



Reply to Attn of:

October 2, 2018

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 Reports (PCR) and supporting documentation for the third quarter 2018 reporting period. Also enclosed are GSFC's Total Toxic Organic (TTO) certification forms for both monitoring points.

GSFC performed quarterly monitoring at the building 5 electroplating facility (Monitoring Point 001) on August 6 and 7, 2018, and at Monitoring Point FAC on August 14 and 15, 2018. GSFC performed additional monitoring for chromium at Monitoring Point 001 on July 5 and July 26, and reported the results to WSSC. GSFC has complied with the corrective measures specified in WSSC's Notice of Violation IDC-6573 and continues to monitor and optimize the effectiveness of the pretreatment system through investigations, sampling, and review of internal procedures.

If you have any questions concerning this report, please contact Ms. Lori Levine at (301) 286-6741 or 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

Enclosures (2)

1. Third Quarter Periodic Compliance Reports and supporting documentation
2. TTO Certification Forms



**Washington Suburban
Sanitary Commission**

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.C. of your WSSC Permit) and applicable certification statements.

Industrial User	NASA/Goddard Space Flight Center			Outfall	001	Permit Number	00449
Reporting Period	Year: 2018	Quarter: (Check One)	January Thru March <input type="checkbox"/>	April Thru June <input type="checkbox"/>	July Thru September <input checked="" 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	Hayley Thomas, Lauren Wicklund, Ian Cherok		Name of Company Performing Sampling		DDC 4C		

Are pretreatment standards being met on a consistent basis? Yes No

If No, is 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 ⁽¹⁾ /Monthly ⁽²⁾	Indicate Sample Date and Results in mg/l for Each Parameter				Analytical Method	No. of Results Over Limit	Violations (WSSC Use Only)
		7/5/2018	7/26/2018	8/6/2018	8/7/2018			
Cadmium (T)	0.11 0.07			<0.001	<0.001	EPA 200.8	0	
Chromium (T)	2.77 1.71	0.0245	0.036	0.115	0.941	EPA 200.8	0	
Copper (T)	3.38 2.07			0.180	1.58	EPA 200.8	0	
Lead (T)	0.69 0.43			0.0058	0.0205	EPA 200.8	0	
Nickel (T)	3.98 2.38			0.182	0.284	EPA 200.8	0	
Silver (T)	0.43 0.24			0.0045	0.0026	EPA 200.8	0	
Zinc (T)	2.61 1.48			0.179	0.520	EPA 200.8	0	
Cyanide (T)	1.20 0.65			0.029	<0.010	SM 4500-CN C,E -2011	0	
TTO ⁽³⁾	2.13	--	--	--	--	EPA 624, 608, 625	0	
pH Minimum ⁽⁴⁾	6.0 Units	N/A	N/A	6.93	6.76	EPA 150.2	0	
pH Maximum ⁽⁴⁾	10.0 Units	N/A	N/A	7.01	6.84	EPA 150.2	0	
Total Composite Volume	4 Liters	14 Liters	21.5 Liters	20 Liters	19 Liters	N/A	N/A	
Flow (gpd) ⁽¹⁾	Report	58	125.3	116.1	97.3	Estimated	N/A	
Time: Start:		9:12	1:38	10:53	8:26	N/A	N/A	
Stop:		9:16	1:47	11:01	8:33	N/A	N/A	

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

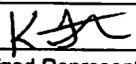
(1) Daily Maximum

(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 CFR 433.11 (e).

(4) Report all pH unit readings to one decimal place. (Refer to Permit Section II.A for violation criteria)

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:	

<p>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.</p>		
Kimberly Finch, P.E.		10/02/2018
Authorized Representative Printed Name	Authorized Representative Signature	Date

MAIL COMPLETED REPORT TO: Washington Suburban Sanitary Commission
 Regulatory Services Group
 Industrial Discharge Control Unit
 14501 Sweitzer Lane, 11th Floor
 Laurel, MD 20707-5902

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 Manangement
Division
Title

KJF 10/02/2018
Signature Date

3rd Qtr (July-September) 2018
Reporting Period Year

Daily pH Sampling Log – Grab⁽¹⁾ Samples

Industry Name: Monitoring Point 001

Date: 7/5/18

Time ⁽²⁾	pH	Flow (gallons) ⁽³⁾	Comments
9:12	---	0	Re-sample for Chromium
9:13	---	14.5	
9:14	---	14.5	
9:15	---	14.4	
9:16	---	14.6	*composite: 14 liters

Calibration Reading at Start: ---, ----⁽⁴⁾

Calibration Check at Stop: ---, --.---⁽⁴⁾

Buffer Solutions Used for Calibration: - ----⁽⁴⁾

Analytical Equipment Used: None

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

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

⁽²⁾ Time intervals between grabs shall not exceed 15 minutes.

⁽³⁾ 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.

⁽⁴⁾ No pH readings taken during this sampling activity

Daily pH Sampling Log – Grab⁽¹⁾ Samples

Industry Name: Monitoring Point 001

Date: 7/26/18

Time ⁽²⁾	pH	Flow (gallons) ⁽³⁾	Comments
1:38	---	0	Re-sample for Chromium
1:39	---	14.0	
1:40	---	14.0	
1:41	---	14.0	
1:42	---	13.9	*composite: 21.5 liters
1:43	---	13.9	
1:44	---	13.9	
1:45	---	13.9	
1:46	---	13.9	
1:47	---	13.8	

Calibration Reading at Start: ---, ----⁽⁴⁾

Calibration Check at Stop: ---, ---⁽⁴⁾

Buffer Solutions Used for Calibration: - ----⁽⁴⁾

Analytical Equipment Used: None

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

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

⁽²⁾ Time intervals between grabs shall not exceed 15 minutes.

⁽³⁾ 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.

⁽⁴⁾ No pH readings taken during this sampling activity

Daily pH Sampling Log – Grab⁽¹⁾ Samples

Industry Name: Monitoring Point 001

Date: 8/6/18

Time ⁽²⁾	pH	Flow (gallons) ⁽³⁾	Comments
10:53	7.01	0	
10:54	6.96	14.6	
10:55	6.93	14.6	Cyanide grab
10:56	6.95	14.6	
10:57	6.95	14.5	*composite: 20 liters
10:58	6.94	14.5	
10:59	6.96	14.5	
11:00	6.97	14.4	
11:01	6.97	14.4	

Calibration Reading at Start: 7.03, 10.04

Calibration Check at Stop: 6.96, 9.96

Buffer Solutions Used for Calibration: 7 and 10

Analytical Equipment Used: Hanna pH meter HI98193

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

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

⁽²⁾ Time intervals between grabs shall not exceed 15 minutes.

⁽³⁾ 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⁽¹⁾ Samples

Industry Name: Monitoring Point 001

Date: 8/7/18

Time ⁽²⁾	pH	Flow (gallons) ⁽³⁾	Comments
8:26	6.84	0	
8:27	6.79	14.0	
8:28	6.76	14.0	Cyanide grab
8:29	6.76	13.9	
8:30	6.77	13.9	*composite: 19 liters
8:31	6.78	13.9	
8:32	6.80	13.8	
8:33	6.82	13.8	

Calibration Reading at Start: 7.05, 10.03

Calibration Check at Stop: 6.96, 9.99

Buffer Solutions Used for Calibration: 7 and 10

Analytical Equipment Used: Hanna pH meter HI98193

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

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

⁽²⁾ Time intervals between grabs shall not exceed 15 minutes.

⁽³⁾ 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.: 18070514

Project Manager: Ian Cherok

Project Name : WSSC

Project Location: WSSC IWMP 001



July 10, 2018

Phase Separation Science, Inc.

6630 Baltimore National Pike

Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



July 10, 2018

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

Reference: PSS Work Order(s) No: **18070514**
Project Name: WSSC
Project Location: WSSC 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 **18070514**.

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 August 9, 2018, 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.

Sincerely,

Dan Prucnal

Laboratory Manager



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

Work Order Number(s): 18070514

The following samples were received under chain of custody by Phase Separation Science (PSS) on 07/05/2018 at 03:22 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18070514-001	20180705C	WASTE WATER	07/05/18 09:16

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 MWAALD1997-0041-2015

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: 18070514

DDC-4C, Chambersburg, PA

July 10, 2018

Project Name: WSSC

Project Location: WSSC IWMP 001

Sample ID: 20180705C

Date/Time Sampled: 07/05/2018 09:16

PSS Sample ID: 18070514-001

Matrix: WASTE WATER

Date/Time Received: 07/05/2018 15:22

Total Cr

Analytical Method: EPA 200.8

Preparation Method: 200.8

Chromium

Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
24.5	ug/L	1.00		1	07/06/18	07/06/18 17:39	1064



Case Narrative Summary

Client Name: DDC-4C

Project Name: WSSC

Work Order Number(s): 18070514

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

Sample Receipt:

All sample receipt conditions were acceptable.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.



Analytical Data Package Information Summary

Work Order(s): 18070514
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
EPA 200.8	20180705C	Initial	18070514-001	1064	W	72236	155078	07/05/2018	07/06/2018 10:01	07/06/2018 17:39
	72236-1-BKS	BKS	72236-1-BKS	1064	W	72236	155078	-----	07/06/2018 10:01	07/06/2018 17:24
	72236-1-BLK	BLK	72236-1-BLK	1064	W	72236	155078	-----	07/06/2018 10:01	07/06/2018 17:20
	PLY-004 S	MS	18070513-001 S	1064	W	72236	155078	07/05/2018	07/06/2018 10:01	07/06/2018 17:31
	PLY-004 SD	MSD	18070513-001 SD	1064	W	72236	155078	07/05/2018	07/06/2018 10:01	07/06/2018 17:35

PHASE SEPARATION SCIENCE, INC.

QC Summary 18070514

DDC-4C
WSSC

Analytical Method: EPA 200.8

Seq Number: 155078

MB Sample Id: 72236-1-BLK

Matrix: Water

LCS Sample Id: 72236-1-BKS

Prep Method: E200.8_PREP

Date Prep: 07/06/18

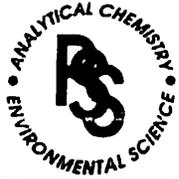
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Chromium	<1.000	40.00	42.45	106	85-115	ug/L	07/06/18 17:24	

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

① *CLIENT: DDX 4C		*OFFICE LOC. GSEFC NASA		PSS Work Order #: 18040514			PAGE 1 OF 1	
*PROJECT MGR: ian cherok		*PHONE NO.: ()		Matrix Codes: SW=Surface Wtr DW=Drinking Wtr GW=Ground Wtr WW=Waste Wtr O=Oil S=Soil L=Liquid SOL=Solid A=Air WI=Wipe				
EMAIL: ian.d.cherok@nasa.gov		FAX NO.: ()		No. CONTAINERS	SAMPLE TYPE	Preservatives Used	Analysis/Method Required	
*PROJECT NAME: WSSC		PROJECT NO.:						
SITE LOCATION: WSSC IWMP 001		P.O. NO.:						
SAMPLER(S): H. Thomas L. Wicklund		DW CERT NO.:						
②	LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)			REMARKS
		20180705C	7/5/18	9:12-9:16	WW	1	C	Chromium
⑤ Relinquished By: (1)		Date	Time	Received By:		④ *Requested TAT (One TAT per COC)		# of Coolers:
<i>[Signature]</i>		7/5/18	1330	<i>[Signature]</i>		<input type="checkbox"/> 5-Day <input checked="" type="checkbox"/> 3-Day <input type="checkbox"/> 2-Day <input type="checkbox"/> Next Day <input type="checkbox"/> Emergency <input type="checkbox"/> Other		1
Relinquished By: (2)		Date	Time	Received By:		Data Deliverables Required:		Ice Present:
<i>[Signature]</i>		7/5/18	1522	<i>[Signature]</i>		COA <input type="checkbox"/> QC <input type="checkbox"/> SUMM <input type="checkbox"/> CLP <input type="checkbox"/> LIKE <input type="checkbox"/> OTHER <input type="checkbox"/>		PRES 2°C
Relinquished By: (3)		Date	Time	Received By:		Shipping Carrier:		
						TTE		
Relinquished By: (4)		Date	Time	Received By:		Special Instructions:		
		DW COMPLIANCE?		EDD FORMAT TYPE		STATE RESULTS REPORTED TO:		
		YES <input type="checkbox"/>				MD <input type="checkbox"/> DE <input type="checkbox"/> PA <input type="checkbox"/> VA <input type="checkbox"/> WV <input type="checkbox"/> OTHER <input type="checkbox"/>		

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 # 18070514
 Client Name DDC-4C
 Project Name WSSC
 Disposal Date 08/09/2018

Received By Thomas Wingate
 Date Received 07/05/2018 03:22:00 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

Temp Blank Present No

Documentation

COC agrees with sample labels? Yes

Chain of Custody Yes

Sampler Name H. Thomas/L. Wickl

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) 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) N/A

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: 07/05/2018

PM Review and Approval:

Amber Confer

Date: 07/06/2018

Analytical Report for

DDC-4C

Certificate of Analysis No.: 18072706

Project Manager: Ian Cherok

Project Name : WSSC

Project Location: WSSC Monitoring Point 001



August 3, 2018

Phase Separation Science, Inc.

6630 Baltimore National Pike

Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



August 3, 2018

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

Reference: PSS Work Order(s) No: **18072706**
Project Name: WSSC
Project Location: WSSC Monitoring Point 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 **18072706**.

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 August 31, 2018, 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.

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): 18072706

The following samples were received under chain of custody by Phase Separation Science (PSS) on 07/27/2018 at 12:40 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18072706-001	20180726	WASTE WATER	07/26/18 13:47

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: 18072706
 DDC-4C, Chambersburg, PA
 August 3, 2018

Project Name: WSSC
 Project Location: WSSC Monitoring Point 001

Sample ID: 20180726 Date/Time Sampled: 07/26/2018 13:47 PSS Sample ID: 18072706-001
 Matrix: WASTE WATER Date/Time Received: 07/27/2018 12:40

Total Chromium Analytical Method: EPA 200.8 Preparation Method: 200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Chromium	36.0	ug/L	1.00		1	07/31/18	07/31/18 17:08	1051



Case Narrative Summary

Client Name: DDC-4C

Project Name: WSSC

Work Order Number(s): 18072706

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

Sample Receipt:

All sample receipt conditions were acceptable.

General Comments:

Per client, project location changed to "WSSC Monitoring Point 001".

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.



Analytical Data Package Information Summary

Work Order(s): 18072706

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
EPA 200.8	20180726	Initial	18072706-001	1051	W	72573	155696	07/26/2018	07/31/2018 14:38	07/31/2018 17:08
	72573-1-BKS	BKS	72573-1-BKS	1051	W	72573	155696	-----	07/31/2018 14:38	07/31/2018 17:04
	72573-1-BLK	BLK	72573-1-BLK	1051	W	72573	155696	-----	07/31/2018 14:38	07/31/2018 16:54
	20180726 S	MS	18072706-001 S	1051	W	72573	155696	07/26/2018	07/31/2018 14:38	07/31/2018 17:13
	20180726 SD	MSD	18072706-001 SD	1051	W	72573	155696	07/26/2018	07/31/2018 14:38	07/31/2018 17:18

PHASE SEPARATION SCIENCE, INC.

QC Summary 18072706

DDC-4C
WSSC

Analytical Method: EPA 200.8

Seq Number: 155696

MB Sample Id: 72573-1-BLK

Matrix: Water

LCS Sample Id: 72573-1-BKS

Prep Method: E200.8_PREP

Date Prep: 07/31/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Chromium	<1.000	40.00	40.31	101	85-115	ug/L	07/31/18 17:04	

Analytical Method: EPA 200.8

Seq Number: 155696

Parent Sample Id: 18072706-001

Matrix: Waste Water

MS Sample Id: 18072706-001 S

Prep Method: E200.8_PREP

Date Prep: 07/31/18

MSD Sample Id: 18072706-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chromium	36.03	40.00	76.71	102	76.78	102	70-130	0	25	ug/L	07/31/18 17:13	

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 # 18072706
 Client Name DDC-4C
 Project Name WSSC
 Disposal Date 08/31/2018

Received By Thomas Wingate
 Date Received 07/27/2018 12:40:00 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

Temp Blank Present No

Documentation

COC agrees with sample labels? Yes

Chain of Custody Yes

Sampler Name Hayley Thomas

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) 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) N/A

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: 07/27/2018

PM Review and Approval:

Lynn Jackson

Date: 07/30/2018

Analytical Report for

DDC-4C

Certificate of Analysis No.: 18080623

Project Manager: Ian Cherok

Project Name : WSSC

Project Location: WSSC Monitoring Point 001 IWMP



August 13, 2018

Phase Separation Science, Inc.

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Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



August 13, 2018

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

Reference: PSS Work Order(s) No: **18080623**
Project Name: WSSC
Project Location: WSSC Monitoring Point 001 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 **18080623**.

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 September 10, 2018, 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.

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): 18080623

The following samples were received under chain of custody by Phase Separation Science (PSS) on 08/06/2018 at 01:00 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18080623-001	20180806	WASTE WATER	08/06/18 10:55
18080623-002	20180806	WASTE WATER	08/06/18 11:01

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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 BALTIMORE, MD 21228
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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18080623
 DDC-4C, Chambersburg, PA
 August 13, 2018

Project Name: WSSC
 Project Location: WSSC Monitoring Point 001 IWMP

Sample ID: 20180806 **Date/Time Sampled: 08/06/2018 10:55** **PSS Sample ID: 18080623-001**
Matrix: WASTE WATER **Date/Time Received: 08/06/2018 13:00**

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

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Cyanide, Total	0.029	mg/L	0.010		1	08/07/18	08/07/18 13:11	1053

Sample ID: 20180806 **Date/Time Sampled: 08/06/2018 11:01** **PSS Sample ID: 18080623-002**
Matrix: WASTE WATER **Date/Time Received: 08/06/2018 13:00**

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	08/07/18	08/07/18 20:06	1051
Chromium	115	ug/L	1.00		1	08/07/18	08/07/18 20:06	1051
Copper	180	ug/L	1.00		1	08/07/18	08/07/18 20:06	1051
Lead	5.8	ug/L	1.0		1	08/07/18	08/07/18 20:06	1051
Nickel	182	ug/L	1.00		1	08/07/18	08/07/18 20:06	1051
Silver	4.5	ug/L	1.0		1	08/07/18	08/07/18 20:06	1051
Zinc	179	ug/L	20.0		1	08/07/18	08/07/18 20:06	1051



Case Narrative Summary

Client Name: DDC-4C

Project Name: WSSC

Work Order Number(s): 18080623

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

Sample Receipt:

All sample receipt conditions were acceptable.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.



Analytical Data Package Information Summary

Work Order(s): 18080623
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
EPA 200.8	72682-1-BKS	BKS	72682-1-BKS	1051	W	72682	155884	-----	08/07/2018 13:36	08/07/2018 14:30
	72682-1-BLK	BLK	72682-1-BLK	1051	W	72682	155884	-----	08/07/2018 13:36	08/07/2018 14:25
	20180806	Initial	18080623-002	1051	W	72682	155913	08/06/2018	08/07/2018 13:36	08/07/2018 20:06
	72682-1-BKS	BKS	72682-1-BKS	1051	W	72682	155913	-----	08/07/2018 13:36	08/07/2018 19:05
	72682-1-BLK	BLK	72682-1-BLK	1051	W	72682	155913	-----	08/07/2018 13:36	08/07/2018 18:55
	PLY-008a S	MS	18080315-001 S	1051	W	72682	155913	08/03/2018	08/07/2018 13:36	08/07/2018 19:14
	Cell 7A/B S	MS	18080704-003 S	1051	W	72682	155913	08/06/2018	08/07/2018 13:36	08/07/2018 20:34
	PLY-008a SD	MSD	18080315-001 SD	1051	W	72682	155913	08/03/2018	08/07/2018 13:36	08/07/2018 19:19
SM 4500-CN C,E - 2011	20180806	Initial	18080623-001	1053	W	72677	155880	08/06/2018	08/07/2018 10:55	08/07/2018 13:11
	72677-1-BKS	BKS	72677-1-BKS	1053	W	72677	155880	-----	08/07/2018 10:55	08/07/2018 13:02
	72677-1-BLK	BLK	72677-1-BLK	1053	W	72677	155880	-----	08/07/2018 10:55	08/07/2018 12:59
	72677-1-BSD	BSD	72677-1-BSD	1053	W	72677	155880	-----	08/07/2018 10:55	08/07/2018 13:05
	20180806 S	MS	18080623-001 S	1053	W	72677	155880	08/06/2018	08/07/2018 10:55	08/07/2018 13:14
	20180806 SD	MSD	18080623-001 SD	1053	W	72677	155880	08/06/2018	08/07/2018 10:55	08/07/2018 13:17

PHASE SEPARATION SCIENCE, INC.

QC Summary 18080623

DDC-4C
WSSC

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

Seq Number: 155880

MB Sample Id: 72677-1-BLK

Matrix: Water

LCS Sample Id: 72677-1-BKS

Prep Method: SM4500CN-CPRE

Date Prep: 08/07/18

LCSD Sample Id: 72677-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Cyanide, Total	<0.01000	0.1000	0.1023	102	0.1015	102	85-115	1	20	mg/L	08/07/18 13:02	

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

Seq Number: 155880

Parent Sample Id: 18080623-001

Matrix: Waste Water

MS Sample Id: 18080623-001 S

Prep Method: SM4500CN-CPRE

Date Prep: 08/07/18

MSD Sample Id: 18080623-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Cyanide, Total	0.02906	0.1000	0.1192	90	0.1196	91	80-120	0	20	mg/L	08/07/18 13:14	

Analytical Method: EPA 200.8

Seq Number: 155884

MB Sample Id: 72682-1-BLK

Matrix: Water

LCS Sample Id: 72682-1-BKS

Prep Method: E200.8_PREP

Date Prep: 08/07/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Cadmium	<1.000	40.00	39.01	98	85-115	ug/L	08/07/18 14:30	
Chromium	<1.000	40.00	40.19	100	85-115	ug/L	08/07/18 14:30	
Copper	<1.000	40.00	39.29	98	85-115	ug/L	08/07/18 14:30	
Lead	<1.000	40.00	38.03	95	85-115	ug/L	08/07/18 14:30	
Nickel	<1.000	40.00	38.11	95	85-115	ug/L	08/07/18 14:30	
Silver	<1.000	40.00	39.56	99	85-115	ug/L	08/07/18 14:30	
Zinc	<20.00	200	201.4	101	85-115	ug/L	08/07/18 14:30	

Analytical Method: EPA 200.8

Seq Number: 155913

MB Sample Id: 72682-1-BLK

Matrix: Water

LCS Sample Id: 72682-1-BKS

Prep Method: E200.8_PREP

Date Prep: 08/07/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Cadmium	<1.000	40.00	36.31	91	85-115	ug/L	08/07/18 19:05	
Chromium	<1.000	40.00	36.70	92	85-115	ug/L	08/07/18 19:05	
Copper	<1.000	40.00	39.46	99	85-115	ug/L	08/07/18 19:05	
Lead	<1.000	40.00	40.46	101	85-115	ug/L	08/07/18 19:05	
Nickel	<1.000	40.00	35.94	90	85-115	ug/L	08/07/18 19:05	
Silver	<1.000	40.00	38.93	97	85-115	ug/L	08/07/18 19:05	
Zinc	<20.00	200	177.2	89	85-115	ug/L	08/07/18 19:05	

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 # 18080623
 Client Name DDC-4C
 Project Name WSSC
 Disposal Date 09/10/2018

Received By Thomas Wingate
 Date Received 08/06/2018 01:00:00 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
 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 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: 08/06/2018

PM Review and Approval:

Lynn Jackson

Date: 08/07/2018

Analytical Report for

DDC-4C

Certificate of Analysis No.: 18080724

Project Manager: Ian Cherok

Project Name : WSSC

Project Location: WSSC Monitoring Point 001 IWMP



August 13, 2018

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.



August 13, 2018

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

Reference: PSS Work Order(s) No: **18080724**
Project Name: WSSC
Project Location: WSSC Monitoring Point 001 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 **18080724**.

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 September 11, 2018, 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.

Sincerely,

A handwritten signature in cursive script that reads "Dan Prucnal".

Dan Prucnal
Laboratory Manager



Sample Summary

Client Name: DDC-4C
Project Name: WSSC

Work Order Number(s): 18080724

The following samples were received under chain of custody by Phase Separation Science (PSS) on 08/07/2018 at 03:10 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18080724-001	20180807	WASTE WATER	08/07/18 08:28
18080724-002	20180807	WASTE WATER	08/07/18 08:33

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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 ROUTE 40 WEST
 BALTIMORE, MD 21228
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 800-932-9047
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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18080724
 DDC-4C, Chambersburg, PA
 August 13, 2018

Project Name: WSSC
 Project Location: WSSC Monitoring Point 001 IWMP

Sample ID: 20180807 **Date/Time Sampled: 08/07/2018 08:28** **PSS Sample ID: 18080724-001**
Matrix: WASTE WATER **Date/Time Received: 08/07/2018 15:10**

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	08/09/18	08/09/18 15:28	1053

Sample ID: 20180807 **Date/Time Sampled: 08/07/2018 08:33** **PSS Sample ID: 18080724-002**
Matrix: WASTE WATER **Date/Time Received: 08/07/2018 15:10**

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	08/08/18	08/08/18 20:14	1051
Chromium	941	ug/L	1.00		1	08/08/18	08/08/18 20:14	1051
Copper	1,580	ug/L	10.0		10	08/08/18	08/09/18 15:17	1051
Lead	20.5	ug/L	1.00		1	08/08/18	08/08/18 20:14	1051
Nickel	284	ug/L	1.00		1	08/08/18	08/08/18 20:14	1051
Silver	2.6	ug/L	1.0		1	08/08/18	08/08/18 20:14	1051
Zinc	520	ug/L	20.0		1	08/08/18	08/08/18 20:14	1051



Case Narrative Summary

Client Name: DDC-4C

Project Name: WSSC

Work Order Number(s): 18080724

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

Sample Receipt:

All sample receipt conditions were acceptable.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.



Analytical Data Package Information Summary

Work Order(s): 18080724
 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
EPA 200.8	20180807	Initial	18080724-002	1051	W	72694	155935	08/07/2018	08/08/2018 09:51	08/08/2018 20:14
	72694-1-BKS	BKS	72694-1-BKS	1051	W	72694	155935	-----	08/08/2018 09:51	08/08/2018 16:05
	72694-1-BLK	BLK	72694-1-BLK	1051	W	72694	155935	-----	08/08/2018 09:51	08/08/2018 16:01
	Aug. 2018 S	MS	18080715-001 S	1051	W	72694	155935	08/07/2018	08/08/2018 09:51	08/08/2018 20:05
	Aug. 2018 SD	MSD	18080715-001 SD	1051	W	72694	155935	08/07/2018	08/08/2018 09:51	08/08/2018 20:09
	72694-1-BKS	Reanalysis	72694-1-BKS	1051	W	72694	156016	-----	08/08/2018 09:51	08/09/2018 15:08
	20180807	Reanalysis	18080724-002	1051	W	72694	156016	08/07/2018	08/08/2018 09:51	08/09/2018 15:17
SM 4500-CN C,E - 2011	20180807	Initial	18080724-001	1053	W	72724	155982	08/07/2018	08/09/2018 10:15	08/09/2018 15:28
	72724-1-BKS	BKS	72724-1-BKS	1053	W	72724	155982	-----	08/09/2018 10:15	08/09/2018 15:16
	72724-1-BLK	BLK	72724-1-BLK	1053	W	72724	155982	-----	08/09/2018 10:15	08/09/2018 15:13
	72724-1-BSD	BSD	72724-1-BSD	1053	W	72724	155982	-----	08/09/2018 10:15	08/09/2018 15:19
	20180807 S	MS	18080724-001 S	1053	W	72724	155982	08/07/2018	08/09/2018 10:15	08/09/2018 15:31
	20180807 SD	MSD	18080724-001 SD	1053	W	72724	155982	08/07/2018	08/09/2018 10:15	08/09/2018 15:34

PHASE SEPARATION SCIENCE, INC.

QC Summary 18080724

DDC-4C
WSSC

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

Seq Number: 155982

MB Sample Id: 72724-1-BLK

Matrix: Water
LCS Sample Id: 72724-1-BKS

Prep Method: SM4500CN-CPRE

Date Prep: 08/09/18

LCSD Sample Id: 72724-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Cyanide, Total	<0.01000	0.1000	0.1001	100	0.1034	103	85-115	3	20	mg/L	08/09/18 15:16	

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

Seq Number: 155982

Parent Sample Id: 18080724-001

Matrix: Waste Water
MS Sample Id: 18080724-001 S

Prep Method: SM4500CN-CPRE

Date Prep: 08/09/18

MSD Sample Id: 18080724-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Cyanide, Total	<0.01000	0.1000	0.1079	108	0.1082	108	80-120	0	20	mg/L	08/09/18 15:31	

Analytical Method: EPA 200.8

Seq Number: 155935

MB Sample Id: 72694-1-BLK

Matrix: Water
LCS Sample Id: 72694-1-BKS

Prep Method: E200.8_PREP

Date Prep: 08/08/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Cadmium	<1.000	40	39.49	99	85-115	ug/L	08/09/18 15:08	
Chromium	<1.000	40	38.5	96	85-115	ug/L	08/09/18 15:08	
Copper	<1.000	40.00	41.06	103	85-115	ug/L	08/08/18 16:05	
Lead	<1.000	40.00	37.45	94	85-115	ug/L	08/08/18 16:05	
Nickel	<1.000	40.00	38.31	96	85-115	ug/L	08/08/18 16:05	
Silver	<1.000	40	41.52	104	85-115	ug/L	08/09/18 15:08	
Zinc	<20.00	200	191.9	96	85-115	ug/L	08/08/18 16:05	

Analytical Method: EPA 200.8

Seq Number: 156016

REBLK Sample Id: 72694-1-BLK

Matrix: Water
LCS Sample Id: 72694-1-BKS

Prep Method: E200.8_PREP

Date Prep: 08/08/18

Parameter	REBLK Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Copper	<1.000	40.00	36.84	92	70-130	ug/L	08/09/18 15:08	
Lead	<1.000	40.00	44.12	110	70-130	ug/L	08/09/18 15:08	
Nickel	<1.000	40.00	37.86	95	70-130	ug/L	08/09/18 15:08	
Zinc	<20.00	200	193.7	97	70-130	ug/L	08/09/18 15:08	

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

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

PHASE SEPARATION SCIENCE, INC.

1 *CLIENT: <u>DDLYC</u>		*OFFICE LOC: <u>GSEC NASA</u>		PAGE <u>18-80724</u> OF <u>1</u>	
*PROJECT MGR: <u>IAN CHEROK</u>		*PHONE NO.: () ()		Matrix Codes: DW=Drinking Wtr GW=Ground Wtr WW=Waste Wtr O=Oil S=Soil L=Liquid SOL=Solid A=Air WF=Wipe SW=Surface Wtr	
EMAIL: <u>IAN.CHEROK@NASA.GOV</u>		FAX NO.: () ()			
*PROJECT NAME: <u>INSSC</u>		PROJECT NO.:			
SITE LOCATION: <u>INSSC Monitoring Point on WMP</u>		WMP NO.: <u>C554</u>			
SAMPLER(S): <u>H. THOMAS I. CHEROK</u>		DW CERT NO.:			
2	LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)
	<u>1</u>	<u>20180807</u>	<u>8/7/18</u>	<u>8:28</u>	<u>WW</u>
	<u>2</u>	<u>20180807</u>	<u>8/7/18</u>	<u>8:33</u>	<u>WW</u>
3 CONTAINERS					
No. <u>1</u> <u>X</u> <u>C</u>					
SAMPLE TYPE: <u>C=</u> <u>G=</u> <u>GRAB</u>					
Preservatives Used: <u>None</u>					
Analysis Method Required: <u>③ Cyanide</u>					
Remarks: <u>total metals</u>					
4					
*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>		Custody Seal: <u>ABS</u>	
Data Deliverables Required: <input type="checkbox"/> COA <input type="checkbox"/> QC SUMM <input type="checkbox"/> CLP LIKE <input type="checkbox"/> OTHER		(log) Present: <u>725</u> Temp: <u>2-3°C</u>		Shipping Carrier: <u>FE</u>	
Special Instructions:					
DW COMPLIANCE? YES <input type="checkbox"/>		EDD FORMAT TYPE:		STATE RESULTS REPORTED TO: <input type="checkbox"/> MD <input type="checkbox"/> DE <input type="checkbox"/> PA <input type="checkbox"/> VA <input type="checkbox"/> WV <input type="checkbox"/> OTHER	

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 professional fees if collection becomes necessary. * = REQUIRED

Relinquished By: (1) [Signature] Date: 8/7/18 Time: 1430 Received By: [Signature]

Relinquished By: (2) Gama Date: 8/7/18 Time: 1510 Received By: [Signature]

Relinquished By: (3) _____ Date: _____ Time: _____ Received By: _____

Relinquished By: (4) _____ Date: _____ Time: _____ Received By: _____



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18080724
 Client Name DDC-4C
 Project Name WSSC
 Disposal Date 09/11/2018

Received By Thomas Wingate
 Date Received 08/07/2018 03:10:00 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
 Temp Blank Present No

Documentation

COC agrees with sample labels? Yes
 Chain of Custody Yes

Sampler Name Hayley Thomas
 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: 08/07/2018

PM Review and Approval:

Lynn Jackson

Date: 08/08/2018



**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.C. of your WSSC Permit) and applicable certification statements.

Industrial User	NASA/Goddard Space Flight Center			Outfall	FAC	Permit Number	00449
Reporting Period	Year: 2018	Quarter: (Check One)	January Thru March <input type="checkbox"/>	April Thru June <input type="checkbox"/>	July Thru September <input checked="" type="checkbox"/>	October Thru December <input type="checkbox"/>	
Monitoring Point Description	WSSC manhole labeled "WSSC IWMP" inside the front gate.						
Sampler's Name	Ian Cherok, Lauren Wicklund, Hayley Thomas		Name of Company Performing Sampling		DDC 4C		

Are pretreatment standards being met on a consistent basis? Yes No

If **No**, is 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 ⁽¹⁾ /Monthly ⁽²⁾	Indicate Sample Date and Results In mg/l for Each Parameter				Analytical Method	No. of Results Over Limit	Violations (WSSC Use Only)
		8/13/18	8/14/18	8/15/18	8/16/18			
Cadmium (T)	0.17	-----	<0.001	<0.001	-----	EPA 200.8	0	
Chromium (T)	7.0	-----	<0.001	0.0017	-----	EPA 200.8	0	
Copper (T)	2.0	-----	0.0530	0.1070	-----	EPA 200.8	0	
Lead (T)	0.4	-----	<0.001	0.0025	-----	EPA 200.8	0	
Nickel (T)	3.4	-----	0.0033	0.0040	-----	EPA 200.8	0	
Silver (T)	1.2	-----	<0.001	0.0013	-----	EPA 200.8	0	
Zinc (T)	4.2	-----	0.0889	0.1550	-----	EPA 200.8	0	
Cyanide (T)	1.0	-----	<0.010	<0.010	-----	SM 4500-CN C,E - 2011	0	
BOD	300	-----	116	197	-----	SM 5210B-2011	0	
TSS	400	-----	46	280	-----	SM 2540D-2011	0	
TTO ⁽³⁾	2.13	-----	-----	-----	-----	EPA 624, 608, 625		
pH Minimum ⁽⁴⁾	6.0 Units	7.0	6.8	6.8	6.8	EPA 150.2	0	
pH Maximum ⁽⁴⁾	10.0 Units	8.5	8.5	8.5	7.6	EPA 150.2	0	
Total Composite Volume	4 Liters		10 Liters	8.5 Liters		N/A		
Flow (gpd)	report	39,883 ⁽⁵⁾	63,547	59,333	16,255 ⁽⁶⁾	Estimated	N/A	
Time: Start:	00:01	09:36	00:01	00:01	-----	N/A	N/A	
Stop:	23:59	-----	23:59	23:59	08:48	N/A	N/A	

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 CFR 433.11 (e).

⁽⁴⁾ Report all pH unit readings to one decimal place. (Refer to Permit Section II.A for violation criteria)

⁽⁵⁾ 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 24 minutes of monitoring (09:36 through 00:00).

⁽⁶⁾ 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 47 minutes of monitoring (00:01 through 08:48).

PERIODIC COMPLIANCE REPORT

GREASE TRAP AND OIL/WATER SEPARATOR SERVICE LOG

INDUSTRIAL USER: NASA Goddard Space Flight Center

PERMIT NUMBER: 00449

ATLANTIC WASTEWATER SOLUTIONS WSSC PERMIT NUMBER: Z258

QUARTER: Third Quarter 2018 (July 1 – September 30)

Building	Number Of Tanks/ Volume	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	12/15/2017 5/8/2018	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	GT	Cafeteria	Inspected monthly, cleaned as needed	Cleaned: 7/16/18 8/26/18 9/18/18	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 tank/ 83 gallons						
	3 tanks/ 15 gallons						
33	1 tank/ 45 gallons	GT	Café	Inspected monthly, cleaned as needed	Cleaned: 7/16/18 8/26/18 9/18/18	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	GT	Cafeteria	Inspected monthly, cleaned as needed	Cleaned: 7/16/18 8/26/18 9/18/18	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 tank/ 45 gallons						

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.



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

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.

Kimberly Finch, P.E.	<i>KAF</i>	10/02/2018
Authorized Representative Printed Name	Authorized Representative Signature	Date

MAIL COMPLETED REPORT TO: Washington Suburban Sanitary Commission
 Regulatory Services Group
 Industrial Discharge Control Unit
 14501 Sweitzer Lane, 11th Floor
 Laurel, MD 20707-5902



TOTAL TOXIC ORGANIC (TTO) CERTIFICATION

Section II

Based on my inquiry of the person(s) directly responsible for managing compliance with the permit limitations 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 monitoring report. I further certify that this facility is implementing a Toxic Organic Management Plan (TOMP).

NASA/Goddard Space Flight Center

Industry

Kimberly Finch, P.E.

Authorized Representative

Chief, Medical and Environmental
Management Division

Title

KJF / 10/02/2018

Signature/Date

3rd Qtr (July-September) 2018

Reporting Period/Year

Insight For windows: Version: 5.10.6
Program settings

PGM:
900MAX VERSION: 7.5

SITE ID: 20180814
 LEVEL SENSOR: SUBMERGED XDUCER
 TYPE: 0-10 FT
 CAL OFFSET: 411
 CAL GAIN: 6.991 /cm
 USER OFFSET: 0.00 cm
 NUMBER OF BOTTLES: 2
 BOTTLE VOLUME: 99.00 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: 20180814
 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: ON
 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: 14:00 05-DEC-17
 pH CALIBRATION
 AT: 09:37 13-AUG-18
 PGM CMPLT OUTPUT
 DISABLED
 SPECIAL OUTPUT:
 DISABLED
 UPSET SAMPLING:
 DISABLED

DONE

Summary data.txt

=====
 Day Report - 13/May/18
 Monday

Site Id: 20180814

	pH/ORP (pH)	Level (in.)	Flow 1 (gpm)
Minimum:	6.89* 09:36	1.264 23:25	19.152 23:25
Maximum:	9.96** 09:39	3.069 11:30	116.589 11:30
Average:	----	1.878	46.107
Total Flow1:	39882.629 (gal)		

*This pH is a pH check, not sanitary. The lowest pH was 7.07 at 23:55 on 8/13/2018.
 **This pH is a pH check, not sanitary. The highest pH was 8.53 at 17:16 on 8/13/2018.

=====
 Day Report - 14/May/18
 Tuesday

Site Id: 20180814

	pH/ORP (pH)	Level (in.)	Flow 1 (gpm)
Minimum:	6.87 06:11	1.241 23:25	18.433 23:25
Maximum:	9.94* 11:09	3.378 12:10	140.489 12:10
Average:	----	1.835	44.130
Total Flow1:	63546.527 (gal)		

*This pH is a pH check, not sanitary. The highest pH was 8.51 at 17:17 on 8/14/2018.

=====
 Day Report - 15/May/18
 Wednesday

Site Id: 20180814

	pH/ORP (pH)	Level (in.)	Flow 1 (gpm)
Minimum:	6.83 05:36	1.208 03:30	17.421 03:30
Maximum:	9.87* 11:27	3.281 09:45	132.758 09:45
Average:	----	1.769	41.204
Total Flow1:	59333.352 (gal)		

Summary data.txt

*This pH is a pH check, not sanitary. The highest pH was 8.54 at 17:08 on 8/15/2018.

=====
Day Report - 16/May/18
Thursday

Site Id: 20180814

	pH/ORP (pH)	Level (in.)	Flow 1 (gpm)
Minimum:	6.81 05:57	1.316 03:55	20.840 03:55
Maximum:	9.92* 08:46	2.484 01:50	76.664 01:50
Average:	----	1.573	30.962
Total Flow1:	16255.135 (gal)		

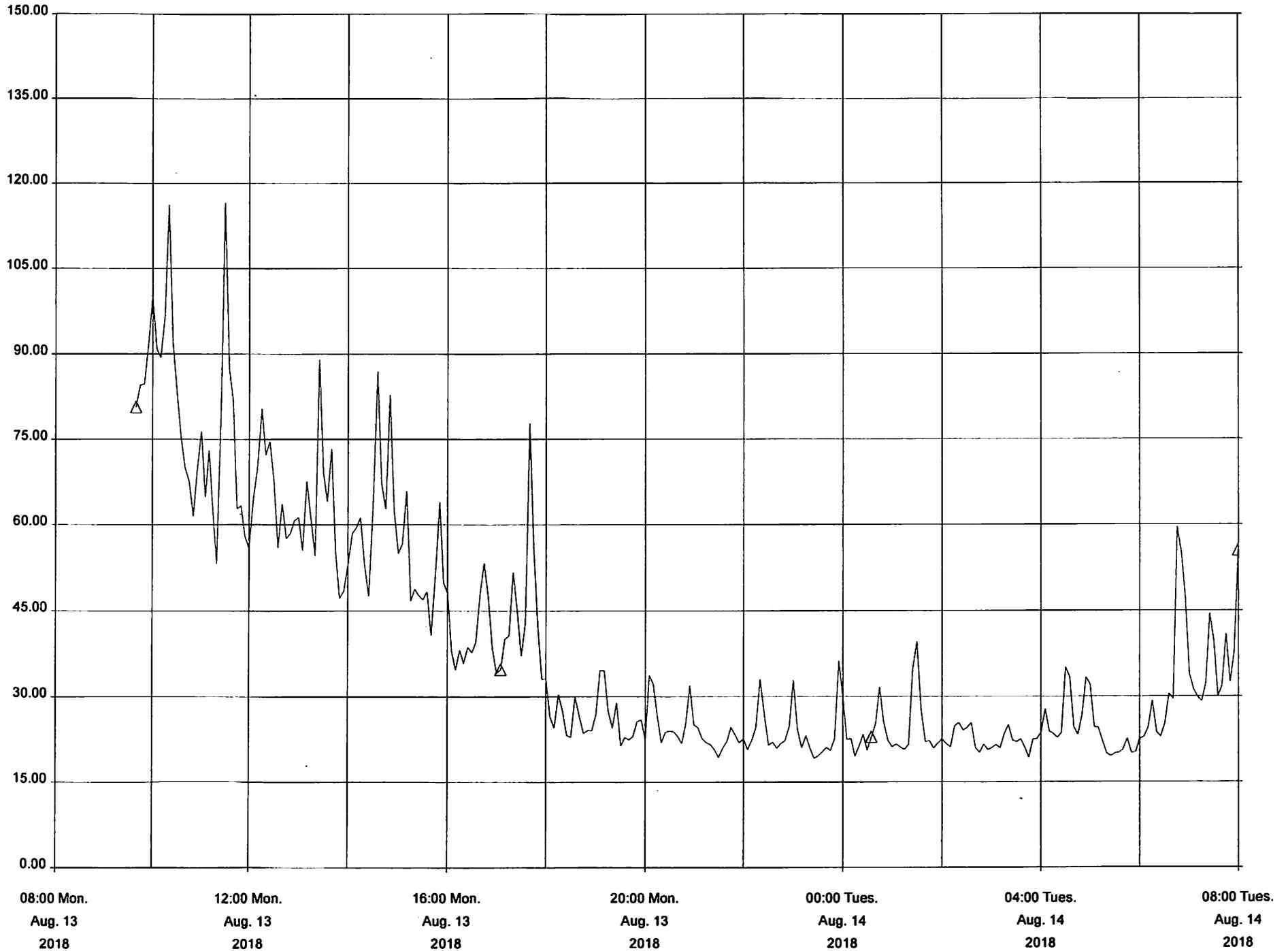
*This pH is a pH check, not sanitary. The highest pH was 7.67 at 0:18 on 8/16/2018.

WSSC Third Quarter Flow Monitoring Graph 8-13-18 to 8-16-18

Site Id: 20180814 File name: 08160854.000

—△— Flow 1 (gpm)

Graph span: 1 day

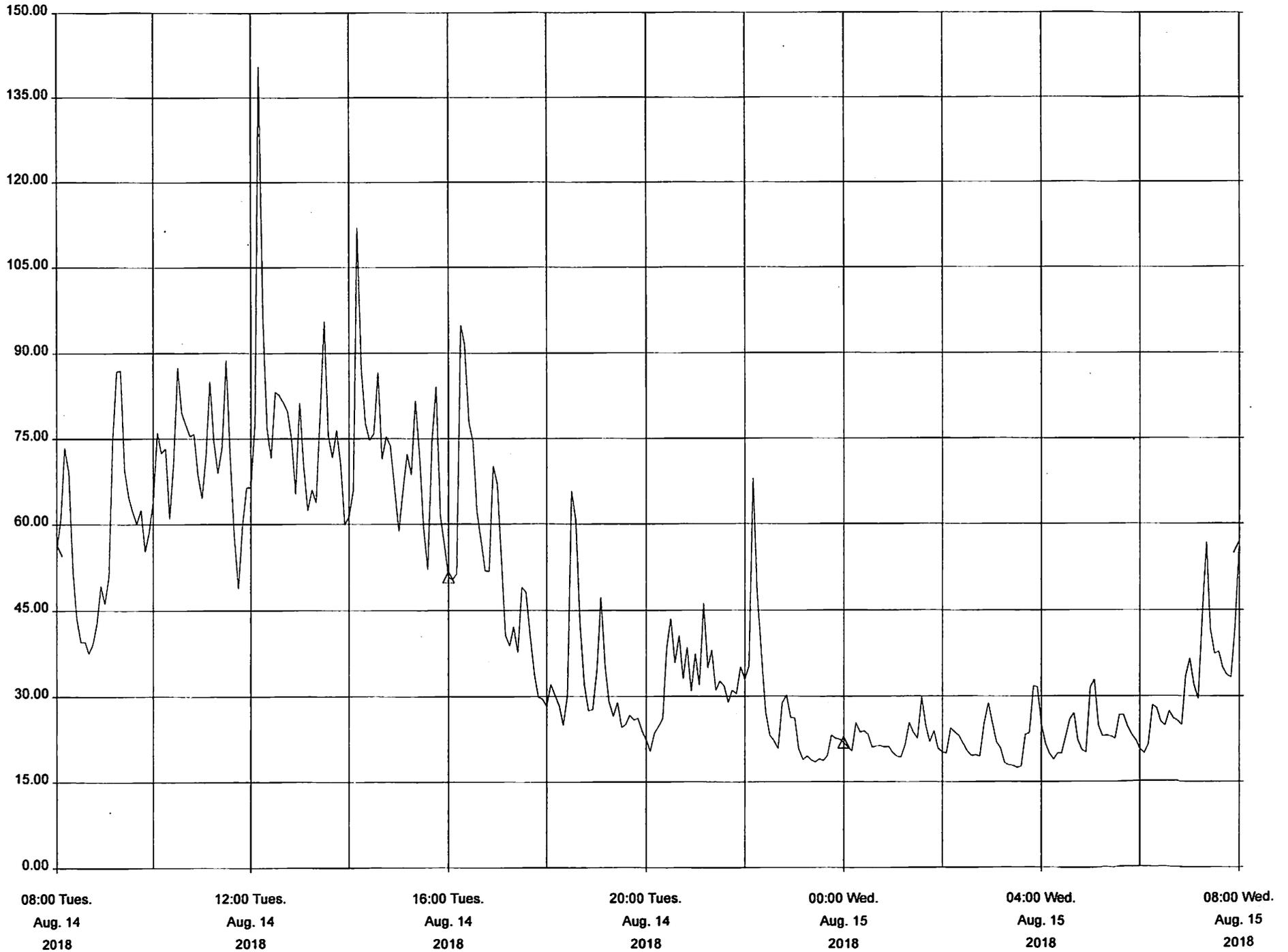


WSSC Third Quarter Flow Monitoring Graph 8-13-18 to 8-16-18

Site Id: 20180814 File name: 08160854.000

—△— Flow 1 (gpm)

Graph span: 1 day

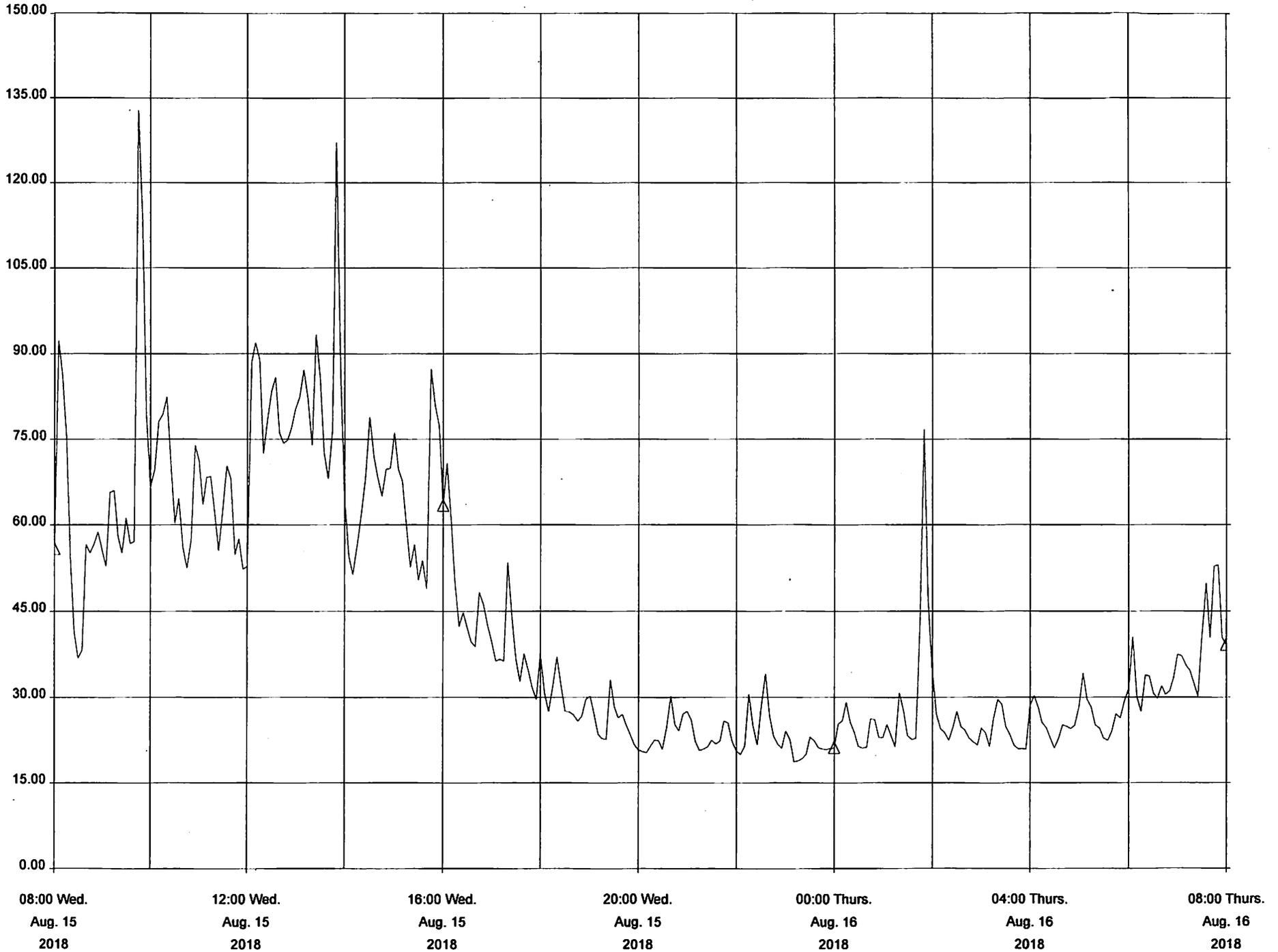


WSSC Third Quarter Flow Monitoring Graph 8-13-18 to 8-16-18

Site Id: 20180814 File name: 08160854.000

—△— Flow 1 (gpm)

Graph span: 1 day

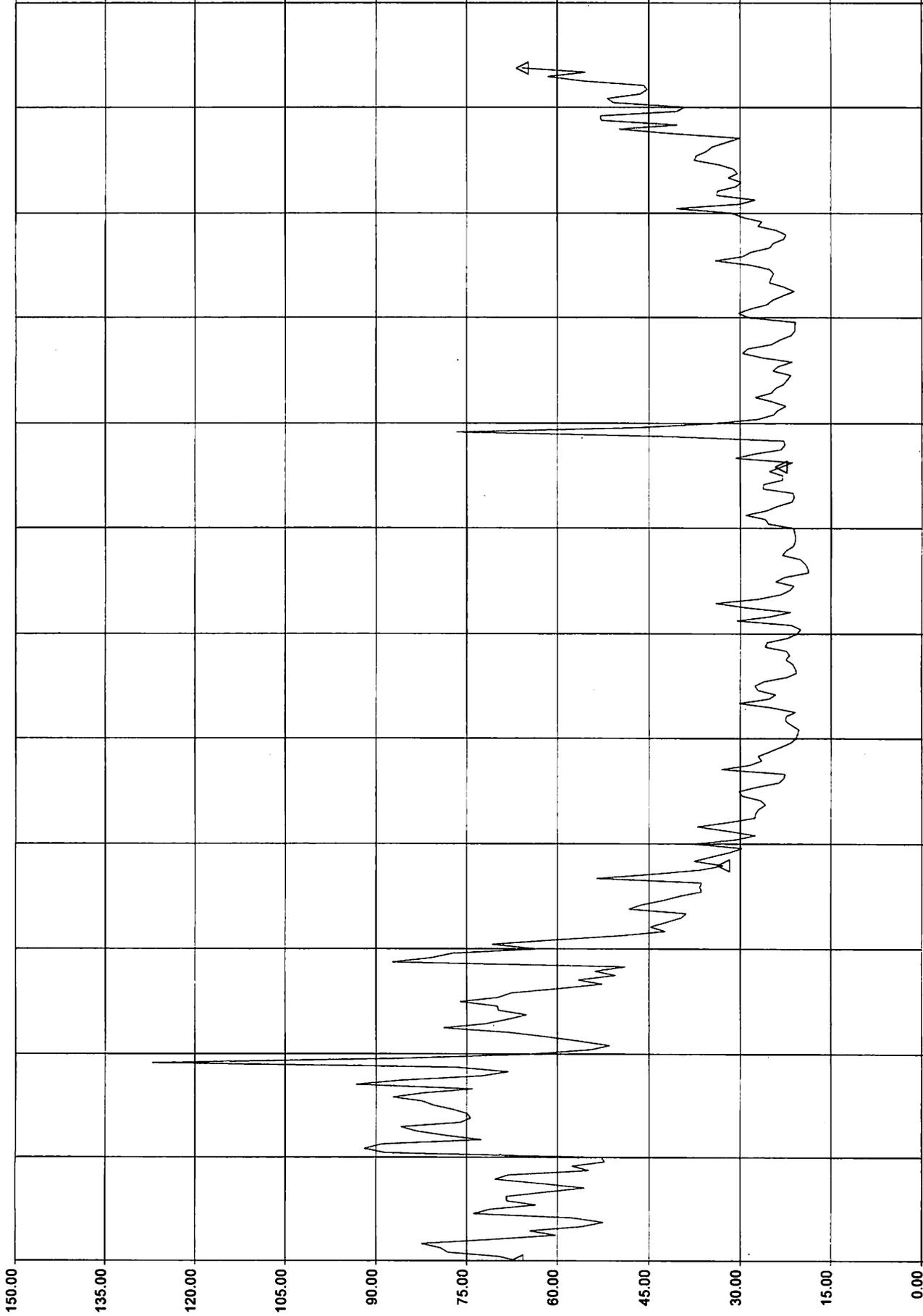


WSSC Third Quarter Flow Monitoring Graph 8-13-18 to 8-16-18

Site Id: 20180814 File name: 08160854.000

Graph span: 1 day

△ Flow 1 (gpm)

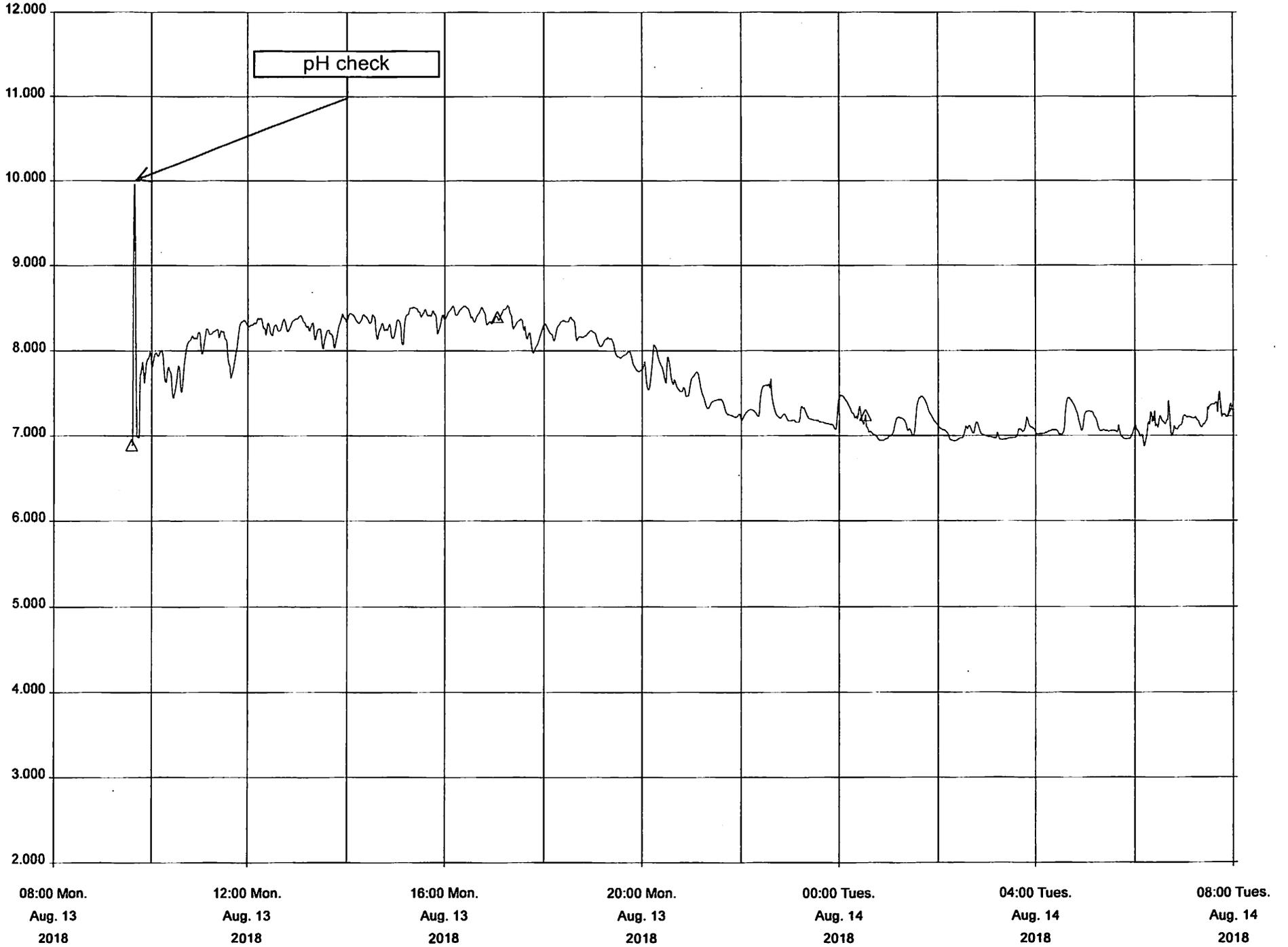


WSSC Third Quarter pH Monitoring Graph 8-13-18 to 8-16-18

Site Id: 20180814 File name: 08160854.000

—△— pH/ORP (pH)

Graph span: 1 day

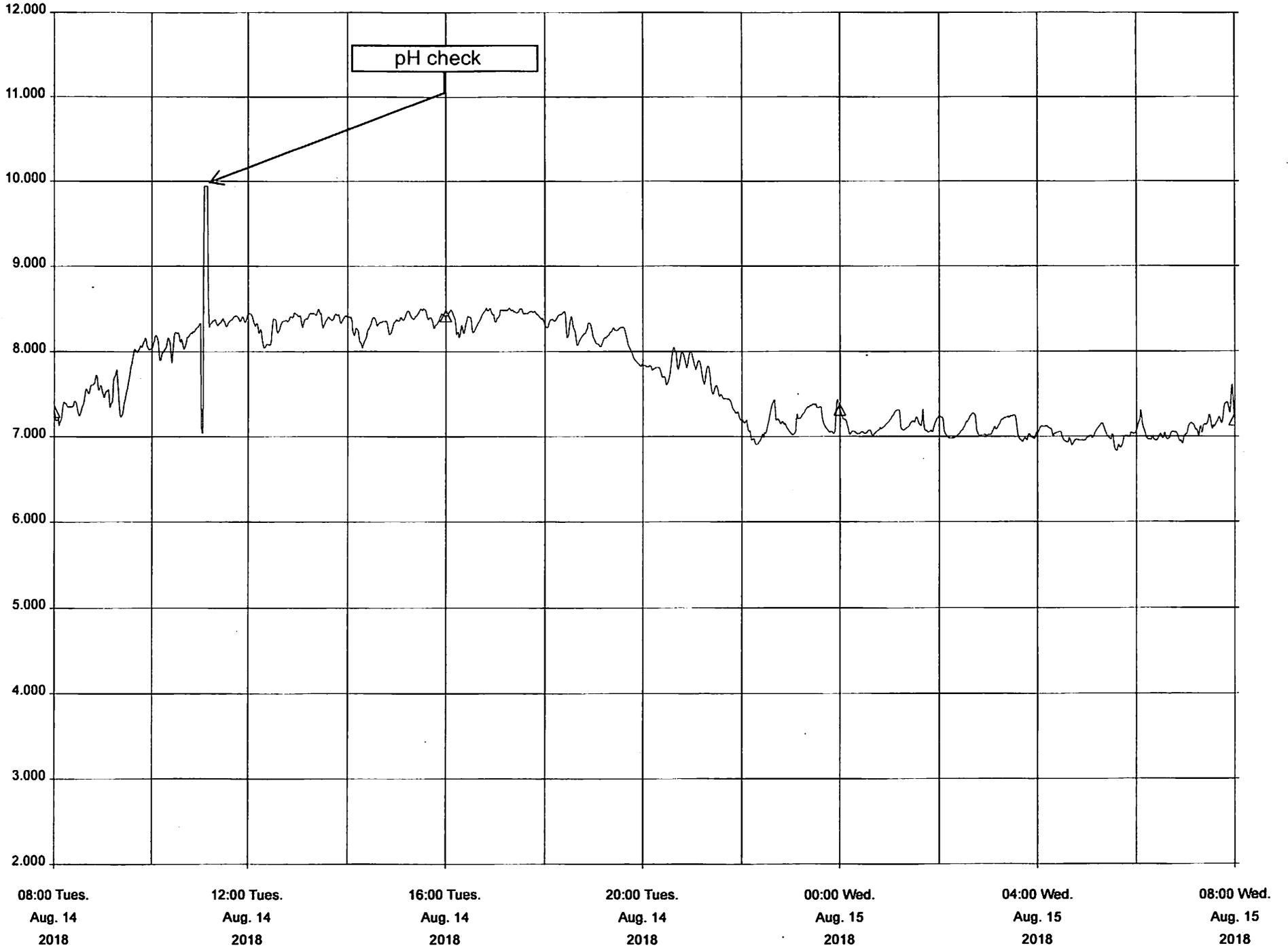


WSSC Third Quarter pH Monitoring Graph 8-13-18 to 8-16-18

Site Id: 20180814 File name: 08160854.000

—△— pH/ORP (pH)

Graph span: 1 day

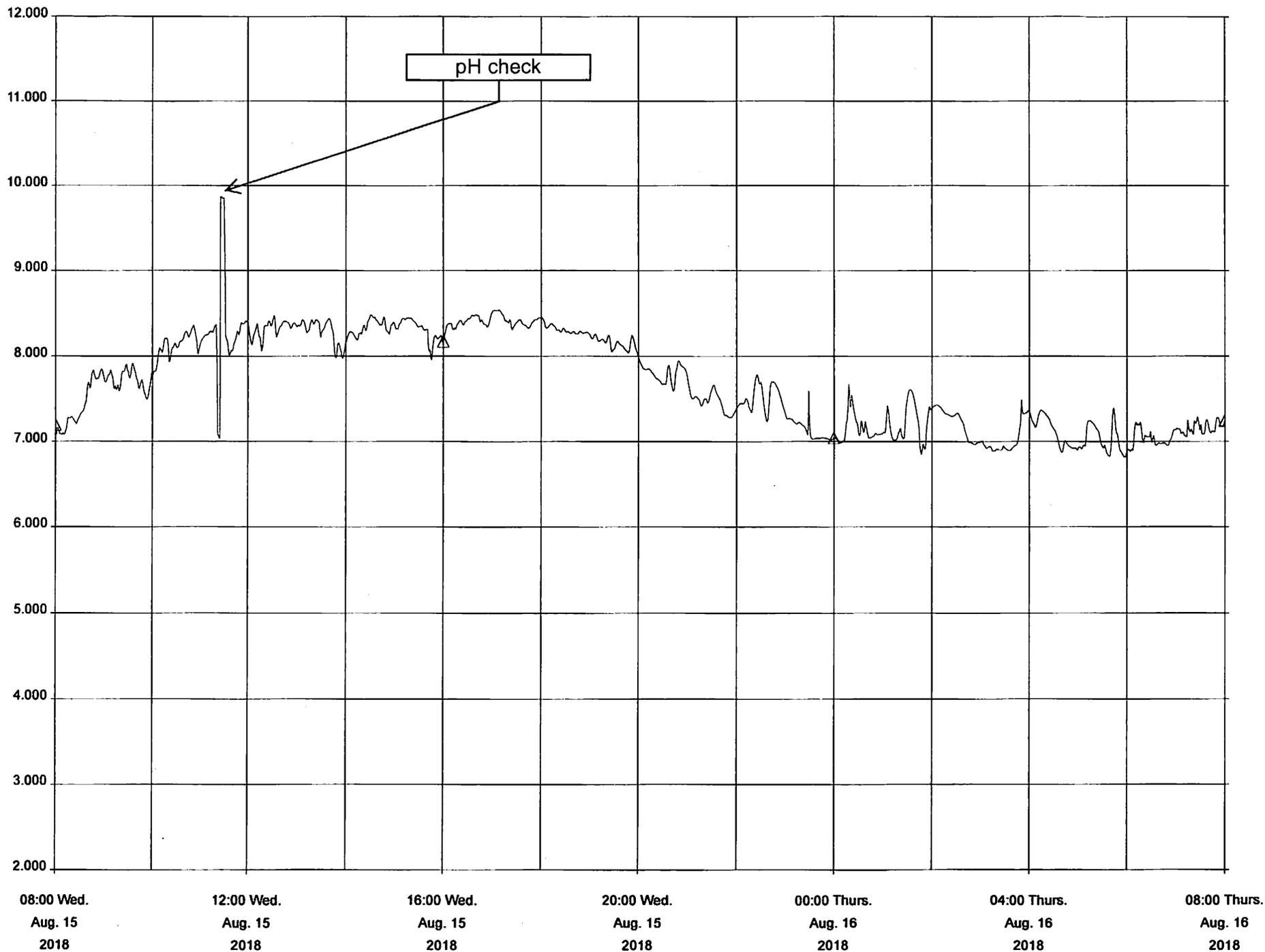


WSSC Third Quarter pH Monitoring Graph 8-13-18 to 8-16-18

Site Id: 20180814 File name: 08160854.000

—△— pH/ORP (pH)

Graph span: 1 day

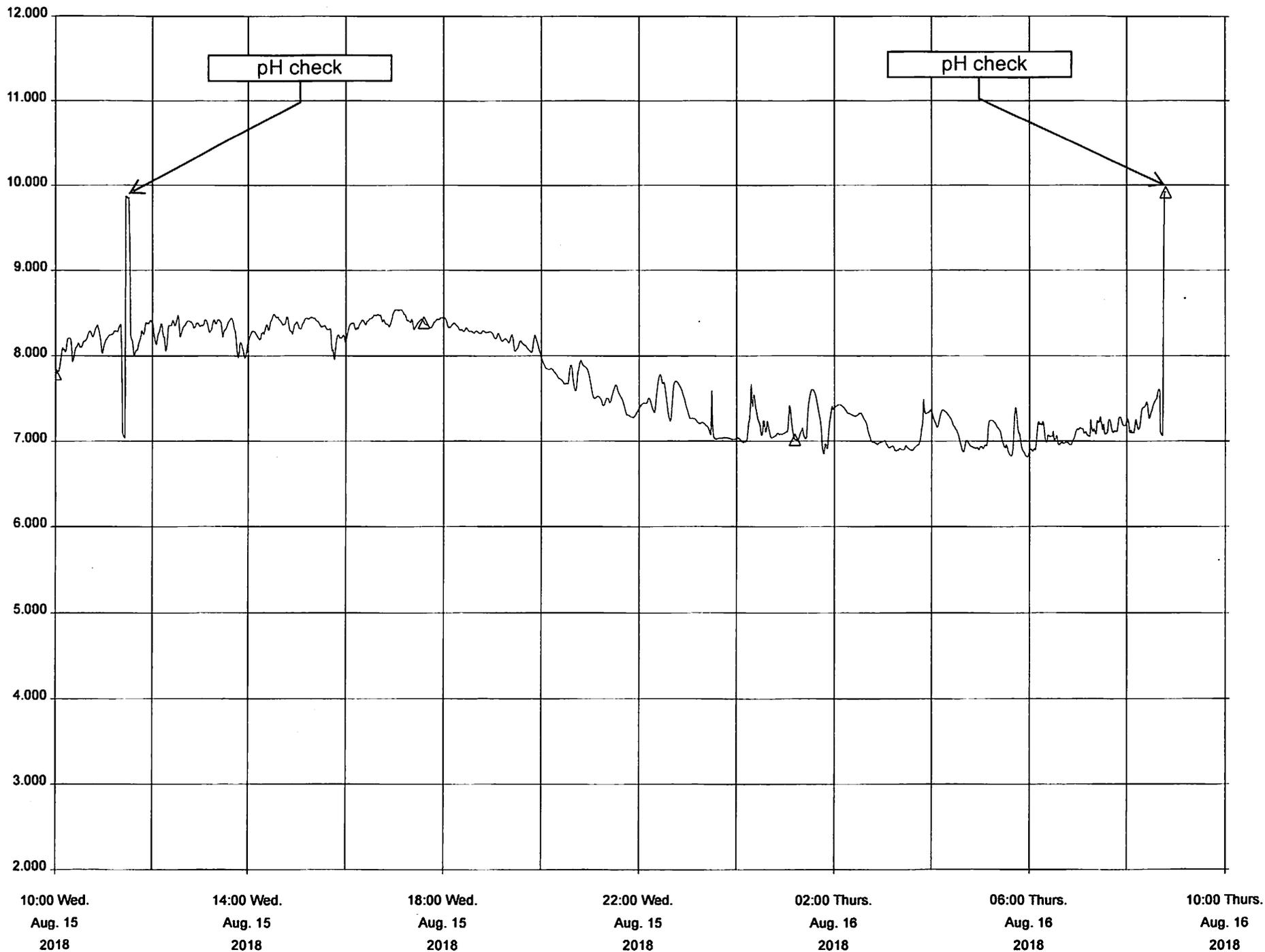


WSSC Third Quarter pH Monitoring Graph 8-13-18 to 8-16-18

Site Id: 20180814 File name: 08160854.000

—△— pH/ORP (pH)

Graph span: 1 day



Analytical Report for

DDC-4C

Certificate of Analysis No.: 18081510

Project Manager: Ian Cherok

Project Name : WSSC

Project Location: FAC IWMP



August 22, 2018

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.



August 22, 2018

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

Reference: PSS Work Order(s) No: **18081510**
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 **18081510**.

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 September 19, 2018, 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.

Sincerely,

Dan Prucnal
Laboratory Manager



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

Work Order Number(s): 18081510

The following samples were received under chain of custody by Phase Separation Science (PSS) on 08/15/2018 at 11:00 am

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18081510-001	20180814g1&g2	WASTE WATER	08/14/18 11:09
18081510-002	20180814c	WASTE WATER	08/14/18 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: 18081510
 DDC-4C, Chambersburg, PA
 August 22, 2018

Project Name: WSSC
 Project Location: FAC IWMP

Sample ID: 20180814g1&g2 **Date/Time Sampled: 08/14/2018 11:09** **PSS Sample ID: 18081510-001**
Matrix: WASTE WATER **Date/Time Received: 08/15/2018 11:00**

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	08/16/18	08/16/18 12:47	1053

Sample ID: 20180814c **Date/Time Sampled: 08/14/2018 23:59** **PSS Sample ID: 18081510-002**
Matrix: WASTE WATER **Date/Time Received: 08/15/2018 11:00**

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	08/16/18	08/16/18 21:44	1051
Chromium	ND	ug/L	1.0		1	08/16/18	08/16/18 21:44	1051
Copper	53.0	ug/L	1.00		1	08/16/18	08/16/18 21:44	1051
Lead	ND	ug/L	1.0		1	08/16/18	08/16/18 21:44	1051
Nickel	3.3	ug/L	1.0		1	08/16/18	08/16/18 21:44	1051
Silver	ND	ug/L	1.0		1	08/16/18	08/16/18 21:44	1051
Zinc	88.9	ug/L	20.0		1	08/16/18	08/16/18 21:44	1051

Total Suspended Solids		Analytical Method: SM 2540D -2011						
	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Suspended Solids	46	mg/L	10		1	08/16/18	08/16/18 12:00	1061

Biochemical Oxygen Demand		Analytical Method: SM 5210B -2011						
	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Biochemical Oxygen Demand, 5 day	116	mg/L	60.0			08/15/18	08/15/18 14:42	4005



Case Narrative Summary

Client Name: DDC-4C

Project Name: WSSC

Work Order Number(s): 18081510

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

Sample Receipt:

Cyanide samples composited upon receipt.

Sample container for BOD not received at PSS. Sent directly to sub lab from client by courier on 8/15/18.

18081510: Analyses associated with analyst code 4005 were performed by Enviro-Chem Laboratories, Inc.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.

SM 5210B -2011



Analytical Data Package Information Summary

Work Order(s): 18081510
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
EPA 200.8	20180814c	Initial	18081510-002	1051	W	72858	156233	08/14/2018	08/16/2018 10:19	08/16/2018 21:44
	72858-1-BKS	BKS	72858-1-BKS	1051	W	72858	156233	-----	08/16/2018 10:19	08/16/2018 21:20
	72858-1-BLK	BLK	72858-1-BLK	1051	W	72858	156233	-----	08/16/2018 10:19	08/16/2018 20:52
	Bldg 18 COMP S	MS	18081406-001 S	1051	W	72858	156233	08/14/2018	08/16/2018 10:19	08/16/2018 21:30
	Bldg 18 COMP SD	MSD	18081406-001 SD	1051	W	72858	156233	08/14/2018	08/16/2018 10:19	08/16/2018 21:34
SM 2540D -2011	20180814c	Initial	18081510-002	1061	W	156182	156182	08/14/2018	08/16/2018 12:00	08/16/2018 12:00
	156182-1-BLK	BLK	156182-1-BLK	1061	W	156182	156182	-----	08/16/2018 12:00	08/16/2018 12:00
	Millville 001 D	MD	18081515-001 D	1061	W	156182	156182	08/15/2018	08/16/2018 12:00	08/16/2018 12:00
SM 4500-CN C,E - 2011	20180814g1&g2	Initial	18081510-001	1053	W	72856	156202	08/14/2018	08/16/2018 09:58	08/16/2018 12:47
	72856-1-BKS	BKS	72856-1-BKS	1053	W	72856	156202	-----	08/16/2018 09:58	08/16/2018 12:23
	72856-1-BLK	BLK	72856-1-BLK	1053	W	72856	156202	-----	08/16/2018 09:58	08/16/2018 12:20
	72856-1-BSD	BSD	72856-1-BSD	1053	W	72856	156202	-----	08/16/2018 09:58	08/16/2018 12:26
	Bldg 18 GRAB S	MS	18081406-002 S	1053	W	72856	156202	08/14/2018	08/16/2018 09:58	08/16/2018 12:35
	Bldg 18 GRAB SD	MSD	18081406-002 SD	1053	W	72856	156202	08/14/2018	08/16/2018 09:58	08/16/2018 12:38
SM 5210B -2011	20180814c	Initial	18081510-002	4005	W	156386	156386	08/14/2018	08/15/2018 14:42	08/15/2018 14:42

PHASE SEPARATION SCIENCE, INC.

QC Summary 18081510

DDC-4C
WSSC

Analytical Method: SM 2540D -2011

Seq Number: 156182

Matrix: Water

MB Sample Id: 156182-1-BLK

Parameter	MB Result	LOD	RL	Units	Analysis Date	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	08/16/18 12:00	

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

Seq Number: 156202

Matrix: Water

MB Sample Id: 72856-1-BLK

LCS Sample Id: 72856-1-BKS

Prep Method: SM4500CN-CPRE

Date Prep: 08/16/18

LCSD Sample Id: 72856-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Cyanide, Total	<0.01000	0.1000	0.1059	106	0.1061	106	85-115	0	20	mg/L	08/16/18 12:23	

Analytical Method: EPA 200.8

Seq Number: 156233

Matrix: Water

MB Sample Id: 72858-1-BLK

LCS Sample Id: 72858-1-BKS

Prep Method: E200.8_PREP

Date Prep: 08/16/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Cadmium	<1.000	40.00	42.23	106	85-115	ug/L	08/16/18 21:20	
Chromium	<1.000	40.00	42.40	106	85-115	ug/L	08/16/18 21:20	
Copper	<1.000	40.00	42.29	106	85-115	ug/L	08/16/18 21:20	
Lead	<1.000	40.00	40.64	102	85-115	ug/L	08/16/18 21:20	
Nickel	<1.000	40.00	41.49	104	85-115	ug/L	08/16/18 21:20	
Silver	<1.000	40.00	40.92	102	85-115	ug/L	08/16/18 21:20	
Zinc	<20.00	200	213.9	107	85-115	ug/L	08/16/18 21:20	

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

1 *CLIENT: <u>DDC4C</u> *OFFICE LOC. <u>GSFC NASA</u>				PSS Work Order #: <u>18081510</u> PAGE <u>1</u> OF <u>1</u>																																																																																																																														
*PROJECT MGR: <u>Ian Cherok</u> *PHONE NO.: ()				Matrix Codes: SW=Surface Wtr DW=Drinking Wtr GW=Ground Wtr WW=Waste Wtr O=Oil S=Soil L=Liquid SOL=Solid A=Air WI=Wipe																																																																																																																														
EMAIL: <u>Ian.D.Cherok@nasa.gov</u> FAX NO.: ()				No. CONTAINERS	SAMPLE TYPE C = COMP G = GRAB	Preservatives Used		Analysis Method Required		REMARKS																																																																																																																								
*PROJECT NAME: <u>WSSC</u> PROJECT NO.:						* Cyanide TSS BOD total metals																																																																																																																												
SITE LOCATION: <u>FAC IWMP</u> P.O. NO.:																																																																																																																																		
SAMPLER(S): <u>H. Thomas L. Wicklund</u> DW CERT NO.:																																																																																																																																		
2 <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>LAB NO.</th> <th>*SAMPLE IDENTIFICATION</th> <th>*DATE (SAMPLED)</th> <th>*TIME (SAMPLED)</th> <th>MATRIX (See Codes)</th> <th>No. CONTAINERS</th> <th>SAMPLE TYPE</th> <th>Preservatives Used</th> <th>Analysis Method Required</th> <th>REMARKS</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>20180814g1</td> <td>8/14/18</td> <td>9:34</td> <td>WW</td> <td>1</td> <td>G</td> <td>X</td> <td></td> <td>*please combine</td> </tr> <tr> <td>1</td> <td>20180814g2</td> <td>8/14/18</td> <td>11:09</td> <td>WW</td> <td>1</td> <td>G</td> <td>X</td> <td></td> <td>combine</td> </tr> <tr> <td>2</td> <td>20180814c</td> <td>8/14/18</td> <td>00:01-23:59</td> <td>WW</td> <td>3</td> <td>C</td> <td></td> <td>X X X</td> <td>20180814g1 and 20180814g2 and analyze as one sample.</td> </tr> <tr><td> </td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>											LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	No. CONTAINERS	SAMPLE TYPE	Preservatives Used	Analysis Method Required	REMARKS	1	20180814g1	8/14/18	9:34	WW	1	G	X		*please combine	1	20180814g2	8/14/18	11:09	WW	1	G	X		combine	2	20180814c	8/14/18	00:01-23:59	WW	3	C		X X X	20180814g1 and 20180814g2 and analyze as one sample.																																																																																
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3 Relinquished By: (1) <u>Hayley Thur</u> Date: <u>8/15/18</u> Time: <u>10:14</u> Received By: <u>Dan Carter</u>				4 *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																																																																																																																														
Relinquished By: (2) <u>Dan Carter</u> Date: <u>08/15/18</u> Time: <u>11:00</u> Received By: <u>[Signature]</u>				# of Coolers: <u>1</u> Custody Seal: <u>ABS</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"/> Ice Present: <u>PREJ</u> Temp: <u>4:02</u> Shipping Carrier: <u>TTE</u>																																																																																																																														
Relinquished By: (3) _____ Date: _____ Time: _____ Received By: _____				Special Instructions: _____																																																																																																																														
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 # 18081510
 Client Name DDC-4C
 Project Name WSSC
 Disposal Date 09/19/2018

Received By Thomas Wingate
 Date Received 08/15/2018 11:00:00 AM
 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	Ice	Present
Seal(s) Signed / Dated?	N/A	Temp (deg C)	6
		Temp Blank Present	No

Documentation

COC agrees with sample labels? Yes
 Chain of Custody Yes

Sampler Name Hayley Thomas
 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 4

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.

Cyanide samples composited upon receipt.
 Sample container for BOD not received at PSS. Sent directly to sub lab from client by courier on 8/15/18.

Samples Inspected/Checklist Completed By: Thomas Wingate Date: 08/15/2018

PM Review and Approval: Lynn Jackson Date: 08/15/2018

Analytical Report for

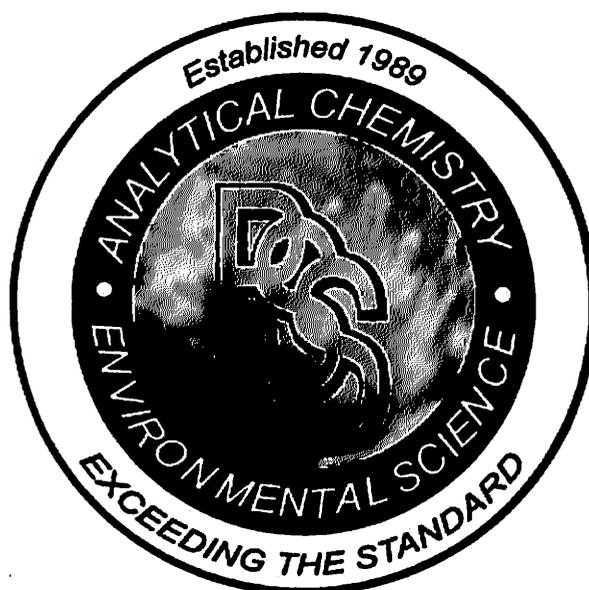
DDC-4C

Certificate of Analysis No.: 18081610

Project Manager: Ian Cherok

Project Name : WSSC

Project Location: FAC IWMP



August 23, 2018

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.



August 23, 2018

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

Reference: PSS Work Order(s) No: **18081610**
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 **18081610**.

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 September 20, 2018, 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.

Sincerely,

Dan Prucnal
Laboratory Manager



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

Work Order Number(s): 18081610

The following samples were received under chain of custody by Phase Separation Science (PSS) on 08/16/2018 at 11:40 am

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18081610-001	20180815g1&g2	WASTE WATER	08/15/18 13:32
18081610-002	20180815c	WASTE WATER	08/15/18 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 MWA 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: 18081610
 DDC-4C, Chambersburg, PA
 August 23, 2018

Project Name: WSSC
 Project Location: FAC IWMP

Sample ID: 20180815g18g2 **Date/Time Sampled: 08/15/2018 13:32** **PSS Sample ID: 18081610-001**
Matrix: WASTE WATER **Date/Time Received: 08/16/2018 11:40**

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	08/21/18	08/21/18 13:34	1053	

Sample ID: 20180815c **Date/Time Sampled: 08/15/2018 23:59** **PSS Sample ID: 18081610-002**
Matrix: WASTE WATER **Date/Time Received: 08/16/2018 11:40**

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	08/17/18	08/18/18 00:07	1051	
Chromium	1.7	ug/L	1.0		1	08/17/18	08/18/18 00:07	1051	
Copper	107	ug/L	1.00		1	08/17/18	08/18/18 00:07	1051	
Lead	2.5	ug/L	1.0		1	08/17/18	08/18/18 00:07	1051	
Nickel	4.0	ug/L	1.0		1	08/17/18	08/18/18 00:07	1051	
Silver	1.3	ug/L	1.0		1	08/17/18	08/18/18 00:07	1051	
Zinc	155	ug/L	20.0		1	08/17/18	08/18/18 00:07	1051	

Total Suspended Solids		Analytical Method: SM 2540D -2011							
	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst	
Suspended Solids	280	mg/L	20		1	08/17/18	08/17/18 13:11	1061	

Biochemical Oxygen Demand		Analytical Method: SM 5210B -2011							
	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst	
Biochemical Oxygen Demand, 5 day	197	mg/L	60.0			08/17/18	08/17/18 14:30	4005	



Case Narrative Summary

Client Name: DDC-4C

Project Name: WSSC

Work Order Number(s): 18081610

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.

Unless otherwise noted, surrogate recoveries outside of the acceptance criteria are most often the result of sample matrix interference and/or sample dilution.

Quality control samples that display a high bias will not be narrated when sample target compounds are not detected.

Sample Receipt:

Cyanide samples combined upon receipt.

18081610: Analyses associated with analyst code 4005 were performed by Enviro-Chem Laboratories, Inc.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.

SM 5210B -2011



Analytical Data Package Information Summary

Work Order(s): 18081610
 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
EPA 200.8	20180815c	Initial	18081610-002	1051	W	72886	156271	08/15/2018	08/17/2018 12:13	08/18/2018 00:07
	72886-1-BKS	BKS	72886-1-BKS	1051	W	72886	156271	-----	08/17/2018 12:13	08/17/2018 22:29
	72886-1-BLK	BLK	72886-1-BLK	1051	W	72886	156271	-----	08/17/2018 12:13	08/17/2018 22:24
	Bldg 18 COMP S	MS	18081603-001 S	1051	W	72886	156271	08/16/2018	08/17/2018 12:13	08/17/2018 22:38
	PLY-011 S	MS	18081611-001 S	1051	W	72886	156271	08/16/2018	08/17/2018 12:13	08/18/2018 00:16
	Bldg 18 COMP SD	MSD	18081603-001 SD	1051	W	72886	156271	08/16/2018	08/17/2018 12:13	08/17/2018 22:43
SM 2540D -2011	20180815c	Initial	18081610-002	1061	W	156231	156231	08/15/2018	08/17/2018 13:11	08/17/2018 13:11
	156231-1-BLK	BLK	156231-1-BLK	1061	W	156231	156231	-----	08/17/2018 13:11	08/17/2018 13:11
	PLY-011 D	MD	18081611-001 D	1061	W	156231	156231	08/16/2018	08/17/2018 13:11	08/17/2018 13:11
SM 4500-CN C,E - 2011	20180815g1&g2	Initial	18081610-001	1053	W	72926	156346	08/15/2018	08/21/2018 10:16	08/21/2018 13:34
	72926-1-BKS	BKS	72926-1-BKS	1053	W	72926	156346	-----	08/21/2018 10:16	08/21/2018 13:13
	72926-1-BLK	BLK	72926-1-BLK	1053	W	72926	156346	-----	08/21/2018 10:16	08/21/2018 13:10
	72926-1-BSD	BSD	72926-1-BSD	1053	W	72926	156346	-----	08/21/2018 10:16	08/21/2018 13:16
	Bldg 18 GRAB S	MS	18081603-002 S	1053	W	72926	156346	08/16/2018	08/21/2018 10:16	08/21/2018 13:25
	Bldg 18 GRAB SD	MSD	18081603-002 SD	1053	W	72926	156346	08/16/2018	08/21/2018 10:16	08/21/2018 13:28
SM 5210B -2011	20180815c	Initial	18081610-002	4005	W	156448	156448	08/15/2018	08/17/2018 14:30	08/17/2018 14:30

PHASE SEPARATION SCIENCE, INC.

QC Summary 18081610

DDC-4C
WSSC

Analytical Method: SM 2540D -2011

Seq Number: 156231

Matrix: Water

MB Sample Id: 156231-1-BLK

Parameter	MB Result	LOD	RL	Units	Analysis Date	Flag
Suspended Solids	ND	0.5000	1.000	mg/L	08/17/18 13:11	

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

Seq Number: 156346

Matrix: Water

MB Sample Id: 72926-1-BLK

LCS Sample Id: 72926-1-BKS

Prep Method: SM4500CN-CPRE

Date Prep: 08/21/18

LCSD Sample Id: 72926-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Cyanide, Total	<0.01000	0.1000	0.09944	99	0.1013	101	85-115	2	20	mg/L	08/21/18 13:13	

Analytical Method: EPA 200.8

Seq Number: 156271

Matrix: Water

MB Sample Id: 72886-1-BLK

LCS Sample Id: 72886-1-BKS

Prep Method: E200.8_PREP

Date Prep: 08/17/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Cadmium	<1.000	40.00	38.79	97	85-115	ug/L	08/17/18 22:29	
Chromium	<1.000	40.00	40.08	100	85-115	ug/L	08/17/18 22:29	
Copper	<1.000	40.00	42.10	105	85-115	ug/L	08/17/18 22:29	
Lead	<1.000	40.00	38.28	96	85-115	ug/L	08/17/18 22:29	
Nickel	<1.000	40.00	39.15	98	85-115	ug/L	08/17/18 22:29	
Silver	<1.000	40.00	38.98	97	85-115	ug/L	08/17/18 22:29	
Zinc	<20.00	200	199.2	100	85-115	ug/L	08/17/18 22:29	

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 # 18081610
 Client Name DDC-4C
 Project Name WSSC
 Disposal Date 09/20/2018

Received By Thomas Wingate
 Date Received 08/16/2018 11:40:00 AM
 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
 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 4

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)	N/A
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.

Cyanide samples combined upon receipt.

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 08/16/2018

PM Review and Approval:

Lynn Jackson

Date: 08/16/2018

Shipping and Mailing Request Form

(For use with express, certified, and registered domestic and international small packages)

075775

SHIP TO: (Please include a complete street address, city, state, zip code, and telephone number)

Mr. Todd C. ...
 ...
 ...
 ...

DESCRIPTION OF ITEM BEING SHIPPED/MAILED:
 (this information is required)

TYPE OF SERVICE REQUESTED: (Please read options carefully)

Express Delivery Services

- Priority Overnight Service
- Standard Overnight Service
- Second Day Service
- Third Day Service
- International Express Service *
- International Economy Service *
- Saturday Delivery
- Least Costly Method

Certified and Registered Mail Services

- Certified Mail
- Registered Mail
- Return Receipt

*** The following information must be provided for all packages being shipped or mailed to an international destination.**

To the best of my knowledge, this shipment is not restricted for export. If you are unsure of current ITAR (22 CFR Parts 120-130) and export (15 CFR Parts 730-774) regulations, please contact the GSFC Export Control Office at 6-6388/6-4579 or visit their website at <http://export.gsfc.nasa.gov>

Signature and Date of Sender

International packages going to a "Designated Country" must be approved by the International Coordinator's Office, Code 101, ext. 6-8300. A list of Designated Countries can be found at <http://export.gsfc.nasa.gov>

Signature and Date of International Coordinator's Office representative

ORIGINATOR: I certify that services requested are for NASA Official Business Only

Name: <u>LOH. LEVINE</u>	Code: <u>250</u>	Telephone: <u>301-366-6741</u>	Date: <u>Oct 3 2018</u>
--------------------------	------------------	--------------------------------	-------------------------

For Internal Use Only:	<u>46</u>		
	<u>46 09-0894-2448</u>		
	Package Identification Number	Mode of Shipment	Date Processed



October 4, 2018

Dear Customer:

The following is the proof-of-delivery for tracking number **460908942448**.

Delivery Information:

Status:	Delivered	Delivered to:	Receptionist/Front Desk
Signed for by:	C.K	Delivery location:	LAUREL, MD
Service type:	FedEx Standard Overnight	Delivery date:	Oct 4, 2018 10:11
Special Handling:	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:

Tracking number:	460908942448	Ship date:	Oct 3, 2018
		Weight:	0.5 lbs/0.2 kg

Recipient:
LAUREL, MD US

Shipper:
GREENBELT, MD US

Reference
Department number

075775
250

Thank you for choosing FedEx.