytes

Analysis
SM 18/19/20thED 4500-CI F - Analyst: K. Ruff Method Number 20015003

	Result Units	Assigned Value	Accept.	Z	Evaluation
Total residual chlorine 1, 3, 4 1940 / I-033 - Lot 014826 /Analyst: KLR/ Analysis Date: 7/28/09	1.35 mg/L	1.31	0.962 to 1.66	0.34	Acceptable

Analysis
SM/APHA 2130 B 19th ED (1995) - Analyst: K. Ruff Method Number 20042200

	Result Units	Assigned Value	Accept.	Z	Evaluation
Turbidity 1, 4, 5 2055 / I-250 - Lot 014815 /Analyst: KLR/ Analysis Date: 7/22/09	12 NTU	12.50	10.8 to 14.3	-0.87	Acceptable

End of WP09-3KLR



Dataset

WP09-3MAV**Dataset Analyst**

Voegele, Misty

Include in DMRQA Study

Evaluations from this dataset will be included in DMRQA 29.

Accreditors

Evaluations of this dataset will be sent to the accreditor(s) listed below using your laboratory's labcode listed above each accrediting agency. If any of the information listed below is incorrect, please contact RTC immediately.

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Minerals

Analysis

SM/APHA 2540 C 20th ED (1998) - Analyst: M. Voegele

Method Number 20050004

	Result Units	Assigned Value	Accept.	Z	Evaluation
Residue-filterable (TDS) 1, 3, 4 1955 / I-027-12 - Lot 014774/0 /Analyst: MAV/ Analysis Date: 7/16/09	234 mg/L	232.00	173 to 291	0.10	Acceptable

End of WP09-3MAV



Dataset

WP09-3MLI**Dataset Analyst**

Ingram, Mary

Include in DMRQA Study

Evaluations from this dataset will be included in DMRQA 29.

Accreditors

Evaluations of this dataset will be sent to the accretitor(s) listed below using your laboratory's labcode listed above each accrediting agency. If any of the information listed below is incorrect, please contact RTC immediately.

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Demands

Analysis

Hach 8000 - Analyst: M. Ingram

Method Number 60003001

	Result Units	Assigned Value	Accept.	Z	Evaluation
Chemical oxygen demand (COD) 1, 3, 4 1565 / I-026 - Lot 014781 /Analyst: MLI/ Analysis Date: 7/28/09	67 mg/L	72.10	54.1 to 90.1	-0.85	Acceptable

Analysis

SM/APHA 5210 B 18th ED (1992) - Analyst: M. Ingram

Method Number 20027401

	Result Units	Assigned Value	Accept.	Z	Evaluation
Biochemical oxygen demand (BOD) 1, 3, 4 1530 / I-026 - Lot 014781 /Analyst: MLI/ Analysis Date: 7/16/09	37 mg/L	46.70	23.4 to 70.0	-1.25	Acceptable



Minerals

Analysis
 EPA 300.0 - Analyst: M. Ingram Method Number 10053006

	Result Units	Assigned Value	Accept.	Z	Evaluation
Chloride 1, 3, 4 1575 / I-051 - Lot 014764 /Analyst: MLI/ Analysis Date: 7/15/09	59 mg/L	59.60	50.6 to 68.7	-0.20	Acceptable
Fluoride 1, 3, 4 1730 / I-051 - Lot 014764 /Analyst: MLI/ Analysis Date: 7/15/09	1.5 mg/L	1.73	1.39 to 2.07	-2.04	Acceptable
Sulfate 1, 3, 4 2000 / I-051 - Lot 014764 /Analyst: MLI/ Analysis Date: 7/15/09	47 mg/L	47.20	39.1 to 55.4	-0.07	Acceptable

Analysis
 SM 18/19/20thED 2320 B - Analyst: M. Ingram Method Number 20003003

	Result Units	Assigned Value	Accept.	Z	Evaluation
Alkalinity as CaCO3 1, 3, 4 1505 / I-027-12 - Lot 014774/0 /Analyst: MLI/ Analysis Date: 7/15/09	65 mg/L	63.00	55.2 to 70.8	0.77	Acceptable

Miscellaneous Analytes

Analysis
 EPA 300.0 - Analyst: M. Ingram Method Number 10053006

	Result Units	Assigned Value	Accept.	Z	Evaluation
Bromide 1, 4, 5 1540 / I-051 - Lot 014764 /Analyst: MLI/ Analysis Date: 7/15/09	6 mg/L	6.08	5.17 to 6.99	-0.26	Acceptable

Analysis
 SM/APHA 2540 D 18th ED (1992) - Analyst: M. Ingram Method Number 20004802

	Result Units	Assigned Value	Accept.	Z	Evaluation
Residue-nonfilterable (TSS) 1, 3, 4 1960 / I-079 - Lot 014847 /Analyst: MLI/ Analysis Date: 7/20/09	31 mg/L	32.20	24.5 to 40.0	-0.46	Acceptable

Nutrients

Analysis
 EPA 300.0 - Analyst: M. Ingram Method Number 10053006

	Result Units	Assigned Value	Accept.	Z	Evaluation
Nitrate as N 1, 3, 4 1810 / I-051 - Lot 014764 /Analyst: MLI/ Analysis Date: 7/15/09	28.9 mg/L	28.90	22.7 to 35.1	0.00	Acceptable
Nitrite as N 1, 4 1840 / I-051 - Lot 014764 /Analyst: MLI/ Analysis Date: 7/15/09	2.0 mg/L	2.26	1.90 to 2.62	-2.18	Acceptable



Nutrients (continued)

Analysis
EPA 300.0 - Analyst: M. Ingram

(continued)
Method Number 10053006

	Result Units	Assigned Value	Accept.	Z	Evaluation
Orthophosphate as P ^{1, 3, 4} 1870 / I-051 - Lot 014764 /Analyst: MLI/ Analysis Date: 7/15/09	2.5 mg/L	2.44	1.94 to 2.95	0.38	Acceptable

End of WP09-3MLI



Sample Information

Demand

PEI-026 / Lot {EncryptedLotCode}

	Units	Assigned Value	Study Mean	Study Std. Dev.	Gravimetric Value
Biochemical oxygen demand (BOD) 1530 Demands	mg/L	46.70	46.90	8.06	73.7 ± 0.376
Chemical oxygen demand (COD) 1565 Demands	mg/L	72.10	73.80	6.83	75.3 ± 0.384

Minerals

PEI-027-12 / Lot {EncryptedLotCode}

	Units	Assigned Value	Study Mean	Study Std. Dev.	Gravimetric Value
Alkalinity as CaCO3 1505 Minerals	mg/L	63.00	63.50	3.04	63.2 ± 0.322
Specific conductance, Conductivity (25°C) 1610 Minerals	µmhos/cm	416.00	416.00	10.70	412 ± 2.1
Residue-filterable (TDS) 1955 Minerals	mg/L	232.00	224.00	20.00	225 ± 1.62

pH

PEI-027-3 / Lot {EncryptedLotCode}

	Units	Assigned Value	Study Mean	Study Std. Dev.	Gravimetric Value
pH 1900 Miscellaneous Analytes	Units	9.39	9.39	0.12	9.39 ± 0.048

Oil and Grease

PEI-029 / Lot {EncryptedLotCode}

	Units	Assigned Value	Study Mean	Study Std. Dev.	Gravimetric Value
Oil & Grease 1860 Miscellaneous Analytes	mg/L	45.50	44.90	4.99	48.8 ± 0.249

Total Residual Chlorine

PEI-033 / Lot {EncryptedLotCode}

	Units	Assigned Value	Study Mean	Study Std. Dev.	Gravimetric Value
Total residual chlorine 1940 Miscellaneous Analytes	mg/L	1.31	1.34	0.11	1.34 ± 0.009

Anions

PEI-051 / Lot {EncryptedLotCode}

	Units	Assigned Value	Study Mean	Study Std. Dev.	Gravimetric Value
Bromide 1540 Miscellaneous Analytes	mg/L	6.08	5.97	0.44	6.08 ± 0.031
Chloride 1575 Minerals	mg/L	59.60	60.30	4.08	59.4 ± 0.303
Fluoride 1730 Minerals	mg/L	1.73	1.60	0.13	1.73 ± 0.009
Nitrate as N 1810 Nutrients	mg/L	28.90	28.70	1.60	29.1 ± 0.089
Nitrite as N 1840 Nutrients	mg/L	2.26	2.15	0.16	2.26 ± 0.012
Orthophosphate as P 1870 Nutrients	mg/L	2.44	2.36	0.12	2.43 ± 0.012
Sulfate 2000 Minerals	mg/L	47.20	47.60	2.87	47.9 ± 0.244

Residue (Whole-Volume)

PEI-079 / Lot {EncryptedLotCode}

	Units	Assigned Value	Study Mean	Study Std. Dev.	Gravimetric Value
Residue-nonfilterable (TSS) 1960 Miscellaneous Analytes	mg/L	32.20	31.70	3.44	33.8 ± 0.18

**Turbidity**

PEI-250 / Lot {EncryptedLotCode}

	Units	Assigned Value	Study Mean	Study Std. Dev.	Gravimetric Value
Turbidity 2055 Miscellaneous Analytes	NTU	12.50	11.90	1.11	12.7 ± 0.065

TPH in Water

PEO-115 / Lot {EncryptedLotCode}

	Units	Assigned Value	Study Mean	Study Std. Dev.	Gravimetric Value
Total Petroleum Hydrocarbons (TPH), (C6-C35) 2050 Petroleum Hydrocarbons in Water	mg/L	18.20			20.0 ± 0.702

Definitions:

Assigned Value: Value attributed to a particular quantity and accepted, sometimes by convention, as having an uncertainty appropriate for a give purpose. See ISO Guide 43 for additional information.

Accept. Window: The range of values that constitute acceptable performance for a laboratory participation in this PT study.

Z: A Z-Score tells how a single data point compares to normal data. A Z-Score says not only whether a point was above or below average, but how unusual the measurement is. Generally, a method result with a Z-Score less than |2| is considered to be in control, a Z-Score between |2| and |3| is considered 'Questionable', but still within control and a Z greater than |3| is considered not acceptable and the method is out of control.

Study Mean: Statistical study mean calculated using a robust statistical model (RTC employs the 'Biweight Program'). Robust statistical techniques to minimize the influence that extreme results can have on estimates of the mean and standard deviation NOTE - These techniques assign less weight to extreme results, rather than eliminate them from a data set.

Study Std. Dev.: Standard deviation calculated from study data using robust statisticals (Biweight).

Gravimetric Value: The prepared to value, determined by gravimetric means. The uncertainty associated to this value is standard uncertainty and based on RTC's gravimetric tolerances.

Program analyte accrediting footnotes

1 NELAC

3 Other

5 NELAC Experimental

2 EPA

4 A2LA