

National Aeronautics and Space Administration  
**Goddard Space Flight Center**  
Greenbelt, MD 20771



June 26, 2019

Reply to Attn of: 250

Mr. Todd Gentry  
Washington Suburban Sanitary Commission  
14501 Sweitzer Lane, 11th Floor  
Laurel, MD 20707-5902

Dear Mr. Gentry:

Enclosed are NASA Goddard Space Flight Center's (GSFC) Industrial Discharge Periodic Compliance Report (PCR) and supporting documentation for the second quarter 2019 reporting period. Also enclosed is GSFC's Total Toxic Organic (TTO) certification form for Monitoring Point 001.

GSFC performed quarterly monitoring at Monitoring Point FAC on May 8 and 9, 2019, and at the building 5 electroplating facility (Monitoring Point 001) on May 16 and 17, 2019. GSFC performed one additional day of monitoring for phosphorus, as required by permit condition II.B at Monitoring Point FAC on May 23, 2019.

For the reporting period of January 1, 2019 to June 30, 2019, WSSC determined that GSFC is in significant noncompliance for the Technical Review Criteria for phosphorus. One additional day of sampling for phosphorus was conducted on June 25, 2019. GSFC will send a compliance report with the phosphorus result once the analytical data are received, and will also include the result on the third quarter PCR.

If you have any questions concerning this report, please contact Ms. Lori Levine at (301) 286-6741 or [Lori.M.Levine@nasa.gov](mailto:Lori.M.Levine@nasa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "K Finch".

Kimberly Finch, P.E.  
Chief, Medical and Environmental Management Division

Enclosure



**INDUSTRIAL DISCHARGE CONTROL PROGRAM  
PERIODIC COMPLIANCE REPORT**

**Complete the following information; incomplete reports will be addressed with enforcement action. Attach laboratory data with Minimum Laboratory Reporting Requirements (Section II.D. of your WSSC Permit) and applicable certification statements.**

Industrial User	NASA/Goddard Space Flight Center			Outfall	FAC	Permit Number	00449
Reporting Period	Year: 2019	Quarter: (Check One)	January Thru March <input type="checkbox"/>	April Thru June <input checked="" type="checkbox"/>	July Thru September <input type="checkbox"/>	October Thru December <input type="checkbox"/>	
Monitoring Point Description	WSSC manhole labeled "WSSC IWMP" inside the front gate.						
Sampler's Name	Lauren Wicklund and Ian Cherok	Name of Company Performing Sampling	DDC 4C				

Are all results compliant with effluent limits? Yes  No

If **No**, are additional operation and maintenance and/or additional pretreatment required for you to meet the pretreatment standards and requirements? Yes  No

Parameter	Effluent Limit (mg/l) Daily <sup>(1)</sup>	Indicate Sample Date and Results in mg/l for Each Parameter				Analytical Method	No. of Results Over Limit	Violations (WSSC Use Only)
		5/7/19	5/8/19	5/9/19	5/10/19			
Cadmium (T)	0.10		<0.001	<0.001		EPA 200.8	0	
Chromium (T)	7.0		0.0026	<0.001		EPA 200.8	0	
Copper (T)	2.0		0.247	0.0438		EPA 200.8	0	
Lead (T)	0.35		0.0059	<0.001		EPA 200.8	0	
Nickel (T)	3.4		0.0099	0.0056		EPA 200.8	0	
Silver (T)	0.50		0.0021	<0.001		EPA 200.8	0	
Zinc (T)	4.2		0.284	0.0782		EPA 200.8	0	
Cyanide (T)	0.40		<0.010	<0.001		SM 4500-CN C,E - 2011	0	
Arsenic (T)	0.28		<0.001	<0.001		EPA 200.8	0	
Selenium (T)	0.40		<0.001	<0.001		EPA 200.8	0	
Molybdenum (T)	0.35		0.0025	0.0018		EPA 200.8	0	
Total Phosphorus	8.0		11	6		EPA 365.3	1	
Ammonia (NH3)	190		53	51		SM 4500-NH3-F-2011	0	

Numeric values must be submitted for all analyses. If values are below detection limit, indicate the numeric detection limit.

For WSSC Use Only				
Report is:	<input type="checkbox"/> On Time	<input type="checkbox"/> ___ Days Late	<input type="checkbox"/> Incomplete	Compliance
Violations reported within 24-hours of discovery?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> Yes
Violations resampled within 30 days?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> No
Comments:				
Reviewed by (Print Name):				Date:
Data Entered by (Print Name):				Date:



**INDUSTRIAL DISCHARGE CONTROL PROGRAM  
PERIODIC COMPLIANCE REPORT**

Industrial User	NASA/Goddard Space Flight Center			Outfall	FAC	Permit Number	00449
Reporting Period	Year: 2019	Quarter: (Check One)	January Thru March <input type="checkbox"/>	April Thru June <input checked="" type="checkbox"/>	July Thru September <input type="checkbox"/>	October Thru December <input type="checkbox"/>	

Sample Information (Continued)

Parameter	Effluent Limit (mg/l) Daily <sup>(1)</sup>	Indicate Sample Date and Results in mg/l for Each Parameter				Analytical Method	No. of Results Over Limit	Violations (WSSC Use Only)
		5/7/19	5/8/19	5/9/19	5/10/19			
BOD	3,000		400	78.6		SM 5210B- 2011	0	
pH Minimum <sup>(2)</sup>	6.0 standard units	7.4	7.0	7.0	7.0	EPA 150.2	0	
pH Maximum <sup>(2)</sup>	10.0 standard units	8.8	8.8	8.8	8.1	EPA 150.2	0	
Total Composite Volume			6 Liters	7 Liters		N/A	0	
Flow (gpd) <sup>(1)</sup>		38,382 <sup>(3)</sup>	58,954	54,448	29,786 <sup>(4)</sup>	Estimated		
Time: Start:		09:51	00:01	00:01	-----	N/A		
Stop:		-----	23:59	23:59	09:22	N/A		

Industry Comment/Changes/Notifications:

Numeric values must be submitted for all analyses. If values are below detection limit, indicate the numeric detection limit.

- (1) Daily Maximum
- (2) In reporting all pH data, all data should be truncated to one decimal place (the tenths digit).
- (3) *This total represents a partial day of data and is not an accurate representation of flow rates for a 24-hour period. This flow is the total from 14 hours and 9 minutes of monitoring (09:51 through 00:00).*
- (4) *This total represents a partial day of data and is not an accurate representation of flow rates for a 24-hour period. This flow is the total from 9 hours and 21 minutes of monitoring (00:01 through 09:22).*



**INDUSTRIAL DISCHARGE CONTROL PROGRAM  
PERIODIC COMPLIANCE REPORT**

Industrial User	NASA/Goddard Space Flight Center			Outfall	FAC	Permit Number	00449
Reporting Period	Year: 2019	Quarter: (Check One)	January Thru March <input type="checkbox"/>	April Thru June <input checked="" type="checkbox"/>	July Thru September <input type="checkbox"/>	October Thru December <input type="checkbox"/>	
Monitoring Point Description	WSSC manhole labeled "WSSC IWMP" inside the front gate.						
Sampler's Name	Lauren Wicklund and Ian Cherok	Name of Company Performing Sampling	DDC 4C				

Are all results compliant with effluent limits? Yes  No

If **No**, are additional operation and maintenance and/or additional pretreatment required for you to meet the pretreatment standards and requirements? Yes  No

Sample Information (Continued)

Parameter	Effluent Limit (mg/l) Daily <sup>(1)</sup>	Indicate Sample Date and Results in mg/l for Each Parameter			Analytical Method	No. of Results Over Limit	Violations (WSSC Use Only)
		5/22/19	5/23/19	5/24/19			
Cadmium (T)	0.10	-----	-----	-----	EPA 200.8	0	
Chromium (T)	7.0	-----	-----	-----	EPA 200.8	0	
Copper (T)	2.0	-----	-----	-----	EPA 200.8	0	
Lead (T)	0.35	-----	-----	-----	EPA 200.8	0	
Nickel (T)	3.4	-----	-----	-----	EPA 200.8	0	
Silver (T)	0.50	-----	-----	-----	EPA 200.8	0	
Zinc (T)	4.2	-----	-----	-----	EPA 200.8	0	
Cyanide (T)	0.40	-----	-----	-----	SM 4500- CN C,E - 2011	0	
Arsenic (T)	0.28	-----	-----	-----	EPA 200.8	0	
Selenium (T)	0.40	-----	-----	-----	EPA 200.8	0	
Molybdenum (T)	0.35	-----	-----	-----	EPA 200.8	0	
Total Phosphorus	8.0	-----	4.9	-----	EPA 365.3	0	
Ammonia (NH3)	190	-----	-----	-----	SM 4500- NH3-F-2011	0	
BOD	3,000	-----	-----	-----	SM 5210B- 2011	0	
pH Minimum <sup>(2)</sup>	6.0 standard units	-----	-----	-----	EPA 150.2	0	
pH Maximum <sup>(2)</sup>	10.0 standard units	-----	-----	-----	EPA 150.2	0	
Total Composite Volume			9.5 liters		N/A	0	
Flow (gpd) <sup>(1)</sup>		35,777 <sup>(3)</sup>	89,637	22,166 <sup>(4)</sup>	Estimated	N/A	
Time: Start:		16:40	00:01	-----	N/A	N/A	
Stop:		-----	23:59	09:00	N/A	N/A	

Industry Comment/Changes/Notifications:

Numeric values must be submitted for all analyses. If values are below detection limit, indicate the numeric detection limit.

- (1) Daily Maximum
- (2) In reporting all pH data, all data should be truncated to one decimal place (the tenths digit).
- (3) *This total represents a partial day of data and is not an accurate representation of flow rates for a 24-hour period. This flow is the total from 7 hours and 20 minutes of monitoring (16:40 through 00:00).*
- (4) *This total represents a partial day of data and is not an accurate representation of flow rates for a 24-hour period. This flow is the total from 8 hours and 59 minutes of monitoring (00:01 through 09:00).*

GREASE TRAP AND OIL/WATER SEPARATOR SERVICE LOG								
Industrial User		NASA/Goddard Space Flight Center				Permit Number		00449
Reporting Period		Year: 2019	Quarter: (Check One)	January Thru March <input type="checkbox"/>	April Thru June <input checked="" type="checkbox"/>	July Thru September <input type="checkbox"/>	October Thru December <input type="checkbox"/>	
Building	Number Of Tanks/Volune	System Type (GT, O/W, GRD, INT)	Location	Cleaning Frequency	Cleaning/Pump Out Dates	Waste Hauler	Waste Disposal Location	
27	1 tank/ 250 gallons	O/W	Room 170	Biannually	5/8/2018 3/14/2019	Triumvirate Environmental (Baltimore, MD) EPA # MDD093002384	Liquids: FCC Environmental (Wilmington, DE) Solids: Modern Landfill (York, PA) EPA # TXR000078094	
95*	1 tank/ 500 gallons	O/W	Behind building	Once per calendar year	12/15/2016	ACE Environmental Services, LLC (Baltimore, MD) EPA # MDR000507780	Environmental Recovery Corporation (Lancaster, PA) EPA # PAD987266749	
21	1 tank/ 35 gallons 1 tank/ 83 gallons 3 tanks/ 15 gallons	GT	Cafeteria	Inspected monthly, cleaned as needed	<b>Cleaned:</b> 4/25/19 5/24/19 6/20/19	Atlantic Wastewater Solutions LLC (Gambrills, MD) WSSC Permit #Z258 PG Co. Health Dept permit #55866-2015-0	District of Columbia Water and Sewer Authority (Washington, DC) Blue Plains Advanced Wastewater Treatment Plant NPDES Permit DC0021199	
33	1 tank/ 45 gallons	GT	Café	Inspected monthly, cleaned as needed	<b>Cleaned:</b> 4/25/19 5/24/19 6/20/19	Atlantic Wastewater Solutions LLC (Gambrills, MD) WSSC Permit #Z258 PG Co. Health Dept permit #55866-2015-0	District of Columbia Water and Sewer Authority (Washington, DC) Blue Plains Advanced Wastewater Treatment Plant NPDES Permit DC0021199	
1	1 tank/ 30 gallons 1 tank/ 45 gallons	GT	Cafeteria	Inspected monthly, cleaned as needed	<b>Cleaned:</b> 4/25/19 5/24/19 6/20/19	Atlantic Wastewater Solutions LLC (Gambrills, MD) WSSC Permit #Z258 PG Co. Health Dept permit #55866-2015-0	District of Columbia Water and Sewer Authority (Washington, DC) Blue Plains Advanced Wastewater Treatment Plant NPDES Permit DC0021199	
<b>LEGEND</b> GT Grease Trap O/W Oil/Water Separator GRD Grease Removal Device (i.e. RENN, GK&L, etc.) INT Grease Interceptor *Building 95 (Auto Club) is inactive <b>ATLANTIC WASTEWATER SOLUTIONS</b> <b>WSSC PERMIT NUMBER: Z337</b>								



**INDUSTRIAL DISCHARGE CONTROL PROGRAM  
PERIODIC COMPLIANCE REPORT**

Industrial User	NASA/Goddard Space Flight Center				Outfall	001	Permit Number	00449
Reporting Period	Year: 2019	Quarter: (Check One)	January Thru March <input type="checkbox"/>	April Thru June <input checked="" type="checkbox"/>	July Thru September <input type="checkbox"/>	October Thru December <input type="checkbox"/>		
Monitoring Point Description	The red spigot located on the effluent pipe of the metal plating pretreatment system located in the building 5 electroplating facility and labeled "WSSC IWMP".							
Sampler's Name	Lauren Wicklund and Ian Cherek	Name of Company Performing Sampling	DDC 4C					

Are all results compliant with effluent limits? Yes  No

If **No**, are additional operation and maintenance and/or additional pretreatment required for you to meet the pretreatment standards and requirements? Yes  No

Parameter	Effluent Limit (mg/l) Daily <sup>(1)</sup> Monthly <sup>(2)</sup>	Indicate Sample Date and Results in mg/l for Each Parameter				Analytical Method	No. of Results Over Limit	Violations (WSSC Use Only)
		5/16/19	5/17/19					
Cadmium (T)	0.11 - 0.07	<0.001	<0.001			EPA 200.8	0	
Chromium (T)	2.77 - 1.71	0.109	0.046			EPA 200.8	0	
Copper (T)	3.38 - 2.07	0.244	0.100			EPA 200.8	0	
Lead (T)	0.69 - 0.43	0.0157	0.0092			EPA 200.8	0	
Nickel (T)	3.98 - 2.38	0.758	0.338			EPA 200.8	0	
Silver (T)	0.43 - 0.24	0.0042	0.0021			EPA 200.8	0	
Zinc (T)	2.61 - 1.48	0.198	0.0868			EPA 200.8	0	
Cyanide (T)	1.20 - 0.65	<0.010	<0.010			SM 4500- CN C,E - 2011	0	
TTO <sup>3</sup>	2.13	-----	-----					
pH Minimum <sup>(4)</sup>	6.0 standard units	6.7	7.3			EPA 150.2	0	
pH Maximum <sup>(4)</sup>	10.0 standard units	7.0	7.3			EPA 150.2	0	
Flow (gpd) <sup>(1)</sup>		102.1	93.8			Estimated		
Time: Start:		09:35	9:39			N/A		
Stop:		09:41	9:44			N/A		
Industry Comment/Changes/Notifications:								

Numeric values must be submitted for all analyses. If values are below detection limit, indicate the numeric detection limit.

- (1) Daily Maximum
- (2) Monthly Average
- (3) The term TTO shall mean total toxic organics, which is the summation of all quantifiable values greater than .01 milligrams per liter for the toxic organics listed in 40 CFR433.11 (e).
- (4) In reporting all pH data, all data shall be truncated to one decimal place (the tenths digit).



INDUSTRIAL DISCHARGE CONTROL PROGRAM  
PERIODIC COMPLIANCE REPORT

I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Representative Printed Name	Authorized Representative Signature	Date
Kimberly Finch		06/26/2019

MAIL COMPLETED REPORT TO: Washington Suburban Sanitary Commission  
Regulatory Services Division  
Industrial Discharge Control Section  
14501 Sweitzer Lane, 11<sup>th</sup> Floor  
Laurel, MD 20707

INDUSTRY ID NO. 00449  
IWMP 001

WASHINGTON SUBURBAN SANITARY COMMISSION  
REGULATORY SERVICES GROUP  
INDUSTRIAL DISCHARGE CONTROL PROGRAM  
TOTAL TOXIC ORGANICS (TTO) CERTIFICATION

Section II

Based on my inquiry of the person or persons directly responsible for managing compliance with the pretreatment standard for Total Toxic Organics (TTO), I certify that, to the best of my knowledge and belief, no dumping of concentrated toxic organics into the wastewaters has occurred since filing of the last discharge monitoring report. I further certify that this facility is implementing the toxic organic management plan submitted to the control authority.

NASA Goodard Space Flight Center  
Industry Name

Kimberly Finch, P.E.  
Authorized Representative

Chief, Medical and Environmental Management  
Division  
Title

  
Signature 06/26/2019  
Date

2nd Qtr (April-June)  
Reporting Period 2019  
Year

**Daily pH Sampling Log – Grab<sup>(1)</sup> Samples**

Industry Name: Monitoring Point 001 Date: 5/16/19

Time <sup>(2)</sup>	pH	Flow (gallons) <sup>(3)</sup>	Comments
09:35	7.08	0	
09:36	6.96	17.1	Cyanide grab
09:37	6.91	17.1	Total metals grab
09:38	6.84	17.0	
09:39	6.83	17.0	
09:40	6.78	16.9	
09:41	6.79	17.0	
		Total : 102.1	

Calibration Reading at Start: 7.04, 10.04

Calibration Check at Stop: 7.06, 9.83

Buffer Solutions Used for Calibration: 4, 7, 10

Analytical Equipment Used: Hanna pH meter HI 98183

Discharges are: (Check all that apply)  Batch  Continuous  Both

<sup>(1)</sup> A grab sample is defined as an individual sample collected over a time period not exceeding 15 minutes, without regard for flow or time.

<sup>(2)</sup> Time intervals between grabs shall not exceed 15 minutes.

<sup>(3)</sup> Flow rate is recorded at the start of the discharge but is not included in the first reading in the average discharge calculation. The first reading is marked as zero.

**Daily pH Sampling Log – Grab<sup>(1)</sup> Samples**

Industry Name: Monitoring Point 001 Date: 5/17/19

Time <sup>(2)</sup>	pH	Flow (gallons) <sup>(3)</sup>	Comments
09:39	7.35	0	
09:40	7.37	19.0	Total metals grab
09:41	7.35	19.0	Cyanide grab
09:42	7.33	18.9	
09:43	7.34	18.9	
09:44	7.36	18.0	
		Total : 93.8	

Calibration Reading at Start: 7.01, 10.03

Calibration Check at Stop: 6.95, 9.89

Buffer Solutions Used for Calibration: 4, 7, 10

Analytical Equipment Used: Hanna pH meter HI 98181

Discharges are: (Check all that apply)  Batch  Continuous  Both

<sup>(1)</sup> A grab sample is defined as an individual sample collected over a time period not exceeding 15 minutes, without regard for flow or time.

<sup>(2)</sup> Time intervals between grabs shall not exceed 15 minutes.

<sup>(3)</sup> Flow rate is recorded at the start of the discharge but is not included in the first reading in the average discharge calculation. The first reading is marked as zero.

# Analytical Report for

**DDC-4C**

**Certificate of Analysis No.: 19051612**

**Project Manager: Ian Cherok**

**Project Name : WSSC**

**Project Location: IWMP 001**



**May 23, 2019**

**Phase Separation Science, Inc.**

**6630 Baltimore National Pike**

**Baltimore, MD 21228**

**Phone: (410) 747-8770**

**Fax: (410) 788-8723**

OFFICES:  
6630 BALTIMORE NATIONAL PIKE  
ROUTE 40 WEST  
BALTIMORE, MD 21228  
410-747-8770  
800-932-9047  
FAX 410-788-8723

# PHASE SEPARATION SCIENCE, INC.



May 23, 2019

**Ian Cherok**  
**DDC-4C**  
70 West King Street  
Chambersburg, PA 17201

Reference: PSS Work Order(s) No: **19051612**  
Project Name: WSSC  
Project Location: IWMP 001

Dear Ian Cherok :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **19051612**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on June 20, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or [info@phaseonline.com](mailto:info@phaseonline.com).

Sincerely,

**Dan Prucnal**

Laboratory Manager



# Sample Summary

**Client Name: DDC-4C**  
**Project Name: WSSC**

**Work Order Number(s): 19051612**

The following samples were received under chain of custody by Phase Separation Science (PSS) on 05/16/2019 at 04:20 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
19051612-001	20190516	WASTE WATER	05/16/19 09:37
19051612-002	20190516	WASTE WATER	05/16/19 09:36

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

#### Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminants, and part 141.3, for the secondary drinking water contaminants.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

#### Standard Flags/Abbreviations:

- B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- C Results Pending Final Confirmation.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- Fail The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
- J The target analyte was positively identified below the reporting limit but greater than the MDL.
- MDL This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is an estimate of the minimum amount of a substance that an analytical process can reliably detect. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific.
- ND Not Detected at or above the reporting limit.
- RL PSS Reporting Limit.
- U Not detected.

#### Certifications:

NELAP Certifications: PA 68-03330, VA 460156  
State Certifications: MD 179, WV 303  
Regulated Soil Permit: P330-12-00268  
NSWC USCG Accepted Laboratory  
LDBE MWAA LD1997-0041-2015

OFFICES:  
 6630 BALTIMORE NATIONAL PIKE  
 ROUTE 40 WEST  
 BALTIMORE, MD 21228  
 410-747-8770  
 800-932-9047  
 FAX 410-788-8723

# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 19051612  
**DDC-4C, Chambersburg, PA**  
 May 23, 2019

Project Name: WSSC  
 Project Location: IWMP 001

**Sample ID: 20190516**      **Date/Time Sampled: 05/16/2019 09:37**      **PSS Sample ID: 19051612-001**  
**Matrix: WASTE WATER**      **Date/Time Received: 05/16/2019 16:20**

Total Metals (7)      Analytical Method: EPA 200.8      Preparation Method: 200.8

Qualifier(s): See Batch 164472 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Cadmium	ND	ug/L	1.0		1	05/18/19	05/19/19 00:50	1064
Chromium	<b>109</b>	ug/L	1.00		1	05/18/19	05/19/19 00:50	1064
Copper	<b>244</b>	ug/L	1.00		1	05/18/19	05/19/19 00:50	1064
Lead	<b>15.7</b>	ug/L	1.00		1	05/18/19	05/19/19 00:50	1064
Nickel	<b>758</b>	ug/L	1.00		1	05/18/19	05/19/19 00:50	1064
Silver	<b>4.2</b>	ug/L	1.0		1	05/18/19	05/19/19 00:50	1064
Zinc	<b>198</b>	ug/L	20.0		1	05/18/19	05/19/19 00:50	1064

**Sample ID: 20190516**      **Date/Time Sampled: 05/16/2019 09:36**      **PSS Sample ID: 19051612-002**  
**Matrix: WASTE WATER**      **Date/Time Received: 05/16/2019 16:20**

Total Cyanide      Analytical Method: SM 4500-CN C,E -2011      Preparation Method: SM4500CN-C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Cyanide, Total	ND	mg/L	0.010		1	05/20/19	05/20/19 15:26	1053



## Case Narrative Summary

**Client Name: DDC-4C**

**Project Name: WSSC**

Work Order Number(s): 19051612

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Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

### **Sample Receipt:**

All sample receipt conditions were acceptable.

### **Analytical:**

#### **Total Metals (7)**

##### **Batch: 164472**

Matrix Spike/Matrix Spike Duplicate (MS/MSD) exceedances identified; see MS summary form. The concentration of the following analytes in the reference sample was greater than four times the matrix spike concentration: nickel

**NELAP accreditation was held for all analyses performed unless noted below. See [www.phaseonline.com](http://www.phaseonline.com) for complete PSS scope of accreditation.**



## Analytical Data Package Information Summary

**Work Order(s): 19051612**

Report Prepared For: DDC-4C, Chambersburg, PA

Project Name: WSSC

Project Manager: Ian Cherok

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
<b>EPA 200.8</b>	20190516	Initial	19051612-001	1064	W	76874	164472	05/16/2019	05/18/2019 12:57	05/19/2019 00:50
	76874-1-BKS	BKS	76874-1-BKS	1064	W	76874	164472	-----	05/18/2019 12:57	05/19/2019 00:44
	76874-1-BLK	BLK	76874-1-BLK	1064	W	76874	164472	-----	05/18/2019 12:57	05/19/2019 00:38
	20190516 S	MS	19051612-001 S	1064	W	76874	164472	05/16/2019	05/18/2019 12:57	05/19/2019 00:55
	20190516 SD	MSD	19051612-001 SD	1064	W	76874	164472	05/16/2019	05/18/2019 12:57	05/19/2019 01:01
<b>SM 4500-CN C,E - 2011</b>	20190516	Initial	19051612-002	1053	W	76883	164481	05/16/2019	05/20/2019 10:37	05/20/2019 15:26
	76883-1-BKS	BKS	76883-1-BKS	1053	W	76883	164481	-----	05/20/2019 10:37	05/20/2019 15:17
	76883-1-BLK	BLK	76883-1-BLK	1053	W	76883	164481	-----	05/20/2019 10:37	05/20/2019 15:14
	76883-1-BSD	BSD	76883-1-BSD	1053	W	76883	164481	-----	05/20/2019 10:37	05/20/2019 15:20
	20190516 S	MS	19051612-002 S	1053	W	76883	164481	05/16/2019	05/20/2019 10:37	05/20/2019 15:29
	20190516 SD	MSD	19051612-002 SD	1053	W	76883	164481	05/16/2019	05/20/2019 10:37	05/20/2019 15:32

# PHASE SEPARATION SCIENCE, INC.

## QC Summary 19051612

DDC-4C

WSSC

**Analytical Method: SM 4500-CN C,E -2011**

Seq Number: 164481

MB Sample Id: 76883-1-BLK

Matrix: Water

LCS Sample Id: 76883-1-BKS

Prep Method: SM4500CN-CPRE

Date Prep: 05/20/19

LCSD Sample Id: 76883-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Cyanide, Total	<0.01000	0.1000	0.1027	103	0.1040	104	85-115	1	20	mg/L	

**Analytical Method: SM 4500-CN C,E -2011**

Seq Number: 164481

Parent Sample Id: 19051612-002

Matrix: Waste Water

MS Sample Id: 19051612-002 S

Prep Method: SM4500CN-CPRE

Date Prep: 05/20/19

MSD Sample Id: 19051612-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Cyanide, Total	<0.01000	0.1000	0.09855	99	0.09707	97	80-120	2	20	mg/L	

**Analytical Method: EPA 200.8**

Seq Number: 164472

MB Sample Id: 76874-1-BLK

Matrix: Water

LCS Sample Id: 76874-1-BKS

Prep Method: E200.8\_PREP

Date Prep: 05/18/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Cadmium	<1.000	40.00	41.99	105	85-115	ug/L	
Chromium	<1.000	40.00	41.15	103	85-115	ug/L	
Copper	<1.000	40.00	43.21	108	85-115	ug/L	
Lead	<1.000	40.00	42.57	106	85-115	ug/L	
Nickel	<1.000	40.00	40.62	102	85-115	ug/L	
Silver	<1.000	40.00	40.83	102	85-115	ug/L	
Zinc	<20.00	200	211.6	106	85-115	ug/L	

**Analytical Method: EPA 200.8**

Seq Number: 164472

Parent Sample Id: 19051612-001

Matrix: Waste Water

MS Sample Id: 19051612-001 S

Prep Method: E200.8\_PREP

Date Prep: 05/18/19

MSD Sample Id: 19051612-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Cadmium	<1.000	40.00	42.57	106	42.52	106	70-130	0	25	ug/L	
Chromium	109.3	40.00	149.3	100	148.6	98	70-130	0	25	ug/L	
Copper	244.3	40.00	284	99	282.2	95	70-130	1	25	ug/L	
Lead	15.72	40.00	56.18	101	57.27	104	70-130	2	25	ug/L	
Nickel	758	40.00	777	48	786.3	71	70-130	1	25	ug/L	X
Silver	4.219	40.00	43.72	99	44.45	101	70-130	2	25	ug/L	
Zinc	197.9	200	410.4	106	407.4	105	70-130	1	25	ug/L	

F = RPD exceeded the laboratory control limits  
 X = Recovery of MS, MSD or both outside of QC Criteria  
 H= Recovery of BS,BSD or both exceeded the laboratory control limits  
 L = Recovery of BS,BSD or both below the laboratory control limits





# Phase Separation Science, Inc

## Sample Receipt Checklist

**Work Order #** 19051612  
**Client Name** DDC-4C  
**Project Name** WSSC  
**Disposal Date** 06/20/2019

**Received By** Thomas Wingate  
**Date Received** 05/16/2019 04:20:00 PM  
**Delivered By** Trans Time Express  
**Tracking No** Not Applicable  
**Logged In By** Thomas Wingate

### Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact? N/A

Seal(s) Signed / Dated? N/A

Ice Present

Temp (deg C) 1.6

Temp Blank Present No

### Documentation

COC agrees with sample labels? Yes

Chain of Custody Yes

Sampler Name I. Cherok/L. Wicklun

MD DW Cert. No. N/A

### Sample Container

Appropriate for Specified Analysis? Yes

Intact? Yes

Labeled and Labels Legible? Yes

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 2

Total No. of Containers Received 2

### Preservation

Total Metals (pH<2) Yes

Dissolved Metals, filtered within 15 minutes of collection (pH<2) N/A

Orthophosphorus, filtered within 15 minutes of collection N/A

Cyanides (pH>12) Yes

Sulfide (pH>9) N/A

TOC, DOC (field filtered), COD, Phenols (pH<2) N/A

TOX, TKN, NH3, Total Phos (pH<2) N/A

VOC, BTEX (VOA Vials Rcvd Preserved) (pH<2) N/A

Do VOA vials have zero headspace? N/A

624 VOC (Rcvd at least one unpreserved VOA vial) N/A

524 VOC (Rcvd with trip blanks) (pH<2) N/A

### Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 05/16/2019

PM Review and Approval:

Amber Confer

Date: 05/17/2019

# Analytical Report for

**DDC-4C**

**Certificate of Analysis No.: 19051712**

**Project Manager: Ian Cherok**

**Project Name : WSSC**

**Project Location: IWMP 001**



**May 24, 2019**

**Phase Separation Science, Inc.**

**6630 Baltimore National Pike**

**Baltimore, MD 21228**

**Phone: (410) 747-8770**

**Fax: (410) 788-8723**

OFFICES:  
6630 BALTIMORE NATIONAL PIKE  
ROUTE 40 WEST  
BALTIMORE, MD 21228  
410-747-8770  
800-932-9047  
FAX 410-788-8723

# PHASE SEPARATION SCIENCE, INC.



May 24, 2019

**Ian Cherok**  
**DDC-4C**  
70 West King Street  
Chambersburg, PA 17201

Reference: PSS Work Order(s) No: **19051712**  
Project Name: WSSC  
Project Location: IWMP 001

Dear Ian Cherok :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **19051712**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on June 21, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or [info@phaseonline.com](mailto:info@phaseonline.com).

Sincerely,

**Dan Prucnal**

Laboratory Manager



## Sample Summary

Client Name: DDC-4C

Project Name: WSSC

Work Order Number(s): 19051712

The following samples were received under chain of custody by Phase Separation Science (PSS) on 05/17/2019 at 02:45 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
19051712-001	20190517	WASTE WATER	05/17/19 09:40
19051712-002	20190517	WASTE WATER	05/17/19 09:41

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

### Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminants, and part 141.3, for the secondary drinking water contaminants.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

### Standard Flags/Abbreviations:

- B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- C Results Pending Final Confirmation.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- Fail The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
- J The target analyte was positively identified below the reporting limit but greater than the MDL.
- MDL This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is an estimate of the minimum amount of a substance that an analytical process can reliably detect. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific.
- ND Not Detected at or above the reporting limit.
- RL PSS Reporting Limit.
- U Not detected.

### Certifications:

NELAP Certifications: PA 68-03330, VA 460156  
State Certifications: MD 179, WV 303  
Regulated Soil Permit: P330-12-00268  
NSWC USCG Accepted Laboratory  
LDBE MWAA LD1997-0041-2015

OFFICES:  
 6630 BALTIMORE NATIONAL PIKE  
 ROUTE 40 WEST  
 BALTIMORE, MD 21228  
 410-747-8770  
 800-932-9047  
 FAX 410-788-8723

# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 19051712  
 DDC-4C, Chambersburg, PA  
 May 24, 2019

Project Name: WSSC  
 Project Location: IWMP 001

**Sample ID: 20190517**      **Date/Time Sampled: 05/17/2019 09:40**      **PSS Sample ID: 19051712-001**  
**Matrix: WASTE WATER**      **Date/Time Received: 05/17/2019 14:45**

Total Metals (7)      Analytical Method: EPA 200.8      Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Cadmium	ND	ug/L	1.0		1	05/18/19	05/19/19 02:07	1064
Chromium	46.0	ug/L	1.00		1	05/18/19	05/19/19 02:07	1064
Copper	100	ug/L	1.00		1	05/18/19	05/19/19 02:07	1064
Lead	9.2	ug/L	1.0		1	05/18/19	05/19/19 02:07	1064
Nickel	338	ug/L	1.00		1	05/18/19	05/19/19 02:07	1064
Silver	2.1	ug/L	1.0		1	05/18/19	05/19/19 02:07	1064
Zinc	86.8	ug/L	20.0		1	05/18/19	05/19/19 02:07	1064

**Sample ID: 20190517**      **Date/Time Sampled: 05/17/2019 09:41**      **PSS Sample ID: 19051712-002**  
**Matrix: WASTE WATER**      **Date/Time Received: 05/17/2019 14:45**

Total Cyanide      Analytical Method: SM 4500-CN C,E -2011      Preparation Method: SM4500CN-C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Cyanide, Total	ND	mg/L	0.010		1	05/20/19	05/20/19 15:35	1053



## Case Narrative Summary

**Client Name: DDC-4C**

**Project Name: WSSC**

Work Order Number(s): 19051712

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Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

### **Sample Receipt:**

All sample receipt conditions were acceptable.

**NELAP accreditation was held for all analyses performed unless noted below. See [www.phaseonline.com](http://www.phaseonline.com) for complete PSS scope of accreditation.**



## Analytical Data Package Information Summary

**Work Order(s): 19051712**

Report Prepared For: DDC-4C, Chambersburg, PA

Project Name: WSSC

Project Manager: Ian Cherok

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
<b>EPA 200.8</b>	20190517	Initial	19051712-001	1064	W	76874	164472	05/17/2019	05/18/2019 12:57	05/19/2019 02:07
	76874-1-BKS	BKS	76874-1-BKS	1064	W	76874	164472	-----	05/18/2019 12:57	05/19/2019 00:44
	76874-1-BLK	BLK	76874-1-BLK	1064	W	76874	164472	-----	05/18/2019 12:57	05/19/2019 00:38
	20190516 S	MS	19051612-001 S	1064	W	76874	164472	05/16/2019	05/18/2019 12:57	05/19/2019 00:55
	20190516 SD	MSD	19051612-001 SD	1064	W	76874	164472	05/16/2019	05/18/2019 12:57	05/19/2019 01:01
<b>SM 4500-CN C,E - 2011</b>	20190517	Initial	19051712-002	1053	W	76883	164481	05/17/2019	05/20/2019 10:37	05/20/2019 15:35
	76883-1-BKS	BKS	76883-1-BKS	1053	W	76883	164481	-----	05/20/2019 10:37	05/20/2019 15:17
	76883-1-BLK	BLK	76883-1-BLK	1053	W	76883	164481	-----	05/20/2019 10:37	05/20/2019 15:14
	76883-1-BSD	BSD	76883-1-BSD	1053	W	76883	164481	-----	05/20/2019 10:37	05/20/2019 15:20
	20190516 S	MS	19051612-002 S	1053	W	76883	164481	05/16/2019	05/20/2019 10:37	05/20/2019 15:29
	20190516 SD	MSD	19051612-002 SD	1053	W	76883	164481	05/16/2019	05/20/2019 10:37	05/20/2019 15:32

# PHASE SEPARATION SCIENCE, INC.

## QC Summary 19051712

DDC-4C

WSSC

**Analytical Method: SM 4500-CN C,E -2011**

Seq Number: 164481

MB Sample Id: 76883-1-BLK

Matrix: Water

LCS Sample Id: 76883-1-BKS

Prep Method: SM4500CN-CPRE

Date Prep: 05/20/19

LCSD Sample Id: 76883-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Cyanide, Total	<0.01000	0.1000	0.1027	103	0.1040	104	85-115	1	20	mg/L	

**Analytical Method: EPA 200.8**

Seq Number: 164472

MB Sample Id: 76874-1-BLK

Matrix: Water

LCS Sample Id: 76874-1-BKS

Prep Method: E200.8\_PREP

Date Prep: 05/18/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Cadmium	<1.000	40.00	41.99	105	85-115	ug/L	
Chromium	<1.000	40.00	41.15	103	85-115	ug/L	
Copper	<1.000	40.00	43.21	108	85-115	ug/L	
Lead	<1.000	40.00	42.57	106	85-115	ug/L	
Nickel	<1.000	40.00	40.62	102	85-115	ug/L	
Silver	<1.000	40.00	40.83	102	85-115	ug/L	
Zinc	<20.00	200	211.6	106	85-115	ug/L	

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H = Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits





# Phase Separation Science, Inc

## Sample Receipt Checklist

**Work Order #** 19051712  
**Client Name** DDC-4C  
**Project Name** WSSC  
**Disposal Date** 06/21/2019

**Received By** Thomas Wingate  
**Date Received** 05/17/2019 02:45:00 PM  
**Delivered By** Trans Time Express  
**Tracking No** Not Applicable  
**Logged In By** Thomas Wingate

### Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact? N/A  
Seal(s) Signed / Dated? N/A

Ice Present  
Temp (deg C) 3.8  
Temp Blank Present No

### Documentation

COC agrees with sample labels? Yes  
Chain of Custody Yes

Sampler Name I. Cherok/L. Wicklun  
MD DW Cert. No. N/A

### Sample Container

Appropriate for Specified Analysis? Yes  
Intact? Yes  
Labeled and Labels Legible? Yes

Custody Seal(s) Intact? Not Applicable  
Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 2

Total No. of Containers Received 2

### Preservation

Total Metals	(pH<2)	Yes
Dissolved Metals, filtered within 15 minutes of collection	(pH<2)	N/A
Orthophosphorus, filtered within 15 minutes of collection		N/A
Cyanides	(pH>12)	Yes
Sulfide	(pH>9)	N/A
TOC, DOC (field filtered), COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	N/A
Do VOA vials have zero headspace?		N/A
624 VOC (Rcvd at least one unpreserved VOA vial)		N/A
524 VOC (Rcvd with trip blanks)	(pH<2)	N/A

### Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By:

  
Thomas Wingate

Date: 05/17/2019

PM Review and Approval:

  
Amber Confer

Date: 05/20/2019

=====  
Program settings  
Site Id: 20190508  
-----

Program settings

PGM:  
900MAX VERSION: 7.64

SITE ID: 20190508  
LEVEL SENSOR: SUBMERGED XDUCER  
TYPE: 0-10 FT  
CAL OFFSET: 414  
CAL GAIN: 6.991 /cm  
USER OFFSET: 0.00 cm  
NUMBER OF BOTTLES: 2  
BOTTLE VOLUME: 10.00 gal  
INTAKE TUBE LENGTH: 12 ft  
INTAKE TUBE TYPE: 3/8" VINYL  
FIRST: IMMEDIATELY  
TIMED BOTTLE SETS:  
TIME INTERVAL:00:00  
BOTTLES PER SET: 1  
CONTINUOUS MODE: ON  
LIQUID SENSORS: ON  
SAMPLE VOLUME: 100 ml  
INTAKE RINSES: 0  
SAMPLE RETRIES: 3  
SITE ID: 20190508  
FLOW METER:  
FLOW UNITS: gpm  
TOTAL FLOW UNITS: gal  
LEVEL UNITS: in.  
MANNING EQUATION  
SHAPE: U-SHAPE CHANNEL  
WIDTH: 11.00 in.  
SLOPE: 0.00500  
ROUGHNESS: 0.0170  
SCREEN SAVER MODE: OFF  
LOADED PROGRAM: 1  
RS232 BAUD RATE: 19200  
DAYS TO LOG: 9.0  
INSTALLED MEMORY: 128K  
EXTENDED POWER: OFF

--INPUT-----UNITS-LOGGING--INTV-  
PROC.TEMP F OFF  
pH pH ON 1min  
FLOW gpm ON 5min  
LEVEL in. ON 5min  
VELOCITY fps OFF  
CAB.TEMP. C OFF

MEMORY MODE: SLATE  
THERMAL CALIBRATE  
AT: 15:02 24-OCT-18  
pH CALIBRATION  
AT: 09:50 07-MAY-19  
PGM CMPLT OUTPUT  
DISABLED  
SPECIAL OUTPUT:  
DISABLED  
UPSET SAMPLING:  
DISABLED

DONE

---

Day Report - 07/MAY/19  
Tuesday

Site Id: 20190508

---

pH/ORP Level Flow 1  
(pH) (in.) (gpm)

Minimum: 6.99\* 1.158 15.948  
09:53 21:05 21:05

Maximum: 10.07\*\* 3.178 124.815  
09:58 10:25 10:25

Average: ---- 1.865 45.155

Total Flow1: 38381.633 (gal)

\*This pH is a pH check, not sanitary. The lowest pH was 7.40 at 23:59 on 5/7/2019.

\*\*This pH is a pH check, not sanitary. The highest pH was 8.87 at 16:00 on 5/7/2019.

---

Day Report - 08/MAY/19  
Wednesday

Site Id: 20190508

---

pH/ORP Level Flow 1  
(pH) (in.) (gpm)

Minimum: 7.00 0.880 8.934  
06:05 00:00 00:00

Maximum: 10.13\*\* 3.439 145.366  
09:15 09:05 09:05

Average: ---- 1.738 40.940

Total Flow1: 58953.691 (gal)

\*\*This pH is a pH check, not sanitary. The highest pH was 8.81 at 17:39 on 5/8/2019.

=====  
Day Report - 09/MAY/19

Thursday

Site Id: 20190508  
-----

pH/ORP Level Flow 1  
(pH) (in.) (gpm)

Minimum: 7.07\* 0.810 7.500  
08:52 02:35 02:35

Maximum: 10.14\*\* 5.697 363.705  
08:55 23:10 23:10

Average: ---- 1.651 37.811

Total Flow1: 54448.063 (gal)

\*This pH is a pH check, not sanitary. The lowest pH was 7.08 at 07:26 on 5/9/2019.

\*\*This pH is a pH check, not sanitary. The highest pH was 8.85 at 13:56 on 5/9/2019.

=====  
Day Report - 10/MAY/19

Friday

Site Id: 20190508  
-----

pH/ORP Level Flow 1  
(pH) (in.) (gpm)

Minimum: 7.03 0.000 0.000  
05:57 09:10 09:10

Maximum: 10.12\*\* 4.563 246.863  
09:05 00:25 00:25

Average: ---- 1.922 53.189

Total Flow1: 29785.891 (gal)

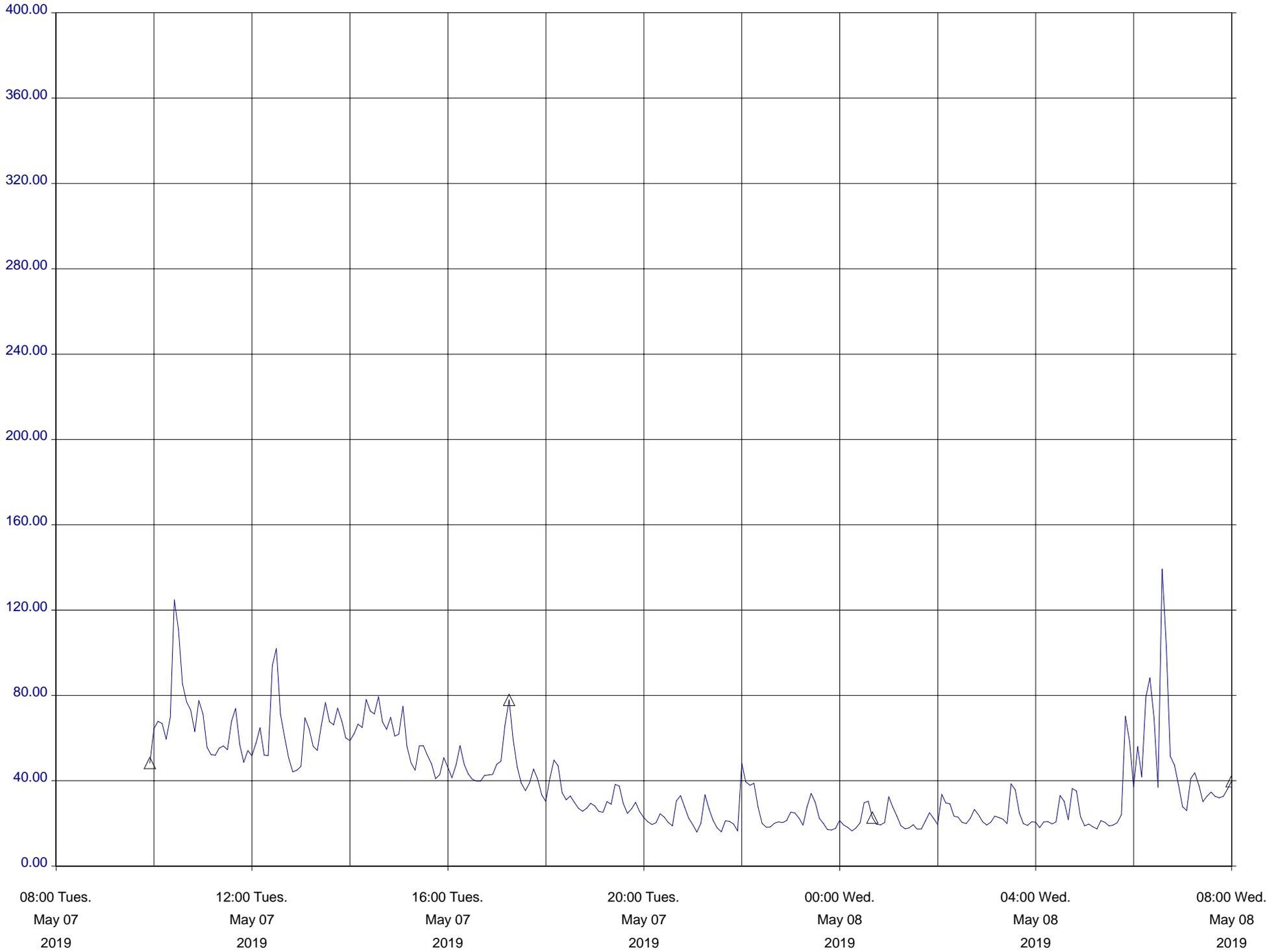
\*\*This pH is a pH check, not sanitary. The highest pH was 8.19 at 07:57 on 5/10/2019.

# WSSC Second Quarter Flow Monitoring Graph 5/7/19 - 5/10/19

Site Id: 20190508 File name: 05100922.000

—△— Flow 1 (gpm)

Graph span: 1 day

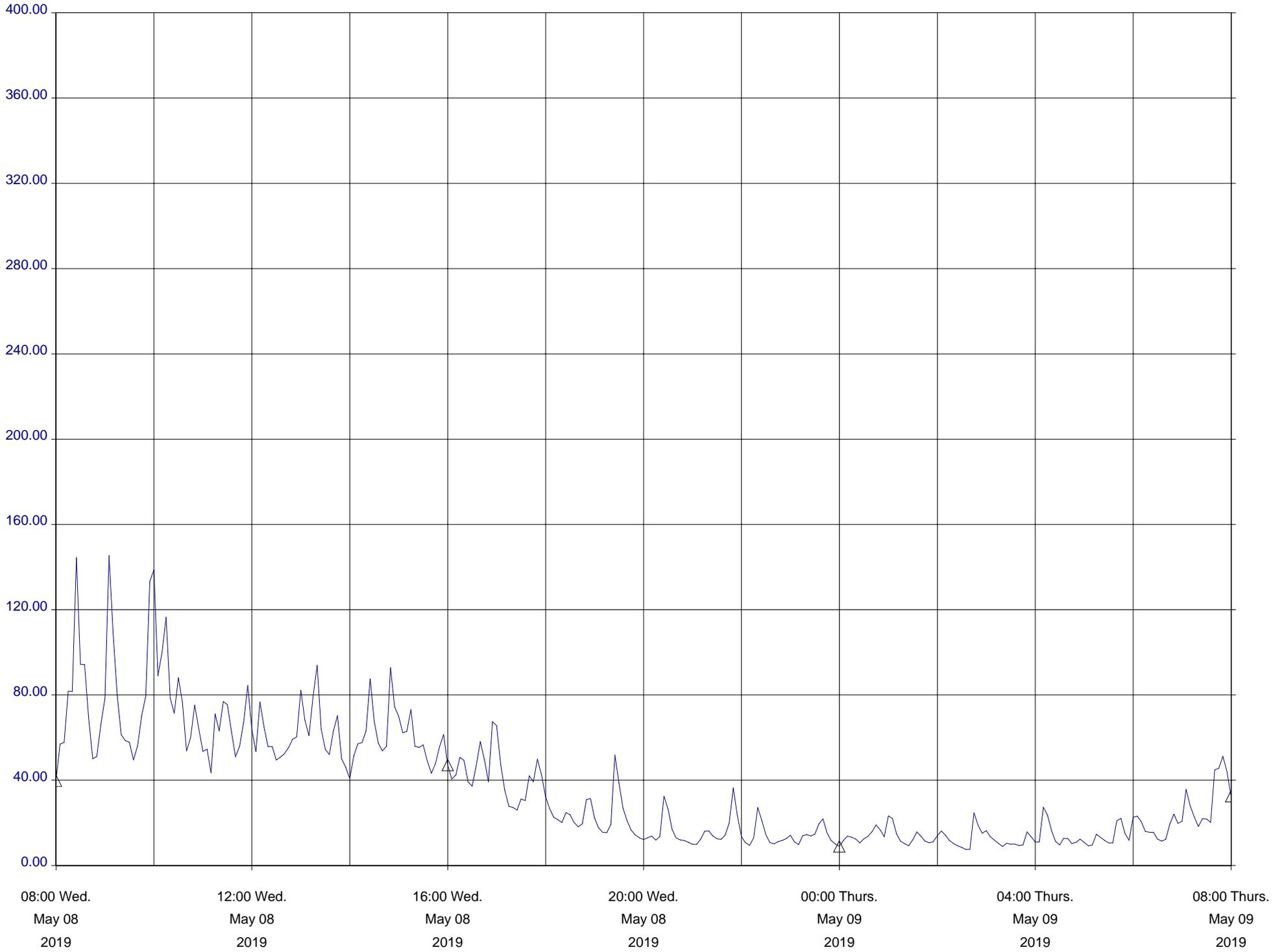


# WSSC Second Quarter Flow Monitoring Graph 5/7/19 - 5/10/19

Site Id: 20190508 File name: 05100922.000

—△— Flow 1 (gpm)

Graph span: 1 day

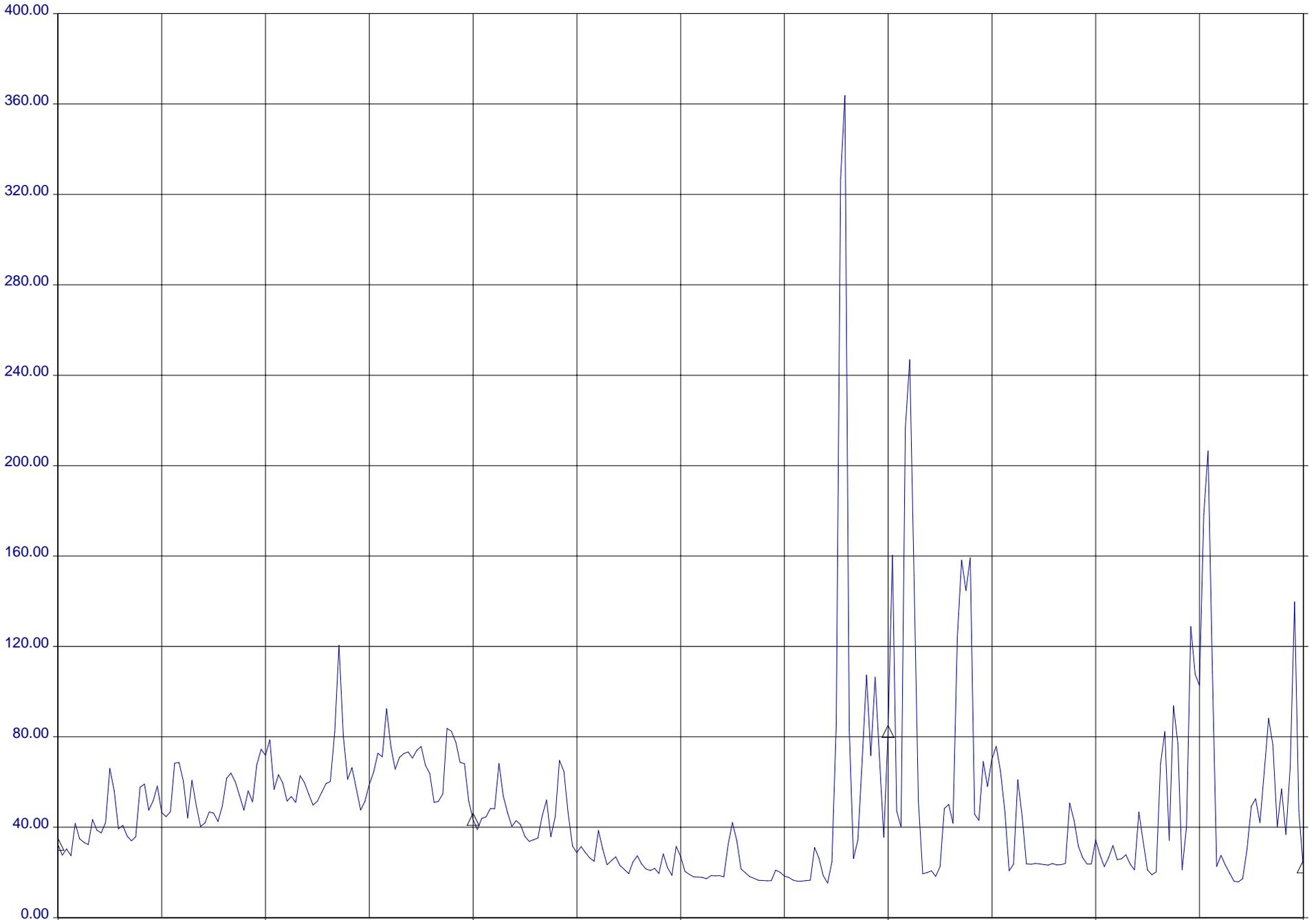


# WSSC Second Quarter Flow Monitoring Graph 5/7/19 - 5/10/19

Site Id: 20190508 File name: 05100922.000

—△— Flow 1 (gpm)

Graph span: 1 day



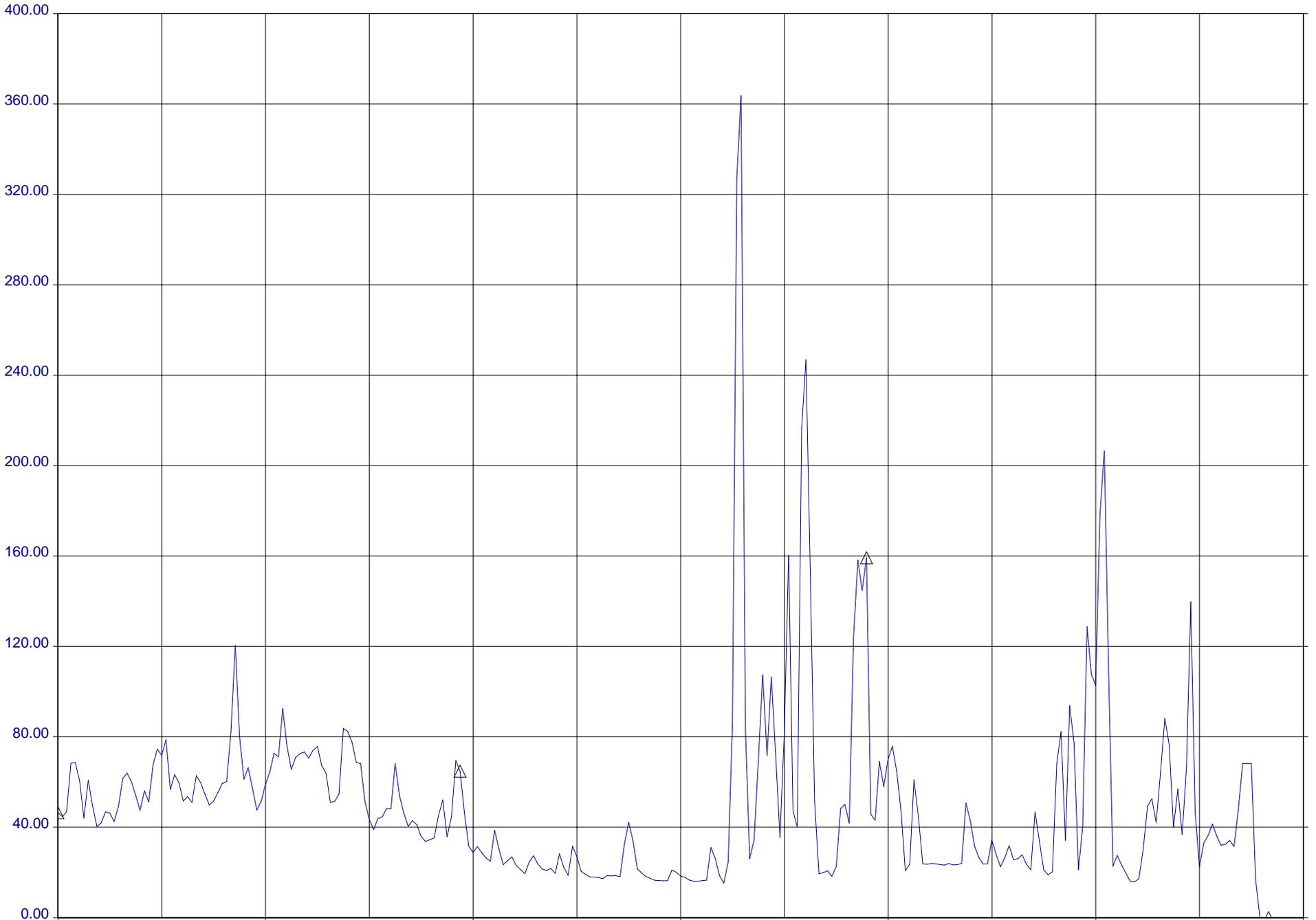
08:00 Thurs. May 09 2019      12:00 Thurs. May 09 2019      16:00 Thurs. May 09 2019      20:00 Thurs. May 09 2019      00:00 Fri. May 10 2019      04:00 Fri. May 10 2019      08:00 Fri. May 10 2019

# WSSC Second Quarter Flow Monitoring Graph 5/7/19 - 5/10/19

Site Id: 20190508 File name: 05100922.000

—△— Flow 1 (gpm)

Graph span: 1 day



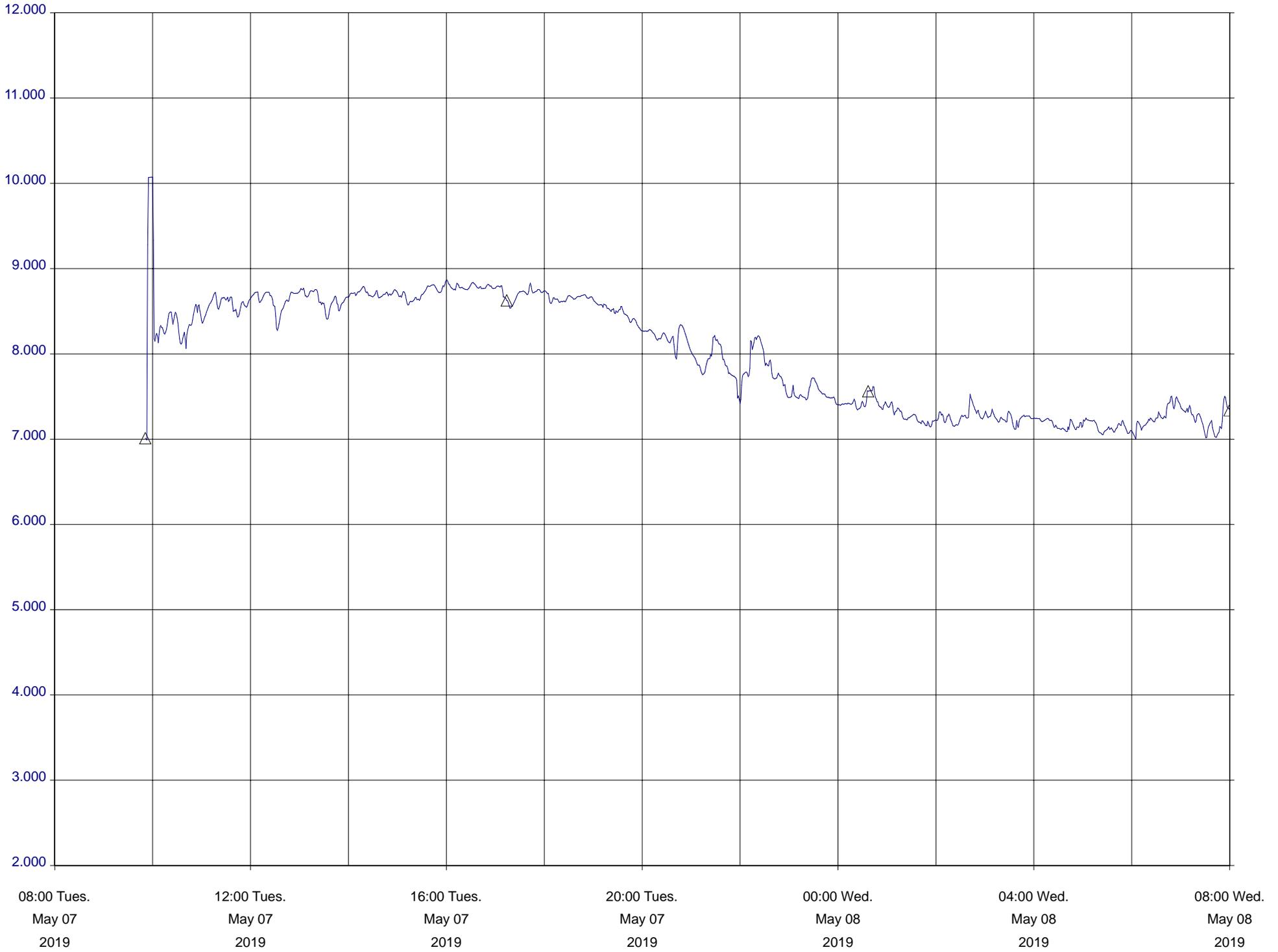
10:00 Thurs. May 09 2019      14:00 Thurs. May 09 2019      18:00 Thurs. May 09 2019      22:00 Thurs. May 09 2019      02:00 Fri. May 10 2019      06:00 Fri. May 10 2019      10:00 Fri. May 10 2019

# WSSC Second Quarter pH Monitoring Graph 5/7/19 - 5/10/19

Site Id: 20190508 File name: 05100922.000

—△— pH/ORP (pH)

Graph span: 1 day

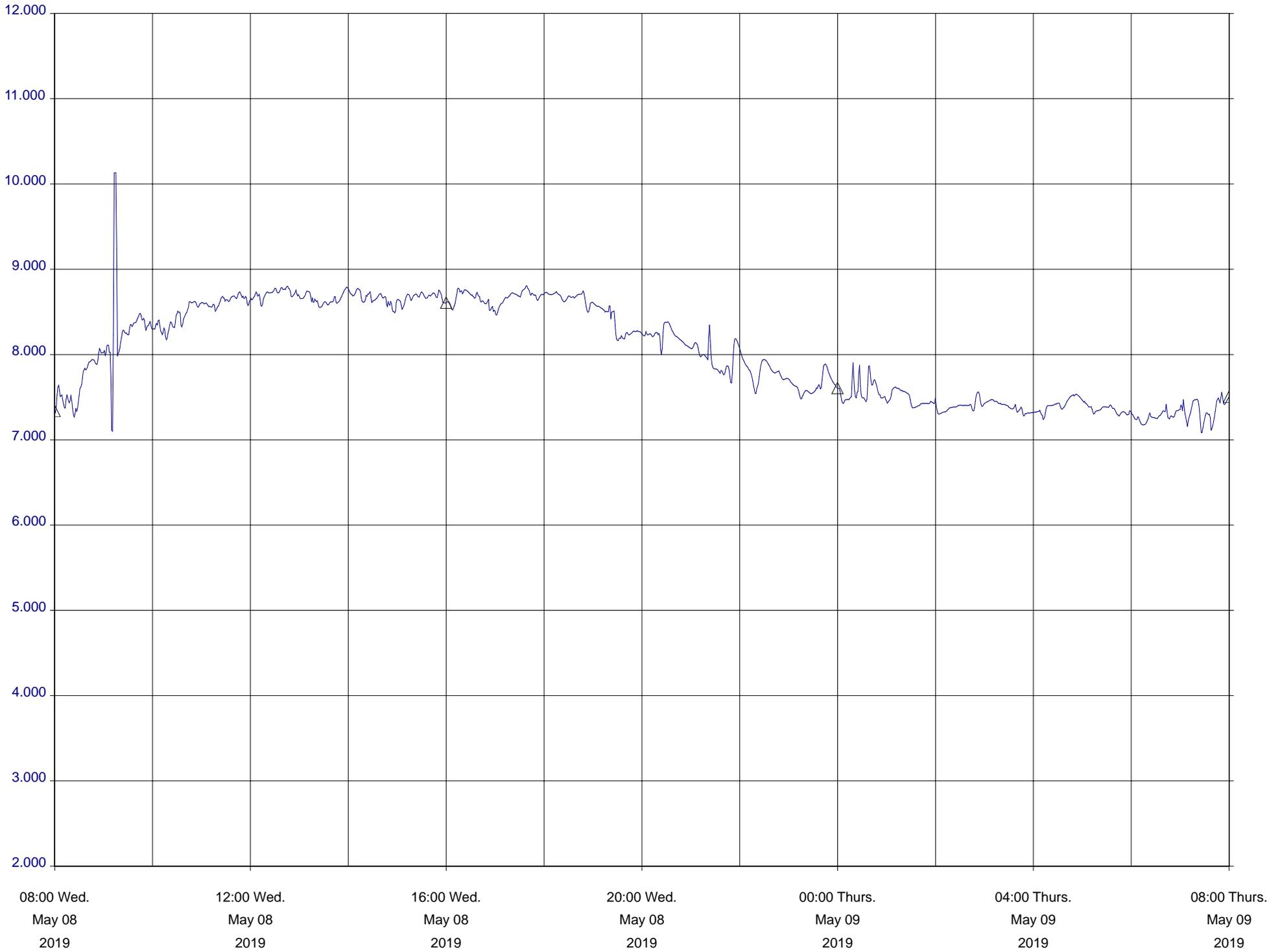


# WSSC Second Quarter pH Monitoring Graph 5/7/19 - 5/10/19

Site Id: 20190508 File name: 05100922.000

—△— pH/ORP (pH)

Graph span: 1 day

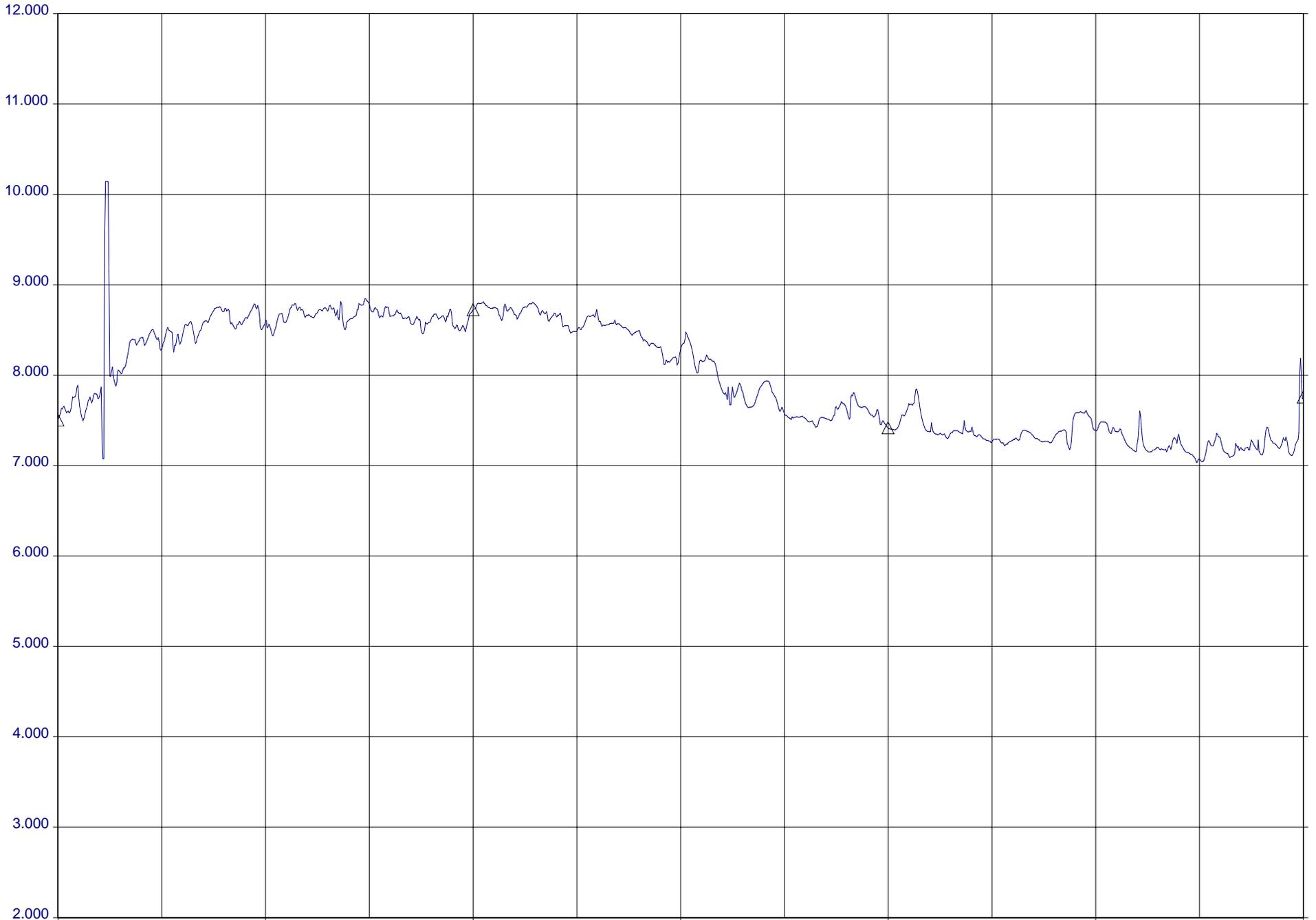


# WSSC Second Quarter pH Monitoring Graph 5/7/19 - 5/10/19

Site Id: 20190508 File name: 05100922.000

—△— pH/ORP (pH)

Graph span: 1 day



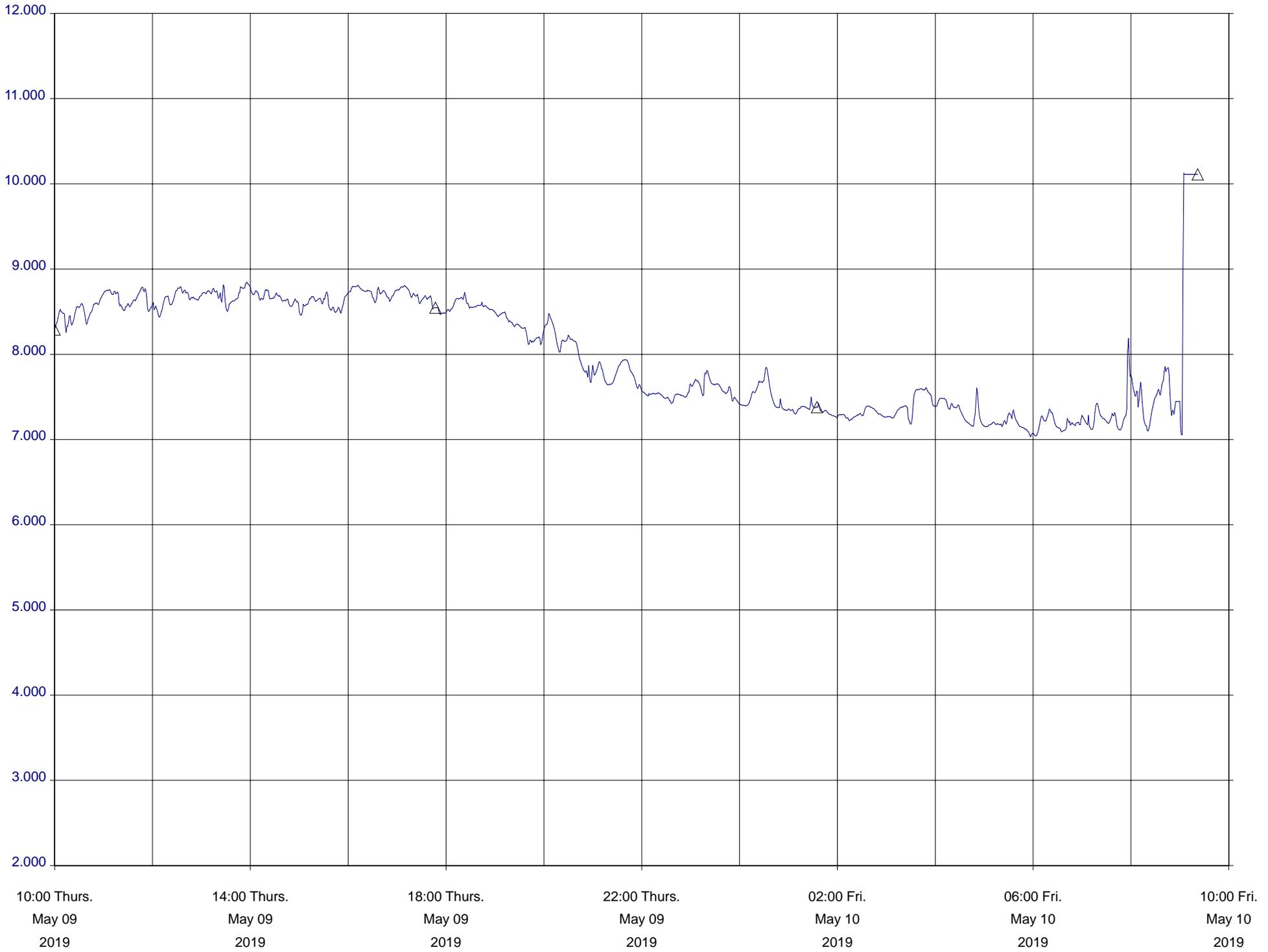
08:00 Thurs. May 09 2019      12:00 Thurs. May 09 2019      16:00 Thurs. May 09 2019      20:00 Thurs. May 09 2019      00:00 Fri. May 10 2019      04:00 Fri. May 10 2019      08:00 Fri. May 10 2019

# WSSC Second Quarter pH Monitoring Graph 5/7/19 - 5/10/19

Site Id: 20190508 File name: 05100922.000

—△— pH/ORP (pH)

Graph span: 1 day



# Analytical Report for

**DDC-4C**

**Certificate of Analysis No.: 19050916**

**Project Manager: Ian Cherok**

**Project Name : WSSC**

**Project Location: FAC IWMP**



**May 17, 2019**

**Phase Separation Science, Inc.**

**6630 Baltimore National Pike**

**Baltimore, MD 21228**

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# PHASE SEPARATION SCIENCE, INC.



May 17, 2019

**Ian Cherok**  
**DDC-4C**  
70 West King Street  
Chambersburg, PA 17201

Reference: PSS Work Order(s) No: **19050916**  
Project Name: WSSC  
Project Location: FAC IWMP

Dear Ian Cherok :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **19050916**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on June 13, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or [info@phaseonline.com](mailto:info@phaseonline.com).

Sincerely,

A handwritten signature in black ink that reads 'Dan Prucnal'.

**Dan Prucnal**

Laboratory Manager



# Sample Summary

**Client Name: DDC-4C**  
**Project Name: WSSC**

**Work Order Number(s): 19050916**

The following samples were received under chain of custody by Phase Separation Science (PSS) on 05/09/2019 at 12:20 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
19050916-001	20190508g1+g2	WASTE WATER	05/08/19 14:27
19050916-002	20190508c	WASTE WATER	05/08/19 23:59

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

#### Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminants, and part 141.3, for the secondary drinking water contaminants.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

#### Standard Flags/Abbreviations:

- B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- C Results Pending Final Confirmation.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- Fail The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
- J The target analyte was positively identified below the reporting limit but greater than the MDL.
- MDL This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is an estimate of the minimum amount of a substance that an analytical process can reliably detect. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific.
- ND Not Detected at or above the reporting limit.
- RL PSS Reporting Limit.
- U Not detected.

#### Certifications:

NELAP Certifications: PA 68-03330, VA 460156  
State Certifications: MD 179, WV 303  
Regulated Soil Permit: P330-12-00268  
NSWC USCG Accepted Laboratory  
LDBE MWAA LD1997-0041-2015

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 19050916

DDC-4C, Chambersburg, PA

May 17, 2019

Project Name: WSSC

Project Location: FAC IWMP

**Sample ID: 20190508g1+g2**

**Date/Time Sampled: 05/08/2019 14:27**

**PSS Sample ID: 19050916-001**

**Matrix: WASTE WATER**

**Date/Time Received: 05/09/2019 12:20**

Total Cyanide

Analytical Method: SM 4500-CN C,E -2011

Preparation Method: SM4500CN-C

	<b>Result</b>	<b>Units</b>	<b>RL</b>	<b>Flag</b>	<b>Dil</b>	<b>Prepared</b>	<b>Analyzed</b>	<b>Analyst</b>
Cyanide, Total	ND	mg/L	0.010		1	05/10/19	05/10/19 13:40	1053

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 19050916  
**DDC-4C, Chambersburg, PA**  
 May 17, 2019

Project Name: WSSC  
 Project Location: FAC IWMP

**Sample ID: 20190508c**      **Date/Time Sampled: 05/08/2019 23:59**      **PSS Sample ID: 19050916-002**  
**Matrix: WASTE WATER**      **Date/Time Received: 05/09/2019 12:20**

Total Metals (10)      Analytical Method: EPA 200.8      Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Arsenic	ND	ug/L	1.0		1	05/10/19	05/10/19 21:33	1051
Cadmium	ND	ug/L	1.0		1	05/10/19	05/10/19 21:33	1051
Chromium	2.6	ug/L	1.0		1	05/10/19	05/10/19 21:33	1051
Copper	247	ug/L	1.00		1	05/10/19	05/10/19 21:33	1051
Lead	5.9	ug/L	1.0		1	05/10/19	05/10/19 21:33	1051
Molybdenum	2.5	ug/L	1.0		1	05/10/19	05/10/19 21:33	1051
Nickel	9.9	ug/L	1.0		1	05/10/19	05/10/19 21:33	1051
Selenium	ND	ug/L	1.0		1	05/10/19	05/10/19 21:33	1051
Silver	2.1	ug/L	1.0		1	05/10/19	05/10/19 21:33	1051
Zinc	284	ug/L	20.0		1	05/10/19	05/10/19 21:33	1051

Phosphorus, Total as P      Analytical Method: EPA 365.3      Preparation Method: E365.3

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Phosphorus, Total (as P)	11	mg/L	0.50		10	05/13/19	05/13/19 14:13	1053

Nitrogen, Ammonia      Analytical Method: SM 4500-NH3-F -2011      Preparation Method: SM4500-NH3B

Qualifier(s): See Batch 164273 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Nitrogen, Ammonia (as N)	53	mg/L	4.0		1	05/14/19	05/14/19 14:29	1053

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 19050916

DDC-4C, Chambersburg, PA

May 17, 2019

Project Name: WSSC

Project Location: FAC IWMP

**Sample ID: 20190508c**

**Date/Time Sampled: 05/08/2019 23:59**

**PSS Sample ID: 19050916-002**

**Matrix: WASTE WATER**

**Date/Time Received: 05/09/2019 12:20**

Biochemical Oxygen Demand

Analytical Method: SM 5210B -2011

	<b>Result</b>	<b>Units</b>	<b>RL</b>	<b>Flag</b>	<b>Prepared</b>	<b>Analyzed</b>	<b>Analyst</b>
Biochemical Oxygen Demand, 5 day	<b>400</b>	mg/L	120		05/10/19	05/10/19 15:42	4005



## Case Narrative Summary

**Client Name: DDC-4C**

**Project Name: WSSC**

Work Order Number(s): 19050916

---

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

### **Sample Receipt:**

Samples g1 and g2 composited upon receipt.

19050916: Analyses associated with analyst code 4005 were performed by Enviro-Chem Laboratories, Inc., 47 Loveton Circle, Suite K, Sparks, MD 21152

### **Analytical:**

#### **Nitrogen, Ammonia**

##### **Batch: 164273**

Sample 19050916-002 was diluted by a factor of 20 during sample preparation due to a high level of ammonia.

**NELAP accreditation was held for all analyses performed unless noted below. See [www.phaseonline.com](http://www.phaseonline.com) for complete PSS scope of accreditation.**

SM 5210B -2011



## Analytical Data Package Information Summary

**Work Order(s): 19050916**

Report Prepared For: DDC-4C, Chambersburg, PA

Project Name: WSSC

Project Manager: Ian Cherok

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
<b>EPA 200.8</b>	76753-1-BKS	BKS	76753-1-BKS	1051	W	76753	164183	-----	05/10/2019 12:22	05/10/2019 14:11
	76753-1-BLK	BLK	76753-1-BLK	1051	W	76753	164183	-----	05/10/2019 12:22	05/10/2019 14:06
	Largo DL S	MS	19050805-001 S	1051	W	76753	164183	05/08/2019	05/10/2019 12:22	05/10/2019 14:21
	20190508c	Initial	19050916-002	1051	W	76753	164212	05/08/2019	05/10/2019 12:22	05/10/2019 21:33
	76753-1-BKS	BKS	76753-1-BKS	1051	W	76753	164212	-----	05/10/2019 12:22	05/10/2019 19:49
	76753-1-BLK	BLK	76753-1-BLK	1051	W	76753	164212	-----	05/10/2019 12:22	05/10/2019 19:43
	FT-27 S	MS	19050908-001 S	1051	W	76753	164212	05/09/2019	05/10/2019 12:22	05/10/2019 20:24
	FT-27 SD	MSD	19050908-001 SD	1051	W	76753	164212	05/09/2019	05/10/2019 12:22	05/10/2019 20:29
<b>EPA 365.3</b>	20190508c	Initial	19050916-002	1053	W	76783	164216	05/08/2019	05/13/2019 12:35	05/13/2019 14:13
	76783-1-BKS	BKS	76783-1-BKS	1053	W	76783	164216	-----	05/13/2019 12:35	05/13/2019 14:13
	76783-1-BLK	BLK	76783-1-BLK	1053	W	76783	164216	-----	05/13/2019 12:35	05/13/2019 14:13
	20190509c S	MS	19051008-002 S	1053	W	76783	164216	05/09/2019	05/13/2019 12:35	05/13/2019 14:13
	20190509c SD	MSD	19051008-002 SD	1053	W	76783	164216	05/09/2019	05/13/2019 12:35	05/13/2019 14:13
<b>SM 4500-CN C,E - 2011</b>	20190508g1+g2	Initial	19050916-001	1053	W	76746	164172	05/08/2019	05/10/2019 10:39	05/10/2019 13:40
	76746-1-BKS	BKS	76746-1-BKS	1053	W	76746	164172	-----	05/10/2019 10:39	05/10/2019 13:05
	76746-1-BLK	BLK	76746-1-BLK	1053	W	76746	164172	-----	05/10/2019 10:39	05/10/2019 13:02
	76746-1-BSD	BSD	76746-1-BSD	1053	W	76746	164172	-----	05/10/2019 10:39	05/10/2019 13:08
	Week 1 Grab Discharge S	MS	19050821-001 S	1053	W	76746	164172	05/02/2019	05/10/2019 10:39	05/10/2019 13:25
	FT-28 S	MS	19050909-001 S	1053	W	76746	164172	05/09/2019	05/10/2019 10:39	05/10/2019 13:34
	FT-28 SD	MSD	19050909-001 SD	1053	W	76746	164172	05/09/2019	05/10/2019 10:39	05/10/2019 13:37
<b>SM 4500-NH3-F - 2011</b>	20190508c	Initial	19050916-002	1053	W	76793	164273	05/08/2019	05/14/2019 10:06	05/14/2019 14:29
	76793-1-BKS	BKS	76793-1-BKS	1053	W	76793	164273	-----	05/14/2019 10:06	05/14/2019 14:05
	76793-1-BLK	BLK	76793-1-BLK	1053	W	76793	164273	-----	05/14/2019 10:06	05/14/2019 14:01
	76793-1-BSD	BSD	76793-1-BSD	1053	W	76793	164273	-----	05/14/2019 10:06	05/14/2019 14:09
	20190508c S	MS	19050916-002 S	1053	W	76793	164273	05/08/2019	05/14/2019 10:06	05/14/2019 15:10
	Cox Creek S	MS	19051311-002 S	1053	W	76793	164273	05/13/2019	05/14/2019 10:06	05/14/2019 14:21
	Cox Creek SD	MSD	19051311-002 SD	1053	W	76793	164273	05/13/2019	05/14/2019 10:06	05/14/2019 14:25



## Analytical Data Package Information Summary

**Work Order(s): 19050916**

Report Prepared For: DDC-4C, Chambersburg, PA

Project Name: WSSC

Project Manager: Ian CheroK

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
SM 5210B -2011	20190508c	Initial	19050916-002	4005	W	164368	164368	05/08/2019	05/10/2019 15:42	05/10/2019 15:42

# PHASE SEPARATION SCIENCE, INC.

## QC Summary 19050916

DDC-4C

WSSC

**Analytical Method: EPA 365.3**

Seq Number: 164216

MB Sample Id: 76783-1-BLK

Matrix: Water

LCS Sample Id: 76783-1-BKS

Prep Method: E365.3\_Prep

Date Prep: 05/13/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Phosphorus, Total (as P)	<0.0500	0.975	0.991	102	85-115	mg/L	

**Analytical Method: SM 4500-CN C,E -2011**

Seq Number: 164172

MB Sample Id: 76746-1-BLK

Matrix: Water

LCS Sample Id: 76746-1-BKS

Prep Method: SM4500CN-CPRE

Date Prep: 05/10/19

LCSD Sample Id: 76746-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Cyanide, Total	<0.01000	0.1000	0.09980	100	0.1007	101	85-115	1	20	mg/L	

**Analytical Method: SM 4500-NH3-F -2011**

Seq Number: 164273

MB Sample Id: 76793-1-BLK

Matrix: Water

LCS Sample Id: 76793-1-BKS

Prep Method: SM4500-NH3B

Date Prep: 05/14/19

LCSD Sample Id: 76793-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Nitrogen, Ammonia (as N)	<0.2000	2.500	2.378	95	2.346	94	85-115	1	20	mg/L	

**Analytical Method: SM 4500-NH3-F -2011**

Seq Number: 164273

Parent Sample Id: 19050916-002

Matrix: Waste Water

MS Sample Id: 19050916-002 S

Prep Method: SM4500-NH3B

Date Prep: 05/14/19

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	Limits	Units	Flag
Nitrogen, Ammonia (as N)	53.34	50.00	99.75	93	80-120	mg/L	

**Analytical Method: EPA 200.8**

Seq Number: 164183

MB Sample Id: 76753-1-BLK

Matrix: Water

LCS Sample Id: 76753-1-BKS

Prep Method: E200.8\_PREP

Date Prep: 05/10/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Arsenic	<1.000	40.00	38.28	96	85-115	ug/L	
Cadmium	<1.000	40.00	39.66	99	85-115	ug/L	
Chromium	<1.000	40.00	40.21	101	85-115	ug/L	
Copper	<1.000	40.00	41.60	104	85-115	ug/L	
Lead	<1.000	40.00	40.12	100	85-115	ug/L	
Molybdenum	<1.000	40.00	<1.000	0	85-115	ug/L	
Nickel	<1.000	40.00	38.88	97	85-115	ug/L	
Selenium	<1.000	40.00	41.87	105	85-115	ug/L	
Silver	<1.000	40.00	40.18	100	85-115	ug/L	
Zinc	<20.00	200	195.9	98	85-115	ug/L	

# PHASE SEPARATION SCIENCE, INC.

## QC Summary 19050916

DDC-4C

WSSC

**Analytical Method: EPA 200.8**

Seq Number: 164212

MB Sample Id: 76753-1-BLK

Matrix: Water

LCS Sample Id: 76753-1-BKS

Prep Method: E200.8\_PREP

Date Prep: 05/10/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Arsenic	<1.000	40.00	39.40	99	85-115	ug/L	
Cadmium	<1.000	40.00	39.71	99	85-115	ug/L	
Chromium	<1.000	40.00	41.10	103	85-115	ug/L	
Copper	<1.000	40.00	42.09	105	85-115	ug/L	
Lead	<1.000	40.00	39.37	98	85-115	ug/L	
Molybdenum	<1.000	40.00	37.76	94	85-115	ug/L	
Nickel	<1.000	40.00	39.74	99	85-115	ug/L	
Selenium	<1.000	40.00	41.56	104	85-115	ug/L	
Silver	<1.000	40.00	39.18	98	85-115	ug/L	
Zinc	<20.00	200	199.7	100	85-115	ug/L	

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits



# SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

**PHASE SEPARATION SCIENCE, INC.**

www.phaseonline.com  
email: info@phaseonline.com

<b>1</b> *CLIENT: <u>DDC 4C</u>		*OFFICE LOC. <u>GSFC NASA</u>		PSS Work Order #: <u>19050916</u>		PAGE <u>1</u> OF <u>1</u>						
*PROJECT MGR: <u>lancherok</u>		*PHONE NO.: ( )		Matrix Codes: <b>SW</b> =Surface Wtr <b>DW</b> =Drinking Wtr <b>GW</b> =Ground Wtr <b>WW</b> =Waste Wtr <b>O</b> =Oil <b>S</b> =Soil <b>L</b> =Liquid <b>SOL</b> =Solid <b>A</b> =Air <b>WI</b> =Wipe								
EMAIL: <u>lan.d.cherok@nasa.gov</u>		FAX NO.: ( )		No. CONTAINERS	SAMPLE TYPE	C = COMP G = GRAB	Analysis/Method Required	Preservatives Used	*	③	cyanide total metals arsenic, selenium molybdenum BOD total phosphorus Ammonia	REMARKS
*PROJECT NAME: <u>WSSC</u>		PROJECT NO.:										
SITE LOCATION: <u>FAC 1WMP</u>		P.O. NO.:										
SAMPLER(S): <u>L. Wicklund</u>		DW CERT NO.:										
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)								
11	20190508g1	5/8/19	09:17	WW	1	G	X					
21	20190508g2	5/8/19	14:27	WW	1	G	X					*please combine
32	20190508c	5/8/19	00:01-23:59	WW	4	C		X	X	X	X	20190508g1 and 20190508g2 and analyze as one sample.
<b>5</b> Relinquished By: (1) <u>Lauren Wicklund</u>				Date: <u>5/9/19</u>	Time: <u>09:14</u>	Received By: <u>[Signature]</u>	<b>4</b> *Requested TAT (One TAT per COC) <input checked="" type="checkbox"/> 5-Day <input type="checkbox"/> 3-Day <input type="checkbox"/> 2-Day <input type="checkbox"/> Next Day <input type="checkbox"/> Emergency <input type="checkbox"/> Other				# of Coolers: <u>1</u>	
Relinquished By: (2) <u>[Signature]</u>				Date: <u>5/9/19</u>	Time: <u>12:00</u>	Received By: <u>[Signature]</u>	Data Deliverables Required: COA <input type="checkbox"/> QC <input type="checkbox"/> SUMM <input type="checkbox"/> CLP <input type="checkbox"/> LIKE <input type="checkbox"/> OTHER <input type="checkbox"/>				Custody Seal: <u>ABS</u>	
Relinquished By: (3)				Date:	Time:	Received By:	Special Instructions:				Ice Present: <u>PRES</u> Temp: <u>3.1°-3.8°C</u>	
Relinquished By: (4)				Date:	Time:	Received By:	DW COMPLIANCE? YES <input type="checkbox"/>	EDD FORMAT TYPE:	STATE RESULTS REPORTED TO: MD <input type="checkbox"/> DE <input type="checkbox"/> PA <input type="checkbox"/> VA <input type="checkbox"/> WV <input type="checkbox"/> OTHER			



# Phase Separation Science, Inc

## Sample Receipt Checklist

**Work Order #** 19050916  
**Client Name** DDC-4C  
**Project Name** WSSC  
**Disposal Date** 06/13/2019

**Received By** Thomas Wingate  
**Date Received** 05/09/2019 12:20:00 PM  
**Delivered By** Trans Time Express  
**Tracking No** Not Applicable  
**Logged In By** Thomas Wingate

### Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact? N/A

Seal(s) Signed / Dated? N/A

Ice Present

Temp (deg C) 3.8

Temp Blank Present No

### Documentation

COC agrees with sample labels? Yes

Chain of Custody Yes

Sampler Name Ian Cherok

MD DW Cert. No. N/A

### Sample Container

Appropriate for Specified Analysis? Yes

Intact? Yes

Labeled and Labels Legible? Yes

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 2

Total No. of Containers Received 5

### Preservation

Total Metals (pH<2) Yes

Dissolved Metals, filtered within 15 minutes of collection (pH<2) N/A

Orthophosphorus, filtered within 15 minutes of collection N/A

Cyanides (pH>12) Yes

Sulfide (pH>9) N/A

TOC, DOC (field filtered), COD, Phenols (pH<2) N/A

TOX, TKN, NH3, Total Phos (pH<2) Yes

VOC, BTEX (VOA Vials Rcvd Preserved) (pH<2) N/A

Do VOA vials have zero headspace? N/A

624 VOC (Rcvd at least one unpreserved VOA vial) N/A

524 VOC (Rcvd with trip blanks) (pH<2) N/A

### Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples g1 and g2 composited upon receipt.

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 05/09/2019

PM Review and Approval:

Lynn Jackson

Date: 05/09/2019

# Analytical Report for

**DDC-4C**

**Certificate of Analysis No.: 19051008**

**Project Manager: Ian Cherok**

**Project Name : WSSC**

**Project Location: FAC IWMP**



**May 20, 2019**

**Phase Separation Science, Inc.**

**6630 Baltimore National Pike**

**Baltimore, MD 21228**

**Phone: (410) 747-8770**

**Fax: (410) 788-8723**

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# PHASE SEPARATION SCIENCE, INC.



May 20, 2019

**Ian Cherok**  
**DDC-4C**  
70 West King Street  
Chambersburg, PA 17201

Reference: PSS Work Order(s) No: **19051008**  
Project Name: WSSC  
Project Location: FAC IWMP

Dear Ian Cherok :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **19051008**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on June 14, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or [info@phaseonline.com](mailto:info@phaseonline.com).

Sincerely,

**Dan Prucnal**

Laboratory Manager



## Sample Summary

Client Name: DDC-4C

Project Name: WSSC

Work Order Number(s): 19051008

The following samples were received under chain of custody by Phase Separation Science (PSS) on 05/10/2019 at 12:15 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
19051008-001	20190509g1+g2	WASTE WATER	05/09/19 13:50
19051008-002	20190509c	WASTE WATER	05/09/19 23:59

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

### Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminants, and part 141.3, for the secondary drinking water contaminants.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

### Standard Flags/Abbreviations:

- B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- C Results Pending Final Confirmation.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- Fail The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
- J The target analyte was positively identified below the reporting limit but greater than the MDL.
- MDL This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is an estimate of the minimum amount of a substance that an analytical process can reliably detect. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific.
- ND Not Detected at or above the reporting limit.
- RL PSS Reporting Limit.
- U Not detected.

### Certifications:

NELAP Certifications: PA 68-03330, VA 460156  
State Certifications: MD 179, WV 303  
Regulated Soil Permit: P330-12-00268  
NSWC USCG Accepted Laboratory  
LDBE MWAA LD1997-0041-2015

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 19051008

DDC-4C, Chambersburg, PA

May 20, 2019

Project Name: WSSC

Project Location: FAC IWMP

Sample ID: 20190509g1+g2

Date/Time Sampled: 05/09/2019 13:50

PSS Sample ID: 19051008-001

Matrix: WASTE WATER

Date/Time Received: 05/10/2019 12:15

Total Cyanide

Analytical Method: SM 4500-CN C,E -2011

Preparation Method: SM4500CN-C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Cyanide, Total	ND	mg/L	0.010		1	05/15/19	05/15/19 15:07	1053

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 19051008  
 DDC-4C, Chambersburg, PA  
 May 20, 2019

Project Name: WSSC  
 Project Location: FAC IWMP

**Sample ID: 20190509c**      **Date/Time Sampled: 05/09/2019 23:59**      **PSS Sample ID: 19051008-002**  
**Matrix: WASTE WATER**      **Date/Time Received: 05/10/2019 12:15**

Total Metals (10)      Analytical Method: EPA 200.8      Preparation Method: 200.8

Qualifier(s): See Batch 164314 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Arsenic	ND	ug/L	1.0		1	05/14/19	05/14/19 18:24	1064
Cadmium	ND	ug/L	1.0		1	05/14/19	05/14/19 18:24	1064
Chromium	ND	ug/L	1.0		1	05/14/19	05/14/19 18:24	1064
Copper	<b>43.8</b>	ug/L	1.00		1	05/14/19	05/14/19 18:24	1064
Lead	ND	ug/L	1.0		1	05/14/19	05/14/19 18:24	1064
Molybdenum	<b>1.8</b>	ug/L	1.0		1	05/14/19	05/14/19 18:24	1064
Nickel	<b>5.6</b>	ug/L	1.0		1	05/14/19	05/14/19 18:24	1064
Selenium	ND	ug/L	1.0		1	05/14/19	05/14/19 18:24	1064
Silver	ND	ug/L	1.0		1	05/14/19	05/14/19 18:24	1064
Zinc	<b>78.2</b>	ug/L	20.0		1	05/14/19	05/14/19 18:24	1064

Phosphorus, Total as P      Analytical Method: EPA 365.3      Preparation Method: E365.3

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Phosphorus, Total (as P)	<b>6.0</b>	mg/L	0.50		10	05/13/19	05/13/19 14:13	1053

Nitrogen, Ammonia      Analytical Method: SM 4500-NH3-F -2011      Preparation Method: SM4500-NH3B

Qualifier(s): See Batch 164273 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Nitrogen, Ammonia (as N)	<b>51</b>	mg/L	4.0		1	05/14/19	05/14/19 14:37	1053

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# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 19051008

DDC-4C, Chambersburg, PA

May 20, 2019

Project Name: WSSC  
Project Location: FAC IWMP

**Sample ID: 20190509c**      **Date/Time Sampled: 05/09/2019 23:59**      **PSS Sample ID: 19051008-002**  
**Matrix: WASTE WATER**      **Date/Time Received: 05/10/2019 12:15**

Biochemical Oxygen Demand      Analytical Method: SM 5210B -2011

	<b>Result</b>	<b>Units</b>	<b>RL</b>	<b>Flag</b>	<b>Prepared</b>	<b>Analyzed</b>	<b>Analyst</b>
Biochemical Oxygen Demand, 5 day	<b>78.6</b>	mg/L	60.0		05/10/19	05/10/19 15:42	4005



## Case Narrative Summary

**Client Name: DDC-4C**

**Project Name: WSSC**

Work Order Number(s): 19051008

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Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

### **Sample Receipt:**

Samples g1 and g2 composited upon receipt.

19051008: Analyses associated with analyst code 4005 were performed by Enviro-Chem Laboratories, Inc., 47 Loveton Circle, Suite K, Sparks, MD 21152

### **Analytical:**

#### **Total Metals (10)**

##### **Batch: 164314**

Continuing Calibration Verification (CCV) #2 exceeded acceptance limits (85% - 115%) for selenium at 122% recovery.

### **Analytical:**

#### **Nitrogen, Ammonia**

##### **Batch: 164273**

Sample 19051008-002 was diluted by a factor of 20 during sample preparation due to a high level of ammonia.

**NELAP accreditation was held for all analyses performed unless noted below. See [www.phaseonline.com](http://www.phaseonline.com) for complete PSS scope of accreditation.**

SM 5210B -2011



## Analytical Data Package Information Summary

**Work Order(s): 19051008**

Report Prepared For: DDC-4C, Chambersburg, PA

Project Name: WSSC

Project Manager: Ian Cherok

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
<b>EPA 200.8</b>	20190509c	Initial	19051008-002	1064	W	76800	164314	05/09/2019	05/14/2019 12:33	05/14/2019 18:24
	76800-1-BKS	BKS	76800-1-BKS	1064	W	76800	164314	-----	05/14/2019 12:33	05/14/2019 17:22
	76800-1-BLK	BLK	76800-1-BLK	1064	W	76800	164314	-----	05/14/2019 12:33	05/14/2019 17:16
	WSSC-Approved Sampling Point Outside Building 503 - Day 1 S	MS	19051005-002 S	1064	W	76800	164314	05/08/2019	05/14/2019 12:33	05/14/2019 18:07
	WSSC-Approved Sampling Point Outside Building 503 - Day 1 SD	MSD	19051005-002 SD	1064	W	76800	164314	05/08/2019	05/14/2019 12:33	05/14/2019 18:13
<b>EPA 365.3</b>	20190509c	Initial	19051008-002	1053	W	76783	164216	05/09/2019	05/13/2019 12:35	05/13/2019 14:13
	76783-1-BKS	BKS	76783-1-BKS	1053	W	76783	164216	-----	05/13/2019 12:35	05/13/2019 14:13
	76783-1-BLK	BLK	76783-1-BLK	1053	W	76783	164216	-----	05/13/2019 12:35	05/13/2019 14:13
	20190509c S	MS	19051008-002 S	1053	W	76783	164216	05/09/2019	05/13/2019 12:35	05/13/2019 14:13
	20190509c SD	MSD	19051008-002 SD	1053	W	76783	164216	05/09/2019	05/13/2019 12:35	05/13/2019 14:13
<b>SM 4500-CN C,E - 2011</b>	20190509g1+g2	Initial	19051008-001	1053	W	76816	164320	05/09/2019	05/15/2019 11:11	05/15/2019 15:07
	76816-1-BKS	BKS	76816-1-BKS	1053	W	76816	164320	-----	05/15/2019 11:11	05/15/2019 14:46
	76816-1-BLK	BLK	76816-1-BLK	1053	W	76816	164320	-----	05/15/2019 11:11	05/15/2019 14:43
	76816-1-BSD	BSD	76816-1-BSD	1053	W	76816	164320	-----	05/15/2019 11:11	05/15/2019 14:49
	WSSC-Approved Sampling Point Outside Building 503 - Day 1 S	MS	19051005-001 S	1053	W	76816	164320	05/08/2019	05/15/2019 11:11	05/15/2019 14:58
WSSC-Approved Sampling Point Outside Building 503 - Day 1 SD	MSD	19051005-001 SD	1053	W	76816	164320	05/08/2019	05/15/2019 11:11	05/15/2019 15:01	
<b>SM 4500-NH3-F - 2011</b>	20190509c	Initial	19051008-002	1053	W	76793	164273	05/09/2019	05/14/2019 10:06	05/14/2019 14:37
	76793-1-BKS	BKS	76793-1-BKS	1053	W	76793	164273	-----	05/14/2019 10:06	05/14/2019 14:05
	76793-1-BLK	BLK	76793-1-BLK	1053	W	76793	164273	-----	05/14/2019 10:06	05/14/2019 14:01



## Analytical Data Package Information Summary

**Work Order(s): 19051008**

Report Prepared For: DDC-4C, Chambersburg, PA

Project Name: WSSC

Project Manager: Ian Cherok

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
<b>SM 4500-NH3-F - 2011</b>	76793-1-BSD	BSD	76793-1-BSD	1053	W	76793	164273	-----	05/14/2019 10:06	05/14/2019 14:09
	20190508c S	MS	19050916-002 S	1053	W	76793	164273	05/08/2019	05/14/2019 10:06	05/14/2019 15:10
	Cox Creek S	MS	19051311-002 S	1053	W	76793	164273	05/13/2019	05/14/2019 10:06	05/14/2019 14:21
	Cox Creek SD	MSD	19051311-002 SD	1053	W	76793	164273	05/13/2019	05/14/2019 10:06	05/14/2019 14:25
<b>SM 5210B -2011</b>	20190509c	Initial	19051008-002	4005	W	164435	164435	05/09/2019	05/10/2019 15:42	05/10/2019 15:42

# PHASE SEPARATION SCIENCE, INC.

## QC Summary 19051008

DDC-4C

WSSC

**Analytical Method: EPA 365.3**

Seq Number: 164216

MB Sample Id: 76783-1-BLK

Matrix: Water

LCS Sample Id: 76783-1-BKS

Prep Method: E365.3\_Prep

Date Prep: 05/13/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Phosphorus, Total (as P)	<0.0500	0.975	0.991	102	85-115	mg/L	

**Analytical Method: EPA 365.3**

Seq Number: 164216

Parent Sample Id: 19051008-002

Matrix: Waste Water

MS Sample Id: 19051008-002 S

Prep Method: E365.3\_Prep

Date Prep: 05/13/19

MSD Sample Id: 19051008-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Phosphorus, Total (as P)	6.03	3.24	9.53	108	9.75	115	70-130	2	20	mg/L	

**Analytical Method: SM 4500-CN C,E -2011**

Seq Number: 164320

MB Sample Id: 76816-1-BLK

Matrix: Water

LCS Sample Id: 76816-1-BKS

Prep Method: SM4500CN-CPRE

Date Prep: 05/15/19

LCSD Sample Id: 76816-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Cyanide, Total	<0.01000	0.1000	0.09984	100	0.1008	101	85-115	1	20	mg/L	

**Analytical Method: SM 4500-NH3-F -2011**

Seq Number: 164273

MB Sample Id: 76793-1-BLK

Matrix: Water

LCS Sample Id: 76793-1-BKS

Prep Method: SM4500-NH3B

Date Prep: 05/14/19

LCSD Sample Id: 76793-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Nitrogen, Ammonia (as N)	<0.2000	2.500	2.378	95	2.346	94	85-115	1	20	mg/L	

**Analytical Method: EPA 200.8**

Seq Number: 164314

MB Sample Id: 76800-1-BLK

Matrix: Water

LCS Sample Id: 76800-1-BKS

Prep Method: E200.8\_PREP

Date Prep: 05/14/19

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Arsenic	<1.000	40.00	38.98	97	85-115	ug/L	
Cadmium	<1.000	40.00	40.59	101	85-115	ug/L	
Chromium	<1.000	40.00	41.12	103	85-115	ug/L	
Copper	<1.000	40.00	42.66	107	85-115	ug/L	
Lead	<1.000	40.00	42.20	106	85-115	ug/L	
Molybdenum	<1.000	40.00	40.64	102	85-115	ug/L	
Nickel	<1.000	40.00	40.69	102	85-115	ug/L	
Selenium	<1.000	40.00	42.58	106	85-115	ug/L	
Silver	<1.000	40.00	41.33	103	85-115	ug/L	
Zinc	<20.00	200	207.4	104	85-115	ug/L	

# PHASE SEPARATION SCIENCE, INC.

## QC Summary 19051008

DDC-4C

WSSC

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits





# Phase Separation Science, Inc

## Sample Receipt Checklist

**Work Order #** 19051008  
**Client Name** DDC-4C  
**Project Name** WSSC  
**Disposal Date** 06/14/2019

**Received By** Thomas Wingate  
**Date Received** 05/10/2019 12:15:00 PM  
**Delivered By** Trans Time Express  
**Tracking No** Not Applicable  
**Logged In By** Thomas Wingate

### Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact? N/A  
Seal(s) Signed / Dated? N/A

Ice Present  
Temp (deg C) 4.8  
Temp Blank Present No

### Documentation

COC agrees with sample labels? Yes  
Chain of Custody Yes

Sampler Name Ian Cherok  
MD DW Cert. No. N/A

### Sample Container

Appropriate for Specified Analysis? Yes  
Intact? Yes  
Labeled and Labels Legible? Yes

Custody Seal(s) Intact? Not Applicable  
Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 2

Total No. of Containers Received 5

### Preservation

Total Metals	(pH<2)	Yes
Dissolved Metals, filtered within 15 minutes of collection	(pH<2)	N/A
Orthophosphorus, filtered within 15 minutes of collection		N/A
Cyanides	(pH>12)	Yes
Sulfide	(pH>9)	N/A
TOC, DOC (field filtered), COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	Yes
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	N/A
Do VOA vials have zero headspace?		N/A
624 VOC (Rcvd at least one unpreserved VOA vial)		N/A
524 VOC (Rcvd with trip blanks)	(pH<2)	N/A

### Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples g1 and g2 composited upon receipt.

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 05/10/2019

PM Review and Approval:

Lynn Jackson

Date: 05/10/2019

=====  
Program settings  
Site Id: 20190523  
-----

Program settings

PGM:  
900MAX VERSION: 7.64

SITE ID: 20190523  
LEVEL SENSOR: SUBMERGED XDUCER  
TYPE: 0-10 FT  
CAL OFFSET: 414  
CAL GAIN: 6.991 /cm  
USER OFFSET: 0.00 cm  
NUMBER OF BOTTLES: 2  
BOTTLE VOLUME: 10.00 gal  
INTAKE TUBE LENGTH: 12 ft  
INTAKE TUBE TYPE: 3/8" VINYL  
FIRST: IMMEDIATELY  
TIMED BOTTLE SETS:  
TIME INTERVAL:00:00  
BOTTLES PER SET: 1  
CONTINUOUS MODE: ON  
LIQUID SENSORS: ON  
SAMPLE VOLUME: 100 ml  
INTAKE RINSES: 0  
SAMPLE RETRIES: 3  
SITE ID: 20190523  
FLOW METER:  
FLOW UNITS: gpm  
TOTAL FLOW UNITS: gal  
LEVEL UNITS: in.  
MANNING EQUATION  
SHAPE: U-SHAPE CHANNEL  
WIDTH: 11.00 in.  
SLOPE: 0.00500  
ROUGHNESS: 0.0170  
SCREEN SAVER MODE: OFF  
LOADED PROGRAM: 1  
RS232 BAUD RATE: 19200  
DAYS TO LOG: 58.0  
INSTALLED MEMORY: 128K  
EXTENDED POWER: OFF

--INPUT-----UNITS-LOGGING--INTV-  
PROC.TEMP F OFF  
pH/ORP pH OFF  
FLOW gpm ON 5min  
LEVEL in. ON 5min  
VELOCITY fps OFF  
CAB.TEMP. C OFF

MEMORY MODE: SLATE  
THERMAL CALIBRATE  
AT: 15:02 24-OCT-18  
pH CALIBRATION  
AT: 09:50 07-MAY-19  
PGM CMPLT OUTPUT  
DISABLED  
SPECIAL OUTPUT:  
DISABLED  
UPSET SAMPLING:  
DISABLED

DONE

---

Day Report - 22/MAY/19  
Wednesday

Site Id: 20190523

---

Level Flow 1  
(in.) (gpm)

Minimum: 1.273 19.455  
21:30 21:30

Maximum: 5.653 359.111  
23:05 23:05

Average: 2.296 80.397

Total Flow1: 35776.594 (gal)

---

Day Report - 23/MAY/19  
Thursday

Site Id: 20190523

---

Level Flow 1  
(in.) (gpm)

Minimum: 1.321 20.989  
00:40 00:40

Maximum: 3.902 184.913  
00:05 00:05

Average: 2.204 62.248

Total Flow1: 89636.586 (gal)

---

Day Report - 24/MAY/19  
Friday

Site Id: 20190523

---

Level Flow 1  
(in.) (gpm)

Minimum: 1.563 29.795  
02:00 02:00

Maximum: 2.357 69.008  
09:00 09:00

Average: 1.818 41.048

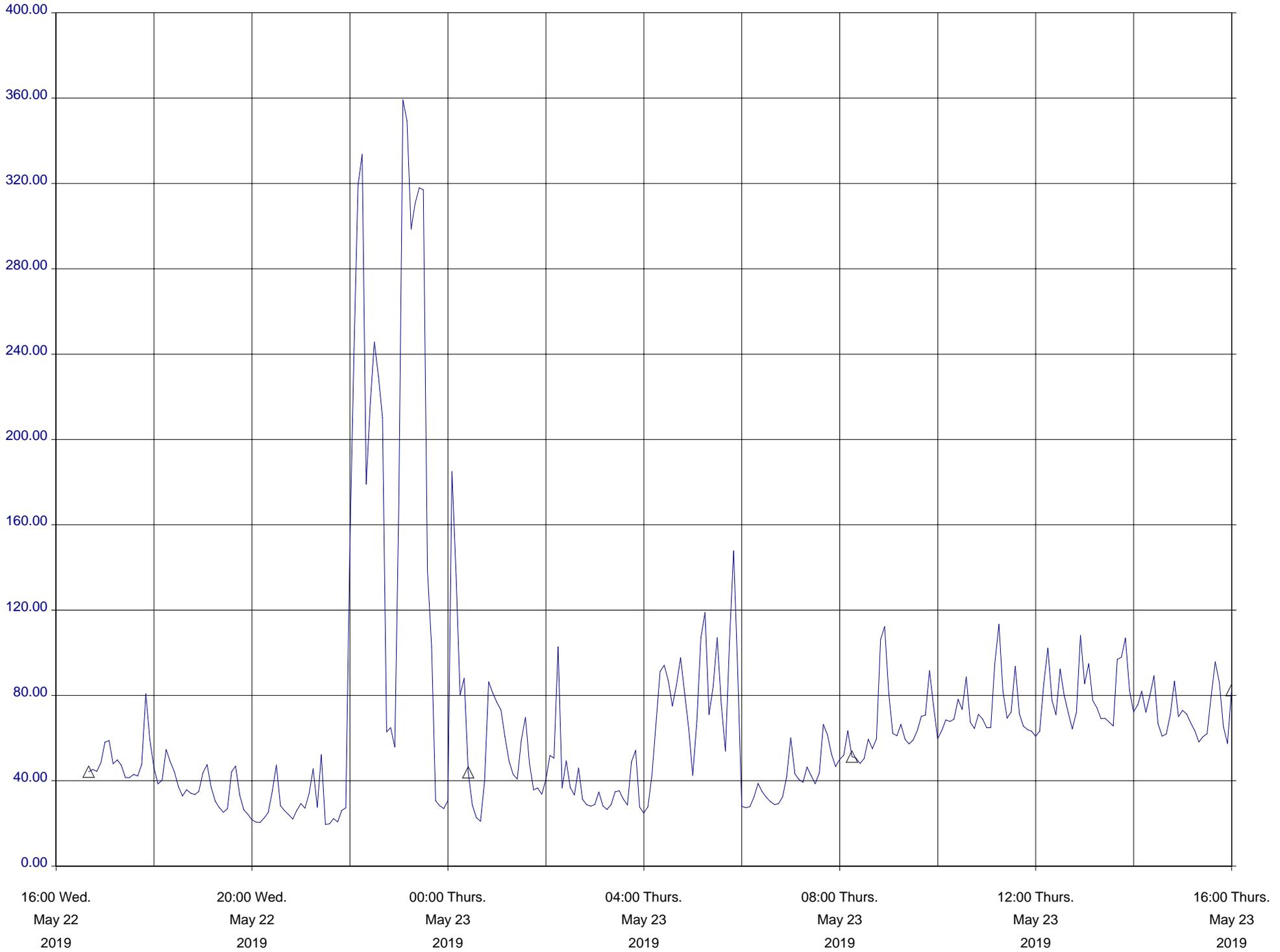
Total Flow 1: 22165.963 (gal)

# WSSC Second Quarter Flow Monitoring Graph 5-22-19 to 5-24-19

Site Id: 20190523 File name: 05240858.000

—△— Flow 1 (gpm)

Graph span: 1 day

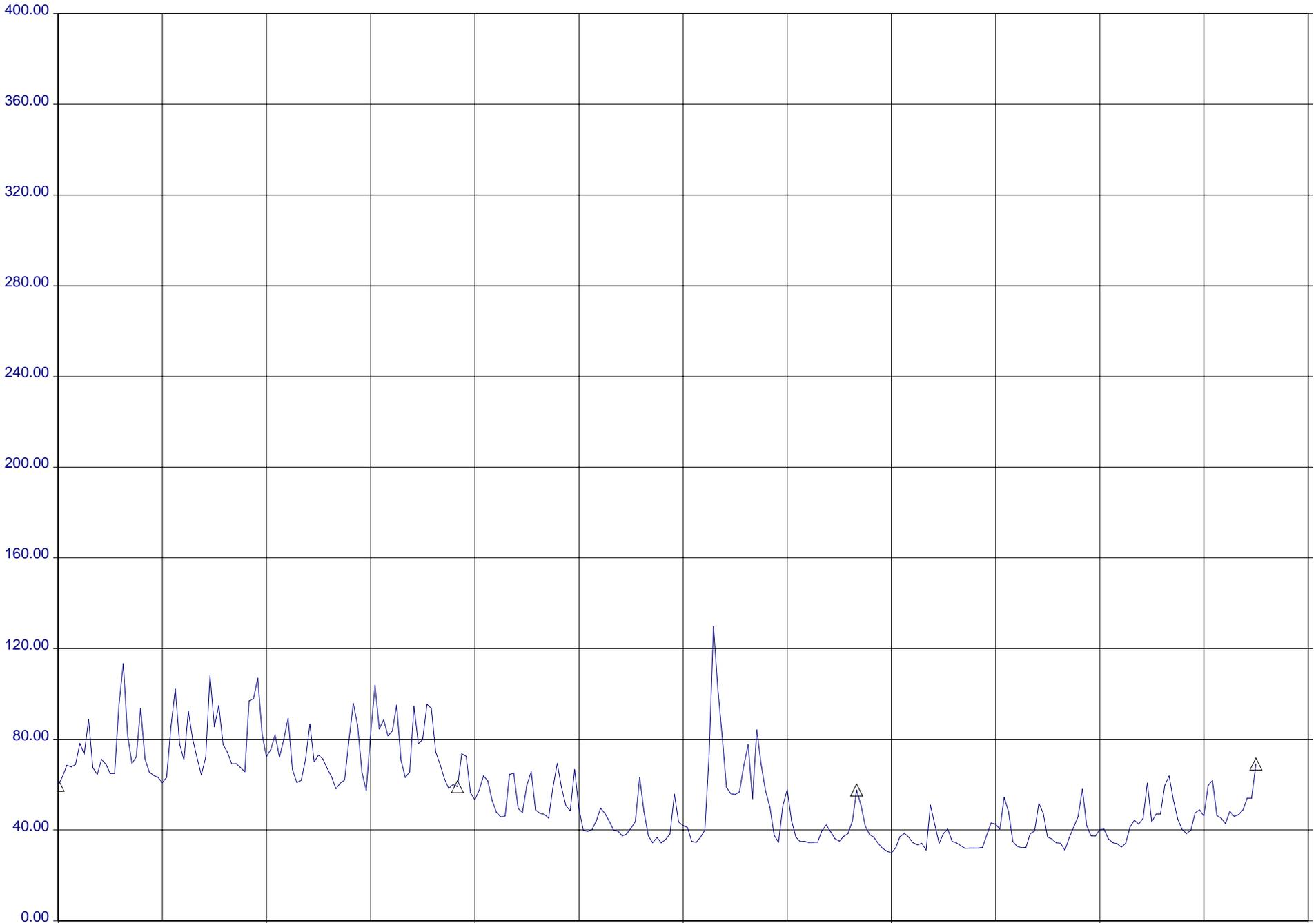


# WSSC Second Quarter Flow Monitoring Graph 5-22-19 to 5-24-19

Site Id: 20190523 File name: 05240858.000

—△— Flow 1 (gpm)

Graph span: 1 day



10:00 Thurs. May 23 2019 14:00 Thurs. May 23 2019 18:00 Thurs. May 23 2019 22:00 Thurs. May 23 2019 02:00 Fri. May 24 2019 06:00 Fri. May 24 2019 10:00 Fri. May 24 2019

# Analytical Report for

**DDC-4C**

**Certificate of Analysis No.: 19052414**

**Project Manager: Ian Cherok**

**Project Name : WSSC FAC**

**Project Location: IWMP FAC**



**June 3, 2019**

**Phase Separation Science, Inc.**

**6630 Baltimore National Pike**

**Baltimore, MD 21228**

**Phone: (410) 747-8770**

**Fax: (410) 788-8723**

OFFICES:  
6630 BALTIMORE NATIONAL PIKE  
ROUTE 40 WEST  
BALTIMORE, MD 21228  
410-747-8770  
800-932-9047  
FAX 410-788-8723

# PHASE SEPARATION SCIENCE, INC.



June 3, 2019

**Ian Cherok**  
**DDC-4C**  
70 West King Street  
Chambersburg, PA 17201

Reference: PSS Work Order(s) No: **19052414**  
Project Name: WSSC FAC  
Project Location: IWMP FAC

Dear Ian Cherok :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **19052414**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on June 28, 2019, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or [info@phaseonline.com](mailto:info@phaseonline.com).

Sincerely,

A handwritten signature in black ink that reads 'Dan Prucnal'.

**Dan Prucnal**

Laboratory Manager



**Sample Summary**  
**Client Name: DDC-4C**  
**Project Name: WSSC FAC**

**Work Order Number(s): 19052414**

The following samples were received under chain of custody by Phase Separation Science (PSS) on 05/24/2019 at 01:45 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
19052414-001	20190523	WASTE WATER	05/23/19 23:59

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

**Notes:**

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminants, and part 141.3, for the secondary drinking water contaminants.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

**Standard Flags/Abbreviations:**

- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- C** Results Pending Final Confirmation.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- Fail** The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
- J** The target analyte was positively identified below the reporting limit but greater than the MDL.
- MDL** This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is an estimate of the minimum amount of a substance that an analytical process can reliably detect. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific.
- ND** Not Detected at or above the reporting limit.
- RL** PSS Reporting Limit.
- U** Not detected.

**Certifications:**

NELAP Certifications: PA 68-03330, VA 460156  
State Certifications: MD 179, WV 303  
Regulated Soil Permit: P330-12-00268  
NSWC USCG Accepted Laboratory  
LDBE MWAA LD1997-0041-2015

OFFICES:  
6630 BALTIMORE NATIONAL PIKE  
ROUTE 40 WEST  
BALTIMORE, MD 21228  
410-747-8770  
800-932-9047  
FAX 410-788-8723

# PHASE SEPARATION SCIENCE, INC.



## CERTIFICATE OF ANALYSIS

No: 19052414

DDC-4C, Chambersburg, PA

June 3, 2019

Project Name: WSSC FAC

Project Location: IWMP FAC

Sample ID: 20190523

Date/Time Sampled: 05/23/2019 23:59

PSS Sample ID: 19052414-001

Matrix: WASTE WATER

Date/Time Received: 05/24/2019 13:45

Phosphorus, Total as P

Analytical Method: EPA 365.3

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Phosphorus, Total (as P)	4.9	mg/L	0.25		5	05/30/19	05/30/19 12:19	1059



## Case Narrative Summary

Client Name: DDC-4C

Project Name: WSSC FAC

Work Order Number(s): 19052414

---

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

### **Sample Receipt:**

All sample receipt conditions were acceptable.

**NELAP accreditation was held for all analyses performed unless noted below. See [www.phaseonline.com](http://www.phaseonline.com) for complete PSS scope of accreditation.**



## Analytical Data Package Information Summary

**Work Order(s): 19052414**

Report Prepared For: DDC-4C, Chambersburg, PA

Project Name: WSSC FAC

Project Manager: Ian Cherok

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
<b>EPA 365.3</b>	20190523	Initial	19052414-001	1059	W	164752	164752	05/23/2019	05/30/2019 12:19	05/30/2019 12:19
	164752-1-BKS	BKS	164752-1-BKS	1059	W	164752	164752	-----	05/30/2019 12:19	05/30/2019 12:19
	164752-1-BLK	BLK	164752-1-BLK	1059	W	164752	164752	-----	05/30/2019 12:19	05/30/2019 12:19
	20190523 S	MS	19052414-001 S	1059	W	164752	164752	05/23/2019	05/30/2019 12:19	05/30/2019 12:19
	20190523 SD	MSD	19052414-001 SD	1059	W	164752	164752	05/23/2019	05/30/2019 12:19	05/30/2019 12:19

# PHASE SEPARATION SCIENCE, INC.

## QC Summary 19052414

DDC-4C  
WSSC FAC

**Analytical Method: EPA 365.3**

Seq Number: 164752

Matrix: Water

MB Sample Id: 164752-1-BLK

LCS Sample Id: 164752-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Phosphorus, Total (as P)	<0.0500	0.975	0.952	98	85-115	mg/L	

**Analytical Method: EPA 365.3**

Seq Number: 164752

Matrix: Waste Water

Parent Sample Id: 19052414-001

MS Sample Id: 19052414-001 S

MSD Sample Id: 19052414-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Phosphorus, Total (as P)	4.88	1.62	6.40	94	6.40	94	70-130	0	20	mg/L	

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H = Recovery of BS, BSD or both exceeded the laboratory control limits

L = Recovery of BS, BSD or both below the laboratory control limits



# SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

**PHASE SEPARATION SCIENCE, INC.**

www.phaseonline.com  
email: info@phaseonline.com

<b>1</b> *CLIENT: <u>DDC-4C</u> *OFFICE LOC. _____		PSS Work Order #: <u>19052414</u> PAGE <u>1</u> OF <u>1</u>					
*PROJECT MGR: <u>Ian Cherok</u> *PHONE NO.: ( ) _____		Matrix Codes: <b>SW</b> =Surface Wtr <b>DW</b> =Drinking Wtr <b>GW</b> =Ground Wtr <b>WW</b> =Waste Wtr <b>O</b> =Oil <b>S</b> =Soil <b>L</b> =Liquid <b>SOL</b> =Solid <b>A</b> =Air <b>WI</b> =Wipe					
EMAIL: <u>Ian.d.cherok@nasa.gov</u> FAX NO.: ( ) _____		No. C O N T A I N E R S	SAMPLE T Y P E  C = C O M P  G = G R A B				
*PROJECT NAME: <u>WSSC</u> PROJECT NO.: _____				Preservatives Used Analysis/Method Required <b>3</b> * <i>Total phosphorus</i>			
SITE LOCATION: <u>IWMF FAC</u> P.O. NO. <u>CS54</u>							
SAMPLER(S): <u>I. Cherok</u> <u>L. Wicklund</u> DW CERT NO.: _____							
<b>2</b>	LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	REMARKS	
	1	20190523	5/23/19	00:01:23:59	WW 1 C		
<b>5</b> Relinquished By: (1) <u>Lauren Wicklund</u>		Date	Time	Received By: <u>Claudia 682</u>			# of Coolers: <u>1</u> Custody Seal: <u>ABS</u>
Relinquished By: (2) <u>Claudia</u>		Date	Time	Received By: <u>La La</u>			
Relinquished By: (3)		Date	Time	Received By:			*Requested TAT (One TAT per COC) <input checked="" type="checkbox"/> 5-Day <input type="checkbox"/> 3-Day <input type="checkbox"/> 2-Day <input type="checkbox"/> Next Day <input type="checkbox"/> Emergency <input type="checkbox"/> Other  Data Deliverables Required: COA <input type="checkbox"/> QC <input type="checkbox"/> SUMM <input type="checkbox"/> CLP <input type="checkbox"/> LIKE <input type="checkbox"/> OTHER _____  Special Instructions: _____
Relinquished By: (4)		Date	Time	Received By:			

6630 Baltimore National Pike • Route 40 West • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047 • Fax (410) 788-8723

The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. \* = REQUIRED



# Phase Separation Science, Inc

## Sample Receipt Checklist

**Work Order #** 19052414  
**Client Name** DDC-4C  
**Project Name** WSSC FAC  
**Disposal Date** 06/28/2019

**Received By** Thomas Wingate  
**Date Received** 05/24/2019 01:45:00 PM  
**Delivered By** Trans Time Express  
**Tracking No** Not Applicable  
**Logged In By** Thomas Wingate

### Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact? N/A  
 Seal(s) Signed / Dated? N/A

Ice Present  
 Temp (deg C) 2.4  
 Temp Blank Present No

### Documentation

COC agrees with sample labels? Yes  
 Chain of Custody Yes

Sampler Name Ian Cherok  
 MD DW Cert. No. N/A

### Sample Container

Appropriate for Specified Analysis? Yes  
 Intact? Yes  
 Labeled and Labels Legible? Yes

Custody Seal(s) Intact? Not Applicable  
 Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 1

Total No. of Containers Received 1

### Preservation

Total Metals	(pH<2)	N/A
Dissolved Metals, filtered within 15 minutes of collection	(pH<2)	N/A
Orthophosphorus, filtered within 15 minutes of collection		N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, DOC (field filtered), COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	Yes
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	N/A
Do VOA vials have zero headspace?		N/A
624 VOC (Rcvd at least one unpreserved VOA vial)		N/A
524 VOC (Rcvd with trip blanks)	(pH<2)	N/A

### Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By:

*Thomas Wingate*  
 \_\_\_\_\_  
 Thomas Wingate

Date: 05/24/2019

PM Review and Approval:

*Amber Confer*  
 \_\_\_\_\_  
 Amber Confer

Date: 05/24/2019



August 13,2019

Dear Customer:

The following is the proof-of-delivery for tracking number **102308847196**.

---

**Delivery Information:**

---

<b>Status:</b>	Delivered	<b>Delivered to:</b>	Mailroom
<b>Signed for by:</b>	R.CUBILLO	<b>Delivery location:</b>	LAUREL, MD
<b>Service type:</b>	FedEx 2Day	<b>Delivery date:</b>	Jun 28, 2019 09:31
<b>Special Handling:</b>	Deliver Weekday		

Signature image is available. In order to view image and detailed information, the shipper or payor account number of the shipment must be provided.

---

**Shipping Information:**

---

<b>Tracking number:</b>	102308847196	<b>Ship date:</b>	Jun 27, 2019
		<b>Weight:</b>	1.0 lbs/0.5 kg

**Recipient:**  
LAUREL, MD US

**Shipper:**  
Greenbelt, MD US

**Reference**  
**Department number**

077338  
250

Thank you for choosing FedEx.