



phenova™  
Certified Reference Materials

A Phenomenex®  
Company



6390 Joyce Drive  
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Golden, CO 80403

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[www.phenova.com](http://www.phenova.com)

August 16, 2019

Ms. Rhonda Morris  
Alloway - Marion  
1776 Marion-Waldo Road  
Marion, OH 43302  
USA

Dear Rhonda,

Thank you for participating in the DMRQA39-CHEM DMRQA PT Study. Enclosed is your final report, which has been carefully reviewed by the PT specialists at Phenova.

For any analyte falling outside the established acceptance limits, our PT management staff would like to assist you in determining the most appropriate course of corrective action for your facility. Please contact us at any time if we may be of service to you. A final report for your laboratory will be sent to all accrediting agencies you requested at the time of data submittal.

Thank you again for participating in the DMRQA39-CHEM DMRQA PT Study. We appreciate working with you and look forward to our next study. If you have any questions, please call us at 303-940-0033.



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**Report Definitions:**

***NELAC Experimental Analytes***

NELAC Experimental Analytes must be run twice a year. Due to the experimental nature of the acceptance limits, accreditation status is not based on the evaluation received.

***Assigned Value***

The Assigned Value is determined from the study mean, gravimetric and volumetric true concentration of an analyte to be analyzed, calculation and/or an appropriate reference value as stipulated in the EPA National Standards for Water Proficiency Testing Studies Criteria Document (current version), the National Environmental Laboratory Accreditation Conference (NELAC) criteria (ref: NELAC FOT tables, NELAC PT Committee) and other documents distributed by accrediting agencies as applicable.

***Evaluation Limits***

Acceptance Limits are derived from fixed limits, coefficients, constants and calculations stipulated in the EPA National Standards for Water Proficiency Testing Studies Criteria Documents (current version), the National Environmental Laboratory Accreditation Conference (NELAC) criteria (ref: NELAC PT FOT tables, NELAC PT Committee) and other documents distributed by accrediting agencies as applicable.

***Evaluation***

*Acceptable*

The reported value falls within the Acceptance Limits.

*Not Acceptable*

The reported value falls outside the Acceptance Limits.

*No Evaluation*

The reported value is non-numeric and can not be evaluated.

*NR*

As required by the NELAC standards and requested by state authorities, any analyte purchased but not reported by your facility is listed as NR (Not Reported).

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## Final Report - DMRQA PT

### Study: DMRQA39-CHEM

Opening Date: March 22, 2019 - Closing Date: July 19, 2019

Facility: Alloway - Marion  
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Contact: Ms. Rhonda Morris  
740-389-5991

EPA Lab ID: OH01320

NPDES Permit ID:

### Trace Metals (PT-TM1-DMRQA)

Lot #: 8542-04

| NELAC Code | Analyte    | Method Code | Method Description | Units | Assigned Value | Result | Warning Limits | Acceptance Limits | Evaluation |
|------------|------------|-------------|--------------------|-------|----------------|--------|----------------|-------------------|------------|
| 1000       | Aluminum   |             | EPA 200.7 Rev 4.4  | µg/L  | 3510           | 3580   | 3100 - 3860    | 2920 - 3980       | Acceptable |
| 1005       | Antimony   |             | EPA 200.8 Rev 5.4  | µg/L  | 705            | 765    | 615 - 775      | 576 - 812         | Acceptable |
| 1010       | Arsenic    |             | EPA 200.7 Rev 4.4  | µg/L  | 510            | 514    | 453 - 561      | 427 - 587         | Acceptable |
| 1010       | Arsenic    |             | EPA 200.8 Rev 5.4  | µg/L  | 510            | 507    | 453 - 561      | 427 - 587         | Acceptable |
| 1015       | Barium     |             | EPA 200.7 Rev 4.4  | µg/L  | 1840           | 1810   |                | 1560 - 2110       | Acceptable |
| 1015       | Barium     |             | EPA 200.8 Rev 5.4  | µg/L  | 1840           | 1840   |                | 1560 - 2110       | Acceptable |
| 1020       | Beryllium  |             | EPA 200.7 Rev 4.4  | µg/L  | 117            | 114    |                | 99.6 - 135        | Acceptable |
| 1020       | Beryllium  |             | EPA 200.8 Rev 5.4  | µg/L  | 117            | 121    |                | 99.6 - 135        | Acceptable |
| 1030       | Cadmium    |             | EPA 200.7 Rev 4.4  | µg/L  | 852            | 867    |                | 724 - 980         | Acceptable |
| 1030       | Cadmium    |             | EPA 200.8 Rev 5.4  | µg/L  | 852            | 859    |                | 724 - 980         | Acceptable |
| 1040       | Chromium   |             | EPA 200.7 Rev 4.4  | µg/L  | 812            | 826    |                | 690 - 933         | Acceptable |
| 1040       | Chromium   |             | EPA 200.8 Rev 5.4  | µg/L  | 812            | 798    |                | 690 - 933         | Acceptable |
| 1050       | Cobalt     |             | EPA 200.7 Rev 4.4  | µg/L  | 144            | 150    |                | 122 - 166         | Acceptable |
| 1050       | Cobalt     |             | EPA 200.8 Rev 5.4  | µg/L  | 144            | 137    |                | 122 - 166         | Acceptable |
| 1055       | Copper     |             | EPA 200.7 Rev 4.4  | µg/L  | 914            | 908    |                | 777 - 1050        | Acceptable |
| 1055       | Copper     |             | EPA 200.8 Rev 5.4  | µg/L  | 914            | 877    |                | 777 - 1050        | Acceptable |
| 1070       | Iron       |             | EPA 200.7 Rev 4.4  | µg/L  | 1460           | 1450   |                | 1240 - 1680       | Acceptable |
| 1075       | Lead       |             | EPA 200.7 Rev 4.4  | µg/L  | 1310           | 1420   |                | 1110 - 1510       | Acceptable |
| 1075       | Lead       |             | EPA 200.8 Rev 5.4  | µg/L  | 1310           | 1360   |                | 1110 - 1510       | Acceptable |
| 1090       | Manganese  |             | EPA 200.7 Rev 4.4  | µg/L  | 1430           | 1430   |                | 1220 - 1650       | Acceptable |
| 1100       | Molybdenum |             | EPA 200.7 Rev 4.4  | µg/L  | 397            | 402    | 357 - 436      | 343 - 447         | Acceptable |
| 1100       | Molybdenum |             | EPA 200.8 Rev 5.4  | µg/L  | 397            | 400    | 357 - 436      | 343 - 447         | Acceptable |
| 1105       | Nickel     |             | EPA 200.7 Rev 4.4  | µg/L  | 1550           | 1630   | 1400 - 1710    | 1370 - 1740       | Acceptable |
| 1105       | Nickel     |             | EPA 200.8 Rev 5.4  | µg/L  | 1550           | 1550   | 1400 - 1710    | 1370 - 1740       | Acceptable |
| 1140       | Selenium   |             | EPA 200.7 Rev 4.4  | µg/L  | 592            | 605    |                | 504 - 681         | Acceptable |
| 1140       | Selenium   |             | EPA 200.8 Rev 5.4  | µg/L  | 592            | 610    |                | 504 - 681         | Acceptable |
| 1150       | Silver     |             | EPA 200.7 Rev 4.4  | µg/L  | 857            | 898    |                | 729 - 986         | Acceptable |

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## Final Report - DMRQA PT

### Study: DMRQA39-CHEM

Opening Date: March 22, 2019 - Closing Date: July 19, 2019

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Contact: Ms. Rhonda Morris  
740-389-5991

EPA Lab ID: OH01320

NPDES Permit ID:

#### Trace Metals (PT-TM1-DMRQA) cont'd Lot #: 8542-04

| NELAC Code | Analyte  | Method Code | Method Description | Units | Assigned Value | Result | Warning Limits | Acceptance Limits | Evaluation |
|------------|----------|-------------|--------------------|-------|----------------|--------|----------------|-------------------|------------|
| 1150       | Silver   |             | EPA 200.8 Rev 5.4  | µg/L  | 857            | 866    |                | 729 - 986         | Acceptable |
| 1165       | Thallium |             | EPA 200.8 Rev 5.4  | µg/L  | 125            | 111    | 103 - 143      | 92.3 - 154        | Acceptable |
| 1185       | Vanadium |             | EPA 200.7 Rev 4.4  | µg/L  | 1810           | 1750   |                | 1540 - 2090       | Acceptable |
| 1190       | Zinc     |             | EPA 200.7 Rev 4.4  | µg/L  | 1920           | 1900   |                | 1630 - 2210       | Acceptable |

#### Mercury (PT-HG-DMRQA) Lot #: 8542-05

| NELAC Code | Analyte | Method Code | Method Description | Units | Assigned Value | Result | Warning Limits | Acceptance Limits | Evaluation |
|------------|---------|-------------|--------------------|-------|----------------|--------|----------------|-------------------|------------|
| 1095       | Mercury |             | EPA 245.1 Rev 3.0  | µg/L  | 28.4           | 26.8   |                | 19.9 - 36.9       | Acceptable |

#### Mercury Low Level (PT-HGLL-DMRQA) Lot #: 8542-47

| NELAC Code | Analyte | Method Code | Method Description | Units | Assigned Value | Result | Warning Limits | Acceptance Limits | Evaluation |
|------------|---------|-------------|--------------------|-------|----------------|--------|----------------|-------------------|------------|
| 1095       | Mercury |             | EPA 1631E          | ng/L  | 40.5           | 42.2   | 31.7 - 49.0    | 27.3 - 53.3       | Acceptable |

#### Chromium VI (PT-CR6-DMRQA) Lot #: 8542-06

| NELAC Code | Analyte     | Method Code | Method Description | Units | Assigned Value | Result | Warning Limits | Acceptance Limits | Evaluation |
|------------|-------------|-------------|--------------------|-------|----------------|--------|----------------|-------------------|------------|
| 1045       | Chromium VI |             | SM 3500-Cr B-09    | µg/L  | 269            | 274    | 238 - 298      | 223 - 313         | Acceptable |

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#### Demand (PT-DEM-DMRQA) Lot #: 8542-07

| NELAC Code | Analyte | Method Code | Method Description | Units | Assigned Value | Result | Warning Limits | Acceptance Limits | Evaluation |
|------------|---------|-------------|--------------------|-------|----------------|--------|----------------|-------------------|------------|
| 1530       | BOD     |             | SM 5210B-01        | mg/L  | 132            | 116    | 87.0 - 220     | 67.8 - 220        | Acceptable |
| 1555       | CBOD    |             | SM 5210B-01        | mg/L  | 132            | 108    | 73.4 - 220     | 53.3 - 220        | Acceptable |
| 1565       | COD     |             | EPA 410.4 Rev 2.0  | mg/L  | 205            | 211    | 177 - 225      | 165 - 237         | Acceptable |
| 2040       | TOC     |             | SM 5310B-11        | mg/L  | 80.8           | 80.9   | 72.0 - 88.9    | 67.9 - 92.9       | Acceptable |

#### Solids (PT-SOL-DMRQA) Lot #: 8542-09

| NELAC Code | Analyte                              | Method Code | Method Description | Units | Assigned Value | Result | Warning Limits | Acceptance Limits | Evaluation |
|------------|--------------------------------------|-------------|--------------------|-------|----------------|--------|----------------|-------------------|------------|
| 1955       | Total Dissolved Solids at 180° (TFR) |             | SM 2540C-11        | mg/L  | 634            | 610    | 570 - 697      | 570 - 697         | Acceptable |
| 1960       | Non-Filterable Residue (TSS)         |             | SM 2540D-11        | mg/L  | 32.5           | 24.0   | 25.9 - 36.1    | 23.3 - 38.6       | Acceptable |

#### Minerals 1 (PT-MIN1-DMRQA) Lot #: 8542-08

| NELAC Code | Analyte                                 | Method Code | Method Description | Units | Assigned Value | Result | Warning Limits | Acceptance Limits | Evaluation |
|------------|-----------------------------------------|-------------|--------------------|-------|----------------|--------|----------------|-------------------|------------|
| 1505       | Total Alkalinity(as CaCO <sub>3</sub> ) |             | SM 2320B-11        | mg/L  | 166            | 159    |                | 141 - 191         | Acceptable |
| 1575       | Chloride                                |             | EPA 300.0 Rev 2.1  | mg/L  | 261            | 261    | 235 - 287      | 231 - 292         | Acceptable |
| 1730       | Fluoride                                |             | SM 4500-F C-11     | mg/L  | 1.06           | 1.12   | 0.893 - 1.21   | 0.813 - 1.29      | Acceptable |
| 2000       | Sulfate                                 |             | EPA 300.0 Rev 2.1  | mg/L  | 92.8           | 92.4   | 82.0 - 102     | 77.3 - 106        | Acceptable |

#### Minerals 2 - Hardness (PT-MIN2-DMRQA) Lot #: 8542-102

| NELAC Code | Analyte                                | Method Code | Method Description | Units | Assigned Value | Result | Warning Limits | Acceptance Limits | Evaluation |
|------------|----------------------------------------|-------------|--------------------|-------|----------------|--------|----------------|-------------------|------------|
| 1755       | Total Hardness (as CaCO <sub>3</sub> ) |             | SM 2340C-97        | mg/L  | 242            | 244    |                | 206 - 278         | Acceptable |

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#### Specific Conductance (PT-COND-DMRQA) Lot #: 8542-72

| NELAC Code | Analyte                     | Method Code | Method Description | Units    | Assigned Value | Result | Warning Limits | Acceptance Limits | Evaluation |
|------------|-----------------------------|-------------|--------------------|----------|----------------|--------|----------------|-------------------|------------|
| 1610       | Specific Conductance (25°C) |             | SM2510B-97, 11     | µmhos/cm | 607            | 612    |                | 546 - 667         | Acceptable |

#### Nutrients 1 - Simple (PT-NUT1-DMRQA) Lot #: 8542-10

| NELAC Code | Analyte             | Method Code | Method Description                | Units | Assigned Value | Result | Warning Limits | Acceptance Limits | Evaluation |
|------------|---------------------|-------------|-----------------------------------|-------|----------------|--------|----------------|-------------------|------------|
| 1515       | Ammonia as N        |             | EPA 350.1 Rev 2.0                 | mg/L  | 10.3           | 10.4   | 8.92 - 11.7    | 8.23 - 12.4       | Acceptable |
| 1810       | Nitrate as N        |             | EPA 353.2 Rev 2.0/SM4500-NO3 F-11 | mg/L  | 6.30           | 6.05   | 5.52 - 7.05    | 5.14 - 7.44       | Acceptable |
| 1870       | Orthophosphate as P |             | SM 4500-P E-11                    | mg/L  | 4.25           | 4.16   |                | 3.61 - 4.88       | Acceptable |

#### Nutrients 2 - Complex (PT-NUT2-DMRQA) Lot #: 8542-11

| NELAC Code | Analyte                       | Method Code | Method Description | Units | Assigned Value | Result | Warning Limits | Acceptance Limits | Evaluation |
|------------|-------------------------------|-------------|--------------------|-------|----------------|--------|----------------|-------------------|------------|
| 1795       | Total Kjeldahl Nitrogen (TKN) |             | EPA 351.2 Rev 2.0  | mg/L  | 19.6           | 19.1   | 16.2 - 22.3    | 14.7 - 23.8       | Acceptable |
| 1910       | Total Phosphorous             |             | SM 4500-P E-11     | mg/L  | 0.972          | 0.93   | 0.825 - 1.12   | 0.750 - 1.20      | Acceptable |

#### Nutrients 3 - Nitrite (PT-NUT3-DMRQA) Lot #: 8542-69

| NELAC Code | Analyte      | Method Code | Method Description                 | Units | Assigned Value | Result | Warning Limits | Acceptance Limits | Evaluation |
|------------|--------------|-------------|------------------------------------|-------|----------------|--------|----------------|-------------------|------------|
| 1840       | Nitrite as N |             | EPA 353.2 Rev 2.0/SM 4500-NO3 F-11 | mg/L  | 0.938          | 0.955  | 0.816 - 1.06   | 0.755 - 1.12      | Acceptable |

#### Oil & Grease - 1L (PT-OGR1L-DMRQA) Lot #: 8542-103

| NELAC Code | Analyte      | Method Code | Method Description | Units | Assigned Value | Result | Warning Limits | Acceptance Limits | Evaluation |
|------------|--------------|-------------|--------------------|-------|----------------|--------|----------------|-------------------|------------|
| 1803       | Oil & Grease |             | EPA 1664 A (HEM)   | mg/L  | 100            | 95.7   | 78.5 - 110     | 71.0 - 116        | Acceptable |

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#### Residual Chlorine (PT-CL-DMRQA) Lot #: 8542-13

| NELAC Code | Analyte                 | Method Code | Method Description | Units | Assigned Value | Result | Warning Limits | Acceptance Limits | Evaluation |
|------------|-------------------------|-------------|--------------------|-------|----------------|--------|----------------|-------------------|------------|
| 1940       | Total Residual Chlorine |             | SM 4500-Cl G-00    | mg/L  | 2.22           | 2.20   | 1.79 - 2.44    | 1.63 - 2.59       | Acceptable |

#### pH (PT-PH-DMRQA) Lot #: 8542-15

| NELAC Code | Analyte | Method Code | Method Description | Units | Assigned Value | Result | Warning Limits | Acceptance Limits | Evaluation |
|------------|---------|-------------|--------------------|-------|----------------|--------|----------------|-------------------|------------|
| 1900       | pH      |             | SM 4500-H B-00     | S.U.  | 7.63           | 7.62   |                | 7.43 - 7.83       | Acceptable |

#### Total Cyanide (PT-CN-DMRQA) Lot #: 8542-14

| NELAC Code | Analyte       | Method Code | Method Description | Units | Assigned Value | Result | Warning Limits | Acceptance Limits | Evaluation |
|------------|---------------|-------------|--------------------|-------|----------------|--------|----------------|-------------------|------------|
| 1645       | Total Cyanide |             | EPA 335.4 Rev 1.0  | mg/L  | 0.780          | 0.659  |                | 0.507 - 1.05      | Acceptable |

#### Phenolics (PT-PHEN-DMRQA) Lot #: 8542-16

| NELAC Code | Analyte                | Method Code | Method Description | Units | Assigned Value | Result | Warning Limits | Acceptance Limits | Evaluation |
|------------|------------------------|-------------|--------------------|-------|----------------|--------|----------------|-------------------|------------|
| 1905       | Total Phenolics (4AAP) |             | EPA 420.4 Rev 1.0  | mg/L  | 4.37           | 3.19   | 1.90 - 4.81    | 1.44 - 4.81       | Acceptable |

#### Micro (Fecal, E. Coli & Total) (PT-MIC-DMRQA) Lot #: 8545-12

| NELAC Code | Analyte             | Method Code | Method Description | Units      | Assigned Value | Result | Warning Limits | Acceptance Limits | Evaluation |
|------------|---------------------|-------------|--------------------|------------|----------------|--------|----------------|-------------------|------------|
| 2530       | Fecal Coliform, MF  |             |                    | CFU/100 mL | 383            |        |                | 61 - 2410         | NR         |
| 2500       | Total Coliform, MF  |             |                    | CFU/100 mL | 548            |        |                | 452 - 665         | NR         |
| 2525       | E. Coli, MF         |             |                    | CFU/100 mL | 613            |        |                | 229 - 1640        | NR         |
| 2530       | Fecal Coliform, MPN |             | SM 9221 C, E-06    | MPN/100 mL | 522            | 335    |                | 173 - 1580        | Acceptable |
| 2500       | Total Coliform, MPN |             | SM 9223 B-04       | MPN/100 mL | 608            | 525    |                | 276 - 1340        | Acceptable |
| 2525       | E. Coli, MPN        |             | SM 9223 B-04       | MPN/100 mL | 614            | 525    |                | 287 - 1310        | Acceptable |