EXHIBIT E2

2018 CHAPTER 94 REPORT TO DEP
FOR SWWPCP

MUNICIPAL WASTELOAD MANAGEMENT REPORT

2018

SWWPCP

2018

BRIEF NARRATIVE

2018

1. Introduction

The information presented here comprises the text of the Philadelphia Water Department's (PWD) Southwest Water Pollution Control Plant (SWWPCP) **2017 MUNICIPAL WASTELOAD MANAGEMENT REPORT** as required by the general requirements of Chapter 94 of the Rules and Regulations of the Pennsylvania Department of Environmental Protection (PADEP).

The SWWPCP serves an area comprised of sections of southwestern and central Philadelphia. The plant also treats flows from the Delaware County Regional Authority (DELCORA) as well as Springfield, Lower Merion and Upper Darby Townships.

The SWWPCP is a 200 MGD pure oxygen waste activated sludge facility that discharges into the Delaware River. The effluent is disinfected with sodium hypochlorite. The existing facility was upgraded to its current capacity in the late 1970's.

Citywide there were 1857 new water meters installed over the past year. The resultant total flow from these connections is estimated to be less than 2 million gallons per day across all three plants. The impact of these flows on the dry weather capacity is approximately 1 percent of the available capacity of the existing WPC plants. Maximum (maximum three consecutive months) projected plant flows have been calculated using the actual 5 year average hydraulic ratio and the estimated dry weather flow.

Clearly, compliance with the 3-month maximum flow requirements of Chapter 94 depends to a great degree upon the quantity of wet weather flow that is actually treated. The hydraulic and organic loading projections, as calculated, fall within plant design parameters. The PWD is pleased to report that, in compliance with the Nine Minimum Controls contained in the CSO portion of our NPDES permits, we are making every effort to maximize wet weather capture and treatment.

On September 27, 2012, EPA Region 3 and the Water Department agreed to an "Administrative Order for Compliance on Consent" which incorporates the Water Department's Consent Order and Agreement (COA) signed with DEP in June of 2011. The COA with the PADEP provides the basis for reducing the impact of combined sewer overflows (CSO's) to the region's streams and rivers. The COA requires the Water Department to implement its Long-Term Control Plan Update (LTCPU) also known as the Green City, Clean Waters (GCCW) program. Within this report and appendix is submitted a status of the progress to date on targeted CSO overflow mitigation projects.

The enclosed envelope contains the 2018 Municipal Wasteload Management Report from the Philadelphia Water Department.

Please sign this receipt that this report has been delivered to this Facility by the required March 29, 2019 deadline.

_____ _____

Name Date

FLOW METER CALIBRATION

2018

Z540.1

FLUKE

Certificate of Calibration

Beaverton Service Center

Certificate Number:	BVL456842		
Data Type:	Found-Left	**Calibration Date:**	09-Jun-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	09-Jun-2018
Model:	179	**Temperature:**	22.8 °C
Serial Number:	34570269	**Humidity:**	38.0 %
Description:	Multimeter		

Procedure:	Fluke 179: (1 year) ZCAL VER/5520A	**Revision:**	2.1
Customer:	PHILADELPHIA WATER DEPARTMENT		
City:	PHILADELPHIA	**Country:**	US
State:	PA		
Purchase Order:	826501	**RMA:**	31483962

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 121 7/2017 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

The Data Type found in this certificate must be interpreted as:

- As - Found Calibration data collected before the unit is adjusted and / or repaired.
- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
- Found-Left Calibration data collected without any adjustment and / or repair performed.

This calibration conforms to the requirements of ANSI/NCSL Z540-1-1994 (R2002).

In the attached measurement results, deviation may be expressed with units, Measured Value (MV) - Nominal Value (NV) or as a proportion of the nominal value ((MV-NV)/NV), expressed without units with a scalar multiplier such as % (0.01), or as a ratio of the units (mA/A, µV/V, etc.) Descriptions such as µA/A, µV/V, and others, where used to annotate results or column headings are the preferred replacements for what was historically labeled as "ppm" or parts-per-million and described the results in that column, unless otherwise noted by units symbols.

Where applicable, the expanded uncertainty of measurement at the time of test is given in the following pages. They are calculated in accordance with the method described in the ISO Guide to the Expression of Uncertainty in Measurement (GUM). The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k, such that the confidence level approximates 95%.

Where applicable, the Test Uncertainty Ratio (TUR) is provided in the following pages. Unless otherwise stated, the TUR for a given measurement result is 4:1 or greater.

Results are reviewed to establish where any measurement results exceeded the manufacturer's specifications.

Measurement results greater than limits of error are indicated by '!'.

Tracy Wright

TRACY WRIGHT
Issued By

Certificate Number: BVL456842 **Date of Calibration:** 09-Jun-2018

Standards Used

Asset	Description	Cal-Date	Cal-Due
16533	Fluke 5522A Calibrator	06-Jul-2017	06-Jul-2018

Certificate Number: BVL456842 | Date of Calibration: 9-Jun-2018

Calibration Data

Parameter	Nominal Value	Measurement Result	Limits of Error Lower Limit	Limits of Error Upper Limit	Test Uncertainty Ratio (TUR)
AC VOLTAGE MEASUREMENT PERFORMANCE TEST					
600 mV Range					
300.0 mV @ 45 Hz	300.00	300.0	296.7	303.3	
6V Range					
5.000 V @ 500 Hz	5.0000	4.993	4.947	5.053	
5.000 V @ 1 kHz	5.0000	4.952	4.897	5.103	
60V Range					
50.00 V @ 45 Hz	50.000	49.94	49.47	50.53	
50.00 V @ 1 kHz	50.000	50.05	48.97	51.03	
600V Range					
300.0 V @ 45 Hz	300.00	300.0	296.7	303.3	
500.0 V @ 500 Hz	500.00	500.6	494.7	505.3	
500.0 V @ 1 kHz	500.00	500.6	489.7	510.3	
1000V Range					
1000 V @ 45 Hz	1000.0	997	987	1013	
FREQUENCY MEASUREMENT PERFORMANCE TEST - ACV					
45.00 Hz @ 1 V	45.000	45.00	44.94	45.06	
50.00 kHz @ 5 V	50.000	50.00	49.94	50.06	
DC VOLTAGE MEASUREMENT PERFORMANCE TEST					
6V Range					
5.000 V	5.0000	5.000	4.993	5.007	
600V Range					
300.0 V	300.00	300.0	299.5	300.5	
1000V Range					
1000 V	1000.0	1000	997	1003	
-1000 V	-1000.0	-1000	-1003	-997	
FREQUENCY MEASUREMENT PERFORMANCE TEST - DCV					
45.00 Hz @ 3 V	45.000	45.00	44.94	45.06	
50.00 kHz @ 30 V	50.000	50.00	49.94	50.06	
mVDC VOLTAGE MEASUREMENT PERFORMANCE TEST					
600mV Range					
30.0 mV	30.00	30.0	29.8	30.2	
-300.0 mV	-300.00	-299.9	-300.5	-299.5	
600.0 mV	600.00	599.8	599.3	600.7	
TEMPERATURE MEASUREMENT PERFORMANCE TEST					

Certificate Number: BVL456842 **Date of Calibration:** 9-Jun-2018

Calibration Data

Parameter	Nominal Value	Measurement Result	Limits of Error Lower Limit	Limits of Error Upper Limit	Test Uncertainty Ratio (TUR)
Temperature simulated using voltage					
0.0 °C	0.00	-0.6	-1.0	1.0	
-40.0 °C	-40.00	-40.6	-41.4	-38.6	
400.0 °C	400.00	399.4	395.0	405.0	
RESISTANCE MEASUREMENT PERFORMANCE TEST					
600 Ohm Range					
500.0 Ohm	500.00	500.1	495.3	504.7	
50 MOhm Range					
19.00 MOhm	19.000	19.00	18.68	19.32	
CAPACITANCE MEASUREMENT PERFORMANCE TEST					
1000nF Range					
900 nF	900.0	900	887	913	3.94
CONTINUITY MEASUREMENT PERFORMANCE TEST					
BEEPER AUDIBLE (25 Ohms)		Pass			
BEEPER OFF (250 Ohms)		Pass			
DIODE MEASUREMENT PERFORMANCE TEST					
2.000 V	2.0000	2.000	1.978	2.022	
ACmA CURRENT MEASUREMENT PERFORMANCE TEST					
3.00 mA @ 45 Hz	3.000	3.02	2.92	3.08	
50.00 mA @ 1 kHz	50.000	49.96	49.22	50.78	
400.0 mA @ 1 kHz	400.00	399.4	393.7	406.3	
AC CURRENT MEASUREMENT PERFORMANCE TEST					
4.000 A @ 45 Hz	4.0000	4.001	3.937	4.063	
9.00 A @ 1 kHz	9.000	9.00	8.83	9.17	
DCmA CURRENT MEASUREMENT PERFORMANCE TEST					
3.00 mA	3.000	3.00	2.94	3.06	
50.00 mA	50.000	49.99	49.47	50.53	
-400.0 mA	-400.00	-400.0	-404.3	-395.7	
DC CURRENT MEASUREMENT PERFORMANCE TEST					
4.000 A	4.0000	4.001	3.957	4.043	
-9.00 A	-9.000	-9.00	-9.12	-8.88	

PLANT FLOWS AND LOADINGS

2018

SOUTHWEST WATER POLLUTION CONTROL PLANT
FLOW
MUNICIPAL WASTELOAD MANAGEMENT REPORT

MONTH	2014	2015	2016	2017	2018	SNOW (INCHES)	RAINFALL (INCHES)
JANUARY	183.42	177.57	158.00	160.23	166.10	5.70	2.91
FEBRUARY	183.42	171.25	184.44	147.73	194.99	2.00	1.30
MARCH	219.64	211.94	158.16	162.81	207.86	7.00	4.26
APRIL	194.50	170.88	151.60	166.40	179.74		3.15
MAY	201.35	153.29	165.16	162.56	176.77		6.33
JUNE	171.16	172.27	145.90	147.72	172.10		1.86
JULY	162.52	155.97	151.35	152.77	156.96		5.35
AUGUST	152.01	137.64	142.03	148.65	161.95		6.05
SEPTEMBER	143.20	140.57	145.90	134.12	192.33		3.86
OCTOBER	144.42	150.59	142.39	139.31	167.35		3.66
NOVEMBER	153.87	142.47	138.40	135.30	212.46		1.30
DECEMBER	162.29	174.22	151.50	137.42	209.94	8.60	1.31
ANNUAL AVG. (AA)	172.65	163.22	152.90	149.58	183.21		3.45
MAX AVERAGE	195.49	155.29	158.31	156.92	189.65		
RATIO (3MO / AA)	1.13	0.95	1.04	1.05	1.04		

5 YEAR AVG. HYDRAULIC RATIO = 1.04

SOUTHWEST WATER POLLUTION CONTROL PLANT
BOD LOADING
MUNICIPAL WASTELOAD MANAGEMENT REPORT

MONTH	2014	2015	2016	2017	2018
JANUARY	171,306	177,425	154,128	160,814	184,879
FEBRUARY	154,037	192,650	181,365	**156,909**	**199,093**
MARCH	**216,846**	**176,551**	**159,647**	183,615	211,881
APRIL	160,669	164,878	176,724	176,946	196,549
MAY	144,697	168,662	168,473	165,812	177,977
JUNE	158,116	152,163	148,603	139,866	168,982
JULY	144,069	127,331	140,528	127,975	147,785
AUGUST	146,724	132,142	135,879	132,949	132,523
SEPTEMBER	139,103	154,655	149,470	156,818	125,825
OCTOBER	154,035	174,313	140,114	165,927	141,613
NOVEMBER	156,091	173,479	148,205	147,819	146,399
DECEMBER	168,711	181,391	154,355	171,701	153,701
ANNUAL AVG. (AA)	159,534	164,637	154,791	157,262	165,601
MAX MONTHLY (MM)	216,846	192,650	181,365	183,615	211,881
RATIO (MM / AA)	1.36	1.17	1.17	1.17	1.28

5 YEAR AVG. ORGANIC RATIO = 1.23

SOUTHWEST WATER POLLUTION CONTROL PLANT

MUNICIPAL WASTELOAD MANAGEMENT REPORT

DATE	FLOW MGD	OUTLYING FLOW	BOD5 INF	PLANT BOD5 LOADING	FLOW RATIO	OUTLYING FLOW LOADING
J'14	**183.42**	49.38	112	171,306	0.269	46,119
	183.42	60.82	101	154,037	0.332	51,080
	219.64	53.52	118	**216,846**	0.244	52,836
	194.50	54.25	99	160,669	0.279	44,817
	201.35	57.47	86	144,697	0.285	41,304
	171.16	47.10	111	158,116	0.275	43,509
	162.52	41.69	106	144,069	0.257	36,961
	152.01	38.62	116	146,724	0.254	37,280
	143.20	36.26	116	139,103	0.253	35,226
	144.42	37.27	128	154,035	0.258	39,746
	153.87	39.68	122	156,091	0.258	40,249
	162.29	41.68	125	168,711	0.257	43,333
14 avg	172.65	46.48	112	159,534	0.268	42,705
AVG						
3 Mo Max	199.19					
Flow projection factor: 3 consecutive month max average/annual average						1.154
Organic projection - max month/average annual BOD loading						1.359
J'15	177.57	45.23	120	177,425	0.255	45,190
	171.25	42.75	135	192,650	0.250	48,093
	211.94	52.84	100	**176,551**	0.249	44,019
	170.88	45.50	116	164,878	0.266	43,904
	153.29	43.59	132	168,662	0.284	47,959
	172.27	43.60	106	152,163	0.253	38,514
	155.97	40.71	98	127,331	0.261	33,234
	137.64	35.57	115	132,142	0.258	34,149
	140.57	35.20	132	154,655	0.250	38,725
	150.59	37.83	139	174,313	0.251	43,793
	142.47	37.74	146	173,479	0.265	45,950
	174.22	40.54	125	181,391	0.233	42,209
15 avg	163.22	41.76	122	164,637	0.256	42,145
AVG						
3 Mo Max	186.92					
Flow projection factor: 3 consecutive month max average/annual average						1.145
Organic projection - max month/average annual BOD loading						1.072

SOUTHWEST WATER POLLUTION CONTROL PLANT

MUNICIPAL WASTELOAD MANAGEMENT REPORT

DATE	FLOW MGD	OUTLYING FLOW	BOD5 INF	PLANT BOD5 LOADING	FLOW RATIO	OUTLYING FLOW LOADING
J'16	**158.00**	40.76	117	154,128	0.258	39,762
	184.44	47.91	118	**181,365**	0.260	47,107
	158.16	43.21	121	159,647	0.273	43,615
	151.60	40.12	140	176,724	0.265	46,764
	165.16	42.92	122	168,473	0.260	43,784
	145.90	38.52	122	148,603	0.264	39,231
	151.35	36.81	111	140,528	0.243	34,173
	142.03	35.51	115	135,879	0.250	33,972
	145.90	36.05	123	149,470	0.247	36,929
	142.39	35.84	118	140,114	0.252	35,266
	138.40	35.33	128	148,205	0.255	37,835
	151.50	38.62	122	154,355	0.255	39,353
16 avg	152.90	39.30	121	154,791	0.257	39,816
AVG						
3 Mo Max	166.87					

Flow projection factor: 3 consecutive month max average/annual average 1.091

Organic projection - max month/average annual BOD loading 1.172

J'17	**160.23**	37.18	120	160,814	0.232	37,312
	147.73	35.00	127	**156,909**	0.237	37,180
	162.81	38.58	135	183,615	0.237	43,512
	166.40	41.25	128	176,946	0.248	43,860
	162.56	42.00	122	165,812	0.258	42,839
	147.72	37.05	114	139,866	0.251	35,081
	152.77	35.88	100	127,975	0.235	30,059
	148.65	35.14	107	132,949	0.236	31,430
	134.12	34.00	140	156,818	0.254	39,753
	139.31	34.21	143	165,927	0.246	40,741
	135.30	33.78	131	147,819	0.250	36,909
	137.42	32.91	150	171,701	0.240	41,124
17 avg	149.58	36.41	126	157,262	0.244	38,316
AVG						
3 Mo Max	156.92					

Flow projection factor: 3 consecutive month max average/annual average 1.049

Organic projection - max month/average annual BOD loading 0.998

SOUTHWEST WATER POLLUTION CONTROL PLANT

MUNICIPAL WASTELOAD MANAGEMENT REPORT

DATE	FLOW MGD	OUTLYING FLOW	BOD5 INF	PLANT BOD5 LOADING	FLOW RATIO	OUTLYING FLOW LOADING
J'18	166.10	37.80	133	184,879	0.228	42,077
	194.99	44.97	122	199,093	0.231	45,919
	207.86	49.35	122	**211,881**	0.237	50,306
	179.74	46.75	131	196,549	0.260	51,123
	176.77	46.12	121	177,977	0.261	46,436
	172.10	44.55	118	168,982	0.259	43,743
	156.96	38.39	113	147,785	0.245	36,150
	161.95	41.04	98	132,523	0.253	33,586
	192.33	48.47	78	125,825	0.252	31,708
	167.35	44.30	101	141,613	0.265	37,487
	212.46	57.38	83	146,399	0.270	39,540
	209.94	59.33	88	153,701	0.283	43,441
18 avg	183.21	46.54	109	165,601	0.254	41,793
AVG						
3 Mo Max	188.12					

Flow projection factor: 3 consecutive month max average/annual average 1.027

Organic projection - max month/average annual BOD loading 1.202

SWWPCP - Projected flows and BOD5 Loadings						
Year	Flow Projection Factor	Projected Flow Dry Weather (MGD)	3 month Projected Max Flow Dry Weather (MGD)	Avg Projected BOD 5 (POUNDS)	1 month Projected BOD 5 Factor	Max Projected BOD 5 (POUNDS)
2014	1.13	172.6	195	159,534	1.36	216,846
2015	0.95	163.2	155	164,637	1.07	176,551
2016	1.04	152.9	158	154,791	1.17	181,365
2017	1.05	149.6	157	157,262	1.00	156,909
2018	1.04	183.2	190	165,601	1.20	199,093
2019	1.04	164.3	171	160,365 *	1.16	186,129 *
2020	1.04	164.3	171	160,365 *	1.16	186,129 *
2021	1.04	164.3	171	160,365 *	1.16	186,129 *
2022	1.04	164.3	171	160,365 *	1.16	186,129 *
2023	1.04	164.3	171	160,365 *	1.16	186,129 *
AVG	1.04			160,365	1.16	

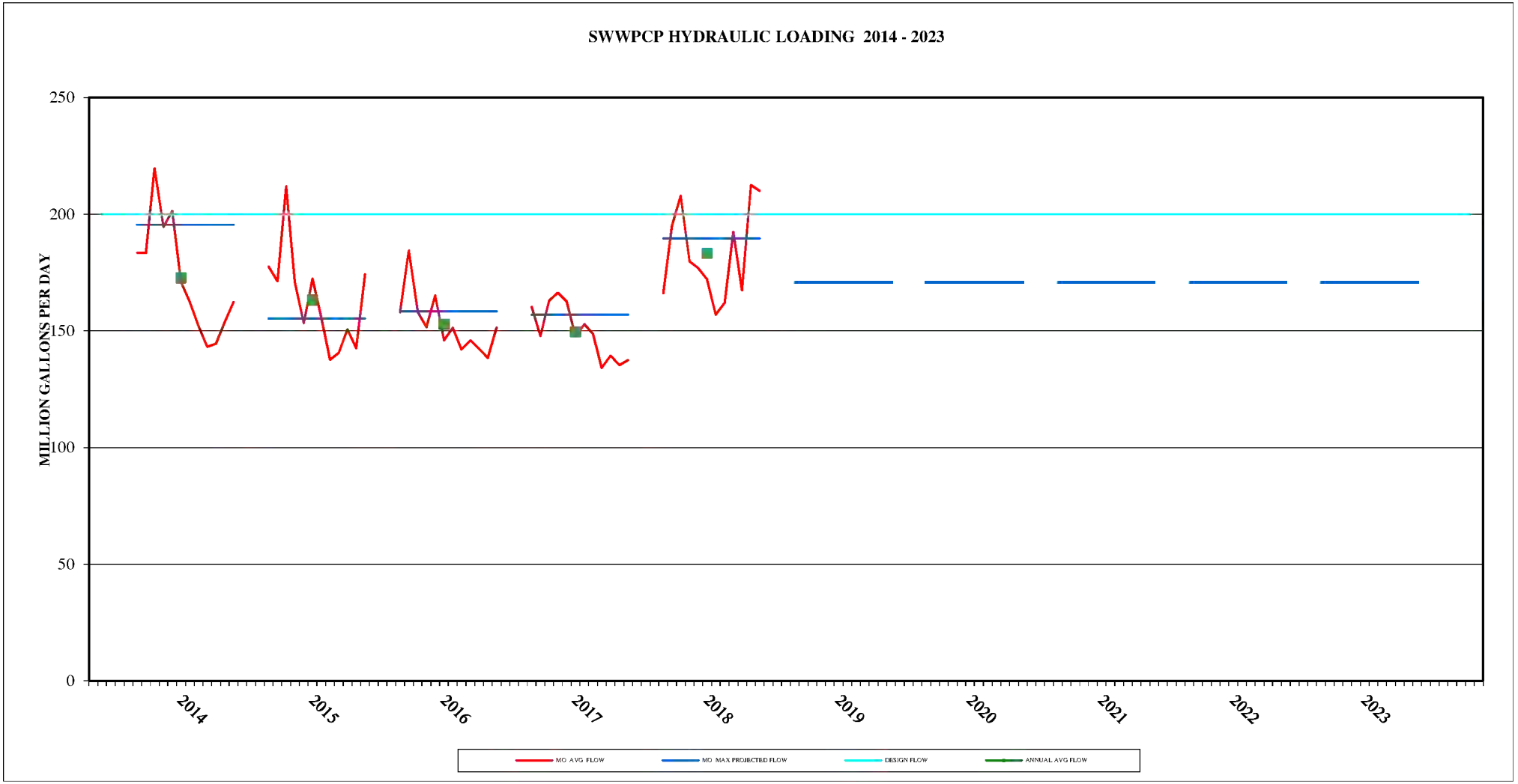
As per Philadelphia ACT 537 flow and BOD projections:

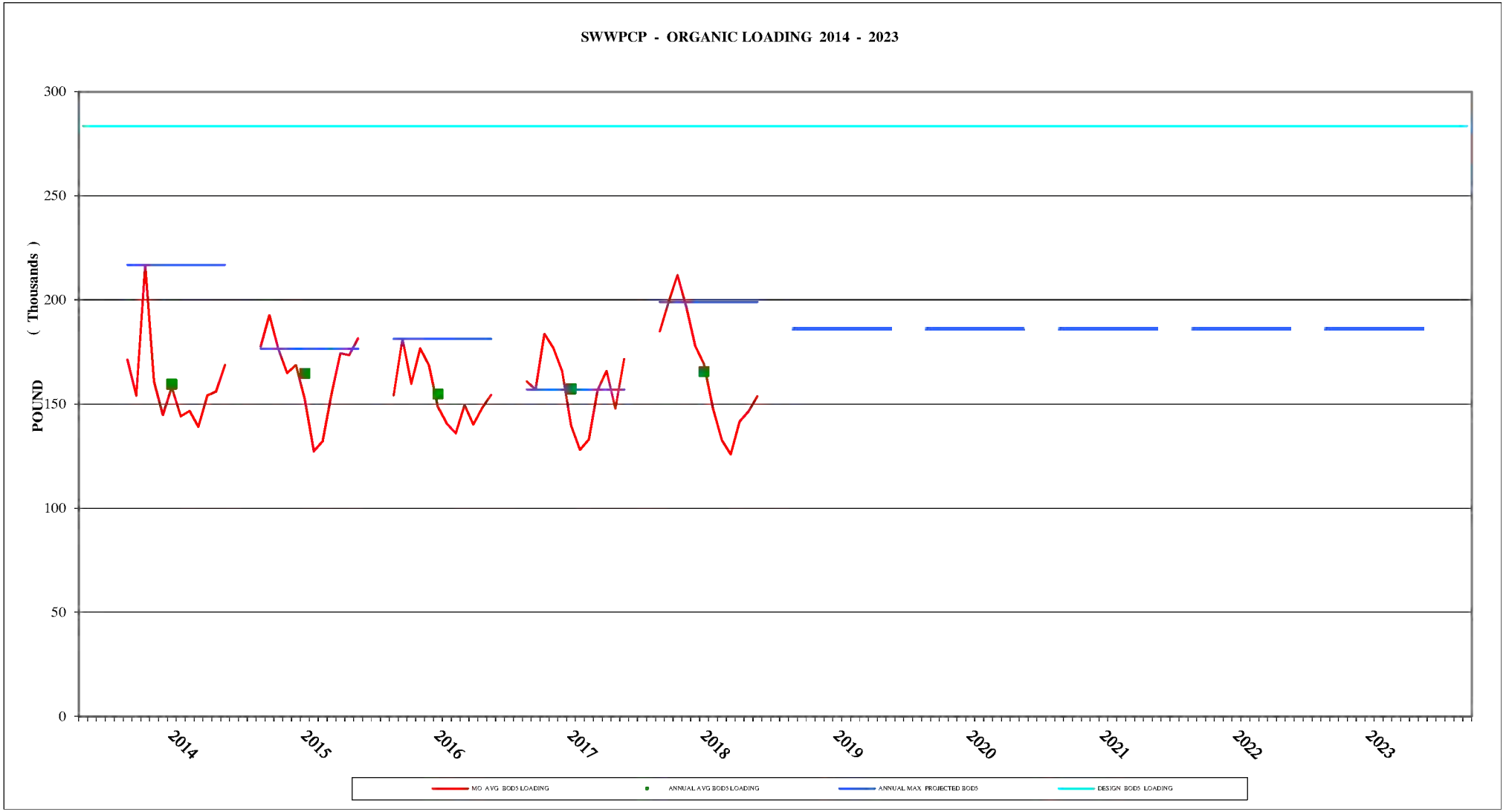
Projected dry weather flow 2014 - 2018 164.3 MGD

Projected BOD maximum month loading 2014 - 2018 186,129 POUNDS

*BOD maximum month projections are based upon average projected loadings consistent with Philadelphia's Act 537 Plan - multiplied by the projection factor to arrive at the projected BOD MAX pounds.

Average projection factor from 2014 - 2018 = avg of 2009 to 2013 projection factor.


SWWPCP HYDRAULIC LOADING 2014 - 2023
MILLION GALLONS PER DAY
250
200
150
100
50
0
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
MO. AVG. FLOW
MO. MAX PROJECTED FLOW
DESIGN FLOW
ANNUAL AVG FLOW


SWWPCP - ORGANIC LOADING 2014 - 2023
POUND (Thousands)
300
250
200
150
100
50
0
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
MO AVG BODS LOADING
ANNUAL AVG BODS LOADING
ANNUAL MAX PROJECTED BODS
DESIGN BODS LOADING

OUTLYING TOWNSHIP FLOW

2018

FILE NAME: Outlying Township Flows 2017
PRINT DATE: 03/28/2018

OUTLYING FLOWS 2017

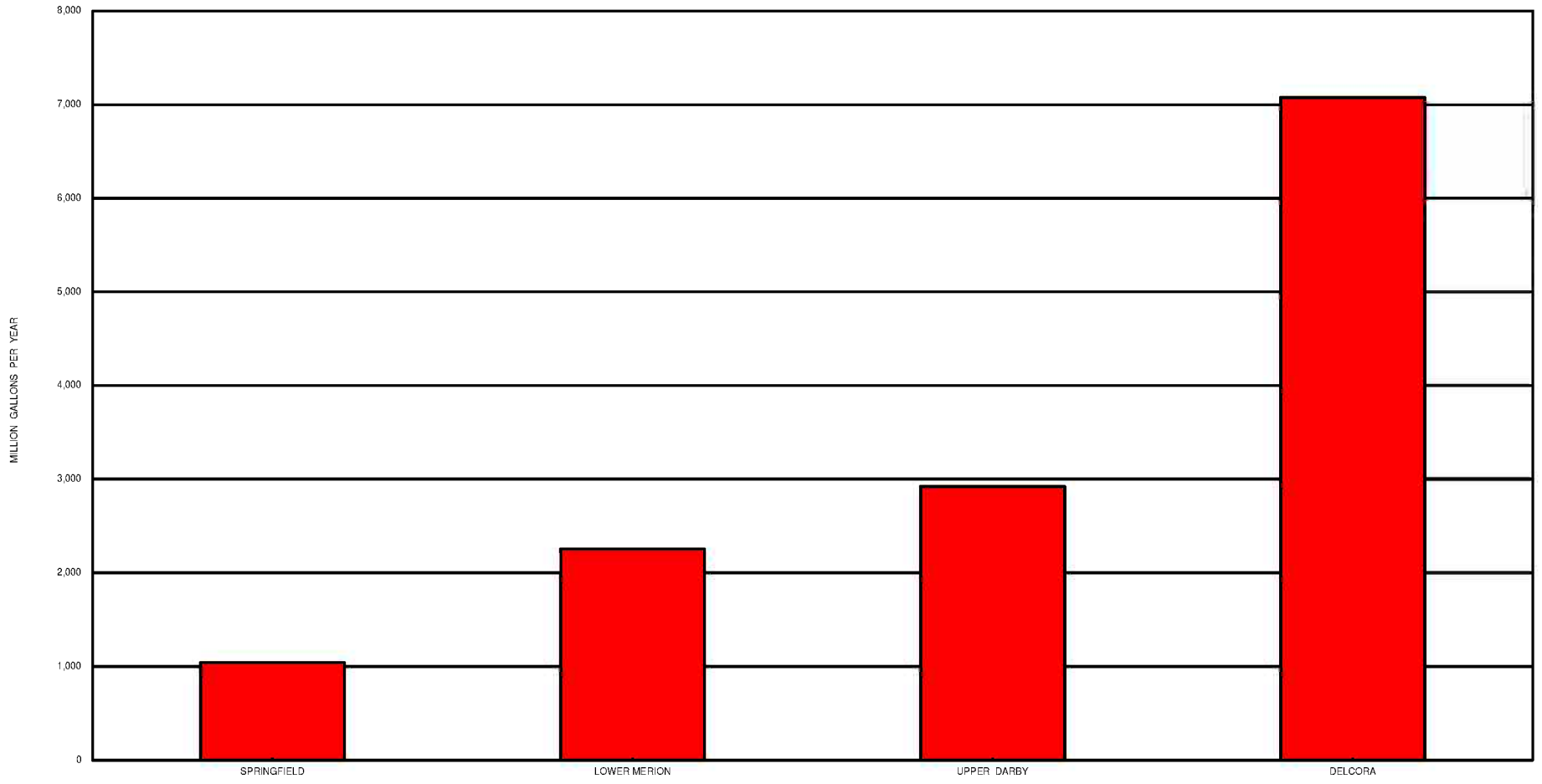
TOWNSHIP	METER CHAMBER	METER - ID	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL MG	TOWNSHIP FLOW
Springfield	Northwestern & Stenton	NORTHWES	53	48	53	55	58	60	61	52	45	44	43	50	623	
	Erdenheim & Stenton	ERDII	31	28	31	30	61	30	31	31	30	31	30	31	394	
	Northwestern & Thomas	THOMAS	0	0	0	0	0	0	0	0	0	0	0	0	3	
	Northwestern & Ridge	RIDGE	1	1	1	1	1	1	1	1	1	7	1	1	22	1,043
Lower Merion	Presidential & City	PRESIDDR	6	5	5	4	4	4	4	4	4	5	4	4	53	
	Conshohocken & City	CONSHO	3	3	3	3	3	2	2	3	3	3	2	2	32	
	Righters Ferry Road	RIGHTERS	0	0	1	ND	ND	ND	2	2	2	2	1	1	12	
	51st & City	51STCITY	59	53	59	57	59	57	59	59	57	59	57	59	697	
	59th & City	59THCITY	1	1	1	1	1	1	1	1	1	1	1	1	7	
	63rd & City	63RDCITY	14	13	14	14	14	14	14	14	14	14	14	14	166	
	66th & City	66THCITY	89	77	91	107	108	93	86	84	93	98	95	93	1,112	
	73rd & City	73RDCITY	15	13	15	15	15	15	15	15	15	15	15	15	176	2,255
Upper Darby	60th & Cobbs Creek N	60THCCN	151	130	159	169	174	175	168	169	154	156	172	173	1,949	
	60th & Cobbs Creek O	60THCCO	2	1	6	1	9	2	2	3	0	5	0	0	32	2,922
	60th & Cobbs Creek S	60THCCS	98	87	96	100	96	75	78	73	70	68	49	51	942	
Delcora	Delcora	DELCORA	629	521	659	681	699	582	587	579	532	554	529	523	7,075	7,075
TOTAL			1,152	980	1,196	1,237	1,302	1,112	1,112	1,089	1,020	1,060	1,013	1,020	13,295	**13,295**

FILE NAME: Outlying Township Flows 2017
PRINT DATE: 03/28/2018

OUTLYING FLOWS 2017

TOWNSHIP	METER CHAMBER	METER - ID	I	II	III	IV	TOTAL MG	TOWNSHIP FLOW
Springfield	Northwestern & Stenton	NORTHWES	155	173	158	137	623	
	Erdenheim & Stenton	ERDII	90	121	92	92	394	
	Northwestern & Thomas	THOMAS	1	1	1	1	3	
	Northwestern & Ridge	RIDGE	4	4	4	10	22	1,043
Lower Merion	Presidential & City	PRESIDDR	16	12	13	12	53	
	Conshohocken & City	CONSHO	9	8	8	7	32	
	Righters Ferry Road	RIGHTERS	2	-	5	5	12	
	51st & City	51STCITY	172	174	176	176	697	
	59th & City	59THCITY	2	2	2	2	7	
	63rd & City	63RDCITY	41	41	42	42	166	
	66th & City	66THCITY	257	307	263	286	1,112	
	73rd & City	73RDCITY	43	44	45	45	176	2,255
Upper Darby	60th & Cobbs Creek N	60THCCN	439	519	490	501	1,949	
	60th & Cobbs Creek O	60THCCO	8	12	6	6	32	
	60th & Cobbs Creek S	60THCCS	281	271	221	168	942	2,922
Delcora	Delcora	DELCORA	1,809	1,962	1,698	1,606	7,075	7,075
SWWPCP - TOTAL			**3,329**	**3,651**	**3,222**	**3,094**	**13,295**	**13,295**

OUTLYING TOWNSHIP FLOWS 2016



CSO STATUS REPORT

2018

2018 SWWPCP

Chapter 94 Sec. (a) (5)

Collector System

Flow Control Unit Report

Chapter 94.12 Annual Report
Sec. (a)(5)
Collector System
FLOW CONTROL UNIT-2018 Operation and Maintenance

The Collector System Flow Control Unit's primary responsibilities are divided into four groups; Combined Sewer Overflow (CSO) Regulator Maintenance, Pumping Station Operation & Maintenance, Collector System Instrumentation and CCTV Technical Inspections. The Wastewater Pumping Group main office is located at 5202 Pennypack Street in the Torresdale Raw Water Pumping Station. The WWP Group assembles at this facility, which also has a maintenance machine shop, storage garage, and workshop to handle maintenance assignments. The other three groups have maintenance shops and assemble at the Fox Street Headquarters Facility. Brief descriptions of each group's responsibilities and their 2018 highlights follow.

CSO REGULATOR MAINTENANCE GROUP

Inspecting and servicing the combined sewer overflow regulating and diversion chambers are completed by 19 Interceptor maintenance personnel. This group is responsible for the operations, maintenance, inspections and cleaning of 175 combined sewer-regulating chambers, 89 tide gate chambers, 26 storm relief chambers, 12 sanitary flow diversions, several siphons and other related wastewater control devices throughout the collection system.

Currently the Philadelphia Water Department Flow Control Unit maintains ten types of CSO regulators and storage systems:

- Brown & Brown (B&B) mechanical
- Computer Controlled Sluice Gates
- Computer Controlled B&B Shutter Gates
- Static Dams
- Slot type regulators
- Mechanical Sluice Gates
- Side Overflow Weirs
- Inflatable Rubber Dam
- Water Hydraulic Sluice Gates
- Computer Controlled Crest Gates

Mechanical or operational malfunctions of regulators and tide gates can cause dry weather discharges and stream and river inflow. These types of events can have a major impact on the

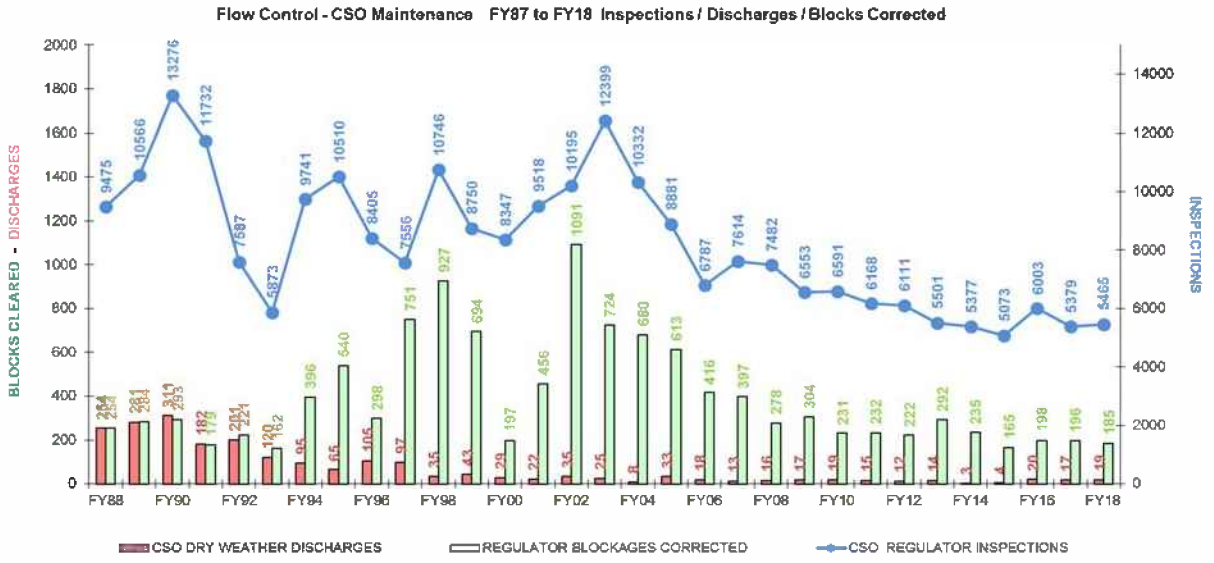
Wastewater and Fresh Water Treatment Plant's performance and the quality of stream water. They can also affect the recreational use of our local waterways. Thus, the combined sewer regulator systems are closely monitored for potential blockages and when identified the problems are corrected quickly. CSO chamber Inspections and clearing of any regulator blockages prior to causing a dry weather discharge are the primary responsibilities of this group and are key areas in assessing the group's overall performance.

By continually tracking and analyzing Dry Weather Discharges it can be determined if new or modified maintenance procedures would help to prevent them from occurring. Although our established procedures have greatly reduced the number and duration of these discharges, the combined system picks up all manner of trash and debris that is unpredictable in its pattern of causing flow disruptions. Despite incorporating best management practices such as having all inlets trapped and cleaned, preventative maintenance schedules for sewer flushing and cleaning of the regulators, CCTV inspection of DWO pipes, etc., it is virtually impossible to eliminate all blockages before they occur.

The PWD Flow Control Unit continues to aggressively control and minimize these dry weather overflows by utilizing the latest technology-based controls including our Collector System Remote Monitoring Network that currently includes over 320 sites with over 720 individual level and/or flow measurements. Training the CSO maintenance personnel in the use of the system's computer programs for analyzing the trend data has developed a comprehensive understanding of individual CSO sites and their distinctive flow patterns. This familiarity helps them recognize abnormal conditions quickly at a location so that they can respond before the conditions develop into a dry weather CSO blockage or discharge.

The CSO Maintenance Group performed 5206 inspections of the regulating chambers in 2018. The work includes frequent visual inspections of the equipment and flow patterns to make sure everything is operating properly. The more comprehensive work such as the cleaning and lubricating of the mechanical equipment is scheduled during lower flow periods between rain events.

In 2018, the crews cleared 176 regulator blockages before they developed into a CSO dry weather discharge. There were fifteen CSO dry weather discharges for 2018.



Many discharges are a result of debris such as rags, sticks, stones and other debris that become lodged in the CSO regulator diversion or the dry weather outlet pipe during dry weather periods. These types of blockages are virtually unpredictable so frequent inspections and closely observing the monitoring trend data is essential to our prevention program. Following moderate to heavy rain events the CSO regulators can have grit, sticks, rags and other debris caught at various places in and around the regulator that could eventually result in a discharge. The CSO maintenance crews perform quick topside inspections of the CSO sites throughout the City for several days following these events to remove or clear away any of this storm debris. The work schedule will then revert to the more comprehensive maintenance such as cleaning, lubricating, adjusting equipment and performing minor repairs to the mechanical regulators.

WASTEWATER PUMPING STATION MAINTENANCE GROUP

The Wastewater Pumping Station Maintenance Group consisting of 24 maintenance personnel are located at the 5202 Pennypack St. Maintenance Shop. They are responsible for the operations and maintenance of 16 wastewater-pumping stations, 3 stormwater pumping stations, 2 sodium hypochlorite dosing stations, 11 computer controlled CSO storage regulators and several in-line and offline wastewater-storage facilities among other duties.

Many of the pumping stations provide for only one running pump and one reserve pump. This arrangement means that pump breakdowns are responded to immediately and that overhauls need to be completed in a minimum amount of time. The main pump availability statistic is a good indicator of the Maintenance Group's performance in this area. The main pumping units were in service 97.6% of the time in 2018. The WWP Group completed twelve main wastewater pump overhauls at the stations. These overhauls consist of repair and replacement of the worn pump and motor components to bring the equipment's performance up to new operating condition.

The Wastewater Pumping Station Maintenance Group had no main pumps out of service during 2018 because of failures or breakdowns. The reason for this is that during pump maintenance and overhauls the in-service pump was rotated out of activity and replaced by the spare pump for the station. This accomplishes two things, one the station always has its full complement of pumps available and the spare pump for the station gets used. The only pump station that did have a pump out or was not at full capacity was the Central Schuylkill Pump station which is going through a Capital Project of replacing all pumps. Pump #6 was out of service for 8 weeks while the replacement was being completed. The pump went back in service in April. Pump #5 was taken out of service in July and went back in service in October. Pump #4 was taken out of service in November and is in the process of being installed.

In addition to the pumping station maintenance, the group maintains a variety of other equipment throughout the Collector System. They are responsible for the operations and maintenance of the two sodium hypochlorite dosing stations. The stations are located next to the Queen Lane Raw Water pumping station, which injects hypo into the Upper Schuylkill East Interceptor, and at the Totem Rd. pumping station, which injects hypo into the Bucks County force main. The group is responsible for maintaining adequate supply of the chemical, over 1,094,046 gallons in 2018, for monitoring the downstream hydrogen sulfide levels and adjusting the dosage levels in addition to the maintenance and repair of the equipment.

The group also fabricates and repairs bar screens, debris grills and other equipment for the Collector System and performs major maintenance of the CSO mechanical regulators such as installation of tide gates, overflow gates and servicing of the Brown & Brown regulators.

COLLECTOR SYSTEM INSTRUMENTATION MAINTENANCE GROUP

The fourteen Instrument and Electronic Technicians located at the Fox Street facility are primarily responsible for installing, calibrating and maintaining the electronic and instrumentation equipment in the Collector System monitoring and control network. They also repair, calibrate and certify the hazardous gas detection meters for the Department as well as install temporary flow and level monitors for various units in the Water Department.

One of the primary responsibilities of the CS Instrumentation Group is to maintain the network of level sensors, flow meters, and rain gauges and keep them up and running with a minimum of downtime while maintaining accurate and reliable data. The network currently consists of 258 level and flow monitoring locations in the NE, SE, and SW Drainage Districts, 35 gauges in the citywide rain gauge network, 56 Township flow-metering stations, and a number of additional monitors at various control sites. It is crucial that the remote site equipment is communicating and downloading data to the server so that the information is available for trend chart viewing and analysis for the users. The CSO

maintenance group relies heavily on these charts to monitor the performance of all the CSO regulators while paying special attention to the sites that have had recent or a history of discharges. The monitoring data is used for a wide variety of other purposes such as calibrating the Collector System's hydraulic model, generating township sewage flows for billing and for various Planning and Engineering studies. The TELOG Data Collection system is going through an upgrade of all Cellular Modems. All 3G Cellular modems are being replaced with 4g LTE modems.

CCTV TECHNICAL INSPECTIONS GROUP

The Technical Inspections group consists of one Supervisor, one group leader, and fourteen Technicians who operate and maintain the seven closed circuit TV camera trucks. The seven CCTV trucks and CCTV Contractor logged 45.03 miles of sewer inspections in 2018.

The CCTV group has several primary functions which include inspections of sewers turned in for sewer complaints, special inspection requests from the Water/ Sewer Design group and the post construction inspection program which involves videoing the sewer at the completion of all sewer construction work. Another function of the group is to work with the Defective Connection Program group to identify the defective lateral connections.

The CCTV group also started doing the Post-Construction and Pre-Maintenance Inspections for Green Infrastructure. The CCTV Unit completed 486 Post Construction Inspections, 49 NASSCO Inspections and 1062 Pre-Maintenance Inspections in 2018.

SERVICE LEVEL GOALS

The goal of the Flow Control Unit is to maintain and exceed the service level goals. One area that directly affects the service level of the Flow Control Unit is personnel vacancies.

Month	CSO Discharges per 100 Inspections	% Metering Chambers Operational	% CSO Level Meters Operational	CCTV Inspections -	Main Pump Availability -
Goal -->	0	95% or Higher	90% or Higher	2.8 Miles	95% or Higher
January - 2018	0.00	91.0%	93.2%	4.4	98.2%
February - 2018	0.20	91.0%	96.8%	3.61	98.2%
March - 2018	0.00	91.0%	95.8%	4.28	98.2%
April - 2018	0.04	90.0%	95.7%	6.28	98.2%
May - 2018	1.50	88.0%	94.3%	3.75	99.3%
June - 2018	0.50	88.0%	94.1%	5.05	98.5%
July - 2018	0.60	90.0%	92.1%	3.72	98.3%
August - 2018	0.00	89.0%	90.7%	3.31	97.5%
September - 2018	0.00	89.0%	90.5%	2.44	98.2%
October - 2018	0.00	91.0%	94.6%	2.86	97.6%
November - 2018	0.30	96.0%	93.4%	2.69	94.6%
December - 2018	0.00	97.0%	94.0%	2.64	94.7%
Totals/Averages	0.26	90.9%	93.8%	45.03	97.6%

FLOW CONTROL PERSONNEL SUMMARY

The Flow Control Unit makes every effort to fill all 94 approved positions in order to maintain the service level goals.

94 Flow Control Positions	Active	Vacant	Total
Clerk III	1	0	1
Clerk Typist II	1	1	2
Data Services Support Clerk	1	0	1
Electrician 1	1	2	3
Electronic Equipment Supervisor	2	0	2
Electronic Technician 1	4	6	10
Electronic Technician 2	13	1	14
Electronic Technician Grp. Ldr.	3	0	3
Electronic Technician Trainee	10	0	10
Ind. Process Mach. Mech. Grp. Ldr.	2	0	2
Industrial Electrician 1	2	0	2
Industrial Electrician Group Leader	1	0	1
Industrial Process Mach. Mech.	6	0	6
Interceptor Service Worker I	3	3	6
Interceptor Service Worker II	5	1	6
Interceptor Services Supervisor	2	0	2
Mach. & Equipment Mech.	10	0	10
Public Works Maintenance Trainee	6	0	6
Semiskilled Laborer	1	0	1
Sewer Maintenance Inspector	1	0	1
Water Conveyance Sys. Asst. Supt. (P)	2	0	2
Water Conveyance Sys. Supt.	1	0	1
Water Operations Repair Helper	2	0	2
Totals	80	14	94

PART 1 DRY WEATHER STATUS REPORT	PHILADELPHIA WATER DEPARTMENT WASTE AND STORM WATER COLLECTION FLOW CONTROL UNIT										Section 1 2018 Chapter 94		
COLLECTOR	**Jan-18**	**Feb-18**	**Mar-18**	**Apr-18**	**May-18**	**Jun-18**	**Jul-18**	**Aug-18**	**Sep-18**	**Oct-18**	**Nov-18**	**Dec-18**	**Totals**
UPPER PENNYPACK - 5 UNITS													
INSPECTIONS	12	12	12	10	11	14	15	10	14	10	10	10	140
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	1	0	0	0	0	1	0	0	0	0	0	0	2
UPPER DELAWARE LOW LEVEL - 12 UNITS													
INSPECTIONS	26	39	24	37	29	26	20	25	41	36	30	24	357
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	1	11	0	4	0	0	2	2	3	2	1	0	26
LOWER FRANKFORD CREEK - 6 UNITS													
INSPECTIONS	12	11	16	18	21	10	7	15	20	31	23	14	198
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	0	1	1	0	3	1	0	0	2	2	3	1	14
LOWER FRANKFORD LOW LEVEL - 10 UNITS													
INSPECTIONS	19	21	27	37	34	26	23	42	27	40	21	31	348
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	3	0	1	2	0	0	2	1	2	0	0	0	11
FRANKFORD HIGH LEVEL - 14 UNITS													
INSPECTIONS	31	25	36	57	51	37	28	29	32	55	36	31	448
DISCHARGES	0	1	0	0	1	2	0	0	0	0	1	0	5
BLOCKS CLEARED	0	1	1	1	2	2	1	2	0	0	0	0	10
SOMERSET - 9 UNITS													
INSPECTIONS	21	21	24	23	19	20	13	26	21	21	24	21	254
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	0	2	3	0	0	0	0	1	0	0	1	0	7
LOWER DELAWARE LOW LEVEL - 33 UNITS													
INSPECTIONS	75	65	46	76	69	61	77	58	79	69	38	78	791
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	4	1	1	1	2	3	11	6	4	1	2	0	36
CENTRAL SCHUYLKILL EAST - 18 UNITS													
INSPECTIONS	44	32	43	38	35	41	42	40	37	47	53	35	487
DISCHARGES	0	0	0	1	0	0	0	0	0	0	0	0	1
BLOCKS CLEARED	1	0	0	1	0	0	1	1	4	3	1	0	12
LOWER SCHUYLKILL EAST - 9 UNITS													
INSPECTIONS	19	23	24	26	24	22	15	21	12	19	18	15	238
DISCHARGES	0	0	0	1	0	0	0	0	0	0	0	0	1
BLOCKS CLEARED	2	0	0	3	0	0	3	1	1	0	1	0	11
CENTRAL SCHUYLKILL WEST - 9 UNITS													
INSPECTIONS	19	21	22	19	27	21	19	22	25	26	11	18	250
DISCHARGES	0	0	0	0	4	0	1	0	0	0	0	0	5
BLOCKS CLEARED	0	4	2	3	1	3	1	0	2	0	0	1	17
SOUTHWEST MAIN GRAVITY - 10 UNITS													
INSPECTIONS	21	24	21	21	22	26	26	28	20	31	25	17	282
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	0	0	0	0	0	2	2	3	0	1	0	0	8
LOWER SCHUYLKILL WEST - 4 UNITS													
INSPECTIONS	8	8	15	6	9	10	8	9	9	10	5	8	105
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	0	0	0	0	0	1	0	0	1	2	0	0	4
COBBS CREEK HIGH LEVEL - 23 UNITS													
INSPECTIONS	49	59	50	48	49	52	27	40	54	66	43	54	591
DISCHARGES	0	0	0	0	1	0	1	0	0	0	0	0	2
BLOCKS CLEARED	2	1	2	0	0	2	1	1	0	0	0	1	10
COBBS CREEK LOW LEVEL - 13 UNITS													
INSPECTIONS	26	22	22	26	25	25	13	14	24	29	12	24	262
DISCHARGES	0	0	0	0	1	0	0	0	0	0	0	0	1
BLOCKS CLEARED	0	1	1	2	0	0	0	3	0	0	0	0	7
RELIEF SEWERS - 26 UNITS													
INSPECTIONS	48	44	30	42	57	38	8	13	45	60	17	53	455
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0
BLOCKS CLEARED	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTALS / MONTH for 201 REGULATOR UNITS													Totals
TOTAL INSPECTIONS	430	427	412	484	482	429	341	392	460	550	366	433	5206
TOTAL DISCHARGES	0	1	0	2	7	2	2	0	0	0	1	0	15
TOTAL BLOCKS CLEARED	14	22	12	17	9	15	24	21	19	11	9	3	176
AVER. # of INSP. / BC	31	19	34	28	54	29	14	19	24	50	41	144	41
DISC / 100 INSPECTIONS	0.0	0.2	0.0	0.4	1.5	0.5	0.6	0.0	0.0	0.0	0.3	0.0	0.3

2018 CSO Dry Weather Discharge Listing

Discharge Observed		Discharge Stopped		Last Inspection						
Date	Time	Date	Time	Date	Time	Site ID	Collector	Type Unit	Location	Comment
20-Feb-18	9:40:00 AM	20-Feb-18	10:20:00 AM	30-Jan-18	11:10:00 AM	T-12	FHL	SLOT	Whitaker Ave. E of Tacony Creek	SLOT BLOCKED WITH GRIT.
03-Apr-18	10:00:00 AM	03-Apr-18	10:30:00 AM	16-Mar-18	9:20:00 AM	S-13	CSES	SLOT	Samson St. W of 24th St.	LARGE ROCK INSIDE SLOT.
09-Apr-18	9:30:00 AM	09-Apr-18	9:50:00 AM	06-Apr-18	2:30:00 PM	S-36A	LSES	B & B	34th St. & Mifflin St.	DEBRIS IN REGULATOR INLET AND SHUTTER GATE.
14-May-18	10:20:00 AM	14-May-18	10:50:00 AM	07-May-18	11:30:00 AM	C-18	CCHL	SLOT	60th St. @ Cobbs Creek Parkway	PIECES OF CONSTRUCTION WOOD IN SLOT.
14-May-18	9:20:00 AM	14-May-18	9:40:00 AM	14-May-18	10:30:00 AM	C-22	CCLL	SLOT	70th St. & Cobbs Creek Parkway	3 BUNDLES OF SHOPPING CIRCULARS.
14-May-18	9:10:00 AM	14-May-18	9:20:00 AM	01-May-18	11:10:00 AM	S-22	CSW	B & B	660 ft S of South St E of Penn Field	SHUTTER GATE WAS STUCK IN CLOSE POSITION
17-May-18	9:40:00 AM	17-May-18	9:50:00 AM	15-May-18	9:30:00 AM	S-22	CSW	B & B	660 ft S of South St E of Penn Field	SHUTTER GATE STUCK IN CLOSE POSITION
18-May-18	9:20:00 AM	18-May-18	9:40:00 AM	14-May-18	11:20:00 AM	T-13	FHL	SLOT	Whitaker Ave. W of Tacony Creek	TREE BRANCHES IN SLOT.
21-May-18	9:10:00 AM	21-May-18	9:30:00 AM	18-May-18	1:40:00 PM	S-22	CSW	B & B	660 ft S of South St E of Penn Field	SHUTTER GATE CLOSED.
29-May-18	8:40:00 AM	29-May-18	9:00:00 AM	22-May-18	10:40:00 AM	S-22	CSW	B & B	660 ft S of South St E of Penn Field	SHUTTER GATE CLOSED.
20-Jun-18	8:20:00 AM	20-Jun-18	8:40:00 AM	15-Jun-18	8:30:00 AM	T-11	FHL	SLOT	Ruscomb St. E of Tacony Creek	GRIT IN SLOT.
26-Jun-18	8:40:00 AM	26-Jun-18	9:10:00 AM	21-Jun-18	9:50:00 AM	T-11	FHL	SLOT	Ruscomb St. E of Tacony Creek	GRIT AND DEBRIS IN SLOT.
05-Jul-18	8:40:00 AM	05-Jul-18	9:00:00 AM	28-Jun-18	9:00:00 AM	S-22	CSW	B & B	660 ft S of South St E of Penn Field	SHUTTER GATE CLOSED.
21-Jul-18	9:30:00 AM	21-Jul-18	10:10:00 AM	18-Jul-18	1:40:00 PM	C-09	CCHL	SLOT	64th St. & Cobbs Creek	GRIT IN SLOT.
17-Nov-18	1:00:00 PM	17-Nov-18	1:30:00 PM	13-Nov-18	11:10:00 AM	T-13	FHL	SLOT	Whitaker Ave. W of Tacony Creek	GRIT IN SLOT.

Dry Weather Discharges are continually tracked and analyzed to determine if new or modified maintenance procedures would help to prevent them from occurring. Although our established procedures have greatly reduced the number and duration of these discharges, the combined system picks up all manner of trash and debris that is unpredictable in its pattern of causing flow disruptions. Despite incorporating best management practices including; having all inlets trapped and cleaned; preventative maintenance schedules for sewer flushing and cleaning or the regulators; CCTV inspection of DWO pipes; etc., it is virtually impossible to eliminate all blockages before they occur.

The City continues to aggressively control and minimize these dry weather overflows by utilizing the latest technology-based controls including our Collector System Remote Monitoring Network that currently includes over 320 sites with over 720 individual level and/or flow measurements. The CSO maintenance personnel are trained in the use of the system's computer programs for analyzing the data and have developed a comprehensive understanding of individual CSO site's distinct flow patterns. This familiarity allows them to quickly recognize abnormal conditions that may indicate accumulating debris so that they can respond before developing into a dry weather CSO blockage.

SOMERSET GRIT CHAMBER CLEANINGS

DATE	TONS
3/16/2018	4.92
8/4/2018	5.10
8/30/2018	5.02
9/5/2018	4.83
9/6/2018	3.95

CSPS SIPHON GRIT POCKET CLEANINGS

DATE	CU. YARDS
4/23/2018	25 Cu. Yrds.
9/20/2018	30 Cu. Yrds.

CSO B&B REGULATOR MAINTENANCE

DATE	SITE
2/3/2018	D-37
2/3/2018	D-38
2/3/2018	D-47
2/3/2018	S-6
2/3/2018	S-7
2/3/2018	S-8
4/14/2018	S-42
4/14/2018	S-42A
4/14/2018	S-50
5/21/2018	S-22
6/8/2018	S-2
7/7/2018	D-50
7/7/2018	D-51
7/21/2018	D-52
7/21/2018	D-55
7/21/2018	D-61
8/41/2018	D-62
8/41/2018	D-63
8/41/2018	D-64
10/9/2018	D-70
12/8/2018	D-39
12/8/2018	D-47
12/8/2018	D-48
12/8/2018	S-8
12/8/2018	S-16
12/8/2018	S-18

CSO TIDE GATE MAINTENANCE

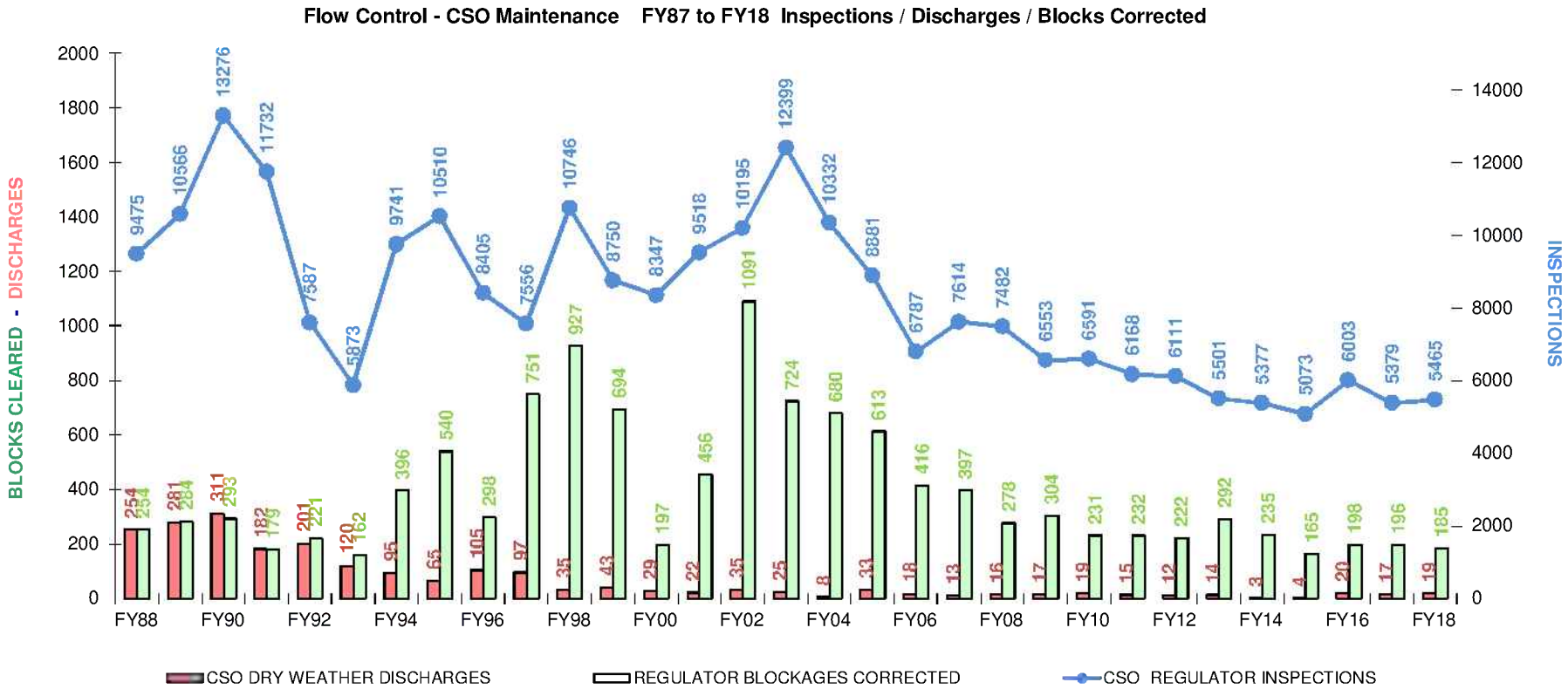
DATE	SITE	DATE	SITE	DATE	SITE
1/3/2018	D-15	7/19/2018	H-29	12/12/2018	D-15
1/3/2018	D-11	7/20/2018	Fish Ladder	12/12/2018	D-5
1/3/2018	D-3	7/21/2018	Fish Ladder	12/12/2018	D-7
1/3/2018	F-25	7/27/2018	Fish Ladder	12/12/2018	D-9
1/3/2018	D-9	7/30/2018	Fish Ladder	12/12/2018	D-15
1/10/2018	D-11	7/31/2018	Fish Ladder	12/13/2018	H-29
1/10/2018	D-5	8/1/2018	D-3	12/13/2018	T-14
1/11/2018	D-2	8/1/2018	D-2	12/13/2018	H-29
1/11/2018	D-3	8/3/2018	D-15	12/13/2018	T-14
1/12/2018	Art Museum	8/3/2018	D-11	12/14/2018	Venice
1/24/2018	D-15	8/9/2018	T-14	12/14/2018	Fish Ladder
2/1/2018	F-25	8/9/2018	D-5	12/27/2018	D-3
2/1/2018	D-9	8/10/2018	Fish Ladder	12/27/2018	D-2
2/3/2018	D-44	8/11/2018	D-7		
2/3/2018	D-47	9/5/2018	D-9		
2/3/2018	S-6	9/5/2018	D-7 out of		
2/3/2018	S-7	9/5/2018	T-14		
2/5/2018	D-3	9/5/2018	Rock run		
2/5/2018	D-2	9/6/2018	D-2		
2/9/2018	Sandy Run	9/6/2018	D-3		
2/22/2018	Art Museum	9/6/2018	D-68		
3/5/2018	D-11	9/7/2018	D-15		
3/5/2018	D-15	9/11/2018	F-25		
3/7/2018	D-3	9/11/2018	D-11		
3/9/2018	F-25	9/14/2018	H-29		
3/9/2018	D-9	9/17/2018	D-5		
3/15/2018	D-2	9/20/2018	Fish Ladder		
3/15/2018	D-3	9/25/2018	D-7		
4/6/2018	D-7	10/1/2018	T-14		
4/11/2018	D-15	10/1/2018	Fish Ladder		
4/11/2018	D-11	10/3/2018	D-5		
4/12/2018	F-25	10/3/2018	F-25		
4/12/2018	D-9	10/4/2018	D-2		
4/12/2018	D-3	10/4/2018	D-3		
4/12/2018	D-2	10/5/2018	Rock run		
4/13/2018	D-15	10/12/2018	Venice		
4/13/2018	D-5	10/15/2018	D-11		
4/18/2018	D-7	10/15/2018	D-15		
5/2/2018	F-25	10/16/2018	D-7 out of		
5/2/2018	D-15	10/16/2018	D-9		
5/2/2018	D-7	10/17/2018	T-14		
5/7/2018	D-11	10/24/2018	State Road		
5/7/2018	D-9	10/25/2018	Fish Ladder		
5/10/2018	D-2	10/25/2018	H-29		
5/10/2018	D-3	11/7/2018	D-2		
5/21/2018	D-5	11/8/2018	D-15		
5/30/2018	D-51	11/8/2018	F-25		
5/30/2018	D-52	11/14/2018	D-5		
5/30/2018	D-7	11/14/2018	D-3		
6/1/2018	D-7	11/15/2018	T-14		
6/4/2018	D-5	11/16/2018	D-7		
6/4/2018	D-3	11/16/2018	D-9		
6/6/2018	F-25	11/16/2018	D-11		
6/6/2018	D-15	11/19/2018	Fish Ladder		
6/8/2018	S-2	11/19/2018	H-29		
6/8/2018	D-9	12/3/2018	Rock run		
6/18/2018	D-2	12/7/2018	D-11		
6/25/2018	Art Museum	12/8/2018	D-39		
6/27/2018	Fish Ladder	12/8/2018	S-8		
6/27/2018	D-11	12/10/2018	F-25		
7/2/2018	D-5	12/10/2018	D-11		
7/5/2018	D-9	12/10/2018	R-13/14		
7/5/2018	D-15	12/10/2018	D-15		
7/7/2018	D-11	12/10/2018	D-24		
7/7/2018	F-25	12/10/2018	D-25		
7/16/2018	Fish Ladder	12/11/2018	D-2		
7/18/2018	D-2	12/12/2018	D-5		
7/18/2018	D-3	12/12/2018	D-7		
7/18/2018	T-14	12/12/2018	D-9		

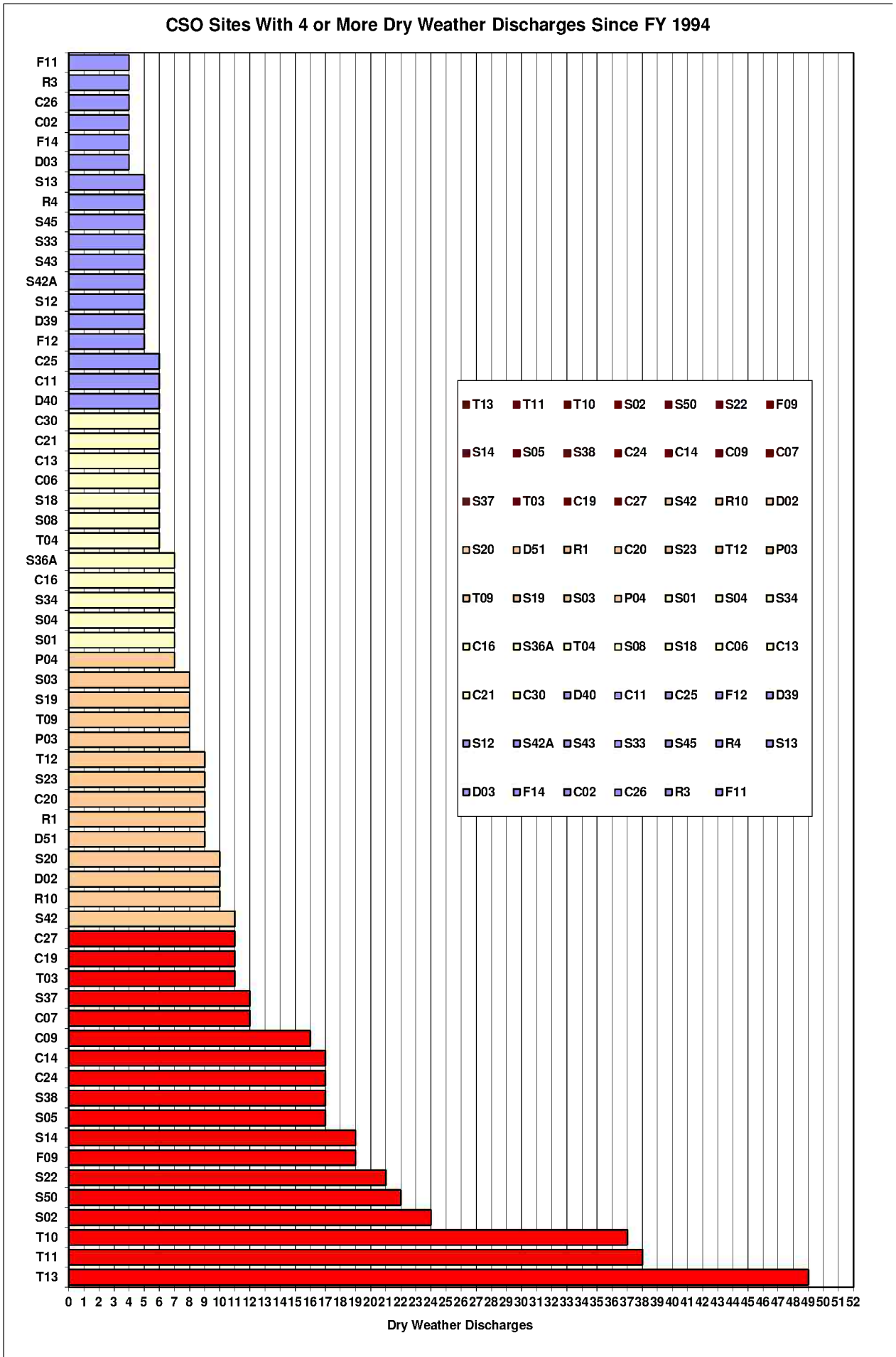
COMPUTER CONTROL CHAMBER PREVENTATIVE MAINTENANCE

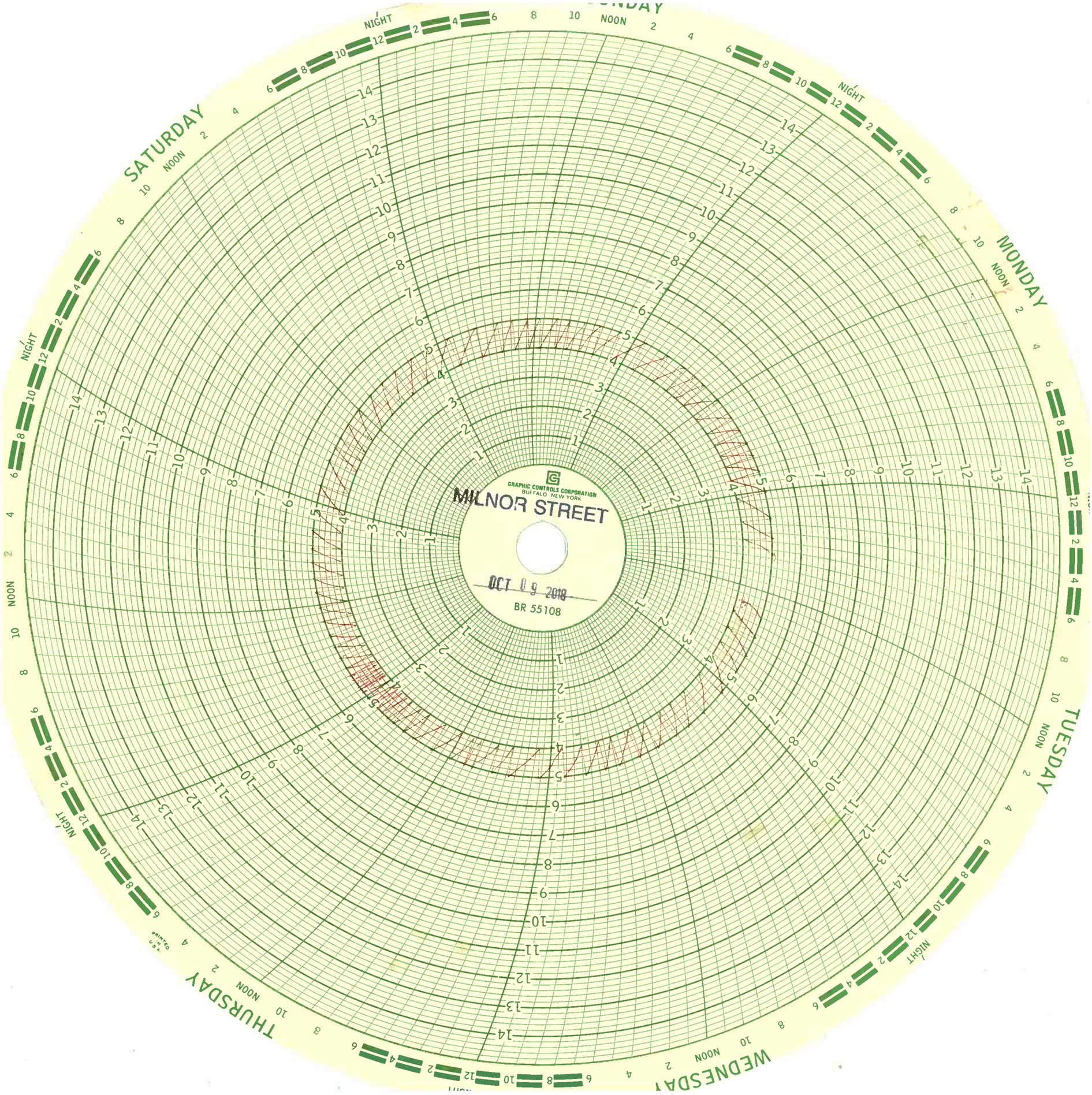
DATE	SITE	DATE	SITE	DATE	SITE
1/3/2018	F-25	6/18/2018	D-2	11/16/2018	D-7
1/3/2018	D-9	6/21/2018	T-14	11/16/2018	D-9
1/10/2018	D-11	6/21/2018	Rock Run	11/16/2018	D-11
1/10/2018	D-5	6/22/2018	State Road	11/19/2018	Fish Ladder
1/11/2018	D-2	6/25/2018	Art Museum	11/19/2018	H-29
1/11/2018	D-3	6/27/2018	Fish Ladder	11/21/2018	State Road
1/12/2018	Art Museum	6/27/2018	D-11	12/3/2018	Rock run
1/16/2018	Venice	7/2/2018	D-5	12/7/2018	D-11
1/23/2018	T-14	7/5/2018	D-9	12/10/2018	F-25
1/23/2018	Rock run	7/5/2018	D-15	12/12/2018	D-5
1/24/2018	D-15	Service	D-7 out of	12/12/2018	D-7
1/25/2018	State Road	7/7/2018	D-11	12/12/2018	D-9
2/1/2018	F-25	7/7/2018	F-25	12/12/2018	D-15
2/1/2018	D-9	7/9/2018	Rock Run	12/13/2018	H-29
2/2/2018	D-11	7/12/2018	Venice	12/13/2018	T-14
2/2/2018	D-15	7/16/2018	Fish Ladder	12/13/2018	State Road
2/5/2018	D-3	7/18/2018	D-2	12/14/2018	Venice
2/5/2018	D-2	7/18/2018	D-3	12/14/2018	Fish Ladder
2/7/2018	Venice	7/18/2018	T-14	12/27/2018	D-3
2/9/2018	D-5	7/19/2018	H-29	12/27/2018	D-2
2/12/2018	D-3	7/19/2018	State Road		
2/14/2018	Rock run	8/1/2018	D-3		
2/15/2018	T-14	8/1/2018	D-2		
2/21/2018	State Road	8/3/2018	D-15		
2/22/2018	Art Museum	8/3/2018	D-11		
3/5/2018	D-11	8/6/2018	Venice		
3/5/2018	D-15	8/6/2018	Rock Run		
3/7/2018	D-3	Service	D-7 out of		
3/9/2018	F-25	8/8/2018	F-25		
3/9/2018	D-9	8/8/2018	D-9		
3/9/2018	D-2	8/9/2018	T-14		
3/12/2018	Rock Run	8/9/2018	D-5		
3/12/2018	T-14	8/10/2018	Fish Ladder		
3/14/2018	Venice	8/14/2018	State Road		
3/15/2018	D-5	9/5/2018	D-9		
3/19/2018	State Road	9/5/2018	D-7 out of		
3/23/2018	Art Museum	9/5/2018	T-14		
4/9/2018	Fish Ladder	9/5/2018	Rock run		
4/9/2018	Art Museum	9/6/2018	D-2		
4/11/2018	D-15	9/6/2018	D-3		
4/11/2018	D-11	9/7/2018	D-15		
4/12/2018	F-25	9/10/2018	Venice		
4/12/2018	D-9	9/11/2018	F-25		
4/12/2018	D-3	9/11/2018	D-11		
4/12/2018	D-2	9/14/2018	H-29		
4/13/2018	D-5	9/17/2018	D-5		
4/18/2018	Venice	9/19/2018	State Road		
4/19/2018	State Road	9/20/2018	Fish Ladder		
4/20/2018	Rock Run	10/1/2018	T-14		
4/23/2018	T-14	10/3/2018	D-5		
5/2/2018	F-25	10/3/2018	F-25		
5/2/2018	D-15	10/5/2018	Rock run		
5/7/2018	Fish Ladder	10/12/2018	Venice		
5/7/2018	Art Museum	10/15/2018	D-11		
5/7/2018	D-11	10/15/2018	D-15		
5/7/2018	D-9	10/16/2018	D-7 out of		
5/9/2018	T-14	10/16/2018	D-9		
5/9/2018	Rock Run	10/17/2018	T-14		
5/10/2018	D-2	10/24/2018	State Road		
5/10/2018	D-3	10/25/2018	Fish Ladder		
5/21/2018	D-5	10/25/2018	H-29		
5/21/2018	Venice	11/1/2018	Venice		
5/25/2018	State Road	11/5/2018	Rock run		
6/4/2018	D-5	11/7/2018	D-2		
6/4/2018	D-3	11/8/2018	D-15		
6/6/2018	F-25	11/8/2018	F-25		
6/6/2018	D-15	11/14/2018	D-5		
6/8/2018	D-9	11/14/2018	D-3		
6/14/2018	Venice	11/15/2018	T-14		

CSO OUTFALL - DEBRIS GRILL MAINTENANCE

DATE	SITE
6/19/2018	Linden Outfal
6/19/2018	D-2
6/19/2018	D-3
6/19/2018	D-5
7/9/2018	D-63
7/9/2018	D-61
7/13/2018	D-11
7/13/2018	R-13/14
8/7/2018	R-13/14
8/7/2018	Linden Outfall
8/7/2018	D-5
8/7/2018	D-11
8/7/2018	D-57
8/7/2018	D-58
8/7/2018	D-60
8/7/2018	D-61
8/7/2018	D-62
8/7/2018	D-63
8/8/2018	F-25
8/8/2018	D-9
10/4/2018	D-2
10/4/2018	D-3
11/2/2018	T-6
11/2/2018	T-8
11/2/2018	Sandy Run
11/2/2018	D-2
11/2/2018	D-3
11/2/2018	D-5
11/2/2018	D-7
11/2/2018	D-9
11/2/2018	D-11
11/2/2018	R-13/14
11/2/2018	D-57
11/2/2018	D-58
11/2/2018	D-60
11/2/2018	D-61
11/2/2018	D-62
11/2/2018	D-63
11/2/2018	D-25
12/10/2018	D-11
12/10/2018	R-13/14
12/10/2018	D-15
12/10/2018	D-24
12/10/2018	D-25


Flow Control - CSO Maintenance FY87 to FY18 Inspections / Discharges / Blocks Corrected
BLOCKS CLEARED - DISCHARGES
INSPECTIONS
2000
1800
1600
1400
1200
1000
800
600
400
200
0
14000
12000
10000
8000
6000
4000
2000
0
FY88
FY90
FY92
FY94
FY96
FY98
FY00
FY02
FY04
FY06
FY08
FY10
FY12
FY14
FY16
FY18
9475
10566
13276
11732
7587
5873
9741
10510
8405
7556
10746
8750
8347
9518
10195
12399
10332
8881
6787
7614
7482
6553
6591
6168
6111
5501
5377
5073
6003
5379
5465
254
254
281
284
311
293
182
179
201
221
120
162
95
396
65
540
105
298
97
751
35
927
43
694
29
197
22
456
35
1091
25
724
8
680
33
613
18
416
13
397
16
278
17
304
19
231
15
232
12
222
14
292
3
235
4
165
20
198
17
196
19
185
CSO DRY WEATHER DISCHARGES
REGULATOR BLOCKAGES CORRECTED
CSO REGULATOR INSPECTIONS


CSO Sites With 4 or More Dry Weather Discharges Since FY 1994
F11
R3
C26
C02
F14
D03
S13
R4
S45
S33
S43
S42A
S12
D39
F12
C25
C11
D40
C30
C21
C13
C06
S18
S08
T04
S36A
C16
S34
S04
S01
P04
S03
S19
T09
P03
T12
S23
C20
R1
D51
S20
D02
R10
S42
C27
C19
T03
S37
C07
C09
C14
C24
S38
S05
S14
F09
S22
S50
S02
T10
T11
T13
T13 T11 T10 S02 S50 S22 F09
S14 S05 S38 C24 C14 C09 C07
S37 T03 C19 C27 S42 R10 D02
S20 D51 R1 C20 S23 T12 P03
T09 S19 S03 P04 S01 S04 S34
C16 S36A T04 S08 S18 C06 C13
C21 C30 D40 C11 C25 F12 D39
S12 S42A S43 S33 S45 R4 S13
D03 F14 C02 C26 R3 F11
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
Dry Weather Discharges


GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
MILNOR STREET
OCT 0 9 2018
BR 55108
MONDAY
TUESDAY
WEDNESDAY
THURSDAY
FRIDAY
SATURDAY
SUNDAY
NIGHT
NOON

Station PM Sheet Station MILNOR sign book? Y/N? Date 10/18/2018

Time in- 8:55 Time out- 3:15 Mech 1 ABALO
Pumps I S 4 2 3 Pumps OOS? NONE Mech 2 SINGH

Pump Type	Submersible		Centrifugal		Other		Checked?
Pump Room	1	2	3	4	5	6	
Greased pump, ck oil	—	—	—				✓
Greased Motor	—	—	—				✓
Noise,Heat,Vibr? Y/n	NO	NO	NO				✓
Pump Pressure?	8 PSI	8 PSI	8 PSI				✓
Packing- repack/ adj	—	—	—				-
seal water	—	—	—				-
Discharge/ Ck valve	ok	ok	ok				✓
Suction valve	ok	ok	ok				✓
Rotovalve	—	—	—				✓
Piping	ok	ok	ok				✓
Ventilator- Int	Lube —		Belt —		Clean Screen(s) —		✓
Ventilator- Disc.	Lube —		Belt —		Clean Screen(s) —		
Hatch / Door/ Locks	Clean trough YES		Lock-PM YES		Hinges YES		✓
Ladder/stairs/ rails	Floor-clean YES		windows —		trash, debris —		✓
sump pumps	Piping, valves ok		sump clean? Y/N YES				✓
Wet Well							
Ventilator- Int	Lube —		Belt —		Clean Screen(s) —		
Ventilator- Disc.	Lube —		Belt —		Clean Screen(s) —		
Hatch / Door/ Locks	Clean trough YES		Lock-PM YES		Hinges YES		✓
Ladder/stairs/ rails	Floor-clean YES		windows —		trash, debris —		✓
Dimmunuter	—						
Screens- condition	Nrth/ primary		South		Vactor needed?		
Rake drive: Chk, Lube	Nrth/ primary		South		grit rmval nded?		
Cables- lube, adj	Nrth/ primary		South		Vermin?		
Brakes- chk, adj	Nrth/ primary		South				
Tracks- lube	Nrth/ primary		South				
Control Room							
Ventilator- Int	Lube —		Belt —		Clean Screen(s)		
Ventilator- Disc.	Lube —		Belt —		Clean Screen(s)		
Hatch / Door/ Locks	Clean trough YES		Lock-PM YES		Hinges YES		✓
Ladder/stairs/ rails	Floor-clean YES		windows —		trash, debris —		✓
sump pumps	Piping, valves ok		sump clean? Y/N YES				✓
Chart recorder	OK? Any unusual situations?		YES / NO				✓
Generator							
Test run	fuel 7/8 F	oil full	coolant full	belts —	other —		✓
Building/ grounds							
	Clean floors, windows and surfaces as applicable, pick up trash, in and around station						✓
Hypo Pumps	calibration #1 —				#2 —		
tank, valves, piping	—						

All work listed above was done and all list items were checked as needed to complete this PM

Form completed by ABALO

2018

MONTHLY FLOW CONTROL UNIT ELECTRICAL STATION PM

TIME WEATHER Clear

STATION MILNOR NAME Ali + Mike DATE 10-2-18

EQUIPMENT	T-1	T-2	T-3	Hours	Comments
PUMP #1	15.5	16.5	16.3	6531.0	
PUMP #2	14.2	15.1	14.2	6094.0	
PUMP #3	14.0	14.1	14.1	6156.8	
CONTROL RM SUMP	OK				
PUMP ROOM SUMP	OK				
PUMP RM EXHAUST	3.5	3.1	3.5		
WET WELL EXHAUST	3.5	3.1	3.5		
LIGHTS	OK				
DEHUMIDIFIER	OK				
TVSS	OK				

TAKE VOLTAGE READINGS	A » B	B » C	A » C
	245	247	245

LOCATION #3 MCC

A » N	B » N	C » N
122	123	214

GENERATOR				
	BATTERY CHARGER CONDITION	OK	FUEL	FULL
	CHARGER OUTPUT VOLTS	13.12	OIL	FULL
	ALTERNATOR VOLTS	13.50	COOLANT	FULL
	GENERATOR OUTPUT VOLTS	250	HOURS	579.9

COMMENTS:

STATION: **MILNOR STREET** DATE: 10-5-18

TECHNICIAN: CB/KL4 START TIME: 1045 FINISH TIME: 1200

Upon Arrival: CHART 4.3' VERBATIM 4.3' PCU 4.3'

ProcessMeter	0% **4ma**	25% **8ma**	50% **12ma**	75% **16ma**	100% **20ma**
TCU Level	0.0	3.4	7.4	11.1'	14.8
Chart LEVEL	1.0'	4.7'	8.5	12.2'	0.6
Verbatim Level	0.0'	3.7'	7.5'	11.2	14.9'
Isolator Output MILLIAMPS	4.00	8.00	12.00	16.00	20.00

VERBATIM ALARM TESTING

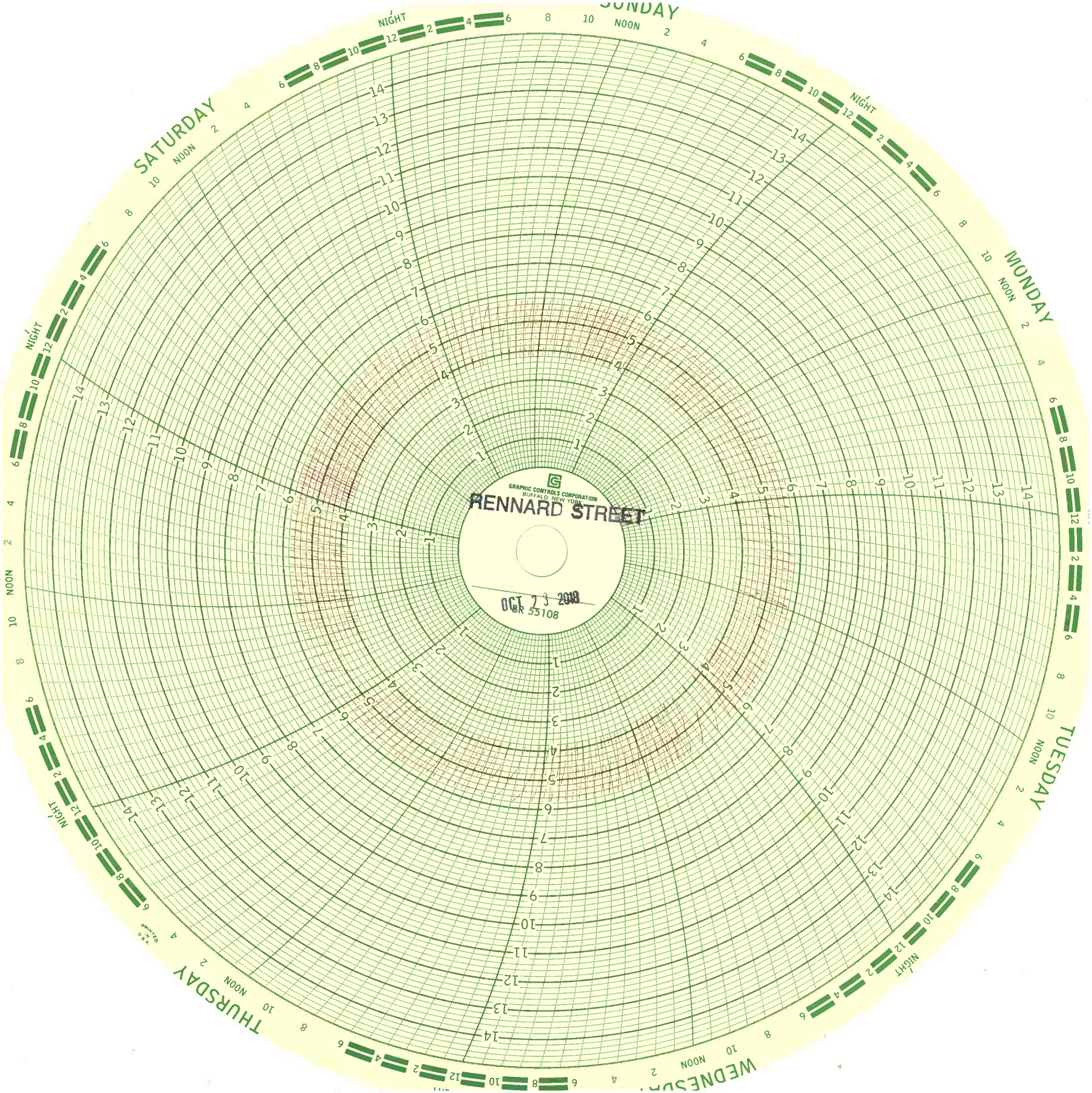
CH #	NORMAL CONDITION	AS FOUND (N/O,N/C)	ALARM TEST RESULTS
CH. 7	N/O	N/O	OK
CH. 8	N/C	N/C	OK
CH. 9	N/C	N/C	OK
CH. 10	N/O	N/C	OK
CH. 11	N/O	N/O	OK
CH. 12	N/O	N/O	OK
CH. 13	N/C	N/C	OK
CH. 14	N/O	N/O	OK
CH. 15	N/C	N/C	OK
CH. 16			
CH. 17			

Test Backup Pump/Teardrop System

Teardrop PUMP On Level: 8.1'

Teardrop PUMP Off Level: 4.5'

POWER SUPPLY VOLTAGE 24.04 Vdc


SUNDAY
MONDAY
TUESDAY
WEDNESDAY
THURSDAY
SATURDAY
NIGHT
NOON
GRAPHIC CONTROLS CORPORATION
BUFFALO, NEW YORK
RENNARD STREET
OCT 23 2018
BR 55108
PRINTED IN U.S.A.

Station PM Sheet **Station** ROWARD **sign book? Y/N?** NO **Date** 10/16/18

Time in- 12:30 Time out- 3:00 Mech 1 DUPSON
Pumps I S 1-2 Pumps OOS? — Mech 2 BROWN

Pump Type	Submersible		Centrifugal		Other		Checked?
Pump Room	1	2	3	4	5	6	
Greased pump, ck oil	✓	✓					✓
Greased Motor	/	/					
Noise,Heat,Vibr? Y/n	N	N					✓
Pump Pressure?							
Packing- repack/ adj	NO	YES					✓
seal water	OK	OK					✓
Discharge/ Ck valve	OK	OK					✓
Suction valve	OK	OK					✓
Rotovalve	/	/					
Piping	OK	OK					✓
Ventilator- Int	Lube		Belt		Clean Screen(s)		✓
Ventilator- Disc.	Lube		Belt		Clean Screen(s)		✓
Hatch / Door/ Locks	Clean trough		Lock-PM		Hinges		✓
Ladder/stairs/ rails	Floor-clean		windows		trash, debris		✓
sump pumps	Piping, valves		sump clean? Y/N				✓
Wet Well							
Ventilator- Int	Lube		Belt		Clean Screen(s)		✓
Ventilator- Disc.	Lube		Belt		Clean Screen(s)		✓
Hatch / Door/ Locks	Clean trough		Lock-PM		Hinges		✓
Ladder/stairs/ rails	Floor-clean		windows		trash, debris		✓
Dimmunuter							
Screens- condition	Nrth/ primary		South		Vactor needed?		
Rake drive: Chk, Lube	Nrth/ primary		South		grit rmval nded?		
Cables- lube, adj	Nrth/ primary		South		Vermin?		
Brakes- chk, adj	Nrth/ primary		South				
Tracks- lube	Nrth/ primary		South				
Control Room							
Ventilator- Int	Lube		Belt		Clean Screen(s)		✓
Ventilator- Disc.	Lube		Belt		Clean Screen(s)		✓
Hatch / Door/ Locks	Clean trough	OK	Lock-PM	OK	Hinges	OK	✓
Ladder/stairs/ rails	Floor-clean	OK	windows	/	trash, debris	/	✓
sump pumps	Piping, valves	OK	sump clean? Y/N	YES			✓
Chart recorder	OK? Any unusual situations?						✓

Generator						
Test run	fuel	oil	coolant	belts	other	✓

Building/ grounds Clean floors, windows and surfaces as applicable, pick up trash, in and around station ☐

Hypo Pumps calibration #1 _____ #2 _____ ☐

tank, valves, piping _____ ☐

All work listed above was done and all list items were checked as needed to complete this PM ☐

Form completed by _____

2018

MONTHLY FLOW CONTROL UNIT ELECTRICAL STATION PM

TIME _____ WEATHER Clear

STATION RENNARD NAME M. Ke tALi DATE 10-2-18

EQUIPMENT	T-1	T-2	T-3	Hours	Comments
PUMP #1	20.8	20.9	20.9	16694.8	
PUMP #2	20.1	21.2	20.2	15798.6	
SUMP	OK				
EXHAUST	0.5				
LIGHTS	OK				
DEHUMIDIFIER	N/A				
TVSS	OK				

Check connections
Check all the lighting

TAKE VOLTAGE READINGS	A » B	B » C	A » C
	241	241	241

LOCATION MAIN

A » N	B » N	C » N
122	122	122

GENERATOR

BATTERY CHARGER CONDITION	OK	FUEL	FULL
CHARGER OUTPUT VOLTS	13.79	OIL	FULL
ALTERNATOR VOLTS	13.93	COOLANT	FULL
GENERATOR OUTPUT VOLTS	241	HOURS	7243

COMMENTS:

STATION: **RENNARD STREET** DATE: 10 5 18

TECHNICIAN: ML MS START TIME: 11:00 FINISH TIME: 13:30

Upon Arrival: CHART 4.2 VERBATIM 4.2 PCU 4.1

ProcessMeter	0% 4ma	25% 8ma	50% 12ma	75% 16ma	100% 20ma
TCU Level	0.0	3.7	7.4	11.1	14.9
Chart LEVEL	4.2	4.6	4.7	4.8	4.8
Verbatim Level	0.0	3.7	7.5	11.2	15.0
Isolator Output MILLIAMPS	4.0	8.0	12.0	16.0	20.0

VERBATIM ALARM TESTING

CH #	NORMAL CONDITION	AS FOUND (N/O,N/C)	ALARM TEST RESULTS
CH. 7	N/O	N/O	ok
CH. 8	N/C	N/C	ok
CH. 9	N/C	N/C	ok
CH. 10	N/O	N/O	ok
CH. 11	N/O	N/O	ok
CH. 12	N/O	N/O	ok
CH. 13	N/C	N/C	ok
CH. 14	N/O	N/O	ok
CH. 15	N/C	N/C	ok
CH. 16			
CH. 17			

Test Backup Pump Teardrop System

Teardrop PUMP On Level: N/A

Teardrop PUMP Off Level: N/A

POWER SUPPLY VOLTAGE 24.12 Vdc

Work Order No: 26387

CSO-I Field Service Report

RG-09 | 19131 (Heston) 54th St. & Lancaster Ave.

RTU#	Modem#	IP Address
132701		166.241.237.111

Part Of: | Tidal | Solar | WWP | **District** | **System** | **Plat** 33 | **Computer Room** 685-2031/2041

HEATED

Type	Equipment	Max	Pipe Diam
Rain Monitor	Rain Bucket		

1	2	3	4	5	6	7
8	9 Tips	10 Calibration	11	12	13	14

Description of Work

P.M.

Type Work: P.M.

PM Last Done: 9/22/2016

Assigned	Date	Arrived	Departed	
E.S.	8-22-17	9:05	11:20	☑ Job Completed ☑ Site Operational

Techs Assisting: BG ☐ LF ☐ CSm ☐ HJ ☐ YM ☐ RJ ☐ ES ☐ SS ☐ LG ☐ RC ☐ PS ☑ EFg ☐

Work Performed

Number of Tips: 50

Tipping Duration: 45 mins.

Comments

Other Open Field Reports

Work Order No: 25670

CSO-I Field Service Report

7 **S-34**	5201A Paschall Ave. 52nd St. & Paschall Ave.	19143	**RTU#** 132775	**Modem#**	**IP Address** 166.241.237.163
Part Of:	Tidal / Solar / WWP		**District** Southwest	**System** SMG	**Plat** 19
			Computer Room 685-2031/2041		
			Type Monitored	**Equipment** Ametek	**Max** / **Pipe Diam** 7' 6" di

OFFSETS: int: 24";

1 TRL	2 SWL	3 SWMGS34	4	5	6	7
8	9	10	11	12	13	14

Description of Work

P.M.

Type Work: P.M.

PM Last Done: 9/7/2016

Assigned	Date	Arrived	Departed	
CO LEMASW	4-18-17	1050	1130	☒ *Job Completed* ☒ *Site Operational*

Techs Assisting: BG ☐ CH ☐ CSm ☑ DP ☐ CG ☐ EFu ☐ ES ☐ KK ☐ LG ☐ RC ☐ PS ☐ EFg ☐ RT ☒ VM ☒

Work Performed

	Inches (measured)	Inches (real-time)	mA	Time	Sensor Serial #
TRL	6		4.62		
SWL	0		4.08		
DWL					
INL	33 1/2		4.83		

Comments

Other Open Field Reports		
	11/23/2016	replace trunk sensor & sensor cable if needed

Work Order No: 28033

CSO-I Field Service Report

MBE-7 | 13000 Townsend Rd. 19020 | Townsend Rd. & Poquessing Creek

RTU# 1292760 | Modem# | IP Address 166.241.207.139

Part Of: | Tidal | Solar | WWP

District Bensalem | System | Plat 119 | Computer Room 685-2031/2041

BRIDGE UNSAFE FOR VEHICLES!

Type Township | Equipment Sigma 980 | Max 2 | Pipe Diam 12" CI

1	2	3	4	5 Level	6 Velocity	7 Flow
8	9	10	11	12	13	14

Description of Work

P.M.

Type Work: P.M.

PM Last Done: 5/9/2018

Assigned	Date	Arrived	Departed	
Godwin	6.22.2018	1046	1205	☑ Job Completed ☑ Site Operational

Techs Assisting: BG ☐ LF ☐ CSm ☐ HJ ☐ YM ☐ RJ ☐ ES ☐ SS ☑ LG ☐ RC ☐ PS ☐ EFg ☐ ☑ RB

☑ cleared grit from flume 0 "

Parameters

Pipe Size : 12"

Max Flow : 2 MGD

	Psychically Measured	From Sigma Meter	Sigma After Cleaning	Real Time
Level	4.25	4.8	4.5	_____
Calculate Flow / Flow	.91	.25	.30	_____
Velocity	1.78	1.30	1.71	_____
Time	11:16	11:14	11:18	_____

Post Cal. (if needed) : _____ Level _____ Flow _____ Inches Level Adjusted To

Comments

dessicant condition = 50 % good (blue)

Other Open Field Reports

Z540.1

Certificate of Calibration

FLUKE®

Beaverton Service Center

Certificate Number:	BVL472083		
Data Type:	Found-Left	**Calibration Date:**	06-Aug-2018
Result Summary:	In Tolerance	**Calibration Due:**	06-Aug-2019
Manufacturer:	Fluke	**Certificate Date:**	07-Aug-2018
Model:	27	**Temperature:**	23.0 °C
Serial Number:	4390049	**Humidity:**	56.5 %
Description:	Multimeter		

Procedure:	Fluke 27:(1 Year) ZCAL VER /5520	**Revision:**	1.01
Customer:	CITY OF PHILADELPHIA		
City:	PHILADELPHIA	**Country:**	US
State:	PA		
Purchase Order:	831001	**RMA:**	31563978

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

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- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
- Found-Left Calibration data collected without any adjustment and / or repair performed.

This calibration conforms to the requirements of ANSI/NCSL Z540-1-1994 (R2002).

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Where applicable, the Test Uncertainty Ratio (TUR) is provided in the following pages. Unless otherwise stated, the TUR for a given measurement result is 4:1 or greater.

Results are reviewed to establish where any measurement results exceeded the manufacturer's specifications.

Measurement results greater than limits of error are indicated by '!'.

Z540-1:1994 FLUKE

Cert # : BVL472083
Cal Date: 06-Aug-2018
Due Date: 06-Aug-2019
S/N : 4390049
www.fluke.com

Cert # : BVL472083 Date: 06-Aug-2018 Due: 06-Aug-2019 www.fluke.com

Matt Seeger
MATT SEEGER
Issued By

Z540.1

FLUKE®

Certificate of Calibration

Beaverton Service Center

Certificate Number:	BVL471666		
Data Type:	Found-Left	**Calibration Date:**	03-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	06-Aug-2018
Model:	87 V	**Temperature:**	23.1 °C
Serial Number:	26530310	**Humidity:**	51.0 %
Description:	Multimeter		
Procedure:	Fluke 87 V (1 Year) ACAL/ZCAL Ver /5520	**Revision:**	1.1
Customer:	CITY OF PHILADELPHIA		
City:	PHILADELPHIA	**Country:**	US
State:	PA		
Purchase Order:	831001	**RMA:**	31563978

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Z540-1:1994 FLUKE

Cert # : BVL471666
Cal Date: 03-Aug-2018

S/N : 26530310
www.fluke.com

www.fluke.com

Cert # : BVL471666
Date: 8/3/2018

MATT SEEGER
Issued By

Z540.1

FLUKE.

Certificate of Calibration

Everett Service Center

Certificate Number:	EVL471151		
Data Type:	As-Found	**Calibration Date:**	02-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	02-Aug-2018
Model:	53 II	**Temperature:**	23.1 °C
Serial Number:	81120074	**Humidity:**	45.5 %
Description:	Thermometer		
Procedure:	Fluke 53-II:(1 YEAR) ZCAL VER /5520	**Revision:**	1.2
Customer:	CITY OF PHILADELPHIA		
City:	PHILADELPHIA	**Country:**	US
State:	PA		
Purchase Order:	831001	**RMA:**	31563977

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Comments:

BATTERY SPILLAGE. DEAD KEYS ON KEYPAD

ROBERT LEVER
Issued By

Z540.1

FLUKE

Certificate of Calibration

Everett Service Center

Certificate Number:	EVL471197		
Data Type:	As-Left	**Calibration Date:**	02-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	02-Aug-2018
Model:	53 II	**Temperature:**	23.2 °C
Serial Number:	81120074	**Humidity:**	46.9 %
Description:	Thermometer		
Procedure:	Fluke 53-II:(1 YEAR) ZCAL VER /5520	**Revision:**	1.2
Customer:	CITY OF PHILADELPHIA		
City:	PHILADELPHIA	**Country:**	US
State:	PA		
Purchase Order:	831001	**RMA:**	31563977

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Z540-1:1994 FLUKE

Cert # : EVL471197
Cal Date: 02-Aug-2018

S/N : 81120074
www.fluke.com

www.fluke.com

Cert # : EVL471197
Date: 8/2/2018

KENNETH CLARK
Issued By

Z540.1

FLUKE.

Certificate of Calibration

Everett Service Center

Certificate Number:	EVL471159		
Data Type:	As-Found	**Calibration Date:**	02-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	02-Aug-2018
Model:	789	**Temperature:**	23.1 °C
Serial Number:	10720018	**Humidity:**	45.5 %
Description:	Processmeter		
Procedure:	Fluke 789:(1 year) ZCAL VER RS232 5520/8508	**Revision:**	2.1
Customer:	CITY OF PHILADELPHIA		
City:	PHILADELPHIA	**Country:**	US
State:	PA		
Purchase Order:	831001	**RMA:**	31563977

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KENNETH CLARK
Issued By

Z540.1

FLUKE

Certificate of Calibration

Everett Service Center

Certificate Number:	EVL471232		
Data Type:	As-Left	**Calibration Date:**	02-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	02-Aug-2018
Model:	789	**Temperature:**	23.1 °C
Serial Number:	10720018	**Humidity:**	47.0 %
Description:	Processmeter		
Procedure:	Fluke 789:(1 year) ZCAL VER RS232 5520/8508	**Revision:**	2.1
Customer:	CITY OF PHILADELPHIA		
City:	PHILADELPHIA	**Country:**	US
State:	PA		
Purchase Order:	831001	**RMA:**	31563977

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Z540-1:1994 FLUKE

Cert # : EVL471232
Cal Date: 02-Aug-2018

S/N : 10720018
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www.fluke.com

Cert # : EVL471232
Date: 8/2/2018

KENNETH CLARK
Issued By

Z540.1

FLUKE.

Certificate of Calibration

Everett Service Center

Certificate Number:	EVL471179		
Data Type:	As-Found	**Calibration Date:**	02-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	02-Aug-2018
Model:	789	**Temperature:**	23.1 °C
Serial Number:	10720021	**Humidity:**	46.4 %
Description:	Processmeter		
Procedure:	Fluke 789:(1 year) ZCAL VER RS232 5520/8508	**Revision:**	2.1
Customer:	CITY OF PHILADELPHIA		
City:	PHILADELPHIA	**Country:**	US
State:	PA		
Purchase Order:	831001	**RMA:**	31563977

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KENNETH CLARK
Issued By

Z540.1

FLUKE

Certificate of Calibration

Everett Service Center

Certificate Number:	EVL471223		
Data Type:	As-Left	**Calibration Date:**	02-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	02-Aug-2018
Model:	789	**Temperature:**	22.9 °C
Serial Number:	10720021	**Humidity:**	45.7 %
Description:	Processmeter		
Procedure:	Fluke 789:(1 year) ZCAL VER RS232 5520/8508	**Revision:**	2.1
Customer:	CITY OF PHILADELPHIA		
City:	PHILADELPHIA	**Country:**	US
State:	PA		
Purchase Order:	831001	**RMA:**	31563977

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Results are reviewed to establish where any measurement results exceeded the manufacturer's specifications.

Measurement results greater than limits of error are indicated by 'I'.

Z540-1:1994 FLUKE

Cert # : EVL471223
Cal Date: 02-Aug-2018

S/N : 10720021
www.fluke.com

www.fluke.com

Cert # : EVL471223
Date: 8/2/2018

KENNETH CLARK
Issued By

Z540.1

FLUKE

Certificate of Calibration

Everett Service Center

Certificate Number:	EVL471158		
Data Type:	Found-Left	**Calibration Date:**	02-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	02-Aug-2018
Model:	789	**Temperature:**	23.0 °C
Serial Number:	27090004	**Humidity:**	44.2 %
Description:	Processmeter		
Procedure:	Fluke 789:(1 year) ZCAL VER RS232 5520/8508	**Revision:**	2.1
Customer:	CITY OF PHILADELPHIA		
City:	PHILADELPHIA	**Country:**	US
State:	PA		
Purchase Order:	831001	**RMA:**	31563977

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- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
- Found-Left Calibration data collected without any adjustment and / or repair performed.

This calibration conforms to the requirements of ANSI/NCSL Z540-1-1994 (R2002).

In the attached measurement results, deviation may be expressed with units, Measured Value (MV) - Nominal Value (NV) or as a proportion of the nominal value ((MV-NV)/NV), expressed without units with a scalar multiplier such as % (0.01), or as a ratio of the units (mA/A, µV/V, etc.) Descriptions such as µA/A, µV/V, and others, where used to annotate results or column headings are the preferred replacements for what was historically labeled as "ppm" or parts-per-million and described the results in that column, unless otherwise noted by units symbols.

Where applicable, the expanded uncertainty of measurement at the time of test is given in the following pages. They are calculated in accordance with the method described in the ISO Guide to the Expression of Uncertainty in Measurement (GUM). The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k, such that the confidence level approximates 95%.

Where applicable, the Test Uncertainty Ratio (TUR) is provided in the following pages. Unless otherwise stated, the TUR for a given measurement result is 4:1 or greater.

Results are reviewed to establish where any measurement results exceeded the manufacturer's specifications.

Measurement results greater than limits of error are indicated by 'I'.

Z540-1:1994 FLUKE

Cert # : EVL471158
Cal Date: 02-Aug-2018

S/N : 27090004
www.fluke.com

www.fluke.com

Cert # : EVL471158
Date: 8/2/2018

ROBERT LEVER
Issued By

Z540.1

Certificate of Calibration

Beaverton Service Center

Certificate Number:	BVL475064		
Data Type:	Found-Left	**Calibration Date:**	17-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	17-Aug-2018
Model:	87 V	**Temperature:**	22.9 °C
Serial Number:	37980191	**Humidity:**	42.4 %
Description:	Multimeter		
Procedure:	Fluke 87 V (1 Year) ACAL/ZCAL Ver /5520	**Revision:**	1.1
Customer:	CITY OF PHILADELPHIA		
City:	PHILADELPHIA	**Country:**	US
State:	PA		
Purchase Order:	828710	**RMA:**	31573349

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

The Data Type found in this certificate must be interpreted as:

- As - Found Calibration data collected before the unit is adjusted and / or repaired.
- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
- Found-Left Calibration data collected without any adjustment and / or repair performed.

This calibration conforms to the requirements of ANSI/NCSL Z540-1-1994 (R2002).

In the attached measurement results, deviation may be expressed with units, Measured Value (MV) - Nominal Value (NV) or as a proportion of the nominal value ((MV-NV)/NV), expressed without units with a scalar multiplier such as % (0.01), or as a ratio of the units (mA/A, µV/V, etc.) Descriptions such as µA/A, µV/V, and others, where used to annotate results or column headings are the preferred replacements for what was historically labeled as "ppm" or parts-per-million and described the results in that column, unless otherwise noted by units symbols.

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Results are reviewed to establish where any measurement results exceeded the manufacturer's specifications.

Measurement results greater than limits of error are indicated by '!'.

Z540-1:1994 FLUKE

Cert # : BVL475064
Cal Date: 17-Aug-2018

S/N : 37980191
www.fluke.com

www.fluke.com

Cert #: BVL475064
Date: 8/17/2018

MATTHEW SEEGER
Issued By

Z540.1

FLUKE®

Certificate of Calibration

Beaverton Service Center

Certificate Number:	BVL475076		
Data Type:	Found-Left	**Calibration Date:**	17-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	17-Aug-2018
Model:	87 V	**Temperature:**	22.9 °C
Serial Number:	38130290	**Humidity:**	42.3 %
Description:	Multimeter		
Procedure:	Fluke 87 V (1 Year) ACAL/ZCAL Ver /5520	**Revision:**	1.1
Customer:	CITY OF PHILADELPHIA		
City:	PHILADELPHIA	**Country:**	US
State:	PA		
Purchase Order:	828710	**RMA:**	31573349

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

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- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
- Found-Left Calibration data collected without any adjustment and / or repair performed.

This calibration conforms to the requirements of ANSI/NCSL Z540-1-1994 (R2002).

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Results are reviewed to establish where any measurement results exceeded the manufacturer's specifications.

Measurement results greater than limits of error are indicated by 'I'.

Z540-1:1994 FLUKE

Cert # : BVL475076
Cal Date: 17-Aug-2018

S/N : 38130290
www.fluke.com

www.fluke.com

Cert # : BVL475076
Date: 8/17/2018

MATTHEW SEEGER
Issued By

Z540.1

FLUKE®

Certificate of Calibration

Beaverton Service Center

Certificate Number:	BVL475129		
Data Type:	Found-Left	**Calibration Date:**	17-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	17-Aug-2018
Model:	177	**Temperature:**	23.1 °C
Serial Number:	10500313	**Humidity:**	41.3 %
Description:	Multimeter		
Procedure:	Fluke 177: (1 year) ZCAL VER/5520A	**Revision:**	2.1
Customer:	CITY OF PHILADELPHIA		
City:	PHILADELPHIA	**Country:**	US
State:	PA		
Purchase Order:	828710	**RMA:**	31573349

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- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
- Found-Left Calibration data collected without any adjustment and / or repair performed.

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Results are reviewed to establish where any measurement results exceeded the manufacturer's specifications.

Measurement results greater than limits of error are indicated by 'I'.

Z540-1:1994 FLUKE

Cert # : BVL475129
Cal Date: 17-Aug-2018

S/N : 10500313
www.fluke.com

www.fluke.com

Cert # : BVL475129
Date: 8/17/2018

QUOC TRAN
Issued By

Z540.1

FLUKE®

Certificate of Calibration

Beaverton Service Center

Certificate Number:	BVL475113		
Data Type:	Found-Left	**Calibration Date:**	17-Aug-2018
Result Summary:	In Tolerance	**Calibration Due:**	17-Aug-2019
Manufacturer:	Fluke	**Certificate Date:**	17-Aug-2018
Model:	177	**Temperature:**	23.1 °C
Serial Number:	81910058	**Humidity:**	41.7 %
Description:	Multimeter		
Procedure:	Fluke 177: (1 year) ZCAL VER/5520A	**Revision:**	2.1
Customer:	CITY OF PHILADELPHIA		
City:	PHILADELPHIA	**Country:**	US
State:	PA		
Purchase Order:	828710	**RMA:**	31573349

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

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- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
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This calibration conforms to the requirements of ANSI/NCSL Z540-1-1994 (R2002).

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Results are reviewed to establish where any measurement results exceeded the manufacturer's specifications.

Measurement results greater than limits of error are indicated by '!'.

Z540-1:1994 FLUKE

Cert # : BVL475113
Cal Date: 17-Aug-2018
Due Date: 17-Aug-2019
S/N : 81910058
www.fluke.com

Cert # : BVL475113
Date: 17-Aug-2018
Due: 17-Aug-2019
www.fluke.com

QUOC TRAN
Issued By

Z540.1

Certificate of Calibration

Beaverton Service Center

Certificate Number:	BVL475193		
Data Type:	Found-Left	**Calibration Date:**	17-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	17-Aug-2018
Model:	375	**Temperature:**	23.0 °C
Serial Number:	31750085WS	**Humidity:**	40.9 %
Description:	Clamp Meter		
Procedure:	Fluke 375 Clamp Meter:(1 year)ZCAL /5520/COIL	**Revision:**	2.2
Customer:	CITY OF PHILADELPHIA		
City:	PHILADELPHIA	**Country:**	US
State:	PA		
Purchase Order:	828710	**RMA:**	31573349

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

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- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
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Measurement results greater than limits of error are indicated by '!'.

Z540-1:1994 FLUKE

Cert # : BVL475193
Cal Date: 17-Aug-2018

S/N : 31750085WS
www.fluke.com

www.fluke.com

Cert # : BVL475193
Date: 8/17/2018

QUOC TRAN
Issued By

Z540.1

Certificate of Calibration

Beaverton Service Center

Certificate Number:	BVL475183		
Data Type:	Found-Left	**Calibration Date:**	17-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	17-Aug-2018
Model:	375	**Temperature:**	23.0 °C
Serial Number:	SV00012477	**Humidity:**	40.3 %
Description:	Clamp Meter		
Procedure:	Fluke 375 Clamp Meter:(1 year)ZCAL /5520/COIL	**Revision:**	2.2
Customer:	CITY OF PHILADELPHIA		
City:	PHILADELPHIA	**Country:**	US
State:	PA		
Purchase Order:	828710	**RMA:**	31573349

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

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Measurement results greater than limits of error are indicated by '!'.

Z540-1:1994 FLUKE

Cert # : BVL475183
Cal Date: 17-Aug-2018

S/N : SV00012477
www.fluke.com

www.fluke.com

Cert # : BVL475183
Date: 8/17/2018

QUOC TRAN
Issued By

Z540.1

FLUKE®

Certificate of Calibration

Everett Service Center

Certificate Number:	EVL476400		
Data Type:	Found-Left	**Calibration Date:**	23-Aug-2018
Result Summary:	In Tolerance	**Calibration Due:**	23-Aug-2019
Manufacturer:	Fluke	**Certificate Date:**	23-Aug-2018
Model:	707	**Temperature:**	23.3 °C
Serial Number:	2659073	**Humidity:**	42.0 %
Description:	Loop Calibrator		
Procedure:	FLUKE 707 :(1 year) ZCAL VER /5520 /3458	**Revision:**	1.0
Customer:	CITY OF PHILADELPHIA		
Purchase Order:	828710	**RMA:**	31573348

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

The Data Type found in this certificate must be interpreted as:

- As - Found Calibration data collected before the unit is adjusted and / or repaired.
- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
- Found-Left Calibration data collected without any adjustment and / or repair performed.

This calibration conforms to the requirements of ANSI/NCSL Z540-1-1994 (R2002).

In the attached measurement results, deviation may be expressed with units, Measured Value (MV) - Nominal Value (NV) or as a proportion of the nominal value ((MV-NV)/NV), expressed without units with a scalar multiplier such as % (0.01), or as a ratio of the units (mA/A, µV/V, etc.) Descriptions such as µA/A, µV/V, and others, where used to annotate results or column headings are the preferred replacements for what was historically labeled as "ppm" or parts-per-million and described the results in that column, unless otherwise noted by units symbols.

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Results are reviewed to establish where any measurement results exceeded the manufacturer's specifications.

Measurement results greater than limits of error are indicated by '!'.

Z540-1:1994 FLUKE®

Cert # : EVL476400
Cal Date: 23-Aug-2018
Due Date: 23-Aug-2019
S/N : 2659073
www.fluke.com

Cert # : EVL476400
Date: 23-Aug-2018
Due: 23-Aug-2019
www.fluke.com

KENNETH CLARK
Issued By

Z540.1

FLUKE

Certificate of Calibration

Everett Service Center

Certificate Number:	EVL476406		
Data Type:	Found-Left	**Calibration Date:**	23-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	23-Aug-2018
Model:	707	**Temperature:**	23.4 °C
Serial Number:	2659074	**Humidity:**	41.4 %
Description:	Loop Calibrator		
Procedure:	FLUKE 707 :(1 year) ZCAL VER /5520 /3458	**Revision:**	1.0
Customer:	CITY OF PHILADELPHIA		
Purchase Order:	828710	**RMA:**	31573348

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

The Data Type found in this certificate must be interpreted as:

- As - Found Calibration data collected before the unit is adjusted and / or repaired.
- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
- Found-Left Calibration data collected without any adjustment and / or repair performed.

This calibration conforms to the requirements of ANSI/NCSL Z540-1-1994 (R2002).

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Measurement results greater than limits of error are indicated by '!'.

Z540-1:1994 FLUKE

Cert # : EVL476406
Cal Date: 23-Aug-2018

S/N : 2659074
www.fluke.com

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Cert # : EVL476406
Date: 8/23/2018

KENNETH CLARK
Issued By

Z540.1

FLUKE.

Certificate of Calibration

Everett Service Center

Certificate Number: EVL476403

Data Type:	As-Found	**Calibration Date:**	23-Aug-2018
Result Summary:	Operational Failure		
Manufacturer:	Fluke	**Certificate Date:**	23-Aug-2018
Model:	707	**Temperature:**	23.4 °C
Serial Number:	2673038	**Humidity:**	41.4 %
Description:	Loop Calibrator		

Procedure:	FLUKE 707 :(1 year) ZCAL VER /5520 /3458	**Revision:**	1.0
Customer:	CITY OF PHILADELPHIA		
Purchase Order:	828710	**RMA:**	31573348

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

The Data Type found in this certificate must be interpreted as:

- As - Found Calibration data collected before the unit is adjusted and / or repaired.
- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
- Found-Left Calibration data collected without any adjustment and / or repair performed.

This calibration conforms to the requirements of ANSI/NCSL Z540-1-1994 (R2002).

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Results are reviewed to establish where any measurement results exceeded the manufacturer's specifications.

Measurement results greater than limits of error are indicated by '!'.

Comments:

UNIT WILL NOT POWER ON

KENNETH CLARK
Issued By

Z540.1

FLUKE®

Certificate of Calibration

Everett Service Center

Certificate Number:	EVL477330		
Data Type:	As-Left	**Calibration Date:**	27-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	27-Aug-2018
Model:	707	**Temperature:**	22.7 °C
Serial Number:	2673038	**Humidity:**	42.2 %
Description:	Loop Calibrator		
Procedure:	FLUKE 707 :(1 year) ZCAL VER /5520 /3458	**Revision:**	1.0
Customer:	CITY OF PHILADELPHIA		
Purchase Order:	828710	**RMA:**	31573348

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

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- As - Found Calibration data collected before the unit is adjusted and / or repaired.
- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
- Found-Left Calibration data collected without any adjustment and / or repair performed.

This calibration conforms to the requirements of ANSI/NCSL Z540-1-1994 (R2002).

In the attached measurement results, deviation may be expressed with units, Measured Value (MV) - Nominal Value (NV) or as a proportion of the nominal value ((MV-NV)/NV), expressed without units with a scalar multiplier such as % (0.01), or as a ratio of the units (mA/A, µV/V, etc.) Descriptions such as µA/A, µV/V, and others, where used to annotate results or column headings are the preferred replacements for what was historically labeled as "ppm" or parts-per-million and described the results in that column, unless otherwise noted by units symbols.

Where applicable, the expanded uncertainty of measurement at the time of test is given in the following pages. They are calculated in accordance with the method described in the ISO Guide to the Expression of Uncertainty in Measurement (GUM). The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k, such that the confidence level approximates 95%.

Where applicable, the Test Uncertainty Ratio (TUR) is provided in the following pages. Unless otherwise stated, the TUR for a given measurement result is 4:1 or greater.

Results are reviewed to establish where any measurement results exceeded the manufacturer's specifications.

Measurement results greater than limits of error are indicated by 'I'.

Z540-1:1994 FLUKE

Cert # : EVL477330
Cal Date: 27-Aug-2018

S/N : 2673038

www.fluke.com

www.fluke.com

Cert # : EVL477330
Date: 8/27/2018

ROBERT LEVER
Issued By

FLUKE
Calibration

Certificate of Calibration
Fluke Calibration
Wuhu Laboratory

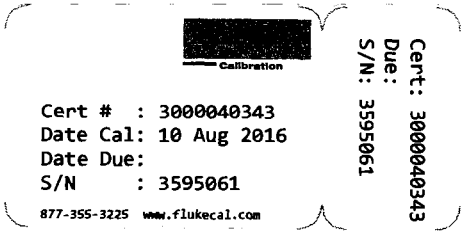
Description:	LOOP CALIBRATOR	**Certificate Number:**	3000040343
Manufacturer:	FLUKE CORPORATION	**Date of Calibration:**	10 Aug 2016
Model:	707	**Date Due:**	
Serial Number:	3595061	**Temperature:**	20 to 26 °C
Status:	AS-LEFT	**Relative Humidity:**	10 to 70 %RH
		Pressure:	97 to 103 kPa
Calibration:	FULL	**Issue Date:**	10 Aug 2016
Procedure:	FLUKE 707:(1 year) CAL/FINAL VER RS-232/M3001 : 7.01		

Customer:

This calibration is traceable to the International System of Units (SI) through recognized national metrology institutes (NIST, PTB, NPL, NIM, NRC, etc.), ratiometric techniques, or natural physical constants. The calibration has been completed in accordance with the Fluke Quality System document QSD 111.0. This certificate applies to only the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation.

If measurement uncertainties are provided on the certificate of calibration, they are calculated in accordance with the method described in the ISO Guide to the Expression of Uncertainty in Measurement. The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k such that the coverage probability corresponds to approximately 95 %.

Comments:



Lu Ruolan
Calibration Technician

FLUKE
Calibration

Certificate of Calibration
Fluke Calibration
Wuhu Laboratory

Description:	LOOP CALIBRATOR	**Certificate Number:**	3000118569
Manufacturer:	FLUKE CORPORATION	**Date of Calibration:**	27 Mar 2018
Model:	707	**Date Due:**	
Serial Number:	4190351	**Temperature:**	20 to 26 °C
Status:	AS-LEFT	**Relative Humidity:**	10 to 70 %RH
		Pressure:	97 to 103 kPa
Calibration:	FULL	**Issue Date:**	27 Mar 2018
Procedure:	FLUKE 707:(1 year) CAL/FINAL VER RS-232/M3001 : 7.01		

Customer:

This calibration is traceable to the International System of Units (SI) through recognized national metrology institutes (NIST, PTB, NPL, NIM, NRC, etc.), ratiometric techniques, or natural physical constants. The calibration has been completed in accordance with the Fluke Quality System document QSD 111.0. This certificate applies to only the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation.

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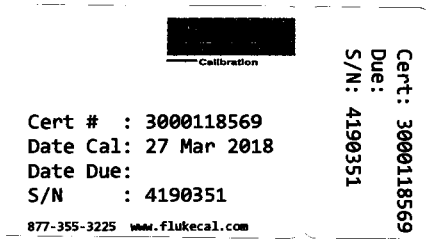
Comments:



Yang Tingting
Calibration Technician

FLUKE
Calibration

Certificate of Calibration
Fluke Calibration
Wuhu Laboratory

Description:	LOOP CALIBRATOR	**Certificate Number:**	3000118574
Manufacturer:	FLUKE CORPORATION	**Date of Calibration:**	27 Mar 2018
Model:	707	**Date Due:**	
Serial Number:	4190355	**Temperature:**	20 to 26 °C
Status:	AS-LEFT	**Relative Humidity:**	10 to 70 %RH
		Pressure:	97 to 103 kPa
Calibration:	FULL	**Issue Date:**	27 Mar 2018
Procedure:	FLUKE 707:(1 year) CAL/FINAL VER RS-232/M3001 : 7.01		

Customer:

This calibration is traceable to the International System of Units (SI) through recognized national metrology institutes (NIST, PTB, NPL, NIM, NRC, etc.), ratiometric techniques, or natural physical constants. The calibration has been completed in accordance with the Fluke Quality System document QSD 111.0. This certificate applies to only the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation.

If measurement uncertainties are provided on the certificate of calibration, they are calculated in accordance with the method described in the ISO Guide to the Expression of Uncertainty in Measurement. The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k such that the coverage probability corresponds to approximately 95 %.

Comments:

[redacted]
Calibration

Cert # : 3000118574
Date Cal: 27 Mar 2018
Date Due:
S/N : 4190355
877-355-3225 www.flukecal.com

Cert: 3000118574
Due:
S/N: 4190355

Yang Tingting
Calibration Technician

Z540.1

FLUKE.

Certificate of Calibration

Everett Service Center

Certificate Number:	EVL478105		
Data Type:	As-Found	**Calibration Date:**	29-Aug-2018
Result Summary:	Out of Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	29-Aug-2018
Model:	713 100G	**Temperature:**	23.5 °C
Serial Number:	6955042	**Humidity:**	36.7 %
Description:	Pressure Calibrator		
Procedure:	Fluke 713: (1 year) ZCAL VER /7250xi/5500A	**Revision:**	1.2
Customer:	CITY OF PHILADELPHIA		
Purchase Order:	828710	**RMA:**	31573348

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

The Data Type found in this certificate must be interpreted as:

- As - Found Calibration data collected before the unit is adjusted and / or repaired.
- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
- Found-Left Calibration data collected without any adjustment and / or repair performed.

This calibration conforms to the requirements of ANSI/NCSL Z540-1-1994 (R2002).

In the attached measurement results, deviation may be expressed with units, Measured Value (MV) - Nominal Value (NV) or as a proportion of the nominal value ((MV-NV)/NV), expressed without units with a scalar multiplier such as % (0.01), or as a ratio of the units (mA/A, µV/V, etc.) Descriptions such as µA/A, µV/V, and others, where used to annotate results or column headings are the preferred replacements for what was historically labeled as "ppm" or parts-per-million and described the results in that column, unless otherwise noted by units symbols.

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Where applicable, the Test Uncertainty Ratio (TUR) is provided in the following pages. Unless otherwise stated, the TUR for a given measurement result is 4:1 or greater.

Results are reviewed to establish where any measurement results exceeded the manufacturer's specifications.

Measurement results greater than limits of error are indicated by '!'.

SAMUEL SCHULTZ
Issued By

Z540.1

FLUKE®

Certificate of Calibration

Everett Service Center

Certificate Number: EVL478116

Data Type:	As-Left	**Calibration Date:**	29-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	29-Aug-2018
Model:	713 100G	**Temperature:**	23.6 °C
Serial Number:	6955042	**Humidity:**	38.0 %
Description:	Pressure Calibrator		

Procedure:	Fluke 713: (1 year) ZCAL VER /7250xi/5500A	**Revision:**	1.2
Customer:	CITY OF PHILADELPHIA		
Purchase Order:	828710	**RMA:**	31573348

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

The Data Type found in this certificate must be interpreted as:

- As - Found Calibration data collected before the unit is adjusted and / or repaired.
- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
- Found-Left Calibration data collected without any adjustment and / or repair performed.

This calibration conforms to the requirements of ANSI/NCSL Z540-1-1994 (R2002).

In the attached measurement results, deviation may be expressed with units, Measured Value (MV) - Nominal Value (NV) or as a proportion of the nominal value ((MV-NV)/NV), expressed without units with a scalar multiplier such as % (0.01), or as a ratio of the units (mA/A, µV/V, etc.) Descriptions such as µA/A, µV/V, and others, where used to annotate results or column headings are the preferred replacements for what was historically labeled as "ppm" or parts-per-million and described the results in that column, unless otherwise noted by units symbols.

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Results are reviewed to establish where any measurement results exceeded the manufacturer's specifications.

Measurement results greater than limits of error are indicated by 'I'.

Z540-1:1994 FLUKE

Cert # : EVL478116
Cal Date: 29-Aug-2018

S/N : 6955042
www.fluke.com

www.fluke.com

Cert #: EVL478116
Date: 8/29/2018

SAMUEL SCHULTZ
Issued By

Z540.1

FLUKE®

Certificate of Calibration

Everett Service Center

Certificate Number:	EVL478165		
Data Type:	Found-Left	**Calibration Date:**	29-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	29-Aug-2018
Model:	718 100G	**Temperature:**	23.1 °C
Serial Number:	2668153	**Humidity:**	36.8 %
Description:	PRESSURE CALIBRATOR		
Procedure:	Fluke 718: (1 year) ACAL/ZCAL VER /7250xi/RPM4	**Revision:**	2.3
Customer:	CITY OF PHILADELPHIA		
Purchase Order:	828710	**RMA:**	31573348

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

The Data Type found in this certificate must be interpreted as:

- As - Found Calibration data collected before the unit is adjusted and / or repaired.
- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
- Found-Left Calibration data collected without any adjustment and / or repair performed.

This calibration conforms to the requirements of ANSI/NCSL Z540-1-1994 (R2002).

In the attached measurement results, deviation may be expressed with units, Measured Value (MV) - Nominal Value (NV) or as a proportion of the nominal value ((MV-NV)/NV), expressed without units with a scalar multiplier such as % (0.01), or as a ratio of the units (mA/A, µV/V, etc.) Descriptions such as µA/A, µV/V, and others, where used to annotate results or column headings are the preferred replacements for what was historically labeled as "ppm" or parts-per-million and described the results in that column, unless otherwise noted by units symbols.

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Results are reviewed to establish where any measurement results exceeded the manufacturer's specifications.

Measurement results greater than limits of error are indicated by '!'.

Z540-1:1994 FLUKE®

Cert # : EVL478165
Cal Date: 29-Aug-2018

S/N : 2668153
www.fluke.com

www.fluke.com

Cert # : EVL478165
Date: 8/29/2018

SAMUEL SCHULTZ
Issued By

Z540.1

FLUKE.

Certificate of Calibration

Everett Service Center

Certificate Number:	EVL477963		
Data Type:	As-Found	**Calibration Date:**	29-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	29-Aug-2018
Model:	719 100G	**Temperature:**	23.6 °C
Serial Number:	1477001	**Humidity:**	36.5 %
Description:	PRESSURE CALIBRATOR		
Procedure:	Fluke 719: (1 year) ACAL/ZCAL VER /7250xi/RPM4	**Revision:**	2.3
Customer:	CITY OF PHILADELPHIA		
Purchase Order:	828710	**RMA:**	31573348

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In the attached measurement results, deviation may be expressed with units, Measured Value (MV) - Nominal Value (NV) or as a proportion of the nominal value ((MV-NV)/NV), expressed without units with a scalar multiplier such as % (0.01), or as a ratio of the units (mA/A, µV/V, etc.) Descriptions such as µA/A, µV/V, and others, where used to annotate results or column headings are the preferred replacements for what was historically labeled as "ppm" or parts-per-million and described the results in that column, unless otherwise noted by units symbols.

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Results are reviewed to establish where any measurement results exceeded the manufacturer's specifications.

Measurement results greater than limits of error are indicated by 'I'.

SAMUEL SCHULTZ
Issued By

Z540.1

Certificate of Calibration

Everett Service Center

Certificate Number:	EVL477976		
Data Type:	As-Left	**Calibration Date:**	29-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	29-Aug-2018
Model:	719 100G	**Temperature:**	23.5 °C
Serial Number:	1477001	**Humidity:**	37.0 %
Description:	PRESSURE CALIBRATOR		
Procedure:	Fluke 719: (1 year) ACAL/ZCAL VER /7250xi/RPM4	**Revision:**	2.3
Customer:	CITY OF PHILADELPHIA		
Purchase Order:	828710	**RMA:**	31573348

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

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- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
- Found-Left Calibration data collected without any adjustment and / or repair performed.

This calibration conforms to the requirements of ANSI/NCSL Z540-1-1994 (R2002).

In the attached measurement results, deviation may be expressed with units, Measured Value (MV) - Nominal Value (NV) or as a proportion of the nominal value ((MV-NV)/NV), expressed without units with a scalar multiplier such as % (0.01), or as a ratio of the units (mA/A, µV/V, etc.) Descriptions such as µA/A, µV/V, and others, where used to annotate results or column headings are the preferred replacements for what was historically labeled as "ppm" or parts-per-million and described the results in that column, unless otherwise noted by units symbols.

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Measurement results greater than limits of error are indicated by '!'.

Comments:

RAN CAL/ADJUST

Z540-1:1994 FLUKE

Cert # : EVL477976
Cal Date: 29-Aug-2018

S/N : 1477001
www.fluke.com

www.fluke.com

Cert # : EVL477976
Date: 8/29/2018

SAMUEL SCHULTZ
Issued By

Fluke Corporation	Telephone	Facsimile	Internet	Revision 2.14
1420 75th St SW, Everett WA 98203 USA	888.993.5853	425.446.6390	www.fluke.com	

Z540.1

Certificate of Calibration

Everett Service Center

Certificate Number:	EVL478096		
Data Type:	Found-Left	**Calibration Date:**	29-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	29-Aug-2018
Model:	718 100G	**Temperature:**	23.9 °C
Serial Number:	7914003	**Humidity:**	35.8 %
Description:	PRESSURE CALIBRATOR		
Procedure:	Fluke 718: (1 year) ACAL/ZCAL VER /7250xi/RPM4	**Revision:**	2.3
Customer:	CITY OF PHILADELPHIA		
Purchase Order:	828710	**RMA:**	31573348

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

The Data Type found in this certificate must be interpreted as:

- As - Found Calibration data collected before the unit is adjusted and / or repaired.
- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
- Found-Left Calibration data collected without any adjustment and / or repair performed.

This calibration conforms to the requirements of ANSI/NCSL Z540-1-1994 (R2002).

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Results are reviewed to establish where any measurement results exceeded the manufacturer's specifications.

Measurement results greater than limits of error are indicated by '!'.

Z540-1:1994 FLUKE

Cert # : EVL478096
Cal Date: 29-Aug-2018

S/N : 7914003
www.fluke.com

www.fluke.com

Cert # : EVL478096
Date: 8/29/2018

SAMUEL SCHULTZ
Issued By

Z540.1

FLUKE.

Certificate of Calibration

Beaverton Service Center

Certificate Number:	BVL475179		
Data Type:	As-Found	**Calibration Date:**	17-Aug-2018
Result Summary:	Operational Failure		
Manufacturer:	Fluke	**Certificate Date:**	17-Aug-2018
Model:	771	**Temperature:**	23.1 °C
Serial Number:	96200712	**Humidity:**	40.1 %
Description:	Clamp Meter		
Procedure:	Fluke 771:(1 year) ZCAL VER/ 5520	**Revision:**	1.1
Customer:	CITY OF PHILADELPHIA		
City:	PHILADELPHIA	**Country:**	US
State:	PA		
Purchase Order:	828710	**RMA:**	31573349

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

The Data Type found in this certificate must be interpreted as:

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- Found-Left Calibration data collected without any adjustment and / or repair performed.

This calibration conforms to the requirements of ANSI/NCSL Z540-1-1994 (R2002).

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Measurement results greater than limits of error are indicated by '!'.

Comments:

DISPLAY WAS INOPERATIVE

QUOC TRAN
Issued By

Z540.1

Certificate of Calibration

Beaverton Service Center

Certificate Number:	BVL476685		
Data Type:	As-Left	**Calibration Date:**	23-Aug-2018
Result Summary:	In Tolerance	**Calibration Due:**	23-Aug-2019
Manufacturer:	Fluke	**Certificate Date:**	23-Aug-2018
Model:	771	**Temperature:**	22.9 °C
Serial Number:	96200712	**Humidity:**	51.0 %
Description:	Clamp Meter		
Procedure:	Fluke 771:(1 year) ZCAL VER/ 5520	**Revision:**	1.1
Customer:	CITY OF PHILADELPHIA		
City:	PHILADELPHIA	**Country:**	US
State:	PA		
Purchase Order:	828710	**RMA:**	31573349

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

The Data Type found in this certificate must be interpreted as:

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- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
- Found-Left Calibration data collected without any adjustment and / or repair performed.

This calibration conforms to the requirements of ANSI/NCSL Z540-1-1994 (R2002).

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Results are reviewed to establish where any measurement results exceeded the manufacturer's specifications.

Measurement results greater than limits of error are indicated by '!'.

Z540-1:1994 FLUKE

Cert # : BVL476685
Cal Date: 23-Aug-2018
Due Date: 23-Aug-2019
S/N : 96200712
www.fluke.com

Cert # : BVL476685
Date: 23-Aug-2018
Due: 23-Aug-2019
www.fluke.com

QUOC TRAN
Issued By

Z540.1

FLUKE.

Certificate of Calibration

Everett Service Center

Certificate Number:	EVL476429		
Data Type:	As-Found	**Calibration Date:**	23-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	23-Aug-2018
Model:	787	**Temperature:**	23.3 °C
Serial Number:	8078006	**Humidity:**	41.5 %
Description:	Processmeter		
Procedure:	Fluke 787: (1 year) ZCAL VER RS-232 /5520,3458	**Revision:**	2.0
Customer:	CITY OF PHILADELPHIA		
Purchase Order:	828710	**RMA:**	31573348

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

The Data Type found in this certificate must be interpreted as:

- As - Found Calibration data collected before the unit is adjusted and / or repaired.
- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
- Found-Left Calibration data collected without any adjustment and / or repair performed.

This calibration conforms to the requirements of ANSI/NCSL Z540-1-1994 (R2002).

In the attached measurement results, deviation may be expressed with units, Measured Value (MV) - Nominal Value (NV) or as a proportion of the nominal value ((MV-NV)/NV), expressed without units with a scalar multiplier such as % (0.01), or as a ratio of the units (mA/A, µV/V, etc.) Descriptions such as µA/A, µV/V, and others, where used to annotate results or column headings are the preferred replacements for what was historically labeled as "ppm" or parts-per-million and described the results in that column, unless otherwise noted by units symbols.

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Results are reviewed to establish where any measurement results exceeded the manufacturer's specifications.

Measurement results greater than limits of error are indicated by '!'.

KENNETH CLARK
Issued By

Z540.1

FLUKE®

Certificate of Calibration

Everett Service Center

Certificate Number:	EVL477008		
Data Type:	As-Left	**Calibration Date:**	24-Aug-2018
Result Summary:	In Tolerance	**Calibration Due:**	24-Aug-2019
Manufacturer:	Fluke	**Certificate Date:**	24-Aug-2018
Model:	787	**Temperature:**	23.4 °C
Serial Number:	8078006	**Humidity:**	42.3 %
Description:	Processmeter		
Procedure:	Fluke 787: (1 year) ZCAL VER RS-232 /5520,3458	**Revision:**	2.0
Customer:	CITY OF PHILADELPHIA		
Purchase Order:	828710	**RMA:**	31573348

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

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This calibration conforms to the requirements of ANSI/NCSL Z540-1-1994 (R2002).

In the attached measurement results, deviation may be expressed with units, Measured Value (MV) - Nominal Value (NV) or as a proportion of the nominal value ((MV-NV)/NV), expressed without units with a scalar multiplier such as % (0.01), or as a ratio of the units (mA/A, µV/V, etc.) Descriptions such as µA/A, µV/V, and others, where used to annotate results or column headings are the preferred replacements for what was historically labeled as "ppm" or parts-per-million and described the results in that column, unless otherwise noted by units symbols.

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Results are reviewed to establish where any measurement results exceeded the manufacturer's specifications.

Measurement results greater than limits of error are indicated by 'I'.

Z540-1:1994 FLUKE

Cert # : EVL477008
Cal Date: 24-Aug-2018
Due Date: 24-Aug-2019
S/N : 8078006
www.fluke.com

Cert # : EVL477008
Date: 24-Aug-2018
Due: 24-Aug-2019
www.fluke.com

ROBERT LEVER
Issued By

ISO 9001:2015 (10101/2)

Certificate of Calibration

Everett Service Center

Certificate Number:	EVL476754		
Data Type:	Found-Left	**Calibration Date:**	24-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	24-Aug-2018
Model:	810	**Temperature:**	23.0 °C
Serial Number:	1273008	**Humidity:**	40.3 %
Description:	Vibration Tester		
Procedure:	Fluke 810 Verification	**Revision:**	1.0
Customer:	CITY OF PHILADELPHIA		
Purchase Order:	828710	**RMA:**	31573348

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

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- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
- Found-Left Calibration data collected without any adjustment and / or repair performed.

Measurement results greater than limits of error are indicated by '!'.

Calibrated

Cert # : EVL476754
Cal Date: 24-Aug-2018

S/N : 1273008
www.fluke.com

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Cert # : EVL476754
Date: 8/24/2018

RYAN MILLHOUSE
Issued By

Z540.1

Certificate of Calibration

Everett Service Center

Certificate Number:	EVL476420		
Data Type:	Found-Left	**Calibration Date:**	23-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	23-Aug-2018
Model:	T5-600	**Temperature:**	23.5 °C
Serial Number:	25801382	**Humidity:**	42.6 %
Description:	Electrical Tester		
Procedure:	Fluke T5-600: (1 year) CAL VER	**Revision:**	2.1
Customer:	CITY OF PHILADELPHIA		
Purchase Order:	828710	**RMA:**	31573348

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

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Measurement results greater than limits of error are indicated by '!'.

Z540-1:1994

Cert # : EVL476420
Cal Date: 23-Aug-2018

S/N : 25801382
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Cert # : EVL476420
Date: 8/23/2018

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Certificate of Calibration

Everett Service Center

Certificate Number:	EVL476457		
Data Type:	Found-Left	**Calibration Date:**	23-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	23-Aug-2018
Model:	T5-1000	**Temperature:**	23.7 °C
Serial Number:	21460718	**Humidity:**	43.9 %
Description:	Electrical Tester		
Procedure:	Fluke T5-1000: (1 year) CAL VER	**Revision:**	2.1
Customer:	CITY OF PHILADELPHIA		
Purchase Order:	828710	**RMA:**	31573348

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

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Results are reviewed to establish where any measurement results exceeded the manufacturer's specifications.

Measurement results greater than limits of error are indicated by '!'.

Z540-1:1994 FLUKE

Cert # : EVL476457
Cal Date: 23-Aug-2018

S/N : 21460718
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Cert # : EVL476457
Date: 8/23/2018

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Certificate of Calibration

Everett Service Center

Certificate Number:	EVL476444		
Data Type:	Found-Left	**Calibration Date:**	23-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	23-Aug-2018
Model:	T5-1000	**Temperature:**	23.5 °C
Serial Number:	33860167WS	**Humidity:**	42.0 %
Description:	Electrical Tester		
Procedure:	Fluke T5-1000: (1 year) CAL VER	**Revision:**	2.1
Customer:	CITY OF PHILADELPHIA		
Purchase Order:	828710	**RMA:**	31573348

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

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Measurement results greater than limits of error are indicated by '!'.

Z540-1:1994 FLUKE

Cert # : EVL476444
Cal Date: 23-Aug-2018

S/N : 33860167WS
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Cert # : EVL476444
Date: 8/23/2018

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Certificate of Calibration

Everett Service Center

Certificate Number:	EVL476434		
Data Type:	Found-Left	**Calibration Date:**	23-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	23-Aug-2018
Model:	T5-1000	**Temperature:**	23.5 °C
Serial Number:	36800355WS	**Humidity:**	42.5 %
Description:	Electrical Tester		
Procedure:	Fluke T5-1000: (1 year) CAL VER	**Revision:**	2.1
Customer:	CITY OF PHILADELPHIA		
Purchase Order:	828710	**RMA:**	31573348

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

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Results are reviewed to establish where any measurement results exceeded the manufacturer's specifications.

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Z540-1:1994 FLUKE

Cert # : EVL476434
Cal Date: 23-Aug-2018

S/N : 36800355WS
www.fluke.com

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Cert # : EVL476434
Date: 8/23/2018

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Issued By

Z540.1

FLUKE

Certificate of Calibration

Everett Service Center

Certificate Number:	EVL476478		
Data Type:	Found-Left	**Calibration Date:**	23-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	23-Aug-2018
Model:	T5-1000	**Temperature:**	23.5 °C
Serial Number:	36800359WS	**Humidity:**	42.7 %
Description:	Electrical Tester		
Procedure:	Fluke T5-1000: (1 year) CAL VER	**Revision:**	2.1
Customer:	CITY OF PHILADELPHIA		
Purchase Order:	828710	**RMA:**	31573348

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

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Z540-1:1994 FLUKE

Cert # : EVL476478
Cal Date: 23-Aug-2018

S/N : 36800359WS
www.fluke.com

www.fluke.com

Cert # : EVL476478
Date: 8/23/2018

ROBERT LEVER
Issued By

Z540.1

FLUKE

Certificate of Calibration

Everett Service Center

Certificate Number:	EVL477519		
Data Type:	Found-Left	**Calibration Date:**	28-Aug-2018
Result Summary:	In Tolerance		
Manufacturer:	Fluke	**Certificate Date:**	28-Aug-2018
Model:	T5-1000	**Temperature:**	23.1 °C
Serial Number:	81600531	**Humidity:**	45.5 %
Description:	Electrical Tester		
Procedure:	Fluke T5-1000: (1 year) CAL VER	**Revision:**	2.1
Customer:	CITY OF PHILADELPHIA		
Purchase Order:	828710	**RMA:**	31573348

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes (NIST, PTB, NRC, NPL, etc.), ratiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Revision 122 6/2018 and/or Fluke 17025 Quality Manual QSD 111.41 Revision 005 9/2014.

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- Found-Left Calibration data collected without any adjustment and / or repair performed.

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Z540-1:1994 FLUKE

Cert # : EVL477519
Cal Date: 28-Aug-2018

S/N : 81600531
www.fluke.com

www.fluke.com

Cert # : EVL477519
Date: 8/28/2018

ROBERT LEVER
Issued By

INDUSTRIAL WASTE UNIT

2018

INDEX

Southwest Water Pollution Control Plant -- NPDES PERMIT NO: PA-0026671

Reporting Period: From: 01-01-2018 To: 12-31-2018 Report Date: 03-18-2019

Section I. General Information

Southwest Water Pollution Control Plant-- NPDES PERMIT NO: PA-0026671

Reporting Period: From: 01/01/2018 To: 12/31/2018 Report Date: 03/18/2019

The following sections are provided to meet the pretreatment reporting requirements of the Chapter 94 Report for the City's Southwest Water Pollution Control Plant (SWWPCP). In essence[1], these sections are the same as those submitted to the EPA as the City's Pretreatment Annual Report[2] but formatted to include information for the SWWPCP only.

- Sections I.a. – I.d. provide the list of significant industrial users (SIUs) permitted to discharge to the SWWPCP (i.e. list of facilities under a control document). Section I.d. provides any additions or deletions from the previous reporting year.

- Sections II.a. – II.b. provide the definition of significant noncompliance, which would be deemed a significant permit violation and require various levels of enforcement, and the list of SIUs in significant noncompliance during the reporting period.

- Sections III.a. – III.f. provide lists of all SIUs with permit violations (i.e. SIU's receiving written notices of violation), SIUs on compliance schedules (formal and informal), SIUs on which fines were assessed and SIUs subject to civil or criminal law suits during the reporting period.

- Section IV. provides a narrative summary of any episodes of interference or pass through at the SWWPCP during the reporting period.

In addition to this annual report, the City also prepares a Local Limit Evaluation[3] as required per the issuance of the NPDES Permit. This report evaluates industrial pollutant loadings and background pollutant loadings and compares them to plant monitoring data to ensure compliance with all applicable regulations and calculates local limits when necessary.

1- This report specifically formatted for the PADEP omits the sections that pertain to the Compliance Monitoring Program, POTW Operations, and Pretreatment Program Changes.
2- The City's Pretreatment Annual Report as submitted to the EPA can be supplied upon request.
3- The City's Current Local Limit Evaluation as submitted to the EPA and PADEP can be supplied upon request.

Section I.a. Summary of Significant Industrial Users (SIUs)

Southwest Water Pollution Control Plant -- NPDES PERMIT NO: PA-0026671

Reporting Period: From: 01-01-2018 To: 12-31-2018 Report Date: 03-18-2019

There are **13** active categorical SIUs in the drainage basin of the Southwest Water Pollution Control Plant (SWWPCP). Categorical SIUs are those who perform a categorically regulated process. See Section I.b. for an updated listing. Categorical SIUs have numerical limits as well as other reporting requirements.

Other SIUs are classified as significant because of their flow, high strength or because they have the potential to cause an interference or pass through. There are **15** dischargers that are in this classification. See Section I.c. for an updated listing.

The following is the significant industrial user definition as it appears in the City's wastewater control regulations:

> The term Significant Industrial User shall mean the following:
>
> (a) Any Industrial User subject to any National Categorical Pretreatment Standard; or
>
> (b) Any Industrial User that discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, non-contact cooling and boiler blowdown wastewater) or contributes a process wastestream which makes up five percent (5%) or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or
>
> (c) Any Industrial User that is found by the City, DEP, or EPA to have a reasonable potential, either alone or in conjunction with other discharges, to adversely affect the POTW, the collector system, the Solid Waste Byproducts of the POTW or air emissions from the POTW.

Section I.b. Categorical Significant Industrial Users

Southwest Water Pollution Control Plant -- NPDES PERMIT NO: PA-0026671

Reporting Period: From 01/01/2018 To 12/31/2018 Report Date: 03/18/2019

Total Number of Industrial Users: 13

Company Name & Address	Permit Number & Effective Date	Category	Description
Eaton Aerospace LLC 24 E. Glenolden Avenue Glenolden, PA 19036	IU-00795 Effective : 10/1/2017 Expire : 9/30/2021	40 CFR 433	Metal Finishing
First Time US Generics LLC 505 Parkway, #6 Broomall, PA 19008	IU-02830 Effective : 9/1/2016 Expire : 8/31/2020	40 CFR 439	Pharmaceutical Manufacturing
Hydrol Chemical 520 Commerce Drive Yeadon, PA 19050	IU-01070 Effective : 4/1/2018 Expire : 3/31/2022	40 CFR 455 Subpart C	Pesticide Chemicals, Formulating and Packaging
Johnson & Johnson Consumer Inc. 7050 Camp Hill Road Fort Washington, PA 19034	IU-01520 Effective : 11/21/2016 Expire : 12/31/2020	40 CFR 439 Subpart D	Pharmaceutical Manufacturing, Mixing, Compounding and Formulating
Multiflex Plating Company 109 Willows Avenue Collingdale, PA 19023	IU-01660 Effective : 12/1/2017 Expire : 11/30/2021	40 CFR 433 Subpart A	Metal Finishing
Peacock Laboratories 1901 South 54th Street Philadelphia, PA 19143	IU-02800 Effective : 1/1/2018 Expire : 12/31/2022	40 CFR 446 Subpart A	Paint Formulating, Oil-Based Solvent Wash Paint
Penn Fishing Tackle Mfg. Co. 3028 W. Hunting Park Avenue Philadelphia, PA 19132	IU-01890 Effective : 1/1/2017 Expire : 12/31/2021	40 CFR 433 Subpart A	Metal Finishing
Philadelphia Energy Solutions Refining and Marketing, LLC 3144 Passyunk Avenue Philadelphia, PA 19145	IU-02500 Effective : 1/1/2017 Expire : 12/31/2021	40 CFR 419 Subpart B	Petroleum Refining, Cracking
Philadelphia Gas Works 3100 Passyunk Ave. Philadelphia, PA 19122	IU-02030 Effective : 1/1/2017 Expire : 12/31/2021	40 CFR 437 Subpart B	Centralized Waste Treatment, Oils Treatment and Recovery

Section I.b. Categorical Significant Industrial Users

Southwest Water Pollution Control Plant -- NPDES PERMIT NO: PA-0026671

Reporting Period: From 01/01/2018 To 12/31/2018 Report Date: 03/18/2019

Total Number of Industrial Users: 13

Company Name & Address	Permit Number & Effective Date	Category	Description
Precious Metals Plating, Inc. 21 S. Chester Pike Glenolden, PA 19036	IU-02140 Effective : 6/1/2017 Expire : 5/31/2021	40 CFR 413 Subpart A 40 CFR 413 Subpart B 40 CFR 413 Subpart D 40 CFR 413 Subpart E 40 CFR 413 Subpart F	Electroplating, Common Metals Electroplating, Precious Metals Electroplating, Anodizing Electroplating, Coatings Electroplating, Chemical Etching and Milling
Starlite Industries, Inc. 1111 Lancaster Avenue Rosemont, PA 19010	IU-02440 Effective : 1/1/2019 Expire : 12/31/2023	40 CFR 433 Subpart A	Metal Finishing
Sun Chemical 3301 Hunting Park Avenue Philadelphia, PA 19132	IU-02460 Effective : 1/1/2019 Expire : 12/31/2023	40 CFR 447 Subpart A	Ink Formulating, Oil-Based Solvent Wash Ink
Veolia Energy Philadelphia 2600 Christian Street Philadelphia, PA 19146	IU-02550 Effective : 1/1/2017 Expire : 12/31/2021	40 CFR 423	Steam Electric Power Generating

Section I.c. Non-Categorical Significant Industrial Users

Southwest Water Pollution Control Plant -- NPDES PERMIT NO: PA-0026671

Reporting Period: From 01/01/2018 To 12/31/2018 Report Date: 03/18/2019

Total Number of Industrial Users: 15

Company Name & Address	Permit Number & Effective Date	Organization Type
Astra Foods, Inc. 6430 Market St. Upper Darby, PA 19082	IU-00305 Effective : 1/1/2019 Expire : 12/31/2023	SN-IU
Atlantic City Linen Supply, LLC 7831 Bartram Avenue Philadelphia, PA 19153	IU-00308 Effective : 1/1/2019 Expire : 12/31/2023	SN-IU
Choice Party Linens, Inc. 1200 Pennsylvania Avenue Prospect Park, PA 19076	IU-00525 Effective : 5/1/2017 Expire : 4/30/2021	SN-IU
Cintas Corporation 4700 West Jefferson Street Philadelphia, PA 19131	IU-00531 Effective : 1/1/2019 Expire : 12/31/2023	SN-IU
CSX Transportation, Inc. 38th and Jackson Streets Philadelphia, PA 19145	IU-00635 Effective : 1/1/2019 Expire : 12/31/2023	SN-IU
G.J. Littlewood & Son, Inc. 4045 Main Street Philadelphia, PA 19127	IU-00890 Effective : 1/1/2019 Expire : 12/31/2023	SN-IU
Integrated Deicing Services PHL-CDF Lester, PA 19029	IU-01125 Effective : 10/2/2016 Expire : 12/31/2020	SN-IU
LSG Sky Chefs 8401 Escort Avenue Philadelphia, PA 19153	IU-01400 Effective : 1/1/2015 Expire : 12/31/2019	SN-IU
National Railroad Passenger Corp. 30th & Race Streets Philadelphia, PA 19104	IU-01740 Effective : 1/1/2015 Expire : 12/31/2019	SN-IU
PBF Logistics Products Terminals, LLC 3400 S. 67th Street Philadelphia, PA 19153	IU-01853 Effective : 1/1/2017 Expire : 12/31/2021	SN-IU

Section I.c. Non-Categorical Significant Industrial Users

Southwest Water Pollution Control Plant -- NPDES PERMIT NO: PA-0026671

Reporting Period: From 01/01/2018 To 12/31/2018 Report Date: 03/18/2019

Total Number of Industrial Users: 15

Company Name & Address	Permit Number & Effective Date	Organization Type
Philadelphia Energy Solutions Refining and Marketing LLC 70th St. & Essington Avenue Philadelphia, PA 19153	IU-02480 Effective : 1/1/2016 Expire : 12/31/2020	SN-IU
RichardsApex Inc. 4202 Main Street Philadelphia, PA 19127	IU-02260 Effective : 1/1/2017 Expire : 12/31/2021	SN-IU
Sunoco - Darby Creek Tank Farm Calcon Hook & Hook Roads Darby, PA 19023	IU-02470 Effective : 1/1/2016 Expire : 12/31/2019	SN-IU
United Parcel Service 1 Hog Island Road Philadelphia, PA 19153	IU-02610 Effective : 1/1/2016 Expire : 12/31/2020	SN-IU
Vincent Giordano 2600 Washington Avenue Philadelphia, PA 19146	IU-02660 Effective : 1/1/2016 Expire : 12/31/2020	SN-IU

Section I.d. Changes From Previous Reporting

Southwest Water Pollution Control Plant -- NPDES PERMIT NO: PA-0026671

Reporting Period: From 01/01/2018 To 12/31/2018 Report Date: 03/18/2019

Company Name & Address	Permit Number & Effective Date & Organization Type	Type of Change & Date	Reason
No Changes this reporting period.			

Section II.a. Summary of SIU Compliance

Southwest Water Pollution Control Plant -- NPDES PERMIT NO: PA-0026671

Reporting Period: From: 01/01/2018 To: 12/31/2018 Report Date: 03/18/2019

While most permitted significant industrial users are complying with their permit limitations, it was found that 1/28 SIUs that discharge to SWWPCP were in significant noncompliance (SNC) during 2018.

The following is the significant noncompliance definition as it appears in the City's wastewater control regulations:

(1) If 33% or more of all samples taken for any single parameter during a six-month period demonstrate exceedances of any numeric Pretreatment Standard or Requirement, including the daily maximum effluent limitation, the monthly average limitation, and any instantaneous limits, as defined by:

(A) Any regulation containing pollutant discharge limits promulgated by the EPA in accordance with section 307(b) and (c) of the Act, which applies to Industrial Users. This term includes prohibitive discharge limits established pursuant to Section 501.5.

(2) Monitoring for any parameter less than 100% of the total sampling events required by the Permit.

(3) Discharging without the required Permit under these Regulations.

(4) Violation of any Pretreatment Standard or Requirement that the City determines has caused, either alone or in combination with any other discharges, interference or pass through (including endangering the health of POTW personnel or the general public).

(5) Any discharge of a pollutant that has caused imminent endangerment to human health, welfare or the environment or has resulted in the City's exercise of its emergency authority.

(6) Violation by forty-five (45) days or more of the scheduled date of compliance with milestones for starting construction, completing construction, attaining final compliance or any other milestone event described in any compliance schedule.

(7) Failure to provide any required reports such as Baseline Monitoring Reports, 90 Day Compliance Reports, Periodic Compliance Reports, Spill or Slug Discharge Reports, Surcharge Reports, Responses to Notices of Violation or Notices of Significant Non-Compliance, Compliance Schedule Reports, Pretreatment Facilities Report or any other Report required by law or Permit within thirty (30) days after the report's due date.

(8) Failure to report noncompliance accurately.

(9) Violation of any Best Management Practice requirements or any other violation or group of violations that:

(A) adversely affects the operation or implementation of the local pretreatment program; or
(B) either alone or in conjunction with any other discharge causes harm to the POTW.

All companies that are in SNC are listed in a public notice in the Philadelphia Inquirer.

Section II.b. SIUs in Significant Noncompliance (SNC)

Southwest Water Pollution Control Plant -- NPDES PERMIT NO: PA-0026671

Reporting Period: From 01/01/2018 To 12/31/2018 Report Date: 03/18/2019

Company	Reason	Additional Actions	Current Status	Prior Year SNC?
Evaluation Period 1: October to March				
-none- ()	-none-	-none-		
Evaluation Period 2: January to June				
-none- ()	-none-	-none-		
Evaluation Period 3: April to September				
Astra Foods, Inc. (IU-00305)	Failure to Monitor all parameters during July 2018.	SNC / SCH, FINE	Compliance	No
Evaluation Period 4: July to December				
-none- ()	-none-	-none-		

Section III.a. SIUs Receiving Written Notices of Violation (NOVs)

Southwest Water Pollution Control Plant -- NPDES PERMIT NO: PA-0026671

Reporting Period: From 01/01/2018 To 12/31/2018 Report Date: 03/18/2019

Permittees are subject to varying degrees of enforcement. Such enforcement actions include notices of violation (NOV), notices of significant noncompliance (SNC), and monetary penalties (fines).

12 Notices of Violation were issued to SIUs

Company	SNC Notice	NOV Notice
Astra Foods, Inc.	1	2
Choice Party Linens, Inc.		1
Cintas Corporation		2
G.J. Littlewood & Son, Inc.		1
Multiflex Plating Company		1
Philadelphia Energy Solutions Refining and Marketing LLC		1
Philadelphia Energy Solutions Refining and Marketing, LLC		1
Starlite Industries, Inc.		1
Sunoco - Darby Creek Tank Farm		1

Section III.b. SIUs Issued Administrative Orders

Southwest Water Pollution Control Plant -- NPDES PERMIT NO: PA-0026671

Reporting Period: From 01/01/2018 To 12/31/2018 Report Date: 03/18/2019

Total Number of Industrial Users: 1

Company	Reason	Date Schedule Issued	Final Compliance Date	Type of Schedule	Current Status	Compliance Expected?
Astra Foods, Inc. IU-00305	SNC Monitoring July.	2/20/2019	Pending	SNC Notice of Violation Containing a Formal Compliance Schedule	Compliance	Yes

Section III.c. SIUs on Informal Compliance Schedules

Southwest Water Pollution Control Plant -- NPDES PERMIT NO: PA-0026671

Reporting Period: From 01/01/2018 To 12/31/2018 Report Date: 03/18/2019

Company	Reason	Final Compliance Date	Current Status
No Users are on an Informal Compliance Schedule			

Section III. d. SIUs on Which Fines were Assessed

Southwest Water Pollution Control Plant -- NPDES PERMIT NO: PA-0026671

Reporting Period: From: 01/01/2018 To: 12/31/2018 Report Date: 03/18/2019

SIUs on Which Fines were Assessed				
Company	**Assessed**	**Collected Amount**	**Collected Date**	**Reason**
Astra Foods, Inc.	$ 300	$ Pending	09/14/2018	pH effluent Nov
Astra Foods, Inc.	$ Pending	$ Pending	Pending	Failure to Monitor all parameters during July 2018.

Status of Prior Years Unpaid Fines				
Company	**Assessed**	**Collected Amount**	**Collected Date**	**Reason**
National Railroad Passenger Corp.	$ 300	$ 300	05/21/2018	Failure to monitor pH.

Section III.e. Administrative Orders, Other Actions, & SNCs Not Subject to Enforcement

Southwest Water Pollution Control Plant -- NPDES PERMIT NO: PA-0026671

Reporting Period: From 01/01/2018 To 12/31/2018 Report Date: 03/18/2019

ADMINISTRATIVE ORDERS:

The Water Department issues administrative orders in the form of consent orders, and SNC notices with enforceable compliance schedules and enforceable compliance schedules. Sample consent orders can be supplied upon request. Below are descriptions of the administrative orders identified in Section III.b. of this report.

Company	Date Issued	Compliance Date	Description of Actions
Astra Foods, Inc. IU-00305	2/20/2019	Pending	Pending

DESCRIPTION OF OTHER ACTIONS:

The majority of chronic noncompliance situations are handled through consent agreements. For those companies that have been consistently in noncompliance or have violated a consent agreement a final determination order can be issued. This order revokes the wastewater discharge permit and may result in a total sewer ban. A sample final determination order can be supplied upon request.

No final determination orders were issued.

SNC VIOLATIONS NOT SUBJECT TO ENFORCEMENT:

0 SIUs had SNC violations but were not subject to enforcement.

Part A Section III.f. Civil or Criminal Suits Filed

Southwest Water Pollution Control Plant -- NPDES PERMIT NO: PA-0026671

Reporting Period: From: 01/01/2018 To: 12/31/2018 Report Date: 03/18/2019

The Water Department and/or the U.S. Environmental Protection Agency (EPA) did not sue (civil or criminal) any users for pretreatment violations during the 2018 reporting year.

Section IV. Summary of POTW Operations

Southwest Water Pollution Control Plant -- NPDES PERMIT NO: PA0026671

Reporting Period: From 01/01/2018 To 12/31/2018 Report Date: 03/18/2019

Operations at Philadelphia's Southwest Water Pollution Control Plant (SWWPCP) ran normally during calendar year 2018. There were no significant problems or adverse occurrences. Full compliance with all NPDES parameters at SWWPCP was achieved.

SWWPCP SLUDGE ANALYSIS

2018

SUBURBAN
TESTING LABS

Client: Philadelphia Water Department

Project: Form 43 Analysis

Attn: Aaron Bitler

Date: 12/14/2018

Submitted by:
Suburban Testing Labs, Inc.
1037F MacArthur Road, Reading, PA 19605
1.800.433.6595

NELAP ACCREDITED TNI LABORATORY
PA DEP # 06-00208
NJDEP# PA081

SUBURBAN
TESTING LABS

12/14/2018

Aaron Bitler
Philadelphia Water Department
1500 E. Hunting Park Avenue
Philadelphia, PA 19124

Enclosed are the results of analyses for samples received by the laboratory on 11/27/2018 14:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Timothy Swavely
Client Services Supervisor

SUBURBAN TESTING LABS

1037F MacArthur Road
Reading, PA 19605
610-375-8378 Phone
610-375-4090 Fax

Philadelphia Water Department	Project Name: Form 43 Analysis	
1500 E. Hunting Park Avenue	Project Number: [none]	**Reported:**
Philadelphia PA, 19124	Project Manager: Aaron Bitler	12/14/2018 12:47

ANALYTICAL REPORT FOR SAMPLES

Laboratory ID	Sample ID	Matrix	Date Sampled	Date Received
8104780-01	SM-SWS	Solid (Dry Weight)	11/26/2018 17:00	11/27/2018 14:00

4

SUBURBAN TESTING LABS

Chain of Custody Record

1037F MacArthur Road, Reading, PA 19605
Phone: 610-375-8378 - Fax: 610-375-4090 - suburbantestinglabs.com

TAT (Circle One): Standard - 24hr - 48hr - 72hr - Other ____
(Additional charges may apply for rush TAT. If not specified, standard TAT will apply.)

ORDER ID: 8104780

Client Name / Address:
Philadelphia Water Department
1500 E. Hunting Park Avenue
Philadelphia, PA 19124

Phone: (215) 685-1450
Fax:

Client Project Manager: Aaron Bitler

Project Name / Address:
Form 43 Analysis

Payment / P.O. Info:

Project Description:

Order Comments: Added via by TJS 10/23/2018 14:57

Sample Number	Sample Description - Site ID	Sampling Location	Collect Date/Time	Sampler's Initials	Matrix	Sample Type	Composite Start Date / Time
8104780-01	SM-SWS	Dewatering - CBC-2	11-26-18 1700	DW	Solid (Dry Weight)	Grab	

Container Type / Preservation	Preservation Check	Analysis - Method	Field Results

CoC # 2018 - ~~674~~
676

ORDER ID: 8104780

Sample Number	Sample Description - Site ID	Sampling Location	Collect Date/Time	Sampler's Initials	Matrix	Sample Type	Composite Start Date / Time

Zinc, 6010, TCLP - SW 846 6010D

Pesticide/PCB
PCBs, 8082 - SW 846 8082A
Pesticides, 8081, TCLP - SW 846 8081B

Semivolatiles
Herbicides, TCLP - SW 846 8151
SVOA, 8270, TCLP - SW 846 8270D

Volatiles
VOA, 8260, TCLP - SW 846 8260B

Relinquished by:

PAUL KONNODAN 3 11/27/18 0905

RECIEVED BY:
RICHARD PFEIFFER 11/27/18 0956 -0.2°C

RELINQUISHED BY
RICHARD PFEIFFER 11/27/18 12:00 PM

COC# 2018-~~674~~
676

Suburban Testing Labs

Lab Date/Time: 11.27.18 1400 **Lab Temp:** 2.7

Number of containers/coolers match number on COC? Y / N
Sample labels and COC are free of discrepancies? Y / N
All containers in tact? Y / N
Received in lab within acceptable temperature limits? Y / N
40mL VOA vials free of headspace? Y / N

Relinquished by: [signature]

Received in Lab by : KKW (3)

WKO TAT = 10 Cool Sample(s) to 6 C

	Count		
Relinquished By: MIKE WILLIAMS		Date: / Time:	Temp (°C):
Received By: Tracy		Date: 11/27/18 Time: 6:45am	Temp (°C):
Relinquished By: Tracy		Date: 11/27/18 Time: 6:50am	Temp (°C): Acceptable:? Y / N
Received in Lab By: PAUL KONNODAN		Date: 11/27/18 Time: 0905	Temp (°C): Acceptable:? Y / N

Sample Cond
Number of Con matches numbe
Sample labels a
All Containers In
VOC vials for VOA analysis free of headspace, if applicable? Y / N

D W A: R = Raw; C = Check; S = Special; M = Maximum Residence

ptions
eporting
☐ Other

Signing this form indicates your agreement with STL's Standard Terms and Conditions (www.suburbantestinglabs.com\resources\standard-terms-and-conditions.html) unless otherwise specified in writing.

Shaded areas are for STL use only

C RECIVED [signature] 11/27/18 1200 6-8

SUBURBAN TESTING LABS

1037F MacArthur Road
Reading, PA 19605
610-375-8378 Phone
610-375-4090 Fax

Philadelphia Water Department
1500 E. Hunting Park Avenue
Philadelphia PA, 19124

Project Name: Form 43 Analysis
Project Number: [none]
Project Manager: Aaron Bitler

Reported:
12/14/2018 12:47

Sample Number: 8104780-01 | Site: SM-SWS | Sample ID: Dewatering-CBC-2
Collector: DW | Collect Date: 11/26/2018 5:00 pm | Sample Type: Grab

Department / Test / Parameter	Result		Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
HEM and SGT-HEM										
Oil & Grease (HEM)	37000		mg/Kg dry	9071B	950	1	12/04/18		12/04/18 20:00	SUB
Inorganics										
Corrosivity (pH)	7.31	Y	pH Units	SW 846 9045D		1	12/04/18	KTL	12/04/18 16:01	KTL
Cyanide, Reactive	< 0.025		mg/kg	SW 7.3.3.2/9014	0.025	1	12/03/18	TML	12/04/18 15:13	TML
Free Liquids	Pass		P/F	SW 846 9095B		1	12/04/18	TML	12/04/18 12:30	TML
Ignitability	< 2.20		mm/sec	SW 846 1030	2.20	1	11/29/18	MAG	11/29/18 15:24	MAG
Sulfate	2850	M2	mg/kg dry	EPA 300.0	328	2	12/12/18	DSM	12/12/18 15:09	DSM
Sulfide, Reactive	< 80		mg/kg	SW 846 9034	80	1	12/03/18	TML	12/04/18 15:40	TML
Total Solids	29.9		%	SM 2540-G		1	11/30/18	MMR	11/30/18 13:51	CEK
Volatile Solids	47.0		%	SM 2540-G		1	11/30/18	MMR	12/03/18 9:42	CEK
Inorganics, ASTM Leachate										
Ammonia as N	48.4		mg/L as N	ASTM D6919-09	0.20	2	12/12/18	DSM	12/12/18 17:34	DSM
pH, Final	7.30		pH Units	ASTM 3987-85		1	11/29/18	AER	11/30/18 9:30	AER
Chemical Oxygen Demand	292		mg/L	SM 5220-D	25.0	5	12/05/18	MMR	12/05/18 10:22	MMR
Oil and Grease, as HEM	< 10.0		mg/L	EPA 1664A	10.0	2	11/30/18	KMH	12/03/18 16:05	KMH
Total Solids	450		mg/L	SM 2540-B	10.0	1	12/03/18	KTL	12/03/18 19:26	CEK
Inorganics, TCLP NVE										
TCLP NVE Extraction										
pH, Initial	6.99		pH Units	SW 846 1311		1	11/29/18	AER	11/30/18 9:30	AER
pH, Final	7.30		pH Units	SW 846 1311		1	11/29/18	AER	11/30/18 9:30	AER
Inorganics, TCLP ZHE										
TCLP ZHE Extraction										
pH, Initial	6.99		pH Units	SW 846 1311		1	11/29/18	AER	11/30/18 9:30	AER
pH, Final	5.50		pH Units	SW 846 1311		1	11/29/18	AER	11/30/18 9:30	AER
Metals										
Arsenic	19.9		mg/kg dry	SW 846 6010D	1.61	1	11/29/18	RPV	11/30/18 17:31	RJS
Barium	581		mg/kg dry	SW 846 6010D	64.3	1	11/29/18	RPV	11/30/18 17:31	RJS
Cadmium	2.98		mg/kg dry	SW 846 6010D	0.032	1	11/29/18	RPV	11/30/18 17:31	RJS
Chromium	114		mg/kg dry	SW 846 6010D	6.43	1	11/29/18	RPV	11/30/18 17:31	RJS
Copper	740		mg/kg dry	SW 846 6010D	0.322	1	11/29/18	RPV	11/30/18 17:31	RJS
Lead	107		mg/kg dry	SW 846 6010D	1.61	1	11/29/18	RPV	11/30/18 17:31	RJS
Mercury	0.649		mg/kg dry	SW 846 7471A	0.0669	1	12/06/18	RPV	12/06/18 15:49	RPV
Molybdenum	16.8		mg/kg dry	SW 846 6010D	6.43	1	11/29/18	RPV	11/30/18 17:31	RJS
Nickel	40.4		mg/kg dry	SW 846 6010D	6.43	1	11/29/18	RPV	11/30/18 17:31	RJS
Selenium	< 1.61		mg/kg dry	SW 846 6010D	1.61	1	11/29/18	RPV	11/30/18 17:31	RJS
Silver	3.50		mg/kg dry	SW 846 6010D	1.61	1	11/29/18	RPV	11/30/18 17:31	RJS
Zinc	1380	B1	mg/kg dry	SW 846 6010D	64.3	1	11/29/18	RPV	11/30/18 17:31	RJS
Metals (ICP)										
Sulfur	9800		mg/Kg dry	6010C	160	1	11/29/18		12/07/18 1:57	SUB

SUBURBAN TESTING LABS

1037F MacArthur Road
Reading, PA 19605
610-375-8378 Phone
610-375-4090 Fax

Philadelphia Water Department
1500 E. Hunting Park Avenue
Philadelphia PA, 19124

Project Name: Form 43 Analysis
Project Number: [none]
Project Manager: Aaron Bitler

Reported:
12/14/2018 12:47

Sample Number: 8104780-01 | Site: SM-SWS | Sample ID: Dewatering-CBC-2
Collector: DW | Collect Date: 11/26/2018 5:00 pm | Sample Type: Grab

Department / Test / Parameter	Result		Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
Metals, TCLP										
Arsenic	< 0.020		mg/L	SW 846 6010D	0.020	1	11/30/18	RJS	12/04/18 22:38	RPV
Barium	< 0.200		mg/L	SW 846 6010D	0.200	1	11/30/18	RJS	12/04/18 22:38	RPV
Cadmium	< 0.0020		mg/L	SW 846 6010D	0.0020	1	11/30/18	RJS	12/04/18 22:38	RPV
Chromium	< 0.020		mg/L	SW 846 6010D	0.020	1	11/30/18	RJS	12/04/18 22:38	RPV
Copper	0.045		mg/L	SW 846 6010D	0.020	1	11/30/18	RJS	12/04/18 22:38	RPV
Lead	< 0.020		mg/L	SW 846 6010D	0.020	1	11/30/18	RJS	12/04/18 22:38	RPV
Mercury	0.0033		mg/L	SW 846 7470A	0.0002	1	12/05/18	RPV	12/05/18 19:06	RPV
Nickel	< 0.020		mg/L	SW 846 6010D	0.020	1	11/30/18	RJS	12/04/18 22:38	RPV
Selenium	< 0.100		mg/L	SW 846 6010D	0.100	1	11/30/18	RJS	12/06/18 14:01	RPV
Silver	< 0.020		mg/L	SW 846 6010D	0.020	1	11/30/18	RJS	12/04/18 22:38	RPV
Zinc	< 0.200		mg/L	SW 846 6010D	0.200	1	11/30/18	RJS	12/04/18 22:38	RPV
Pesticide/PCB										
PCBs, 8082										
Aroclor 1016 [2C]	< 55.9		µg/Kg dry	SW 846 8082A	55.9	1	12/04/18	KMH	12/05/18 2:15	DMH
Aroclor 1221 [2C]	< 55.9		µg/Kg dry	SW 846 8082A	55.9	1	12/04/18	KMH	12/05/18 2:15	DMH
Aroclor 1232 [2C]	< 55.9		µg/Kg dry	SW 846 8082A	55.9	1	12/04/18	KMH	12/05/18 2:15	DMH
Aroclor 1242 [2C]	< 55.9		µg/Kg dry	SW 846 8082A	55.9	1	12/04/18	KMH	12/05/18 2:15	DMH
Aroclor 1248 [2C]	< 55.9		µg/Kg dry	SW 846 8082A	55.9	1	12/04/18	KMH	12/05/18 2:15	DMH
Aroclor 1254 [2C]	< 55.9		µg/Kg dry	SW 846 8082A	55.9	1	12/04/18	KMH	12/05/18 2:15	DMH
Aroclor 1260 [2C]	< 55.9		µg/Kg dry	SW 846 8082A	55.9	1	12/04/18	KMH	12/05/18 2:15	DMH
Aroclor 1262 [2C]	< 55.9		µg/Kg dry	SW 846 8082A	55.9	1	12/04/18	KMH	12/05/18 2:15	DMH
Aroclor 1268 [2C]	< 55.9		µg/Kg dry	SW 846 8082A	55.9	1	12/04/18	KMH	12/05/18 2:15	DMH
PCBS, Total [2C]	< 55.9		µg/Kg dry	SW 846 8082A	55.9	1	12/04/18	KMH	12/05/18 2:15	DMH

Surrogate Recoveries	*Results*	*Units*	*Method*	*%Recovery*	*DF*	*Limits (%Recovery)*	*Analysis Date*
Surrogate: Tetrachloro-m-xylene [2C]	42.7	µg/Kg dry	SW 846 8082A	77%	1	35-135	12/05/18 2:15
Surrogate: Decachlorobiphenyl [2C]	37.6	µg/Kg dry	SW 846 8082A	67%	1	10-153	12/05/18 2:15

Pesticides, 8081, TCLP

Gamma-BHC (Lindane)	< 0.2		µg/L	SW 846 8081B	0.2	1	12/03/18	MAG	12/03/18 22:47	DMH
Chlordane	< 5.0		µg/L	SW 846 8081B	5.0	1	12/03/18	MAG	12/03/18 22:47	DMH
Endrin	< 0.2		µg/L	SW 846 8081B	0.2	1	12/03/18	MAG	12/03/18 22:47	DMH
Heptachlor	< 0.2		µg/L	SW 846 8081B	0.2	1	12/03/18	MAG	12/03/18 22:47	DMH
Heptachlor epoxide	< 0.2		µg/L	SW 846 8081B	0.2	1	12/03/18	MAG	12/03/18 22:47	DMH
Methoxychlor	< 0.2		µg/L	SW 846 8081B	0.2	1	12/03/18	MAG	12/03/18 22:47	DMH
Toxaphene	< 5.0		µg/L	SW 846 8081B	5.0	1	12/03/18	MAG	12/03/18 22:47	DMH

Surrogate Recoveries	*Results*	*Units*	*Method*	*%Recovery*	*DF*	*Limits (%Recovery)*	*Analysis Date*
Surrogate: Tetrachloro-m-xylene	3.44	µg/L	SW 846 8081B	69%	1	35-135	12/03/18 22:47
Surrogate: Decachlorobiphenyl	1.91	µg/L	SW 846 8081B	38%	1	10-153	12/03/18 22:47

Semivolatiles

Herbicides, TCLP

2,4-D	< 5.00	C4, L4	µg/L	SW 846 8151	5.00	1	11/30/18	MAG	12/04/18 11:04	DMH
2,4,5-TP (Silvex)	< 2.50	C4, L4	µg/L	SW 846 8151	2.50	1	11/30/18	MAG	12/04/18 11:04	DMH

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Philadelphia Water Department
1500 E. Hunting Park Avenue
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Project Name: Form 43 Analysis
Project Number: [none]
Project Manager: Aaron Bitler

Reported:
12/14/2018 12:47

Sample Number: 8104780-01 | Site: SM-SWS | Sample ID: Dewatering-CBC-2
Collector: DW | Collect Date: 11/26/2018 5:00 pm | Sample Type: Grab

Department / Test / Parameter	Result		Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By

Semivolatiles (Continued)

Herbicides, TCLP (Continued)

Surrogate Recoveries	*Results*	*Units*	*Method*	*%Recovery*	*DF*	*Limits (%Recovery)*	*Analysis Date*
Surrogate: 2,4-Dichlorophenylacetic Acid (DCAA)	101	µg/L	SW 846 8151	101%	1	40-120	12/04/18 11:04

SVOA, 8270, TCLP

o-cresol (2-Methylphenol)	< 10.0		µg/L	SW 846 8270D	10.0	1	12/04/18	ARP	12/04/18 21:32	TRP
m,p-cresol (3,4-Methylphenol)	< 10.0	L4	µg/L	SW 846 8270D	10.0	1	12/04/18	ARP	12/04/18 21:32	TRP
1,4-Dichlorobenzene	< 10.0		µg/L	SW 846 8270D	10.0	1	12/04/18	ARP	12/04/18 21:32	TRP
2,4-Dinitrotoluene	< 10.0		µg/L	SW 846 8270D	10.0	1	12/04/18	ARP	12/04/18 21:32	TRP
Hexachlorobenzene	< 10.0		µg/L	SW 846 8270D	10.0	1	12/04/18	ARP	12/04/18 21:32	TRP
Hexachlorobutadiene	< 10.0		µg/L	SW 846 8270D	10.0	1	12/04/18	ARP	12/04/18 21:32	TRP
Hexachloroethane	< 100		µg/L	SW 846 8270D	100	1	12/04/18	ARP	12/04/18 21:32	TRP
Nitrobenzene	< 10.0		µg/L	SW 846 8270D	10.0	1	12/04/18	ARP	12/04/18 21:32	TRP
Pyridine	< 30.0		µg/L	SW 846 8270D	30.0	1	12/04/18	ARP	12/04/18 21:32	TRP
2,4,5-Trichlorophenol	< 10.0		µg/L	SW 846 8270D	10.0	1	12/04/18	ARP	12/04/18 21:32	TRP
2,4,6-Trichlorophenol	< 10.0		µg/L	SW 846 8270D	10.0	1	12/04/18	ARP	12/04/18 21:32	TRP
Pentachlorophenol	< 10.0	C5	µg/L	SW 846 8270D	10.0	1	12/04/18	ARP	12/06/18 12:24	TRP

Surrogate Recoveries	*Results*	*Units*	*Method*	*%Recovery*	*DF*	*Limits (%Recovery)*	*Analysis Date*
Surrogate: 2-Fluorophenol	1000	µg/L	SW 846 8270D	50%	1	10-79	12/04/18 21:32
Surrogate: Phenol-d6	663	µg/L	SW 846 8270D	33%	1	10-57	12/04/18 21:32
Surrogate: Nitrobenzene-d5	735	µg/L	SW 846 8270D	74%	1	24-119	12/04/18 21:32
Surrogate: 2-Fluorobiphenyl	655	µg/L	SW 846 8270D	66%	1	29-115	12/04/18 21:32
Surrogate: 2,4,6-Tribromophenol	1550	µg/L	SW 846 8270D	78%	1	10-141	12/04/18 21:32
Surrogate: p-Terphenyl-d14	651	µg/L	SW 846 8270D	65%	1	44-124	12/04/18 21:32
Surrogate: 2-Fluorophenol	842	µg/L	SW 846 8270D	42%	1	10-79	12/06/18 12:24
Surrogate: Phenol-d6	579	µg/L	SW 846 8270D	29%	1	10-57	12/06/18 12:24
Surrogate: Nitrobenzene-d5	537	µg/L	SW 846 8270D	54%	1	24-119	12/06/18 12:24
Surrogate: 2-Fluorobiphenyl	602	µg/L	SW 846 8270D	60%	1	29-115	12/06/18 12:24
Surrogate: 2,4,6-Tribromophenol	1180	µg/L	SW 846 8270D	59%	1	10-141	12/06/18 12:24
Surrogate: p-Terphenyl-d14	733	µg/L	SW 846 8270D	73%	1	44-124	12/06/18 12:24

Volatiles

VOA, 8260, TCLP

Benzene	< 5.0		µg/L	SW 846 8260B	5.0	10	12/03/18	MWS	12/03/18 15:07	MWS
2-butanone (MEK)	< 25.0		µg/L	SW 846 8260B	25.0	10	12/03/18	MWS	12/03/18 15:07	MWS
Carbon Tetrachloride	< 5.0		µg/L	SW 846 8260B	5.0	10	12/03/18	MWS	12/03/18 15:07	MWS
Chlorobenzene	< 5.0		µg/L	SW 846 8260B	5.0	10	12/03/18	MWS	12/03/18 15:07	MWS
Chloroform	< 5.0		µg/L	SW 846 8260B	5.0	10	12/03/18	MWS	12/03/18 15:07	MWS
1,2-Dichloroethane	< 5.0		µg/L	SW 846 8260B	5.0	10	12/03/18	MWS	12/03/18 15:07	MWS
1,1-Dichloroethene	< 5.0		µg/L	SW 846 8260B	5.0	10	12/03/18	MWS	12/03/18 15:07	MWS
Tetrachloroethene	< 5.0		µg/L	SW 846 8260B	5.0	10	12/03/18	MWS	12/03/18 15:07	MWS
Trichloroethene	< 5.0		µg/L	SW 846 8260B	5.0	10	12/03/18	MWS	12/03/18 15:07	MWS

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Philadelphia Water Department
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Project Name: Form 43 Analysis
Project Number: [none]
Project Manager: Aaron Bitler

Reported:
12/14/2018 12:47

Sample Number: 8104780-01 | Site: SM-SWS | Sample ID: Dewatering-CBC-2
Collector: DW | Collect Date: 11/26/2018 5:00 pm | Sample Type: Grab

Department / Test / Parameter	Result	Units	Method	R.L.	DF	Prep Date	By	Analysis Date	By
Volatiles (Continued)									
VOA, 8260, TCLP (Continued)									
Vinyl Chloride	< 5.0	µg/L	SW 846 8260B	5.0	10	12/03/18	MWS	12/03/18 15:07	MWS

Surrogate Recoveries	*Results*	*Units*	*Method*	*%Recovery*	*DF*	*Limits (%Recovery)*	*Analysis Date*
Surrogate: Dibromofluoromethane	18.4	µg/L	SW 846 8260B	92%	10	72-136	12/03/18 15:07
Surrogate: 1,2-Dichloroethane-d4	19.8	µg/L	SW 846 8260B	99%	10	79-135	12/03/18 15:07
Surrogate: Toluene-d8	20.1	µg/L	SW 846 8260B	101%	10	88-112	12/03/18 15:07
Surrogate: Bromofluorobenzene	20.0	µg/L	SW 846 8260B	100%	10	75-117	12/03/18 15:07

Inorganics - Quality Control

Suburban Testing Labs

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8K1983 - Method Prep										
Blank (B8K1983-BLK1)										
Ignitability	< 2.20	2.20	mm/sec							
LCS (B8K1983-BS1)										
Ignitability	4.78	2.20	mm/sec				80-120			
Batch B8K2003 - TS Prep										
Blank (B8K2003-BLK1)										
Volatile Solids	<		%							
Total Solids	0.0		%							
LCS (B8K2003-BS1)										
Volatile Solids	0.04		%	0.0405		105	85-115			
Total Solids	0.1		%	0.100		100	85-115			
Batch B8L0035 - Reactivity Prep										
Blank (B8L0035-BLK1)										
Sulfide, Reactive	< 80	80	mg/kg							
Cyanide, Reactive	< 0.025	0.025	mg/kg							

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Philadelphia PA, 19124	Project Manager: Aaron Bitler	12/14/2018 12:47

Inorganics - Quality Control

Suburban Testing Labs

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8L0035 - Reactivity Prep				(Continued from Previous Page)						
LCS (B8L0035-BS1)										
Sulfide, Reactive	86	80	mg/kg	147		59	0.1-115			
Cyanide, Reactive	7.00	0.250	mg/kg	49.0		14	0.01-115			
Batch B8L0111 - Wet Chem Prep										
Batch B8L0134 - Wet Chem Prep										
Batch B8L0771 - IC Prep										
Blank (B8L0771-BLK1)										
Sulfate	< 49.9	49.9	mg/kg wet							
LCS (B8L0771-BS1)										
Sulfate	511	49.9	mg/kg wet	499		102	90-110			

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Project Manager: Aaron Bitler

Reported:
12/14/2018 12:47

Inorganics - Quality Control
Suburban Testing Labs

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8L0771 - IC Prep				(Continued from Previous Page)						

Inorganics, ASTM Leachate - Quality Control
Suburban Testing Labs

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8K2105 - EPA 1664 Prep										
Blank (B8K2105-BLK1)										
Oil and Grease, as HEM	< 5.0	5.0	mg/L							
LCS (B8K2105-BS1)										
Oil and Grease, as HEM	32.4	5.0	mg/L	40.0		81	78-114			
Batch B8L0022 - TS Prep										
Blank (B8L0022-BLK1)										
Total Solids	< 10.0	10.0	mg/L							
Batch B8L0186 - Wet Chem Prep										
Blank (B8L0186-BLK1)										
Chemical Oxygen Demand	< 5.00	5.00	mg/L							

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Reported:
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Inorganics, ASTM Leachate - Quality Control

Suburban Testing Labs

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8L0186 - Wet Chem Prep				(Continued from Previous Page)						
LCS (B8L0186-BS1)										
Chemical Oxygen Demand	18.1	5.00	mg/L	20.0		91	85-115			
Batch B8L0549 - IC Prep										
Blank (B8L0549-BLK1)										
Ammonia as N	< 0.10	0.10	mg/L as N							
LCS (B8L0549-BS1)										
Ammonia as N	5.35	0.10	mg/L as N	5.00		107	85-115			
Batch B8L0745 - IC Prep										
Blank (B8L0745-BLK1)										
Ammonia as N	< 0.10	0.10	mg/L as N							

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Philadelphia PA, 19124	Project Manager: Aaron Bitler	12/14/2018 12:47

Inorganics, ASTM Leachate - Quality Control

Suburban Testing Labs

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8L0745 - IC Prep				(Continued from Previous Page)						
LCS (B8L0745-BS1)										
Ammonia as N	5.32	0.10	mg/L as N	5.00		106	85-115			

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Philadelphia Water Department	Project Name: Form 43 Analysis	
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Philadelphia PA, 19124	Project Manager: Aaron Bitler	12/14/2018 12:47

Metals - Quality Control

Suburban Testing Labs

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8K1982 - Solid Digestion, Metals										
Blank (B8K1982-BLK1)										
Zinc	< 19.6	19.6	mg/kg wet							
Silver	< 0.490	1.96	mg/kg wet							
Selenium	< 0.490	9.80	mg/kg wet							
Nickel	< 1.96	1.96	mg/kg wet							
Molybdenum	< 1.96	1.96	mg/kg wet							
Lead	< 0.490	1.96	mg/kg wet							
Copper	< 0.098	1.96	mg/kg wet							
Chromium	< 1.96	1.96	mg/kg wet							
Cadmium	< 0.010	0.196	mg/kg wet							
Barium	< 19.6	19.6	mg/kg wet							
Arsenic	< 0.490	1.96	mg/kg wet							
LCS (B8K1982-BS1)										
Zinc	2020	18.5	mg/kg wet	1850		109	80-120			
Silver	204	1.85	mg/kg wet	185		110	80-120			
Selenium	1000	9.26	mg/kg wet	926		108	80-120			
Nickel	201	1.85	mg/kg wet	185		109	80-120			
Molybdenum	38.5	1.85	mg/kg wet	37.0		104	80-120			
Lead	199	1.85	mg/kg wet	185		107	80-120			
Copper	199	1.85	mg/kg wet	185		107	80-120			
Chromium	202	1.85	mg/kg wet	185		109	80-120			
Cadmium	18.8	0.185	mg/kg wet	18.5		102	80-120			
Barium	1980	18.5	mg/kg wet	1850		107	80-120			
Arsenic	199	1.85	mg/kg wet	185		107	80-120			
Matrix Spike (B8K1982-MS1)	**Source: 8114810-01**									
Lead	253	2.44	mg/kg dry	244	13.0	98	75-125			
Arsenic	238	2.44	mg/kg dry	244	6.81	95	75-125			

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Project Name: Form 43 Analysis
Project Number: [none]
Project Manager: Aaron Bitler

Reported:
12/14/2018 12:47

Metals - Quality Control

Suburban Testing Labs

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8K1982 - Solid Digestion, Metals			(Continued from Previous Page)							
Matrix Spike Dup (B8K1982-MSD1)		**Source: 8114810-01**								
Lead	252	2.39	mg/kg dry	239	13.0	100	75-125	0.4	20	
Arsenic	237	2.39	mg/kg dry	239	6.81	96	75-125	0.5	20	
Batch B8L0348 - Mercury Prep										
Blank (B8L0348-BLK1)										
Mercury	< 0.0185	0.0185	mg/kg wet							
LCS (B8L0348-BS1)										
Mercury	0.329	0.0179	mg/kg wet	0.357		92	80-120			
Matrix Spike (B8L0348-MS1)		**Source: 8121231-01**								
Mercury	5.29	0.283	mg/kg dry	5.66	< 0.283	94	80-120			
Matrix Spike Dup (B8L0348-MSD1)		**Source: 8121231-01**								
Mercury	5.33	0.291	mg/kg dry	5.82	< 0.291	91	80-120	0.8	20	

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Project Name: Form 43 Analysis
Project Number: [none]
Project Manager: Aaron Bitler

Reported:
12/14/2018 12:47

Metals, TCLP - Quality Control

Suburban Testing Labs

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8K2098 - Water Digestion, Metals										
Blank (B8K2098-BLK1)										
Arsenic	< 0.010	0.010	mg/L							
Barium	< 0.100	0.100	mg/L							
Cadmium	< 0.0010	0.0010	mg/L							
Chromium	< 0.010	0.010	mg/L							
Copper	< 0.010	0.010	mg/L							
Lead	< 0.010	0.010	mg/L							
Nickel	< 0.010	0.010	mg/L							
Selenium	< 0.050	0.050	mg/L							
Silver	< 0.010	0.010	mg/L							
Zinc	< 0.100	0.100	mg/L							
LCS (B8K2098-BS1)										
Arsenic	0.989	0.010	mg/L	1.00		99	80-120			
Barium	10.1	0.100	mg/L	10.0		101	80-120			
Cadmium	0.100	0.0010	mg/L	0.100		100	80-120			
Chromium	1.02	0.010	mg/L	1.00		102	80-120			
Copper	0.994	0.010	mg/L	1.00		99	80-120			
Lead	1.00	0.010	mg/L	1.00		100	80-120			
Nickel	0.991	0.010	mg/L	1.00		99	80-120			
Selenium	4.94	0.050	mg/L	5.00		99	80-120			
Silver	0.026	0.010	mg/L				80-120			
Zinc	10.0	0.100	mg/L	10.0		100	80-120			
Batch B8L0244 - Mercury Prep										
Blank (B8L0244-BLK1)										
Mercury	< 0.0002	0.0002	mg/L							

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Philadelphia Water Department	Project Name: Form 43 Analysis	
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Philadelphia PA, 19124	Project Manager: Aaron Bitler	12/14/2018 12:47

Metals, TCLP - Quality Control

Suburban Testing Labs

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8L0244 - Mercury Prep				(Continued from Previous Page)						
LCS (B8L0244-BS1)										
Mercury	0.00208	0.0002	mg/L	0.00200		104	80-120			
Matrix Spike (B8L0244-MS2)			**Source: 8104780-01**							
Mercury	0.00549	0.0002	mg/L	0.00200	0.00332	108	75-125			

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Project Name: Form 43 Analysis
Project Number: [none]
Project Manager: Aaron Bitler

Reported:
12/14/2018 12:47

Volatiles - Quality Control

Suburban Testing Labs

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8L0048 - 5030 Purge and Trap										
Blank (B8L0048-BLK1)										
Benzene	< 0.5	0.5	µg/L							
2-butanone (MEK)	< 2.5	2.5	µg/L							
Carbon Tetrachloride	< 0.5	0.5	µg/L							
Chlorobenzene	< 0.5	0.5	µg/L							
Chloroform	< 0.5	0.5	µg/L							
1,2-Dichloroethane	< 0.5	0.5	µg/L							
1,1-Dichloroethene	< 0.5	0.5	µg/L							
1,2-Dichloropropane	< 0.5	0.5	µg/L							
Ethyl Benzene	< 0.5	0.5	µg/L							
Tetrachloroethene	< 0.5	0.5	µg/L							
Toluene	< 0.5	0.5	µg/L							
Trichloroethene	< 0.5	0.5	µg/L							
Vinyl Chloride	< 0.5	0.5	µg/L							
Surrogate: Dibromofluoromethane	*18.7*		µg/L	*20.0*		*94*	*72-136*			
Surrogate: 1,2-Dichloroethane-d4	*20.2*		µg/L	*20.0*		*101*	*79-135*			
Surrogate: Toluene-d8	*20.2*		µg/L	*20.0*		*101*	*88-112*			
Surrogate: Bromofluorobenzene	*20.3*		µg/L	*20.0*		*102*	*75-117*			
LCS (B8L0048-BS1)										
Benzene	35.3	0.5	µg/L	40.0		88	70-130			
2-butanone (MEK)	179	2.5	µg/L	200		89	70-130			
Carbon Tetrachloride	35.8	0.5	µg/L	40.0		90	70-130			
Chlorobenzene	38.3	0.5	µg/L	40.0		96	70-130			
Chloroform	36.2	0.5	µg/L	40.0		90	70-130			
1,2-Dichloroethane	34.8	0.5	µg/L	40.0		87	70-130			
1,1-Dichloroethene	36.4	0.5	µg/L	40.0		91	70-130			
1,2-Dichloropropane	35.4	0.5	µg/L	40.0		88	70-130			
Ethyl Benzene	37.4	0.5	µg/L	40.0		94	70-130			
Tetrachloroethene	33.6	0.5	µg/L	40.0		84	70-130			
Toluene	35.7	0.5	µg/L	40.0		89	70-130			
Trichloroethene	34.3	0.5	µg/L	40.0		86	70-130			
Vinyl Chloride	32.3	0.5	µg/L	40.0		81	70-130			
Surrogate: Dibromofluoromethane	*19.7*		µg/L	*20.0*		*99*	*72-136*			
Surrogate: 1,2-Dichloroethane-d4	*19.6*		µg/L	*20.0*		*98*	*79-135*			
Surrogate: Toluene-d8	*19.8*		µg/L	*20.0*		*99*	*88-112*			
Surrogate: Bromofluorobenzene	*20.2*		µg/L	*20.0*		*101*	*75-117*			

SUBURBAN TESTING LABS

1037F MacArthur Road
Reading, PA 19605
610-375-8378 Phone
610-375-4090 Fax

Philadelphia Water Department	Project Name: Form 43 Analysis	
1500 E. Hunting Park Avenue	Project Number: [none]	**Reported:**
Philadelphia PA, 19124	Project Manager: Aaron Bitler	12/14/2018 12:47

Semivolatiles - Quality Control

Suburban Testing Labs

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8K1984 - SPE Herbicides										
Blank (B8K1984-BLK1)										
2,4-D	< 1.00	1.00	µg/L							
2,4,5-TP (Silvex)	< 0.500	0.500	µg/L							
Surrogate: 2,4-Dichlorophenylacetic Acid (DCAA)	*16.5*		µg/L	*20.0*		*82*	*40-120*			
LCS (B8K1984-BS1)										
2,4-D	13.8	1.00	µg/L	12.5		110	46-102			
2,4,5-TP (Silvex)	13.7	0.500	µg/L	12.5		109	56-100			
Surrogate: 2,4-Dichlorophenylacetic Acid (DCAA)	*19.7*		µg/L	*20.0*		*99*	*40-120*			
Batch B8L0099 - LLE SVOA										
Blank (B8L0099-BLK1)										
o-cresol (2-Methylphenol)	< 1.00	1.00	µg/L							
m,p-cresol (3,4-Methylphenol)	< 1.00	1.00	µg/L							
1,4-Dichlorobenzene	< 1.00	1.00	µg/L							
2,4-Dinitrotoluene	< 1.00	1.00	µg/L							
Hexachlorobenzene	< 1.00	1.00	µg/L							
Hexachlorobutadiene	< 1.00	1.00	µg/L							
Hexachloroethane	< 10.0	10.0	µg/L							
Nitrobenzene	< 1.00	1.00	µg/L							
Pentachlorophenol	< 1.00	1.00	µg/L							
Pyridine	< 3.00	3.00	µg/L							
2,4,5-Trichlorophenol	< 1.00	1.00	µg/L							
2,4,6-Trichlorophenol	< 1.00	1.00	µg/L							
Surrogate: 2-Fluorophenol	*95.8*		µg/L	*200*		*48*	*10-79*			
Surrogate: Phenol-d6	*61.9*		µg/L	*200*		*31*	*10-57*			
Surrogate: Nitrobenzene-d5	*69.0*		µg/L	*100*		*69*	*24-119*			
Surrogate: 2-Fluorobiphenyl	*63.7*		µg/L	*100*		*64*	*29-115*			
Surrogate: 2,4,6-Tribromophenol	*127*		µg/L	*200*		*64*	*10-141*			
Surrogate: p-Terphenyl-d14	*75.8*		µg/L	*100*		*76*	*44-124*			

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Philadelphia Water Department
1500 E. Hunting Park Avenue
Philadelphia PA, 19124

Project Name: Form 43 Analysis
Project Number: [none]
Project Manager: Aaron Bitler

Reported:
12/14/2018 12:47

Semivolatiles - Quality Control

Suburban Testing Labs

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8L0099 - LLE SVOA				(Continued from Previous Page)						
LCS (B8L0099-BS1)										
o-cresol (2-Methylphenol)	27.8	1.00	µg/L	40.0		70	38-89			
m,p-cresol (3,4-Methylphenol)	25.5	1.00	µg/L	40.0		64	26-63			
1,4-Dichlorobenzene	27.6	1.00	µg/L	40.0		69	33-87			
2,4-Dinitrotoluene	42.4	1.00	µg/L	40.0		106	53-120			
Hexachlorobenzene	33.0	1.00	µg/L	40.0		82	37-112			
Hexachlorobutadiene	27.1	1.00	µg/L	40.0		68	31-94			
Hexachloroethane	27.8	10.0	µg/L	40.0		70	40-85			
Nitrobenzene	31.7	1.00	µg/L	40.0		79	35-90			
Pentachlorophenol	23.8	1.00	µg/L	40.0		59	14-167			
Pyridine	7.99	3.00	µg/L	40.0		20	19-66			
2,4,5-Trichlorophenol	37.3	1.00	µg/L	40.0		93	14-103			
2,4,6-Trichlorophenol	33.7	1.00	µg/L	40.0		84	10-109			
Surrogate: 2-Fluorophenol	*105*		µg/L	*200*		*52*	*10-79*			
Surrogate: Phenol-d6	*69.6*		µg/L	*200*		*35*	*10-57*			
Surrogate: Nitrobenzene-d5	*77.3*		µg/L	*100*		*77*	*24-119*			
Surrogate: 2-Fluorobiphenyl	*74.6*		µg/L	*100*		*75*	*29-115*			
Surrogate: 2,4,6-Tribromophenol	*161*		µg/L	*200*		*80*	*10-141*			
Surrogate: p-Terphenyl-d14	*82.6*		µg/L	*100*		*83*	*44-124*			

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Philadelphia PA, 19124	Project Manager: Aaron Bitler	12/14/2018 12:47

Semivolatiles - Quality Control

Suburban Testing Labs

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8L0099 - LLE SVOA				(Continued from Previous Page)						

Pesticide/PCB - Quality Control

Suburban Testing Labs

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8L0040 - LLE Pest/PCBs										
Blank (B8L0040-BLK1)										
Gamma-BHC (Lindane)	< 0.02	0.02	µg/L							
Chlordane	< 0.5	0.5	µg/L							
Endrin	< 0.02	0.02	µg/L							
Heptachlor	< 0.02	0.02	µg/L							
Heptachlor epoxide	< 0.02	0.02	µg/L							
Methoxychlor	< 0.02	0.02	µg/L							
Toxaphene	< 0.5	0.5	µg/L							
Surrogate: Tetrachloro-m-xylene	*0.403*		µg/L	*0.500*		*81*	*35-135*			
Surrogate: Decachlorobiphenyl	*0.384*		µg/L	*0.500*		*77*	*10-153*			
LCS (B8L0040-BS2)										
Gamma-BHC (Lindane)	0.370	0.02	µg/L	0.500		74	58-111			
Endrin	0.402	0.02	µg/L	0.500		80	67-125			
Heptachlor	0.389	0.02	µg/L	0.500		78	53-106			
Heptachlor epoxide	0.390	0.02	µg/L	0.500		78	63-114			
Methoxychlor	0.401	0.02	µg/L	0.500		80	49-141			
Surrogate: Tetrachloro-m-xylene	*0.373*		µg/L	*0.500*		*75*	*35-135*			
Surrogate: Decachlorobiphenyl	*0.345*		µg/L	*0.500*		*69*	*10-153*			
LCS (B8L0040-BS3)										
Toxaphene	1.95	0.5	µg/L	2.50		78	41-126			
Surrogate: Tetrachloro-m-xylene	*0.408*		µg/L	*0.500*		*82*	*35-135*			
Surrogate: Decachlorobiphenyl	*0.401*		µg/L	*0.500*		*80*	*10-153*			

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Philadelphia PA, 19124	Project Manager: Aaron Bitler	12/14/2018 12:47

Pesticide/PCB - Quality Control

Suburban Testing Labs

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8L0062 - Ultrasonic Extraction										
Blank (B8L0062-BLK2)										
Aroclor 1016	< 16.7	16.7	µg/Kg wet							
Aroclor 1016 [2C]	< 16.7	16.7	µg/Kg wet							
Aroclor 1221	< 16.7	16.7	µg/Kg wet							
Aroclor 1221 [2C]	< 16.7	16.7	µg/Kg wet							
Aroclor 1232	< 16.7	16.7	µg/Kg wet							
Aroclor 1232 [2C]	< 16.7	16.7	µg/Kg wet							
Aroclor 1242	< 16.7	16.7	µg/Kg wet							
Aroclor 1242 [2C]	< 16.7	16.7	µg/Kg wet							
Aroclor 1248	< 16.7	16.7	µg/Kg wet							
Aroclor 1248 [2C]	< 16.7	16.7	µg/Kg wet							
Aroclor 1254	< 16.7	16.7	µg/Kg wet							
Aroclor 1254 [2C]	< 16.7	16.7	µg/Kg wet							
Aroclor 1260	< 16.7	16.7	µg/Kg wet							
Aroclor 1260 [2C]	< 16.7	16.7	µg/Kg wet							
Aroclor 1262	< 16.7	16.7	µg/Kg wet							
Aroclor 1262 [2C]	< 16.7	16.7	µg/Kg wet							
Aroclor 1268	< 16.7	16.7	µg/Kg wet							
Aroclor 1268 [2C]	< 16.7	16.7	µg/Kg wet							
PCBS, Total	< 16.7	16.7	µg/Kg wet							
PCBS, Total [2C]	< 16.7	16.7	µg/Kg wet							
Surrogate: Tetrachloro-m-xylene	*16.5*		µg/Kg wet	*16.7*		*99*	*35-135*			
Surrogate: Tetrachloro-m-xylene [2C]	*16.8*		µg/Kg wet	*16.7*		*101*	*35-135*			
Surrogate: Decachlorobiphenyl	*15.5*		µg/Kg wet	*16.7*		*93*	*10-153*			
Surrogate: Decachlorobiphenyl [2C]	*16.0*		µg/Kg wet	*16.7*		*96*	*10-153*			
LCS (B8L0062-BS2)										
Aroclor 1016	163	16.7	µg/Kg wet	167		98	46-136			
Aroclor 1016 [2C]	166	16.7	µg/Kg wet	167		99	46-136			
Aroclor 1260	162	16.7	µg/Kg wet	167		97	45-125			
Aroclor 1260 [2C]	171	16.7	µg/Kg wet	167		103	45-125			
Surrogate: Tetrachloro-m-xylene	*16.9*		µg/Kg wet	*16.7*		*102*	*35-135*			
Surrogate: Tetrachloro-m-xylene [2C]	*17.2*		µg/Kg wet	*16.7*		*103*	*35-135*			
Surrogate: Decachlorobiphenyl	*17.2*		µg/Kg wet	*16.7*		*103*	*10-153*			
Surrogate: Decachlorobiphenyl [2C]	*17.7*		µg/Kg wet	*16.7*		*106*	*10-153*			

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Philadelphia PA, 19124	Project Manager: Aaron Bitler	12/14/2018 12:47

Pesticide/PCB - Quality Control

Suburban Testing Labs

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8L0062 - Ultrasonic Extraction	(Continued from Previous Page)									

HEM and SGT-HEM - Quality Control

TestAmerica Nashville

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 561460 - 9071B										
Blank (561461-1)										
Oil & Grease (HEM)	< 100	100	mg/Kg dry				-			
LCS (561461-2)										
Oil & Grease (HEM)	3980	100	mg/Kg dry	4000		100	75-117			
LCS Dup (561461-3)										
Oil & Grease (HEM)	4000	100	mg/Kg dry	4000	< 100	100	75-117	1	20	

SUBURBAN TESTING LABS

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Philadelphia PA, 19124	Project Manager: Aaron Bitler	12/14/2018 12:47

Metals (ICP) - Quality Control

TestAmerica Nashville

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 560557 - 3051A										
Blank (562039-181)										
Sulfur	< 45	45	mg/Kg dry				-			
LCS (562039-182)										
Sulfur	180	48	mg/Kg dry	192		94	80-120			

Work Order Memo

SUB: O&G performed by Lab ID# 68585
SUB: Sulfur performed by Lab ID# 68585

Data Qualifiers:

B1	The target analyte was detected in the Method Blank at or above the method Reporting Limit, however it was <10% the concentration detected in the sample. Data may be reportable under the 2009 TNI Standard.
C4	The CCV for this analyte was above acceptance criteria, however the analyte was not detected in the associated sample. Data may be fully useable under the 2009 TNI Standard.
C5	Calibration verification below minimum acceptance limits. A low level standard was analyzed to confirm detection. The reported analytes were below the concentration of the low level standard.
L4	The Laboratory Control Sample for the analysis batch associated with this sample was above acceptance criteria, however the analyte was not detected in the associated sample. Data may be fully useable under the 2009 TNI Standard.
M2	The Matrix Spike associated with this sample is below established acceptance criteria, indicating potential matrix interference. Results of this sample may be biased low.
Y	The pH was measured at a temperature of 19.7 degrees Celsius

Sample Receipt Conditions:

All samples met the sample receipt requirements for the relevant analyses.

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The test *pH, Lab* is performed in the Laboratory as soon as possible. These results are not appropriate for compliance with NPDES, SDWA, or other regulatory programs that require analysis within 15 minutes of sample collection and should be considered for informational purposes only.

All results meet the requirements of STL's TNI (NELAC) Accredited Quality System unless otherwise noted. If your results contain any data qualifiers or comments, you should evaluate useability relative to your needs.

If collectors initials include "STL", samples have been collected in accordance with STL SOP SL0015.

All results reported on an As Received (Wet Weight) basis unless otherwise noted.

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Results are considered Preliminary unless report is signed by authorized representative of STL.

Reviewed and Released By:
Timothy Swavely
Client Services Supervisor