eurofins | Eaton Analytical

# LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at (800) 332-4345 or (574) 233-4777.

# STATE CERTIFICATION LIST

| State | Certification | State | Certification |
|---|---|---|---|
| Alabama | 40700 | Missouri | 880 |
| Alaska | IN00035 | Montana | CERT0026 |
| Arizona | AZ0432 | Nebraska | NE-OS-05-04 |
| Arkansas | IN00035 | Nevada | IN00035 |
| California | 2920 | New Hampshire* | 2124 |
| Colorado | IN035 | New Jersey* | IN598 |
| Colorado Radiochemistry | IN035 | New Mexico | IN00035 |
| Connecticut | PH-0132 | New York* | 11398 |
| Delaware | IN035 | North Carolina | 18700 |
| Florida* | E87775 | North Dakota | R-035 |
| Georgia | 929 | Ohio | 87775 |
| Hawaii | IN035 | Oklahoma | D9508 |
| Idaho | IN00035 | Oregon (Primary AB)* | 4074-001 |
| Illinois* | 200001 | Pennsylvania* | 68-00466 |
| Illinois Microbiology | 17767 | Puerto Rico | IN00035 |
| Illinois Radiochemistry | IN00035 | Rhode Island | LAO00343 |
| Indiana Chemistry | C-71-01 | South Carolina | 95005 |
| Indiana Microbiology | M-76-07 | South Dakota | IN00035 |
| Iowa | 098 | Tennessee | TN02973 |
| Kansas* | E-10233 | Texas* | T104704187-15-8 |
| Kentucky | 90056 | Texas/TCEQ | TX207 |
| Louisiana* | LA180008 | Utah* | IN00035 |
| Maine | IN00035 | Vermont | VT-8775 |
| Maryland | 209 | Virginia* | 460275 |
| Massachusetts | M-IN035 | Washington | C837 |
| Michigan | 9926 | West Virginia | 9927 C |
| Minnesota* | 018-999-338 | Wisconsin | 999766900 |
| Mississippi | IN035 | Wyoming | IN035 |
| EPA | IN00035 | | |

*NELAP/TNI Recognized Accreditation Bodies

Revision date: 01/02/2018

eurofins | Eaton Analytical

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South Bend, IN 46617
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Fax: (574) 233-8207
1 800 332 4345

# Laboratory Report

Client: City of Durham

Attn: Jimmy Gamble
Williams WTP
1405 Hillandale
Durham, NC 27705

Report: 410031
Priority: Standard Written
Status: Final
PWS ID: NC0332010

**Sample Information**

| EEA ID # | Client ID | Method | Collected Date / Time | Collected By: | Received Date / Time |
|---|---|---|---|---|---|
| 3882609 | Brown Tap | 537 | 02/28/18 10:27 | Client | 03/02/18 08:45 |
| 3882610 | Little River | 537 | 02/28/18 10:45 | Client | 03/02/18 08:45 |
| 3882611 | Lake Michie | 537 | 02/28/18 11:16 | Client | 03/02/18 08:45 |

**Report Summary**

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Joseph Mattheis at (574) 233-4777.




Authorized Signature | Title | 03/21/2018 Date

Client Name: City of Durham
Report #: 410031

Client Name: City of Durham Report #: 410031

Sampling Point: Brown Tap PWS ID: NC0332010

| EEA Methods | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Analyte ID # | Analyte | Method | Reg Limit | MRL† | Result | Units | Preparation Date | Analyzed Date | EEA ID # |
| 2991-50-6 | N-ethyl Perfluorooctanesulfonamidoacetic acid | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/15/18 16:29 | 3882609 |
| 2355-31-9 | N-methyl Perfluorooctanesulfonamidoacetic acid | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/15/18 16:29 | 3882609 |
| 375-73-5 | Perfluorobutanesulfonic acid (PFBS) | 537 | --- | 2.0 | **4.8** | ng/L | 03/13/18 07:51 | 03/15/18 16:29 | 3882609 |
| 335-76-2 | Perfluorodecanoic acid (PFDA) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/15/18 16:29 | 3882609 |
| 375-85-9 | Perfluoroheptanoic acid (PFHpA) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/15/18 16:29 | 3882609 |
| 355-46-4 | Perfluorohexanesulfonic acid (PFHxS) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/15/18 16:29 | 3882609 |
| 307-24-4 | Perfluorohexanoic acid (PFHxA) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/15/18 16:29 | 3882609 |
| 307-55-1 | Perfluorododecanoic acid (PFDoA) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/15/18 16:29 | 3882609 |
| 376-06-7 | Perfluorotetradecanoic acid (PFTeDA) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/15/18 16:29 | 3882609 |
| 375-95-1 | Perfluorononanoic acid (PFNA) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/15/18 16:29 | 3882609 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS) | 537 | --- | 2.0 | **3.7** | ng/L | 03/13/18 07:51 | 03/15/18 16:29 | 3882609 |
| 335-67-1 | Perfluorooctanoic acid (PFOA) | 537 | --- | 2.0 | **2.7** | ng/L | 03/13/18 07:51 | 03/15/18 16:29 | 3882609 |
| 72629-94-8 | Perfluorotridecanoic acid (PFTrDA) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/15/18 16:29 | 3882609 |
| 2058-94-8 | Perfluoroundecanoic acid (PFUnA) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/15/18 16:29 | 3882609 |
| 13252-13-6 | GenX | 537 | --- | 5 | < 5 | ng/L | 03/13/18 07:51 | 03/15/18 16:29 | 3882609 |
| 958445-44-8 | ADONA | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/15/18 16:29 | 3882609 |
| 73606-19-6 | F-53B Major | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/15/18 16:29 | 3882609 |
| 83329-89-9 | F-53B Minor | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/15/18 16:29 | 3882609 |

Sampling Point: Little River PWS ID: NC0332010

| EEA Methods | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Analyte ID # | Analyte | Method | Reg Limit | MRL† | Result | Units | Preparation Date | Analyzed Date | EEA ID # |
| 2991-50-6 | N-ethyl Perfluorooctanesulfonamidoacetic acid | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:10 | 3882610 |
| 2355-31-9 | N-methyl Perfluorooctanesulfonamidoacetic acid | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:10 | 3882610 |
| 375-73-5 | Perfluorobutanesulfonic acid (PFBS) | 537 | --- | 2.0 | **7.0** | ng/L | 03/13/18 07:51 | 03/13/18 22:10 | 3882610 |
| 335-76-2 | Perfluorodecanoic acid (PFDA) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:10 | 3882610 |
| 375-85-9 | Perfluoroheptanoic acid (PFHpA) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:10 | 3882610 |
| 355-46-4 | Perfluorohexanesulfonic acid (PFHxS) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:10 | 3882610 |
| 307-24-4 | Perfluorohexanoic acid (PFHxA) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:10 | 3882610 |
| 307-55-1 | Perfluorododecanoic acid (PFDoA) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:10 | 3882610 |
| 376-06-7 | Perfluorotetradecanoic acid (PFTeDA) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:10 | 3882610 |
| 375-95-1 | Perfluorononanoic acid (PFNA) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:10 | 3882610 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS) | 537 | --- | 2.0 | **5.2** | ng/L | 03/13/18 07:51 | 03/13/18 22:10 | 3882610 |
| 335-67-1 | Perfluorooctanoic acid (PFOA) | 537 | --- | 2.0 | **4.2** | ng/L | 03/13/18 07:51 | 03/13/18 22:10 | 3882610 |
| 72629-94-8 | Perfluorotridecanoic acid (PFTrDA) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:10 | 3882610 |
| 2058-94-8 | Perfluoroundecanoic acid (PFUnA) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:10 | 3882610 |
| 13252-13-6 | GenX | 537 | --- | 5 | < 5 | ng/L | 03/13/18 07:51 | 03/13/18 22:10 | 3882610 |
| 958445-44-8 | ADONA | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:10 | 3882610 |
| 73606-19-6 | F-53B Major | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:10 | 3882610 |
| 83329-89-9 | F-53B Minor | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:10 | 3882610 |

Client Name: City of Durham Report #: 410031

Sampling Point: Lake Michie PWS ID: NC0332010

| EEA Methods | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Analyte ID # | Analyte | Method | Reg Limit | MRL† | Result | Units | Preparation Date | Analyzed Date | EEA ID # |
| 2991-50-6 | N-ethyl Perfluorooctanesulfonamidoacetic acid | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:27 | 3882611 |
| 2355-31-9 | N-methyl Perfluorooctanesulfonamidoacetic acid | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:27 | 3882611 |
| 375-73-5 | Perfluorobutanesulfonic acid (PFBS) | 537 | --- | 2.0 | **5.0** | ng/L | 03/13/18 07:51 | 03/13/18 22:27 | 3882611 |
| 335-76-2 | Perfluorodecanoic acid (PFDA) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:27 | 3882611 |
| 375-85-9 | Perfluoroheptanoic acid (PFHpA) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:27 | 3882611 |
| 355-46-4 | Perfluorohexanesulfonic acid (PFHxS) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:27 | 3882611 |
| 307-24-4 | Perfluorohexanoic acid (PFHxA) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:27 | 3882611 |
| 307-55-1 | Perfluorododecanoic acid (PFDoA) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:27 | 3882611 |
| 376-06-7 | Perfluorotetradecanoic acid (PFTeDA) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:27 | 3882611 |
| 375-95-1 | Perfluorononanoic acid (PFNA) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:27 | 3882611 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS) | 537 | --- | 2.0 | **3.3** | ng/L | 03/13/18 07:51 | 03/13/18 22:27 | 3882611 |
| 335-67-1 | Perfluorooctanoic acid (PFOA) | 537 | --- | 2.0 | **2.4** | ng/L | 03/13/18 07:51 | 03/13/18 22:27 | 3882611 |
| 72629-94-8 | Perfluorotridecanoic acid (PFTrDA) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:27 | 3882611 |
| 2058-94-8 | Perfluoroundecanoic acid (PFUnA) | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:27 | 3882611 |
| 13252-13-6 | GenX | 537 | --- | 5 | < 5 | ng/L | 03/13/18 07:51 | 03/13/18 22:27 | 3882611 |
| 958445-44-8 | ADONA | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:27 | 3882611 |
| 73606-19-6 | F-53B Major | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:27 | 3882611 |
| 83329-89-9 | F-53B Minor | 537 | --- | 2.0 | < 2.0 | ng/L | 03/13/18 07:51 | 03/13/18 22:27 | 3882611 |

† EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

| Reg Limit Type: | MCL | SMCL | AL |
|---|---|---|---|
| Symbol: | * | ^ | ! |

## Lab Definitions

**Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) -** is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

**Internal Standards (IS) -** are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

**Laboratory Duplicate (LD) -** is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

**Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) -** is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

**Laboratory Method Blank (LMB) / Laboratory Reagent Blank (LRB) -** is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

**Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) -** is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

**Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) -** is a sample aliquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

**Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) -** is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

**Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) -** is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

**Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) -** is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

**Surrogate Standard (SS) / Surrogate Analyte (SUR) -** is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

eurofins | Eaton Analytical

110 S. Hill Street
South Bend, IN 46617
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F: 1.574.233.8207

Order # 338232
Batch # 410031

www.EurofinsUS.com/Eaton

# CHAIN OF CUSTODY RECORD

Page _____ of _____

Shaded area for EEA use only

REPORT TO: Jimmy Gamble, City of Durham Dept. of Water Management

SAMPLER (Signature)

BILL TO: City of Durham, Dept. of Water Management, Supply & Treatment

COMPLIANCE MONITORING: Yes ____ No ✓

PWS ID # | STATE (sample origin) | PROJECT NAME | PO#

POPULATION SERVED | SOURCE WATER

| | LAB Number | COLLECTION DATE | TIME | AM | PM | SAMPLING SITE | TEST NAME | SAMPLE REMARKS | CHLORINATED YES | CHLORINATED NO | # OF CONTAINERS | MATRIX CODE | TURNAROUND TIME |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3882609 | 2/28/18 | 10:27 | ✓ | | Brown Tap CL=A | Method 537 PFCs-EXT | | ✓ | | 2 | | |
| 2 | 610 | 2/28/18 | 10:45 | ✓ | | Little River | Method 537 PFCs-EXT | | | ✓ | 2 | | |
| 3 | 611 | 2/28/18 | 11:16 | ✓ | | Lake Michie | Method 537 PFCs-EXT | | | ✓ | 2 | | |
| 4 | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | |

| RELINQUISHED BY:(Signature) | DATE | TIME | RECEIVED BY:(Signature) | DATE | TIME |
|---|---|---|---|---|---|
| | 03/01/18 | 1125 AM/PM | | 03/01/18 | 1125 AM/PM |
| | 03/01/18 | 300 AM/PM | | | AM/PM |
| | | AM/PM | RECEIVED FOR LABORATORY BY: dMartes | 3/2/18 | 0845 AM/PM |

LAB RESERVES THE RIGHT TO RETURN UNUSED PORTIONS OF NON-AQUEOUS SAMPLES TO CLIENT

LAB COMMENTS

CONDITIONS UPON RECEIPT (check one): ✓ Iced Wet/Blue ____ Ambient ____ 0.8 °C Upon Receipt ____ N/A

**MATRIX CODES:**

DW-DRINKING WATER
RW-REAGENT WATER
GW-GROUND WATER
EW-EXPOSURE WATER
SW-SURFACE WATER
PW-POOL WATER
WW-WASTE WATER

**TURN-AROUND TIME (TAT) - SURCHARGES**

SW = Standard Written: (15 working days) 0%
RV* = Rush Verbal: (5 working days) 50%
RW* = Rush Written: (5 working days) 75%
IV* = Immediate Verbal: (3 working days) 100%
IW* = Immediate Written: (3 working days) 125%
SP* = Weekend, Holiday CALL
STAT* = Less than 48 hours CALL

* Please call, expedited service not available for all testing

Samples received unannounced with less than 48 hours holding time remaining may be subject to additional charges.