

# RUTGERS

New Jersey Agricultural  
Experiment Station



**Hamilton Township (Mercer County)**

## **ILLICIT DISCHARGE INVESTIGATION - APRIL 2019**

Developed by the Rutgers Cooperative Extension Water Resources Program  
Funded by Hamilton Township, Mercer County, New Jersey

November 18, 2019

## **Acknowledgements**

The Hamilton Township (Mercer County) Illicit Discharge Investigation – April 2019 has been produced by the **Rutgers Cooperative Extension (RCE) Water Resources Program**.

Funding for this project was generously provided by the **Township of Hamilton, Mercer County, New Jersey** and in part by the **New Jersey Agricultural Experiment Station** through the United States Department of Agriculture.

## **Illicit Discharge Investigation, Hamilton Township – April 2019**

The Rutgers Cooperative Extension Water Resources Program collected samples from nine outfall sites in Hamilton Township, Mercer County, New Jersey on April 29, 2019 (See Figure 1) that exhibited dry weather flow. These nine outfall sites were identified as being potential illicit discharges based on visual inspections conducted in July and August 2015 and reports in 2015 of having cloudy brown or grey water with an odor (See Attachment 1).

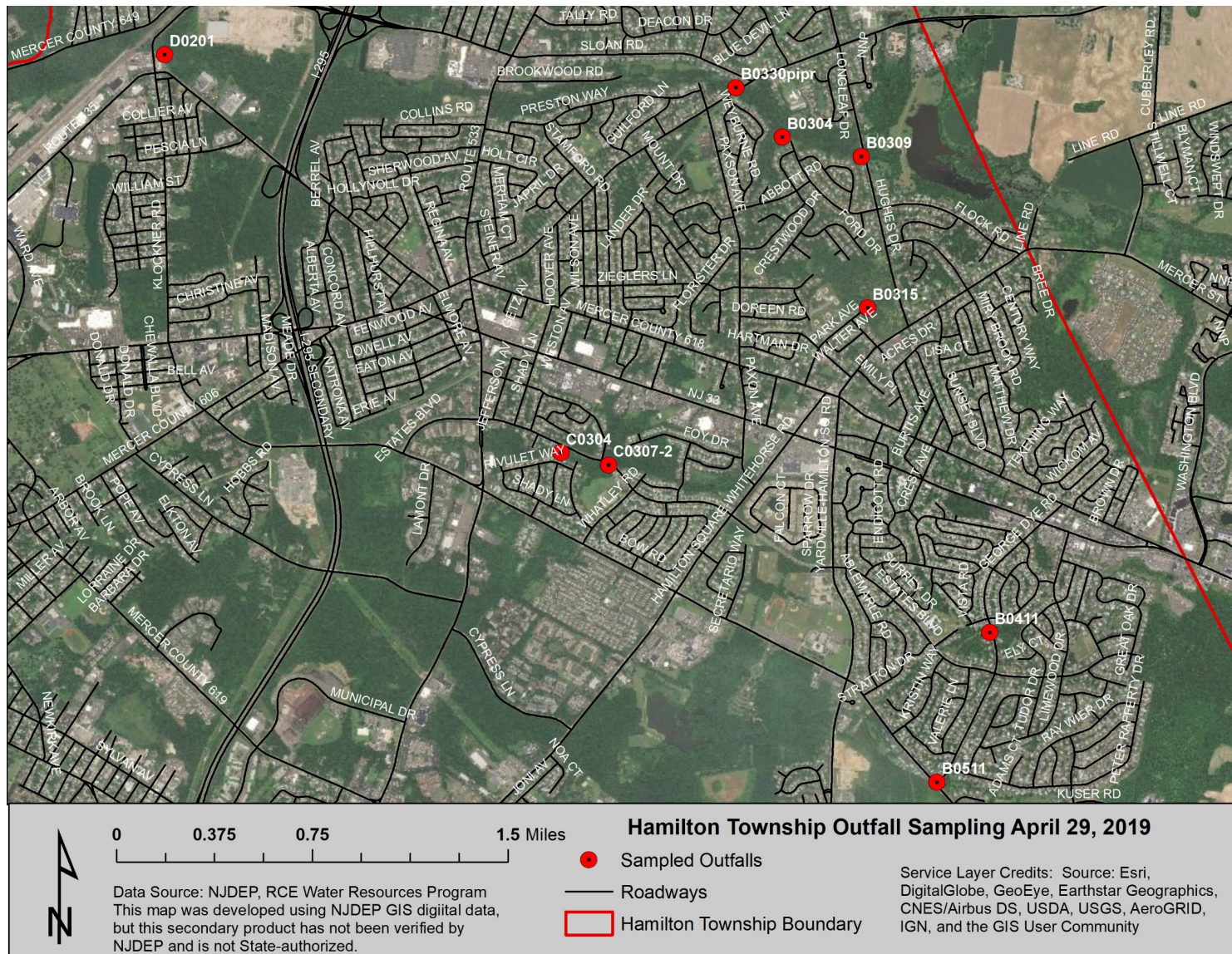
Samples collected on April 29, 2019 were analyzed by New Jersey Analytical Laboratories (See Attachment 2) for potassium, ammonia, and surfactants to determine if the sites were characteristic of an illicit discharge. The concentration of potassium, ammonia as N, and surfactants measured at each of the nine outfall sites, as well as the calculated ammonia to potassium ratio, can be found in Table 1.

Given the absence of surfactants, these dry weather flows are unlikely to be from sanitary wastewater sources, but they may still be illicit discharges of industrial wastewater, rinse water, backwash or cooling water (NJDEP, 2018). The ratio of ammonia as N to potassium can be used to distinguish a sanitary wastewater source from a washwater source. The ammonia as N to potassium ratio of sanitary sewage is characteristically greater than 1.0. Dry weather flows with an ammonia as N to potassium ratio less than 1.0 are likely to be a washwater source and not a sanitary wastewater source (NJDEP, 2018). The ratios in Table 1 illustrate that the dry weather flows observed are most likely from a washwater source.

Most industrial discharges can be identified by high potassium concentrations and/or high ammonia as N concentrations. The benchmark concentration for potassium to identify industrial discharges is  $\geq 20$  mg/L, and the benchmark concentration for ammonia as N to identify industrial discharges is  $\geq 50$  mg/L (Brown, Caraco, and Pitt, 2004). All potassium and ammonia as N concentrations reported in Table 1 are well below these benchmark concentrations, illustrating that the dry weather flows observed are most likely not from an industrial source.

No evidence of illicit discharges was detected from the nine outfall sites sampled in Hamilton Township, Mercer County, New Jersey on April 29, 2019.





**Figure 1: Hamilton Township outfall sampling sites, April 29, 2019**

**Table 1: Results from Hamilton Township outfall sampling, April 29, 2019**

Closest Address	Outfall ID #	Time	Potassium mg/L	Ammonia as N mg/L	NH3:K ratio	Surfactants (MBAS) mg/L
86 Klockner Road	D0201	10:23AM	1.75	0.23	0.13	ND
489 Flock Road	B0330pipr	11:16AM	2.58	0.2	0.08	ND
533 Flock Road	B0304	11:57AM	2.33	0.17	0.07	ND
335 Hughes Drive	B0309	12:36PM	2.9	0.31	0.11	ND
90 Hughes Drive	B0315	1:15PM	3.72	0.51	0.14	ND
83 Whitehall Road	C0304	2:11PM	1.91	0.13	0.07	ND
833 Estates Boulevard	C0307-2	2:37PM	2.48	0.48	0.19	ND
293 George Dye Road	B0411	3:01PM	2.95	0.34	0.12	ND
Klockner & George Dye Road	B0511	3:22PM	3.37	0.17	0.05	ND

ND = non-detect

MBAS = methylene blue active substances

## **Resources**

Brown, E., Caraco, D., Pitt, R. 2004. Illicit Discharge Detection and Elimination: A Guidance Manual: Chapter 12 Indicator Monitoring, pp. 134-135.

New Jersey Department of Environmental Protection (NJDEP). 2018. Tier A Municipal Stormwater Guidance Document. Chapter 3.6: MS4 Outfall Pipe Mapping and Illicit Discharge and Scour Detection Control, pp. 6-12.

**Attachment 1: 2015 Outfall Inspections**



Hamilton Township  
Stormwater Outfall Assessment

*ID Number: B0304*

Closest Waterway:

Miry Run

Closest Address:

533 Flock Road

*Short Summary:*

- 14" diameter concrete pipe
- Outfall structure is spalling
- Cloudy, grey water
- Sewage odor
- Floatable trash



Date Assessed:

7/2/15





Hamilton Township  
Stormwater Outfall Assessment

*ID Number: B0309*

Closest Waterway:

Miry Run

Closest Address:

335 Hughes Drive

*Short Summary:*

- 28" diameter concrete pipe
- Cloudy, grey water
- Sewage odor
- Sediment deposits and floatable trash
- Significant erosion has been caused by the outfall
- Erosion has undermined outfall stability



Date Assessed:

7/2/15

Hamilton Township  
Stormwater Outfall Assessment

*ID Number: B0315*

Closest Waterway:

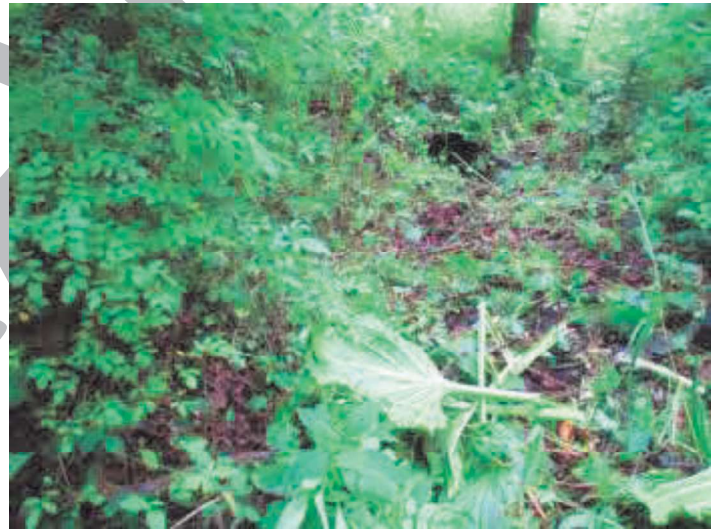
Un-coded Tributary

Closest Address:

90 Hughes Drive

*Short Summary:*

- 16" diameter plastic pipe
- Sewage odor
- Sediment deposits, oil deposits, and floatable trash
- Excessive vegetation growth



Date Assessed:

7/2/15



Hamilton Township  
Stormwater Outfall Assessment

*ID Number: B0330*

Closest Waterway:

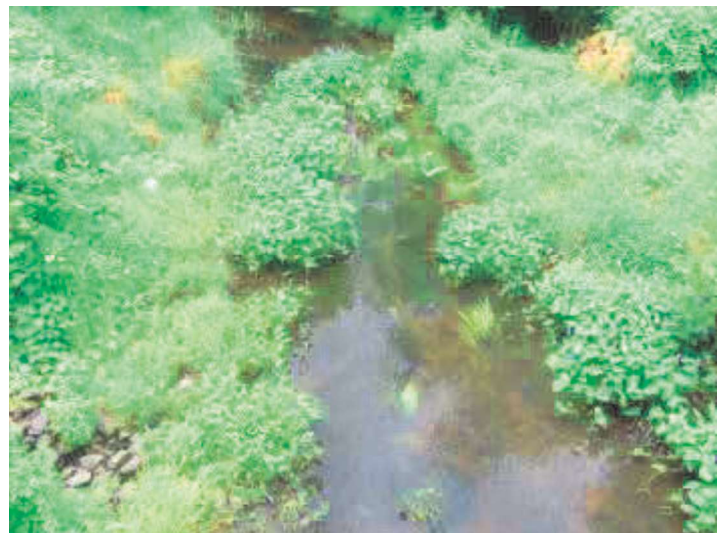
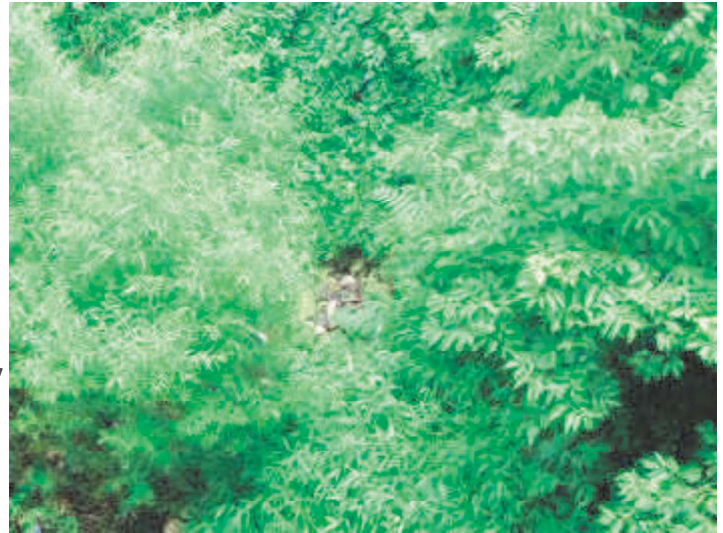
Miry Run

Closest Address:

489 Flock Rd

*Short Summary:*

- Outfall pipe is not accessible by foot
- Reinforced concrete pipe
- Cloudy, grey water
- Sediment deposits
- Sewage odor



Date Assessed:

7/9/15

DRAFT

Hamilton Township  
Stormwater Outfall Assessment

*ID Number: B0411*

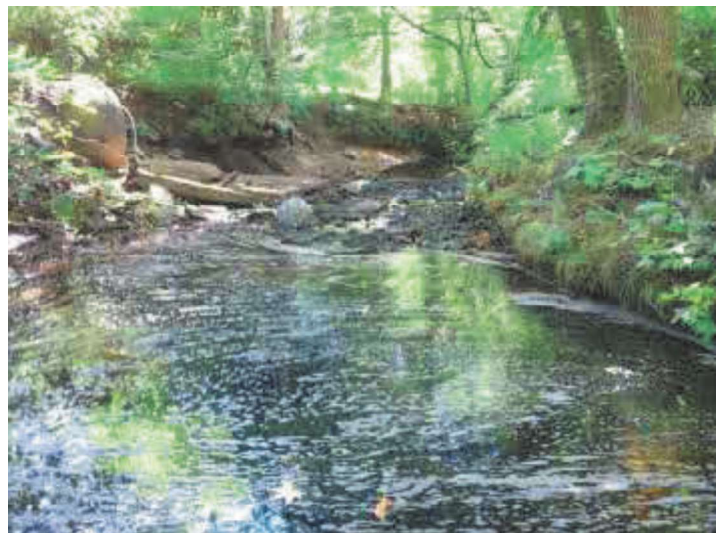
Closest Waterway:

Pond Run

Closest Address:

*Short Summary:*

- 30" diameter concrete pipe
- Sewage odor
- Opaque, brown water
- Raw sewage and floatable trash
- Minor erosion has been caused by the outfall
- Lip has deteriorated and has exposed metal reinforcement



Date Assessed:

8/13/15



Hamilton Township  
Stormwater Outfall Assessment

*ID Number: B0511*

Closest Waterway:

Pond Run

Closest Address:

*Short Summary:*

- Outfall is 35” tall and 50” wide
- Cloudy, brown water
- Rancid odor
- Pipe is spalling
- Fish were swimming nearby



Date Assessed:

8/13/15

DRAFT

Hamilton Township  
Stormwater Outfall Assessment

*ID Number: C0304*

Closest Waterway:

Pond Run

Closest Address:

83 Whitehall Road

*Short Summary:*

- 18" diameter concrete pipe
- Opaque, brown water
- Excessive oil and iron deposits
- Minor erosion has been caused by the outfall



Date Assessed:

8/27/15



Hamilton Township  
Stormwater Outfall Assessment

*ID Number: C0307*

Closest Waterway:

Pond Run

Closest Address:

833 Estates Boulevard

*Short Summary:*

- Outfall pipe is 15” tall and 16” side (elliptical pipe)
- Reinforced concrete pipe
- Sour odor
- Cloudy, brown water
- Minor erosion has been caused by the outfall
- Pipe is corroding and separating from headwall



Date Assessed:

8/27/15

Hamilton Township  
Stormwater Outfall Assessment

*ID Number: D0201*

Closest Waterway:

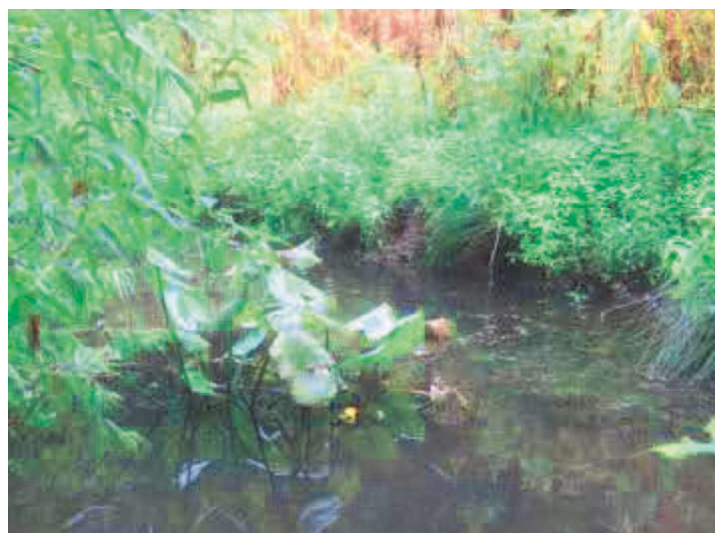
Miry Run

Closest Address:

86 Klockner Rd

*Short Summary:*

- 28" diameter concrete pipe
- Sulfide odor
- Cloudy, grey water
- Sediment deposits and floatable trash
- Pipe has a large hole on upper surface
- Erosion has undermined outfall stability



Date Assessed:

7/9/15



**Attachment 2: Laboratory Reports, New Jersey Analytical Laboratories**



NELAC NJ11005  
 EPA NJ01186  
 PADEP 68-05417  
 NYDOH NY12046  
 CTDPH PH-0143



380 Scotch Road  
 Ewing, NJ 08628  
 609-737-3477 (p)  
[www.njal.com](http://www.njal.com)

CERTIFICATE OF ANALYSIS: PRELIMINARY REPORT

NJ11005-NY12046

Project Name: <b>Hamilton, NJ</b>	Workorder: <b>N075792</b>
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Sara Mellor  
 University Procurement Services Rutgers  
 33 Knightsbridge Rd, 1st Floor, East Wing  
 Piscataway, NJ 08854

Project Name and Number: **Hamilton, NJ**

May 15, 2019

Dear Sara Mellor,

This report relates only to the sample(s) as received by the laboratory. Laboratory reports may not be reproduced, except in full, without the written approval of the laboratory.

The issuance of the final Certificate of Analysis takes precedence over any previous Preliminary Report. Caution is advised for the utilization of preliminary data included in reports labeled as "Preliminary Report" and should not be used for regulatory purposes. A laboratory signature is provided on final reports only.

If you have any questions in reference to this laboratory report, please contact your NJAL project coordinator or laboratory manager listed at the bottom of this report at (609) 737-3477.

Note: This cover page is included as part of the Analytical Report and must be retained as a permanent record thereof.

PRELIMINARY REPORT

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NE J11005  
 EP 36  
 PA 8-05417  
 NY Y12046  
 CT H-0143



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**NARRATIVE**

NJAL Lab Work # N075792  
 Rutgers Cooper

NJAL received the samples associated with this Chain of Custody in compliance with NJDEP guidelines.

The requested analytical methods and results are detailed in the following data summary report.

Sample collection was performed by the individual indicated on the chain of custody.

Any exception to methods or See Data Flags, NJ procedures are listed in the comments section below, Definitions.

**Comments:**

Samples collected by [redacted] former.  
 MBAS (Surfactants) analyzed by ALS Environmental, NJDEP Lab ID# PA010.

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 PADEP 68-05417  
 NYDOH NY12046  
 CTDPH PH-0143



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Lab ID: N075792-01

Matrix: Surface Water

Date Collected: 04/29/19 10:23

Sample ID: D0201

Date Received: 04/29/19 16:20

**Total Metals**

<u>Analyte</u>	<u>Results</u>	<u>Flag</u>	<u>Units</u>	<u>MDL</u>	<u>RDL</u>	<u>Method</u>	<u>Analyzed</u>	<u>Prepared</u>	<u>Dilution</u>
Potassium	1.75		mg/L	0.138	0.400	EPA 200.7	05/09/19 12:56	05/01/19	1

**General Chemistry Parameters**

<u>Analyte</u>	<u>Results</u>	<u>Flag</u>	<u>Units</u>	<u>MDL</u>	<u>RDL</u>	<u>Method</u>	<u>Analyzed</u>	<u>Prepared</u>	<u>Dilution</u>
Ammonia as N	0.23		mg/L	0.0070	0.10	M 4500-NH3 B+D-1	05/01/19 14:05	05/01/19	1

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 NYDOH NY12046  
 CTDPH PH-0143

New Jersey Analytical Laboratories  
**NJAL**

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Lab ID: N075792-02

Matrix: Surface Water

Date Collected: 04/29/19 11:16

Sample ID: B0329-2

Date Received: 04/29/19 16:20

**Total Metals**

<u>Analyte</u>	<u>Results</u>	<u>Flag</u>	<u>Units</u>	<u>MDL</u>	<u>RDL</u>	<u>Method</u>	<u>Analyzed</u>	<u>Prepared</u>	<u>Dilution</u>
Potassium	2.58		mg/L	0.138	0.400	EPA 200.7	05/09/19 12:59	05/01/19	1

**General Chemistry Parameters**

<u>Analyte</u>	<u>Results</u>	<u>Flag</u>	<u>Units</u>	<u>MDL</u>	<u>RDL</u>	<u>Method</u>	<u>Analyzed</u>	<u>Prepared</u>	<u>Dilution</u>
Ammonia as N	0.20		mg/L	0.0070	0.10	IM 4500-NH3 B+D-1	05/01/19 14:05	05/01/19	1

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Lab ID: N075792-03

Matrix: Surface Water

Date Collected: 04/29/19 11:57

Sample ID: B0304

Date Received: 04/29/19 16:20

**Total Metals**

<u>Analyte</u>	<u>Results</u>	<u>Flag</u>	<u>Units</u>	<u>MDL</u>	<u>RDL</u>	<u>Method</u>	<u>Analyzed</u>	<u>Prepared</u>	<u>Dilution</u>
Potassium	2.33		mg/L	0.138	0.400	EPA 200.7	05/09/19 13:01	05/01/19	1

**General Chemistry Parameters**

<u>Analyte</u>	<u>Results</u>	<u>Flag</u>	<u>Units</u>	<u>MDL</u>	<u>RDL</u>	<u>Method</u>	<u>Analyzed</u>	<u>Prepared</u>	<u>Dilution</u>
Ammonia as N	0.17		mg/L	0.0070	0.10	SM 4500-NH3 B+D-1	05/01/19 14:05	05/01/19	1

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 CTDPH PH-0143



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Lab ID: N075792-04

Matrix: Surface Water

Date Collected: 04/29/19 12:36

Sample ID: B0309

Date Received: 04/29/19 16:20

**Total Metals**

<u>Analyte</u>	<u>Results</u>	<u>Flag</u>	<u>Units</u>	<u>MDL</u>	<u>RDL</u>	<u>Method</u>	<u>Analyzed</u>	<u>Prepared</u>	<u>Dilution</u>
Potassium	2.90		mg/L	0.138	0.400	EPA 200.7	05/09/19 13:04	05/01/19	1

**General Chemistry Parameters**

<u>Analyte</u>	<u>Results</u>	<u>Flag</u>	<u>Units</u>	<u>MDL</u>	<u>RDL</u>	<u>Method</u>	<u>Analyzed</u>	<u>Prepared</u>	<u>Dilution</u>
Ammonia as N	0.31		mg/L	0.0070	0.10	SM 4500-NH3 B+D-1	05/01/19 14:05	05/01/19	1

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 PADEP 68-05417  
 NYDOH NY12046  
 CTDPH PH-0143

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Lab ID: N075792-05

Matrix: Surface Water

Date Collected: 04/29/19 13:15

Sample ID: B0315

Date Received: 04/29/19 16:20

**Total Metals**

<u>Analyte</u>	<u>Results</u>	<u>Flag</u>	<u>Units</u>	<u>MDL</u>	<u>RDL</u>	<u>Method</u>	<u>Analyzed</u>	<u>Prepared</u>	<u>Dilution</u>
Potassium	3.72		mg/L	0.138	0.400	EPA 200.7	05/09/19 13:06	05/01/19	1

**General Chemistry Parameters**

<u>Analyte</u>	<u>Results</u>	<u>Flag</u>	<u>Units</u>	<u>MDL</u>	<u>RDL</u>	<u>Method</u>	<u>Analyzed</u>	<u>Prepared</u>	<u>Dilution</u>
Ammonia as N	0.51		mg/L	0.0070	0.10	SM 4500-NH3 B+D-1	05/01/19 14:05	05/01/19	1

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Lab ID: N075792-06

Matrix: Surface Water

Date Collected: 04/29/19 14:11

Sample ID: C0304

Date Received: 04/29/19 16:20

**Total Metals**

<u>Analyte</u>	<u>Results</u>	<u>Flag</u>	<u>Units</u>	<u>MDL</u>	<u>RDL</u>	<u>Method</u>	<u>Analyzed</u>	<u>Prepared</u>	<u>Dilution</u>
Potassium	1.91		mg/L	0.138	0.400	EPA 200.7	05/09/19 13:09	05/01/19	1

**General Chemistry Parameters**

<u>Analyte</u>	<u>Results</u>	<u>Flag</u>	<u>Units</u>	<u>MDL</u>	<u>RDL</u>	<u>Method</u>	<u>Analyzed</u>	<u>Prepared</u>	<u>Dilution</u>
Ammonia as N	0.13		mg/L	0.0070	0.10	SM 4500-NH3 B+D-1	05/01/19 14:05	05/01/19	1

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Lab ID: N075792-07

Matrix: Surface Water

Date Collected: 04/29/19 14:37

Sample ID: C0307-2

Date Received: 04/29/19 16:20

**Total Metals**

<u>Analyte</u>	<u>Results</u>	<u>Flag</u>	<u>Units</u>	<u>MDL</u>	<u>RDL</u>	<u>Method</u>	<u>Analyzed</u>	<u>Prepared</u>	<u>Dilution</u>
Potassium	2.48		mg/L	0.138	0.400	EPA 200.7	05/09/19 13:11	05/01/19	1

**General Chemistry Parameters**

<u>Analyte</u>	<u>Results</u>	<u>Flag</u>	<u>Units</u>	<u>MDL</u>	<u>RDL</u>	<u>Method</u>	<u>Analyzed</u>	<u>Prepared</u>	<u>Dilution</u>
Ammonia as N	0.48		mg/L	0.0070	0.10	SM 4500-NH3 B+D-1	05/01/19 14:05	05/01/19	1


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Lab ID: N075792-08

Matrix: Surface Water

Date Collected: 04/29/19 15:01

Sample ID: B0411

Date Received: 04/29/19 16:20

**Total Metals**

<u>Analyte</u>	<u>Results</u>	<u>Flag</u>	<u>Units</u>	<u>MDL</u>	<u>RDL</u>	<u>Method</u>	<u>Analyzed</u>	<u>Prepared</u>	<u>Dilution</u>
Potassium	2.95		mg/L	0.138	0.400	EPA 200.7	05/09/19 13:14	05/01/19	1

**General Chemistry Parameters**

<u>Analyte</u>	<u>Results</u>	<u>Flag</u>	<u>Units</u>	<u>MDL</u>	<u>RDL</u>	<u>Method</u>	<u>Analyzed</u>	<u>Prepared</u>	<u>Dilution</u>
Ammonia as N	0.34		mg/L	0.0070	0.10	SM 4500-NH3 B+D-1	05/01/19 14:05	05/01/19	1

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 EPA NJ01186  
 PADEP 68-05417  
 NYDOH NY12046  
 CTDPH PH-0143



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Lab ID: N075792-09

Matrix: Surface Water

Date Collected: 04/29/19 15:22

Sample ID: B0511

Date Received: 04/29/19 16:20

**Total Metals**

<u>Analyte</u>	<u>Results</u>	<u>Flag</u>	<u>Units</u>	<u>MDL</u>	<u>RDL</u>	<u>Method</u>	<u>Analyzed</u>	<u>Prepared</u>	<u>Dilution</u>
Potassium	3.37		mg/L	0.138	0.400	EPA 200.7	05/09/19 13:22	05/01/19	1

**General Chemistry Parameters**

<u>Analyte</u>	<u>Results</u>	<u>Flag</u>	<u>Units</u>	<u>MDL</u>	<u>RDL</u>	<u>Method</u>	<u>Analyzed</u>	<u>Prepared</u>	<u>Dilution</u>
Ammonia as N	0.17		mg/L	0.0070	0.10	M 4500-NH3 B+D-1	05/01/19 14:05	05/01/19	1

DRAFT REPORT

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NELAC NJ11005  
 EPA NJ01186  
 PADEP 68-05417  
 NYDOH NY12046  
 CTDPH PH-0143



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**Notes and Definitions**

- X1 Matrix Spike (MS) and Matrix Spike Duplicate (MSD) relative percent difference exceeded the acceptance criteria.
- U Compound not detected
- D Sample required dilution due to elevated concentration above calibration range or matrix interference. Reporting limit elevated.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the Reporting Detection Limit (RDL)
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- < Less than reporting limit
- ≤ Less than or equal to reporting limit
- > Greater than reporting limit
- ≥ Greater than or equal to reporting limit
- MDL Method Detection Limit
- RDL Reporting Detection Limit
- MCL/AL Maximum Contaminant Level/Action Level
- mg/kg wet Results reported as wet weight
- TTLC Total Threshold Limit Concentration
- STLC Soluble Threshold Limit Concentration
- TCLP Toxicity Characteristic Leachate Procedure

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DRAFT REPORT

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May 4, 2019

Mr. Allen Thomas  
New Jersey Analytical Labs  
380 Scotch Road  
Suite 1B, Bldg. 2  
Trenton, NJ 08628

## Certificate of Analysis

Project Name:	<b>WASTEWATER SUBMISSIONS</b>	Workorder:	<b>3031362</b>
Purchase Order:		Workorder ID:	<b>N075792</b>

Dear Mr. Thomas:

Enclosed are the analytical results for samples received by the laboratory on Wednesday, May 1, 2019.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Ms. Susan J Scherer (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at [www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads](http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads).

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ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

CC: Mr. Allen Thomas , Mr. Allen Thomas , Mr. Allen Thomas

*This page is included as part of the Analytical Report and must be retained as a permanent record thereof.*

Ms. Susan J Scherer  
Project Coordinator

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### SAMPLE SUMMARY

Workorder: 3031362 N075792

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3031362001	N075792-01	Waste Water	4/29/2019 10:23	5/1/2019 21:21	Collected by Client
3031362002	N075792-02	Waste Water	4/29/2019 11:16	5/1/2019 21:21	Collected by Client
3031362003	N075792-03	Waste Water	4/29/2019 11:57	5/1/2019 21:21	Collected by Client
3031362004	N075792-04	Waste Water	4/29/2019 12:36	5/1/2019 21:21	Collected by Client
3031362005	N075792-05	Waste Water	4/29/2019 13:15	5/1/2019 21:21	Collected by Client
3031362006	N075792-06	Waste Water	4/29/2019 14:11	5/1/2019 21:21	Collected by Client
3031362007	N075792-07	Waste Water	4/29/2019 14:37	5/1/2019 21:21	Collected by Client
3031362008	N075792-08	Waste Water	4/29/2019 15:01	5/1/2019 21:21	Collected by Client
3031362009	N075792-09	Waste Water	4/29/2019 15:22	5/1/2019 21:21	Collected by Client

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**SAMPLE SUMMARY**

Workorder: 3031362 N075792

**Notes**

- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
- Method references listed on this report beginning with the prefix "S" followed by a method number (such as S2310B-97) refer to methods from "Standard Methods for the Examination of Water and Wastewater".
- For microbiological analyses, the "Prepared" value is the date/time into the incubator and the "Analyzed" value is the date/time out the incubator.
- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.

**Standard Acronyms/Flags**

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits

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**ANALYTICAL RESULTS**

Workorder: 3031362 N075792

Lab ID: 3031362001 Date Collected: 4/29/2019 10:23 Matrix: Waste Water  
 Sample ID: N075792-01 *D0201* Date Received: 5/1/2019 21:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
<b>WET CHEMISTRY</b>										
Surfactants (MBAS)	ND	1	mg/L	0.050	SM5540C-2011			5/2/19 04:30	MBW	A

*Susan J. Scherer*  
 Ms. Susan J Scherer  
 Project Coordinator

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### ANALYTICAL RESULTS

Workorder: 3031362 N075792

Lab ID: 3031362002 Date Collected: 4/29/2019 11:16 Matrix: Waste Water  
Sample ID: N075792-02 *B0329-2* Date Received: 5/1/2019 21:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
<b>WET CHEMISTRY</b>										
Surfactants (MBAS)	ND	1	mg/L	0.100	SM5540C-2011			5/2/19 04:30	MBW	A

*Susan J. Scherer*  
Ms. Susan J Scherer  
Project Coordinator

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### ANALYTICAL RESULTS

Workorder: 3031362 N075792

Lab ID: 3031362003 Date Collected: 4/29/2019 11:57 Matrix: Waste Water  
Sample ID: N075792-03 *B0304* Date Received: 5/1/2019 21:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
<b>WET CHEMISTRY</b>										
Surfactants (MBAS)	ND	1	mg/L	0.050	SM5540C-2011			5/2/19 04:30	MBW	A

*Susan J. Scherer*  
Ms. Susan J Scherer  
Project Coordinator

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**ANALYTICAL RESULTS**

Workorder: 3031362 N075792

Lab ID: 3031362004 Date Collected: 4/29/2019 12:36 Matrix: Waste Water  
Sample ID: N075792-04 80309 Date Received: 5/1/2019 21:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
<b>WET CHEMISTRY</b>										
Surfactants (MBAS)	ND	1	mg/L	0.050	SM5540C-2011			5/2/19 04:30	MBW	A

*Susan J. Scherer*  
Ms. Susan J Scherer  
Project Coordinator

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### ANALYTICAL RESULTS

Workorder: 3031362 N075792

Lab ID: 3031362005 Date Collected: 4/29/2019 13:15 Matrix: Waste Water  
Sample ID: N075792-05 *BO315* Date Received: 5/1/2019 21:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
<b>WET CHEMISTRY</b>										
Surfactants (MBAS)	ND	1	mg/L	0.100	SM5540C-2011			5/2/19 04:30	MBW	A

*Susan J. Scherer*  
Ms. Susan J Scherer  
Project Coordinator

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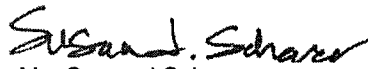
### ANALYTICAL RESULTS

Workorder: 3031362 N075792

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Lab ID:	3031362006	Date Collected:	4/29/2019 14:11	Matrix:	Waste Water
Sample ID:	N075792-06 <i>C0304</i>	Date Received:	5/1/2019 21:21		

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
<b>WET CHEMISTRY</b>										
Surfactants (MBAS)	ND	1	mg/L	0.050	SM5540C-2011			5/2/19 04:30	MBW	A

  
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Project Coordinator

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### ANALYTICAL RESULTS

Workorder: 3031362 N075792

Lab ID: 3031362007 Date Collected: 4/29/2019 14:37 Matrix: Waste Water  
Sample ID: N075792-07 C0304-2 Date Received: 5/1/2019 21:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
<b>WET CHEMISTRY</b>										
Surfactants (MBAS)	ND	1	mg/L	0.100	SM5540C-2011			5/2/19 04:30	MBW	A

*Susan J. Scherer*  
Ms. Susan J Scherer  
Project Coordinator

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### ANALYTICAL RESULTS

Workorder: 3031362 N075792

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Lab ID:	3031362008	Date Collected:	4/29/2019 15:01	Matrix:	Waste Water
Sample ID:	N075792-08 <i>20411</i>	Date Received:	5/1/2019 21:21		

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
<b>WET CHEMISTRY</b>										
Surfactants (MBAS)	ND	1	mg/L	0.050	SM5540C-2011			5/2/19 04:30	MBW	A

  
Ms. Susan J Scherer  
Project Coordinator

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**ANALYTICAL RESULTS**

Workorder: 3031362 N075792

Lab ID: **3031362009** Date Collected: 4/29/2019 15:22 Matrix: Waste Water  
 Sample ID: **N075792-09** *BOS11* Date Received: 5/1/2019 21:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
<b>WET CHEMISTRY</b>										
Surfactants (MBAS)	ND	1	mg/L	0.050	SM5540C-2011			5/2/19 04:30	MBW	A

*Susan J. Scherer*  
 Ms. Susan J Scherer  
 Project Coordinator

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### ANALYTICAL RESULTS

Workorder: 3031362 N075792

#### PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3031362001	1	N075792-01	SM5540C-2011	Surfactants (MBAS)
MBAS calculated as LAS molecular weight 342 g/mol.				
3031362002	1	N075792-02	SM5540C-2011	Surfactants (MBAS)
MBAS calculated as LAS molecular weight 342 g/mol.				
3031362003	1	N075792-03	SM5540C-2011	Surfactants (MBAS)
MBAS calculated as LAS molecular weight 342 g/mol.				
3031362004	1	N075792-04	SM5540C-2011	Surfactants (MBAS)
MBAS calculated as LAS molecular weight 342 g/mol.				
3031362005	1	N075792-05	SM5540C-2011	Surfactants (MBAS)
MBAS calculated as LAS molecular weight 342 g/mol.				
3031362006	1	N075792-06	SM5540C-2011	Surfactants (MBAS)
MBAS calculated as LAS molecular weight 342 g/mol.				
3031362007	1	N075792-07	SM5540C-2011	Surfactants (MBAS)
MBAS calculated as LAS molecular weight 342 g/mol.				
3031362008	1	N075792-08	SM5540C-2011	Surfactants (MBAS)
MBAS calculated as LAS molecular weight 342 g/mol.				
3031362009	1	N075792-09	SM5540C-2011	Surfactants (MBAS)
MBAS calculated as LAS molecular weight 342 g/mol.				

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**ANALYSIS - PREP METHOD CROSS REFERENCE TABLE**

Workorder: 3031362 N075792

Lab ID	Sample ID	Analysis Method	Prep Method
3031362001	N075792-01	SM5540C-2011	
3031362002	N075792-02	SM5540C-2011	
3031362003	N075792-03	SM5540C-2011	
3031362004	N075792-04	SM5540C-2011	
3031362005	N075792-05	SM5540C-2011	
3031362006	N075792-06	SM5540C-2011	
3031362007	N075792-07	SM5540C-2011	
3031362008	N075792-08	SM5540C-2011	
3031362009	N075792-09	SM5540C-2011	

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**Sending Laboratory:**

New Jersey Analytical Laboratories  
 380 Scotch Road  
 Ewing, NJ 08628  
 Phone: 609-737-3477  
 Fax: 609-737-3052  
  
 Project Manager: Robert Hult

**Subcontracted Laboratory:**

ALSI  
 34 Dogwood Lane  
 Middleton, PA 17057  
 Phone: (717) 944-5541  
 Fax: (717) 944-1430

**Work Order: N075792**

Analysis	Due	Expires	Sampled By: <u>SM/Client</u>	Comments: <u>Grab</u>
----------	-----	---------	------------------------------	-----------------------

**Sample ID: N075792-01 Surface Water Sampled: 04/29/2019 10:23**  
 MBAS 5540 C 05/13/2019 05/01/2019 10:23  
 Containers Supplied:  
 500 mL Plastic Unpreserved (B)

**Sample ID: N075792-02 Surface Water Sampled: 04/29/2019 11:16**  
 MBAS 5540 C 05/13/2019 05/01/2019 11:16  
 Containers Supplied:  
 500 mL Plastic Unpreserved (B)

**Sample ID: N075792-03 Surface Water Sampled: 04/29/2019 11:57**  
 MBAS 5540 C 05/13/2019 05/01/2019 11:57  
 Containers Supplied:  
 500 mL Plastic Unpreserved (B)

**Sample ID: N075792-04 Surface Water Sampled: 04/29/2019 12:36**  
 MBAS 5540 C 05/13/2019 05/01/2019 12:36  
 Containers Supplied:  
 500 mL Plastic Unpreserved (B)

**Sample ID: N075792-05 Surface Water Sampled: 04/29/2019 13:15**  
 MBAS 5540 C 05/13/2019 05/01/2019 13:15  
 Containers Supplied:  
 500 mL Plastic Unpreserved (B)

**Sample ID: N075792-06 Surface Water Sampled: 04/29/2019 14:11**  
 MBAS 5540 C 05/13/2019 05/01/2019 14:11  
 Released By: Amogradny 1500 Date: 05-01-19  
 Released By: [Signature] Date: 5-1-19  
 Received By: [Signature] Date: 5/1/19  
 Received By: COMMON COURIER / ALS COURIER Date: \_\_\_\_\_  
 Corrected Temp on Rcpt: \_\_\_\_\_

0.1%  
 THM



30313102



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Ewing, NJ 08628  
NJDEP: 11005 NYELAP: 12046  
PADEP: 68-05417 CT: PH-0143

Subcontract  
Chain of Custody  
NJAL Lab ID N075792

Work Order: N075792 (Continued)

Analysis	Due	Expires	Sampled By:	Comments:
			SM/Client	Grab

Containers Supplied:  
500 mL Plastic Unpreserved  
(B)

Sample ID: N075792-07 Surface Water Sampled: 04/29/2019 14:37

MBAS 5540 C 05/13/2019 05/01/2019 14:37

Containers Supplied:  
500 mL Plastic Unpreserved  
(B)

Sample ID: N075792-08 Surface Water Sampled: 04/29/2019 15:01

MBAS 5540 C 05/13/2019 05/01/2019 15:01

Containers Supplied:  
500 mL Plastic Unpreserved  
(B)

Sample ID: N075792-09 Surface Water Sampled: 04/29/2019 15:22

MBAS 5540 C 05/13/2019 05/01/2019 15:22

Containers Supplied:  
500 mL Plastic Unpreserved  
(B)

Released By: Imcorady 1500 Date: 15-01-19  
 Released By: [Signature] Date: 5/2/19  
 Released By: COMMON COURIER / ALS COURIER  
 Corrected Temp on Rcpt: \_\_\_\_\_

Received By: [Signature] Date: 5/1/19  
 Received By: COMMON COURIER / ALS COURIER Date: \_\_\_\_\_  
 Received By: [Signature] Date: 5/1/19 2121

0.1 °C TANK,



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DRAFT REPORT

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**CHAIN OF CUSTODY**

CLIENT/Company: <b>University Procurement Services Rutgers University</b>		Phone: Cell: 732-232-1629		PRESERVATIVE		COMMENTS		Collected By:	
CONTACT NAME: Sarah Phelan		Project Name: <b>Hamilton NJ</b>		H2SO4				Name:	
Client Report & Bill to Address: University Procurement Services Rutgers, The State University of New Jersey, 33 Knightsbridge Road, 1st Floor, East Wing, Piscataway, New Jersey 08854		Project Address: <b>Hamilton NJ</b>		HNO3 Nitric Acid				Signature:	
Report To Email: Sarah Phelan sep138@scarletmail.rutgers.edu		NJAL Quote # 18817		Caustic NaOH				Organization:	
				HCL				Turn-Around Time:	
				Un-Preserved, Cool 4°C					
				Other					
				Sterile - Sodium ThioSulfate, 4°C					
				ANALYSIS REQUESTED					
Lab Use	Date	Time	Sample Identification	Grab	Comp.	Matrix	# Bottles		
	4/29	12:36	B B 3 2 9	X	SW	1	X	Ammonia	(1 x 250 mL Plastic, H2SO4)
				X	SW	1		Surfactants (MBAS)	(1 x 500 mL Glass, Unfrev)
				X	SW	1		Potassium (200.7)	(1 x 250 mL Plastic, HNO3)
				X	SW	1		Ammonia	(1 x 250 mL Plastic, H2SO4)
				X	SW	1		Surfactants (MBAS)	(1 x 500 mL Glass, Unfrev)
				X	SW	1		Potassium (200.7)	(1 x 250 mL Plastic, HNO3)
				X	SW	1		Ammonia	(1 x 250 mL Plastic, H2SO4)
				X	SW	1		Surfactants (MBAS)	(1 x 500 mL Glass, Unfrev)
				X	SW	1		Potassium (200.7)	(1 x 250 mL Plastic, HNO3)
Turn Around Time : Results Due By: Date:				Matrix: DW = Drinking Water, WW = Wastewater, SI = Sludge, S=Soil, SW=Surface H2O, GW = Ground H2O, WST=Waste					
Reinquisitioned by:		Date	Time	Received By:		Date	Time	Reinquisitioned by:	
[Signature]		4/29/14	4:30	[Signature]		4/29/14	16:30	[Signature]	
Lab Use:		Samples Collected by Customer: [X]		Samples Collected by NJAL Field Services: [ ]		Samples Delivered to Lab by Customer: [X]		Samples Delivered to Lab by NJAL Field Services: [ ]	
Reinquisitioned by:		Date	Time	Received By:		Date	Time	Reinquisitioned by:	
[Signature]		4/29/14	16:30	[Signature]		4/29/14	16:30	[Signature]	
Lab Use:		Samples Collected by Customer: [X]		Samples Collected by NJAL Field Services: [ ]		Samples Delivered to Lab by Customer: [X]		Samples Delivered to Lab by NJAL Field Services: [ ]	

MBAS SWD to ALS



LABORATORY SERVICES  
 380 Scotch Rd. Building 2 Suite 1B Ewing, NJ 08628 Phone: 609-737-3477 Fax: 609-737-3052 www.NJAL.com or www.InternationalHydronics.com

**CHAIN OF CUSTODY**

CLIENT/Company: **University Procurement Services Rutgers University** Phone: Cell: 732-232-1629  
 CONTACT NAME: Sarah Phelan  
 Project Name: **Hamilton NJ**  
 Client Report & Bill to address: University Procurement Services Rutgers, The State University of New Jersey, 33 Knightsbridge Road, 1st Floor, East Wing, Piscataway, New Jersey 08854  
 Report To Email: Sarah Phelan sep138@scarletmail.rutgers.edu  
 Prof. Address: \_\_\_\_\_  
 NJAL Quote # 18817

Lab Use	Date	Time	Sample Identification	Grab	Comp.	Matrix	# Bottles	H2SO4	HNO3 Nitric Acid	Caustic NaOH	HCL	Un-Preserved, Cool 4'C	Other	Sterile - Sodium ThioSulfate, 4'C	Collected By:	Signature:	Organization:	Turn-Around Time:	
	4/27	2:57	6307-2	X	SW	1	X												
				X	SW	1													
				X	SW	1													
				X	SW	1													
				X	SW	1													
				X	SW	1	X												
				X	SW	1													
				X	SW	1													
				X	SW	1													
				X	SW	1													
				X	SW	1													
				X	SW	1													

Turn Around Time : Results Due By: Date: \_\_\_\_\_  
 Matrix: DW = Drinking Water, WW = Wastewater, SL = Sludge, S=Soil, SW=Surface H2O, GW = Ground H2O, WST=Waste  
 Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Samples Collected by Customer: [X] [ ]  
 Samples Collected by NJAL Field Services: [ ] [ ]  
 Samples Delivered to Lab by Customer: [X] [ ]  
 Samples Delivered to Lab by NJAL Field Services: [ ] [ ]

Lab Use: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Samples Collected by Customer: [X] [ ]  
 Samples Collected by NJAL Field Services: [ ] [ ]  
 Samples Delivered to Lab by Customer: [X] [ ]  
 Samples Delivered to Lab by NJAL Field Services: [ ] [ ]  
 Lab Use: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

MBAS SWD to AIS

LABORATORY SERVICES  
 380 Scotch Rd. Building 2, Suite 1B Ewing, NJ 08628 Phone: 609-737-3477 Fax: 609-737-3052 www.NJAL.com or www.InternationalHydronics.com

**CHAIN OF CUSTODY**

CLIENT/Company: **University Procurement Services Rutgers University**

CONTACT NAME: **Sarah ~~Blanton~~ Mello** Phone: Cell: 732-232-1629

Client Report & Bill to Address: **University Procurement Services Rutgers, The State University of New Jersey, 33 Knightsbridge Road, 1st Floor, East Wing, Piscataway, New Jersey 08854**

Report To Email: **Sarah.Blanton-sep13@state.nj.edu**  
**sara.mello@envsci.rutgers.edu**

Project Name: **Hamilton NJ**  
 Proj. Address: \_\_\_\_\_  
 NJAL Quote # **18817**

PRESERVATIVE | COMMENTS

Collected By: \_\_\_\_\_  
 Name: \_\_\_\_\_  
 Signature: \_\_\_\_\_  
 Organization: \_\_\_\_\_  
 Turn-Around Time: \_\_\_\_\_

Lab Use	Date	Time	Sample Identification	Grab	Comp.	Matrix	# Bottles	H2SO4	HNO3 Nitric Acid	Caustic NaOH	HCL	Un-Preserved, Cool 4'C	Other	Sterile - Sodium ThioSulfate, 4'C	ANALYSIS REQUESTED	pH Verification
			unable to collect	x		SW	1	X							Ammonia (1 x 250 mL Plastic, H2SO4)	
			sample as per client	x		SW	1				X				Surfactants (MBAS) (1 x 500 mL Glass, Unrev)	
			@sample drop off	x		SW	1		X						Potassium (200.7) (1 x 250 mL Plastic, HNO3)	
			LB 4-29-19													

Turn Around Time : Results Due By: Date: \_\_\_\_\_  
 Matrix: DW = Drinking Water, WW = Wastewater, SL = Sludge, S=Soil, SW=Surface H2O, GW = Ground H2O, WST=Waste

Relinquished by: _____	Date: 4/29/19	Time: 4:20	Received By: _____	Relinquished by: _____	Date: 4/29/19	Time: 16:20	Received By: _____
Lab Use: _____	Samples Collected by Customer: [X]	Samples Collected by NJAL Field Services: [ ]	Samples Delivered to Lab by Customer: [X]	Samples Delivered to Lab by NJAL Field Services: [ ]	Lab Use: [ ]	Initials: _____	Cooler Temp = _____ C

Referred for Laboratory by: \_\_\_\_\_  
 Initials: \_\_\_\_\_