



**Appendix 4**

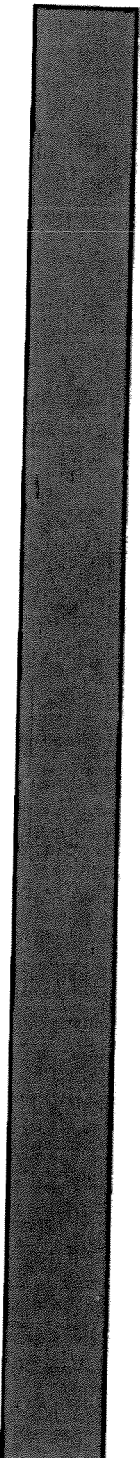
**Draft 2017 MS4 Stormwater Annual Report**

**Water Testing**

**ACT Report Part 1**



**ANALYTICAL  
CONSULTING  
TECHNOLOGY, INC.**



**Stormwater Monitoring Program**  
**City of New Haven**  
**Stormwaters**

*Prepared for:*  
City of New Haven  
*Prepared by:*  
**Analytical Consulting Technology, Inc.**  
Waterbury, Connecticut

168 Railroad Hill Street  
Waterbury, CT 06708  
203-757-3960  
(fax) 203-759-2155

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Ian Judan, PE  
Engineering Department  
City of New Haven  
200 Orange Street, RM 503  
New Haven, CT 06510

June 7, 2017

Mr. Judan:

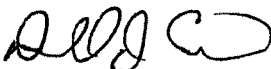
Enclosed is your copy of the City of New Haven Supplemental MS4 Water Testing Report. This is in compliance with Analytical Consulting Technology Inc. Agreement for Professional Services A16-1115 to the city of New Haven dated November 14<sup>th</sup>, 2016.

Included in this report are the results, chain of custodies, and field sampling documentation for each of three sampling events for a total of 18 locations. GPS coordinates and street identification of each sampling location are identified on field observation sheets.

In compliance with the contract, all samples were tested for the standard MS4 analytes as well as Enterococci Bacteria, MBAS Surfactants, and PPCP (EPA 1694 tracking protocol compounds).

Should you have any questions regarding the contents of this report please contact me.

Respectfully,



Donald J. Carew, Director

[Type text]

**Sample Date**

**November 29, 2016**

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City of New Haven  
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200 Orange St, Rm 503

New Haven, CT 06510

Report Date: 05/23/2017

ACT Number: 2016110245 - 1      Sample Date: 11/29/2016      Date Received: 11/29/2016  
Sample Type: Grab      Sample Time:      Project number  
Collected by: O.Diedrich      Sample Matrix: Stormwater  
Location/ID: 5674  
Description:

| Laboratory Test          | Result | Units      | Method       | Analysis Date          | Analyst |
|--------------------------|--------|------------|--------------|------------------------|---------|
| <i>Inorganic</i>         |        |            |              |                        |         |
| Ammonia Nitrogen         | 0.15   | mg/L       | EPA 350.1    | 12/06/2016 10:30:00 AM | NS      |
| Chemical Oxygen Demand   | 18.6   | mg/L       | EPA 410.4    | 12/14/2016 10:30:00 AM | NS      |
| MBAS (Surfactants)       | <0.02  | mg/L       | SM5540 C     | 11/30/2016 03:00:00 PM | NS      |
| Nitrite/Nitrate (As N)   | <0.20  | mg/L       | EPA 300      | 11/30/2016 12:49:00 PM | RL      |
| Nitrogen, Total Kjeldahl | 0.64   | mg/L       | SM 4500 Norg | 12/05/2016 10:30:00 AM | NS      |
| pH                       | 6.43   | S.U.       | SM 4500-H+B  | 12/02/2016 03:00:00 PM | NS      |
| Phosphorus, Total        | 0.10   | mg/L       | SM 4500 -PE  | 12/07/2016 10:30:00 AM | NS      |
| Rainfall pH              | 6.26   | S.U.       | SM 4500-H+B  | 11/29/2016 02:45:00 PM | OD      |
| Specific Conductance     | 20.7   | umho/cm    | EPA 120.1    | 11/29/2016 05:00:00 PM | OD      |
| Total Suspended Solids   | 56.5   | mg/L       | SM2540D      | 12/01/2016 10:30:00 AM | EG      |
| Turbidity                | 13.4   | NTU        | EPA 180.1    | 11/29/2016 05:15:00 PM | NS      |
| <i>Metals</i>            |        |            |              |                        |         |
| Hardness                 | 6.5    | mg/L       | EPA 200.7    | 11/30/2016 04:22:45 PM | TU      |
| <i>Microbiology</i>      |        |            |              |                        |         |
| E-Coli                   | 1400   | col./100ml | SM9222G      | 11/29/2016 05:45:00 PM | EG      |
| Enterococcus             | 2,400  | cfu/100ml  | SM 9230B     | 11/29/2016 06:30:00 PM | EG      |

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New Haven, CT 06510

Report Date: 05/23/2017

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ACT Number: 2016110245 - 1      Sample Date: 11/29/2016      Date Received: 11/29/2016  
Sample Type: Grab      Sample Time:      Project number  
Collected by: O.Diedrich      Sample Matrix: Stormwater  
Location/ID: 5674  
Description:

| Laboratory Test                             | Result | Units | Method    | Analysis Date          | Analyst |
|---|--------|-------|-----------|------------------------|---------|
| <i>Organics</i>                             |        |       |           |                        |         |
| Oil and Grease                              | 5.2    | mg/L  | EPA 1664  | 12/01/2016 04:00:00 PM | RL      |
| Oil and Grease,Hydrocarbon Fraction (1664A) | 1.4    | mg/L  | EPA 1664A | 12/01/2016 04:00:00 PM | RL      |
| <i>PPCP</i>                                 |        |       |           |                        |         |
| 1,7-Dimethyloxanthine                       | <53    | ng/L  | 1694      | 12/17/2016 08:52:00 AM | ALS     |
| Acetaminophen                               | 20     | ng/L  | 1694      | 12/17/2016 08:52:00 AM | ALS     |
| Atenolol                                    | <53    | ng/L  | 1694      | 01/05/2017 10:11:00 AM | ALS     |
| Azithromycin                                | <53    | ng/L  | 1694      | 01/24/2017 10:01:00 AM | ALS     |
| Caffeine                                    | 580    | ng/L  | 1694      | 12/17/2016 08:52:00 AM | ALS     |
| Carbamazepine                               | <1.1   | ng/L  | 1694      | 12/17/2016 08:52:00 AM | ALS     |
| Continine                                   | <53    | ng/L  | 1694      | 01/05/2017 06:07:00 AM | ALS     |
| Primidone                                   | <53    | ng/L  | 1694      | 01/05/2017 06:07:00 AM | ALS     |
| Urobilin                                    | <53    | ng/L  | 1694      | 01/25/2017 08:35:00 AM | ALS     |

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ACT Number: 2016110245 - 2      Sample Date: 11/29/2016      Date Received: 11/29/2016  
Sample Type: Grab      Sample Time:      Project number  
Collected by: O.Diedrich      Sample Matrix: Stormwater  
Location/ID: 5679  
Description:

| Laboratory Test | Result | Units | Method | Analysis Date | Analyst |
|-----------------|--------|-------|--------|---------------|---------|
|-----------------|--------|-------|--------|---------------|---------|

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New Haven, CT 06510

Report Date: 05/23/2017

ACT Number: 2016110245 - 2      Sample Date: 11/29/2016      Date Received: 11/29/2016  
Sample Type: Grab      Sample Time:      Project number  
Collected by: O.Diedrich      Sample Matrix: Stormwater  
Location/ID: 5679  
Description:

| Laboratory Test          | Result | Units      | Method       | Analysis Date          | Analyst |
|--------------------------|--------|------------|--------------|------------------------|---------|
| <i>Inorganic</i>         |        |            |              |                        |         |
| Ammonia Nitrogen         | <0.10  | mg/L       | EPA 350.1    | 12/06/2016 10:30:00 AM | NS      |
| Chemical Oxygen Demand   | 15.3   | mg/L       | EPA 410.4    | 12/14/2016 10:30:00 AM | NS      |
| MBAS (Surfactants)       | <0.02  | mg/L       | SM5540 C     | 11/30/2016 03:00:00 PM | NS      |
| Nitrite/Nitrate (As N)   | <0.20  | mg/L       | EPA 300      | 11/30/2016 01:11:00 PM | RL      |
| Nitrogen, Total Kjeldahl | 0.46   | mg/L       | SM 4500 Norg | 12/05/2016 10:30:00 AM | NS      |
| pH                       | 6.45   | S.U.       | SM 4500-H+B  | 12/02/2016 03:00:00 PM | NS      |
| Phosphorus, Total        | 0.06   | mg/L       | SM 4500 -PE  | 12/07/2016 10:30:00 AM | NS      |
| Rainfall pH              | 6.65   | S.U.       | SM 4500-H+B  | 11/29/2016 03:00:00 PM | OD      |
| Specific Conductance     | 20.7   | umho/cm    | EPA 120.1    | 11/29/2016 05:00:00 PM | OD      |
| Total Suspended Solids   | 31.0   | mg/L       | SM2540D      | 12/01/2016 10:30:00 AM | EG      |
| Turbidity                | 7.43   | NTU        | EPA 180.1    | 11/29/2016 05:15:00 PM | NS      |
| <i>Metals</i>            |        |            |              |                        |         |
| Hardness                 | 4.1    | mg/L       | EPA 200.7    | 11/30/2016 04:22:45 PM | TU      |
| <i>Microbiology</i>      |        |            |              |                        |         |
| E-Coli                   | 580    | col./100ml | SM9222G      | 11/29/2016 05:45:00 PM | EG      |
| Enterococcus             | 1,400  | cfu/100ml  | SM 9230C     | 11/29/2016 06:30:00 PM | EG      |

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Report Date: 05/23/2017

ACT Number: 2016110245 - 2      Sample Date: 11/29/2016      Date Received: 11/29/2016  
Sample Type: Grab      Sample Time:      Project number  
Collected by: O.Diedrich      Sample Matrix: Stormwater  
Location/ID: 5679  
Description:

| Laboratory Test                             | Result | Units | Method    | Analysis Date          | Analyst |
|---|--------|-------|-----------|------------------------|---------|
| <i>Organics</i>                             |        |       |           |                        |         |
| Oil and Grease                              | 9.4    | mg/L  | EPA 1664  | 12/01/2016 04:00:00 PM | RL      |
| Oil and Grease,Hydrocarbon Fraction (1664A) | 4.9    | mg/L  | EPA 1664A | 12/01/2016 04:00:00 PM | RL      |
| <i>PPCP</i>                                 |        |       |           |                        |         |
| 1,7-Dimethylxanthine                        | 780    | ng/L  | 1694      | 01/05/2017 06:07:00 AM | ALS     |
| Acetaminophen                               | 67     | ng/L  | 1694      | 12/17/2016 08:52:00 AM | ALS     |
| Atenolol                                    | <52    | ng/L  | 1694      | 01/05/2017 10:11:00 AM | ALS     |
| Azithromycin                                | <110   | ng/L  | 1694      | 01/24/2017 10:01:00 AM | ALS     |
| Caffeine                                    | 740    | ng/L  | 1694      | 12/17/2016 08:52:00 AM | ALS     |
| Carbamazepine                               | <10    | ng/L  | 1694      | 12/17/2016 08:52:00 AM | ALS     |
| Continine                                   | 250    | ng/L  | 1694      | 01/05/2017 06:07:00 AM | ALS     |
| Primidone                                   | 80     | ng/L  | 1694      | 01/05/2017 06:07:00 AM | ALS     |
| Urobilin                                    | <110   | ng/L  | 1694      | 01/25/2017 08:35:00 AM | ALS     |

ACT Number: 2016110245 - 3      Sample Date: 11/29/2016      Date Received: 11/29/2016  
Sample Type: Grab      Sample Time:      Project number  
Collected by: O.Diedrich      Sample Matrix: Stormwater  
Location/ID: 5142  
Description:

| Laboratory Test | Result | Units | Method | Analysis Date | Analyst |
|-----------------|--------|-------|--------|---------------|---------|
|-----------------|--------|-------|--------|---------------|---------|



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New Haven, CT 06510

Report Date: 05/23/2017

ACT Number: 2016110245 - 3      Sample Date: 11/29/2016      Date Received: 11/29/2016  
Sample Type: Grab      Sample Time:      Project number  
Collected by: O.Diedrich      Sample Matrix: Stormwater  
Location/ID: 5142  
Description:

| Laboratory Test          | Result | Units      | Method       | Analysis Date          | Analyst |
|--------------------------|--------|------------|--------------|------------------------|---------|
| <i>Inorganic</i>         |        |            |              |                        |         |
| Ammonia Nitrogen         | 0.12   | mg/L       | EPA 350.1    | 12/06/2016 10:30:00 AM | NS      |
| Chemical Oxygen Demand   | 33.9   | mg/L       | EPA 410.4    | 12/14/2016 10:30:00 AM | NS      |
| MBAS (Surfactants)       | <0.02  | mg/L       | SM5540 C     | 11/30/2016 03:00:00 PM | NS      |
| Nitrite/Nitrate (As N)   | <0.20  | mg/L       | EPA 300      | 11/30/2016 01:32:00 PM | RL      |
| Nitrogen, Total Kjeldahl | 0.82   | mg/L       | SM 4500 Norg | 12/05/2016 10:30:00 AM | NS      |
| pH                       | 6.3    | S.U.       | SM 4500-H+B  | 12/02/2016 03:00:00 PM | NS      |
| Phosphorus, Total        | 0.28   | mg/L       | SM 4500 -PE  | 12/07/2016 10:30:00 AM | NS      |
| Rainfall pH              | 6.3    | S.U.       | SM 4500-H+B  | 11/29/2016 03:00:00 PM | OD      |
| Specific Conductance     | 23.1   | umho/cm    | EPA 120.1    | 11/29/2016 05:00:00 PM | OD      |
| Total Suspended Solids   | 31.0   | mg/L       | SM2540D      | 12/01/2016 10:30:00 AM | EG      |
| Turbidity                | 6.35   | NTU        | EPA 180.1    | 11/29/2016 05:15:00 PM | NS      |
| <i>Metals</i>            |        |            |              |                        |         |
| Hardness                 | 5.1    | mg/L       | EPA 200.7    | 11/30/2016 04:22:45 PM | TU      |
| <i>Microbiology</i>      |        |            |              |                        |         |
| E-Coli                   | 1100   | col./100ml | SM9222G      | 11/29/2016 05:45:00 PM | EG      |
| Enterococcus             | 12,100 | cfu/100ml  | SM 9230C     | 11/29/2016 06:30:00 PM | EG      |

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New Haven, CT 06510

Report Date: 05/23/2017

---

ACT Number: 2016110245 - 3      Sample Date: 11/29/2016      Date Received: 11/29/2016  
 Sample Type: Grab      Sample Time:      Project number  
 Collected by: O.Diedrich      Sample Matrix: Stormwater  
 Location/ID: 5142  
 Description:

| Laboratory Test                             | Result | Units | Method    | Analysis Date          | Analyst |
|---|--------|-------|-----------|------------------------|---------|
| <i>Organics</i>                             |        |       |           |                        |         |
| Oil and Grease                              | 3.9    | mg/L  | EPA 1664  | 12/01/2016 04:00:00 PM | RL      |
| Oil and Grease,Hydrocarbon Fraction (1664A) | <1.0   | mg/L  | EPA 1664A | 12/01/2016 04:00:00 PM | RL      |
| <i>PPCP</i>                                 |        |       |           |                        |         |
| 1,7-Dimethylxanthine                        | <50    | ng/L  | 1694      | 01/05/2017 06:07:00 AM | ALS     |
| Acetaminophen                               | <50    | ng/L  | 1694      | 12/17/2016 08:52:00 AM | ALS     |
| Atenolol                                    | <50    | ng/L  | 1694      | 01/05/2017 10:11:00 AM | ALS     |
| Azithromycin                                | <100   | ng/L  | 1694      | 01/24/2017 10:01:00 AM | ALS     |
| Caffeine                                    | 150    | ng/L  | 1694      | 12/17/2016 08:52:00 AM | ALS     |
| Carbamazepine                               | <10    | ng/L  | 1694      | 12/17/2016 08:52:00 AM | ALS     |
| Continine                                   | 52     | ng/L  | 1694      | 01/05/2017 06:07:00 AM | ALS     |
| Primidone                                   | <62    | ng/L  | 1694      | 01/05/2017 06:07:00 AM | ALS     |
| Urobilin                                    | 120    | ng/L  | 1694      | 01/25/2017 08:35:00 AM | ALS     |

---

ACT Number: 2016110245 - 4      Sample Date: 11/29/2016      Date Received: 11/29/2016  
 Sample Type: Grab      Sample Time:      Project number  
 Collected by: O.Diedrich      Sample Matrix: Stormwater  
 Location/ID: 538  
 Description:

| Laboratory Test | Result | Units | Method | Analysis Date | Analyst |
|-----------------|--------|-------|--------|---------------|---------|
|-----------------|--------|-------|--------|---------------|---------|

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New Haven, CT 06510

Report Date: 05/23/2017

ACT Number: 2016110245 - 4      Sample Date: 11/29/2016      Date Received: 11/29/2016  
Sample Type: Grab      Sample Time:      Project number  
Collected by: O.Diedrich      Sample Matrix: Stormwater  
Location/ID: 538  
Description:

| Laboratory Test          | Result | Units      | Method       | Analysis Date          | Analyst |
|--------------------------|--------|------------|--------------|------------------------|---------|
| <i>Inorganic</i>         |        |            |              |                        |         |
| Ammonia Nitrogen         | 0.23   | mg/L       | EPA 350.1    | 12/06/2016 10:30:00 AM | NS      |
| Chemical Oxygen Demand   | 39.6   | mg/L       | EPA 410.4    | 12/14/2016 10:30:00 AM | NS      |
| MBAS (Surfactants)       | <0.02  | mg/L       | SM5540 C     | 11/30/2016 03:00:00 PM | NS      |
| Nitrite/Nitrate (As N)   | <0.20  | mg/L       | EPA 300      | 11/30/2016 01:54:00 PM | RL      |
| Nitrogen, Total Kjeldahl | 1.58   | mg/L       | SM 4500 Norg | 12/05/2016 10:30:00 AM | NS      |
| pH                       | 6.3    | S.U.       | SM 4500-H+B  | 12/02/2016 03:00:00 PM | NS      |
| Phosphorus, Total        | 0.21   | mg/L       | SM 4500 -PE  | 12/07/2016 10:30:00 AM | NS      |
| Rainfall pH              | 6.3    | S.U.       | SM 4500-H+B  | 11/29/2016 03:00:00 PM | OD      |
| Specific Conductance     | 28.7   | umho/cm    | EPA 120.1    | 11/29/2016 05:00:00 PM | OD      |
| Total Suspended Solids   | 77.5   | mg/L       | SM2540D      | 12/01/2016 10:30:00 AM | EG      |
| Turbidity                | 5.95   | NTU        | EPA 180.1    | 11/29/2016 05:15:00 PM | NS      |
| <i>Metals</i>            |        |            |              |                        |         |
| Hardness                 | 9.4    | mg/L       | EPA 200.7    | 11/30/2016 04:22:45 PM | TU      |
| <i>Microbiology</i>      |        |            |              |                        |         |
| E-Coli                   | 90     | col./100ml | SM9222G      | 11/29/2016 05:45:00 PM | EG      |
| Enterococcus             | 2,300  | cfu/100ml  | SM 9230C     | 11/29/2016 06:30:00 PM | EG      |

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New Haven, CT 06510

Report Date: 05/23/2017

ACT Number: 2016110245 - 4      Sample Date: 11/29/2016      Date Received: 11/29/2016  
Sample Type: Grab      Sample Time:      Project number  
Collected by: O.Diedrich      Sample Matrix: Stormwater  
Location/ID: 538  
Description:

| Laboratory Test                             | Result | Units | Method    | Analysis Date          | Analyst |
|---|--------|-------|-----------|------------------------|---------|
| <i>Organics</i>                             |        |       |           |                        |         |
| Oil and Grease                              | 4.5    | mg/L  | EPA 1664  | 12/02/2016 04:00:00 PM | RL      |
| Oil and Grease,Hydrocarbon Fraction (1664A) | 1.6    | mg/L  | EPA 1664A | 12/01/2016 04:00:00 PM | RL      |
| <i>PPCP</i>                                 |        |       |           |                        |         |
| 1,7-Dimethylxanthine                        | 220    | ng/L  | 1694      | 01/05/2017 06:07:00 AM | ALS     |
| Acetaminophen                               | <53    | ng/L  | 1694      | 12/17/2016 08:52:00 AM | ALS     |
| Atenolol                                    | <53    | ng/L  | 1694      | 01/05/2017 10:11:00 AM | ALS     |
| Azithromycin                                | <53    | ng/L  | 1694      | 01/24/2017 10:01:00 AM | ALS     |
| Caffeine                                    | 1800   | ng/L  | 1694      | 12/17/2016 08:52:00 AM | ALS     |
| Carbamazepine                               | <11    | ng/L  | 1694      | 12/17/2016 08:52:00 AM | ALS     |
| Continine                                   | 190    | ng/L  | 1694      | 01/05/2017 06:07:00 AM | ALS     |
| Primidone                                   | <53    | ng/L  | 1694      | 01/05/2017 06:07:00 AM | ALS     |
| Urobilin                                    | <110   | ng/L  | 1694      | 01/25/2017 08:35:00 AM | ALS     |

ACT Number: 2016110245 - 5      Sample Date: 11/29/2016      Date Received: 11/29/2016  
Sample Type: Grab      Sample Time:      Project number  
Collected by: O.Diedrich      Sample Matrix: Stormwater  
Location/ID: 545  
Description:

| Laboratory Test | Result | Units | Method | Analysis Date | Analyst |
|-----------------|--------|-------|--------|---------------|---------|
|-----------------|--------|-------|--------|---------------|---------|

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Report Date: 05/23/2017

ACT Number: 2016110245 - 5      Sample Date: 11/29/2016      Date Received: 11/29/2016  
Sample Type: Grab      Sample Time:      Project number  
Collected by: O.Diedrich      Sample Matrix: Stormwater  
Location/ID: 545  
Description:

| Laboratory Test          | Result | Units      | Method       | Analysis Date          | Analyst |
|--------------------------|--------|------------|--------------|------------------------|---------|
| <i>Inorganic</i>         |        |            |              |                        |         |
| Ammonia Nitrogen         | 0.10   | mg/L       | EPA 350.1    | 12/06/2016 10:30:00 AM | NS      |
| Chemical Oxygen Demand   | 39.6   | mg/L       | EPA 410.4    | 12/15/2016 10:30:00 AM | NS      |
| MBAS (Surfactants)       | <0.02  | mg/L       | SM5540 C     | 11/30/2016 03:00:00 PM | NS      |
| Nitrite/Nitrate (As N)   | <0.20  | mg/L       | EPA 300      | 11/30/2016 02:16:00 PM | RL      |
| Nitrogen, Total Kjeldahl | 1.62   | mg/L       | SM 4500 Norg | 12/05/2016 10:30:00 AM | NS      |
| pH                       | 6.7    | S.U.       | SM 4500-H+B  | 12/02/2016 03:00:00 PM | NS      |
| Phosphorus, Total        | 0.31   | mg/L       | SM 4500 -PE  | 12/07/2016 10:30:00 AM | NS      |
| Rainfall pH              | 6.7    | S.U.       | SM 4500-H+B  | 11/29/2016 03:00:00 PM | OD      |
| Specific Conductance     | 25.7   | umho/cm    | EPA 120.1    | 11/29/2016 05:00:00 PM | OD      |
| Total Suspended Solids   | 104.0  | mg/L       | SM2540D      | 12/01/2016 10:30:00 AM | EG      |
| Turbidity                | 7.16   | NTU        | EPA 180.1    | 11/29/2016 05:15:00 PM | NS      |
| <i>Metals</i>            |        |            |              |                        |         |
| Hardness                 | 7.9    | mg/L       | EPA 200.7    | 11/30/2016 04:22:45 PM | TU      |
| <i>Microbiology</i>      |        |            |              |                        |         |
| E-Coli                   | 120    | col./100ml | SM9222G      | 11/29/2016 05:45:00 PM | EG      |
| Enterococcus             | 3,700  | cfu/100ml  | SM 9230C     | 11/29/2016 06:30:00 PM | EG      |

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New Haven, CT 06510

Report Date: 05/23/2017

ACT Number: 2016110245 - 5      Sample Date: 11/29/2016      Date Received: 11/29/2016  
Sample Type: Grab      Sample Time:      Project number  
Collected by: O.Diedrich      Sample Matrix: Stormwater  
Location/ID: 545  
Description:

| Laboratory Test                             | Result | Units | Method    | Analysis Date          | Analyst |
|---|--------|-------|-----------|------------------------|---------|
| <i>Organics</i>                             |        |       |           |                        |         |
| Oil and Grease                              | 3.2    | mg/L  | EPA 1664  | 12/02/2016 04:00:00 PM | RL      |
| Oil and Grease,Hydrocarbon Fraction (1664A) | <1.0   | mg/L  | EPA 1664A | 12/01/2016 04:00:00 PM | RL      |
| <i>PPCP</i>                                 |        |       |           |                        |         |
| 1,7-Dimethyloxanthine                       | 560    | ng/L  | 1694      | 01/05/2017 06:07:00 AM | ALS     |
| Acetaminophen                               | 140    | ng/L  | 1694      | 12/17/2016 08:52:00 AM | ALS     |
| Atenolol                                    | <53    | ng/L  | 1694      | 01/05/2017 10:11:00 AM | ALS     |
| Azithromycin                                | <110   | ng/L  | 1694      | 01/24/2017 10:01:00 AM | ALS     |
| Caffeine                                    | 1900   | ng/L  | 1694      | 12/17/2016 08:52:00 AM | ALS     |
| Carbamazepine                               | <1.1   | ng/L  | 1694      | 12/17/2016 08:52:00 AM | ALS     |
| Continine                                   | 200    | ng/L  | 1694      | 01/05/2017 06:07:00 AM | ALS     |
| Primidone                                   | <53    | ng/L  | 1694      | 01/05/2017 06:07:00 AM | ALS     |
| Urobilin                                    | <110   | ng/L  | 1694      | 01/25/2017 08:35:00 AM | ALS     |

ACT Number: 2016110245 - 6      Sample Date: 11/29/2016      Date Received: 11/29/2016  
Sample Type: Grab      Sample Time:      Project number  
Collected by: O.Diedrich      Sample Matrix: Stormwater  
Location/ID: 883  
Description:

| Laboratory Test | Result | Units | Method | Analysis Date | Analyst |
|-----------------|--------|-------|--------|---------------|---------|
|-----------------|--------|-------|--------|---------------|---------|

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New Haven, CT 06510

Report Date: 05/23/2017

ACT Number: 2016110245 - 6      Sample Date: 11/29/2016      Date Received: 11/29/2016  
Sample Type: Grab      Sample Time:      Project number  
Collected by: O.Diedrich      Sample Matrix: Stormwater  
Location/ID: 883  
Description:

| Laboratory Test          | Result | Units      | Method       | Analysis Date          | Analyst |
|--------------------------|--------|------------|--------------|------------------------|---------|
| <i>Inorganic</i>         |        |            |              |                        |         |
| Ammonia Nitrogen         | <0.10  | mg/L       | EPA 350.1    | 12/06/2016 10:30:00 AM | NS      |
| Chemical Oxygen Demand   | 8.5    | mg/L       | EPA 410.4    | 12/15/2016 10:30:00 AM | NS      |
| MBAS (Surfactants)       | <0.02  | mg/L       | SM5540 C     | 11/30/2016 03:00:00 PM | NS      |
| Nitrite/Nitrate (As N)   | <0.20  | mg/L       | EPA 300      | 11/30/2016 02:38:00 PM | RL      |
| Nitrogen, Total Kjeldahl | 1.19   | mg/L       | SM 4500 Norg | 12/05/2016 10:30:00 AM | NS      |
| pH                       | 6.8    | S.U.       | SM 4500-H+B  | 12/02/2016 03:00:00 PM | NS      |
| Phosphorus, Total        | 0.29   | mg/L       | SM 4500 -PE  | 12/07/2016 10:30:00 AM | NS      |
| Rainfall pH              | 6.8    | S.U.       | SM 4500-H+B  | 11/29/2016 02:00:00 PM | OD      |
| Specific Conductance     | 19.9   | umho/cm    | EPA 120.1    | 11/29/2016 05:00:00 PM | OD      |
| Total Suspended Solids   | 147.5  | mg/L       | SM2540D      | 12/01/2016 10:30:00 AM | EG      |
| Turbidity                | 11.3   | NTU        | EPA 180.1    | 11/29/2016 05:15:00 PM | NS      |
| <i>Metals</i>            |        |            |              |                        |         |
| Hardness                 | 14.4   | mg/L       | EPA 200.7    | 11/30/2016 04:22:45 PM | TU      |
| <i>Microbiology</i>      |        |            |              |                        |         |
| E-Coli                   | 800    | col./100ml | SM9222G      | 11/29/2016 05:45:00 PM | EG      |
| Enterococcus             | 1,700  | cfu/100ml  | SM 9230C     | 11/29/2016 06:30:00 PM | EG      |

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New Haven, CT 06510

Report Date: 05/23/2017

ACT Number: 2016110245 - 6      Sample Date: 11/29/2016      Date Received: 11/29/2016  
Sample Type: Grab      Sample Time:      Project number  
Collected by: O.Diedrich      Sample Matrix: Stormwater  
Location/ID: 883  
Description:

| Laboratory Test                             | Result | Units | Method    | Analysis Date          | Analyst |
|---|--------|-------|-----------|------------------------|---------|
| <i>Organics</i>                             |        |       |           |                        |         |
| Oil and Grease                              | 4.6    | mg/L  | EPA 1664  | 12/02/2016 04:00:00 PM | RL      |
| Oil and Grease,Hydrocarbon Fraction (1664A) | <1.0   | mg/L  | EPA 1664A | 12/01/2016 04:00:00 PM | RL      |
| <i>PPCP</i>                                 |        |       |           |                        |         |
| 1,7-Dimethylxanthine                        | 890    | ng/L  | 1694      | 01/05/2017 06:07:00 AM | ALS     |
| Acetaminophen                               | 60     | ng/L  | 1694      | 12/17/2016 08:52:00 AM | ALS     |
| Atenolol                                    | <53    | ng/L  | 1694      | 01/05/2017 10:11:00 AM | ALS     |
| Azithromycin                                | <110   | ng/L  | 1694      | 01/24/2017 10:01:00 AM | ALS     |
| Caffeine                                    | 1200   | ng/L  | 1694      | 12/17/2016 08:52:00 AM | ALS     |
| Carbamazepine                               | <11    | ng/L  | 1694      | 12/17/2016 08:52:00 AM | ALS     |
| Continine                                   | 240    | ng/L  | 1694      | 01/05/2017 06:07:00 AM | ALS     |
| Primidone                                   | <53    | ng/L  | 1694      | 01/05/2017 06:07:00 AM | ALS     |
| Urobilin                                    | <110   | ng/L  | 1694      | 01/25/2017 08:35:00 AM | ALS     |

ACT Number: 2016110245 - 7      Sample Date: 11/29/2016      Date Received: 11/29/2016  
Sample Type: Grab      Sample Time:      Project number  
Collected by: O.Diedrich      Sample Matrix: Stormwater  
Location/ID: 831  
Description:

| Laboratory Test | Result | Units | Method | Analysis Date | Analyst |
|-----------------|--------|-------|--------|---------------|---------|
|-----------------|--------|-------|--------|---------------|---------|



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New Haven, CT 06510

Report Date: 05/23/2017

ACT Number: 2016110245 - 7      Sample Date: 11/29/2016      Date Received: 11/29/2016  
Sample Type: Grab      Sample Time:      Project number  
Collected by: O.Diedrich      Sample Matrix: Stormwater  
Location/ID: 831  
Description:

| Laboratory Test          | Result | Units      | Method       | Analysis Date          | Analyst |
|--------------------------|--------|------------|--------------|------------------------|---------|
| <i>Inorganic</i>         |        |            |              |                        |         |
| Ammonia Nitrogen         | 0.55   | mg/L       | EPA 350.1    | 12/06/2016 10:30:00 AM | NS      |
| Chemical Oxygen Demand   | 13.6   | mg/L       | EPA 410.4    | 12/15/2016 10:30:00 AM | NS      |
| MBAS (Surfactants)       | <0.02  | mg/L       | SM5540 C     | 11/30/2016 03:00:00 PM | NS      |
| Nitrite/Nitrate (As N)   | <0.20  | mg/L       | EPA 300      | 11/30/2016 03:00:00 PM | RL      |
| Nitrogen, Total Kjeldahl | 1.20   | mg/L       | SM 4500 Norg | 12/05/2016 10:30:00 AM | NS      |
| pH                       | 6.72   | S.U.       | SM 4500-H+B  | 12/02/2016 03:00:00 PM | NS      |
| Phosphorus, Total        | 0.19   | mg/L       | SM 4500 -PE  | 12/07/2016 10:30:00 AM | NS      |
| Rainfall pH              | 6.45   | S.U.       | SM 4500-H+B  | 11/29/2016 01:10:00 PM | OD      |
| Specific Conductance     | 19.3   | umho/cm    | EPA 120.1    | 11/29/2016 05:00:00 PM | OD      |
| Total Suspended Solids   | 76.0   | mg/L       | SM2540D      | 12/01/2016 10:30:00 AM | EG      |
| Turbidity                | 16.3   | NTU        | EPA 180.1    | 11/29/2016 05:15:00 PM | NS      |
| <i>Metals</i>            |        |            |              |                        |         |
| Hardness                 | 4.9    | mg/L       | EPA 200.7    | 11/30/2016 04:22:45 PM | TU      |
| <i>Microbiology</i>      |        |            |              |                        |         |
| E-Coli                   | 2800   | col./100ml | SM9222G      | 11/29/2016 05:45:00 PM | EG      |
| Enterococcus             | 9,500  | cfu/100ml  | SM 9230C     | 11/29/2016 06:30:00 PM | EG      |

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New Haven, CT 06510

Report Date: 05/23/2017


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ACT Number: 2016110245 - 7      Sample Date: 11/29/2016      Date Received: 11/29/2016  
Sample Type: Grab      Sample Time:      Project number  
Collected by: O.Diedrich      Sample Matrix: Stormwater  
Location/ID: 831  
Description:

| Laboratory Test                             | Result | Units | Method    | Analysis Date          | Analyst |
|---|--------|-------|-----------|------------------------|---------|
| <i>Organics</i>                             |        |       |           |                        |         |
| Oil and Grease                              | 3.0    | mg/L  | EPA 1664  | 12/02/2016 04:00:00 PM | RL      |
| Oil and Grease,Hydrocarbon Fraction (1664A) | 1.1    | mg/L  | EPA 1664A | 12/01/2016 04:00:00 PM | RL      |
| <i>PPCP</i>                                 |        |       |           |                        |         |
| 1,7-Dimethyloxanthine                       | 66     | ng/L  | 1694      | 01/05/2017 06:07:00 AM | ALS     |
| Acetaminophen                               | <56    | ng/L  | 1694      | 12/17/2016 08:52:00 AM | ALS     |
| Atenolol                                    | <56    | ng/L  | 1694      | 01/05/2017 10:11:00 AM | ALS     |
| Azithromycin                                | <120   | ng/L  | 1694      | 01/24/2017 10:01:00 AM | ALS     |
| Caffeine                                    | 770    | ng/L  | 1694      | 12/17/2016 08:52:00 AM | ALS     |
| Carbamazepine                               | <11    | ng/L  | 1694      | 12/17/2016 08:52:00 AM | ALS     |
| Continine                                   | 200    | ng/L  | 1694      | 01/05/2017 06:07:00 AM | ALS     |
| Primidone                                   | 320    | ng/L  | 1694      | 01/05/2017 06:07:00 AM | ALS     |
| Urobilin                                    | <120   | ng/L  | 1694      | 01/25/2017 08:35:00 AM | ALS     |

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For Analytical Consulting Technology, Inc.  2016110245  
Laboratory Director



**General Permit for the Discharge of Stormwater from Small Municipal  
Separate Storm Sewer Systems**

**Stormwater Monitoring Report Form**

Please send completed form to: **STORMWATER GROUP**  
**BUREAU OF MATERIALS MANAGEMENT & COMPLIANCE ASSURANCE**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION**  
**79 ELM STREET**  
**HARTFORD, CT 06106-5127**

**PERMITTEE INFORMATION**

|   |
|---|
| Town: <u>New Haven</u>  |
| Mailing Address: <u>200 Orange Street, Room 503, New Haven. Ct. 06510</u> |
| Contact Person: <u>Ian Juden PE</u> Title: <u>Project Manager</u>         |
| Phone: <u>203 946-8094</u> Permit Registration #GSM: <u>000030</u>        |

**SAMPLING INFORMATION**

|  |  |
|--|--|
| Discharge Location (Lat/Long or other description): <u>No. 5674 - 99 Laura Street New Haven</u>  |  |
| Please check the appropriate area description: <input type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Residential |  |
| Receiving Water (name, basin): <u>5305 West River</u>  |  |
| Time of Start of Discharge: <u>11/29/16 14:45</u>  |  |
| Date/Time Collected: <u>11/29/16 14:45</u>   | Water Temperature: <u>12.7</u>           |
| Person Collecting Sample: <u>O. Diedrich</u>   |  |
| Storm Magnitude (inches): <u>1.21"</u>   | Storm Duration (hours): <u>&gt;12hrs</u> |
| Date of Previous Storm Event: <u>11/20/16</u>  |  |

**MONITORING RESULTS**

| Parameter                        | Method      | Results (units) | Laboratory |
|----------------------------------|-------------|-----------------|------------|
| Sample pH                        | SM 4500 H+B | 6.43 s.u        | ACT        |
| Rain pH                          | SM 4500 H+B | 6.65 s.u        | ACT        |
| Hardness                         | EPA 200.7   | 6.5 mg/L        | ACT        |
| Conductivity                     | EPA 120.1   | 20.7 umho/cm    | ACT        |
| Oil & Grease                     | EPA 1664    | 5.2 mg/L        | ACT        |
| COD                              | EPA 410.4   | 18.6 mg/L       | ACT        |
| Turbidity                        | EPA 180.1   | 13.4 NTU        | ACT        |
| TSS                              | SM2540D     | 56.5 mg/L       | ACT        |
| TP                               | SM 4500     | 0.10 mg/L       | ACT        |
| Ammonia                          | EPA 350.1   | 0.15 mg/L       | ACT        |
| TKN                              | SM4500 Norg | 0.64 mg/L       | ACT        |
| NO <sub>3</sub> +NO <sub>2</sub> | EPA 300     | <0.20 mg/L      | ACT        |
| E. coli                          | SM9222G     | 1400 col./100ml | ACT        |

**STATEMENT OF ACKNOWLEDGMENT**

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Authorized Official: Giovanni Zinn, PE City Engineer  
(Print Name)

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

New Haven Special MH4

Location: 99 Laura St.  
Latt 41° 22' 46"  
Long 72° 53' 51"

Order Number 2016110245-1

Catch Basin: 5674 Outlet No. 156 Quarter: 1<sup>st</sup> 2<sup>nd</sup> 3<sup>rd</sup> 4<sup>th</sup> Year: 2016

Date/Time Collected: 11/29/2016 1310 Date/Time Examined: 10/29/2016 1700

Rainfall Amount: Qualifying Storm? Yes No

Runoff Source: Rainfall Snowmelt Contact Person: Ian Juden

Examiner (print): Oliver Diedrich

Examiner (sign): OD

| PARAMETER   | OBSERVATION   | CHARACTERISTICS   |
|---|---|---|
| Color   | Does the storm water appear to be colored? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>                          | Describe:   |
| Odor  | Does the sample have an odor? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>                                       | Describe:   |
| Clarity   | Is the storm water clear or transparent? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>                            | Which best describes the clarity?<br><b>CLEAR</b> MILKY CLOUDY                      |
| Floating Solids   | Is something floating on the surface of the sample? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>                 | Describe:<br>Debris/leaf matter   |
| Settled Solids  | Is something settled on the bottom of the sample? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>                   | Describe:<br>Debris   |
| Suspended Solids  | Is something suspended in the sample's water column? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>                | Describe:   |
| Foam  | Is there foam or material forming on the top of the sample surface? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> | Describe:   |
| Oil Sheen   | Can you see a rainbow effect or sheen on the surface? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>               | Which best describes the sheen?<br>Rainbow Sheen Floating oil globules<br>Describe: |
| <span style="border: 1px solid black; padding: 2px;">Ph</span> 6.65 | 12.7 C <span style="border: 1px solid black; padding: 2px;">Temp</span><br>Turbidity 12 ntu   | 20.7 us <span style="border: 1px solid black; padding: 2px;">Conductivity</span>    |
|   |   |   |
|   |   |   |
|   |   |   |
|   |   |   |



**General Permit for the Discharge of Stormwater from Small Municipal  
Separate Storm Sewer Systems**

**Stormwater Monitoring Report Form**

Please send completed form to: **STORMWATER GROUP  
BUREAU OF MATERIALS MANAGEMENT & COMPLIANCE ASSURANCE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
79 ELM STREET  
HARTFORD, CT 06106-5127**

**PERMITTEE INFORMATION**

|   |   |
|---|---|
| Town: <u>New Haven</u>  |   |
| Mailing Address: <u>200 Orange Street, Room 503, New Haven, Ct. 06510</u> |   |
| Contact Person: <u>Ian Juden PE</u>                                       | Title: <u>Project Manager</u>           |
| Phone: <u>203 946-8094</u>  | Permit Registration #GSM: <u>000030</u> |

**SAMPLING INFORMATION**

|  |  |
|--|--|
| Discharge Location (Lat/Long or other description): <u>No. 5679 - 27 Fulton Street New Haven CT</u>  |  |
| Please check the appropriate area description: <input checked="" type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input type="checkbox"/> Residential |  |
| Receiving Water (name, basin): <u>5200 Quinnipiac</u>  |  |
| Time of Start of Discharge: <u>1500</u>  |  |
| Date/Time Collected: <u>11/29/16 1400</u>  | Water Temperature: <u>12.7°</u>            |
| Person Collecting Sample: <u>O.Diedrick</u>  |  |
| Storm Magnitude (inches): <u>1.25"</u>   | Storm Duration (hours): <u>Approx 8hrs</u> |
| Date of Previous Storm Event: <u>11/20/16</u>  |  |

**MONITORING RESULTS**

| Parameter                        | Method       | Results (units) | Laboratory |
|----------------------------------|--------------|-----------------|------------|
| Sample pH                        | SM4500 H+B   | 6.45 s.u        | ACT        |
| Rain pH                          | SM4500 H+B   | 6.65 s.u        | ACT        |
| Hardness                         | EPA 200.7    | 4.1 mg/L        | ACT        |
| Conductivity                     | EPA 120.1    | 20.7 umho/cm    | ACT        |
| Oil & Grease                     | EPA 1664A    | 9.4 mg/L        | ACT        |
| COD                              | EPA 410.4    | 15.3 mg/L       | ACT        |
| Turbidity                        | EPA 180.1    | 7.43 NTU        | ACT        |
| TSS                              | SM2540D      | 31.0 mg/L       | ACT        |
| TP                               | SM 4500 PE   | 0.06 mg/L       | ACT        |
| Ammonia                          | EPA 350.1    | <0.10 mg/L      | ACT        |
| TKN                              | SM 4500 Norg | 0.46 mg/L       | ACT        |
| NO <sub>3</sub> +NO <sub>2</sub> | EPA 300      | <0.20 mg/L      | ACT        |
| E. coli                          | SM9222G      | 580 col./100ml  | ACT        |

**STATEMENT OF ACKNOWLEDGMENT**

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Authorized Official: Giovanni Zinn, PE City Engineer  
(Print Name)

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

New Haven Special MH4

Location: 27 Fulton St.  
Latt 41°17'40"  
Long 72° 53'51"

Order Number 2016110245-2

Catch Basin: 5679 Outlet No. 156

Quarter:  1<sup>st</sup> 2<sup>nd</sup> 3<sup>rd</sup> 4<sup>th</sup> Year: 2016

Date/Time Collected: 11/29/2016 1400

Date/Time Examined: 11/29/2016 1700

Rainfall Amount:

Qualifying Storm?  Yes No

Runoff Source:  Rainfall  Snowmelt

Contact Person: Ian Juden

Examiner (print): Oliver Diedrich

Examiner (sign): OD

| PARAMETER                                   | OBSERVATION   | CHARACTERISTICS   |
|---|---|---|
| Color                                       | Does the storm water appear to be colored? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>                          | Describe:   |
| Odor  | Does the sample have an odor? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>                                       | Describe:   |
| Clarity                                     | Is the storm water clear or transparent? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>                            | Which best describes the clarity?<br><b>CLEAR</b> MILKY CLOUDY                      |
| Floating Solids                             | Is something floating on the surface of the sample? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>                 | Describe:<br>Debris/leaf matter   |
| Settled Solids                              | Is something settled on the bottom of the sample? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>                   | Describe:<br>Debris   |
| Suspended Solids                            | Is something suspended in the sample's water column? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>                | Describe:   |
| Foam  | Is there foam or material forming on the top of the sample surface? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> | Describe:   |
| Oil Sheen                                   | Can you see a rainbow effect or sheen on the surface? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>               | Which best describes the sheen?<br>Rainbow Sheen Floating oil globules<br>Describe: |
| <input checked="" type="checkbox"/> Ph 6.65 | 12.7 C <input type="checkbox"/> Temp  | 20.7 us <input type="checkbox"/> Conductivity                                       |
|   | Turbidity 25 NTU  |   |
|   |   |   |
|   |   |   |
|   |   |   |
|   |   |   |



**General Permit for the Discharge of Stormwater from Small Municipal  
Separate Storm Sewer Systems**  
**Stormwater Monitoring Report Form**

Please send completed form to: **STORMWATER GROUP**  
**BUREAU OF MATERIALS MANAGEMENT & COMPLIANCE ASSURANCE**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION**  
**79 ELM STREET**  
**HARTFORD, CT 06106-5127**

**PERMITTEE INFORMATION**

|   |   |
|---|---|
| Town: <u>New Haven</u>  |   |
| Mailing Address: <u>200 Orange Street, Room 503, New Haven. Ct. 06510</u> |   |
| Contact Person: <u>Ian Juden PE</u>                                       | Title: <u>Project Manager</u>           |
| Phone: <u>203 946-8094</u>  | Permit Registration #GSM: <u>000030</u> |

**SAMPLING INFORMATION**

|  |  |
|--|--|
| Discharge Location (Lat/Long or other description): <u>No. 5142 - Chamberlain St./Chamberlain Place</u>  |  |
| Please check the appropriate area description: <input checked="" type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input type="checkbox"/> Residential |  |
| Receiving Water (name, basin): <u>5200 Quinnipiac</u>  |  |
| Time of Start of Discharge: <u>1500</u>  |  |
| Date/Time Collected: <u>11/29/16 1500</u>  | Water Temperature: <u>13.1°</u>            |
| Person Collecting Sample: <u>O.Diedrick</u>  |  |
| Storm Magnitude (Inches): <u>1.25"</u>   | Storm Duration (hours): <u>Approx 8hrs</u> |
| Date of Previous Storm Event: <u>11/20/16</u>  |  |

**MONITORING RESULTS**

| Parameter                        | Method       | Results (units) | Laboratory |
|----------------------------------|--------------|-----------------|------------|
| Sample pH                        | SM4500 H+B   | 6.3 s.u         | ACT        |
| Rain pH                          | SM4500 H+B   | 6.3 s.u         | ACT        |
| Hardness                         | EPA 200.7    | 5.1 mg/L        | ACT        |
| Conductivity                     | EPA 120.1    | 23.1 umho/cm    | ACT        |
| Oil & Grease                     | EPA 1664A    | 3.9 mg/L        | ACT        |
| COD                              | EPA 410.4    | 33.9 mg/L       | ACT        |
| Turbidity                        | EPA 180.1    | 6.35 NTU        | ACT        |
| TSS                              | SM2540D      | 31.0 mg/L       | ACT        |
| TP                               | SM 4500 PE   | 0.28 mg/L       | ACT        |
| Ammonia                          | EPA 350.1    | 0.12 mg/L       | ACT        |
| TKN                              | SM 4500 Norg | 0.82 mg/L       | ACT        |
| NO <sub>3</sub> +NO <sub>2</sub> | EPA 300      | <0.20 mg/L      | ACT        |
| E. coli                          | SM9222G      | 1100 col./100ml | ACT        |

**STATEMENT OF ACKNOWLEDGMENT**

|   |                      |
|---|----------------------|
| I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate and complete. |                      |
| Authorized Official: <u>Giovanni Zinn, PE</u>   | <u>City Engineer</u> |
| (Print Name)  |                      |
| Signature: _____  | Date: _____          |



New Haven Special MH4

Location: Chamberlain st/Chamberlain PL  
Latt 41° 17'37"  
Long 72° 53'43"

Order Number 2016110245-3

Catch Basin: 5142 Outlet No. 156

Quarter:  1<sup>st</sup>  2<sup>nd</sup>  3<sup>rd</sup>  4<sup>th</sup> Year: 2016

Date/Time Collected: 11/29/2016 1445

Date/Time Examined: 10/29/2016 1700

Rainfall Amount: 1.25"

Qualifying Storm?  Yes  No

Runoff Source:  Rainfall  Snowmelt

Contact Person: Ian Juden

Examiner (print): Oliver Diedrich

Examiner (sign): OD

| PARAMETER                                  | OBSERVATION   | CHARACTERISTICS   |
|--|---|---|
| Color                                      | Does the storm water appear to be colored? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>                          | Describe:   |
| Odor                                       | Does the sample have an odor? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>                                       | Describe:   |
| Clarity                                    | Is the storm water clear or transparent? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>                            | Which best describes the clarity?<br><b>CLEAR</b> MILKY CLOUDY                      |
| Floating Solids                            | Is something floating on the surface of the sample? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>                 | Describe:<br>Debris/leaf matter   |
| Settled Solids                             | Is something settled on the bottom of the sample? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>                   | Describe:<br>Debris   |
| Suspended Solids                           | Is something suspended in the sample's water column? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>                | Describe:   |
| Foam                                       | Is there foam or material forming on the top of the sample surface? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> | Describe:   |
| Oil Sheen                                  | Can you see a rainbow effect or sheen on the surface? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>               | Which best describes the sheen?<br>Rainbow Sheen Floating oil globules<br>Describe: |
| <input checked="" type="checkbox"/> Ph 6.3 | 13.1 C <input type="checkbox"/> Temp  | 23.1 us <input type="checkbox"/> Conductivity                                       |
|  | Turbidity 48.3 ntu  |   |
|  |   |   |
|  |   |   |
|  |   |   |



**General Permit for the Discharge of Stormwater from Small Municipal  
Separate Storm Sewer Systems**  
**Stormwater Monitoring Report Form**

Please send completed form to: **STORMWATER GROUP  
BUREAU OF MATERIALS MANAGEMENT & COMPLIANCE ASSURANCE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
79 ELM STREET  
HARTFORD, CT 06106-5127**

**PERMITTEE INFORMATION**

|   |  |
|---|--|
| Town: <u>New Haven</u>  |  |
| Mailing Address: <u>200 Orange Street, Room 503, New Haven. Ct. 06510</u> |  |
| Contact Person: <u>Ian Juden PE</u>                                       | Title: <u>Project Manager</u>            |
| Phone: <u>203 946-8094</u>  | Permit Registration # <u>GSM: 000030</u> |

**SAMPLING INFORMATION**

|  |   |
|--|---|
| Discharge Location (Lat/Long or other description): <u>No. 70 2138 Chapel Street</u>   |   |
| Please check the appropriate area description: <input type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Residential |   |
| Receiving Water (name, basin): <u>538 Outlet No. 70</u>  |   |
| Time of Start of Discharge: <u>1500</u>  |   |
| Date/Time Collected: <u>11/29/16 1500</u>  | Water Temperature: <u>12.7°</u>             |
| Person Collecting Sample: <u>O.Diedrich</u>  |   |
| Storm Magnitude (inches): <u>1.25"</u>   | Storm Duration (hours): <u>Approx 8 hrs</u> |
| Date of Previous Storm Event: <u>11/20/16</u>  |   |

**MONITORING RESULTS**

| Parameter                        | Method       | Results (units) | Laboratory |
|----------------------------------|--------------|-----------------|------------|
| Sample pH                        | SM 4500 H+B  | 6.3 s.u         | ACT        |
| Rain pH                          | SM 4500 H+B  | 6.3 s.u         | ACT        |
| Hardness                         | EPA 200.7    | 9.4 mg/L        | ACT        |
| Conductivity                     | EPA 120.1    | 28.7 umho/cm    | ACT        |
| Oil & Grease                     | EPA 1664     | 4.5 mg/L        | ACT        |
| COD                              | EPA 410.4    | 39.6 mg/L       | ACT        |
| Turbidity                        | EPA 180.1    | 5.95 NTU        | ACT        |
| TSS                              | SM2540D      | 77.5 mg/L       | ACT        |
| TP                               | SM 4500 PE   | 0.21 mg/L       | ACT        |
| Ammonia                          | EPA 350.1    | 0.23 mg/L       | ACT        |
| TKN                              | SM 4500 Norg | 1.58 mg/L       | ACT        |
| NO <sub>3</sub> +NO <sub>2</sub> | EPA 300      | <0.20 mg/L      | ACT        |
| E. coli                          | SM9222g      | 90 col./100ml   | ACT        |

**STATEMENT OF ACKNOWLEDGMENT**

|   |             |
|---|-------------|
| I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate and complete. |             |
| Authorized Official: <u>Giovanni Zinn, PE</u> City Engineer   |             |
| (Print Name)  |             |
| Signature: _____  | Date: _____ |

New Haven Special MH4

Location:

2138 Chapel St.  
 Latt 41° 19' 0"  
 Long 72° 58' 6"

Order Number

2016110245-4

Catch Basin: 538 Outlet No.70

Quarter:  1<sup>st</sup> 2<sup>nd</sup> 3<sup>rd</sup> 4<sup>th</sup> Year: 2016

Date/Time Collected: 11/29/2016 1415

Date/Time Examined: 10/29/2016 1700

Rainfall Amount: 1.25"

Qualifying Storm?  Yes No

Runoff Source:  Rainfall  Snowmelt

Contact Person: Ian Juden

Examiner (print): Oliver Diedrich

Examiner (sign): OD

*ORC*

| PARAMETER                                  | OBSERVATION   | CHARACTERISTICS   |
|--|---|---|
| Color                                      | Does the storm water appear to be colored? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>                          | Describe:   |
| Odor                                       | Does the sample have an odor? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>                                       | Describe:   |
| Clarity                                    | Is the storm water clear or transparent? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>                            | Which best describes the clarity?<br><u>CLEAR</u> MILKY CLOUDY                      |
| Floating Solids                            | Is something floating on the surface of the sample? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>                 | Describe:<br>Debris/leaf matter   |
| Settled Solids                             | Is something settled on the bottom of the sample? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>                   | Describe:<br>Debris   |
| Suspended Solids                           | Is something suspended in the sample's water column? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>                | Describe:   |
| Foam                                       | Is there foam or material forming on the top of the sample surface? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> | Describe:   |
| Oil Sheen                                  | Can you see a rainbow effect or sheen on the surface? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>               | Which best describes the sheen?<br>Rainbow Sheen Floating oil globules<br>Describe: |
| <input checked="" type="checkbox"/> Ph 6.3 | 12.7 C <input type="checkbox"/> Temp  | 28.7 <sub>us</sub> <input type="checkbox"/> Conductivity                            |
|  | Turbidity 9.5 ntu   |   |
|  |   |   |
|  |   |   |
|  |   |   |



## General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems

### Stormwater Monitoring Report Form

Please send completed form to: **STORMWATER GROUP**  
**BUREAU OF MATERIALS MANAGEMENT & COMPLIANCE ASSURANCE**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION**  
**79 ELM STREET**  
**HARTFORD, CT 06106-5127**

#### PERMITTEE INFORMATION

|   |   |
|---|---|
| Town: <u>New Haven</u>  |   |
| Mailing Address: <u>200 Orange Street, Room 503, New Haven. Ct. 06510</u> |   |
| Contact Person: <u>Ian Juden PE</u>                                       | Title: <u>Project Manager</u>           |
| Phone: <u>203 946-8094</u>  | Permit Registration #GSM: <u>000030</u> |

#### SAMPLING INFORMATION

|  |   |
|--|---|
| Discharge Location (Lat/Long or other description): <u>No. 70 288 Oliver St. New Haven</u>   |   |
| Please check the appropriate area description: <input type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Residential |   |
| Receiving Water (name, basin): <u>545 Outlet</u>   |   |
| Time of Start of Discharge: <u>1500</u>  |   |
| Date/Time Collected: <u>11/29/16 1500</u>  | Water Temperature: <u>11.7°</u>             |
| Person Collecting Sample: <u>O.Diedrich</u>  |   |
| Storm Magnitude (inches): <u>1.25"</u>   | Storm Duration (hours): <u>Approx 8 hrs</u> |
| Date of Previous Storm Event: <u>11/20/16</u>  |   |

#### MONITORING RESULTS

| Parameter                        | Method       | Results (units) | Laboratory |
|----------------------------------|--------------|-----------------|------------|
| Sample pH                        | SM 4500 H+B  | 6.7 s.u         | ACT        |
| Rain pH                          | SM 4500 H+B  | 6.7 s.u         | ACT        |
| Hardness                         | EPA 200.7    | 7.9 mg/L        | ACT        |
| Conductivity                     | EPA 120.1    | 25.7 umho/cm    | ACT        |
| Oil & Grease                     | EPA 1664     | 3.2 mg/L        | ACT        |
| COD                              | EPA 410.4    | 39.6 mg/L       | ACT        |
| Turbidity                        | EPA 180.1    | 7.16 NTU        | ACT        |
| TSS                              | SM2540D      | 104.0 mg/L      | ACT        |
| TP                               | SM 4500 PE   | 0.31 mg/L       | ACT        |
| Ammonia                          | EPA 350.1    | 0.10 mg/L       | ACT        |
| TKN                              | SM 4500 Norg | 1.62 mg/L       | ACT        |
| NO <sub>3</sub> +NO <sub>2</sub> | EPA 300      | <0.20 mg/L      | ACT        |
| E. coli                          | SM9222g      | 120 col./100ml  | ACT        |

#### STATEMENT OF ACKNOWLEDGMENT

|   |             |
|---|-------------|
| I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate and complete. |             |
| Authorized Official: <u>Giovanni Zinn, PE City Engineer</u>   |             |
| (Print Name)  |             |
| Signature: _____  | Date: _____ |

New Haven Special MH4

Location: 288 Oliver St.  
Latt 41° 18' 57"  
Long 72° 58' 9"

Order Number 2016110245-5

Catch Basin: 545 Outlet No.70

Quarter:  1<sup>st</sup> 2<sup>nd</sup> 3<sup>rd</sup> 4<sup>th</sup> Year: 2016

Date/Time Collected: 11/29/2016 1430

Date/Time Examined: 10/29/2016 1700

Rainfall Amount: 1.25"

Qualifying Storm?  Yes No

Runoff Source:  Rainfall  Snowmelt

Contact Person: Ian Juden

Examiner (print): Oliver Diedrich

Examiner (sign): OD  
RBC

| PARAMETER                                  | OBSERVATION   | CHARACTERISTICS   |
|--|---|---|
| Color                                      | Does the storm water appear to be colored? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>                          | Describe:   |
| Odor                                       | Does the sample have an odor? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>                                       | Describe:   |
| Clarity                                    | Is the storm water clear or transparent? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>                            | Which best describes the clarity?<br><b>CLEAR ISH MILKY CLOUDY</b>      |
| Floating Solids                            | Is something floating on the surface of the sample? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>                 | Describe:<br>Debris/leaf matter   |
| Settled Solids                             | Is something settled on the bottom of the sample? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>                   | Describe:<br>Debris   |
| Suspended Solids                           | Is something suspended in the sample's water column? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>                | Describe:   |
| Foam                                       | Is there foam or material forming on the top of the sample surface? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> | Describe:   |
| Oil Sheen                                  | Can you see a rainbow effect or sheen on the surface? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>               | Which bests describes the sheen?<br>Rainbow Sheen Floating oil globules |
| <input checked="" type="checkbox"/> Ph 6.7 | 11.7 C <input type="checkbox"/> Temp  | 25.7 <sub>us</sub> <input type="checkbox"/> Conductivity                |
|  | Turbidity 60.2 ntu  |   |
|  |   |   |
|  |   |   |
|  |   |   |
|  |   |   |



**General Permit for the Discharge of Stormwater from Small Municipal  
Separate Storm Sewer Systems**  
**Stormwater Monitoring Report Form**

Please send completed form to: **STORMWATER GROUP  
BUREAU OF MATERIALS MANAGEMENT & COMPLIANCE ASSURANCE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
79 ELM STREET  
HARTFORD, CT 06106-5127**

**PERMITTEE INFORMATION**

|   |   |
|---|---|
| Town: <u>New Haven</u>  |   |
| Mailing Address: <u>200 Orange Street, Room 503, New Haven. Ct. 06510</u> |   |
| Contact Person: <u>Ian Juden PE</u>                                       | Title: <u>Project Manager</u>           |
| Phone: <u>203 946-8094</u>  | Permit Registration #GSM: <u>000030</u> |

**SAMPLING INFORMATION**

|  |  |
|--|--|
| Discharge Location (Lat/Long or other description): <u>No. 70 Chapel Street (Edgewood Park) New Haven</u>  |  |
| Please check the appropriate area description: <input type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Residential |  |
| Receiving Water (name, basin): <u>883 Outlet</u>   |  |
| Time of Start of Discharge: <u>14:00</u>   |  |
| Date/Time Collected: <u>11/29/16 14:00</u>   | Water Temperature: <u>11.9°</u>            |
| Person Collecting Sample: <u>O.Diedrich</u>  |  |
| Storm Magnitude (inches): <u>1.25"</u>   | Storm Duration (hours): <u>Approx 8hrs</u> |
| Date of Previous Storm Event: <u>11/20/16</u>  |  |

**MONITORING RESULTS**

| Parameter                        | Method       | Results (units) | Laboratory |
|----------------------------------|--------------|-----------------|------------|
| Sample pH                        | SM 4500 H+B  | 6.8 s.u         | ACT        |
| Rain pH                          | SM 4500 H+B  | 6.8 s.u         | ACT        |
| Hardness                         | EPA 200.7    | 14.4 mg/L       | ACT        |
| Conductivity                     | EPA 120.1    | 19.9 umho/cm    | ACT        |
| Oil & Grease                     | EPA 1664     | 4.6 mg/L        | ACT        |
| COD                              | EPA 410.4    | 8.5 mg/L        | ACT        |
| Turbidity                        | EPA 180.1    | 11.3 mg/L       | ACT        |
| TSS                              | SM25440D     | 147.5 mg/L      | ACT        |
| TP                               | SM4500 PE    | 0.29 mg/L       | ACT        |
| Ammonia                          | EPA 350.1    | <0.10 mg/L      | ACT        |
| TKN                              | SM 4500 Norg | 1.19 mg/L       | ACT        |
| NO <sub>3</sub> +NO <sub>2</sub> | EPA 300      | <0.20 mg/L      | ACT        |
| E. coli                          | SM9222G      | 800 col./100ml  | ACT        |

**STATEMENT OF ACKNOWLEDGMENT**

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Authorized Official: Giovanni Zinn, PE City Engineer  
(Print Name)

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

New Haven Special MH4

Location: Chapel St.(Edgewood Park)  
Lat 41° 41' 51"  
Long 72° 57' 27"

Order Number 2016110245-6

Catch Basin: 883 Outlet No. 70

Quarter:  1<sup>st</sup>  2<sup>nd</sup>  3<sup>rd</sup>  4<sup>th</sup> Year: 2016

Date/Time Collected: 11/29/2016 1500

Date/Time Examined: 10/29/2016 1700

Rainfall Amount: 1.25

Qualifying Storm?  Yes  No

Runoff Source:  Rainfall  Snowmelt

Contact Person: Ian Juden

Examiner (print): Oliver Diedrich

Examiner (sign): OD

| PARAMETER                                  | OBSERVATION   | CHARACTERISTICS   |
|--|---|---|
| Color                                      | Does the storm water appear to be colored? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO                          | Describe: Dark Brown  |
| Odor                                       | Does the sample have an odor? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO                                       | Describe:   |
| Clarity                                    | Is the storm water clear or transparent? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO                            | Which best describes the clarity?<br>CLEAR MILKY <u>CLOUDY</u>                      |
| Floating Solids                            | Is something floating on the surface of the sample? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO                 | Describe:<br>Pine needles/ leaf matter  |
| Settled Solids                             | Is something settled on the bottom of the sample? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO                   | Describe:<br>Debris   |
| Suspended Solids                           | Is something suspended in the sample's water column? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO                | Describe:   |
| Foam                                       | Is there foam or material forming on the top of the sample surface? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO | Describe:   |
| Oil Sheen                                  | Can you see a rainbow effect or sheen on the surface? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO               | Which best describes the sheen?<br>Rainbow Sheen Floating oil globules<br>Describe: |
| <input checked="" type="checkbox"/> Ph 6.8 | 11.9 C <input type="checkbox"/> Temp  | 19.9 us <input type="checkbox"/> Conductivity                                       |
|  | Turbidity >999 ntu  |   |
|  |   |   |
|  |   |   |
|  |   |   |
|  |   |   |



# General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems

## Stormwater Monitoring Report Form

Please send completed form to: STORMWATER GROUP  
 BUREAU OF MATERIALS MANAGEMENT & COMPLIANCE ASSURANCE  
 DEPARTMENT OF ENVIRONMENTAL PROTECTION  
 79 ELM STREET  
 HARTFORD, CT 06106-5127

### PERMITTEE INFORMATION

|   |   |
|---|---|
| Town: <u>New Haven</u>  |   |
| Mailing Address: <u>200 Orange Street, Room 503, New Haven. Ct. 06510</u> |   |
| Contact Person: <u>Ian Juden PE</u>                                       | Title: <u>Project Manager</u>           |
| Phone: <u>203 946-8094</u>  | Permit Registration #GSM: <u>000030</u> |

### SAMPLING INFORMATION

|   |   |
|---|---|
| Discharge Location (Lat/Long or other description): <u>Hess Station Whalley New Haven, Ct 06510</u>   |   |
| Please check the appropriate area description: <input type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input type="checkbox"/> Residential |   |
| Receiving Water (name, basin): <u>Catch Basin 831</u>   |   |
| Time of Start of Discharge: <u>11/29/16 13:10</u>   |   |
| Date/Time Collected: <u>11/29/16 13:10</u>  | Water Temperature: <u>12.0°</u>             |
| Person Collecting Sample: <u>O. Diedrich</u>  |   |
| Storm Magnitude (inches): <u>1.25"</u>  | Storm Duration (hours): <u>Approx 8 hrs</u> |
| Date of Previous Storm Event: <u>11/20/16</u>   |   |

### MONITORING RESULTS

| Parameter                        | Method       | Results (units) | Laboratory |
|----------------------------------|--------------|-----------------|------------|
| Sample pH                        | SM4500 H+B   | 6.72 s.u        | ACT        |
| Rain pH                          | SM 4500 H+B  | 6.45 s.u        | ACT        |
| Hardness                         | EPA 200.7    | 4.9 mg/L        | ACT        |
| Conductivity                     | EPA 120.1    | 19.3 umho/cm    | ACT        |
| Oil & Grease                     | EPA 1664     | 3.0 mg/L        | ACT        |
| COD                              | EPA 410.4    | 13.6 mg/L       | ACT        |
| Turbidity                        | EPA 180.1    | 16.3 NTU        | ACT        |
| TSS                              | SM2540D      | 76.0 mg/L       | ACT        |
| TP                               | SM 4500 PE   | 0.19 mg/L       | ACT        |
| Ammonia                          | EPA 350.1    | 0.55 mg/L       | ACT        |
| TKN                              | SM 4500 Norg | 1.20 mg/L       | ACT        |
| NO <sub>3</sub> +NO <sub>2</sub> | EPA 300      | <0.20 mg/L      | ACT        |
| E. coli                          | SM9222G      | 2800 col./100ml | ACT        |

### STATEMENT OF ACKNOWLEDGMENT

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the MS4 General Permit. The information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Authorized Official: Giovanni Zinn, PE City Engineer  
 (Print Name)

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



New Haven Special MH4

Location: Hess Station Whalley Ave  
 Latt 41° 14' 45"  
 Long 72° 58' 6"

Order Number 2016110245-7

Catch Basin: 831 Outlet No. N/A  
 Date/Time Collected: 11/29/2016 1515  
 Rainfall Amount: 1.25"  
 Runoff Source: Rainfall Snowmelt

Quarter: I<sup>st</sup> 2<sup>nd</sup> 3<sup>rd</sup> 4<sup>th</sup> Year: 2016  
 Date/Time Examined: 10/29/2016 1700  
 Qualifying Storm? Yes No  
 Contact Person: Ian Juden

Examiner (print): Oliver Diedrich

Examiner (sign): OD

*OC*

| PARAMETER        | OBSERVATION   | CHARACTERISTICS  |
|------------------|---|--|
| Color            | Does the storm water appear to be colored? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>                          | Describe:  |
| Odor             | Does the sample have an odor? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>                                       | Describe:  |
| Clarity          | Is the storm water clear or transparent? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>                            | Which best describes the clarity?<br><u>CLEARISH</u> MILKY CLOUDY      |
| Floating Solids  | Is something floating on the surface of the sample? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>                 | Describe:  |
| Settled Solids   | Is something settled on the bottom of the sample? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>                   | Describe:<br>Debris  |
| Suspended Solids | Is something suspended in the sample's water column? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>                | Describe:  |
| Foam             | Is there foam or material forming on the top of the sample surface? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> | Describe:  |
| Oil Sheen        | Can you see a rainbow effect or sheen on the surface? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>               | Which best describes the sheen?<br>Rainbow Sheen Floating oil globules |
| <u>Ph</u> 6.45   | 12.0 C <u>Temp</u>  | 19.3 us <u>Conductivity</u>  |
|                  | Turbidity 98 ntu  |  |
|                  |   |  |
|                  |   |  |
|                  |   |  |

**Analytical Consulting Technology, Inc.**  
 168 Railroad Hill Street, Waterbury, CT 06708 (203)757-3960

WW SS DW/GW MAT

2016110245-47

Client Name: Near Haven  
 Client Contact: Don Tuden  
 Account Number: \_\_\_\_\_

Client Phone: \_\_\_\_\_  
 Client Address: \_\_\_\_\_  
 Purchase Order #: \_\_\_\_\_

| Sample Number | Location | Number | Container Preservative | Sample Matrix | Date of Sample | Sample Time | Composite or Grab | Analysis Required | Test Group |
|---------------|----------|--------|------------------------|---------------|----------------|-------------|-------------------|-------------------|------------|
|               |          |        |                        |               |                |             |                   |                   |            |
| 1             | 5674     | 7      |                        | MH            | 1/14/84        | 1310        | G                 | MH 4/1            |            |
| 2             | 5679     | 7      | H2SO4                  |               |                | 1400        |                   |                   |            |
| 3             | 5142     | 7      | HNO3                   |               |                | 1445        |                   |                   |            |
| 4             | 538      | 7      | HNO3                   |               |                | 1415        |                   |                   |            |
| 5             | 845      | 7      |                        |               |                | 1420        |                   |                   |            |
| 6             | 883      | 7      |                        |               |                | 1502        |                   |                   |            |
| 7             | 931      | 7      |                        |               |                | 11/14/15    |                   |                   |            |
|               |          |        |                        |               |                |             |                   | RAIN FALL PH      | 4.2654     |

Note: It is the client's responsibility to verify all information on this chain of custody.

Containers: Non Preserve 1000=10NP, 500=50NP, 250=25NP, 125=12NP, Nitric Acid 1000=10NA, 500=50NA, 250=25NA, 125=12NA  
 Sodium Hydroxide 500=50SH, 250=25SH, 125=12SH Sulfuric(Plastic) 1000=10SP, 500=50SP, 250=25SP  
 Sulfuric Glass 100SG, Baked Glass 100BG, Sterile Cup = S, Vials = 40ml = VOA, Phenols 1000=P

Sampler Signature: [Signature] Type: \_\_\_\_\_ Date: 1/30/1984 Relinquished By: [Signature] Accepted By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Log In Custodian: [Signature] H2SO4 pH < 2 ACT Courier  
 Cooler Temp: 17°C NAOH pH > 11 Fed-Ex  
 Date/Time: 1/20/84 HNO3 pH < 2 UPS



ALS Environmental  
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F : +1 360 636 1068  
[www.alsglobal.com](http://www.alsglobal.com)

February 01, 2017

**Analytical Report for Service Request No: K1614612**

Ms. Jean Noga  
Analytical Consulting Technology, Inc (ACT Labs)  
168 Railroad Hill St  
Waterbury, CT 06708

**RE: PPCP - Storm water samples**

Dear Ms.Noga,

Enclosed are the results of the sample(s) submitted to our laboratory December 02, 2016  
For your reference, these analyses have been assigned our service request number **K1614612**.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at [www.alsglobal.com](http://www.alsglobal.com). All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3356. You may also contact me via email at [Kurt.Clarkson@alsglobal.com](mailto:Kurt.Clarkson@alsglobal.com).

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kurt Clarkson  
Client Services  
Manager



ALS Environmental  
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[www.alsglobal.com](http://www.alsglobal.com)

## Table of Contents

- Acronyms
- Qualifiers
- State Certifications, Accreditations, And Licenses
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- Chain of Custody
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## Acronyms

|            |  |
|------------|--|
| ASTM       | American Society for Testing and Materials   |
| A2LA       | American Association for Laboratory Accreditation  |
| CARB       | California Air Resources Board   |
| CAS Number | Chemical Abstract Service registry Number  |
| CFC        | Chlorofluorocarbon   |
| CFU        | Colony-Forming Unit  |
| DEC        | Department of Environmental Conservation   |
| DEQ        | Department of Environmental Quality  |
| DHS        | Department of Health Services  |
| DOE        | Department of Ecology  |
| DOH        | Department of Health   |
| EPA        | U. S. Environmental Protection Agency  |
| ELAP       | Environmental Laboratory Accreditation Program   |
| GC         | Gas Chromatography   |
| GC/MS      | Gas Chromatography/Mass Spectrometry   |
| LOD        | Limit of Detection   |
| LOQ        | Limit of Quantitation  |
| LUFT       | Leaking Underground Fuel Tank  |
| M          | Modified   |
| MCL        | Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA. |
| MDL        | Method Detection Limit   |
| MPN        | Most Probable Number   |
| MRL        | Method Reporting Limit   |
| NA         | Not Applicable   |
| NC         | Not Calculated   |
| NCASI      | National Council of the Paper Industry for Air and Stream Improvement  |
| ND         | Not Detected   |
| NIOSH      | National Institute for Occupational Safety and Health  |
| PQL        | Practical Quantitation Limit   |
| RCRA       | Resource Conservation and Recovery Act   |
| SIM        | Selected Ion Monitoring  |
| TPH        | Total Petroleum Hydrocarbons   |
| tr         | Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.                           |

### Inorganic Data Qualifiers

- \* The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated value
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL  
*DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.
- H The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

### Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- J The result is an estimated value.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.  
*DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.
- Q See case narrative. One or more quality control criteria was outside the limits.

### Organic Data Qualifiers

- \* The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimated value.
- J The result is an estimated value.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.  
*DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.

### Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

**ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso  
State Certifications, Accreditations, and Licenses**

| <b>Agency</b>            | <b>Web Site</b>   | <b>Number</b> |
|--------------------------|---|---------------|
| Alaska DEC UST           | <a href="http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx">http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx</a>   | UST-040       |
| Arizona DHS              | <a href="http://www.azdhs.gov/lab/license/env.htm">http://www.azdhs.gov/lab/license/env.htm</a>   | AZ0339        |
| Arkansas - DEQ           | <a href="http://www.adeq.state.ar.us/techsvs/labcert.htm">http://www.adeq.state.ar.us/techsvs/labcert.htm</a>   | 88-0637       |
| California DHS (ELAP)    | <a href="http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx">http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx</a>   | 2795          |
| DOD ELAP                 | <a href="http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm">http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm</a>   | L14-51        |
| Florida DOH              | <a href="http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm">http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm</a>   | E87412        |
| Hawaii DOH               | Not available   | -             |
| ISO 17025                | <a href="http://www.pjlabs.com/">http://www.pjlabs.com/</a>   | L16-57        |
| Louisiana DEQ            | <a href="http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx">http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx</a> | 03016         |
| Maine DHS                | Not available   | WA01276       |
| Minnesota DOH            | <a href="http://www.health.state.mn.us/accreditation">http://www.health.state.mn.us/accreditation</a>   | 053-999-457   |
| Montana DPHHS            | <a href="http://www.dphhs.mt.gov/publichealth/">http://www.dphhs.mt.gov/publichealth/</a>   | CERT0047      |
| Nevada DEP               | <a href="http://ndep.nv.gov/bsdwl/labservice.htm">http://ndep.nv.gov/bsdwl/labservice.htm</a>   | WA01276       |
| New Jersey DEP           | <a href="http://www.nj.gov/dep/oqa/">http://www.nj.gov/dep/oqa/</a>   | WA005         |
| North Carolina DWQ       | <a href="http://www.dwqlab.org/">http://www.dwqlab.org/</a>   | 605           |
| Oklahoma DEQ             | <a href="http://www.deq.state.ok.us/CSDnew/labcert.htm">http://www.deq.state.ok.us/CSDnew/labcert.htm</a>   | 9801          |
| Oregon – DEQ (NELAP)     | <a href="http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx">http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx</a>   | WA100010      |
| South Carolina DHEC      | <a href="http://www.scdhec.gov/environment/envserv/">http://www.scdhec.gov/environment/envserv/</a>   | 61002         |
| Texas CEQ                | <a href="http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html">http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html</a>   | T104704427    |
| Washington DOE           | <a href="http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html">http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html</a>   | C544          |
| Wyoming (EPA Region 8)   | <a href="http://www.epa.gov/region8/water/dwhome/wyomingdi.html">http://www.epa.gov/region8/water/dwhome/wyomingdi.html</a>   | -             |
| Kelso Laboratory Website | <a href="http://www.alsglobal.com">www.alsglobal.com</a>  | NA            |

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at [www.ALSGlobal.com](http://www.ALSGlobal.com) or at the accreditation bodies web site.

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/analyte is offered by that state.



## Case Narrative

**ALS Environmental—Kelso Laboratory**  
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[www.alsglobal.com](http://www.alsglobal.com)

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ALS ENVIRONMENTAL

**Client:** Analytical Consulting Technology, Inc  
**Project:** PPCP - Storm water samples  
**Sample Matrix:** Water  
**Service Request No.:** K1614612  
**Date Received:** 12/02/16

Case Narrative

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier I data deliverables. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Seven water samples were received for analysis at ALS Environmental on 12/02/16. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Steroids and Endocrine Disrupting Compounds by Method 1694

**Holding Time Exceptions:**

The analysis of all samples was initially performed on 01/05/2017 for Azithromycin, and Urobilin. Due instrumentation issues the original calibration data was not usable. Efforts were made to reanalyze the samples as soon as possible after the analytical system was back in control. However, the reanalysis of the samples was performed 18 days past the analytical holding time. The results from the reanalysis were reported. The data was flagged to indicate the holding time violation.

**Surrogate Exceptions:**

The lower control criterion was exceeded for Cotinine-d3 in sample 5142 due to suspected matrix interference. The recovery of the surrogate in question was 3%. The lack of recovery for Cotinine-d3 indicates the analyte was not accurately quantitated in these samples. The results for Cotinine should be considered estimates. Reanalysis was not performed because insufficient holding time remained for additional testing. The data was flagged to indicate the problem.

The control criteria were exceeded for Atenolol-d7 in LCS KQ1615866-01, and DLCS KQ1615866-02. The associated matrix spike recoveries of target compounds were in control, indicating the analysis was in control. The surrogate outlier was flagged accordingly. No further corrective action was appropriate.

The recovery of Atenolol-d7 in field samples 5674, 538, and Batch QC Method Blank KQ1615866-03 outside the control limits listed in the results summary. The limits are default values temporarily in use until sufficient data points are generated to calculate statistical control limits. Based on the method and historic data, the recoveries observed were in the range expected for this procedure. No further corrective action was taken.

**Lab Control Sample Exceptions:**

The upper control criterion was exceeded for Acetaminophen in Laboratory Control Sample (LCS) KQ1615866-01 and Duplicate Laboratory Control Sample (DLCS) KQ1615866-02. The problem indicated a potential slight high bias for results reported from this analytical batch. Reanalysis was not performed because insufficient holding time remained for additional testing. The data was flagged to indicate the problem.

Approved by



The recovery of Primidone, and Urobilin in Control Sample (LCS) KQ1615866-01 and Duplicate Laboratory Control Sample (DLCS) KQ1615866-02 was outside the control limits listed in the results summary. The limits are default values temporarily in use until sufficient data points are generated to calculate statistical control limits. Based on the method and historic data, the recoveries observed were in the range expected for this procedure. No further corrective action was taken.

**Elevated Detection Limits:**

All samples required dilutions due to matrix interferences that caused suppression of the instrument internal standard. The reporting limits were adjusted to reflect the dilutions.

Samples 5674, and 545 required dilution due to the presence of elevated levels of target analyte. The reporting limits were adjusted to reflect the dilution.

The detection limit was elevated for Primidone in samples 5679, and 5142. The chromatogram indicated the presence of non-target background components. The matrix interference prevented adequate resolution of the target compound at the normal limit. The result was flagged to indicate the matrix interference.

No other anomalies associated with the analysis of these samples were observed.

Approved by





## Chain of Custody

**ALS Environmental—Kelso Laboratory**  
1317 South 13th Avenue, Kelso, WA 98626  
Phone (360)577-7222 Fax (360)636-1068  
[www.alsglobal.com](http://www.alsglobal.com)

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PC KL

Cooler Receipt and Preservation Form

Client Analytical Consulting Technology Service Request K16 14612

Received: 12/2/16 Opened: 12/2/16 By: CG Unloaded: 12/2/16 By: CG

- 1. Samples were received via?  Mail  Fed Ex  UPS  DHL  PDX  Courier  Hand Delivered
- 2. Samples were received in: (circle)  Cooler  Box  Envelope  Other \_\_\_\_\_ NA
- 3. Were custody seals on coolers? NA  Y  N  If yes, how many and where? \_\_\_\_\_  
If present, were custody seals intact? Y  N  If present, were they signed and dated? Y  N

| Raw Cooler Temp | Corrected Cooler Temp | Raw Temp Blank | Corrected Temp Blank | Corr. Factor | Thermometer ID | Cooler/GOC ID | Tracking Number        | NA | Filed |
|-----------------|-----------------------|----------------|----------------------|--------------|----------------|---------------|------------------------|----|-------|
| 2.6             | 2.4                   | /              | /                    | -0.2         | 369            | NA            | 12 X47402 01 1005 4430 | NA |       |
| -0.3            | -0.3                  | /              | /                    | 0.0          | 370            |               |                        |    |       |
|                 |                       |                |                      |              |                |               |                        |    |       |
|                 |                       |                |                      |              |                |               |                        |    |       |

- 4. Packing material:  Inserts  Baggies  Bubble Wrap  Gel Packs  Wet Ice  Dry Ice  Sleeves  Packing peanuts
- 5. Were custody papers properly filled out (ink, signed, etc.)? NA  Y  N
- 6. Did all bottles arrive in good condition (unbroken)? Indicate in the table below. NA  Y  N
- 7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA  Y  N
- 8. Did all sample labels and tags agree with custody papers? Indicate major discrepancies in the table on page 2. NA  Y  N
- 9. Were appropriate bottles/containers and volumes received for the tests indicated? NA  Y  N
- 10. Were the pH-preserved bottles (see SMO GEN SOP) received at the appropriate pH? Indicate in the table below. NA  Y  N
- 11. Were VOA vials received without headspace? Indicate in the table below. NA  Y  N
- 12. Was C12/Res negative? NA  Y  N

| Sample ID on Bottle | Sample ID on COC | Identified by: |
|---------------------|------------------|----------------|
| (Label is blank)    | 538              | Elimination    |
|                     |                  |                |

| Sample ID | Bottle Count | Out of Temp | Head-space | Broke | pH | Reagent | Volume added | Reagent Lot Number | Initials | Time |
|-----------|--------------|-------------|------------|-------|----|---------|--------------|--------------------|----------|------|
|           |              |             |            |       |    |         |              |                    |          |      |
|           |              |             |            |       |    |         |              |                    |          |      |
|           |              |             |            |       |    |         |              |                    |          |      |
|           |              |             |            |       |    |         |              |                    |          |      |

Notes, Discrepancies, & Resolutions: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



## Steroids and Endocrine Disrupting Compounds

**ALS Environmental—Kelso Laboratory**  
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Phone (360)577-7222 Fax (360)636-1068  
[www.alsglobal.com](http://www.alsglobal.com)

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ALS Group USA, Corp.  
dba ALS Environmental

Analytical Report

**Client:** Analytical Consulting Technology, Inc (ACT Labs)  
**Project:** PPCP - Storm water samples  
**Sample Matrix:** Water  
**Sample Name:** 5674  
**Lab Code:** K1614612-001

**Service Request:** K1614612  
**Date Collected:** 11/29/16 13:10  
**Date Received:** 12/02/16 10:30

**Units:** ng/L  
**Basis:** NA

**Steroids and Endocrine Disrupting Compounds**

**Analysis Method:** 1694  
**Prep Method:** Method

| Analyte Name         | Result | MRL | Dil. | Date Analyzed  | Date Extracted | Q  |
|----------------------|--------|-----|------|----------------|----------------|----|
| Acetaminophen        | 20     | 5.3 | 1    | 12/13/16 20:02 | 12/6/16        | *  |
| Caffeine             | 580    | 21  | 10   | 12/17/16 06:47 | 12/6/16        |    |
| Carbamazepine        | ND U   | 1.1 | 1    | 12/13/16 20:02 | 12/6/16        |    |
| Atenolol             | ND U   | 53  | 10   | 01/05/17 09:25 | 12/6/16        |    |
| Cotinine             | ND U   | 53  | 10   | 01/05/17 05:22 | 12/6/16        |    |
| Azithromycin         | ND U   | 53  | 10   | 01/24/17 10:38 | 12/6/16        | *  |
| Primidone            | ND U   | 53  | 10   | 01/05/17 05:22 | 12/6/16        | *  |
| Urobilin             | ND U   | 53  | 10   | 01/25/17 09:51 | 12/6/16        | ** |
| 1,7-Dimethylxanthine | ND U   | 53  | 10   | 01/05/17 05:22 | 12/6/16        |    |

| Surrogate Name          | % Rec | Control Limits | Date Analyzed  | Q |
|-------------------------|-------|----------------|----------------|---|
| Acetaminophen-C13       | 57    | 10 - 179       | 12/13/16 20:02 |   |
| Caffeine-trimethyl-13C3 | 73    | 22 - 146       | 12/17/16 06:47 |   |
| Carbamazepine-d10       | 84    | 28 - 171       | 12/13/16 20:02 |   |
| Atenolol-d7             | 15    | 30 - 130       | 01/05/17 09:25 | * |
| Cotinine-d3             | 5     | 5 - 145        | 01/05/17 05:22 |   |

**ALS Group USA, Corp.**  
dba ALS Environmental

Analytical Report

**Client:** Analytical Consulting Technology, Inc (ACT Labs)  
**Project:** PPCP - Storm water samples  
**Sample Matrix:** Water  
**Sample Name:** 5679  
**Lab Code:** K1614612-002

**Service Request:** K1614612  
**Date Collected:** 11/29/16 14:00  
**Date Received:** 12/02/16 10:30

**Units:** ng/L  
**Basis:** NA

**Steroids and Endocrine Disrupting Compounds**

**Analysis Method:** 1694  
**Prep Method:** Method

| Analyte Name         | Result | MRL | Dil. | Date Analyzed  | Date Extracted | Q  |
|----------------------|--------|-----|------|----------------|----------------|----|
| Acetaminophen        | 67     | 52  | 10   | 12/17/16 07:07 | 12/6/16        | *  |
| Caffeine             | 740    | 21  | 10   | 12/17/16 07:07 | 12/6/16        |    |
| Carbamazepine        | ND U   | 10  | 10   | 12/17/16 07:07 | 12/6/16        |    |
| Atenolol             | ND U   | 52  | 10   | 01/05/17 09:33 | 12/6/16        |    |
| Cotinine             | 250    | 52  | 10   | 01/05/17 09:33 | 12/6/16        |    |
| Azithromycin         | ND U   | 110 | 20   | 01/24/17 09:14 | 12/6/16        | *  |
| Primidone            | ND Ui  | 80  | 10   | 01/05/17 05:29 | 12/6/16        | *  |
| Urobilin             | ND U   | 110 | 20   | 01/25/17 07:19 | 12/6/16        | ** |
| 1,7-Dimethylxanthine | 780    | 52  | 10   | 01/05/17 09:33 | 12/6/16        |    |

| Surrogate Name          | % Rec | Control Limits | Date Analyzed  | Q |
|-------------------------|-------|----------------|----------------|---|
| Acetaminophen-C13       | 66    | 10 - 179       | 12/17/16 07:07 |   |
| Caffeine-trimethyl-13C3 | 126   | 22 - 146       | 12/17/16 07:07 |   |
| Carbamazepine-d10       | 94    | 28 - 171       | 12/17/16 07:07 |   |
| Atenolol-d7             | 32    | 30 - 130       | 01/05/17 09:33 |   |
| Cotinine-d3             | 5     | 5 - 145        | 01/05/17 09:33 |   |



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Analytical Report

Client: Analytical Consulting Technology, Inc (ACT Labs)  
Project: PPCP - Storm water samples  
Sample Matrix: Water  
Sample Name: 5142  
Lab Code: K1614612-003

Service Request: K1614612  
Date Collected: 11/29/16 14:45  
Date Received: 12/02/16 10:30

Units: ng/L  
Basis: NA

Steroids and Endocrine Disrupting Compounds

Analysis Method: 1694  
Prep Method: Method

| Analyte Name         | Result | MRL | Dil. | Date Analyzed  | Date Extracted | Q  |
|----------------------|--------|-----|------|----------------|----------------|----|
| Acetaminophen        | ND U   | 50  | 10   | 12/17/16 07:28 | 12/6/16        | *  |
| Caffeine             | 150    | 20  | 10   | 12/17/16 07:28 | 12/6/16        |    |
| Carbamazepine        | ND U   | 10  | 10   | 12/17/16 07:28 | 12/6/16        |    |
| Atenolol             | ND U   | 50  | 10   | 01/05/17 09:40 | 12/6/16        |    |
| Cotinine             | 52     | 50  | 10   | 01/05/17 05:37 | 12/6/16        |    |
| Azithromycin         | ND U   | 100 | 20   | 01/24/17 09:24 | 12/6/16        | *  |
| Primidone            | ND Ui  | 62  | 10   | 01/05/17 05:37 | 12/6/16        | *  |
| Urobilin             | 120    | 100 | 20   | 01/25/17 07:32 | 12/6/16        | ** |
| 1,7-Dimethylxanthine | ND U   | 50  | 10   | 01/05/17 09:40 | 12/6/16        |    |

| Surrogate Name          | % Rec | Control Limits | Date Analyzed  | Q |
|-------------------------|-------|----------------|----------------|---|
| Acetaminophen-C13       | 49    | 10 - 179       | 12/17/16 07:28 |   |
| Caffeine-trimethyl-13C3 | 70    | 22 - 146       | 12/17/16 07:28 |   |
| Carbamazepine-d10       | 87    | 28 - 171       | 12/17/16 07:28 |   |
| Atenolol-d7             | 42    | 30 - 130       | 01/05/17 09:40 |   |
| Cotinine-d3             | 4     | 5 - 145        | 01/05/17 05:37 | * |

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Analytical Report

**Client:** Analytical Consulting Technology, Inc (ACT Labs)  
**Project:** PPCP - Storm water samples  
**Sample Matrix:** Water  
**Sample Name:** 538  
**Lab Code:** K1614612-004

**Service Request:** K1614612  
**Date Collected:** 11/29/16 14:15  
**Date Received:** 12/02/16 10:30

**Units:** ng/L  
**Basis:** NA

**Steroids and Endocrine Disrupting Compounds**

**Analysis Method:** 1694  
**Prep Method:** Method

| Analyte Name         | Result | MRL | Dil. | Date Analyzed  | Date Extracted | Q  |
|----------------------|--------|-----|------|----------------|----------------|----|
| Acetaminophen        | ND U   | 53  | 10   | 12/17/16 07:49 | 12/6/16        | *  |
| Caffeine             | 1800   | 21  | 10   | 12/17/16 07:49 | 12/6/16        |    |
| Carbamazepine        | ND U   | 11  | 10   | 12/17/16 07:49 | 12/6/16        |    |
| Atenolol             | ND U   | 53  | 10   | 01/05/17 05:44 | 12/6/16        |    |
| Cotinine             | 190    | 53  | 10   | 01/05/17 05:44 | 12/6/16        |    |
| Azithromycin         | ND U   | 53  | 10   | 01/24/17 11:06 | 12/6/16        | *  |
| Primidone            | ND U   | 53  | 10   | 01/05/17 05:44 | 12/6/16        | *  |
| Urobilin             | ND U   | 110 | 20   | 01/25/17 07:57 | 12/6/16        | ** |
| 1,7-Dimethylxanthine | 220    | 53  | 10   | 01/05/17 05:44 | 12/6/16        |    |

| Surrogate Name          | % Rec | Control Limits | Date Analyzed  | Q |
|-------------------------|-------|----------------|----------------|---|
| Acetaminophen-C13       | 61    | 10 - 179       | 12/17/16 07:49 |   |
| Caffeine-trimethyl-13C3 | 78    | 22 - 146       | 12/17/16 07:49 |   |
| Carbamazepine-d10       | 89    | 28 - 171       | 12/17/16 07:49 |   |
| Atenolol-d7             | 29    | 30 - 130       | 01/05/17 05:44 | * |
| Cotinine-d3             | 5     | 5 - 145        | 01/05/17 05:44 |   |

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Analytical Report

**Client:** Analytical Consulting Technology, Inc (ACT Labs)  
**Project:** PPCP - Storm water samples  
**Sample Matrix:** Water  
**Sample Name:** 545  
**Lab Code:** K1614612-005

**Service Request:** K1614612  
**Date Collected:** 11/29/16 14:30  
**Date Received:** 12/02/16 10:30

**Units:** ng/L  
**Basis:** NA

**Steroids and Endocrine Disrupting Compounds**

**Analysis Method:** 1694  
**Prep Method:** Method

| Analyte Name         | Result | MRL | Dil. | Date Analyzed  | Date Extracted | Q  |
|----------------------|--------|-----|------|----------------|----------------|----|
| Acetaminophen        | 140    | 5.3 | 1    | 12/13/16 21:26 | 12/6/16        | *  |
| Caffeine             | 1900   | 21  | 10   | 12/17/16 08:10 | 12/6/16        |    |
| Carbamazepine        | ND U   | 1.1 | 1    | 12/13/16 21:26 | 12/6/16        |    |
| Atenolol             | ND U   | 53  | 10   | 01/05/17 05:52 | 12/6/16        |    |
| Cotinine             | 200    | 53  | 10   | 01/05/17 05:52 | 12/6/16        |    |
| Azithromycin         | ND U   | 110 | 20   | 01/24/17 09:42 | 12/6/16        | *  |
| Primidone            | ND U   | 53  | 10   | 01/05/17 05:52 | 12/6/16        | *  |
| Urobilin             | ND U   | 110 | 20   | 01/25/17 08:10 | 12/6/16        | ** |
| 1,7-Dimethylxanthine | 560    | 53  | 10   | 01/05/17 05:52 | 12/6/16        |    |

| Surrogate Name          | % Rec | Control Limits | Date Analyzed  | Q |
|-------------------------|-------|----------------|----------------|---|
| Acetaminophen-C13       | 41    | 10 - 179       | 12/13/16 21:26 |   |
| Caffeine-trimethyl-13C3 | 120   | 22 - 146       | 12/17/16 08:10 |   |
| Carbamazepine-d10       | 96    | 28 - 171       | 12/13/16 21:26 |   |
| Atenolol-d7             | 49    | 30 - 130       | 01/05/17 05:52 |   |
| Cotinine-d3             | 8     | 5 - 145        | 01/05/17 05:52 |   |

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Analytical Report

**Client:** Analytical Consulting Technology, Inc (ACT Labs)  
**Project:** PPCP - Storm water samples  
**Sample Matrix:** Water  
**Sample Name:** 883  
**Lab Code:** K1614612-006

**Service Request:** K1614612  
**Date Collected:** 11/29/16 15:00  
**Date Received:** 12/02/16 10:30

**Units:** ng/L  
**Basis:** NA

**Steroids and Endocrine Disrupting Compounds**

**Analysis Method:** 1694  
**Prep Method:** Method

| Analyte Name         | Result | MRL | Dil. | Date Analyzed  | Date Extracted | Q  |
|----------------------|--------|-----|------|----------------|----------------|----|
| Acetaminophen        | 60     | 53  | 10   | 12/17/16 08:31 | 12/6/16        | *  |
| Caffeine             | 1200   | 21  | 10   | 12/17/16 08:31 | 12/6/16        |    |
| Carbamazepine        | ND U   | 11  | 10   | 12/17/16 08:31 | 12/6/16        |    |
| Atenolol             | ND U   | 53  | 10   | 01/05/17 06:00 | 12/6/16        |    |
| Cotinine             | 240    | 53  | 10   | 01/05/17 06:00 | 12/6/16        |    |
| Azithromycin         | ND U   | 110 | 20   | 01/24/17 09:52 | 12/6/16        | *  |
| Primidone            | ND U   | 53  | 10   | 01/05/17 06:00 | 12/6/16        | *  |
| Urobilin             | ND U   | 110 | 20   | 01/25/17 08:22 | 12/6/16        | ** |
| 1,7-Dimethylxanthine | 890    | 53  | 10   | 01/05/17 06:00 | 12/6/16        |    |

| Surrogate Name          | % Rec | Control Limits | Date Analyzed  | Q |
|-------------------------|-------|----------------|----------------|---|
| Acetaminophen-C13       | 62    | 10 - 179       | 12/17/16 08:31 |   |
| Caffeine-trimethyl-13C3 | 74    | 22 - 146       | 12/17/16 08:31 |   |
| Carbamazepine-d10       | 95    | 28 - 171       | 12/17/16 08:31 |   |
| Atenolol-d7             | 38    | 30 - 130       | 01/05/17 06:00 |   |
| Cotinine-d3             | 7     | 5 - 145        | 01/05/17 06:00 |   |

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Analytical Report

**Client:** Analytical Consulting Technology, Inc (ACT Labs)  
**Project:** PPCP - Storm water samples  
**Sample Matrix:** Water  
**Sample Name:** 831  
**Lab Code:** K1614612-007

**Service Request:** K1614612  
**Date Collected:** 11/29/16 15:15  
**Date Received:** 12/02/16 10:30

**Units:** ng/L  
**Basis:** NA

**Steroids and Endocrine Disrupting Compounds**

**Analysis Method:** 1694  
**Prep Method:** Method

| Analyte Name         | Result | MRL | Dil. | Date Analyzed  | Date Extracted | Q  |
|----------------------|--------|-----|------|----------------|----------------|----|
| Acetaminophen        | ND U   | 56  | 10   | 12/17/16 08:52 | 12/6/16        | *  |
| Caffeine             | 770    | 22  | 10   | 12/17/16 08:52 | 12/6/16        |    |
| Carbamazepine        | ND U   | 11  | 10   | 12/17/16 08:52 | 12/6/16        |    |
| Atenolol             | ND U   | 56  | 10   | 01/05/17 10:11 | 12/6/16        |    |
| Cotinine             | 200    | 56  | 10   | 01/05/17 06:07 | 12/6/16        |    |
| Azithromycin         | ND U   | 120 | 20   | 01/24/17 10:01 | 12/6/16        | *  |
| Primidone            | 320    | 56  | 10   | 01/05/17 06:07 | 12/6/16        | *  |
| Urobilin             | ND U   | 120 | 20   | 01/25/17 08:35 | 12/6/16        | ** |
| 1,7-Dimethylxanthine | 66     | 56  | 10   | 01/05/17 06:07 | 12/6/16        |    |

| Surrogate Name          | % Rec | Control Limits | Date Analyzed  | Q |
|-------------------------|-------|----------------|----------------|---|
| Acetaminophen-C13       | 46    | 10 - 179       | 12/17/16 08:52 |   |
| Caffeine-trimethyl-13C3 | 53    | 22 - 146       | 12/17/16 08:52 |   |
| Carbamazepine-d10       | 67    | 28 - 171       | 12/17/16 08:52 |   |
| Atenolol-d7             | 56    | 30 - 130       | 01/05/17 10:11 |   |
| Cotinine-d3             | 6     | 5 - 145        | 01/05/17 06:07 |   |

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Analytical Report

**Client:** Analytical Consulting Technology, Inc (ACT Labs)  
**Project:** PPCP - Storm water samples  
**Sample Matrix:** Water  
**Sample Name:** Method Blank  
**Lab Code:** KQ1615866-03

**Service Request:** K1614612  
**Date Collected:** NA  
**Date Received:** NA

**Units:** ng/L  
**Basis:** NA

**Steroids and Endocrine Disrupting Compounds**

**Analysis Method:** 1694  
**Prep Method:** Method

| Analyte Name         | Result | MRL | Dil. | Date Analyzed  | Date Extracted | Q |
|----------------------|--------|-----|------|----------------|----------------|---|
| Acetaminophen        | ND U   | 5.0 | 1    | 12/13/16 19:42 | 12/6/16        |   |
| Caffeine             | ND U   | 2.0 | 1    | 12/13/16 19:42 | 12/6/16        |   |
| Carbamazepine        | ND U   | 1.0 | 1    | 12/13/16 19:42 | 12/6/16        |   |
| Atenolol             | ND U   | 5.0 | 1    | 01/05/17 03:58 | 12/6/16        |   |
| Cotinine             | ND U   | 5.0 | 1    | 01/05/17 03:58 | 12/6/16        |   |
| Azithromycin         | ND U   | 5.0 | 1    | 01/24/17 08:56 | 12/6/16        |   |
| Primidone            | ND U   | 5.0 | 1    | 01/05/17 03:58 | 12/6/16        |   |
| Urobilin             | ND U   | 5.0 | 1    | 01/25/17 06:54 | 12/6/16        |   |
| 1,7-Dimethylxanthine | ND U   | 5.0 | 1    | 01/05/17 03:58 | 12/6/16        |   |

| Surrogate Name          | % Rec | Control Limits | Date Analyzed  | Q |
|-------------------------|-------|----------------|----------------|---|
| Acetaminophen-C13       | 71    | 10 - 179       | 12/13/16 19:42 |   |
| Caffeine-trimethyl-13C3 | 98    | 22 - 146       | 12/13/16 19:42 |   |
| Carbamazepine-d10       | 77    | 28 - 171       | 12/13/16 19:42 |   |
| Atenolol-d7             | 8     | 30 - 130       | 01/05/17 03:58 | * |
| Cotinine-d3             | 6     | 5 - 145        | 01/05/17 03:58 |   |

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QA/QC Report

Client: Analytical Consulting Technology, Inc (ACT Labs)  
Project: PPCP - Storm water samples  
Sample Matrix: Water

Service Request: K1614612

**SURROGATE RECOVERY SUMMARY**  
**Steroids and Endocrine Disrupting Compounds**

Analysis Method: 1694  
Extraction Method: Method

| Sample Name                  | Lab Code     | Acetaminophen-C13 | Caffeine-trimethyl-13C3 |
|------------------------------|--------------|-------------------|-------------------------|
|                              |              | 10 - 179          | 22 - 146                |
| 5674                         | K1614612-001 | 57                | 73                      |
| 5679                         | K1614612-002 | 66                | 126                     |
| 5142                         | K1614612-003 | 49                | 70                      |
| 538                          | K1614612-004 | 61                | 78                      |
| 545                          | K1614612-005 | 41                | 120                     |
| 883                          | K1614612-006 | 62                | 74                      |
| 831                          | K1614612-007 | 46                | 53                      |
| Lab Control Sample           | KQ1615866-01 | 63                | 90                      |
| Duplicate Lab Control Sample | KQ1615866-02 | 50                | 86                      |
| Method Blank                 | KQ1615866-03 | 71                | 98                      |

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QA/QC Report

**Client:** Analytical Consulting Technology, Inc (ACT Labs)  
**Project:** PPCP - Storm water samples  
**Sample Matrix:** Water

**Service Request:** K1614612

**SURROGATE RECOVERY SUMMARY**  
**Steroids and Endocrine Disrupting Compounds**

**Analysis Method:** 1694  
**Extraction Method:** Method

| Sample Name                  | Lab Code     | Carbamazepine-d10 |
|------------------------------|--------------|-------------------|
|                              |              | 28 - 171          |
| 5674                         | K1614612-001 | 84                |
| 5679                         | K1614612-002 | 94                |
| 5142                         | K1614612-003 | 87                |
| 538                          | K1614612-004 | 89                |
| 545                          | K1614612-005 | 96                |
| 883                          | K1614612-006 | 95                |
| 831                          | K1614612-007 | 67                |
| Lab Control Sample           | KQ1615866-01 | 72                |
| Duplicate Lab Control Sample | KQ1615866-02 | 76                |
| Method Blank                 | KQ1615866-03 | 77                |



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QA/QC Report

Client: Analytical Consulting Technology, Inc (ACT Labs)  
Project: PPCP - Storm water samples  
Sample Matrix: Water

Service Request: K1614612

**SURROGATE RECOVERY SUMMARY**  
**Steroids and Endocrine Disrupting Compounds**

Analysis Method: 1694  
Extraction Method: Method

| Sample Name                  | Lab Code     | Atenolol-d7 | Cotinine-d3 |
|------------------------------|--------------|-------------|-------------|
|                              |              | 30 - 130    | 5 - 145     |
| 5674                         | K1614612-001 | 15 *        | 5           |
| 5679                         | K1614612-002 | 32          | 5           |
| 5142                         | K1614612-003 | 42          | 4 *         |
| 538                          | K1614612-004 | 29 *        | 5           |
| 545                          | K1614612-005 | 49          | 8           |
| 883                          | K1614612-006 | 38          | 7           |
| 831                          | K1614612-007 | 56          | 6           |
| Lab Control Sample           | KQ1615866-01 | 10 *        | 5           |
| Duplicate Lab Control Sample | KQ1615866-02 | 10 *        | 6           |
| Method Blank                 | KQ1615866-03 | 8 *         | 6           |

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QA/QC Report

**Client:** Analytical Consulting Technology, Inc (ACT Labs)  
**Project:** PPCP - Storm water samples  
**Sample Matrix:** Water

**Service Request:** K1614612  
**Date Analyzed:** 01/05/17

**Duplicate Lab Control Sample Summary**  
**Steroids and Endocrine Disrupting Compounds**

**Units:**ng/L  
**Basis:**NA

**Lab Control Sample**  
KQ1615866-01

**Duplicate Lab Control Sample**  
KQ1615866-02

| Analyte Name         | Analytical Method | Lab Control Sample |              |       | Duplicate Lab Control Sample |              |       | % Rec Limits | RPD | RPD Limit |
|----------------------|-------------------|--------------------|--------------|-------|------------------------------|--------------|-------|--------------|-----|-----------|
|                      |                   | Result             | Spike Amount | % Rec | Result                       | Spike Amount | % Rec |              |     |           |
| 1,7-Dimethylxanthine | 1694              | 77.0               | 100          | 77    | 82.2                         | 100          | 82    | 50-138       | 7   | 30        |
| Atenolol             | 1694              | 89.4               | 100          | 89    | 102                          | 100          | 102   | 70-130       | 13  | 30        |
| Cotinine             | 1694              | 98.3               | 100          | 98    | 123                          | 100          | 123   | 50-124       | 22  | 30        |
| Primidone            | 1694              | 46.3               | 100          | 46 *  | 60.5                         | 100          | 61 *  | 70-130       | 27  | 30        |

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QA/QC Report

**Client:** Analytical Consulting Technology, Inc (ACT Labs)  
**Project:** PPCP - Storm water samples  
**Sample Matrix:** Water

**Service Request:** K1614612  
**Date Analyzed:** 12/13/16 - 01/25/17

**Duplicate Lab Control Sample Summary**  
**Steroids and Endocrine Disrupting Compounds**

**Units:**ng/L  
**Basis:**NA

**Lab Control Sample**  
KQ1615866-01

**Duplicate Lab Control Sample**  
KQ1615866-02

| <b>Analyte Name</b> | <b>Analytical Method</b> | <b>Result</b> | <b>Spike Amount</b> | <b>% Rec</b> | <b>Result</b> | <b>Spike Amount</b> | <b>% Rec</b> | <b>% Rec Limits</b> | <b>RPD</b> | <b>RPD Limit</b> |
|---------------------|--------------------------|---------------|---------------------|--------------|---------------|---------------------|--------------|---------------------|------------|------------------|
| Acetaminophen       | 1694                     | 147           | 100                 | 147 *        | 159           | 100                 | 159 *        | 71-134              | 8          | 30               |
| Caffeine            | 1694                     | 104           | 100                 | 104          | 105           | 100                 | 105          | 50-140              | <1         | 30               |
| Carbamazepine       | 1694                     | 110           | 100                 | 110          | 108           | 100                 | 108          | 36-141              | 2          | 30               |
| Urobilin            | 1694                     | 32.6          | 100                 | 33 *         | 31.2          | 100                 | 31 *         | 70-130              | 4          | 30               |

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QA/QC Report

**Client:** Analytical Consulting Technology, Inc (ACT Labs)  
**Project:** PPCP - Storm water samples  
**Sample Matrix:** Water

**Service Request:** K1614612  
**Date Analyzed:** 01/24/17

**Duplicate Lab Control Sample Summary**  
**Steroids and Endocrine Disrupting Compounds**

Units:ng/L  
Basis:NA

Lab Control Sample  
KQ1615866-01

Duplicate Lab Control Sample  
KQ1615866-02

| Analyte Name | Analytical Method | Result | Spike Amount | % Rec | Result | Spike Amount | % Rec | % Rec Limits | RPD | RPD Limit |
|--------------|-------------------|--------|--------------|-------|--------|--------------|-------|--------------|-----|-----------|
| Azithromycin | 1694              | 82.4   | 100          | 82    | 93.8   | 100          | 94    | 33-120       | 13  | 30        |