Haverhill

Robert E. Ward, Deputy DPW Director
Water/Wastewater Division
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October 27, 2017

Environmental Protection Agency
Water Technical Unit (OES04-3)
U.S. EPA - New England, Region 1
5 Post Office Square, Suite 100
Boston, MA 02109-3912
Attn: Ms. Joy Hilton

Subject: City of Haverhill, MA NPDES Permit # MA 0101621
Consent Decree Submittal (Civil Action 16-11698-IT)
Compliance Report No. 2 - January through June 2017

Dear Ms. Hilton:

Enclosed is Compliance Report No. 2 as required by Section IX.67 of the Consent Decree. This report is for the January 1, 2017 through June 30, 2017 reporting period.

If you need additional information, please call me at (978) 374-2382.

Sincerely,

Robert E. Ward
Deputy DPW Director

cc: Chief, Environmental Enforcement Section, U.S. DOJ
Susan Poswistilo, U.S. Attorney, MA District
Michael Wagner, USEPA, wagner.michael.@eap.gov
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Paul Jessel, Wastewater, pjessel@haverhillwater.com
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CITY OF HAVERHILL, MASSACHUSETTS
NPDES PERMIT No. MA0101621
CONSENT DECREE

(Civil Action No. 16-11698-IT, 11/10/16)

COMPLIANCE REPORT No. 2

JANUARY THROUGH JUNE 2017

OCTOBER 2017

CITY OF HAVERHILL, MASSACHUSETTS

NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM

PERMIT No. MA0101621

CONSENT DECREE

(Civil Action No. 16-11698-IT, 11/10/2016)

COMPLIANCE REPORT No. 2

JANUARY THROUGH JUNE 2017

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SECTION 1

INTRODUCTION

1.1 BACKGROUND

The United States Environmental Protection Agency (EPA), Massachusetts Department of Environmental Protection (MassDEP), and the City of Haverhill entered into a Consent Decree to require the City to take measures necessary to meet the requirements of the Clean Waters Act and the Massachusetts Clean Water Act, and to achieve and maintain compliance with the Small Municipal Separate Stormwater Sewer System (MS4) General Permit and the Publicly Owned Treatment Works (POTW) Permit, and all applicable federal and state regulations. The effective date of the Consent Decree is November 10, 2016.

As part of the Consent Decree, the City shall submit a Compliance Report to EPA and MassDEP for the previous six-month period, referred to as a "Reporting Period." The bi-annual Reporting Periods run from January through June and July through December, with the Compliance Reports due on April 30th and October 31st for the previous period.

The goal of this Compliance Report is to provide the EPA and MassDEP an updated summary of the work performed by the City to achieve and maintain compliance over the course of the Reporting Period.

1.2 REPORT ORGANIZATION

The Compliance Report is divided into several sections including:

- IDDE Program
- SSO and Building/Private Party Backup Events
- Construction Site Inspection and Enforcement Program
- General Status
- Secondary Treatment Bypass
- CMOM Corrective Action Plan (Per MassDEP request)

Each section summarizes the City's actions, activities, and events that have occurred over the previous Reporting Period in accordance with the Consent Decree.

1.3 CERTIFICATION STATEMENT

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

Robert E. Ward
Deputy DPW Director
City of Haverhill, Massachusetts

10/30/17
(date)

SECTION 2

IDDE PROGRAM

2.1 INTRODUCTION

The City identified and inspected 1,200 stormwater/combined sewer overflow (CSO) outfalls as part of the 2014/2015 Stormwater Outfall Inspection Report. Of those 1,200 outfalls; 104 outfalls had dry-weather flow and based on laboratory testing of dry weather flow, 31 outfalls were originally identified for further upstream investigations to determine if there are illicit connections. Based on the findings, the City established a draft schedule of prioritized inspections.

In February 2017, the City prepared the "Illicit Discharge Detection and Elimination (IDDE) Manual." The manual identified the procedures that the City will follow to continue their comprehensive inspections of its stormwater outfalls and upstream system investigations. The IDDE Manual was amended in March 2017 to include a new section detailing the IDDE enforcement procedures that the City will undertake when an illicit connection is identified.

The revised IDDE Manual was submitted to EPA and MassDEP for approval on March 8, 2017. The City received a letter from the EPA on September 27, 2017, stating that they are not able to approve the manual until the City responds to their comments by January 1, 2018.

2.2 CURRENT REVISED PRIORITY LISTING

An updated summary of the Priority Outfall Investigations list, which was adopted from the "2014/2015 Stormwater Outfall Inspection Program Report" was provided in Compliance Report No. 1. After the previous Compliance Report, a computer error resulted in the accidental deletion of MainStar Work Order No. ST00000206 for Outfall ID UNK1734 and was recreated as Work Order No. ST00001150, an updated Prioritized List of Outfall Sub-Area Investigations is provided in Table 2-1.

TABLE 2-1
PRIORITIZED LIST OF OUTFALL SUB-AREA INVESTIGATIONS
(BASED ON OUTFALL INSPECTION PROGRAM)

Outfall GIS ID	Receiving Waters	MaintStar Work Order #	Address	Date	Bacteria (MPN/100ml)	Priority
					E.coli[2]	
UNK0955	Unnamed Water Body	ST00000200	Near 746 South Main street	9/21/2015	>48,000	HIGH
PL0891	Pentucket Lake	ST00000202	Near Main & Marsh Ave	9/9/2015	>24,000	
UNK1767	Unnamed Water Body	ST00000207	Near 6 Tudor CT	9/21/2015	14,000	
UNK0951	Unnamed Water Body	ST00000199	Near 70 Woodcock Ave	9/9/2015	4,611	
UNK1821 [1]	Unknown	ST00000208	Farrwood Dr @ Arrowood Way	11/5/2014	>2,441	
DPI0946	Detention Pond Inlet	ST00000491	Brook ST & High school detention pond	12/1/2015	>2,420	
UNK0788	Unnamed Water Body	ST00000337	784 West Lowell Ave	9/30/2014	>2,420	
MR1141	Merrimack River	ST00000196	Near 715 River St	9/30/2014	>2,420	
DPO0696	Detention Pond Outlet	ST00000295	Behind 445 Lake Street	6/12/2015	>2,419	
DPI1094	Detention Pond Inlet	ST00000114	Near 187 Orchard Hill Road	10/20/2014	>2419.6	
MR1138	Merrimack River	ST00000197	747 River Street	9/30/2014	2,420	
LR1260	Little River	ST00000444	Behind 140 Hale Street	11/4/2015	1,986	MEDIUM
WMBO759	West Meadow Brook	ST00000204	West Meadow Road	11/5/2014	1,986	
UNK0954	Unnamed Water Body	ST00000203	South Main Street add to UNK0955	10/20/2014	1,300	
UNK1166	Unnamed Water Body	ST00000201	Franzone Drive	10/6/2014	1,300	
UNK1177	Unnamed Water Body	ST00000191	Near 605 South Main	10/6/2014	1,300	
DPO1007	Detention Pond Outlet	ST00000192	Near 8 Kenilworth LN	10/20/2014	1,218	
UNK1734	Unnamed Water Body	ST00001150[3]	Presidential Drive	10/20/2014	1,188	
LR0993	Little River	ST00000456	Near 100 Newark St	12/1/2015	1,046	
JC1028 [1]	Johnston's Creek	ST00000194	18 Kaliway	10/20/2014	1,046	
UNK1835	Unnamed Water Body	ST00000294	Broadway @ Glenview RD	6/12/2015	980	LOW
LR1103	Little River	ST00000195	Near 141 Bennington St	9/16/2014	921	
BZB0847	Buswell Brook	ST00000487	Near 46 Fermanagh St	11/13/2014	770	
UNK1735	Unnamed Water Body	ST00000205	Presidential Drive	10/20/2014	649	
MR0982	Merrimack River	ST00000445	River RD @ Back LN septic systems	11/4/2015	548	
UNK0894 [1]	Unnamed Water Body	ST00000190	Near 261 Neck Road	10/6/2014	461.1	
MR1164 [1]	Merrimack River	ST00000386	Bethany Ave Stormwater/CSO Combined Outfall	8/31/2015	461	
DPO1079 [1]	Detention Pond Outlet	ST00000332	Near 6 Amy Lynne LN	7/7/2015	436	
FBO0638	Fishing Brook	ST00000333	Near 888 Hilldale Av	7/7/2015	435	
UNK0668	Unnamed Water Body	ST00000293	Near 26 Danielle Dr	6/12/2015	435	
PL1222	Pentucket Lake	ST00000286	West Gile @ North Ave	6/5/2015	411	
UNK0661	Unnamed Water Body	ST00000198	Near 7 Parkridge Rd	11/13/2014	365	
MR32720	Merrimack River	ST00000457	Near 782 River St	12/1/2015	326	
MR20718	Merrimack River	ST00000387	Wall Street	8/31/2015	631	
UNK0836	Unnamed Water Body	ST00000334	Beechwood Dr @ Juniperwood DR	7/7/2015	326	
UNK1063 [1]	Unknown	ST00000287	End of Crystal Ct	6/5/2015	344.8	
MR24314	Merrimack River	ST00000460	Near Water & Groveland St.	9/9/2015	Enterococci >24,190	HIGH
MR1109	Merrimack River	ST00000492	Near 354 Water St.	12/1/2015	Enterococci > 2,420	

[1] **Recently added Catchments**

[2] **Bacteria Concentrations are for E. Coli; unless otherwise labeled as Entrococci.**

[3] **Work order was ST00000206 now ST00001150**

2.3 IDDE INVESTIGATION PROGRESS REPORTING

Using the Priority Listing in Table 2-1 as a guide, the City's progress to date of their IDDE investigations during the reporting period (January through June 2017) is shown in Table 2-2.

Using GIS, the City identified a total of 20.89 miles of storm drain piping and 2,560 drainage manholes in the tributary drainage area upstream of the 38 total outfalls (additional outfalls were discovered as part of this investigation) requiring further investigations. The identified lengths of drain pipe and number of manholes for each basin are shown in Table 2-2, as well as the number of each that have been addressed by the IDDE investigations during the reporting period. A cumulative total for the IDDE Program is also included and has been updated from the previous Compliance Reports.

Investigations by the City were performed using a bottom up approach to look for dry weather connections. Manholes and piping were investigated upstream from the outfall until the dry weather flow was no longer seen. For some outfalls, the entire inventory of pipes and manholes in that catchment area may not have been physically inspected, however, due to no observed dry weather flow, the City concludes that there are no illicit connections further upstream and is marking that catchment's investigations as 100% percent complete.

As summarized in Table 2-2, the City's IDDE investigations have currently addressed 51% and 50% of the identified drain piping and manholes, respectively. Table 2-2 lists both the Upstream Basin Investigations that took place over the reporting period and the total to date.

Field work was severely limited due the reporting period occurring over the 2017 winter months. However, with the inability to perform field work, the City Staff were able to focus on information gathering based upon feedback received from the City's IDDE engineering consultant. The following information was verified, more accurately collected, and more easily accessible across multiple informational platforms:

TABLE 2-2
SUMMARY OF IDDE INVESTIGATIONS OF SYSTEMS WITH POTENTIAL ILLICIT CONNECTIONS BY BASIN

Basin ID	Outfall ID	Existing System Estimates		Upstream Basin Investigations (Jan 2017 to June 2017)				Upstream Basin Investigations COMPLETED TO DATE			
		Length of Pipe (ft)	Number of Manholes	Pipe (ft)	Percent Completed	Manholes	Percent Completed	Pipe (ft)	Percent Completed	Manholes	Percent Completed
Buswell Brook	BZB0847	1,697	46								
Buswell Brook TOTAL		**1,697**	**46**								
Detention Pond Outlet	DPO0696*	61	2					61	100%	2	100%
	DPO1079	37	2								
Detention Pond Outlet TOTAL		**98**	**4**					**61**	**62%**	**2**	**50%**
Detention Pond Inlet	DPI1007	1,634	24								
	DPI1094	22	2								
	DPI0946*	7,421	172					7,421	100%	172	1
Detention Pond Inlet TOTAL		**9,077**	**198**					**7,421**	**82%**	**172**	**87%**
Fishing Brook	FBO0638	852	24								
Fishing Brook TOTAL		**852**	**24**								
Johnston's Creek	JC1028	1,397	26								
Johnston's Creek TOTAL		**1,397**	**26**								
Little River	LR0952	7,268	170								
	LR1103	4,418	62								
	LR1260	26,134	614								
	LR0993	539	8								
Little River TOTAL		**38,359**	**854**								
Merrimack River	MR0982	128	6								
	MR1109	941	26								
	MR1138*	289	18					289	100%	18	100%
	MR1141*	3,899	104					3,899	100%	104	100%
	MR1164*	1,746	116	1,746	100%	116	100%	1,746	100%	116	100%
	MR20718	NA									
	MR32720	NA									
	MR24314*	541	24					541	100%	24	100%
Merrimack River TOTAL		**7,544**	**294**	**1,746**	**23%**	**116**	**39%**	**6,475**	**5582%**	**262**	**89%**
Pentucket Lake	PL0891*	5,463	128					5,463	100%	128	100%
	PL1222	3,292	102								
Pentucket Lake TOTAL		**8,755**	**230**	**0**	**0%**	**0**	**0%**	**5,463**	**62%**	**128**	**56%**

TABLE 2-2
(CONTINUED)

Basin ID	Outfall ID	Existing System Estimates		Upstream Basin Investigations (Jan 2017 to June 2017)				Upstream Basin Investigations COMPLETED TO DATE			
		Length of Pipe (ft)	Number of Manholes	Pipe (ft)	Percent Completed	Manholes	Percent Completed	Pipe (ft)	Percent Completed	Manholes	Percent Completed
Unknown	UNK0661	410	14								
	UNK0668	854	36								
	UNK0788*	869.08	16					869	100%	16	100%
	UNK0836	842	22								
	UNK0894	648	10								
	UNK0951*	1,910	34					1,910	100%	34	100%
	UNK0954	81	2								
	UNK0955*	6,058	146					6,058	100%	146	100%
	UNK1020	71	4								
	UNK1063	49	2								
	UNK1166	1,079	28								
	UNK1177	156	4								
	UNK1188*	25,926	470					25,926	100%	470	100%
	UNK1734	334	12								
	UNK1735	80	2								
	UNK1767*	2,077	52					2,077	100%	52	100%
	UNK1821	336	8								
	UNK1835	761	20								
Unknown TOTAL		**42,541**	**882**	**0**	**0%**	**0**	**0%**	**36,840**	**87%**	**718**	**81%**
West Meadow Brook	WMB0759	20	2								
West Meadow Brook TOTAL		**20**	**2**								
GRAND TOTAL		**110,340**	**2,560**	**1,746**	**2%**	**116**	**5%**	**56,260**	**51%**	**1,282**	**50%**
		20.90 mi.		**0.33 mi.**				**10.66 mi.**			

*Investigations by the City were performed using a bottom up approach to look for dry weather connections. Manholes and piping were investigated upstream from the outfall until the dry weather flow was no longer seen. For some outfalls, the entire inventory of pipes and manholes in that catchment area may not have been physically inspected, however, due to no observed dry weather flow, the City concludes that there are no illicit connections further upstream and is marking that catchment's investigations as 100% percent complete.

- Verify that the GIS map for each outfall reflects all pertinent information and activities that were previously done, including
    - Indicate if inspected manholes had “flow” or “no flow”
    - Include sample results
    - Include appropriate dates of activities (e.g. CCTV, samples, etc.)
- Verify that the field logbook is well documented with these activities
- Verify that MaintStar reflects accurately all the activities that were done to each outfall.

2.4 IDENTIFIED ILLICIT CONNECTIONS AND CURRENT RESOLUTION STATUS

The ongoing and cumulative status of the City’s efforts to remove any identified illicit connections or discharges are summarized in Table 2-3.

Prior to the Consent Decree effective date, the City removed illicit discharges from five single family homes along Columbia Park that were identified upstream of Outfall UNK1188.

To date, the city has identified three illicit connections in the upstream tributary areas of the Merrimack and Pentucket Lake Basins. The three identified illicit connections are:

- Merrimack River Basin
    - Outfall MR24314 - Investigations identified three (3) homes along Groveland and Water Streets connected to the stormwater system. These illicit connections were removed by connecting the three homes into a new 8-inch gravity sewer main, which was completed in November 2016 at a cost of $12,788.
    - Outfall MR1164 - (Outfall is combined with the Bethany Avenue CSO) - The City has determined that the dry weather flow at the outfall is a result of groundwater entering the stormwater system based on dry weather testing performed in June 2017. The source is from the retaining wall system in the Market Basket loading dock area, with fecal coliform and enterococci levels found to be below water quality standards for Class SB waters and

the City's NPDES permit. A letter report summarizing the Bethany Avenue CSO investigation was sent to EPA and MassDEP on August 28, 2017. Based on the investigation and sample results, the City has confirmed that no sources of contamination to the Bethany Avenue drainage system, except for the intermittent and unavoidable CSO connection from the Bethany Avenue CSO Regulator.

- Pentucket Lake Basin
  - Outfall PL0891 - An existing parallel sewer in poor physical condition was identified and found to be exfiltrating into the adjacent storm drain. The City has scheduled and budgeted the pipe rehabilitation to take place within Fiscal Year 2018, with an anticipated completion date of June 2018. The estimated cost for engineering, design, bid, and construction of the project is $442,530. The City has notified the USEPA and MassDEP of the project's intended scope, estimated costs, and schedule for elimination of this illicit discharge in a letter dated January 5, 2017.

TABLE 2-3
SUMMARY OF ILLICIT DISCHARGES IDENTIFIED BY BASIN AND CURRENT STATUS
(January through June 2017)

Description		Illicit Discharge/Connection Verified				Ongoing Illicit Discharge Removal Activities					Final Illicit Connection Removal Actions				Assessment: Is the City in compliance with the schedule?
CD Requirement		67.a.iii.1			67.a.iii.2	67a.iii.7		67.a.iii.8		67.a.iii.9	67.a.iii.3	67.a.iii.4	67.a.iii.5	67.a.iii.6	
Basin ID	Outfall ID	Date Verified	Addres Location	Type of Discharge[1]	Estimated Flow (gpd)	Verified: Not Removed within 60 Days	Reasons Why Not	Schedule for Removal	Reason why expedited	Legal Actions against Private Property Owners	Actions Taken (with Dates)	Date Connection Eliminated	Est. Cost of Removal	Estimated Volume Removed (gallons)	
Merrimack River	MR1164	11/19/2016	Market Basket Parking Lot	groundwater into drain	Seasonal Flow/ Not able to estimate	N/A	N/A	N/A	N/A	N/A	This dry weather flow appears to be from a groundwater discharge into the drainage system across a parking lot. Testing was performed in June 2017 and confirmed bacteria source is groundwater.	N/A	N/A	N/A	Yes, the City is in compliance with resolving this "illicit discharge".
	MR24314	7/27/2016	15 Groveland St., 19 Groveland St, 312 Water St	3 Single family	N/A		N/A	N/A	N/A		New gravity sewer installed on Nov 11, 2016 and 3 homes removed from drain system	11/4/2016	$ 12,788	26,377	Yes, the City is in compliance
Pentucket Lake	PL0891	10/5/2016	Marsh Avenue	leaking sewer/ exfiltration	Not able to estimate	X	Sewer replacement costs/lengths are extensive; cost exceeds discretionary funds; new fund required in next fiscal year to complete project	Fiscal Year 2018	This connection is being removed as quickly as possible and dependent on the availability of funds within the fiscal year.	N/A	Design/Engineering	-	-	-	Yes, the City is in compliance. EPA and MassDEP were notified by the City via letter dated 1/5/2017, noting anticipated completion date of June 2019 due to funding constraints.
Unknown	UNK1188	12/25/2012	34 Columbia Pk., 66 Columbia Pk., 74 Columbia Pk., 80 Columbia Pk., 90-92 Columbia Pk.	5 Single family		N/A	N/A	N/A	N/A	N/A	5-house sewer services through a drain pipe that were dripping. Install a PVC sleeve through drain	6/8/2016	$ 13,000	26,481	City is in compliance. 60 day deadline was not applicable until November 2016.

[1] Type of Discharge single-family residential, multifamily residential, commercial, industrial, exfiltration from a sanitary sewer

Current Report Period Total =	$ 25,788	52,858
Years 2003 Through 2015 Total =	$ 66,758	2,511,473
Grand Total =	**$ 92,546**	**2,564,331**

SECTION 3

3.1 SSO AND BUILDING/PRIVATE PARTY BACKUP EVENTS

A chronological list of the sanitary sewer overflows (SSO) and building/private party backup events that occurred during this Reporting Period (January through June 2017), are shown in Tables 3-1 and 3-2, respectively, as well as a GIS Map showing their locations in Figure 3-1.

Over the Reporting Period, there were a total of 78 reported SSO and building/private party backup events, with only ten associated with the City's sewer system. Of the ten SSO's associated with the City, four had occurred previously and the City has addressed them as follows:

- SSO 17-05: The sewer main was flushed.
- SSO 17-08: The sewer main was flushed.
- SSO 17-09: The entire Winnekenni Interceptor was flushed (at a cost of $50,000)
- SSO 17-11: Force main was repaired.

The remaining six City SSO events occurred for the first time during this Reporting Period; the City responded by flushing the associated sewer lines, having electrical wiring work corrected, and modifying their siphon gate operating procedures. SSO 17-06 was placed on a quarterly preventative maintenance schedule.

Most of the 68-reported building/private party backup events are related to minor issues that occur and the homeowner contacts the City for assistance. Examples of events include washing machine overflow, the sewer service "burps", roots are found in the service, etc. The City Operators provide assistance to the homeowners to the best of their abilities and offer recommendations in order to help in resolving the problem.

TABLE 3-1
SANITARY SEWER OVERFLOW EVENTS
JANUARY THROUGH JUNE 2017

SSO Ownership City or Private	MaintStar Work Order	SSO ID	SSO Address	Start Date/Time	End Date/Time	Date Reported EPA/DEP	Who notified	Reason for occurrence	Date of last SSO occurrence	SSO est. vol.	Receiving Waters if sewerage entered	Method Use to Estimate volume	Nearest CB location ID	Distance to Nearest CB (ft.)	Name of receive Water whether or not there was a release	Entered CB Yes or No	MEASURED TAKEN STOP SSO	Decontaminate	Measured taken to prevent future overflows	SEWERAGE LOCATION INTO STREAM
PRIVATE	WW00000850	SSO-17-01	103 River st	1/5/2017 1:00 PM	1/5/2017 2:00 PM	1/6/2017 7:30 AM	Paul Jessel	BROKEN HOUSE SERVICE	6/29/2016 12:00 AM	100	MERRIMACK RIVER	visual estimate	CB-4389	120	MERRIMACK RIVER	YES	Resident repairs Lateral	YES	Flush house lateral	MR0922
CITY	WW00000870	SSO-17-02	CSO Gate NPDES#024	2/2/2017 5:40	2/2/2017 6:00	2/3/2017 8:30	Paul Jessel	CSO Gates not Wired correctly	First Occurrence		MERRIMACK RIVER	Unavailable	No CB in Area	0	MERRIMACK RIVER	NO	Wire the Gates Correctly	NO	provide training	MR0623
CITY	WW00000871	SSO-17-03	44 Tyler Park	2/4/17 10 45 pm	2/4/17 11 30 pm	2/5/2017 9:00	Paul Jessel	roots in sewer main	First Occurrence	35	Basement	estimate	CB-620	231	Snows Brook	NO	flushed sewer main	yes	flushed sewer main	no
CITY	WW00000880	SSO-17-04	133 Hale st.	2/9/17 -- 10:30 AM	2/9/17 -- 11:00 AM	2/10/2017	Board of Health	DEBRIS IN SEWER MAIN	First Occurrances	300	LITTLE RIVER LR1260	Visual	CB-2110	120	LITTLE RIVER	YES	Flushing city line	YES	PM	LR1260
CITY	WW00000893	SSO-17-05	Computer Dr.	2/21/17 3PM	2/21/2017 16:00	2/22/2017 8:30	City Employee	DEBRIS IN SEWER MAIN	5/22/2013	500	DETENTION POND OUTLET	Visual	CB-3495	107	CREEK BROOK	YES	Flushing city line .	YES	Flush City sewer Main	CB1912
CITY	WW00000894	SSO-17-06	8 Melrose Ave.& 35/37 Woodmont	2-23-2017 - 7 PM	2-23-2017 - 8 PM	2/24/2017	Paul Jessel	City blockage	First Occurrances	1500	none	Visual	CB-2736	108	Snows Brook	NO	flushing	Yes	Place on Quaterly PM	None
PRIVATE	WW00000898	SSO-17-07	4 Avon Pl.	2/27/17-- 3:00PM	1/6/2017 7:30	2/28/2017 8:45	Paul Jessel	BROKEN HOUSE SERVICE	6/29/2016 14:30	50	MERRIMACK RIVER	Visual	CB-4389	25	MERRIMACK RIVER	YES	Flushing	YES		MR0922
CITY	WW00000926	SSO-17-08	259 Kenoza ave.	3/4/2017 11:00	4/5/2017 5:45	4/4/2017 11:15	Paul Jessel	RAIN	10/1/2015	30000	Winniekini Basin	Estimate	CB-8188	80	Winniekini Basin	YES	Flushing	YES	PM	KL30717
CITY	WW00000930	SSO-17-09	Castle Road	4/6/2017 17:45	4/6/2017 21:00	4/7/2017 8:45	Paul Jessel	ROOTS	4/5/2017	5000	Winniekini Basin	Estimate	CB-8188	80	Winniekini Basin	YES	rain stop	YES	flusing entire interceptor	CB-8188
CITY	WW00000931	SSO-17-10	2 -4 Forest Ave	4/6/2017 6:15pm	4/6/2017 7:30pm	4/7/2017 9:00	Paul Jessel	DEBRIS IN SEWER MAIN	First Occurrence	1000	BASEMENT	visual	Not applicable	0	Plug Pond	NO	flushed city line	N/A	remove debris in SMH	Not applicable
CITY	WW00000945	SSO-17-11	4 So. New st.	4/19/17 1PM	4/19/17 2PM	4/24/2017 13:45	Paul Jessel	MECHANICAL FAILURE	12/12/2008	50	NA	Sight	none	0	MERRIMACK RIVER	NO	Dig and repair	YES	Force Main repaird	none
PRIVATE	WW00000957	SSO-17-12	35 Avco Road	5/1/2017 13:00	5/1/2017 14:00	5/2/2017 15:30	Paul Jessel	UNKNOWN	First Occurrence	1000	UNKNOWN	Visual	none	0	MERRIMACK RIVER	NO	Vac. Truck	YES	Private Sewer	none
CITY	WW00001033	SSO-17-13	Upper Siphon	6/27/17 Unknown start time	6/27/2017 18:30	6/28/2017 9:30	Paul Jessel	CSO Max Problems	First Occurrence	0	MERRIMACK RIVER	Not Known	NO Downstream CB	0	MERRIMACK RIVER	NO	Open SG-120	YES	Reprom SCADA controls	MR0623

TABLE 3-2
BUILDING/PRIVATE PARTY BACKUP EVENTS
JANUARY THROUGH JUNE 2017

SSO Ownership City or Private	MaintStar Work Order	SSO ID	SSO Address	Date	Who notified	Reason for occurrence
PRIVATE	WW00000844	HOMEOWNER-17-01	13 LOVEJOY ST	1/3/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000845	HOMEOWNER-17-02	322 BROADWAY	1/3/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000846	HOMEOWNER-17-03	50 RIVERDALE AVE	1/3/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000849	HOMEOWNER-17-04	120 WARRENTON RD	1/5/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000851	HOMEOWNER-17-05	64 GROVE ST	1/6/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000852	HOMEOWNER-17-06	154 WEBSTER ST	1/6/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000853	HOMEOWNER-17-07	37 SCHOOL ST	1/6/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000859	HOMEOWNER-17-08	18 KENSINGTON	1/16/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000860	HOMEOWNER-17-09	155 SALEM ST	1/17/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000861	HOMEOWNER-17-10	155 SALEM ST	1/18/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000865	HOMEOWNER-17-11	233 PRIMROSE ST	1/25/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000867	HOMEOWNER-17-12	35 BROCKTON AVE	1/26/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000869	HOMEOWNER-17-13	100 NORTH BROADWAY	2/1/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000874	HOMEOWNER-17-14	63 RACE ST	2/4/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000875	HOMEOWNER-17-15	82 SOUTH CENTRAL ST	2/6/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000877	HOMEOWNER-17-16	298 BROADWAY	2/2/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000884	HOMEOWNER-17-17	245 BOARDMAN ST	2/11/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000887	HOMEOWNER-17-18	3 ST JAMES AVE	2/18/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000889	HOMEOWNER-17-19	73 TEMPLE ST	2/19/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000890	HOMEOWNER-17-20	100 LAWRENCE ST	2/19/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000891	HOMEOWNER-17-21	55 WESTLAND TERRACE	2/20/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000895	HOMEOWNER-17-22	10 FERMANAGH ST	2/25/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000896	HOMEOWNER-17-23	8 Melrose ave	3/1/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000897	HOMEOWNER-17-24	12 ACORN ST	2/28/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000898	HOMEOWNER-17-25	103 RIVER ST	2/27/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000899	HOMEOWNER-17-26	30 HOW ST	2/27/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000901	HOMEOWNER-17-27	110 WARRENTON RD	3/6/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000912	HOMEOWNER-17-28	15 RAILROAD ST	3/21/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000914	HOMEOWNER-17-29	15 RAILROAD ST	3/21/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000915	HOMEOWNER-17-30	97 NORTH BROADWAY	3/21/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000916	HOMEOWNER-17-31	121 KINGSBURY AVE	3/23/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000917	HOMEOWNER-17-32	359 FARRWOOD DR.	3/26/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000920	HOMEOWNER-17-33	365 LOWELL AVE	3/31/2017	Resident	Resident Private Sewer Blockage

TABLE 3-2
(CONTINUED)

SSO Ownership City or Private	MaintStar Work Order	SSO ID	SSO Address	Date	Who notified	Reason for occurrence
PRIVATE	WW00000921	HOMEOWNER-17-34	156 WILSON ST	4/1/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000928	HOMEOWNER-17-35	10 WESTFORD ST	4/5/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000937	HOMEOWNER-17-36	36 FOURTEENTH AVE	4/14/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000939	HOMEOWNER-17-37	107 LAFAETTE SQ	4/16/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000940	HOMEOWNER-17-38	20 SHERMAN AVE	4/18/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000941	HOMEOWNER-17-39	126-128 SUMMER ST	4/18/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000947	HOMEOWNER-17-40	23 LAUREL AVE	4/22/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000953	HOMEOWNER-17-41	240 ESSEX ST	4/26/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000955	HOMEOWNER-17-42	14 PERLS WAY	4/29/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000957	HOMEOWNER-17-43	35 AVCO RD	5/2/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000958	HOMEOWNER-17-44	21 PARKRIDGE RD	5/2/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000959	HOMEOWNER-17-45	215 Mill Street	5/2/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000962	HOMEOWNER-17-46	158 GOLDENHILL AVE	5/4/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000966	HOMEOWNER-17-47	27 KENSINGTON AVE	5/6/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000967	HOMEOWNER-17-48	12 WEBSTER ST	5/10/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000968	HOMEOWNER-17-49	36 SAWYER ST	5/9/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000973	HOMEOWNER-17-50	48 Lowell Ave	5/14/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000974	HOMEOWNER-17-51	14 OLD FERRY RD	5/15/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000975	HOMEOWNER-17-52	136 COLBY ST	5/15/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000976	HOMEOWNER-17-53	240 ESSEX ST	5/16/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000977	HOMEOWNER-17-54	70 GALE AVE	5/16/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000979	HOMEOWNER-17-55	78/80 BELLEVUE AVE	5/18/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000981	HOMEOWNER-17-56	39 HIGH ST	5/20/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000989	HOMEOWNER-17-57	219 WILSON ST	5/26/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000991	HOMEOWNER-17-58	48 HAVERHILL ST	5/27/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00000998	HOMEOWNER-17-59	190 NORTH AVE	6/10/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00001002	HOMEOWNER-17-60	41 BLOOSOM ST	6/11/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00001003	HOMEOWNER-17-61	351 Gile	6/12/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00001018	HOMEOWNER-17-62	11 BRADFORD AVE	6/20/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00001019	HOMEOWNER-17-63	33 BARTLETT ST	6/20/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00001034	HOMEOWNER-17-64	178 River St	6/28/2017	Resident	Resident Private Sewer Blockage
PRIVATE	WW00001037	HOMEOWNER-17-65	384 FARRWOOD DR	6/28/2017	Resident	Resident Private Sewer Blockage

Roads, surface water, and town boundaries from MassGIS. SSO and facility locations from City of Haverhill. Map produced by Wright-Pierce.

ATKINSON, NH

PLAISTOW, NH

MERRIMAC

WEST NEWBURY

GROVELAND

METHUEN

NORTH ANDOVER

BOXFORD

SALEM, NH

AMESBURY ROAD

NORTH BROADWAY

BROADWAY

KENOZA AVENUE

KENOZA LAKE

WTF

Merrimack River

S MAIN STREET

WILLOW AVENUE

KINGSBURY AVENUE

495

955 1003 998 871 968 977 937 867 890 930 926 891 897 893 880 940 865 852 930 959 845 877 973 979 939 953 976 967 941 887 853 920 901 851 981 899 962 849 1019 889 898 912 914 884 974 1034 991 1033 928 875 921 989 844 1018 874 958 947 861 860 846 966 895 975 916 917 1037

Legend

- WTF — Water Treatment Facility
- WPAF
- **SSOs** (IDs: WW00000###)
  - City
  - Private

N

0 0.25 0.5 1 Miles

SSO and Building/Private Party Backup Locations

January through June, 2017

City of Haverhill, MA

Haverhill

DATE:	FIGURE:
9/12/2017	5-1

JMN W:\GIS_Development\Projects\MA\Haverhill\13703_EPA-ConsentDecreeMXDs\SSOs_Sept2017.mxd

SECTION 4

4.1 CONSTRUCTION SITE INSPECTION AND ENFORCEMENT PROGRAM

The Consent Decree states that the Construction Site Stormwater Program shall be developed and submitted for review and approval by EPA within 365 days of the Effective Date (November 10, 2016), which is November 10, 2017. Therefore, no Construction Site Inspections and Enforcement requirements fall under this Reporting Period (January through June 2017).

SECTION 5

GENERAL STATUS

5.1 INTRODUCTION

This section summarizes the actions taken by the City of Haverhill to achieve compliance of the Consent Decree within the Reporting Period.

For the second Reporting Period (January through June 2017) there were thirteen deliverables and/or activities due within that timeframe to achieve compliance. Those thirteen deliverables/activities are shown in Table 5-1 below.

TABLE 5-1

SUBMISSIONS WITHIN CURRENT REPORTING PERIOD

Part	*Activity*	Final Due Date	Submittal Date
Effective Date of Consent Decree (11/10/2016)			
B	MS4 Sub-Catchment Area Illicit Discharge Investigations		
14	Submit revised MS4 IDDE Plan	2/8/2017	2/8/2017
C	Illicit Discharge Prohibition and Removal from MS4 System		
17	Adopt ordinance prohibiting non-SW discharges to MS4	2/8/2017	2/8/2017
	Develop MS4 IDDE Enforcement Manual	3/8/2017	3/8/2017
18	Eliminate all sources known as of Effective Date to cause pollutants in the City's stormwater	1/9/2017	1/5/2017
E	CMOM Program Assessment		
26	Submit updated CMOM Program Self-Assessment	EPA agreed to extend to 2/28/17	2/22/2017
F	CMOM Corrective Action Plan		
27	Submit CMOM Corrective Action Plan	EPA agreed to extend to 2/28/17	2/22/2017
H	Emergency Response Plan		
30	Submit Emergency Response Plan	2/8/2017	2/8/2017
L	POTW's Treatment Plant Planning & Improvements		

Part	*Activity*	Final Due Date	Submittal Date
48	Submit Comprehensive Plant Evaluation	EPA agreed to extend to 2/28/17	2/22/2017
M	CSO Monitoring		
51	Submit annual CSO activation report	4/30/2017	3/30/2017
N	CSO Planning & Plan Implementation		
53	Complete investigations of Bethany Ave CSO	1/9/2017	1/6/2017
54	Complete all remaining work in System Maximization & Wet Weather Maximization Plan in 6/17/13 letter	3/31/2017	3/28/2017
55	Submit Final CSO LTCP (FLTCP)	EPA agreed to extend to 2/28/17	2/22/2017
IX	Compliance Report No. 1 - July through December 2016	4/30/2017	4/28/2017

There were no work orders generated from the City's computerized maintenance management system, MaintStar, for outfall inspection (prefix STI) during this Reporting Period. In order to remain consistent with the format of this Compliance Report, Appendix A is included, however there are no items listed. Work orders generated for outfall investigations (prefix ST) programs from January through July 2017 are attached to this Compliance Report in Appendix B.

5.2 ISSUES OF NONCOMPLIANCE

The City is in compliance with the requirements of this Consent Decree, and there are no items of noncompliance to report.

5.3 LOOKING AHEAD - SIX MONTH FORECAST

The anticipated future deliverables, as well as continuous related activities required under the Consent Decree for the next Reporting Period, July to December 2017, are shown in Table 5-3.

Besides the required deliverables and related activities, the City plans to solicit an engineering consulting firm to design upgrades to the Carleton Street and North Avenue Pump Stations, as well as to continue their IDDE storm water pipe and manhole investigations in 2017.

TABLE 5-3

FUTURE DELIVERABLES DURING THE PROCEEDING REPORTING PERIOD

(JULY THROUGH DECEMBER 2017)

Part	*Activity*	*Trigger Event*	*# Days Due Post Trigger Event*	FINAL Due Dates
Effective Date of Consent Decree		11/10/2016		
B	MS4 Sub-Catchment Area Illicit Discharge Investigations			
	Associated deliverables pending EPA approval of IDDE			Pending
C	Illicit Discharge Prohibition and Removal from MS4 System			
20	Remove illicit discharges verified after Effective Date	Effective Date		Continuous
21	Submit schedule for illicit discharges that cannot be removed in 60 days, including legal dept procedures as to other property owners	Effective Date		Continuous
D	SSOs			
24	Repairing, tracking and reporting SSOs	Effective Date		Continuous
F	CMOM Corrective Action Plan			
27	Respond to DEP Comments	8/3/2017		10/1/2017
I	GIS Map			
33	Submit best available GIS or other digital mapping of MS4 and Collection System	Effective Date	365 days	11/10/2017
J	Construction Site Stormwater			
35	Require sediment & erosion control at Construction Sites thru ordinance	Effective Date	365 days	11/10/2017
36	Submit Construction Site inspection procedures & enforcement program	Effective Date	365 days	11/10/2017
40	Conduct at least 1 inspection of each Const Site known on Date of Lodging	Effective Date	365 days	11/10/2017
K	Post-Construction Stormwater Controls			
44	Require stormwater mgmt at post-construction projects through ordinance	Effective Date	365 days	11/10/2017
M	CSO Monitoring			
49	City began continuous monitoring at specified outfalls	4/9/2014		Continuous
50	Submit Email Notification of any CSO Discharge	Effective Date	within 24 hours	Continuous
IX	Compliance Report No. 2 January through June 2017	5/1/2017	180 Days	10/31/2017

SECTION 6

SECONDARY TREATMENT BYPASS

6.1 INTRODUCTION

The intent of this section is to summarize the secondary treatment bypass events that occurred at the City of Haverhill's Water Pollution Abatement Facility during the reporting period, January through June 2017.

6.2 BYPASS EVENTS

There were nineteen secondary treatment bypass events occurring on eighteen days during the reporting period, which are chronologically listed in Table 6-1. The table provides the following information as required under the Consent Decree:

- The date(s) of the Bypass
- The date(s) when the Bypass occurred, and the rainfall totals (inches)
- The presence, or absence of snowmelt
- The total plant influent flow (MGD)
- The total secondary treatment Bypass volume (MG)
- The start/stop time for each Bypass event, and plant flows at both the start and stop of the Bypass event
- The type and number of unit operations and processes that went offline, and the reason of each
- The total gallons of septage received on each Bypass event day
- During the time of Bypass, additional operations information
    - Influent and Effluent total suspended solids
    - The mean cell residence time for each aeration tank
    - The sludge blanket depth in the secondary clarifiers
    - The mixed liquor suspended solids in the aeration tanks

TABLE 6-1
SECONDARY TREATMENT BYPASS EVENTS

Bypass Event	#	2017-01		2017-02		2017-03	2017-04		2017-05
Date of Bypass		1/24/2017		2/25/2017		3/27/2017	03/28/17	03/29/17	4/1/2017
Date of Rainfall		1/24/2017	1/25/2017	2/25/2017	2/26/2017		03/28/17	03/29/17	4/1/2017
Weather Rainfall	Inches	1.15	0.48	0.00	0.29		0.74	0.70	1.32
snow melt	(y/n)	Yes	Yes	Yes	Yes	Yes		Yes	
Influent Flow	MGD	23.93	17.71	21.31	17.94	23.00	22.82	21.64	23.86
Bypass Flow Total	MG	2.34	0.00	0.27	0.00	2.89	3.55	0.74	2.91
Q, bypass start time		7:00am		10:40pm		1:50pm	7:00pm	Continued	1:20pm
Plant Flows @ Start	MGD	27		50		49	42	-	28
Q, bypass stop time		11:59 AM		11:40pm		7:50pm	Continued	5:20am	7:30pm
Plant Flows @ Stop	MGD	18		43		19	-	24	26
Max Influent Flow		23.04	21.32	39.77	22.85	54.46	35.99	28.26	59.34
Influent Septage Received	Gallons	0	6,500	0	0	2,350	5,600	4,700	0
Influent TSS	mg/L	232	124		332	188	188	104	
Effluent TSS	mg/L	78.00	11.00		11	77.60	16.00	38.00	
Aeration Basin #1 Sludge Volume Index	ml/g	211	208			375	109	138	
MLSS Lab	mg/L	2,372	2,112			1,600	2,300	1,810	
Mean Cell Residence Time	Days	4.43	4.81				3.41	4.32	
Aeration Basin #2 Sludge Volume Index	ml/g	199	189			374	187	140	
MLSS Lab	mg/L	2,460	2,220			1,872	2,144	1,780	
Mean Cell Residence Time	Days	4.46	4.89					3.33	4.31
Aeration Basin #3 Sludge Volume Index	ml/g	303	197.65			341.61	252.06	163.85	
MLSS Lab	mg/L	2,740	2,378.00			2,898.00	2,182.00	1,892.00	
Mean Cell Residence Time	Days	8.01	8.41				5.58	7.59	
Aeration Basins Online	#	3	3	3	3	3	3	3	3
Secondary Clarifier #1 Depth of Blanket	ft	14.0	5.0	8.0	7.0	2.5	12.5	12.0	8.0
Secondary Clarifier #2 Depth of Blanket	ft	13.0	6.0	7.0	7.0	4.0	5.0	8.0	10.0
Secondary Clarifier #3 Depth of Blanket	ft	10.0	11.0	6.0	6.0	5.0	5.0	7.0	12.0
Secondary Clarifiers Online	#	3	3	3	3	3	3	3	3

Note:
Gaps for requested data are due to secondary treatment bypass events occuring on a non-sampling days.
Refer to Section 6.3 regarding NOAA rainfall data.

TABLE 6-1 CONTINUED
SECONDARY TREATMENT BYPASS EVENTS

Bypass Event	#	2017-06	2017-07				2017-08	2017-09	2017-10	2017-11	2017-12
Date of Bypass		4/2/2017	4/3/2017	4/4/2017	4/5/2017	4/6/2017	4/7/2017	4/8/2017	4/9/2017		
Date of Rainfall		4/2/2017	4/3/2017	4/4/2017	4/5/2017	4/6/2017	4/7/2017	4/8/2017	4/9/2017	04/10/17	04/25/17
Weather Rainfall	Inches	0.89		0.02	0.81		1.15				
snow melt	(y/n)	Yes	Yes	Yes	Yes	Yes		Yes			
Influent Flow	MGD	29.13	27.15	36.75	30.85	40.77	37.20	29.95	25.43	20.77	16.70
Bypass Flow Total	MG	7.42	4.37	12.76	8.33	16.99	13.18	4.76	2.49	1.00	0.40
Q, bypass start time		12:15pm	6:45am	12:00am	12:00am	12:00am	11:40am	12:00am	12:00am	1:45am	10:33pm
Plant Flows @ Start	MGD	35	24	27	47	25	39	43	43	30	30
Q, bypass stop time		10:30pm	11:59 PM	11:59pm	11:59pm	11:59am	11:30pm	11:00pm	11:00pm	5:30am	11:28pm
Plant Flows @ Stop	MGD	30	26.5	47	26	55	15	20	20	19	20
Max Influent Flow		35.84	53.94	59.23	58.78	56.68	52.74	36.19	33.65	22.73	50.89
Influent Septage Received	Gallons	100	11,400	6,300	15,600	4,800	1,000	100	600	18,200	21,000
Influent TSS	mg/L	132	104	84	112	116			208	180	288
Effluent TSS	mg/L	87.20	137.00	6.60	8.20	33.50			5.80	10.20	6.40
Aeration Basin #1 Sludge Volume Index	ml/g		543	466	444	498	501			467	355
MLSS Lab	mg/L		1,656	2,126	2,028	1,708	1,978			1,778	2,026
Mean Cell Residence Time	Days		2.40	4.07	4.67	4.29					3.58
Aeration Basin #2 Sludge Volume Index	ml/g		664	442	495	499	495			534	404
MLSS Lab	mg/L		1,356	1,812	1,820	1,322	1,820			1,668	1,980
Mean Cell Residence Time	Days		2.30	3.87	4.52	4.08					3.55
Aeration Basin #3 Sludge Volume Index	ml/g		587.89	503.05	495.00	556.92	407.75			508.74	289.02
MLSS Lab	mg/L		1,684.00	1,968.00	2,000.00	1,634.00	1,962.00			1,946.00	2,076.00
Mean Cell Residence Time	Days		4.30	6.68	7.82	7.63					5.57
Aeration Basins Online	#	3	3	3	3	3	3	3	3	3	3
Secondary Clarifier #1 Depth of Blanket	ft	13.0	11.5	8.0	7.0	14.0	7.0	11.0	5.0	6.0	4.5
Secondary Clarifier #2 Depth of Blanket	ft	12.0	13.5	6.0	8.0	10.5	7.0	14.0	4.0	7.0	5.0
Secondary Clarifier #3 Depth of Blanket	ft	12.0	12.5	9.0	7.5	13.0	8.0	9.0	9.0	7.0	5.0
Secondary Clarifiers Online	#	3	3	3	3	3	3	3	3	3	3

Note:
Gaps for requested data are due to secondary treatment bypass events occuring on a non-sampling days.
Refer to Section 6.3 regarding NOAA rainfall data.

TABLE 6-1 CONTINUED
SECONDARY TREATMENT BYPASS EVENTS

Bypass Event	#	2017-13	2017-14		2017-15		2017-16		2017-17		2017-18
Date of Bypass			5/5/2017		5/14/2017		6/6/2017		6/27/2017		6/30/2017
Date of Rainfall		04/26/17	5/5/2017	5/6/2017	05/14/17	05/15/17	6/6/2017	6/7/2017	6/27/2017	6/28/2017	6/30/2017
Weather Rainfall	Inches	0.82		1.06	0.48	0.86	0.97	1.20		0.66	
snow melt	(y/n)										
Influent Flow	MGD	21.22	22.53	15.85	24.09	15.27	28.14	16.08	17.59	8.96	14.76
Bypass Flow Total	MG	1.47	5.39	0.00	4.36	0.00	2.09	0.00	2.49	0.00	1.89
Q, bypass start time		7:45am	6:00pm		6:00am		12:50am		5:20pm		9:08pm
Plant Flows @ Start	MGD	28	55		38		51		58		62
Q, bypass stop time		4:16pm	10:30pm		5:00pm		5:30pm		8:00pm		10:45pm
Plant Flows @ Stop	MGD	22	20		19		25		29		18
Max Influent Flow		22.13	36.22	20.63	28.45	19.25	35	19.95	15.81	13.6	
Influent Septage Received	Gallons	14,300	7,100	18,900	0	12,900	29,100	37,200	12,400	7,700	21,300
Influent TSS	mg/L	184			308	136	236	372	404	944	
Effluent TSS	mg/L	27.00			37.33	8.60	28	9	110	5	
Aeration Basin #1 Sludge Volume Index	ml/g	393	443			395	236	237	530	436	374
MLSS Lab	mg/L	1,398	1,804			1,394	1,440	1,646	1,586	1,606	1,632
Mean Cell Residence Time	Days	4.34				3.54	3.33	2.52	1.72	2.90	
Aeration Basin #2 Sludge Volume Index	ml/g	376	510			438	207	204	391	506	507
MLSS Lab	mg/L	1,330	1,942			1,598	1,452	1,566	2,146	1,680	1,618
Mean Cell Residence Time	Days	4.29				3.69	3.34	2.48	1.93	2.95	
Aeration Basin #3 Sludge Volume Index	ml/g	460.12	402.30			303.59	213.05	227	549.39	477	506.12
MLSS Lab	mg/L	1,304.00	1,914.00			1,614.00	1,502.00	1,760	1,802.00	1,720	1,798.00
Mean Cell Residence Time	Days	7.70				6.23	5.79	4.23	2.93	4.73	
Aeration Basins Online	#	3	3	3	3	3	3	3	3	3	3
Secondary Clarifier #1 Depth of Blanket	ft	13.0	8.0	9.0	13.0	10.0	6.0	5.0	7.0	7.0	7.0
Secondary Clarifier #2 Depth of Blanket	ft	12.5	7.0	11.0	13.0	9.0	11.0	5.0	8.0	7.0	5.0
Secondary Clarifier #3 Depth of Blanket	ft	12.0	7.0	7.0	11.0	8.0	3.0	5.0	8.0	6.0	5.0
Secondary Clarifiers Online	#	3	3	3		3	3	3	3	3	3

Note:
Gaps for requested data are due to secondary treatment bypass events occuring on a non-sampling days.
Refer to Section 6.3 regarding NOAA rainfall data.

For each Bypass that occurs during the Reporting Period, a monthly total suspended solids (TSS) surplus and deficit are shown below in Table 6-2.

TABLE 6-2

WPAF MONTHLY TOTAL SUSPENDED SOLIDS (TSS) SURPLUS & DEFICITS

Month/Year	Influent TSS (lbs)	Sludge Disposal (lbs)	Effluent TSS (lbs)	Surplus/Deficit (lbs)
January 2017	852,490	693,323	55,802	103,365
February 2017	703,045	612,746	18,946	71,353
March 2017	793,804	808,015	61,564	-75,775
April 2017	888,338	1,262,409	132,531	-506,602
May 2017	805,193	848,060	37,487	-80,354
June 2017	1,210,836	920,201	51,110	239,525

6.3 RAINFALL DATA

The Facility's operating data is captured and recorded by the SCADA/WIMS Systems each day from 12:00 AM until 11:59 PM. The National Oceanic and Atmospheric Administration (NOAA) weather station recording procedures, require that precipitation is recorded from 7:00 AM to 6:59 AM, with the data observed on the second day. The date inconsistencies between WPAF and NOAA data result in bypass dates with no recorded rainfall until the proceeding day.

For example, a secondary treatment bypass was performed on May 5, 2017, however no rainfall was recorded for that day. However, 1.06-inches of rainfall fell on May 5, 2017, but was reported on May 6, 2017, since the rain event occurred after 7:00 AM on May 5th. Similar inconsistencies in data for secondary treatment bypass events that occurred on January 24, February 25, May 14, and June 6, 2017.

SECTION 7

CMOM CORRECTIVE ACTION PLAN

7.1 INTRODUCTION

Pursuant to the Consent Decree, the City of Haverhill submitted the Capacity, Management, Operation, and Maintenance Program Assessment Corrective Action Plan (CMOM), dated February 22, 2017, to MassDEP and EPA. In their review letter dated August 3, 2017, MassDEP requested that a summary of the status of CMOM-Related corrective actions that occurred during the reporting period be including in the Compliance Reporting.

7.2 CMOM CORRECTIVE ACTIONS

The CMOM identified 28 deficiencies, their recommended corrective actions, and an implementation schedule, which are listed below in Table 7-1. Table 7-1 also provides an updated status for each corrective action. Table 7-1 will be updated and included in all future Compliance Reports.

7.3 ADDITIONAL CMOM-RELATED ACTIVITIES

In addition to the corrective activities, the City has also performed additional activities as outlined and recommended in the CMOM Program. The collection system maintenance activities that were performed from July 2016 through June 207 (Reporting Periods 1 and 2 respectively) and their associated costs are listed in Table 7-2 below.

Table 7-1
CMOM Corrective Action Plan & Status

Action #	Deficiency	Recommended Corrective Action	Implementation Schedule	Status
1	The City does not have a formal long-term plan to mitigate SSO.	The recommendations in the Wastewater Treatment Plant & Collection System Staffing Analysis (Woodard & Curran, 2017), Collection System CIP and Sewer Inspection SOP (Wright Pierce, 2016) will serve as a long the causes of SSOs.(Appendices B and F), and the Pump Station Evaluationterm plan to reduce the casue of SSOs	Ongoing	The City will be hiring an additional Collection System Operator approximately Dec.2017
2	The City does not have a comprehensive system to prioritize investigations, repairs, and rehabilitation.	Use the risk-based methods described in Appendices B and F to prioritize investigations, repairs, and rehabilitation.	Ongoing	The City has use CoF and LoF in determining to clean the Lower Siphon barrels and will do more formal documentation as projects present itself.
3	The City does not have updated job descriptions that match technical requirements for a modern collection system utility.	Update job descriptions for the revised organizational structure proposed in the Wastewater Treatment Plant & Collection System Staffing Analysis (Woodard & Curran, 2017)	Within one year after EPA approves the CMOM Action Plan	
4	Although the City training program includes some key safety training, staff would benefit from a formalized safety and technical training program.	Implement a staff training program using the guidelines outlined in Appendix C.	Within one year after EPA approves the CMOM Action Plan	
5	Although the City uses MaintStar to track customer complaints, they do not use the database to prioritize preventative maintenance.	Annually review customer complaint data using GIS to identify areas that may require further investigation.	Within three months after EPA approves the CMOM Action Plan	
6	The City lacks a comprehensive, risk based approach to maintenance planning.	Use the risk-based methods described in Appendices B and F to prioritize investigations, repairs, and rehabilitation.	Ongoing	The City has awarded a contract to clean the Lower Siphon (NPDES#013) barrels $167,475
7	Local limits need to be updated.	Perform a local limits study and update the limits table in the ordinance (per Appendix E, Sewer Ordinance Review).	Within one year after EPA approves the CMOM Action Plan	
8	The City needs to improve implementation and enforcement of their Sewer Use Ordinance (SUO).	Improve implementation and enforcement of the SUO. Begin mapping Food Service Establishments in GIS and building database of grease trap inspectional data.	Within one year after EPA approves the CMOM Action Plan	
9	The City should update recordkeeping pertaining to private systems.	Input private lift stations into CMMS to track issues & contact information.	Within three months after EPA approves the CMOM Action Plan	
10	The City does not have a finalized version of their capital improvement plan – which will include pump station upgrades, collection system rehabilitation, and WWTP upgrades.	The City should finalize their CIP and appropriate funds as necessary.	Within three months after EPA approves the CMOM Action Plan	
11	The City does not have a finalized version of their capital improvement plan – which will include pump station upgrades, collection system rehabilitation, and WWTP upgrades.	The City should finalize their CIP and appropriate funds as necessary.	Within three months after EPA approves the CMOM Action Plan	
12	The City has not verified that other air relief valves do not exist. Maintenance of air relief valves has not been performed historically.	Review record drawings and inspect force main routes to confirm location of air relief valves. If located, enter in GIS and schedule routine maintenance in CMMS.	Within one year after EPA approves the CMOM Action Plan	
13	The City does not have a standard procedure for maintaining safety training records.	The City will utilize their CMMS program to organize safety training records.	Within one year after EPA approves the CMOM Action Plan	
14	The City has a general emergency response plan (ERP). The Division recently completed an ERP for responding to SSOs. The Division lacks ERP for other collection system emergencies.	Develop ERP for collections-specific emergencies, in particular those affecting critical assets. For example, there should be an SOP for providing backup power to pump stations during a system-wide power outage.	Within one year after EPA approves the CMOM Action Plan	
15	The City does not have formal emergency response training.	Implement a program for training and practicing emergency response.	Within one year after EPA approves the CMOM Action Plan	
16	The City has a hydraulic model for interceptors and CSOs, but there is no city-wide hydraulic model.	Although developing a comprehensive hydraulic model is not a high priority, Woodard & Curran recommends building out the model as required to address capacity issues and plan for new development as the need arises.	As Needed	
17	The City does not have adequate staff to perform sufficient preventative maintenance on all 36 pump stations part of the collection system.	Follow the recommendations of the Wastewater Treatment Plant & Collection System Staffing Analysis (Woodard & Curran, 2017) to assign sufficient resources to keep up with required maintenance.	Within one year after EPA approves the CMOM Action Plan	

Action #	Deficiency	Recommended Corrective Action	Implementation Schedule	Status
18	Although there is generally sufficient redundancy of pumps and level controls, some stations require specific upgrades related to redundancy.	The City will utilize the recommendations of the Pump Station Evaluation (Wright Pierce, 2016) to evaluate future rehabilitation. The City is planning for Carleton Street PS and North Ave PS to be in construction by EOY 2019.	Ongoing	North Avenue and Carleton Street Pump Stations are currently in design; with an estimated construction completion by EOY 2018.
19	Not all pump stations have communication ability. Lack of communication at pump stations has contributed to SSOs.	The City will utilize the recommendations of the SCADA Study (Woodard & Curran, 2011) and Pump Station Evaluation (Wright Pierce, 2016) to evaluate communication improvements.	Ongoing	City is investigating an alarm system schedule for completion by October 2018
20	11 pump stations do not have working backup power, though most of these have connections for a portable generator or are small enough to pump out.	The City will utilize the recommendations of the SCADA Study (Woodard & Curran, 2011) and Pump Station Evaluation (Wright Pierce, 2016) to evaluate emergency power improvements. Develop an ERP to address a system-wide power outage including monitoring uel supplies, mobilizing portable generators, and pumping out with trucks.	Ongoing ERP for systemwide power outage will be developed within three months after EPA approves the CMOM Action Plan	
21	There is currently no schedule for cleaning sewer lines on a system-wide basis.	The City will utilize a 20-year plan to inspect all sewer pipes calculated to have a consequence of failure value ≥ 3 (approximately 57% of system). See the Collection System CIP (Appendix B) for additional information.	Will begin to implement program within six months after EPA approves the CMOM Action Plan	
22	The City does not have a dedicated location for offloading and dewatering sewer cleanings. The City does not have an enclosed location for storage of their sewer maintenance vehicles.	The City will purchase a dewatering dumpster for sewer cleanings. The City will construct a facility for storage of sewer maintenance vehicles.	Within three years after EPA approves the CMOM Action Plan	
23	The City does not have a list of assets located on right-of-ways. The City has also not developed an SOP for maintenance of right-of-ways and easements.	Identify off-street assets using GIS. Schedule preventative maintenance for maintaining accessibility in CMMS. Develop SOPs for specific easements as necessary, including contacting property owners to obtain keys, etc.	Within two years after EPA approves the CMOM Action Plan	
24	There is no systematic program for uncovering manholes that have been paved over.	Develop an SOP which includes: • Identification of paved over manholes as part of routine inspections • Add paved-over manholes to GIS. • Adding work orders to CMMS for raising paved-over manholes.	Within two years after EPA approves the CMOM Action Plan	
25	Although the City has identified areas with high measured inflow, building inspections have not been performed.	The City will perform trial building inspections to a sample of 10% of buildings located in Areas 14 & 23 Infiltration and Inflow Report (CDM Smith, 2011). Sample brochures will be sent out to buildings where inspections are not successfully completed.	Within two years after EPA approves the CMOM Action Plan	
26	The City lacks public education materials associated with roof leaders and sump pumps.	The City will consider using a public education campaign to inform residents of proper plumbing in areas of separated sewer.	Within one year after EPA approves the CMOM Action Plan	
27	The City lacks public education materials associated with roof leaders and sump pumps.	The City will consider using a public education campaign to inform residents of proper plumbing in areas of separated sewer.	Within one year after EPA approves the CMOM Action Plan	
28	The City does not have a system-wide manhole inspection program.	Perform manhole inspections using NASSCO Level 1 MACP. Prioritize and schedule using the risk-based approach described in Appendices B and F rehabilitation. The City plans to complete manhole inspections while performing pipe inspections.	Will begin to implement program within six months after EPA approves the CMOM Action Plan	

TABLE 7-2

CMOM-RELATED ACTIVITIES THAT OCCURRED

DURING REPORTING PERIODS 1 AND 2

(JULY 2016 THROUGH JUNE 2017)

Year	*Month*	*Project*	*Costs*
2016	July	Repair Baldwin Street Sewer Line	$4,500.00
	November	South New Street Excavation	$6,210.00
	November	South New Street Excavation	$2,500.00
	November	Water Street Sewer Repair	$12,788.00
2017	April	Clean the Upper Siphon	$159,943.00

APPENDIX A

MAINTSTAR

Storm Generic Inspection

DUE TO WINTER WEATHER CONDITIONS, NO WORK ORDERS PERTAINING TO OUTFALL INSPECTIONS WERE GENERATED DURING THE REPORTING PERIOD.

APPENDIX B

MaintStar Storm Work Order

Created By

W/O # ST00000196	**ADM Sys.**	**Activity** STORMWATER STORMWATER UTILITY	**Priority** 10
Issued 01/30/15 10:59	**Target** 01/30/15 10:59	**Assign to** SHAW001	**Approv. By** JESS001
Closed 00/00/00 00:00	**W/O Type** CM	Shaw David W	Jessel Paul J

Acc. No.	**Proj. No.**	**Map ID**	**Map Sheet**

Customer Info

First Name **Last Name** **Phone1** - - - **Phone2** - - -

Cross Street

Complaint ***Comments***

Problem Address ☐ **Use Customer Address** **Cross Street** **WReq. #**

Location Description ***Notes***

wo_udf1	**wo_udf2**	**wo_udf3**	**wo_udf4**	**wo_udf5**
wo_udf6	**Futher Action** ☐	**Claim Filed** ☐	**County Problem** ☐	**Customer Problem** ☐

Task Descr/Complaint: *Investigation MR1141*
Attached Files:
Action Taken: *Field Engineer notes*
GIS Map
Supervisor Notes: *Fecal Lab results*
Some CCTV Reports

See atatched Fecal Lab results

leave as this is an investigation
E.coil results >2,400 MPN/100mls
From the MS4 field Book input check Assets below
file called MR1141-DMH5806 TWICE failed and samples were taken from two different directions

Problem

MS4 STORM WATER OUTFALL

Action

506 INVESTIGATION

Seq	Date	Type	Code / Description	Hr	mm	Pay Type	Qty	Unit	Activity Location
1	10/11/16 04:40	labor	MARI001 - Marinez Samuel A	1	:00	REG			MS4 INVEST
2	10/11/16 00:00	labor	DAY001 - Day Zebulun	1	:00	REG			MS4 INVEST
3	10/11/16 00:00	labor	ROSA001 - Rosario Pedro	1	:00	REG			MS4 INVEST
4	10/11/16 00:00	labor	BECK001 - Beckwith Derek	1	:00	REG			MS4 INVEST
5	10/11/16 00:00	equip	VEH-S13 - 2013 F350 4X4	1	:00				MS4 INVEST
6	10/11/16 00:00	equip	VEH-S14 - 2014 F350 4X4	1	:00				MS4 INVEST
7	08/29/16 00:00	labor	MARI001 - Marinez Samuel A	2	:00	REG			MS4 INVEST
8	08/29/16 00:00	labor	DAY001 - Day Zebulun	2	:00	REG			MS4 INVEST
9	08/29/16 00:00	equip	VEH-S13 - 2013 F350 4X4	2	:00				MS4 INVEST
10	11/28/16 00:00	labor	MARI001 - Marinez Samuel A	2	:00	REG			MS4 INVEST
11	11/28/16 00:00	labor	DAY001 - Day Zebulun	2	:00	REG			MS4 INVEST
12	11/28/16 00:00	labor	BECK001 - Beckwith Derek	2	:00	REG			MS4 INVEST
13	11/28/16 00:00	equip	VEH-S13 - 2013 F350 4X4	2	:00				MS4 INVEST
14	11/28/16 00:00	equip	VEH-S14 - 2014 F350 4X4	2	:00				MS4 INVEST

MaintStar Storm Work Order

Created By

W/O # ST00000196 **ADM Sys.** **Activity** STORMWATER
STORMWATER UTILITY **Priority** 10

Issued 01/30/15 10:59 **Target** 01/30/15 10:59 **Assign to** SHAW001 **Approv. By** JESS001

Closed 00/00/00 00:00 **W/O Type** CM Shaw David W Jessel Paul J

Seq	Date	Type	Code / Description	Hr	mm	Pay Type	Qty	Unit	Activity Location
15	11/29/16 00:00	labor	MARI001 - Marinez Samuel A	2	:00	REG			MS4 INVEST
16	11/29/16 00:00	labor	DAY001 - Day Zebulun	2	:00	REG			MS4 INVEST
17	11/29/16 00:00	labor	BECK001 - Beckwith Derek	2	:00	REG			MS4 INVEST
18	11/29/16 00:00	equip	VEH-S14 - 2014 F350 4X4	2	:00				MS4 INVEST
19	11/29/16 00:00	equip	VEH-S13 - 2013 F350 4X4	2	:00				MS4 INVEST

Seq	Asset Type	Asset Id	Rating	Asset Descr	Cst Shr	%	Block #	Street / Cross Street / City ,State Zip
1	CBASIN	CB-586	.00	CLIFFE AVE	1.00	7.69		CLIFFE AVE
2	CBASIN	CB-587	.00	CLIFFE AVE	1.00	7.69		CLIFFE AVE
3	MANHOLE	DMH-212	.00	WORCESTER ST	1.00	7.69		WORCESTER ST
4	MANHOLE	DMH-213	.00	WORCESTER ST	1.00	7.69		WORCESTER ST
5	MANHOLE	DMH-54	.00	RIVER ST	1.00	7.69		RIVER ST
6	MANHOLE	DMH-55	.00	CLIFFE AVE	1.00	7.69		CLIFFE AVE
7	MANHOLE	DMH-56	.00	CLIFFE AVE	1.00	7.69		CLIFFE AVE
8	MANHOLE	DMH-57	.00	CLIFFE AVE	1.00	7.69		CLIFFE AVE
9	MANHOLE	DMH-58	.00	WORCESTER ST	1.00	7.69		WORCESTER ST
10	MANHOLE	DMH-5801	.00	RIVER ST	1.00	7.69		RIVER ST
11	MANHOLE	DMH-5805	.00	Cross Country	1.00	7.69		CROSS COUNTRY
12	MANHOLE	DMH-5806	.00	RIVER ST	1.00	7.69		RIVER ST
13	GE: DISCHARGE	MR1141	.00	CROSS COUNTRY	1.00	7.69		CROSS COUNTRY

Labor Cost $486.07 **Material Cost** $0.00 **Equipment Cost** $240.00

Contractors Cost $0.00 **Misc. Cost** $0.00 **Total W/O Cost** $726.07

Print Name _____ Signature _____ Date ____/____/____ ☐

MaintStar Storm Work Order

Created By

W/O # ST00000199	**ADM Sys.**	**Activity** STORMWATER STORMWATER UTILITY	**Priority** 10
Issued 01/30/15 11:02	**Target** 01/30/15 11:02	**Assign to** SHAN001	**Approv. By** JESS001
Closed 00/00/00 00:00	**W/O Type** CM	Shanahan Thomas M	Jessel Paul J

Acc. No.	Proj. No.	Map ID	Map Sheet

Customer Info

First Name **Last Name** **Phone1** - - - **Phone2** - - -

Cross Street

Complaint

Comments

Problem Address ☐ **Use Customer Address** **Cross Street** **WReq. #**

Location Description

Notes

wo_udf1	wo_udf2	wo_udf3	wo_udf4	wo_udf5
wo_udf6	Futher Action ☐	Claim Filed ☐	County Problem ☐	Customer Problem ☐

Task Descr/Complaint: *Investigation UNK0951*

Action Taken: *Attached Files:*
Field Engineer notes
GIS Map
Fecal Lab results
Some CCTV Reports

Supervisor Notes:

6/22/17 Sunny 80 degrees F
Sampled DMH-728 and UNK 0951
Waiting on results for further actions

No substantial flow coming into inlet pipe @ 70 Altamont st. Awaiting further orders.

Leave as this is an investigation
E.coli results >2,419.6 MPN/100mls
From the MS4 feild Book input check Assets below

Problem

MS4 STORM WATER OUTFALL

Action

506 INVESTIGATION

Seq	Date	Type	Code / Description	Hr	mm	Pay Type	Qty	Unit	Activity Location
1	07/22/16 00:00	labor	MARI001 - Marinez Samuel A	1	:30	REG			MS4 INVEST
2	07/22/16 00:00	labor	DAY001 - Day Zebulun	1	:30	REG			MS4 INVEST
3	07/22/16 00:00	labor	BECK001 - Beckwith Derek	1	:30	REG			MS4 INVEST
4	07/22/16 00:00	equip	VEH-S13 - 2013 F350 4X4	1	:30				MS4 INVEST
5	07/22/16 00:00	equip	VEH-S14 - 2014 F350 4X4	1	:30				MS4 INVEST
6	06/22/17 07:00	equip	VEH-S13 - 2013 F350 4X4	2	:00				MS4 INVEST
7	06/22/17 07:00	labor	DAY001 - Day Zebulun	2	:00	REG			MS4 INVEST
8	06/22/17 07:00	labor	BARO001 - BARON BRETT	2	:00	REG			MS4 INVEST

Seq	Asset Type	Asset Id	Rating	Asset Descr	Cst Slr	%	Block #	Street / Cross Street / City ,State Zip
1	CBASIN	CB-3046	.00	ALTAMONT ST	1.00	25.00		ALTAMONT ST

MaintStar Storm Work Order

Created By

W/O # ST00000199 **ADM Sys.** **Activity** STORMWATER
STORMWATER UTILITY **Priority** 10

Issued 01/30/15 11:02 **Target** 01/30/15 11:02 **Assign to** SHAN001 **Approv. By** JESS001

Closed 00/00/00 00:00 **W/O Type** CM Shanahan Thomas M Jessel Paul J

Seq	Asset Type	Asset Id	Rating	Asset Descr	Cst Shr	%	Block #	Street / Cross Street / City ,State Zip
2	MANHOLE	DMH-4636	.00	BROOK ST	1.00	25.00		BROOK ST
3	MANHOLE	DMH-728	.00	BROOK ST	1.00	25.00		BROOK ST
4	GE: DISCHARGE	UNK0951	.00	CROSS COUNTRY	1.00	25.00		CROSS COUNTRY

Labor Cost $181.37 **Material Cost** $0.00 **Equipment Cost** $100.00

Contractors Cost $0.00 **Misc. Cost** $0.00 **Total W/O Cost** $281.37

Print Name _____ Signature _____ Date ____/____/____ ☐

MaintStar Storm Work Order

Created By

W/O # ST00000200	**ADM Sys.**	**Activity** STORMWATER STORMWATER UTILITY	**Priority** 10
Issued 01/30/15 11:03	**Target** 01/30/15 11:03	**Assign to** SHAW001	**Approv. By** JESS001
Closed 00/00/00 00:00	**W/O Type** CM	Shaw David W	Jessel Paul J

Acc. No.	Proj. No.	Map ID	Map Sheet

Customer Info

First Name **Last Name** **Phone1** - - - **Phone2** - - -

Cross Street

Complaint ***Comments***

Problem Address ☐ **Use Customer Address** **Cross Street** **WReq. #**

Location Description ***Notes***

wo_udf1	wo_udf2	wo_udf3	wo_udf4	wo_udf5
wo_udf6	Futher Action ☐	Claim Filed ☐	County Problem ☑	Customer Problem ☐

Task Descr/Complaint: *Investigation UNK0955*

Action Taken: *The comment field is just an example to place data from a field test kit*

Supervisor Notes:

Attached Files:
Field Engineer notes
GIS Map
Fecal Lab results
Some CCTV Reports

DMH7542 needs to be raised to grade

Leave as this is an investigation
E.coil results >2,419.6 MPN/100mls
From the MS4 field Book input check Assets below
fecal results 17 pages see attachement page 12 ID CB4839 cam back Negative

Problem

MS4 STORM WATER OUTFALL

Action

506 INVESTIGATION

Seq	Date	Type	Code / Description	Hr	mm	Pay Type	Qty	Unit	Activity Location
1	10/13/16 00:00	labor	MARI001 - Marinez Samuel A	8	:00	REG			MS4 INVEST
2	10/13/16 00:00	labor	DAY001 - Day Zebulun	8	:00	REG			MS4 INVEST
3	10/13/16 00:00	labor	BECK001 - Beckwith Derek	8	:00	REG			MS4 INVEST
4	10/13/16 00:00	labor	ROSA001 - Rosario Pedro	8	:00	REG			MS4 INVEST
5	10/13/16 00:00	equip	VEH-S13 - 2013 F350 4X4	8	:00				MS4 INVEST
6	10/13/16 00:00	equip	VEH-S14 - 2014 F350 4X4	8	:00				MS4 INVEST
7	10/13/16 00:00	ctr	HPD - HAVERHILL POLICE DEPARTMENT				8.00		MS4 INVEST
8	10/14/16 00:00	labor	MARI001 - Marinez Samuel A	8	:00	REG			MS4 INVEST
9	10/14/16 00:00	labor	DAY001 - Day Zebulun	8	:00	REG			MS4 INVEST
10	10/14/16 00:00	labor	ROSA001 - Rosario Pedro	8	:00	REG			MS4 INVEST
11	10/14/16 00:00	labor	BECK001 - Beckwith Derek	8	:00	REG			MS4 INVEST
12	10/14/16 00:00	equip	VEH-S13 - 2013 F350 4X4	8	:00				MS4 INVEST

MaintStar Storm Work Order

Created By

W/O # ST00000200 **ADM Sys.** **Activity** STORMWATER
STORMWATER UTILITY **Priority** 10

Issued 01/30/15 11:03 **Target** 01/30/15 11:03 **Assign to** SHAW001 **Approv. By** JESS001

Closed 00/00/00 00:00 **W/O Type** CM Shaw David W Jessel Paul J

Seq	Date	Type	Code / Description	Hr	mm	Pay Type	Qty	Unit	Activity Location
13	10/14/16 00:00	equip	VEH-S14 - 2014 F350 4X4	8	:00				MS4 INVEST
14	10/17/16 00:00	labor	MARI001 - Marinez Samuel A	8	:00	REG			MS4 INVEST
15	10/17/16 00:00	labor	DAY001 - Day Zebulun	8	:00	REG			MS4 INVEST
16	10/17/16 00:00	labor	ROSA001 - Rosario Pedro	8	:00	REG			MS4 INVEST
17	10/17/16 00:00	labor	BECK001 - Beckwith Derek	8	:00	REG			MS4 INVEST
18	10/17/16 00:00	equip	VEH-S13 - 2013 F350 4X4	8	:00				MS4 INVEST
19	10/17/16 00:00	equip	VEH-S14 - 2014 F350 4X4	8	:00				MS4 INVEST
20	10/18/16 00:00	labor	MARI001 - Marinez Samuel A	8	:00	REG			MS4 INVEST
21	10/18/16 00:00	labor	DAY001 - Day Zebulun	8	:00	REG			MS4 INVEST
22	10/18/16 00:00	labor	ROSA001 - Rosario Pedro	8	:00	REG			MS4 INVEST
23	10/18/16 00:00	labor	BECK001 - Beckwith Derek	8	:00	REG			MS4 INVEST
24	10/18/16 00:00	equip	VEH-S13 - 2013 F350 4X4	8	:00				MS4 INVEST
25	10/18/16 00:00	equip	VEH-S14 - 2014 F350 4X4	8	:00				MS4 INVEST
26	10/19/16 00:00	labor	MARI001 - Marinez Samuel A	8	:00	REG			MS4 INVEST
27	10/19/16 00:00	labor	DAY001 - Day Zebulun	8	:00	REG			MS4 INVEST
28	10/19/16 00:00	labor	BECK001 - Beckwith Derek	8	:00	REG			MS4 INVEST
29	10/19/16 00:00	labor	ROSA001 - Rosario Pedro	8	:00	REG			MS4 INVEST
30	10/19/16 00:00	equip	VEH-S13 - 2013 F350 4X4	8	:00				MS4 INVEST
31	10/19/16 00:00	equip	VEH-S14 - 2014 F350 4X4	8	:00				MS4 INVEST
32	10/20/16 00:00	labor	MARI001 - Marinez Samuel A	8	:00	REG			MS4 INVEST
33	10/20/16 00:00	labor	DAY001 - Day Zebulun	8	:00	REG			MS4 INVEST
34	10/20/16 00:00	labor	ROSA001 - Rosario Pedro	8	:00	REG			MS4 INVEST
35	10/20/16 00:00	labor	BECK001 - Beckwith Derek	8	:00	REG			MS4 INVEST
42	10/20/16 00:00	equip	VEH-S13 - 2013 F350 4X4	8	:00				MS4 INVEST
43	10/20/16 00:00	equip	VEH-S14 - 2014 F350 4X4	8	:00				MS4 INVEST
44	10/26/16 00:00	labor	MARI001 - Marinez Samuel A	8	:00	REG			MS4 INVEST
45	10/26/16 00:00	labor	DAY001 - Day Zebulun	8	:00	REG			MS4 INVEST
46	10/26/16 00:00	equip	VEH-S13 - 2013 F350 4X4	8	:00				MS4 INVEST
47	10/26/16 00:00	ctr	BMCCorp - BMC Corp.				8.00		MS4 INVEST
48	10/26/16 00:00	ctr	HPD - HAVERHILL POLICE DEPARTMENT				8.00		MS4 INVEST
49	11/28/16 00:00	labor	MARI001 - Marinez Samuel A	1	:00	REG			MS4 INVEST
50	11/28/16 00:00	labor	DAY001 - Day Zebulun	1	:00	REG			MS4 INVEST
51	11/28/16 00:00	equip	VEH-S13 - 2013 F350 4X4	1	:00				MS4 INVEST

Seq	Asset Type	Asset Id	Rating	Asset Descr	Cst Shr	%	Block #	Street / Cross Street / City ,State Zip
1	CBASIN	CB-4839	.00	FOREST ACRES DR	1.00	3.03		FOREST ACRES DR
2	CBASIN	CB-9136	.00	SOUTH MAIN ST	1.00	3.03		
3	CBASIN	CB-9137	.00	SOUTH MAIN ST	1.00	3.03		
4	CBASIN	CB-9158	.00	PARKING LOT	1.00	3.03		
5	CBASIN	CB-9159	.00	CROSS COUNTRY	1.00	3.03		
6	CBASIN	CB-9160	.00		1.00	3.03		
7	CBASIN	CB-9161	.00	CROSS COUNTRY	1.00	3.03		
8	CBASIN	CB-9162	.00	CROSS COUNTRY	1.00	3.03		
9	MANHOLE	DMH-1194	.00	Cross Country	1.00	3.03		CROSS COUNTRY
10	MANHOLE	DMH-6917	.00	FOREST ACRES DR	1.00	3.03		FOREST ACRES DR
11	MANHOLE	DMH-6918	.00	FOREST ACRES DR	1.00	3.03		FOREST ACRES DR
12	MANHOLE	DMH-6919	.00	FOREST ACRES DR	1.00	3.03		FOREST ACRES DR
13	MANHOLE	DMH-6920	.00	FOREST ACRES DR	1.00	3.03		FOREST ACRES DR
14	MANHOLE	DMH-6921	.00	FOREST ACRES DR	1.00	3.03		FOREST ACRES DR
15	MANHOLE	DMH-6922	.00	FOREST ACRES DR	1.00	3.03		FOREST ACRES DR
16	MANHOLE	DMH-6923	.00	FOREST ACRES DR	1.00	3.03		FOREST ACRES DR

MaintStar Storm Work Order

Created By

W/O # ST00000200 **ADM Sys.**
Activity STORMWATER
STORMWATER UTILITY
Priority 10
Issued 01/30/15 11:03 **Target** 01/30/15 11:03
Assign to SHAW001
Approv. By JESS001
Closed 00/00/00 00:00 **W/O Type** CM
Shaw David W
Jessel Paul J

Seq	Asset Type	Asset Id	Rating	Asset Descr	Cst Shr	%	Block #	Street / Cross Street / City ,State Zip
17	MANHOLE	DMH-6924	.00	FOREST ACRES DR	1.00	3.03		FOREST ACRES DR
18	MANHOLE	DMH-7271	.00	SOUTH MAIN ST	1.00	3.03		SOUTH MAIN ST
19	MANHOLE	DMH-7543	.00	SOUTH MAIN ST	1.00	3.03		SOUTH MAIN ST
20	MANHOLE	DMH-7544	.00	SOUTH MAIN ST	1.00	3.03		SOUTH MAIN ST
21	MANHOLE	DMH-7545	.00	SOUTH MAIN ST	1.00	3.03		SOUTH MAIN ST
22	MANHOLE	DMH-7547	.00	FOREST ACRES DR	1.00	3.03		FOREST ACRES DR
23	MANHOLE	DMH-7548	.00	FOREST ACRES DR	1.00	3.03		FOREST ACRES DR
24	MANHOLE	DMH-804	.00	SOUTH MAIN ST	1.00	3.03		SOUTH MAIN ST
25	MANHOLE	DMH-9370	.00		1.00	3.03		
26	MANHOLE	DMH-9374	.00	SOUTH MAIN ST	1.00	3.03		SOUTH MAIN ST
27	MANHOLE	DMH-9376	.00	SOUTH MAIN ST	1.00	3.03		SOUTH MAIN ST
28	MANHOLE	DMH-9385	.00	CROSS COUNTRY	1.00	3.03		CROSS COUNTRY
29	MANHOLE	DMH-9386	.00	FOREST ACRES DR	1.00	3.03		FOREST ACRES DR
30	MANHOLE	DMH-9390	.00	FOREST ACRES DR	1.00	3.03		FOREST ACRES DR
31	MANHOLE	DMH-945	.00	SOUTH MAIN ST	1.00	3.03		SOUTH MAIN ST
32	MANHOLE	DMH-946	.00	SOUTH MAIN ST	1.00	3.03		SOUTH MAIN ST
33	GE: DISCHARGE	UNK0955	.00	CROSS COUNTRY	1.00	3.03		CROSS COUNTRY

Labor Cost $5,126.70 **Material Cost** $0.00 **Equipment Cost** $2,100.00
Contractors Cost $672.00 **Misc. Cost** $0.00 **Total W/O Cost** $7,898.70

Print Name _____ Signature _____ Date ____/____/____ ☐

MaintStar Storm Work Order

Created By

W/O # ST00000202	**ADM Sys.**	**Activity** STORMWATER STORMWATER UTILITY	**Priority** 10
Issued 01/30/15 11:06	**Target** 01/30/15 11:06	**Assign to** SHAW001	**Approv. By** JESS001
Closed 00/00/00 00:00	**W/O Type** CM	Shaw David W	Jessel Paul J

Acc. No.	Proj. No.	Map ID	Map Sheet

Customer Info

First Name **Last Name** **Phone1** - - - **Phone2** - - -

Cross Street

Complaint ***Comments***

Problem Address ☐ **Use Customer Address** **Cross Street** **WReq. #**

Location Description ***Notes***

wo_udf1	wo_udf2	wo_udf3	wo_udf4	wo_udf5
wo_udf6	Futher Action ☐	Claim Filed ☐	County Problem ☑	Customer Problem ☐

Task Descr/Complaint: *Investigation PL0891*

Action Taken: *Attached Files:*
Field Engineer notes
GIS Map
Fecal Lab results
Some CCTV Reports
Probable cost spreadsheet

Supervisor Notes: *Minimal Stormwater infrastrucure was survey asthe sewer was broken at the invert, into the 4-inch underdrain.*
CCTV work:
SMH2190 SMH2189 SMH2187 SMH2184 SMH7800 SMH2188 SMH2181 SMH2182 SMH2183 SMH2186 SMH2185

Leave as this is an investagation
E.coli results >2,419.6 MPN/100mls
From the MS4 feild Book input check Assets below

Problem

MS4 STORM WATER OUTFALL

Action

506 INVESTIGATION

Seq	Date	Type	Code / Description	Hr	mm	Pay Type	Qty	Unit	Activity Location
1	07/22/16 00:00	labor	DAY001 - Day Zebulun	0	:30	REG			MS4 INVEST
2	07/22/16 00:00	labor	BECK001 - Beckwith Derek	0	:30	REG			MS4 INVEST
3	07/22/16 00:00	equip	VEH-S14 - 2014 F350 4X4	0	:30				MS4 INVEST
4	09/21/16 00:00	labor	MARI001 - Marinez Samuel A	4	:00	REG			MS4 INVEST
5	09/21/16 00:00	labor	DAY001 - Day Zebulun	4	:00	REG			MS4 INVEST
6	09/21/16 00:00	labor	ROSA001 - Rosario Pedro	4	:00	REG			MS4 INVEST
7	09/21/16 00:00	labor	BECK001 - Beckwith Derek	4	:00	REG			MS4 INVEST
8	09/21/16 00:00	equip	VEH-S13 - 2013 F350 4X4	4	:00				MS4 INVEST
9	09/21/16 00:00	equip	VEH-S14 - 2014 F350 4X4	4	:00				MS4 INVEST
10	09/21/16 00:00	ctr	BMCCorp - BMC Corp.				4.00		MS4 INVEST
11	09/21/16 00:00	ctr	HPD - HAVERHILL POLICE DEPARTMENT				4.00		MS4 INVEST

MaintStar Storm Work Order

Created By

W/O # ST00000202 **ADM Sys.** **Activity** STORMWATER
STORMWATER UTILITY **Priority** 10

Issued 01/30/15 11:06 **Target** 01/30/15 11:06 **Assign to** SHAW001 **Approv. By** JESS001

Closed 00/00/00 00:00 **W/O Type** CM Shaw David W Jessel Paul J

Seq	Date	Type	Code / Description	Hr	mm	Pay Type	Qty	Unit	Activity Location
12	09/28/16 00:00	labor	DAY001 - Day Zebulun	2	:00	REG			MS4 INVEST
13	09/28/16 00:00	labor	ROSA001 - Rosario Pedro	2	:00	REG			MS4 INVEST
14	09/28/16 00:00	equip	VEH-S14 - 2014 F350 4X4	2	:00				MS4 INVEST
15	10/03/16 00:00	labor	MARI001 - Marinez Samuel A	4	:00	REG			MS4 INVEST
16	10/03/16 00:00	labor	DAY001 - Day Zebulun	4	:00	REG			MS4 INVEST
17	10/03/16 00:00	labor	ROSA001 - Rosario Pedro	4	:00	REG			MS4 INVEST
18	10/03/16 00:00	labor	BECK001 - Beckwith Derek	4	:00	REG			MS4 INVEST
19	10/03/16 00:00	equip	VEH-S13 - 2013 F350 4X4	4	:00				MS4 INVEST
20	10/03/16 00:00	equip	VEH-S14 - 2014 F350 4X4	4	:00				MS4 INVEST
21	10/05/16 00:00	labor	MARI001 - Marinez Samuel A	8	:00	REG			MS4 INVEST
22	10/05/16 00:00	labor	DAY001 - Day Zebulun	8	:00	REG			MS4 INVEST
23	10/05/16 00:00	labor	ROSA001 - Rosario Pedro	8	:00	REG			MS4 INVEST
24	10/05/16 00:00	labor	BECK001 - Beckwith Derek	8	:00	REG			MS4 INVEST
25	10/05/16 00:00	equip	VEH-S13 - 2013 F350 4X4	8	:00				MS4 INVEST
26	10/05/16 00:00	equip	VEH-S14 - 2014 F350 4X4	8	:00				MS4 INVEST
27	10/05/16 00:00	ctr	DiagleEnt - Rooter-Man / Daigle Enterprise				8.00		MS4 INVEST
28	10/05/16 00:00	ctr	BMCCorp - BMC Corp.				8.00		MS4 INVEST
29	10/05/16 00:00	ctr	HPD - HAVERHILL POLICE DEPARTMENT				8.00		MS4 INVEST
30	10/05/16 00:00	equip	VEH-S11 - 2004 SEWER JET MACHINE	8	:00				MS4 INVEST

Seq	Asset Type	Asset Id	Rating	Asset Descr	Cst Shr	%	Block #	Street / Cross Street / City ,State Zip
1	CBASIN	CB-3318	.00	MAIN ST	1.00	9.09		MAIN ST
2	MANHOLE	DMH-45	.00	MARSH AVE	1.00	9.09		MARSH AVE
3	MANHOLE	DMH-46	.00	NORTH AVE	1.00	9.09		NORTH AVE
4	MANHOLE	DMH-47	.00	MARSH AVE	1.00	9.09		MARSH AVE
5	MANHOLE	DMH-48	.00	MARSH AVE	1.00	9.09		MARSH AVE
6	MANHOLE	DMH-583	.00	MARSH AVE	1.00	9.09		MARSH AVE
7	MANHOLE	DMH-584	.00	MAIN ST	1.00	9.09		MAIN ST
8	MANHOLE	DMH-585	.00	MARSH AVE	1.00	9.09		MARSH AVE
9	MANHOLE	DMH-7891	.00	MAIN ST	1.00	9.09		MAIN ST
10	MANHOLE	DMH-8486	.00	NORTH AVE	1.00	9.09		NORTH AVE
11	GE: DISCHARGE	PL0891	.00	CROSS COUNTRY	1.00	9.09		CROSS COUNTRY

Labor Cost $1,682.92 **Material Cost** $0.00 **Equipment Cost** $938.00

Contractors Cost $504.00 **Misc. Cost** $0.00 **Total W/O Cost** $3,124.92

Print Name _____ Signature _____ Date ____/____/____ ☐

MaintStar Storm Work Order

Created By

W/O # ST00000386	**ADM Sys.**	**Activity** STORMWATER STORMWATER UTILITY	**Priority** 10
Issued 09/21/15 00:00	**Target** 09/21/15 00:00	**Assign to** SHAW001	**Approv. By** JESS001
Closed 00/00/00 00:00	**W/O Type**	Shaw David W	Jessel Paul J

Acc. No.	Proj. No.	Map ID	Map Sheet

Customer Info

First Name **Last Name** **Phone1** - - - **Phone2** - - -

Cross Street

Complaint ***Comments***

Problem Address ☐ **Use Customer Address** **Cross Street** **WReq. #**

Location Description ***Notes***

wo_udf1	wo_udf2	wo_udf3	wo_udf4	wo_udf5
wo_udf6	Futher Action ☐	Claim Filed ☐	State Problem ☐	Customer Problem ☐

Task Descr/Complaint: *INVESTAGATE MR1164*

Action Taken:

Supervisor Notes:

Reinspection for DEP
6/22/17
80 Degrees F

SMH 1157 Sampled
MR 1164 Sampled

SMH 1336 inspected no flow
SMH 7739 inspected no flow

Bethany Ave, Market Basket parking lot

This is Bethany CSO outfall NO Asset ID is available

See attached two lab results
Enterococci <10 MPN/100 mls LIMIT 35 CFU
E. coli 461 MPN/100ml LIMIT 88 CFU

Problem

MS4 STORM WATER OUTFALL

Action

506 INVESTIGATION

Seq	Date	Type	Code / Description	Hr	mm	Pay Type	Qty	Unit	Activity Location
1	06/22/17 00:00	labor	MARI001 - Marinez Samuel A	1	:00	REG			
2	06/22/17 00:00	labor	BECK001 - Beckwith Derek	1	:00	REG			
3	06/22/17 00:00	labor	BARO001 - BARON BRETT	1	:00	REG			
4	06/22/17 00:00	equip	VEH-S14 - 2014 F350 4X4	1	:00				
5	06/22/17 00:00	equip	VEH-S13 - 2013 F350 4X4	1	:00				
6	07/20/17 00:00	labor	MARI001 - Marinez Samuel A	1	:00	REG			
7	07/20/17 00:00	labor	DAY001 - Day Zebulun	1	:00	REG			

MaintStar Storm Work Order

Created By

W/O # ST00000386 **ADM Sys.**
Activity STORMWATER
STORMWATER UTILITY
Priority 10
Issued 09/21/15 00:00 **Target** 09/21/15 00:00
Assign to SHAW001
Approv. By JESS001
Closed 00/00/00 00:00 **W/O Type**
Shaw David W
Jessel Paul J

Seq	Date	Type	Code / Description	Hr	mm	Pay Type	Qty	Unit	Activity Location
8	07/20/17 00:00	labor	BARO001 - BARON BRETT	1	:00	REG			
9	07/20/17 00:00	equip	VEH-S14 - 2014 F350 4X4	1	:00				

Seq	Asset Type	Asset Id	Rating	Asset Descr	Cst Shr	%	Block #	Street / Cross Street / City ,State Zip
1	CBASIN	CB-3357	.00	BETHANY AVE	1.00	16.67		BETHANY AVE
2	CBASIN	CB-3358	.00	BETHANY AVE	1.00	16.67		BETHANY AVE
3	CBASIN	CB-3359	.00	WATER ST	1.00	16.67		WATER ST
4	CBASIN	CB-3360	.00	WATER ST	1.00	16.67		WATER ST
5	CBASIN	CB-7336	.00	Cross Country	1.00	16.67		
6	CBASIN	CB-8511	.00	Cross Country	1.00	16.67		

Labor Cost $121.51 **Material Cost** $0.00 **Equipment Cost** $60.00
Contractors Cost $0.00 **Misc. Cost** $0.00 **Total W/O Cost** $181.51

Print Name _____ Signature _____ Date ____/____/____ ☐

MaintStar Storm Work Order

Created By BBARON

W/O # ST00001150	**ADM Sys.**	**Activity** STORMWATER STORMWATER UTILITY	**Priority** 10
Issued 06/29/17 07:15	**Target** 06/29/17 07:15	**Assign to** SHAW001	**Approv. By** JESS001
Closed 00/00/00 00:00	**W/O Type** CM	Shaw David W	Jessel Paul J

Acc. No.	Proj. No.	Map ID	Map Sheet

Customer Info

First Name **Last Name** **Phone1** - - - **Phone2** - - -

Cross Street

Complaint ***Comments***

Problem Address ☐ **Use Customer Address** **Cross Street** **WReq. #**

Location Description ***Notes***

wo_udf1	wo_udf2	wo_udf3	wo_udf4	wo_udf5
wo_udf6	Futher Action ☐	Claim Filed ☐	County Problem ☐	Customer Problem ☐

Task Descr/Complaint: *Investigation UNK 1734*

Action Taken:

Supervisor Notes:

6/15/2017- Went upstream to the next DMH. Looked for yet could not locate DMH 6919 nor DMH 6931. Need to return with camera and locator to find these DMH's.
Will return to gather samples 6/19/2017, depending on weather.

6/16/2017- DMH 6916 (marked in green) needs to be raised to grade. Could not locate DMH 6931, need camera with locator.

6/19/2017- Sampled DMH 6925, Zeb entered manhole to collect sample (clear) from DMH 9078 upstream (burried). Catch basins dry.
-SMH 6901 smapled by Zeb from DMH upstream. Catch basin is dry (not flwoing) however a line is running into said catch basin's pipe (CB4809). String oder detected. Zeb collected sample from this intercepting pipe (cloudy). CB 4809 no flow, CB 9175 no flow.
DMH 6909 entered by Zeb to sample (clear), CB 9204 no flow. CB 4829 is flowing, sample collected (clear).
***CB8655** is missing (does not exist)*
DMH 6911 flowing, Zeb collected sample(clear). CB 4826 no flow. DMH6911 needs repair. Missing fram and cover. Photos taken on iPad.

Duplicate assets
Date inputs with descriptions within the ellipsis

UNK1734
DMH-6934
DMH-6925
CB-4851
DMH-9079
CB-8651
CB-8652
DMH-9080
CB-8658

Created By BBARON

W/O #	ST00001150	**ADM Sys.**		**Activity**	STORMWATER STORMWATER UTILITY
Priority	10	**Issued**	06/29/17 07:15	**Target**	06/29/17 07:15
Assign to	SHAW001 Shaw David W	**Approv. By**	JESS001 Jessel Paul J	**Closed**	00/00/00 00:00
W/O Type	CM				

6/13/2017- Added pipe size changes to GIS
-Preliminary inspection. Need to return for samples

6/14/2017- DMH inspection reports taken. Given to engineering (James).
Sampled: DMH 9081, DMH 6925, CB8660 (from 134 Evergreen Drive). Need to be retaken.

6/15/2017- ADded new line and point to GIS from DMH6904.
USed camera in DMH6904 to locate structure 48' up the line from newly added 12" pipe.

6/16/2017- Camerad line from CB 4821 (25') to DMH6916 in order to locate.
Located DMH 6916, marked out in green.
Tried digging by hand but too deep. Surrounded by poison ivy.

6/19/2017 Sampled collected from: DMH6925, DMH6901 (from DMH upstream and CB 4809's oderous unknown connection), DMH 6909, CB 4829, DMH 6911.

Leave as this is an ivestigation
E. coli results 1188.07 MPN/ 100 m/s
From the MS4 feild Book input check Assets below

See attached FEcal lab results
See attached Fecal results below.

Problem

MS4 STORM WATER OUTFALL

Seq	Date	Type	Code / Description	Hr	mm	Pay Type	Qty	Unit	Activity Location
1	06/13/17 00:00	labor	DAY001 - Day Zebulun	3	:00	REG			
2	06/13/17 00:00	labor	BARO001 - BARON BRETT	3	:00	REG			
3	06/13/17 00:00	equip	VEH-S13 - 2013 F350 4X4	3	:00				
4	06/14/17 00:00	equip	VEH-S14 - 2014 F350 4X4	5	:00				
5	06/14/17 00:00	equip	VEH-S13 - 2013 F350 4X4	5	:00				
6	06/14/17 00:00	labor	MARI001 - Marinez Samuel A	5	:00	REG			
7	06/14/17 00:00	labor	ROSA001 - Rosario Pedro	5	:00	REG			
8	06/14/17 00:00	labor	DAY001 - Day Zebulun	5	:00	REG			
9	06/14/17 00:00	labor	BARO001 - BARON BRETT	5	:00	REG			
10	06/15/17 00:00	labor	DAY001 - Day Zebulun	4	:00	REG			
11	06/15/17 00:00	labor	BARO001 - BARON BRETT	4	:00	REG			
12	06/15/17 00:00	equip	VEH-S13 - 2013 F350 4X4	4	:00				
13	06/16/17 00:00	equip	VEH-S13 - 2013 F350 4X4	4	:00				
14	06/16/17 00:00	labor	BARO001 - BARON BRETT	4	:00	REG			
15	06/16/17 00:00	labor	DAY001 - Day Zebulun	4	:00	REG			
16	06/19/17 00:00	labor	MARI001 - Marinez Samuel A	2	:00	REG			
17	06/19/17 00:00	labor	DAY001 - Day Zebulun	2	:00	REG			
18	06/19/17 00:00	labor	BARO001 - BARON BRETT	2	:00	REG			
19	06/19/17 00:00	equip	VEH-S13 - 2013 F350 4X4	2	:00				
20	06/19/17 00:00	equip	VEH-S3 - 1/2 Ton 2004 Ford F150	2	:00				

Seq	Asset Type	Asset Id	Rating	Asset Descr	Cst Shr	%	Block #	Street / Cross Street / City ,State Zip
1	CBASIN	CB-4809	.00	PRESIDENTIAL DR	1.00	2.86		PRESIDENTIAL DR
2	CBASIN	CB-4821	.00	Cross Country	1.00	2.86		CROSS COUNTRY
3	CBASIN	CB-4822	.00	EVERGREEN DR	1.00	2.86		EVERGREEN DR
4	CBASIN	CB-4823	.00	EVERGREEN DR	1.00	2.86		EVERGREEN DR
5	CBASIN	CB-4825	.00	Cross Country	1.00	2.86		CROSS COUNTRY
6	CBASIN	CB-4826	.00	Cross Country	1.00	2.86		CROSS COUNTRY
7	CBASIN	CB-4827	.00	Cross Country	1.00	2.86		CROSS COUNTRY

MaintStar Storm Work Order

Created By BBARON

W/O # ST00001150 **ADM Sys.**
Activity STORMWATER
STORMWATER UTILITY
Priority 10
Issued 06/29/17 07:15 **Target** 06/29/17 07:15
Assign to SHAW001
Approv. By JESS001
Closed 00/00/00 00:00 **W/O Type** CM
Shaw David W
Jessel Paul J

Seq	Asset Type	Asset Id	Rating	Asset Descr	Cst Shr	%	Block #	Street / Cross Street / City ,State Zip
8	CBASIN	CB-4828	.00	Cross Country	1.00	2.86		CROSS COUNTRY
9	CBASIN	CB-4829	.00	PRESIDENTIAL DR	1.00	2.86		PRESIDENTIAL DR
10	CBASIN	CB-4830	.00	Cross Country	1.00	2.86		CROSS COUNTRY
11	CBASIN	CB-4851	.00	PRESIDENTIAL DR	1.00	2.86		PRESIDENTIAL DR
12	CBASIN	CB-4852	.00	PRESIDENTIAL DR	1.00	2.86		PRESIDENTIAL DR
13	CBASIN	CB-8651	.00	PRESIDENTIAL DR	1.00	2.86		
14	CBASIN	CB-8652	.00	PRESIDENTIAL DR	1.00	2.86		
15	CBASIN	CB-8653	.00	PRESIDENTIAL DR	1.00	2.86		
16	CBASIN	CB-8654	.00	PRESIDENTIAL DR	1.00	2.86		
17	CBASIN	CB-8658	.00	EVERGREEN DR	1.00	2.86		
18	CBASIN	CB-8659	.00	EVERGREEN DR	1.00	2.86		
19	CBASIN	CB-8660	.00	Cross Country	1.00	2.86		
20	CBASIN	CB-9175	.00	CROSS COUNTRY	1.00	2.86		
21	CBASIN	CB-9204	.00	PARKING LOT	1.00	2.86		
22	MANHOLE	DMH-6901	.00	PRESIDENTIAL DR	1.00	2.86		PRESIDENTIAL DR
23	MANHOLE	DMH-6904	.00	EVERGREEN DR	1.00	2.86		EVERGREEN DR
24	MANHOLE	DMH-6909	.00	PRESIDENTIAL DR	1.00	2.86		PRESIDENTIAL DR
25	MANHOLE	DMH-6911	.00	Cross Country	1.00	2.86		CROSS COUNTRY
26	MANHOLE	DMH-6916	.00	Cross Country	1.00	2.86		CROSS COUNTRY
27	MANHOLE	DMH-6925	.00	PRESIDENTIAL DR	1.00	2.86		PRESIDENTIAL DR
28	MANHOLE	DMH-6926	.00	FOREST ACRES DR	1.00	2.86		FOREST ACRES DR
29	MANHOLE	DMH-6931	.00	Cross Country	1.00	2.86		CROSS COUNTRY
30	MANHOLE	DMH-6934	.00	PRESIDENTIAL DR	1.00	2.86		PRESIDENTIAL DR
31	MANHOLE	DMH-9078	.00	PRESIDENTIAL DR	1.00	2.86		PRESIDENTIAL DR
32	MANHOLE	DMH-9079	.00	PRESIDENTIAL DR	1.00	2.86		PRESIDENTIAL DR
33	MANHOLE	DMH-9080	.00	PRESIDENTIAL DR	1.00	2.86		PRESIDENTIAL DR / / Haverhill, MA 01835
34	MANHOLE	DMH-9081	.00	EVERGREEN DR	1.00	2.86		EVERGREEN DR
35	GE: DISCHARGE	UNK1734	.00	PRESIDENTIAL DR	1.00	2.86		

Labor Cost $957.48 **Material Cost** $0.00 **Equipment Cost** $500.00
Contractors Cost $0.00 **Misc. Cost** $0.00 **Total W/O Cost** $1,457.48

Print Name _____ Signature _____ Date ____/____/____ ☐

APPENDIX C

APPENDIX C
SECONDARY TREATMENT BYPASS EVENT INFORMATION

In addition to the information provided in Table 6-1, for the eighteen secondary treatment bypass events that occurred during the reporting period, per the request of the Massachusetts Department of Environmental Protection, the following information is provided:

- Table 6-1 Secondary Treatment Bypass Events from Compliance Report No. 2 (included in Appendix C for reference).
- State NPDES Monthly Reports (January through June 2017)
- Each Bypass Event Includes the following:
    - Daily Log
    - Comments Logbook
    - Notable Operations Data
        - SCADA Influent Flow Trend Graph
        - SCADA Bypass Flow Trend Graph
        - Capacity of Secondary Treatment System

TABLE 6-1
SECONDARY TREATMENT BYPASS EVENTS

Bypass Event	#	2017-01		2017-02		2017-03	2017-04		2017-05
Date of Bypass		1/24/2017		2/25/2017		3/27/2017	03/28/17	03/29/17	4/1/2017
Date of Rainfall		1/24/2017	1/25/2017	2/25/2017	2/26/2017		03/28/17	03/29/17	4/1/2017
Weather Rainfall	Inches	1.15	0.48	0.00	0.29		0.74	0.70	1.32
snow melt	(y/n)	Yes	Yes	Yes	Yes	Yes		Yes	
Influent Flow	MGD	23.93	17.71	21.31	17.94	23.00	22.82	21.64	23.86
Bypass Flow Total	MG	2.34	0.00	0.27	0.00	2.89	3.55	0.74	2.91
Q, bypass start time		7:00am		10:40pm		1:50pm	7:00pm	Continued	1:20pm
Plant Flows @ Start	MGD	27		50		49	42	-	28
Q, bypass stop time		11:59 AM		11:40pm		7:50pm	Continued	5:20am	7:30pm
Plant Flows @ Stop	MGD	18		43		19	-	24	26
Max Influent Flow		23.04	21.32	39.77	22.85	54.46	35.99	28.26	59.34
Influent Septage Received	Gallons	0	6,500	0	0	2,350	5,600	4,700	0
Influent TSS	mg/L	232	124		332	188	188	104	
Effluent TSS	mg/L	78.00	11.00		11	77.60	16.00	38.00	
Aeration Basin #1 Sludge Volume Index	ml/g	211	208			375	109	138	
MLSS Lab	mg/L	2,372	2,112			1,600	2,300	1,810	
Mean Cell Residence Time	Days	4.43	4.81				3.41	4.32	
Aeration Basin #2 Sludge Volume Index	ml/g	199	189			374	187	140	
MLSS Lab	mg/L	2,460	2,220			1,872	2,144	1,780	
Mean Cell Residence Time	Days	4.46	4.89					3.33	4.31
Aeration Basin #3 Sludge Volume Index	ml/g	303	197.65			341.61	252.06	163.85	
MLSS Lab	mg/L	2,740	2,378.00			2,898.00	2,182.00	1,892.00	
Mean Cell Residence Time	Days	8.01	8.41				5.58	7.59	
Aeration Basins Online	#	3	3	3	3	3	3	3	3
Secondary Clarifier #1 Depth of Blanket	ft	14.0	5.0	8.0	7.0	2.5	12.5	12.0	8.0
Secondary Clarifier #2 Depth of Blanket	ft	13.0	6.0	7.0	7.0	4.0	5.0	8.0	10.0
Secondary Clarifier #3 Depth of Blanket	ft	10.0	11.0	6.0	6.0	5.0	5.0	7.0	12.0
Secondary Clarifiers Online	#	3	3	3	3	3	3	3	3

Note:
Gaps for requested data are due to secondary treatment bypass events occuring on a non-sampling days.
Refer to Section 6.3 regarding NOAA rainfall data.

TABLE 6-1 CONTINUED
SECONDARY TREATMENT BYPASS EVENTS

Bypass Event	#	2017-06	2017-07				2017-08	2017-09	2017-10	2017-11	2017-12
Date of Bypass		4/2/2017	4/3/2017	4/4/2017	4/5/2017	4/6/2017	4/7/2017	4/8/2017	4/9/2017		
Date of Rainfall		4/2/2017	4/3/2017	4/4/2017	4/5/2017	4/6/2017	4/7/2017	4/8/2017	4/9/2017	04/10/17	04/25/17
Weather Rainfall	Inches	0.89		0.02	0.81		1.15				
snow melt	(y/n)	Yes	Yes	Yes	Yes	Yes		Yes			
Influent Flow	MGD	29.13	27.15	36.75	30.85	40.77	37.20	29.95	25.43	20.77	16.70
Bypass Flow Total	MG	7.42	4.37	12.76	8.33	16.99	13.18	4.76	2.49	1.00	0.40
Q, bypass start time		12:15pm	6:45am	12:00am	12:00am	12:00am	11:40am	12:00am	12:00am	1:45am	10:33pm
Plant Flows @ Start	MGD	35	24	27	47	25	39	43	43	30	30
Q, bypass stop time		10:30pm	11:59 PM	11:59pm	11:59pm	11:59am	11:30pm	11:00pm	11:00pm	5:30am	11:28pm
Plant Flows @ Stop	MGD	30	26.5	47	26	55	15	20	20	19	20
Max Influent Flow		35.84	53.94	59.23	58.78	56.68	52.74	36.19	33.65	22.73	50.89
Influent Septage Received	Gallons	100	11,400	6,300	15,600	4,800	1,000	100	600	18,200	21,000
Influent TSS	mg/L	132	104	84	112	116			208	180	288
Effluent TSS	mg/L	87.20	137.00	6.60	8.20	33.50			5.80	10.20	6.40
Aeration Basin #1 Sludge Volume Index	ml/g		543	466	444	498	501			467	355
MLSS Lab	mg/L		1,656	2,126	2,028	1,708	1,978			1,778	2,026
Mean Cell Residence Time	Days		2.40	4.07	4.67	4.29					3.58
Aeration Basin #2 Sludge Volume Index	ml/g		664	442	495	499	495			534	404
MLSS Lab	mg/L		1,356	1,812	1,820	1,322	1,820			1,668	1,980
Mean Cell Residence Time	Days		2.30	3.87	4.52	4.08					3.55
Aeration Basin #3 Sludge Volume Index	ml/g		587.89	503.05	495.00	556.92	407.75			508.74	289.02
MLSS Lab	mg/L		1,684.00	1,968.00	2,000.00	1,634.00	1,962.00			1,946.00	2,076.00
Mean Cell Residence Time	Days		4.30	6.68	7.82	7.63					5.57
Aeration Basins Online	#	3	3	3	3	3	3	3	3	3	3
Secondary Clarifier #1 Depth of Blanket	ft	13.0	11.5	8.0	7.0	14.0	7.0	11.0	5.0	6.0	4.5
Secondary Clarifier #2 Depth of Blanket	ft	12.0	13.5	6.0	8.0	10.5	7.0	14.0	4.0	7.0	5.0
Secondary Clarifier #3 Depth of Blanket	ft	12.0	12.5	9.0	7.5	13.0	8.0	9.0	9.0	7.0	5.0
Secondary Clarifiers Online	#	3	3	3	3	3	3	3	3	3	3

Note:
Gaps for requested data are due to secondary treatment bypass events occuring on a non-sampling days.
Refer to Section 6.3 regarding NOAA rainfall data.

TABLE 6-1 CONTINUED
SECONDARY TREATMENT BYPASS EVENTS

Bypass Event	#	2017-13	2017-14		2017-15		2017-16		2017-17		2017-18
Date of Bypass			5/5/2017		5/14/2017		6/6/2017		6/27/2017		6/30/2017
Date of Rainfall		04/26/17	5/5/2017	5/6/2017	05/14/17	05/15/17	6/6/2017	6/7/2017	6/27/2017	6/28/2017	6/30/2017
Weather Rainfall	Inches	0.82		1.06	0.48	0.86	0.97	1.20		0.66	
snow melt	(y/n)										
Influent Flow	MGD	21.22	22.53	15.85	24.09	15.27	28.14	16.08	17.59	8.96	14.76
Bypass Flow Total	MG	1.47	5.39	0.00	4.36	0.00	2.09	0.00	2.49	0.00	1.89
Q, bypass start time		7:45am	6:00pm		6:00am		12:50am		5:20pm		9:08pm
Plant Flows @ Start	MGD	28	55		38		51		58		62
Q, bypass stop time		4:16pm	10:30pm		5:00pm		5:30pm		8:00pm		10:45pm
Plant Flows @ Stop	MGD	22	20		19		25		29		18
Max Influent Flow		22.13	36.22	20.63	28.45	19.25	35	19.95	15.81	13.6	
Influent Septage Received	Gallons	14,300	7,100	18,900	0	12,900	29,100	37,200	12,400	7,700	21,300
Influent TSS	mg/L	184			308	136	236	372	404	944	
Effluent TSS	mg/L	27.00			37.33	8.60	28	9	110	5	
Aeration Basin #1 Sludge Volume Index	ml/g	393	443			395	236	237	530	436	374
MLSS Lab	mg/L	1,398	1,804			1,394	1,440	1,646	1,586	1,606	1,632
Mean Cell Residence Time	Days	4.34				3.54	3.33	2.52	1.72	2.90	
Aeration Basin #2 Sludge Volume Index	ml/g	376	510			438	207	204	391	506	507
MLSS Lab	mg/L	1,330	1,942			1,598	1,452	1,566	2,146	1,680	1,618
Mean Cell Residence Time	Days	4.29				3.69	3.34	2.48	1.93	2.95	
Aeration Basin #3 Sludge Volume Index	ml/g	460.12	402.30			303.59	213.05	227	549.39	477	506.12
MLSS Lab	mg/L	1,304.00	1,914.00			1,614.00	1,502.00	1,760	1,802.00	1,720	1,798.00
Mean Cell Residence Time	Days	7.70				6.23	5.79	4.23	2.93	4.73	
Aeration Basins Online	#	3	3	3	3	3	3	3	3	3	3
Secondary Clarifier #1 Depth of Blanket	ft	13.0	8.0	9.0	13.0	10.0	6.0	5.0	7.0	7.0	7.0
Secondary Clarifier #2 Depth of Blanket	ft	12.5	7.0	11.0	13.0	9.0	11.0	5.0	8.0	7.0	5.0
Secondary Clarifier #3 Depth of Blanket	ft	12.0	7.0	7.0	11.0	8.0	3.0	5.0	8.0	6.0	5.0
Secondary Clarifiers Online	#	3	3	3		3	3	3	3	3	3

Note:
Gaps for requested data are due to secondary treatment bypass events occuring on a non-sampling days.
Refer to Section 6.3 regarding NOAA rainfall data.

MONTHLY STATE NPDES REPORTS

JAN THROUGH JUNE 2017

STATE NPDES REPORT - JANUARY 2017

Bypass Event		Q, tot MGD	Septage Recd GPD	Rainfall ins.	Snow Melt yes/no	Q, byp MGD	Q, sec MGD	ctual Set yp set, M	raph Set yp set, M	TRC mg/l	Fecal Coli #/100mls	MLSS AT #1	MLSS AT #2	MLSS AT #3	Sec Effl BOD, mg/	Sec Effl TSS, mg/	SVI AT #1	SVI AT #2	SVI AT #3	Sec lbs ae OB meth	Sec lbs ae bs formul	#of AT on line	# of SST on line
	01/01/17	11.76	0	0.20	Yes	0.00	11.76	18.0	activated	0.31					11.16	11.20						3	3
	01/02/17	9.97	6,000		Yes	0.00	9.97	18.0	activated	0.23	1	2,952	2,424	3,490	10.76	8.40	186	186	246	159,212	110,914	3	3
	01/03/17	17.90	16,500	0.01		0.00	17.90	18.0		0.25	2	2,498	2,532	3,592	37.09	64.00	196	178	239	186,931	107,861	3	3
	01/04/17	14.29	15,900	0.80		0.00	14.29	18.0		0.21	29	2,098	2,426	2,600	14.85	11.80	172	194	227	208,997	89,121	3	3
	01/05/17	11.66	5,100			0.00	11.66	18.0		0.45	1	2,436	2,954	3,210	7.96	7.80	160	173	243	194,532	107,586	3	3
	01/06/17	10.91	9,900			0.00	10.91	18.0		0.26	35	3,138	2,438	3,194			223	185	250	188,429	109,713	3	3
	01/07/17	10.56	0			0.00	10.56	18.0		0.37												3	3
	01/08/17	10.31	0	0.39		0.00	10.31	18.0		0.39					9.82	9.00						3	3
	01/09/17	9.88	0		No	0.00	9.88	18.0	activated	0.50	1	2,610	2,430	3,436	9.68	5.80	230	173	288	167,394	106,035	3	3
	01/10/17	10.98	15,800		No	0.00	10.98	18.0	activated	0.26	6	2,628	2,674	3,338	20.09	7.00	213	183	261	172,578	108,086	3	3
	01/11/17	15.14	17,100	0.22	Yes	0.00	15.14	18.0	activated	0.45	2	1,972	1,630	2,332	22.12	8.00	183	135	240	193,036	74,234	3	33
	01/12/17	11.91	14,100	0.07	Yes	0.00	11.91	20.0	activated	0.25	69	2,590	3,062	3,098	18.04	8.80	197	196	261	197,273	109,463	3	3
	01/13/17	10.89	11,900	0.02	Yes	0.00	10.89	20.0	activated	0.38	<1	2,488	2,362	3,200			201	212	253	175,032	100,706	3	3
	01/14/17	10.83	12,000		No	0.00	10.83	20.0	activated	0.35												3	3
	01/15/17	10.44	0			0.00	10.44	20.0	activated	0.37					16.19	6.40						3	
	01/16/17	10.52	850			0.00	10.52	20.0		0.34	2	2,646	2,486	3,422	15.28	6.20	234	221	263	156,340	107,011	3	3
	01/17/17	11.50	15,800		Yes	0.00	11.50	20.0	activated	0.43	<1	2,584	3,404	3,634	14.99	5.80	232	176	272	221,249	120,371	3	3
	01/18/17	14.20	4,500	0.35	Yes	0.00	14.20	20.0	activated	0.42	4	2,178	3,338	2,826	18.65	7.20	184	156	269	237,465	104,358	3	3
	01/19/17	11.59	17,000	0.34	Yes	0.00	11.59	20.0	activated	0.30	6	2,686	3,472	3,358	20.78	6.60	201	187	253	215,145	119,045	3	3
	01/20/17	11.07	24,200		Yes	0.00	11.07	20.0	activated	0.51	4	2,782	2,768	3,248			216	210	265	220,576	110,063	3	3
	01/21/17	10.97	0			0.00	10.97	20.0		0.28												3	3
	01/22/17	11.12	0			0.00	11.12	20.0		0.43					17.57	6.00							
	01/23/17	12.90	3,100	0.16		0.00	12.90	20.0		0.26	3	2,414	2,286	3,196	18.70	4.80	249	236	160	190,215	98,779	3	3
2017-01	01/24/17	23.93	0	1.15	Yes	2.34	21.59	20.0	activated	0.41	3	2,372	2,460	2,740	25.43	78.00	211	199	303	298,485	94,726	3	3
	01/25/17	17.71	6,500	0.48	Yes	0.00	17.71	18.0	activated	0.29	1	2,112	2,220	2,378	16.65	11.00	208	189	198	213,279	83,942	3	3
	01/26/17	15.92	5,100			0.00	15.92	20.0	activated	0.45	2	2,350	2,046	2,534	13.57	5.60	217	171	245	211,022	86,694	3	3
	01/27/17	14.60	9,900		Yes	0.00	14.60	20.0	activated	0.39	1	2,292	2,088	2,652			192	192	264	192,554	87,970	3	3
	01/28/17	13.57	0		Yes	0.00	13.57	20.0	activated	0.49												3	3
	01/29/17	12.83	0		Yes	0.00	12.83	20.0	activated	0.64					15.33	8.20						3	3
	01/30/17	12.36	0			0.00	12.36	20.0		0.40	2	2,438	2,300	3,038	13.14	5.60	234	191	263	184,274	97,278	3	3
	01/31/17	11.94	9,600			0.00	11.94	20.0		0.25	3	3,474	4,216	3,102	16.07	5.00	216	171	235	242,754	135,008	3	3
	Average	12.71								0.37	3	2,534	2,637	3,074	16.69	12.97	207	187	250	201,217	103,135		
	Minimum	9.88								0.21													
	Maximum	23.93								0.64													
	Total	394.16	220,850	4.19		2.34	391.82													100,000	for 2ats 2ssts		
	Operating Range									0.4-	88/100ml	2200	2200		30	30	50-150	438		125,000	for 2ats 3ssts		
										0.7	260/100n	1500	1500		45	45	322	334		150,000	for 3ats 3ssts		

rainfall amounts are for a 24 hour period ending at 7am of the day that the amount is recorded comment added on 5-13-14 by fgh

STATE NPDES REPORT - FEBRUARY 2017

Bypass Event		Q, tot MGD	Septage Recd GPD	Rainfall ins.	Snow Melt yes/no	Q, byp MGD	Q, sec MGD	ctual Set yp set, M	raph Set yp set, M	TRC mg/l	Fecal Col #/100mls	MLSS AT #1	MLSS AT #2	MLSS AT #3	Sec Effl BOD, mg/	Sec Effl TSS, mg/l	SVI AT #1	SVI AT #2	SVI AT #3	Sec lbs ae OB meth	Sec lbs ae bs formul	#of AT on line	# of SST on line
	02/01/17	11.84	100	0.09		0.00	11.84	20.0		0.41	2	3,120	2,878	3,096	16.59	4.60	208	184	242	208,190	113,766	3	3
	02/02/17	11.50	12,600		Yes	0.00	11.50	20.0		0.26	1	2,362	2,978	3,138	15.39	5.60	220	191	245	195,748	106,060	3	3
	02/03/17	10.99	13,600			0.00	10.99	20.0		0.43	3	2,484	3,328	3,226			221	180	279	177,487	113,065	3	3
	02/04/17	10.71	2,500			0.00	10.71	20.0		0.29												3	3
	02/05/17	10.67	0			0.00	10.67	20.0		0.45					23.12	9.20						3	3
	02/06/17	10.21	10,600			0.00	10.21	20.0		0.30	11	2,694	2,776	3,282	19.15	5.80	219	220	302	164,305	109,488		
	02/07/17	10.19	0		No	0.00	10.19	20.0	activated	0.36	<1	2,428	2,988	3,276	14.58	6.20	243	207	275	172,561	108,737	3	3
	02/08/17	12.24	11,000	0.60	No	0.00	12.24	20.0	activated	0.47	<1	2,306	3,064	3,194	18.99	5.60	225	219	282	168,265	107,136	3	3
	02/09/17	10.30	0	0.08	Yes	0.00	10.30	20.0	activated	0.33	7	2,586	2,600	2,976	16.58	9.20	213	192	269	160,156	102,107	3	3
	02/10/17	9.85	4,800	0.75	No	0.00	9.85	20.0	activated	0.32	2	2,208	2,808	3,120			272	196	288	139,301	101,781	3	3
	02/11/17	9.75	0	0.04	No	0.00	9.75	20.0	activated	0.61												3	3
	02/12/17	9.64	0	0.07	No	0.00	9.64	20.0	activated	0.53					15.03	10.20						3	3
	02/13/17	9.93	0	0.85		0.00	9.93	20.0		0.19	3	2,080	2,236	3,064	15.02	5.00	202	224	284	130,196	92,324	3	3
	02/14/17	9.75	5,600		No	0.00	9.75	20.0	activated	0.25	8	2,292	2,550	3,116	16.20	6.20	284	235	318	151,626	99,555	3	3
	02/15/17	10.68	17,500		Yes	0.00	10.68	20.0	activated	0.38	5	2,624	2,554	3,020	16.58	7.20	267	219	328	162,438	102,557	3	3
	02/16/17	10.67	3,000	0.51	Yes	0.00	10.67	20.0	activated	0.27	6	2,366	2,974	2,976	13.53	6.80	232	225	286	155,973	104,033	3	3
	02/17/17	10.01	750		No	0.00	10.01	20.0	activated	0.30	1	2,818	4,226	3,184			248	133	311	178,793	127,952	3	3
	02/18/17	10.85	0		Yes	0.00	10.85	20.0	activated	0.24												3	3
	02/19/17	12.74	0			0.00	12.74	20.0		0.49					15.30	10.20							
	02/20/17	12.79	3,000		Yes	0.00	12.79	20.0	activated	0.40	4	2,346	6,812	2,740	10.60	5.20	294	125	292	218,900	148,844	3	3
	02/21/17	12.44	6,000		Yes	0.00	12.44	20.0	activated	0.22	188	2,060	3,198	2,894	11.50	3.40	267	188	245	200,974	101,982	3	3
	02/22/17	13.55	16,000		Yes	0.00	13.55	20.0	activated	0.40	10	2,574	2,280	2,912	13.02	5.80	198	197	258	196,579	97,153	3	3
	02/23/17	15.69	20,000		Yes	0.00	15.69	20.0	activated	0.38	2	2,206	2,086	2,806	11.76	5.40	240	192	271	189,773	88,796	3	3
	02/24/17	18.23	13,800		Yes	0.00	18.23	20.0	activated	0.21	3	2,506	2,434	2,500			223	189	260	198,018	93,074	3	3
2017-02	02/25/17	21.31	0		Yes	0.27	21.04	20.0	activated	0.41												3	3
	02/26/17	17.94	0	0.29	Yes	0.00	17.94	25.0	activated	0.31					12.04	11.00						3	3
	02/27/17	15.79	8,200			0.00	15.79	25.0		0.40	2	2,432	2,268	2,798	11.40	8.20	222	265	272	195,041	93,800	3	3
	02/28/17	15.06	10,500			0.00	15.06	25.0		0.33	<1	2,522	2,322	2,862	9.73	2.20	218	224	311	217,259	96,402	3	3
Average		12.33								0.36	3	2,451	2,968	3,009	14.81	6.65	236	200	281	179,079	105,431		
Minimum		9.64								0.19													
Maximum		21.31								0.61													
Total		345.32	159,550	3.28		0.27	345.05													100,000	for 2ats 2ssts		
Operating Range										0.4-	88/100ml	2200	2200		30	30	50-150	334		125,000	for 2ats 3ssts		
										0.7	260/100n	1500	1500		45	45	669	646		150,000	for 3ats 3ssts		

rainfall amounts are for a 24 hour period ending at 7am of the day that the amount is recorded comment added on 5-13-14 by fgh

STATE NPDES REPORT - MARCH 2017

Bypass Event		Q, tot MGD	Septage Recd GPD	Rainfall ins.	Snow Melt yes/no	Q, byp MGD	Q, sec MGD	ctual Set yp set, M	raph Set yp set, M	TRC mg/l	Fecal Col #/100mls	MLSS AT #1	MLSS AT #2	MLSS AT #3	Sec Effl BOD, mg/	Sec Effl TSS, mg/l	SVI AT #1	SVI AT #2	SVI AT #3	Sec lbs ae OB meth	Sec lbs ae bs formul	#of AT on line	# of SST on line
	03/01/17	14.85	10,000			0.00	14.85	25.0		0.25	<1	2,642	2,398	2,854	12.28	5.60	265	242	315	217,522	98,754	3	3
	03/02/17	13.35	10,800			0.00	13.35	25.0		0.31	1	2,544	2,478	2,996	9.77	6.60	283	282	290	222,333	100,305	3	3
	03/03/17	12.42	25,800			0.00	12.42	25.0		0.50	<1	2,438	2,770	3,014			304	238	302	213,466	102,857	3	3
	03/04/17	11.91	3,000			0.00	11.91	25.0		0.36												3	3
	03/05/17	11.67	0			0.00	11.67	25.0		0.59					15.94	13.40						3	3
	03/06/17	11.37	3,000		No	0.00	11.37	25.0	activated	0.26	<1	1,844	2,532	2,232	12.69	7.60	293	257	349	162,772	82,666	3	3
	03/07/17	11.76	24,000		Yes	0.00	11.76	25.0	activated	0.45	<1	2,152	1,890	2,746	15.86	6.20	279	238	291	152,939	84,918	3	3
	03/08/17	11.83	0	0.13	Yes	0.00	11.83	25.0	activated	0.37	2	2,710	1,968	2,592	14.64	6.20	277	229	343	164,593	90,948	3	3
	03/09/17	10.99	13,000		Yes	0.00	10.99	25.0	activated	0.21	205	2,314	3,574	3,202	18.64	9.20	268	210	309	195,148	113,716	3	3
	03/10/17	10.83	7,500		Yes	0.00	10.83	25.0	activated	0.21	<1	2,650	2,640	3,294			264	231	301	207,890	107,386	3	3
	03/11/17	10.31	0	0.07	No	0.00	10.31	25.0	activated	0.54												3	3
	03/12/17	10.33	0		No	0.00	10.33	25.0		0.43					15.81	10.80						3	3
	03/13/17	10.14	5,200		No	0.00	10.14	25.0	activated	0.44	1	2,660	2,452	3,156	12.10	9.00	301	253	314	157,863	103,433	3	3
	03/14/17	10.26	0		No	0.00	10.26	25.0	activated	0.40	>1	2,544	4,274	3,134	15.36	12.60	256	232	316	176,371	124,500	3	3
	03/15/17	10.69	4,800	1.92	Yes	0.00	10.69	25.0	activated	0.45	>1	2,626	2,444	2,788	15.04	13.00	267	262	355	151,760	98,304	3	3
	03/16/17	10.23	4,000		No	0.00	10.23	25.0	activated	0.38	4	2,680	2,262	2,862	14.77	11.40	302	287	346	139,979	97,628	3	3
	03/17/17	10.27	5,250		No	0.00	10.27	25.0	activated	0.22	3	3,232	2,410	2,920			306	290	339	149,721	107,111	3	3
	03/18/17	10.40	0			0.00	10.40	25.0		0.29												3	3
	03/19/17	10.63	0			0.00	10.63	25.0		0.25					12.87	12.60							
	03/20/17	11.65	6,000			0.00	11.65	25.0		0.35	9	2,180	1,864	3,192	12.42	9.60	321	268	310	143,758	90,522	3	3
	03/21/17	12.04	11,100		Yes	0.00	12.04	25.0	activated	0.25	>1	1,660	1,894	2,896	13.85	8.80	271	243	342	148,360	80,690	3	3
	03/22/17	11.65	3,800		Yes	0.00	11.65	25.0	activated	0.44	5	1,990	2,634	2,844	16.43	15.56	276	376	348	158,907	93,425	3	3
	03/23/17	11.31	4,100		No	0.00	11.31	25.0	activated	0.40	>1	2,808	2,144	2,788	11.20	10.00	353	326	355	147,696	96,827	3	3
	03/24/17	11.62	7,500		Yes	0.00	11.62	25.0	activated	0.27	1	2,454	2,290	2,776			395	349	357	148,565	94,075	3	3
	03/25/17	14.41	10,600	0.11	Yes	0.00	14.41	25.0	activated	0.25												3	3
	03/26/17	12.15	0	0.30	Yes	0.00	12.15	25.0	activated	0.39					14.35	10.80						3	3
2017-03	03/27/17	23.00	2,350		Yes	2.89	20.11	25.0	activated	0.25	3	1,600	1,872	2,898	37.32	77.60	375	374	342	145,725	79,689	3	3
2017-04	03/28/17	22.82	5,600	0.74		3.55	19.27	20.0	activated	0.24	4	2,300	2,144	2,182	80.19	16.00	109	187	252	191,558	82,891	3	3
	03/29/17	21.64	4,700	0.70	Yes	0.74	20.90	20.0	activated	0.33	5	1,810	1,780	1,892	26.76	38.00	138	140	164	200,552	68,580	3	3
	03/30/17	18.46	21,300		Yes	0.00	18.46	20.0		0.39	2	1,996	1,750	2,032	13.24	13.00	391	429	487	204,849	72,283	3	3
	03/31/17	18.35	5,500		Yes	0.00	18.35	20.0		0.35	2	2,084	1,896	2,138			475	422	463	196,135	76,536	3	3
	Average	13.01								0.35	2	2,344	2,363	2,758	18.71	14.71	294	277	330	173,846	93,393		
	Minimum	10.14								0.21													
	Maximum	23.00								0.59													
	Total	403.34	198,900	3.97		7.18	396.16													100,000	for 2ats 2ssts		
	Operating Range									0.4-	88/100ml	2200	2200		30	30	50-150	646		125,000	for 2ats 3ssts		
										0.7	260/100n	1500	1500		45	45				150,000	for 3ats 3ssts		

rainfall amounts are for a 24 hour period ending at 7am of the day that the amount is recorded comment added on 5-13-14 by fgh

STATE NPDES REPORT - APRIL 2017

Bypass Event		Q, tot MGD	Septage Recd GPD	Rainfall ins.	Snow Melt yes/no	Q, byp MGD	Q, sec MGD	ctual Set yp set, M	raph Set yp set, M	TRC mg/l	Fecal Coli #/100mls	MLSS AT #1	MLSS AT #2	MLSS AT #3	Sec Effl BOD, mg/	Sec Effl TSS, mg/l	SVI AT #1	SVI AT #2	SVI AT #3	Sec lbs ae OB meth	Sec lbs ae bs formul	#of AT on line	# of SST on line
2017-05	04/01/17	23.86	0	1.32		2.91	20.95	23.0	activated	0.30												3	3
2017-06	04/02/17	29.13	100	0.89	Yes	7.42	21.71	29.0		0.40					46.00	87.20						3	3
	04/03/17	27.15	11,400		Yes	4.37	22.78	31.0		0.23	72	1,656	1,356	1,684	29.52	137.00	543	664	588	215,084	58,747	3	3
2017-07	04/04/17	36.75	6,300	0.02	Yes	12.76	23.99	19.0	activated	0.47	2	2,126	1,812	1,968	5.72	6.60	466	442	503	179,922	73,884	3	3
	04/05/17	30.85	15,600	0.81	Yes	8.33	22.52	20.0	activated	0.49	1	2,028	1,820	2,000	6.82	8.20	444	495	495	180,039	73,158	3	3
	04/06/17	40.77	4,800		Yes	16.99	23.78	19.0	activated	0.36	68	1,708	1,322	1,634	20.67	33.50	498	499	557	217,522	58,347	3	3
2017-08	04/07/17	37.20	1,000	1.15		13.18	24.02	22.0	activated	0.52	1	1,978	1,820	1,962			501	495	408	180,721	72,058	3	3
2017-09	04/08/17	29.95	100		Yes	4.76	25.19	22.0		0.36												3	3
2017-10	04/09/17	25.43	600			2.49	22.94	21.0		0.37					5.99	5.80						3	3
2017-11	04/10/17	20.77	18,200			1.00	19.77	20.0		0.48	>1	1,778	1,668	1,946	9.74	10.20	467	534	509	158,747	67,454		
	04/11/17	17.97	23,927			0.00	17.97	25.0	activated	0.31	>1	1,962	1,812	1,964	6.28	5.20	408	469	458	173,020	71,782	3	3
	04/12/17	18.57	19,500			0.00	18.57	25.0	activated	0.36	3	1,968	1,918	2,092	7.56	7.80	407	443	425	176,800	74,785	3	3
	04/13/17	16.10	24,100	0.20		0.00	16.10	25.0	activated	0.30	1	1,910	1,946	2,054	7.89	6.80	466	457	482	175,665	73,934	3	3
	04/14/17	15.38	12,250			0.00	15.38	25.0	activated	0.33	1	2,106	1,996	2,182			337	436	412	176,331	78,613	3	3
	04/15/17	14.78	16,600			0.00	14.78	25.0	activated	0.19												3	3
	04/16/17	14.08	0	0.20		0.00	14.08	25.0		0.53					8.14	15.00							
	04/17/17	13.40	1,500			0.00	13.40	25.0		0.31	>1	2,174	2,194	2,272	7.26	5.20	455	451	436	179,453	83,066	3	3
	04/18/17	12.79	22,100			0.00	12.79	25.0	activated	0.21	>1	2,088	2,074	2,148	9.09	5.60	474	477	461	171,332	78,938	3	3
	04/19/17	13.12	10,000			0.00	13.12	25.0	activated	0.23	112	2,202	2,146	2,146	10.96	7.60	341	415	280	174,835	81,240	3	3
	04/20/17	12.57	11,500	0.09		0.00	12.57	25.0	activated	0.37	1	2,372	2,244	2,188	9.81	5.20	274	441	229	190,592	85,118	3	3
	04/21/17	18.56	17,100	0.05		0.00	18.56	25.0	activated	0.23	1	2,002	2,152	1,982			325	460	277	230,851	76,761	3	3
	04/22/17	14.35	13,000	0.72		0.00	14.35	25.0	activated	0.30												3	3
	04/23/17	13.19	0	0.03		0.00	13.19	25.0	activated	0.54					29.92	30.25						3	3
	04/24/17	12.69	16,400			0.00	12.69	25.0	activated	0.23	2	1,892	1,734	1,958	14.02	15.40	344	404	342	139,622	69,856	3	3
2017-12	04/25/17	16.70	21,000			0.40	16.30	25.0	activated	0.26	>1	2,026	1,980	2,076	12.64	6.40	355	404	289	136,643	76,086	3	3
2017-13	04/26/17	21.22	14,300	0.82		1.47	19.75	28.0	activated	0.52	180	1,398	1,330	1,304	22.49	27.00	393	376	460	180,498	50,440	3	3
	04/27/17	15.74	29,800	0.42		0.00	15.74	20.0		0.34	1	1,708	1,562	1,686	22.06	26.50	468	448	445	168,768	62,000	3	3
	04/28/17	14.62	10,500			0.00	14.62	25.0		0.33	>1	1,670	1,672	1,798			509	419	445	155,965	64,301	3	3
	04/29/17	13.73	5,600			0.00	13.73	25.0		0.29												3	3
	04/30/17	12.74	0			0.00	12.74	25.0		0.37					10.86	6.80						3	3
Average		20.14								0.35	3	1,938	1,828	1,952	14.45	21.87	424	461	425	178,120	71,528		
Minimum		12.57								0.19													
Maximum		40.77								0.54													
Total		604.16	327,277	6.72		76.08	528.08													100,000	for 2ats 2ssts		
Operating Range										0.4-	88/100ml	2200	2200		30	30	50-150			125,000	for 2ats 3ssts		
										0.7	260/100m	1500	1500		45	45				150,000	for 3ats 3ssts		

rainfall amounts are for a 24 hour period ending at 7am of the day that the amount is recorded comment added on 5-13-14 by fgh

STATE NPDES REPORT - MAY 2017

Bypass Event		Q, tot MGD	Septage Recd GPD	Rainfall ins.	Snow Melt yes/no	Q, byp MGD	Q, sec MGD	ctual Set yp set, M	raph Set yp set, M	TRC mg/l	Fecal Col #/100mls	MLSS AT #1	MLSS AT #2	MLSS AT #3	Sec Effl BOD, mg/	Sec Effl TSS, mg/l	SVI AT #1	SVI AT #2	SVI AT #3	Sec lbs ae OB meth	Sec lbs ae lbs formul	#of AT on line	# of SST on line
	05/01/17	13.02	30,600			0.00	13.02	25.0	activated	0.24	<1	1,838	1,762	1,908	13.16	5.60	435	511	419	115,142	68,905	3	3
	05/02/17	16.98	21,050	0.29		0.00	16.98	25.0	activated	0.23	198	1,146	1,286	1,156	31.70	32.00	349	358	424	169,956	44,886	3	3
	05/03/17	12.54	25,800	0.08		0.00	12.54	25.0	activated	0.24	27	1,740	1,870	1,926	23.48	6.20	379	481	400	145,877	69,255	3	3
	05/04/17	11.84	14,160			0.00	11.84	25.0	activated	0.36	1	1,842	1,888	1,952	19.25	3.80	483	477	384	144,267	71,082	3	3
2017-14	05/05/17	22.53	7,100			5.39	17.14	25.0	activated	0.50	2	1,804	1,942	1,914			443	510	402	152,268	70,807	3	3
	05/06/17	15.85	18,900	1.06		0.00	15.85	22.0	activated	0.20												3	3
	05/07/17	14.00	0	0.13		0.00	14.00	22.0		0.22					12.33	9.40						3	3
	05/08/17	13.29	15,100			0.00	13.29	22.0		0.55	<1	1,610	1,684	1,850	9.24	4.80	528	534	443	123,782	64,351	3	3
	05/09/17	12.67	15,000			0.00	12.67	22.0	activated	0.33	39	1,696	1,676	1,786	13.18	5.20	442	591	392	132,721	64,527	3	3
	05/10/17	12.12	18,700	0.01		0.00	12.12	22.0	activated	0.52	1	1,776	1,824	1,786	14.77	8.20	484	543	392	132,704	67,379	3	3
	05/11/17	11.85	0			0.00	11.85	22.0	activated	0.40	1	1,752	1,874	1,792	15.44	6.00	497	528	374	129,562	67,779	3	3
	05/12/17	11.61	19,200			0.00	11.61	22.0		0.30	250	1,942	1,682	1,888			510	535	429	128,283	68,955	3	3
	05/13/17	11.46	21,900			0.00	11.46	22.0	activated	0.54												3	3
2017-15	05/14/17	24.09	0	0.48		4.36	19.73	28.0	activated	0.22					33.13	37.33						3	
	05/15/17	15.27	12,900	0.86		0.00	15.27	28.0	activated	0.29	1	1,394	1,598	1,614	18.55	8.60	395	438	304	144,647	57,621	3	3
	05/16/17	13.46	23,100	0.10		0.00	13.46	28.0	activated	0.25	2	1,520	1,496	1,400	19.77	11.40	493	468	357	142,512	55,244	3	3
	05/17/17	12.72	21,400			0.00	12.72	28.0	activated	0.23	600	1,582	1,578	1,722	20.86	11.00	455	564	354	139,386	61,074	3	3
	05/18/17	12.13	39,700			0.00	12.13	28.0	activated	0.55	7	1,736	1,484	1,734	10.03	6.00	490	438	404	132,377	61,975	3	3
	05/19/17	11.47	6,500	0.05		0.00	11.47	28.0	activated	0.38	2	1,516	1,628	1,858			528	448	377	126,087	62,575	3	3
	05/20/17	10.78	13,800			0.00	10.78	28.0	activated	0.26												3	3
	05/21/17	10.52	0			0.00	10.52	28.0	activated	0.37					14.81	9.40						3	3
	05/22/17	11.89	26,800	0.02		0.00	11.89	28.0		0.31	3	2,186	1,816	2,214	15.89	10.20	453	330	384	132,823	77,762	3	3
	05/23/17	10.92	15,300	0.21		0.00	10.92	28.0		0.37	>1	1,864	2,260	2,282	18.15	8.00	381	354	434	128,865	80,139	3	3
	05/24/17	10.50	10,800			0.00	10.50	28.0		0.30	8	2,132	1,914	2,336	15.80	9.00	399	313	372	118,680	79,839	3	3
	05/25/17	11.51	23,300			0.00	11.51	28.0		0.48	96	2,050	2,058	2,198	15.08	7.60	341	267	409	118,371	78,888	3	3
	05/26/17	21.12	17,400	1.07		0.00	21.12	36.0		0.37	10	932	792	964			397	316	363	102,799	33,627	3	3
	05/27/17	10.85	15,800	0.11		0.00	10.85	36.0		0.30												3	3
	05/28/17	10.19	0			0.00	10.19	36.0		0.24					7.53	3.60						3	3
	05/29/17	10.59	100			0.00	10.59	36.0		0.39	1	1,942	1,972	2,312	16.19	8.60	386	385	394	141,491	77,887	3	3
	05/30/17	10.46	16,100	0.05		0.00	10.46	36.0	activated	0.25	6	2,156	1,952	2,502	11.35	6.00	371	359	396	138,893	82,691	3	3
	05/31/17	10.92	30,200			0.00	10.92	36.0	activated	0.41	1	2,206	2,154	2,466	17.69	8.00	340	325	401	143,246	85,393	3	3
	Average	13.20								0.34	6	1,755	1,747	1,894	16.84	9.82	434	438	392	134,119	67,506		
	Minimum	10.19								0.20													
	Maximum	24.09								0.55													
	Total	409.15	480,710	4.52		9.75	399.40													100,000	for 2ats 2ssts		
	Operating Range									0.4-	88/100ml	2200	2200		30	30	50-150			125,000	for 2ats 3ssts		
										0.7	260/100n	1500	1500		45	45				150,000	for 3ats 3ssts		

rainfall amounts are for a 24 hour period ending at 7am of the day that the amount is recorded comment added on 5-13-14 by fgh

STATE NPDES REPORT - JUNE 2017

Bypass Event		Q, tot	Septage Recd	Rainfall	Q, byp	Q, sec	TRC	ecal Cc	MLSS	MLSS	MLSS	Sec Effl	Sec Effl	SVI	SVI	SVI	Sec lbs aer	Sec lbs aer
		MGD	GPD	ins.	MGD	MGD	mg/l	/100ml	AT #1	AT #2	AT #3	BOD, mg/l	TSS, mg/	AT #1	AT #2	AT #3	OB metho	lbs formula
	06/01/17	10.11	23,300	0.10	0.00	10.11	0.30	3	2,206	2,154	2,466	16.40	8.40	317	232	401	138,651	85,393
	06/02/17	9.50	50,780		0.00	9.50	0.25	180	2,124	1,972	2,346			306	264	384	122,248	80,589
	06/03/17	9.31	24,300		0.00	9.31	0.53											
	06/04/17	9.00	0		0.00	9.00	0.43					13.84	8.20					
	06/05/17	16.13	23,600	0.35	0.00	16.13	0.30	3	1,758	1,602	1,788	12.73	6.40	199	181	173	140,361	64,401
2017-16	06/06/17	28.14	29,100	0.97	2.09	26.05	0.46	4	1,440	1,452	1,502	32.80	27.50	236	207	213	152,030	54,969
	06/07/17	16.08	37,200	1.20	0.00	16.08	0.39	4	1,646	1,566	1,760	12.57	8.80	237	204	227	139,782	62,200
	06/08/17	13.59	44,500	0.02	0.00	13.59	0.31	4	1,922	1,818	2,076	11.53	5.20	203	281	255	130,064	72,758
	06/09/17	12.58	25,600		0.00	12.58	0.38	5	1,800	1,736	2,126			239	202	315	105,051	70,832
	06/10/17	11.25	22,300		0.00	11.25	0.38											
	06/11/17	10.66	0		0.00	10.66	0.41					11.03	12.80					
	06/12/17	10.49	28,600		0.00	10.49	0.49	1	2,058	2,020	2,426	15.14	11.40	248	223	305	102,744	81,365
	06/13/17	10.15	19,500		0.00	10.15	0.37	7	2,064	1,922	2,318	22.47	15.75	237	286	306	111,409	78,863
	06/14/17	9.83	10,400		0.00	9.83	0.36	3	1,898	1,960	2,220	22.76	10.00	195	265	302	104,006	76,036
	06/15/17	9.51	50,800		0.00	9.51	0.33	13	1,860	2,038	2,284	19.12	9.20	296	294	328	132,176	77,337
	06/16/17	17.26	10,900		0.00	17.26	0.30	5	1,776	1,956	2,224			253	317	441	122,196	74,510
	06/17/17	17.01	16,900	1.61	0.00	17.01	0.25											
	06/18/17	10.33	0	0.02	0.00	10.33	0.36					12.84	10.20					
	06/19/17	11.23	36,050		0.00	11.23	0.36	14	1,868	1,792	2,190	12.40	7.00	321	335	388	127,287	73,184
	06/20/17	9.95	16,500	0.26	0.00	9.95	0.42	20	1,812	1,804	2,080	15.83	6.00	326	322	385	123,025	71,257
	06/21/17	9.45	1,000	0.05	0.00	9.45	0.28	<1	1,558	1,630	1,944	10.44	4.20	449	472	489	117,104	64,201
	06/22/17	9.14	25,700		0.00	9.14	0.24	202	1,582	1,750	1,998	18.51	5.20	474	440	475	115,534	66,678
	06/23/17	9.88	14,500		0.00	9.88	0.50	203	1,638	1,720	1,922			366	424	515	126,091	66,053
	06/24/17	8.74	12,900	0.15	0.00	8.74	0.50											
	06/25/17	8.96	0		0.00	8.96	0.45					10.93	4.80					
	06/26/17	8.60	4,000	0.17	0.00	8.60	0.34	27	1,632	1,864	1,912	10.78	4.80	429	531	518	139,125	67,654
2017-17	06/27/17	17.59	12,400		2.49	15.10	0.32	114	1,586	2,146	1,802	38.49	110.00	530	391	549	144,107	69,230
	06/28/17	8.96	7,700	0.66	0.00	8.96	0.39	4	1,606	1,680	1,720	14.56	4.80	436	506	477	123,597	62,625
	06/29/17	8.72	28,200		0.00	8.72	0.57	7	1,464	1,712	1,668	8.89	5.40	410	467	435	108,325	60,598
2017-18	06/30/17	14.76	21,300		1.89	12.87	0.49	2	1,632	1,618	1,798			374	507	506	119,302	63,150
	Average	11.90					0.38	9	1,770	1,814	2,026	16.38	13.62	322	334		124,737	70,177
	Minimum	8.60					0.24											
	Maximum	28.14					0.57											
	Total	356.91	598,030	5.56	6.47	350.44											100,000	for 2ats 2ssts
	Operating Range						0.4-	88/100	2200	2200		30	30	50-150			125,000	for 2ats 3ssts
							0.7	260/10	1500	1500		45	45				150,000	for 3ats 3ssts

BYPASS EVENT: 2017-01

HAVERHILL, MA - WWTP - DAILY LOG

Date: 01/24/17

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	William Paszko	Kevin Rutledge	Kevin Rutledge	
2nd	Norm Paquette	Norm Paquette	kevin Rutledge	Norm Paquette
3rd	Paquette/ Paszko	Norm Paquette	Mark Brasier	**Paquette**

WEATHER: Snowmelt Yes
Hi: 35 Lo: 31 Ob: 35
Rain: 1.15 Snow: 2.0
Conditions: Sleet 2.0 snowcover

Mark B

PRIMARY SCUM LEVEL: **SCREENINGS CARTS:**

LAB INFLUE

Q,Daily Total	MAX	MIN
23.93	41.57	9.79

	Old	New	Plant	Pump Station	Grit quty
1st	4.20	5.13	2		1 yd3
2nd	4.17	4.28	3	0	
3rd	6.44	5.41	3	0	

Q,byp start/stop times am or pm
Q,byp Status inactivated
Q,bypa 2.34 Q to 2nd 21.59

PLANT (*1600) POWER

End 1st_____KVA (06)_____KW (06)
End 2rd_____KVA (06)_____KW (06
End 3rd_____KVA (06)_____KW (06

Centrifuge:	430
Primary:	5870
Secondary:	3010
Aeration:	0
Total:	14749

12 Mid **PUMP STATION (*450) POWER**
12 Mid Start 1st _____KW(06) _____KVA(
12 Mid Start 2nd_ 2.54 2.65
12 Mid Start 3rd_____KW(06) _____KVA(

COLLECTOR SPEED

	#1	#2	#3
1st___	off	slow	slow
2nd___	off	slow	slow
3rd___	off	slow	slow

PSTs on-line 2

AERATION: Dissolved Oxygen

ATs on-line 3

#1_____ AT#1 infl do avg	5.5
#3_____ AT#1 effl do avg	4.4
#4_____ AT#2 infl do avg	5.1
#6_____ AT#2 effl do avg	4.4

Gravity Thickeners DOB:

	#1	#2
1st	5	3
2nd	6	6
3rd	6.5	5

Torque:

	#1	#2
1st	N/A	N/A
2nd	n/a	n/a
3rd	n/a	n/a

Weekly Septage Pumped Gals

SEPTAGE LEVEL
1st_____ 8.44 ft
2nd_____ft
3rd_____ft

Cl2 vol

	Tank #1	Tank #2
1st	1362	
2nd	1269	
3rd		

Total 128 Gallons

TWAS LEVELS:

	#1	#2	#3
1st	5	13	5
2nd	10	F	12
3rd	4	7	4

Dosage Setpoint
Effluent Cl2, mg/l 1.15
Inplant _____/_____ 1.15
_____/_____ 1.50

CHLORINE RESIDUAL: 0.41 mg/l

CHEMICALS:
Sodium Hypo_____4
Polymer dry ___ 159
Hydroxide_____ 7
Polymer liq.__ 2642
Alpha Lox 15_____drums

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
3.0	6	4.6	8	7.9	3.6

RAS# _____ SC# _____	RAS# _____ SC# _____	RAS# _____ SC# _____	____
0.00	3.03	3.18	3.18

SECONDARY CLARIFIERS
SSTs on-line 3

Depth of Blankets Daily average

#1	#2	#3
11.27	9.1	10.8

DOB by Operators

	#1		#2		#3	
1st	8.0	8.0	6.0	7.0	7.0	7.0
2nd	14.0	13.0	13.0	14.0	10.0	13.0
3rd	10.0		14.0		13.5	

comments logbook for 1/24/2017
7/6/2017 11:35:21 AM

	Comment
1	6:15:00 AM CONTROL_ROOM weather info; collected composite samples; plant checks; chemical inv; operating DAF #1 thru the modes; all RAS rates at 3.00 MGD at 12 midnight; K Rutledge on shift for a rain event; placed Secc activate during remainder of the shift; increased hypo dosage to 1.15 mg/l from 1.00 mg/l as per by p at 5 am; 2" of snow/sleet mix at 5 am; wp
2	6:25:00 AM CONTROL_ROOM sludge hauler in at 6:15 am; wp
3	12:21:00 PM CONTROL_ROOM primary check, operating DAF #1, cleaning up residual overflow from FULL SCREENINGS CART...ch process on line, received 12 drums of NaOCl and 12 drums NaOH...loaded/shipped out ~2.5 dozen e scum, AM plant checks delayed while attempting to fill dual vacancies on tonite's 3p-11p shift...7a-3p secondary check...AM SCOSG adjustments 98/80 - 55 - 70/95, increased RAS RATES 3.00/3.50 (#1 by-pass is activated, #3 PWP on-line as lead...ALTERNATE MODE still in LOCAL/MANUAL (?), pum 3-4-1-2. nrp
4	2:38:00 PM CONTROL_ROOM increased RAS 3.50/3.75. nrp
5	4:43:00 PM CONTROL_ROOM primary check, operating DAF #1, reset HV-1 LOW TEMP alarm on DDC-5 panel, shutting down cent DAF and CENTRIFUGE process lab, pumping primary scum, secondary check...PM SC OSG ADJUS 4872 gallons of NaOCl, secondary by-pass still acvtivated, both STEP SCREENS and WASH PRESS
6	5:03:00 PM CONTROL_ROOM pump station check. nrp

BYPASS MULTI TREND

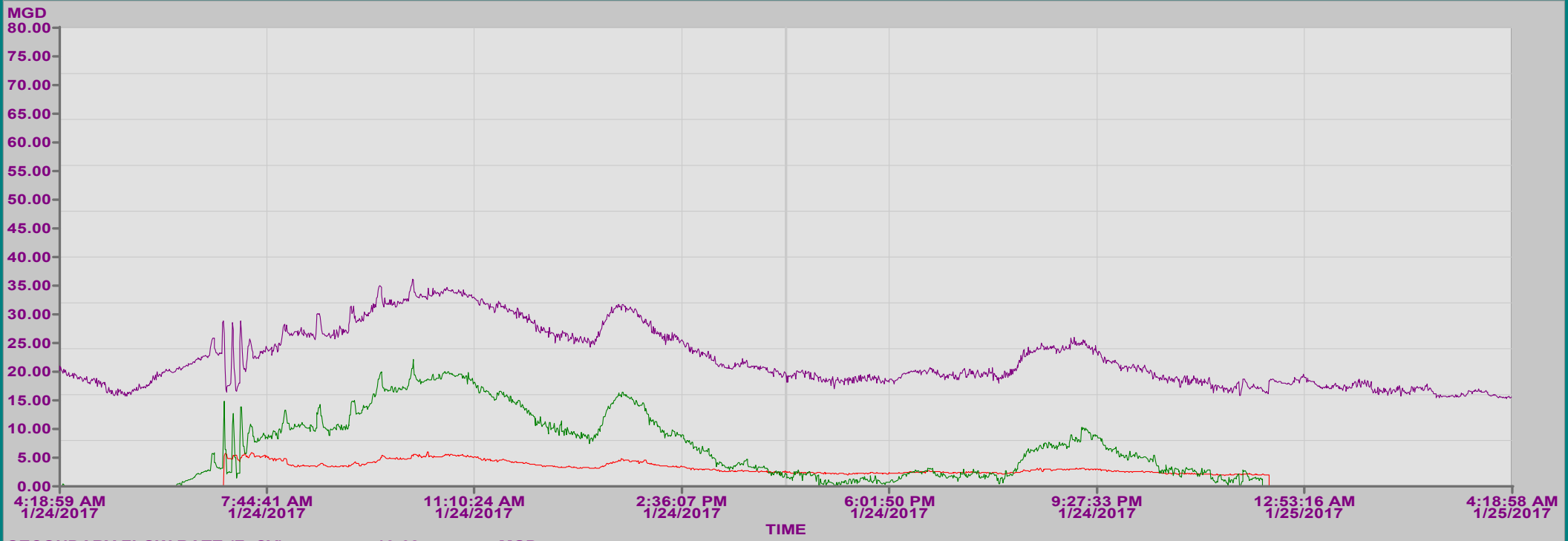
CITY OF HAVERHILL, MA - WWTF

LOGIN

7/6/2017

10:19:14 AM

ALARMS | HISTORY MENU | MAIN MENU | BYPASS



SECONDARY FLOW RATE (F_CV)	19.68	MGD
BYPASS FLOW (F_CV)	2.54	MGD
BYPASS FLOW AUTO SP (F_CV)	2.20	MGD
BYPASS CHLORINE (F_CV)	0.00	PPM

◄◄ | ◄ | Switch to 7Days | ► | ►►

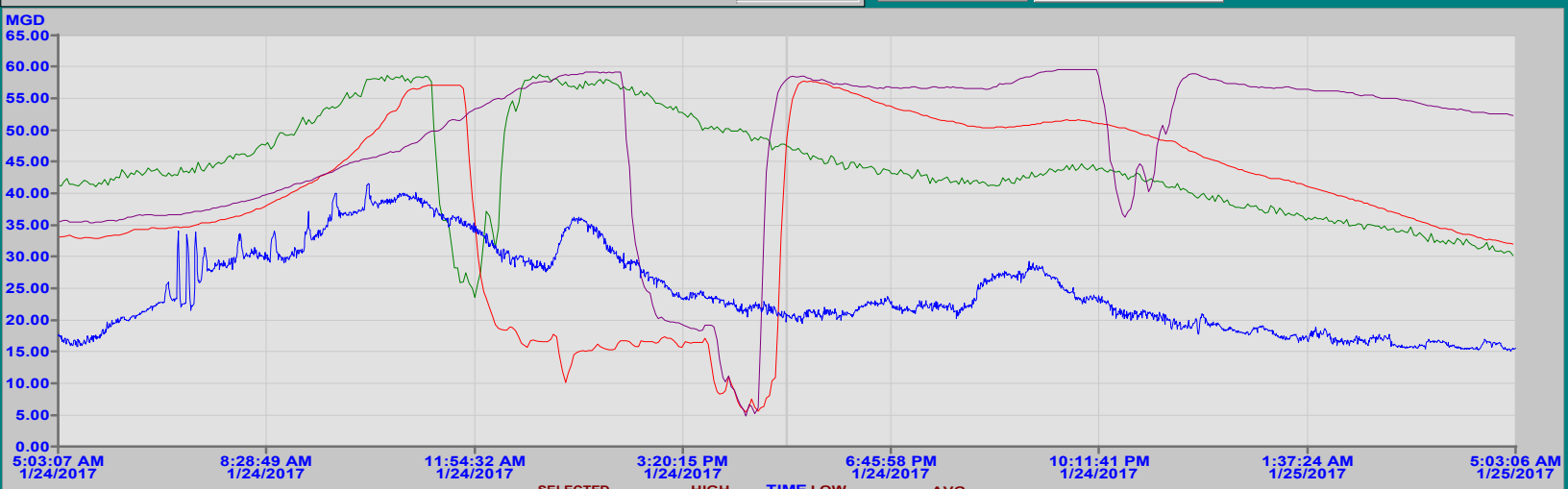
PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

LOGIN | 7/6/2017 | 11:03:17 AM

ALARMS | HISTORY MENU | MAIN MENU | MAIN PUMP STAT

INF. FLOW 8.50 MGD

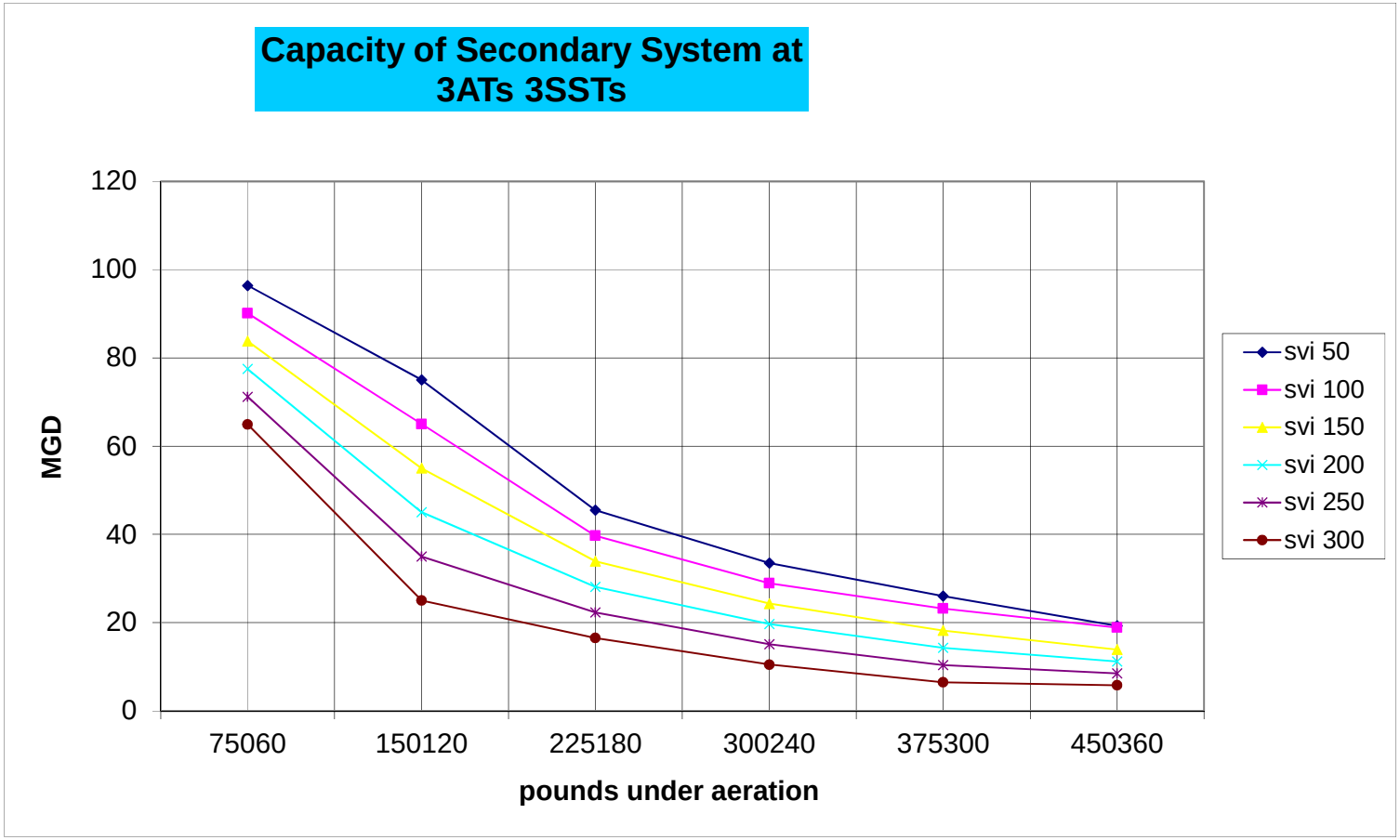


	SELECTED	HIGH	TIME LOW	AVG.
INFLUENT FLOW (F_CV)	20.75	41.59	15.04	24.54
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	11.71	14.47	5.79	10.91
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	11.95	14.20	1.34	9.43
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	14.28	14.67	1.19	11.81

◀◀ | ◀ | Switch to 7Days | ▶ | ▶▶

Ack	Time In	Date In	Description	Value	Status
✓	08:14:50.377	7/5/2017	GRIT CLASSIFIER 1 LOW FLOW	LOW FLOW	CFN
✓	11:59:52.394	7/3/2017	SECONDARY CLARIFIER 1 SLDG BLA	HIGH LEVEL	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 MOTOR HIGH T	HIGH TEMP	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 DISCH HIGH TE	HIGH TEMP	CFN
✓	08:32:11.603	6/29/2017	GRIT CLASSIFIER 1 PULL CORD	PULL CORD	CFN

Total Alarms: 7 | Filter: Off | Sort: Time In, Descending | Run



date:	1/24/2017	Flow, MG	SVI	MLSS	lbs	sr oper	setting selected, MG
bypass start time:	7:00am	27	240	2500	298000	nrp	20-28 varied
bypass stop time:	midnite	18					

BYPASS EVENT: 2017-02

HAVERHILL, MA - WWTP - DAILY LOG

Date: 02/25/17

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	William Paszko		Norm Paquette	
2nd	Isaiah Lewis		Norm Paquette	
3rd	Lewis/Paszko	Mark Brasier		

WEATHER: Snowmelt Yes
Hi: 72 Lo: 40 Ob: 55
Rain: Snow:
Conditions: artly Cloudy 0.0 snowcover

LAB Mark B

PRIMARY SCUM LEVEL:

SCREENINGS CARTS:

INFLUE	Q,Daily Total	MAX	MIN
	21.31	55.47	15.17
Q,byp	start/stop times am or pm	10:40pm	11:40pm
Q,byp	Status	activated	
Q,bypa	0.27	Q to 2nd	21.04

	Old	New	Plant	Pump Station	Grit quty
1st	4.29	4.07	1/2		1 yd3
2nd	4.30	4.02	2		
3rd	4.25	5.09	2/4		

PLANT (*1600) POWER

End 1st_____KVA (06)_____KW (06)	Centrifuge: 475
End 2rd_____KVA (06)_____KW (06	Primary: 5541
End 3rd_____KVA (06)_____KW (06	Secondary: 2162
	Aeration: 0
	Total: 14110

12 Mid PUMP STATION (*450) POWER

12 Mid	Start 1st _____KW(06) _____KVA(
12 Mid	Start 2nd_____KW(06) _____KVA(
12 Mid	Start 3rd_____KW(06) _____KVA(

COLLECTOR SPEED

	#1	#2	#3
1st___	off	slow	slow
2nd___	off	slow	slow
3rd___	off	slow	slow
PSTs on-line		2	

AERATION: Dissolved Oxygen

ATs on-line	3
#1_____ AT#1 infl do avg	5.1
#3_____ AT#1 effl do avg	4.0
#4_____ AT#2 infl do avg	4.8
#6_____ AT#2 effl do avg	4.0

Gravity Thickeners DOB:

	#1	#2
1st	4	2
2nd	4	2
3rd	4	2

Torque:

	#1	#2
1st	N/A	N/A
2nd	n/a	n/a
3rd	n/a	n/a

Weekly Septage Pumped Gals

SEPTAGE LEVEL

1st_____ 7.20 ft
2nd_____ft
3rd_____ft

Cl2 vol

	Tank #1	Tank #2
1st		3422
2nd		3376
3rd		3347
Total	139	Gallons

TWAS LEVELS:

	#1	#2	#3
1st	6	13	7
2nd	11	14	13
3rd	6	9	9

Dosage Setpoint

Effluent Cl2, mg/l 1.00

Inplant _____/_____/_____
_____/_____/_____

CHLORINE RESIDUAL: 0.41 mg/l

CHEMICALS: Sodium Hypo_____ 13 Polymer dry ___ 107 Polymer liq.__ 938
Hydroxide_____ 16 Alpha Lox 15_____drums

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
6.0	6	7.7	5.0	7.5	8.0

RAS# _____ SC# _____	RAS# _____ SC# _____	RAS# _____ SC# _____	____
0.00	2.85	2.91	2.73

SECONDARY CLARIFIERS

SSTs on-line 3

Depth of Blankets

#1	#2	#3
9.73	8.8	8.0

Daily average

DOB by Operators

	#1		#2		#3	
1st	12.0	8.0	8.0	7.0	7.0	6.0
2nd	8.0	7.0	7.0	7.0	6.0	7.0
3rd	8.0	7.0	8.0	8.0	8.0	7.0

comments logbook for 2/25/2017
7/6/2017 11:36:18 AM

	Comment
1	6:13:00 AM CONTROL_ROOM weather info; dumped composite samples; plant checks; chemical inv; operating DAF #1 thru the s mode; unplugged Wash Press #2 to Step Screen #2; changed one screenings cart (filled with FOG) sludge hauler in at 3 am; shut off Plant Boilers at 4:30 am; Maintenance in at 5:30 am; FOG coming wash press again; wp
2	2:27:00 PM CONTROL_ROOM Primary and Secondary Plant Checks, Operating #1 DAF and #2 Centrifuge, Pump Station Check, C Machine to Clean out #2 Wash Press, Heavy Fog Loads all Day, Step Screen Wash Press #2 Keeps Flushed #2 Septage Pump, Started Solids Lab, Final Readings, IL
3	5:23:00 PM CONTROL_ROOM Primary and Secondary Plant Checks, Operating #1 DAF, Shutting Down #2 Centrifuge, GEA Needs Tommorrow, Changed Out Screenings Bag on #1 Step Screen, Changed Out Two Screenings Carts, up with Grease, Finished Solids Lab, IL
4	11:22:00 PM CONTROL_ROOM shut off Plant Boilers; flushed grit pumps; raised Step Screen #1 out of the channel; increased RAS Secondary By-Pass on at 10:40 pm; wp
5	11:35:00 PM CONTROL_ROOM shut down Secondary By-Pass at 11:30 pm; wp

BYPASS MULTI TREND

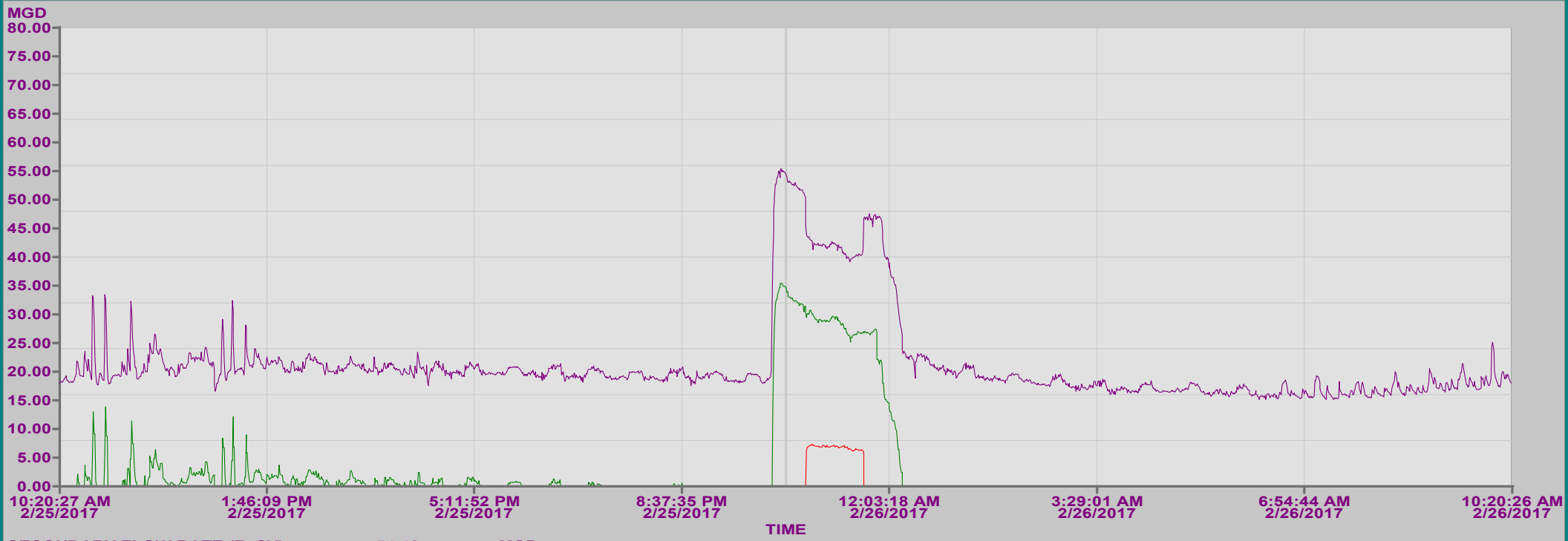
CITY OF HAVERHILL, MA - WWTF

LOGIN

7/6/2017

10:20:33 AM

ALARMS | HISTORY MENU | MAIN MENU | BYPASS



SECONDARY FLOW RATE (F_CV)	54.49	MGD
BYPASS FLOW (F_CV)	0.00	MGD
BYPASS FLOW AUTO SP (F_CV)	34.70	MGD
BYPASS CHLORINE (F_CV)	0.00	PPM

◄◄ | ◄ | Switch to 7Days | ► | ►►

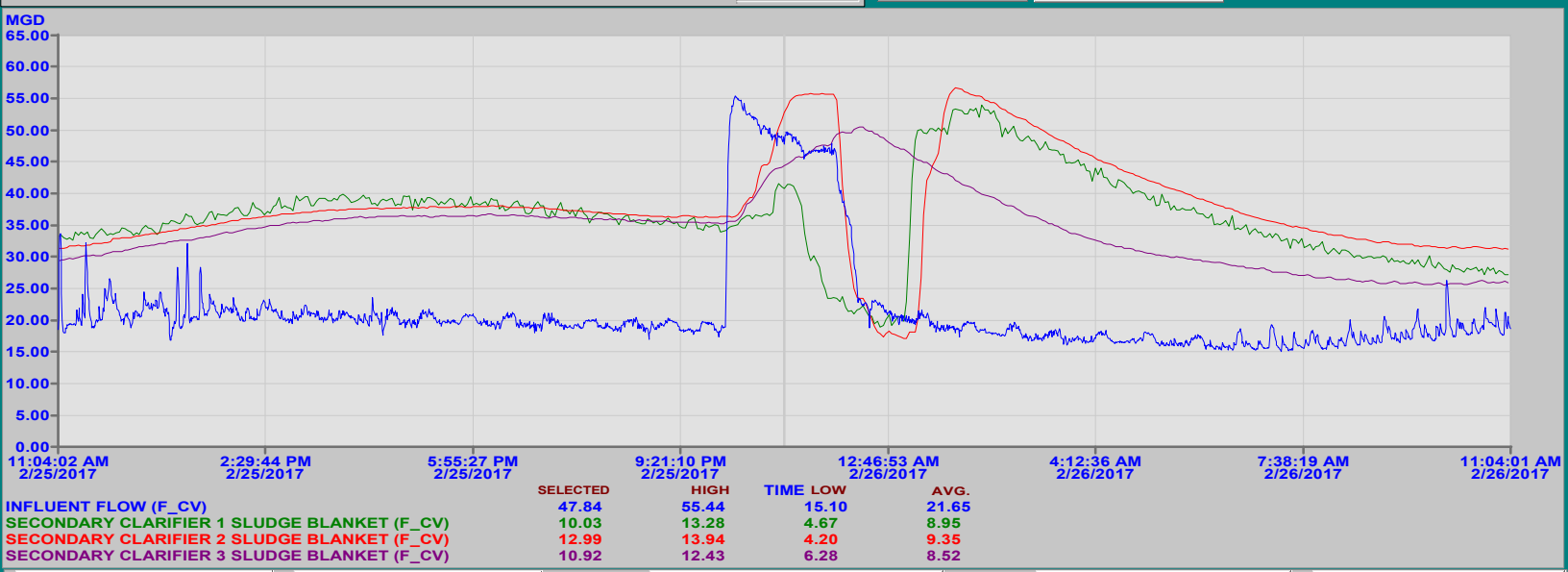
PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

LOGIN | 7/6/2017 | 11:04:07 AM

ALARMS | HISTORY MENU | MAIN MENU | MAIN PUMP STAT

INF. FLOW 8.36 MGD

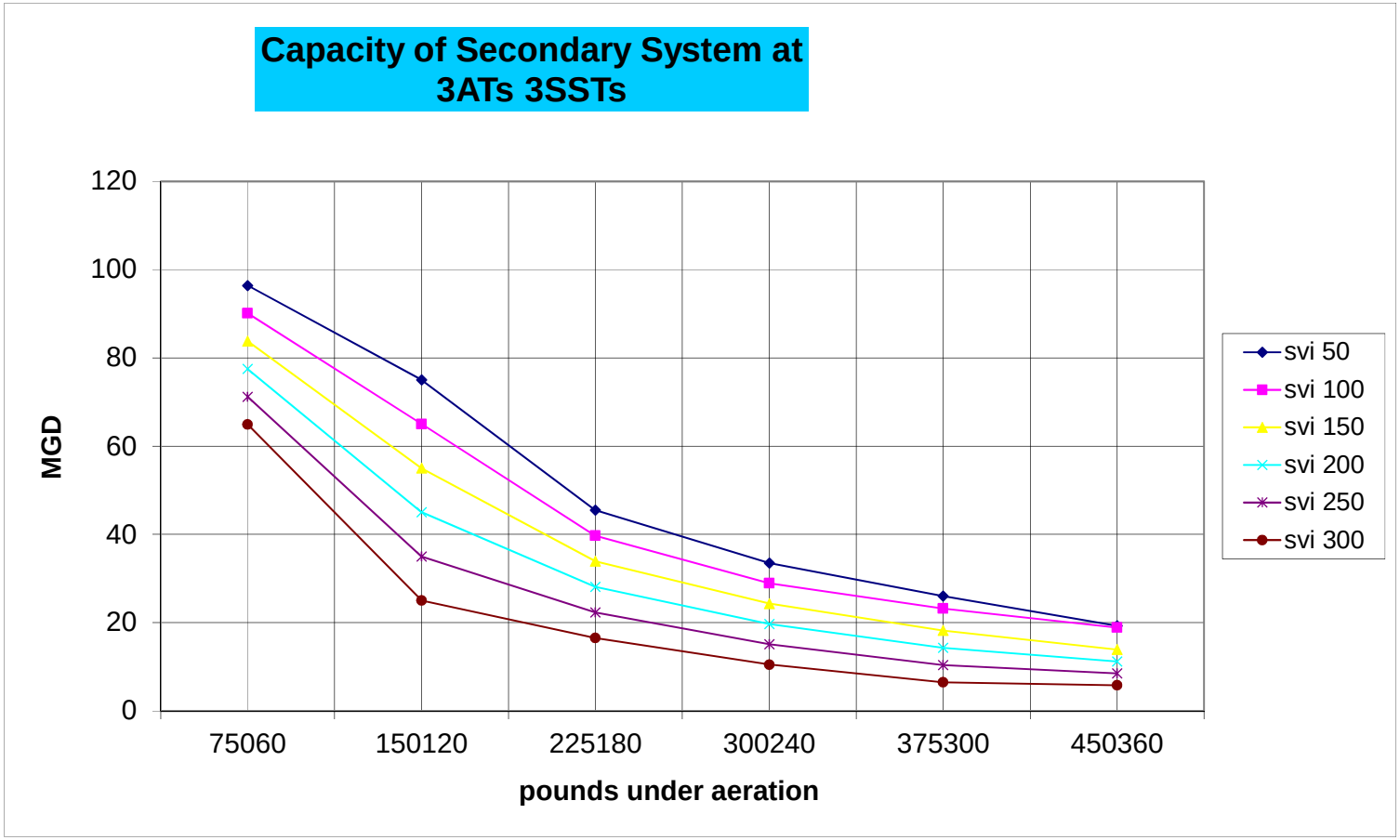


	SELECTED	HIGH	TIME LOW	AVG.
INFLUENT FLOW (F_CV)	47.84	55.44	15.10	21.65
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	10.03	13.28	4.67	8.95
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	12.99	13.94	4.20	9.35
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	10.92	12.43	6.28	8.52

◀◀ | ◀ | Switch to 7Days | ▶ | ▶▶

Ack	Time In	Date In	Description	Value	Status
✓	08:14:50.377	7/5/2017	GRIT CLASSIFIER 1 LOW FLOW	LOW FLOW	CFN
✓	11:59:52.394	7/3/2017	SECONDARY CLARIFIER 1 SLDG BLA	HIGH LEVEL	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 MOTOR HIGH T	HIGH TEMP	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 DISCH HIGH TE	HIGH TEMP	CFN
✓	08:32:11.603	6/29/2017	GRIT CLASSIFIER 1 PULL CORD	PULL CORD	CFN

Total Alarms: 7 | Filter: Off | Sort: Time In, Descending | Run



date:	2/25/2017	Flow, MG	SVI	MLSS	lbs	sr oper	setting selected, MG
bypass start time:	10:40pm	51	224	480	198000	il/bp	35
bypass stop time:	11:40pm	47					

BYPASS EVENT: 2017-03

HAVERHILL, MA - WWTP - DAILY LOG

Date: 03/27/17

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	William Paszko		Kevin Rutledge	
2nd	Norm Paquette	Walter Alce	kevin Rutledge	Norm Paquette
3rd	Jim Bevelaqua	rutledge till 7:00	Waino Waisanen	Alce till 4:30

WEATHER: Snowmelt Yes
Hi: 39 Lo: 22 Ob: 35
Rain: Snow:
Conditions: Cloudy 3.0 snowcover

Mark B

LAB

INFLUE	Q,Daily Total	MAX	MIN
	23.00	58.42	8.53
Q,byp	start/stop times am or pm & Q	1:50pm 49 MG	7:50pm 19 MG
Q,byp	Status	inactivated	
Q,bypa	2.89	Q to 2nd	20.11

PRIMARY SCUM LEVEL:

	Old	New	Plant	Pump Station	Grit quty
1st	.82	5.93	2/3		4 yd3
2nd	.83	6.30	3	0/1	
3rd	4.5	4.55	4	1	

SCREENINGS CARTS:

PLANT (*1600) POWER

End 1st_____KVA (06)_____KW (06)
End 2rd_____KVA (06)_____KW (06
End 3rd_____KVA (06)_____KW (06

Centrifuge:	497
Primary:	5663
Secondary:	2590
Aeration:	0
Total:	15087

12 Mid PUMP STATION (*450) POWER

12 Mid Start 1st _____KW(06) _____KVA(
12 Mid Start 2nd_____KW(06) _____KVA(
12 Mid Start 3rd_____KW(06) _____KVA(

COLLECTOR SPEED

	#1	#2	#3
1st___	slow	off	slow
2nd___	slow	off	slow
3rd___	slow	off	slow
PSTs on-line		2	

AERATION: Dissolved Oxygen

ATs on-line 3

#1_____ AT#1 infl do avg	5.6
#3_____ AT#1 effl do avg	3.7
#4_____ AT#2 infl do avg	4.4
#6_____ AT#2 effl do avg	3.6

Gravity Thickeners DOB:

	#1	#2
1st	2	2
2nd	3	4
3rd	3	4

Torque:

	#1	#2
1st	N/A	N/A
2nd	n/a	n/a
3rd	/	/

Weekly Septage Pumped Gals

SEPTAGE LEVEL

1st_____ 8.16 ft
2nd_____ft
3rd_____ft

Cl2 vol

	Tank #1	Tank #2
1st		3853
2nd		3775
3rd		3704
Total	169 Gallons	

TWAS LEVELS:

	#1	#2	#3
1st	F	F	F
2nd	F	F	F
3rd	6	10	10

Dosage Setpoint

Effluent Cl2, mg/l 1.00

Inplant _____/_____/_____
_____/_____/_____

CHLORINE RESIDUAL: 0.25 mg/l

CHEMICALS:

Sodium Hypo_____ 11
Polymer dry ___ 275
Hydroxide_____ 12
Polymer liq.__ 1140
Alpha Lox 15_____drums

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
5.0				6	8

RAS# _____ SC# _____	RAS# _____ SC# _____	RAS# _____ SC# _____	____
0.00	2.83	3.08	3.10

SECONDARY CLARIFIERS

SSTs on-line 3

Depth of Blankets

#1	#2	#3
0.83	7.3	4.4

Daily average

DOB by Operators

	#1		#2		#3	
1st	3.0	3.0	4.0	4.0	3.0	3.0
2nd	2.5	5.0	4.0	7.0	5.0	6.0
3rd	12.0	10.0	12.0	10.0	8.0	4.0

comments logbook for 3/27/2017
7/6/2017 11:37:01 AM

	Comment
1	5:50:00 AM CONTROL_ROOM weather info; collected composite samples; plant checks; chemical inv; operating step screens in l mg/l hypo residual at 5 am; sludge hauler in at 5:15 am; wp
2	12:17:00 PM CONTROL_ROOM primary check, putting DAF #1 on-line...re-primed WAS p. #4...backflushing into #3 SC, both STEP S in LOCAL, CENTRIFUGE process on-line, secondary check...increased RAS rates to 3.25 at 9:15 AM 75/70...at 11:30 AM increased RAS rates to 3.50...SC OSG adjustment 95 - 50/45 - 70, pump station DDC-1 panel...changed out one (1) screenings cart, BACKFLUSHING into GRIT TRAIN #1...FLUSHI
3	12:25:00 PM CONTROL_ROOM recorded and reset SEPTAGE TOTALIZER, DID NOT change pump station lag sequence...two pump on-going...will change sequence tomorrow weather pending. nrp
4	2:49:00 PM CONTROL_ROOM WIMS DAF/CENTRIFUGE DATA ENTRY, changed out one (1) screenings cart at HEADWORKS, inc adjustments 95/85 - 45 - 70/75 at 1:30 PM, BY-PASS activated at 1:45 PM, switched over to empty G FULL. nrp
5	3:09:00 PM CONTROL_ROOM scheduled Rutledge and Alces to stay over for rain event on first half of 3p-11p shift...rain forecasted
6	4:03:00 PM CONTROL_ROOM Primary and secondary plant checks - Flushed WAS pump #4 and got #1 DAF running, low TWAS ta three clarifier center well spray nozzles - -Pump station check - Started centrifuge solids lab ----==----
7	8:12:00 PM CONTROL_ROOM Completed centrifuge run and started flush cycle - Filling blended sludge tank and flushed - Finished scum pump to run ---------==---------Jbev

BYPASS MULTI TREND

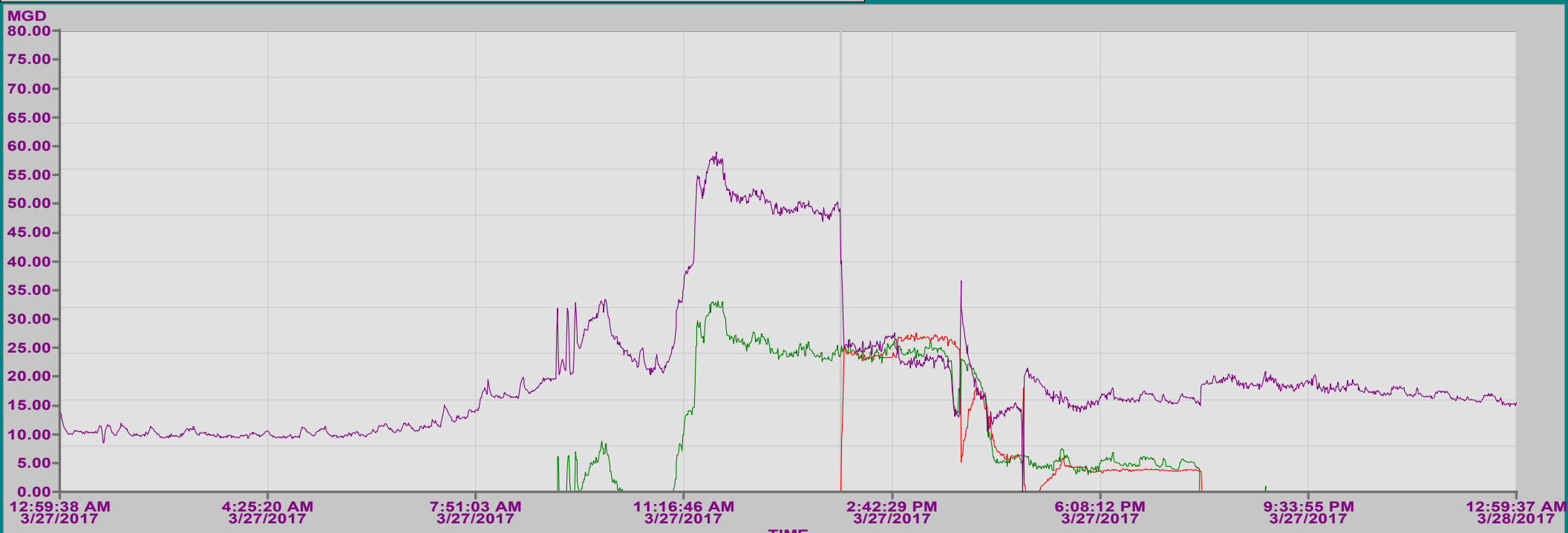
CITY OF HAVERHILL, MA - WWTF

LOGIN

3/28/2017

7:01:26 AM

ALARMS | HISTORY MENU | MAIN MENU | BYPASS



SECONDARY FLOW RATE (F_CV)	41.60	MGD
BYPASS FLOW (F_CV)	0.00	MGD
BYPASS FLOW AUTO SP (F_CV)	24.30	MGD
BYPASS CHLORINE (F_CV)	0.00	PPM

◄◄ | ◄ | Switch to 7Days | ► | ►►

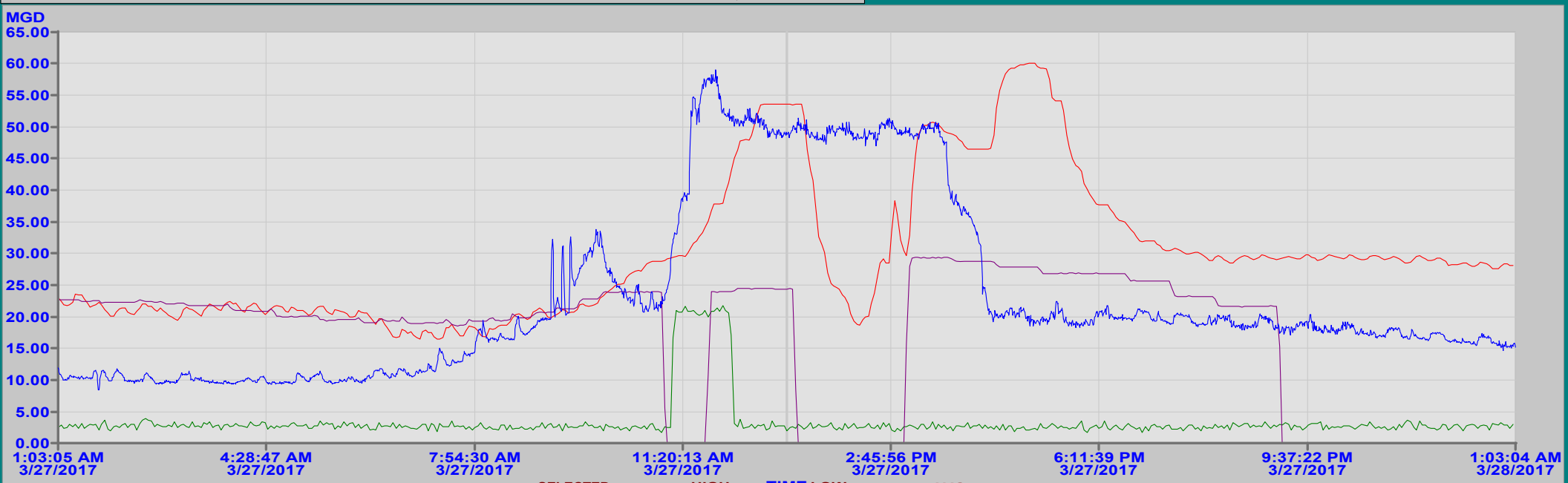
PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

LOGIN | 3/28/2017 | 7:03:17 AM

ALARMS | HISTORY MENU | MAIN MENU | MAIN PUMP STAT

INF. FLOW 15.55 MGD



	SELECTED	HIGH	TIME LOW	AVG.
INFLUENT FLOW (F_CV)	48.88	59.02	8.45	23.07
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	0.50	5.36	0.42	0.84
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	13.18	14.79	4.04	7.38
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	6.00	7.23	0.00	4.16

◀◀ ◀ Switch to 7Days ▶ ▶▶

Ack	Time In	Date In	Description	Value	Status
✓	05:31:57.547	3/28/2017	SECONDARY CLARIFIER 3 SLDG BLA	LOW LEVEL	CFN
✓	18:48:00.908	3/27/2017	BLENDED SLUDGE TANK HIGH LEVE	ALARM	CFN
✓	09:52:36.516	3/14/2017	SECONDARY SCUM WELL #1 LO LEV	LOW LEVEL	CFN

Total Alarms: 3 | Filter: Off | Sort: Time In, Descending | Run

BYPASS MULTI TREND

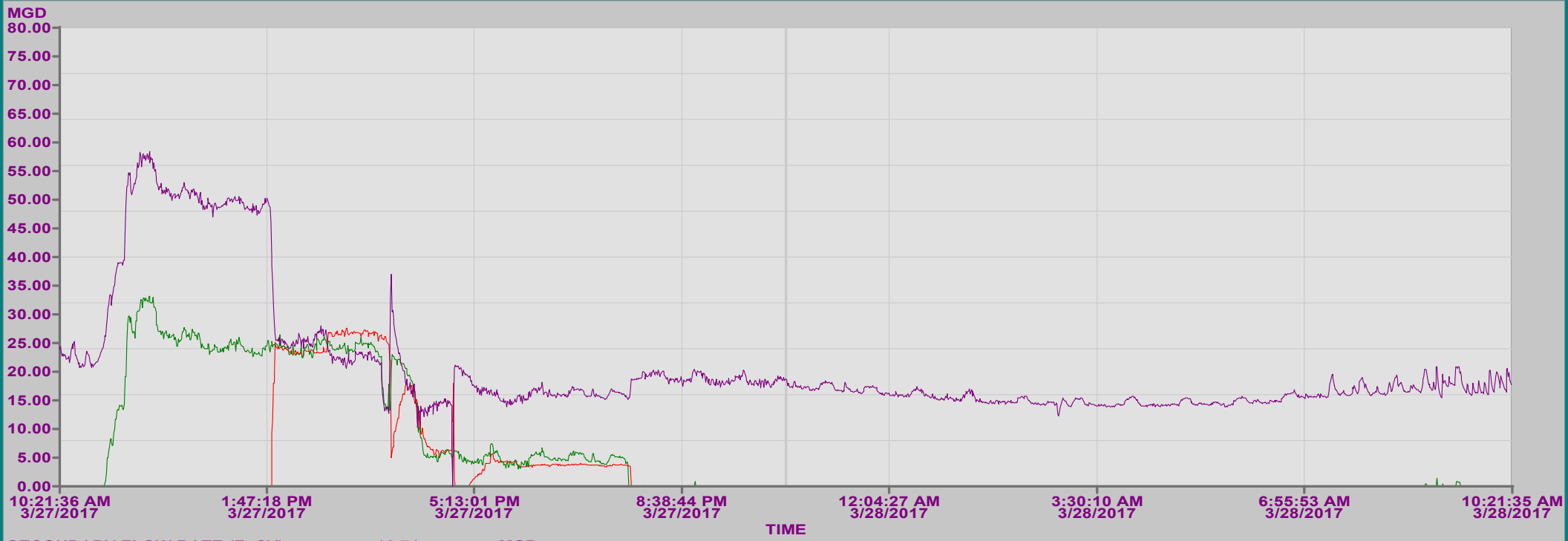
CITY OF HAVERHILL, MA - WWTF

LOGIN

7/6/2017

10:21:42 AM

ALARMS | HISTORY MENU | MAIN MENU | BYPASS



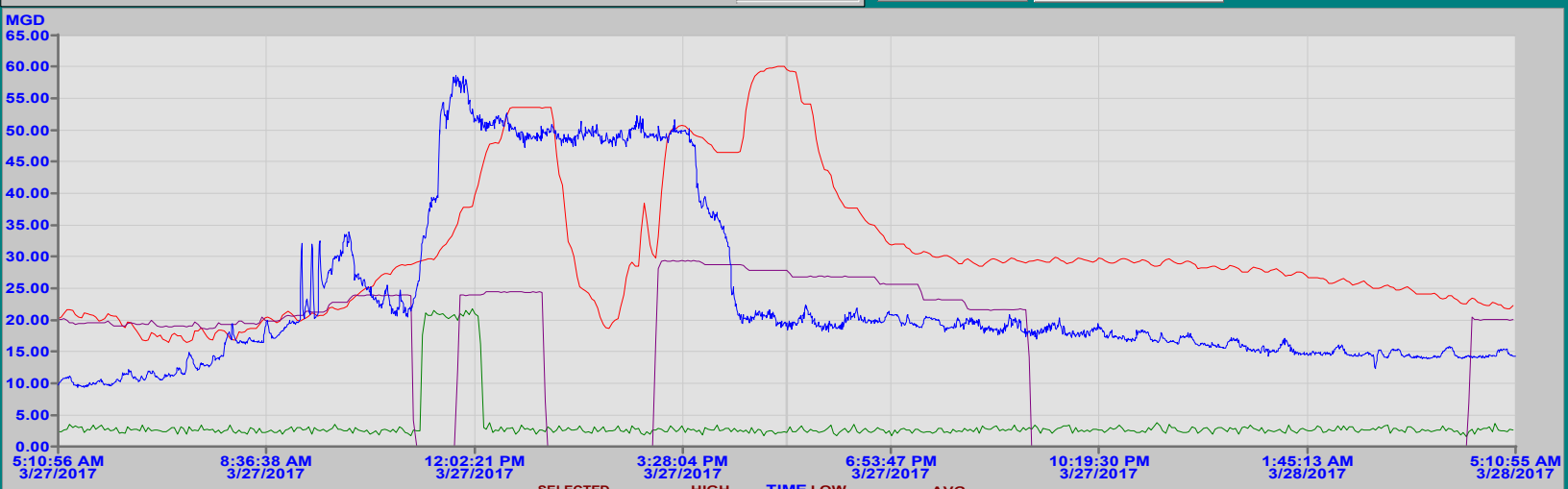
SECONDARY FLOW RATE (F_CV)	18.71	MGD
BYPASS FLOW (F_CV)	0.00	MGD
BYPASS FLOW AUTO SP (F_CV)	-1.91	MGD
BYPASS CHLORINE (F_CV)	0.00	PPM

◄◄ | ◄ | Switch to 7Days | ► | ►►

PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

LOGIN | 7/6/2017 | 11:11:04 AM | ALARMS | HISTORY MENU | MAIN MENU | MAIN PUMP STAT | INF. FLOW 8.07 MGD

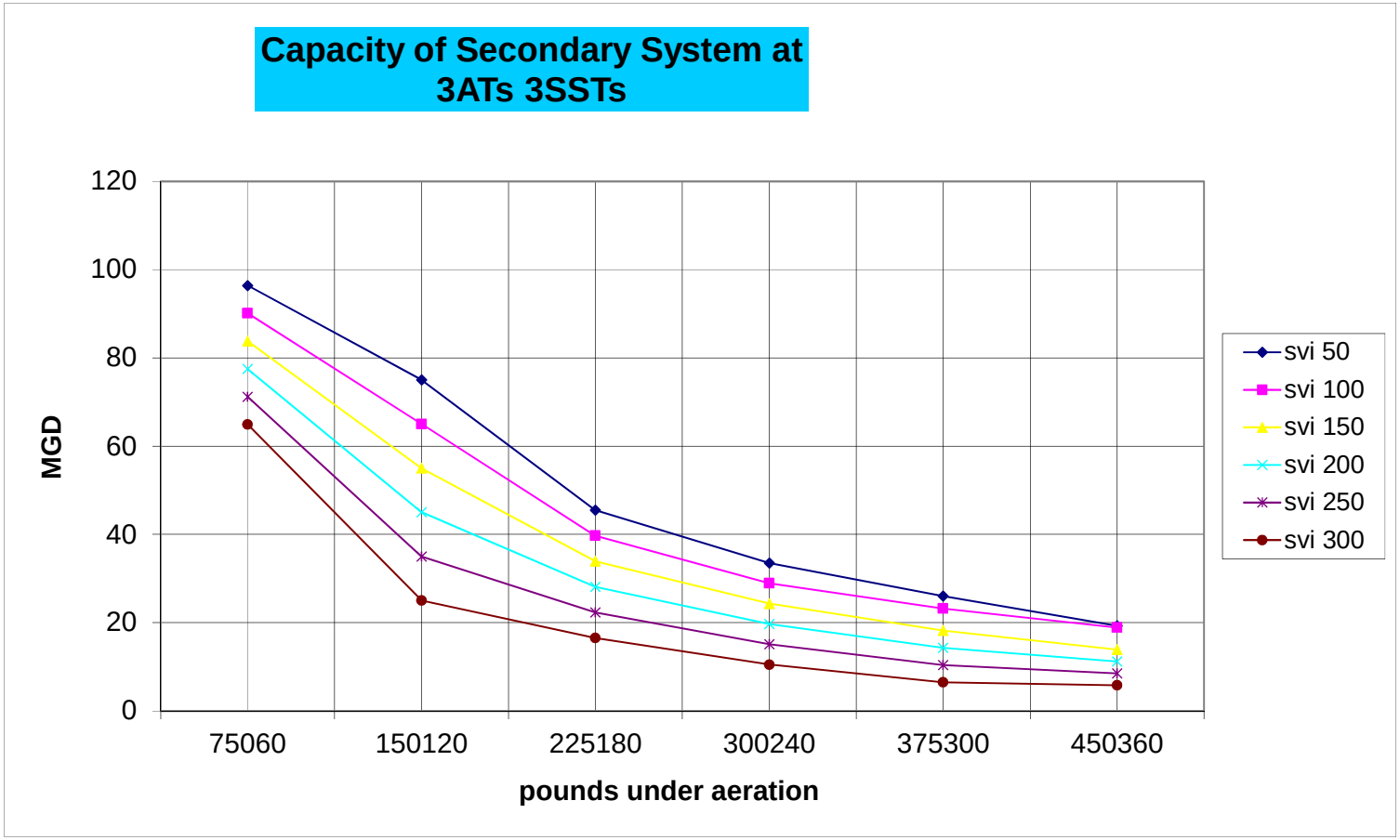


	SELECTED	HIGH	TIME LOW	AVG.
INFLUENT FLOW (F_CV)	19.54	58.62	9.37	23.86
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	0.54	5.37	0.40	0.83
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	14.66	14.79	4.04	7.53
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	6.84	7.23	0.00	3.39

◀◀ | ◀ | Switch to 7Days | ▶ | ▶▶

Ack	Time In	Date In	Description	Value	Status
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 MOTOR HIGH T	HIGH TEMP	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 DISCH HIGH TE	HIGH TEMP	CFN
✓	08:32:11.683	6/29/2017	GRIT CLASSIFIER 1 PULL CORD	PULL CORD	CFN
✓	08:32:03.580	6/29/2017	GRIT CLASSIFIER 1 HIGH LEVEL	HIGH LEVEL	CFN
✓	08:32:03.580	6/29/2017	GRIT CLASSIFIER 1 ESTOP	E-STOP	CFN

Total Alarms: 7 | Filter: Off | Sort: Time In, Descending | Run



date:	3/27/2017	Flow, MG	SVI	MLSS	lbs	sr oper	setting selected, MG
bypass start time:	1:50pm	49	360	2120	146000	nrp/jb	25
bypass stop time:	7:50pm	19					

BYPASS EVENT: 2017-04

HAVERHILL, MA - WWTP - DAILY LOG

Date: 03/28/17

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	Isaiah Lewis		Walter Alce	
2nd	Norm Paquette	kevin Rutledge	Walter Alce	Norm Paquette
3rd	Jim Bevelaqua	alce3-7 Lewis 6-11	Waino Waisanen	**Braisier 3-6**
	Mark B			

WEATHER: Snowmelt
Hi: 41 **Lo:** 34 **Ob:** 34
Rain: 0.74 **Snow:**
Conditions: Cloudy snowcover

LAB

INFLUE	Q,Daily Total	MAX	MIN
	22.82	54.46	12.62
Q,byp	start/stop times am or pm & Q	7pm 42 MG	
Q,byp	Status	activated	
Q,bypa	3.55	Q to 2nd	19.27

PRIMARY SCUM LEVEL:

	Old	New	Plant	Pump Station	Grit quty
1st	4.48	4.45	5		yd3
2nd	4.25	5.48	5	1	
3rd	4.10	5.2	5	1	

SCREENINGS CARTS:

PLANT (*1600) POWER

End 1st	KVA (06)		KW (06)
End 2rd	KVA (06)		KW (06
End 3rd	KVA (06)		KW (06

Centrifuge:	478
Primary:	5903
Secondary:	2403
Aeration:	0
Total:	15940

12 Mid PUMP STATION (*450) POWER

12 Mid	Start 1st	KW(06)	KVA(
12 Mid	Start 2nd	3.75	3.83
12 Mid	Start 3rd	KW(06)	KVA(

COLLECTOR SPEED

	#1	#2	#3
1st	slow	off	slow
2nd	slow	off	slow
3rd	slow	off	slow
	PSTs on-line	2	

AERATION: Dissolved Oxygen

ATs	on-line	3
#1	AT#1 infl do avg	5.2
#3	AT#1 effl do avg	3.0
#4	AT#2 infl do avg	3.5
#6	AT#2 effl do avg	2.4

Gravity Thickeners DOB:

	#1	#2
1st	3	4
2nd	4	5
3rd	2	4

Torque:

	#1	#2
1st	n/a	n/a
2nd	N/A	N/A
3rd	/	/

Weekly Septage Pumped Gals

SEPTAGE LEVEL
1st 5.19 ft
2nd ft
3rd ft

Cl2 vol

	Tank #1	Tank #2
1st		3673
2nd		3619
3rd		3548
Total	195	Gallons

TWAS LEVELS:

	#1	#2	#3
1st	8	10	7
2nd	11	F	12
3rd	5	11	9

Dosage Setpoint
Effluent Cl2, mg/l 1.25

Inplant ____/____ 1.50
____/____ 1.00

CHLORINE RESIDUAL: 0.24 mg/l

CHEMICALS:
Sodium Hypo____ 11
Polymer dry __ 271
Hydroxide____ 11
Polymer liq.__ 1110
Alpha Lox 15____drums

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
12.5	6.8			12	9

RAS# ____ SC# ____	RAS# ____ SC# ____	RAS# ____ SC# ____	____
0.00	3.09	3.20	2.88

SECONDARY CLARIFIERS
SSTs on-line 3

Depth of Blankets Daily average

#1	#2	#3
0.81	7.4	1.9

DOB by Operators

	#1		#2		#3	
1st	11.0	12.0	6.0	5.0	4.0	4.0
2nd	12.5	9.5	5.0	6.0	5.0	5.5
3rd	7.0	13.0	7.0	10.0	7.0	8.0

HAVERHILL, MA - WWTP - DAILY LOG

Date: 03/29/17

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	Lewis/Paszko		Walter Alce	
2nd	Pas/Bevi	kevin Rutledge	Walter Alce	
3rd	Jim Bevelaqua		Waino Waisanen	
	Mark B			

WEATHER: Snowmelt Yes
Hi: 39 Lo: 34 Ob: 37
Rain: 0.70 Snow:
Conditions: Rain 0.0 snowcover

LAB

INFLUE	Q,Daily Total	MAX	MIN
	21.64	35.99	18.38
Q,byp	start/stop times am or pm & Q		5:00am 24 MG
Q,byp	Status	activated	
Q,bypa	0.74	Q to 2nd	20.90

PRIMARY SCUM LEVEL:

	Old	New
1st	4.24	4.09
2nd	4.36	4.85
3rd	4.30	4.55

SCREENINGS CARTS:

	Plant	Pump Station	Grit quty
1st	5		21 yd3
2nd	5	3	
3rd	0		

PLANT (*1600) POWER

End 1st	KVA (06)	KW (06)
End 2rd	KVA (06)	KW (06
End 3rd	KVA (06)	KW (06

Centrifuge:	436
Primary:	5788
Secondary:	2371
Aeration:	0
Total:	15622

12 Mid **PUMP STATION (*450) POWER**

12 Mid	Start 1st	KW(06) KVA(
12 Mid	Start 2nd	KW(06) KVA(
12 Mid	Start 3rd	KW(06) KVA(

COLLECTOR SPEED

	#1	#2	#3
1st	slow	off	slow
2nd	slow	off	slow
3rd	slow	off	slow
	PSTs on-line	2	

AERATION: Dissolved Oxygen

ATs on-line 3

#1	AT#1 infl do avg	6.0
#3	AT#1 effl do avg	3.1
#4	AT#2 infl do avg	4.1
#6	AT#2 effl do avg	2.9

Gravity Thickeners DOB:

	#1	#2
1st	1	4
2nd	1	4
3rd	2	3

Torque:

	#1	#2
1st	n/a	n/a
2nd	N/A	N/A
3rd	/	/

Weekly Septage Pumped Gals

SEPTAGE LEVEL

1st 6.20 ft
2nd ft
3rd ft

Cl2 vol

	Tank #1	Tank #2
1st		3478
2nd		3391
3rd		3320
Total	211 Gallons	

TWAS LEVELS:

	#1	#2	#3
1st	8	11	8
2nd	11	F	13
3rd	10	12	11

Dosage Setpoint

Effluent Cl2, mg/l 1.25

Inplant _____/_____/_____
_____/_____/_____

CHLORINE RESIDUAL: 0.33 mg/l

CHEMICALS:

Sodium Hypo_____ 11
Polymer dry ___ 268
Hydroxide_____ 11
Polymer liq.__ 1051
Alpha Lox 15_____drums

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
12.1	8.8	11	6	3	7

RAS# _____ SC# _____	RAS# _____ SC# _____	RAS# _____ SC# _____	____
0.00	2.95	2.99	2.99

SECONDARY CLARIFIERS

SSTs on-line 3

Depth of Blankets Daily average

#1	#2	#3
2.60	8.7	8.0

DOB by Operators

	#1		#2		#3	
1st	12.0	11.0	11.0	7.0	9.0	7.0
2nd	12.0	12.0	8.0	11.0	7.0	8.0
3rd	12.0	10.0	11.0	13.0	8.5	10.0

comments logbook for 3/28/2017
7/6/2017 11:37:42 AM

	Comment
1	6:35:00 AM CONTROL_ROOM Primary amd Secondary Plant Checks, Operating #1 DAF thru Shift, Shut off Hoses to SC #1 and #2 Collected Composite Samples, Weather Info, Step Screen Back in Remote, SC gate Adjustments, Tu Final Readings, IL
2	2:24:00 PM PJESSEL Please be advise the CSO System Maximization is now in AUTO. Collection crew will be at the Uppe
3	2:50:00 PM CONTROL_ROOM primary check, operating DAF #1, cleaned GT WEIRS, centrifuge process on-line, put SEPTAGE PU pumping primary scum, secondary check...AM SC OSG adjustments 80/70 - 42/47 - 80/85...Steve Pi PUMP...bad VFD, pump station check...#2 BAR RACK appears to be running non-stop again, WIMS event for 3p-11p and 11p-7am, flushing #1 GRIT PUMP and BACKFLUSHING into GRIT TRAIN #1, to #1 SCUM WELL...#2 SECONDARY PUMP now pumping down both SECONDARY SCUM WELLS 8AM to vac off FOG BLANKETS on all 3 SC's and FOG BUILD-UP in SE CHANNEL, lowered RAS ra nrp
4	3:54:00 PM CONTROL_ROOM Primary and secondary plant checks - Started solids lab - Unplugged center well spray nozzles - Pum event - Adjusting secondary clarifier spay nozzles - Adjusting clarifier gates and RAS accordingly ---=
5	8:25:00 PM CONTROL_ROOM Started bypassing at 7;PM - Marginal pump station check - Completed centrifuge run and started flus flushed cycle - Finished solids lab ---------==----------Jbev

comments logbook for 3/29/2017
7/6/2017 11:38:06 AM

	Comment
1	6:25:00 AM CONTROL_ROOM Primary and Secondary Plant Checks, Paszko in for Rain Event, Operating #1 DAF thru the Shift, Co Inventory, Weather Info, Operating Step Screens in Local Mode, Out of Bypass at 5am, SC gate Adju
2	8:18:00 AM CONTROL_ROOM plant checks; DAF #1 is on line thru the shift; Centrifuge is on line thru the shift; adjusted OSG to SC M Brasier completing daily lab work; Rooter man in to remove FOG blankets; Pump Station checke
3	8:21:00 PM CONTROL_ROOM Unplugged secondary scum troughs - Un plugged center well spray nozzles - Dumped water filled sc plant checks - Operating #2 centrifuge and #1 DAF - Started solids lab - Cleaned off GT's - Rooterma removing FOG's - Completed centrifuge run and started flush cycle - Filled blended sludge tank and f -------==----------Jbev

BYPASS MULTI TREND

CITY OF HAVERHILL, MA - WWTF

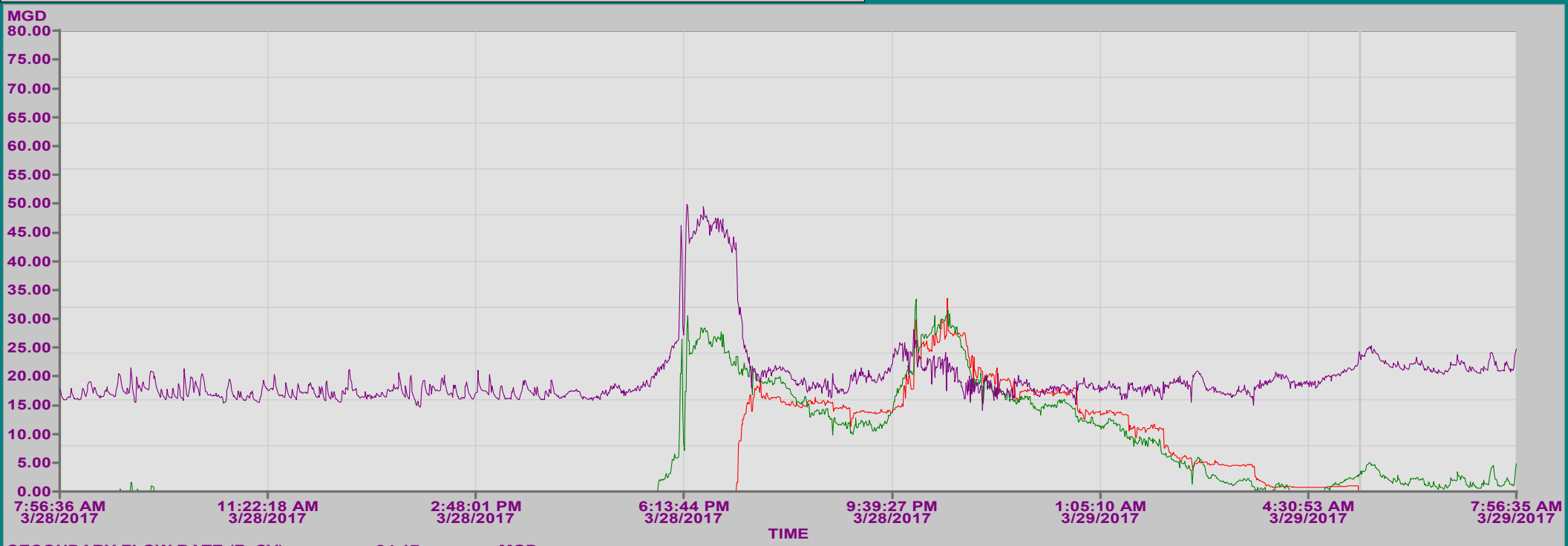
LOGIN

3/29/2017

7:58:17 AM

ALARMS | HISTORY MENU

MAIN MENU | BYPASS



SECONDARY FLOW RATE (F_CV)	24.17	MGD
BYPASS FLOW (F_CV)	0.00	MGD
BYPASS FLOW AUTO SP (F_CV)	2.93	MGD
BYPASS CHLORINE (F_CV)	0.00	PPM

◄◄ | ◄ | Switch to 7Days | ► | ►►

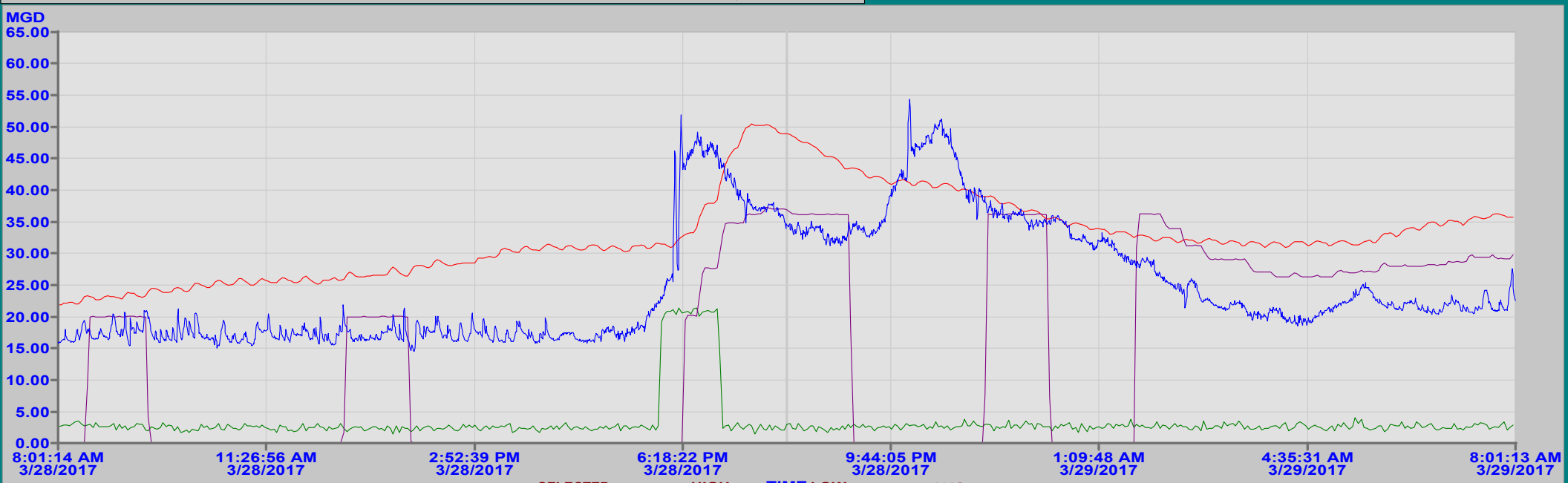
PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

LOGIN | 3/29/2017 | 8:01:41 AM

ALARMS | HISTORY MENU | MAIN MENU | MAIN PUMP STAT

INF. FLOW 21.68 MGD

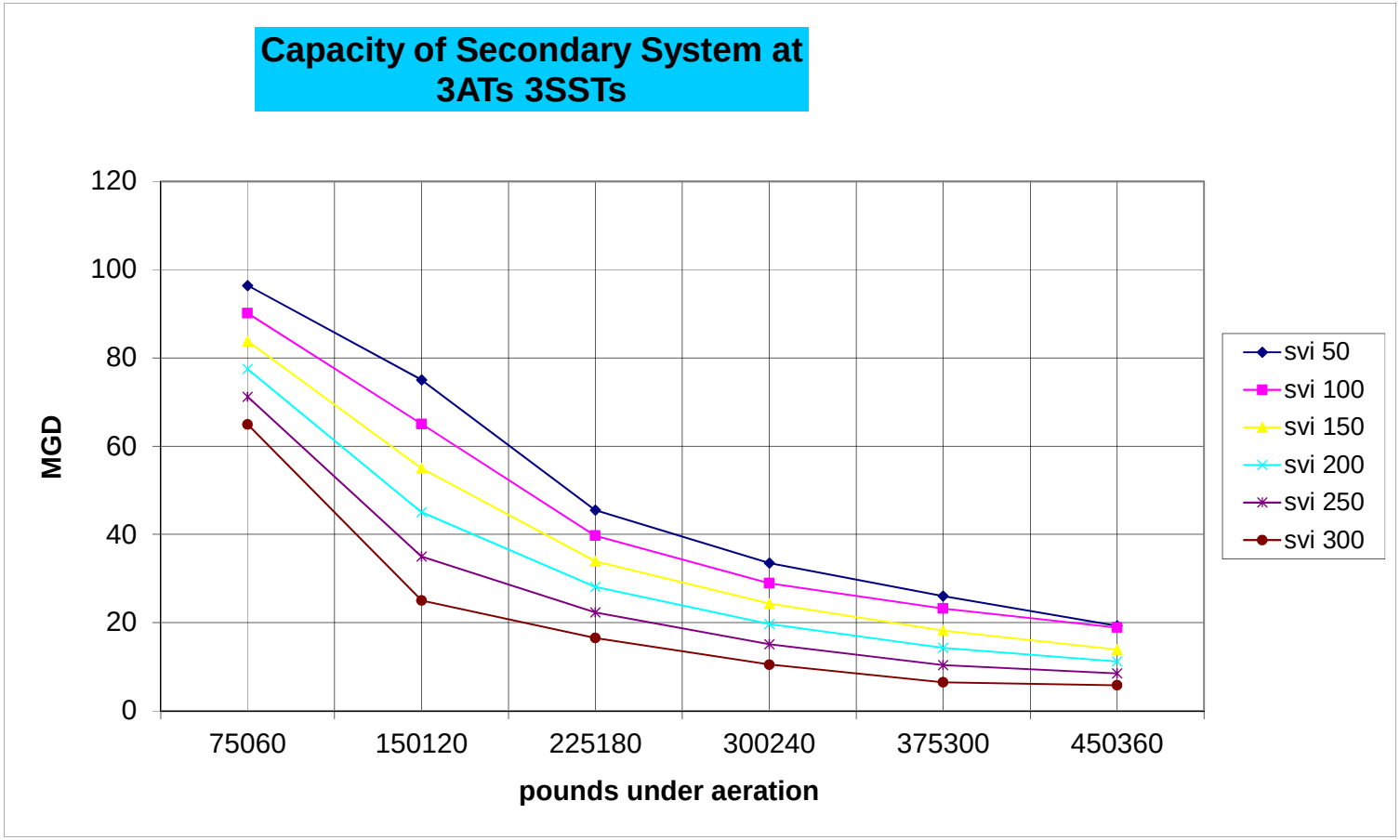


	SELECTED	HIGH	TIME LOW	AVG.
INFLUENT FLOW (F_CV)	34.47	54.30	14.57	25.17
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	0.73	5.26	0.35	0.82
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	12.05	12.42	5.40	8.08
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	9.08	9.17	0.00	3.60

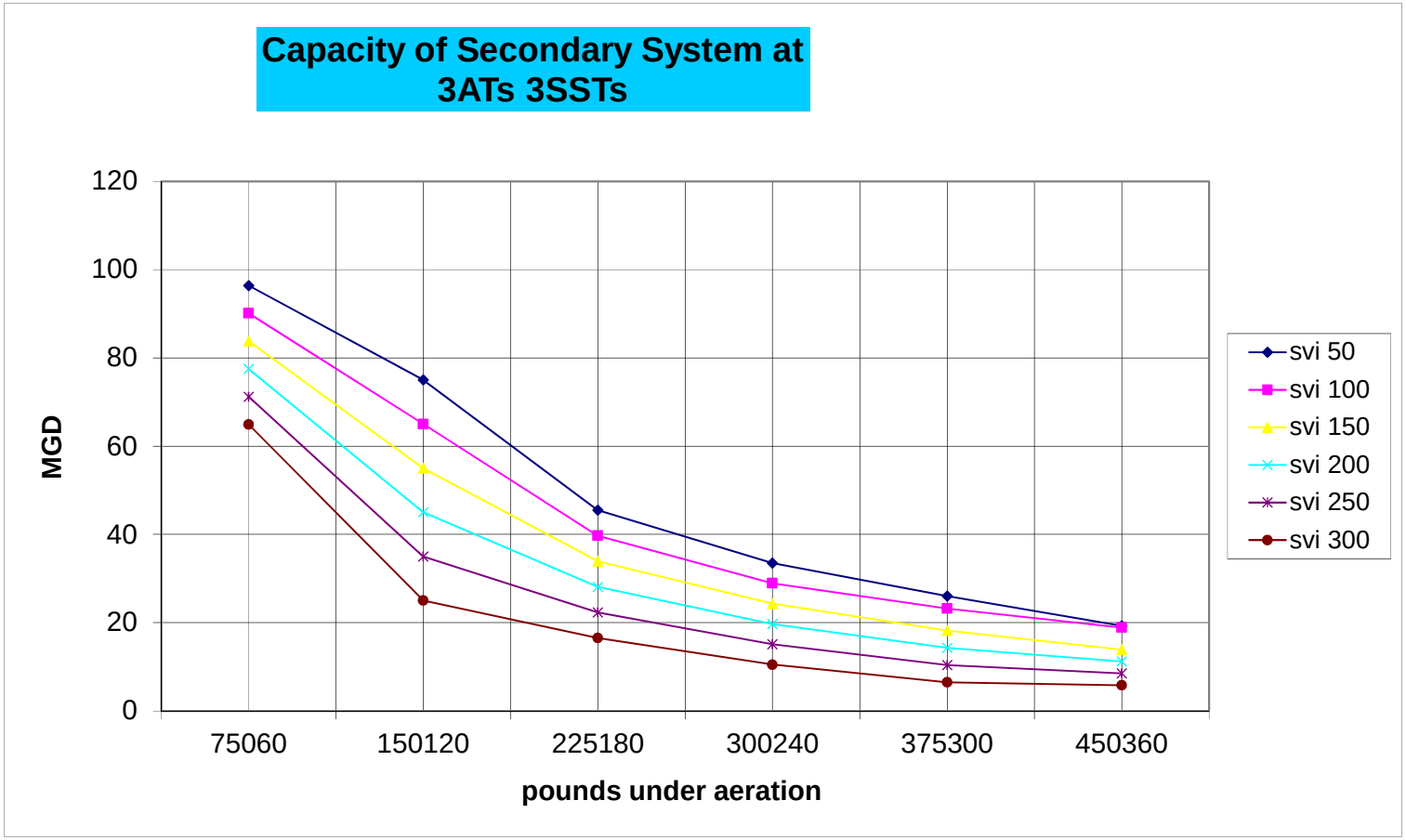
◀◀ ◀ Switch to 7Days ▶ ▶▶

Ack	Time In	Date In	Description	Value	Status
✓	07:30:11.788	3/29/2017	TWAS TANK NO.2 HIGH LEVEL	ALARM	CFN
✓	06:54:14.602	3/29/2017	SECONDARY SCUM WELL #1 HI LEVI	HIGH LEVEL	CFN
✓	06:33:37.250	3/29/2017	GRIT SCREW 1 ZERO SPEED	ZERO SPEED	CFN
✓	17:47:26.537	3/28/2017	BYPASS REQUIRED ALARM	S REQUIRED	CFN
✓	17:43:06.414	3/28/2017	GRIT SCREWS CYC MODE RQD ON F	CYCLE RQD	CFN

Total Alarms: 6 | Filter: Off | Sort: Time In, Descending | Run



date:	3/27/2017	Flow, MG	SVI	MLSS	lbs	sr oper	setting selected, MG
bypass start time:	1:50pm	49	360	2120	146000	nrp/jb	25
bypass stop time:	7:50pm	19					



date:	3/28/2017		Flow, MG	SVI	MLSS	lbs	sr oper	setting selected, MG
bypass start time:	7:05pm		43	274	2210	192000	jb/il/bp	20
bypass stop time:	5:20am	3/29/2017	23					

BYPASS EVENT: 2017-05

HAVERHILL, MA - WWTP - DAILY LOG

Date: 04/01/17

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	Isaiah Lewis	Kevin Rutledge		
2nd	William Paszko			
3rd	Pas/Lewis			
	Mark B			

WEATHER: Snowmelt
Hi: 39 Lo: 32 Ob: 34
Rain: 1.32 Snow: 2.0
Conditions: Sleet snowcover

LAB

INFLUE	Q,Daily Total	MAX	MIN
	23.86	38.56	15.18
Q,byp	start/stop times am or pm & Q	1:20 pm	7:30pm
Q,byp	Status	activated	
Q,bypa	2.91	Q to 2nd	20.95

PRIMARY SCUM LEVEL:

	Old	New	Plant	Pump Station	Grit quty
1st	3.72	6.28	1		7 yd3
2nd	3.70	5.76	1		
3rd	3.68	9.48	1/2		

SCREENINGS CARTS:

PLANT (*1600) POWER

End 1st_____KVA (06)_____KW (06)
End 2rd_____KVA (06)_____KW (06
End 3rd_____KVA (06)_____KW (06

Centrifuge:	35
Primary:	5153
Secondary:	2651
Aeration:	0
Total:	15398

12 Mid **PUMP STATION (*450) POWER**
12 Mid Start 1st _____KW(06) _____KVA(
12 Mid Start 2nd_____KW(06) _____KVA(
12 Mid Start 3rd_____KW(06) _____KVA(

COLLECTOR SPEED

	#1	#2	#3
1st___	slow	off	slow
2nd___	slow	off	slow
3rd___	slow	off	slow
	PSTs on-line	2	

AERATION: Dissolved Oxygen

ATs on-line 3

#1_____ AT#1 infl do avg	6.5
#3_____ AT#1 effl do avg	3.2
#4_____ AT#2 infl do avg	4.0
#6_____ AT#2 effl do avg	3.2

Gravity Thickeners DOB:

	#1	#2
1st	2	4
2nd	2	3
3rd	3	3

Torque:

	#1	#2
1st	n/a	n/a
2nd	N/A	N/A
3rd	N/A	N/A

Weekly Septage Pumped Gals

SEPTAGE LEVEL
1st_____ 8.63 ft
2nd_____ft
3rd_____ft

Cl2 vol

	Tank #1	Tank #2
1st		2914
2nd		2843
3rd		2757
Total	222	Gallons

TWAS LEVELS:

	#1	#2	#3
1st	3	6	6
2nd	7	13	7
3rd	12	F	F

Dosage Setpoint
Effluent Cl2, mg/l 1.25

Inplant _____/_____/_____
_____/_____/_____

CHLORINE RESIDUAL: 0.30 mg/l

CHEMICALS:
Sodium Hypo_____ 10
Polymer dry ___ 259
Polymer liq.__ 784
Hydroxide_____ 11
Alpha Lox 15_____drums

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
9.0	8.5	7	8	4	4

RAS# _____ SC# _____	RAS# _____ SC# _____	RAS# _____ SC# _____ ____
0.00	3.01	3.18 3.18

SECONDARY CLARIFIERS
SSTs on-line 3

Depth of Blankets Daily average

#1	#2	#3
12.08	11.7	12.9

DOB by Operators

	#1		#2		#3	
1st	10.0	8.0	12.0	10.0	11.0	12.0
2nd	8.0	11.0	10.0	12.0	12.0	12.0
3rd	13.0	13.0	14.0	12.0	12.0	11.0

comments logbook for 4/1/2017
7/6/2017 11:38:53 AM

	Comment
1	6:52:00 AM CONTROL_ROOM Primary and Secondary Plant Checks, Rutledge in for Rain Event, Operating #1 DAF thru Shift, Empt Inventory, Weather Info, Unplugged SC #1 and #3 Scum Troughs, SC gat Adjustments, Maint in for S
2	4:41:00 PM CONTROL_ROOM plant checks; operating DAF #1 thru the shift; Maintenance in for snow removal; placed bar racks ir SC's; M Brasier completing weekend lab work; INF flow and snow fall are increasing thru the day; and completed DAF lab work; placed Secondary By-Pass on line at 1:20 pm, could not operate by-p gate will not operate correctly in auto; increased hypo dosage to 1.30 mg/l as per by-pass memo, .6 where needed; changed screenings cart; Maintenance done snow removal at 3 pm, and collections
3	5:38:00 PM CONTROL_ROOM shut down DAF #1 at 5:30 pm, near full TWAS tanks; wp
4	7:54:00 PM CONTROL_ROOM Plant Checks, Shut off Bypass @ 7:30pm, Shoveled out and closed entrance Gates, SC gate adjustn

BYPASS MULTI TREND

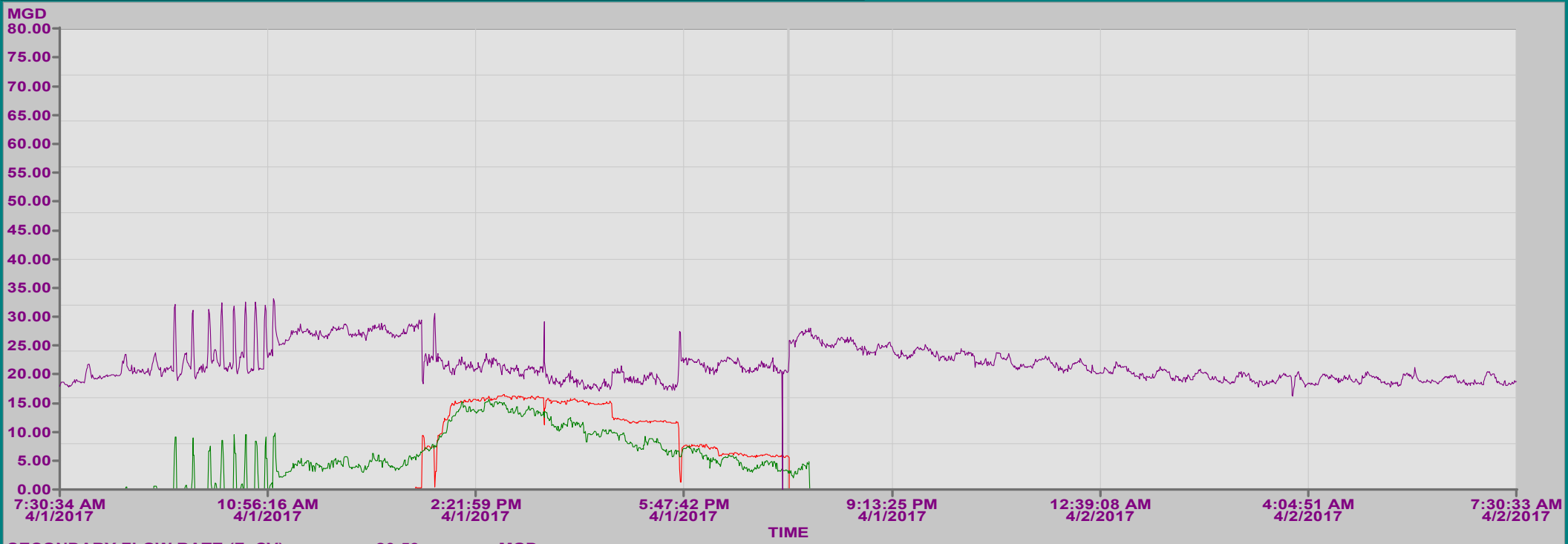
CITY OF HAVERHILL, MA - WWTF

LOGIN

4/3/2017

7:31:09 AM

ALARMS | HISTORY MENU | MAIN MENU | BYPASS



SECONDARY FLOW RATE (F_CV)	20.59	MGD
BYPASS FLOW (F_CV)	5.75	MGD
BYPASS FLOW AUTO SP (F_CV)	2.85	MGD
BYPASS CHLORINE (F_CV)	0.00	PPM

◄◄ | ◄ | Switch to 7Days | ► | ►►

PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

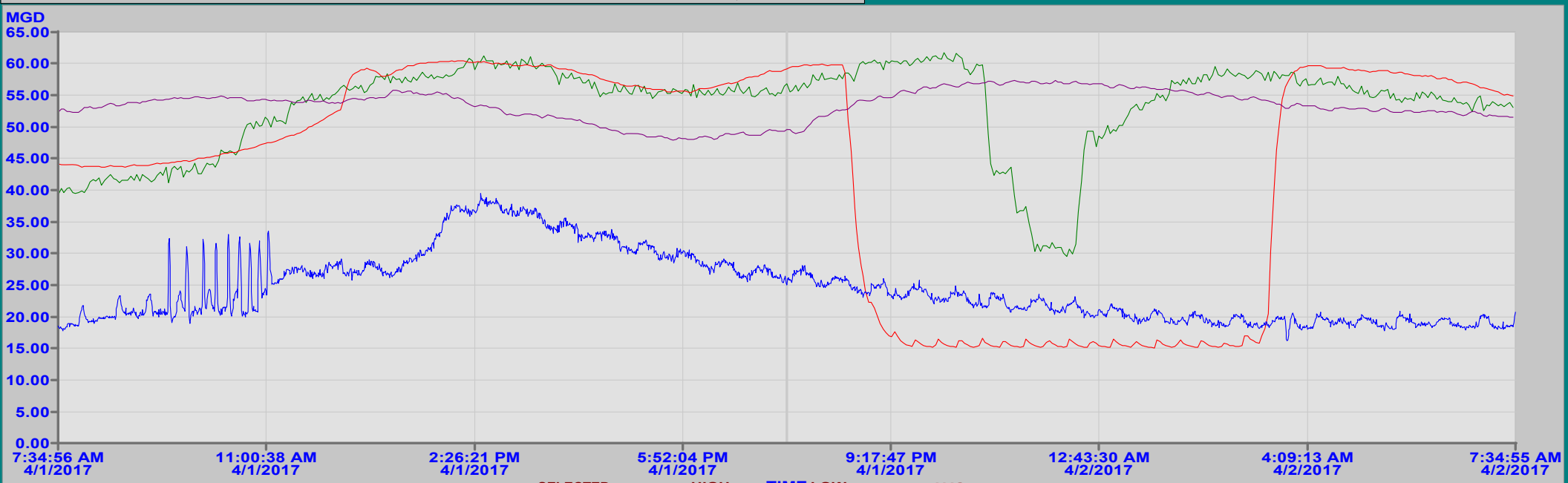
LOGIN

4/3/2017

7:35:42 AM

ALARMS | HISTORY MENU | MAIN MENU | MAIN PUMP STAT

INF. FLOW 24.44 MGD

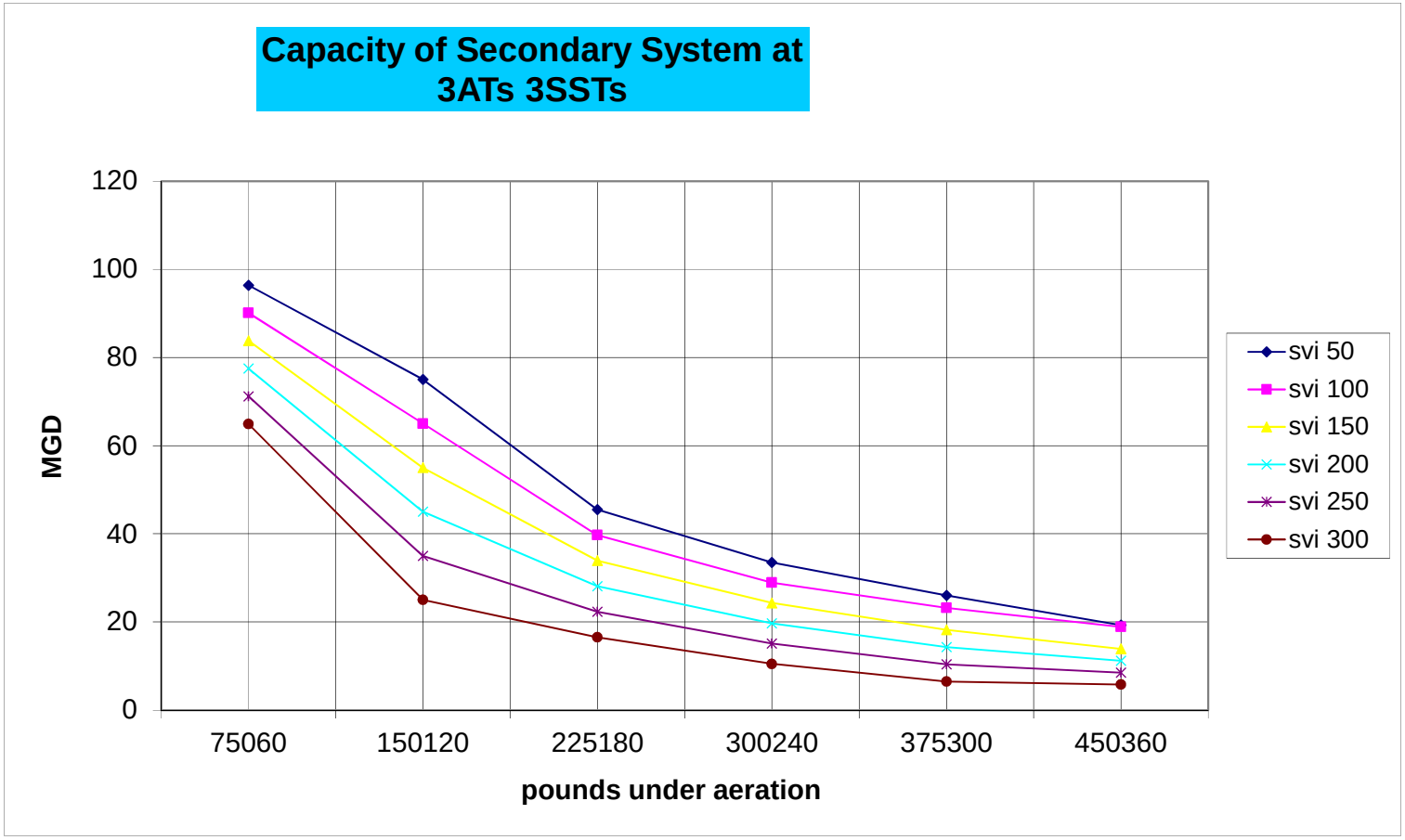


	SELECTED	HIGH	TIME LOW	AVG.
INFLUENT FLOW (F_CV)	25.05	39.50	16.19	24.59
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	14.00	15.19	7.26	13.11
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	14.57	14.87	3.70	10.77
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	12.20	14.10	11.78	13.14

◀◀ ◀ Switch to 7Days ▶ ▶▶

Ack	Time In	Date In	Description	Value	Status
	07:34:38.728	4/3/2017	TWAS TANK NO.3 HIGH LEVEL	ALARM	CFN
	07:21:55.639	4/3/2017	SECONDARY CLARIFIER 2 SLDG BLA	HIGH LEVEL	CFN
	06:50:59.575	4/3/2017	GRIT SCREW 1 ZERO SPEED	NORMAL	CFN
✓	06:33:13.604	4/3/2017	AERATION TRAIN 1 INFLUENT DO HIG	HIGH DO	CFN
✓	06:31:09.051	4/3/2017	BYPASS WEIR GATE NOT FULLY CL	NOT CLOSED	CFN

Total Alarms: 11 | Filter: Off | Sort: Time In, Descending | Run



date:	4/1/2017	Flow, MG	SVI	MLSS	lbs	sr oper	setting selected, MG
bypass start time:	1:25pm	29	450	2040	196000	bp	20
bypass stop time:	7:30pm	26					

BYPASS EVENT: 2017-06

HAVERHILL, MA - WWTP - DAILY LOG

Date: 04/02/17

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	Isaiah Lewis			
2nd	Jim Bevelaqua			
3rd	Jbev / Lewis			
	Mark B			

WEATHER: Snowmelt: Yes
Hi: 35 Lo: 32 Ob: 33
Rain: 0.89 Snow: 4.0
Conditions: Cloudy snowcover

LAB

INFLUE	Q,Daily Total	MAX	MIN
	29.13	59.34	16.16
Q,byp	start/stop times am or pm & Q	12:30 pm	10:30 pm
Q,byp	Status		
Q,bypa	7.42	Q to 2nd	21.71

PRIMARY SCUM LEVEL:

	Old	New
1st	3.65	4.19
2nd	3.5	7.54
3rd	3.5	8.50

SCREENINGS CARTS:

	Plant	Pump Station	Grit quty
1st	2		yd3
2nd	2	1	
3rd			

PLANT (*1600) POWER

End 1st	KVA (06)		KW (06)
End 2rd	KVA (06)		KW (06
End 3rd	KVA (06)		KW (06

Centrifuge:	37
Primary:	4576
Secondary:	2677
Aeration:	0
Total:	14703

12 Mid PUMP STATION (*450) POWER

12 Mid	Start 1st	KW(06)	KVA(
12 Mid	Start 2nd	KW(06)	KVA(
12 Mid	Start 3rd	KW(06)	KVA(

COLLECTOR SPEED

	#1	#2	#3
1st	slow	off	slow
2nd	slow	off	slow
3rd	slow	off	slow
	PSTs on-line	2	

AERATION: Dissolved Oxygen

ATs on-line 3

#1	AT#1 infl do avg	6.7
#3	AT#1 effl do avg	3.7
#4	AT#2 infl do avg	3.6
#6	AT#2 effl do avg	2.8

Gravity Thickeners DOB:

	#1	#2
1st	3	3
2nd	3	3
3rd	3	3

Torque:

	#1	#2
1st	n/a	n/a
2nd	/	/
3rd	/	/

Weekly Septage Pumped Gals

SEPTAGE LEVEL

1st 7.69 ft
2nd ft
3rd ft

Cl2 vol

	Tank #1	Tank #2
1st		2694
2nd		2624
3rd		2506
Total	248	Gallons

TWAS LEVELS:

	#1	#2	#3
1st	F	F	F
2nd	14	14	14
3rd	14	14	14

Dosage Setpoint

Effluent Cl2, mg/l: 1.25

Inplant: ____/____/____
____/____/____

CHLORINE RESIDUAL: 0.40 mg/l

CHEMICALS:

Sodium Hypo 10 | Polymer dry 259 | Polymer liq. 694
Hydroxide 11 | Alpha Lox 15 drums

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
7.1	7.9	3	4	8	4

RAS# ____ SC# ____ | RAS# ____ SC# ____ | RAS# ____ SC# ____

0.00	3.38	3.39 3.39

SECONDARY CLARIFIERS

SSTs on-line 3

Depth of Blankets Daily average

#1	#2	#3
12.17	10.7	12.2

DOB by Operators

	#1		#2		#3	
1st	13.0	14.0	12.0	12.0	12.0	11.0
2nd	13.0	13.0	12.0	13.0	12.0	13.0
3rd	14.0	10.0	14.0	10.0	13.0	12.0

comments logbook for 4/2/2017
7/6/2017 11:39:22 AM

	Comment
1	6:12:00 AM CONTROL_ROOM Primary and Secondary Plant Checks, Emptied Composite Sample Jugs, Chemical Inventory, Weath Hopper is Full, SC Gate Adjustments, Final Readings, IL
2	9:10:00 AM CONTROL_ROOM Primary and secondary plant checks - Pump station check - Did some cleaning in locker and lunch ro Weekend lab ----==------Jbev
3	2:09:00 PM CONTROL_ROOM Started bypassing @ 12:PM, very high DOB's, washing out around out side ring, 35 MGD - Called in station, high vibration and cone valve ----------==--------Jbev
4	2:12:00 PM CONTROL_ROOM Plant checks - Bypassing - Operating primary scum troughs manually -----==------Jbev
5	4:05:00 PM CONTROL_ROOM Zero flow from #1 grit pump, flushed and regained flow - Unable to keep #1 WWpump running, keeps WW pump and cone valve many times to keep it running, #1 WW pump is now on standby, #2 2nd la
6	10:35:00 PM CONTROL_ROOM Plant Checks, Unplugged #3 SC Scum Trough, Flushing Grit Pump throughout the Shift, Scheduled V and Grit Problems, Out of Bypass at 10:30 pm, Final Readings, IL

BYPASS MULTI TREND

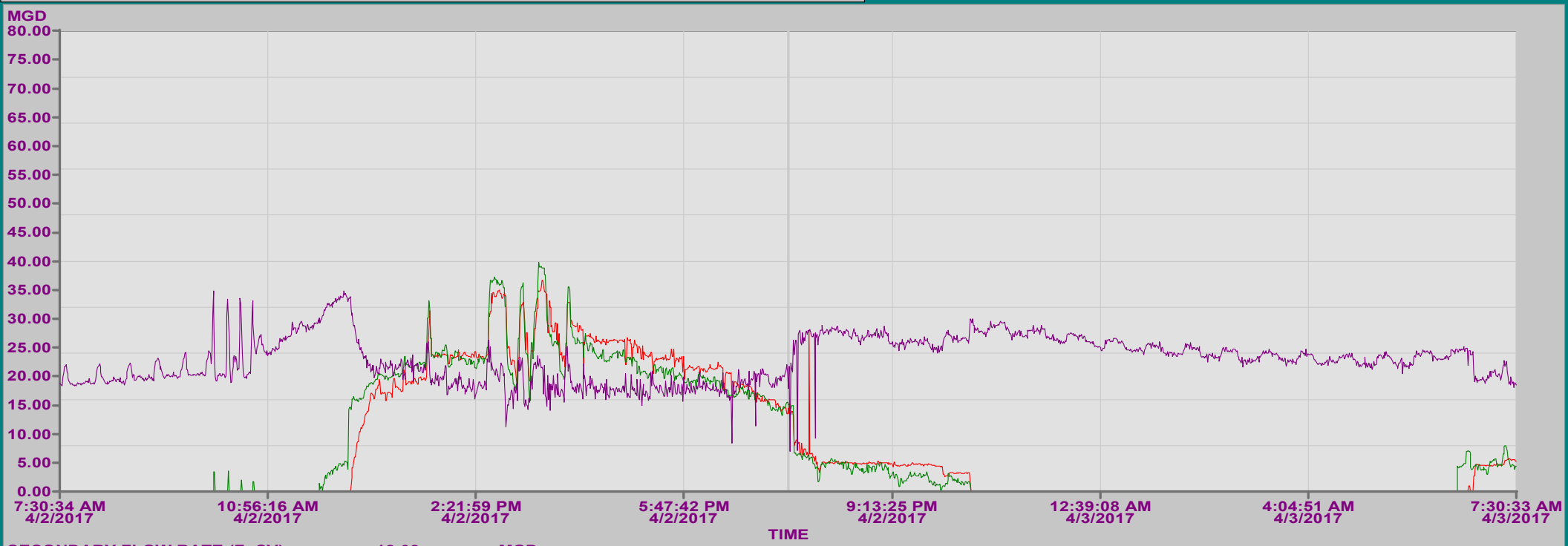
CITY OF HAVERHILL, MA - WWTF

LOGIN

4/3/2017

7:32:26 AM

ALARMS | HISTORY MENU | MAIN MENU | BYPASS



SECONDARY FLOW RATE (F_CV)	18.08	MGD
BYPASS FLOW (F_CV)	14.47	MGD
BYPASS FLOW AUTO SP (F_CV)	15.05	MGD
BYPASS CHLORINE (F_CV)	0.00	PPM

◄◄ | ◄ | Switch to 7Days | ► | ►►

PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

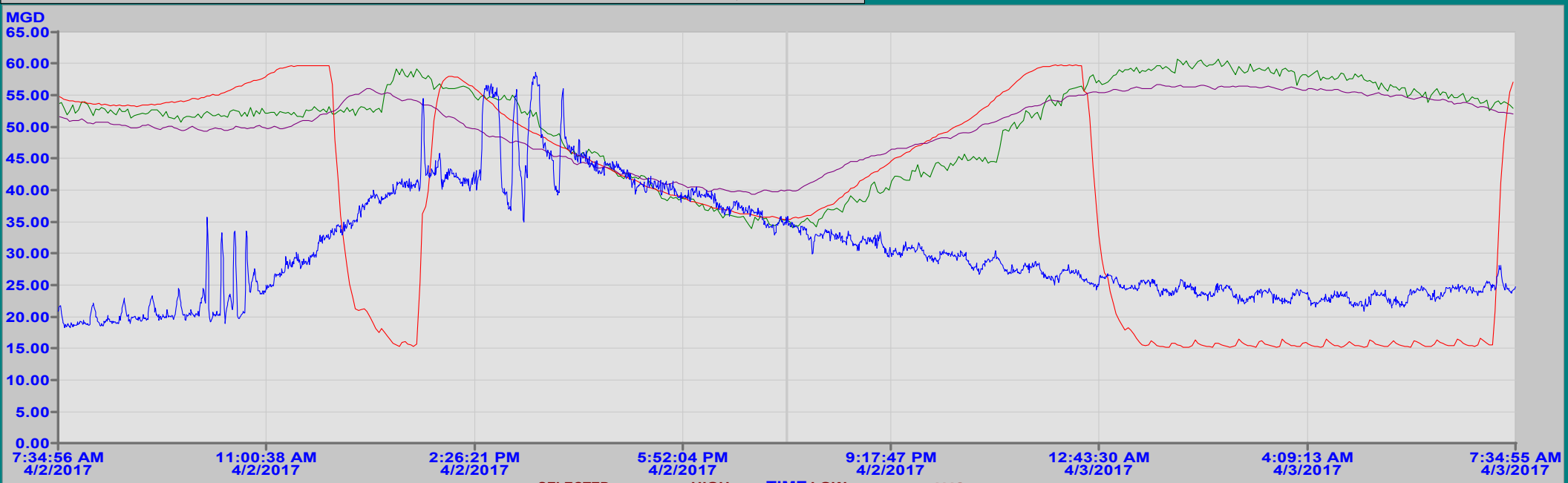
LOGIN

4/3/2017

7:36:20 AM

ALARMS | HISTORY MENU | MAIN MENU | MAIN PUMP STAT

INF. FLOW 24.31 MGD

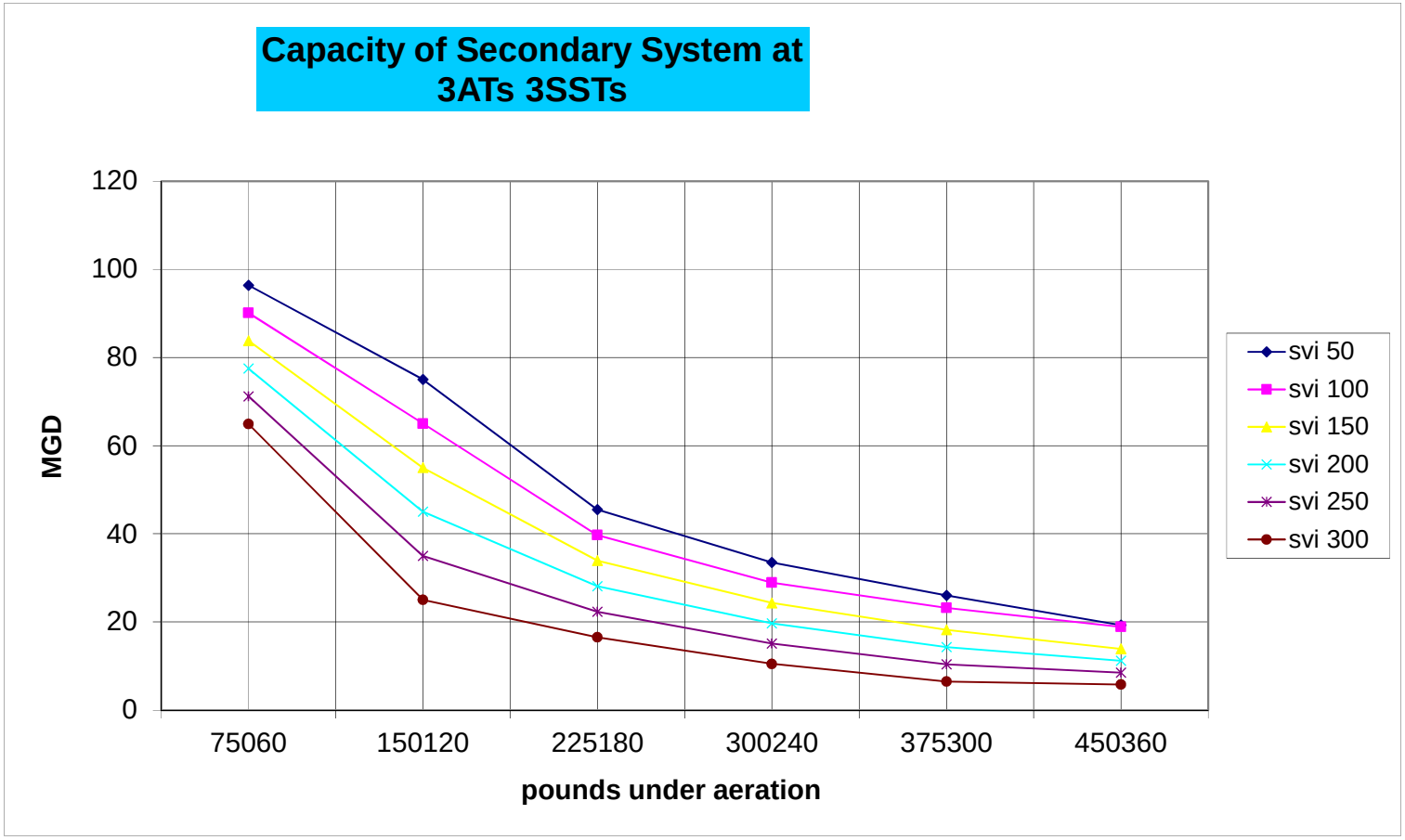


	SELECTED	HIGH	TIME LOW	AVG.
INFLUENT FLOW (F_CV)	34.91	58.57	18.21	30.47
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	8.71	14.95	8.35	12.43
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	8.72	14.71	3.72	9.44
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	9.83	13.94	9.68	12.33

◀◀ ◀ Switch to 7Days ▶ ▶▶

Ack	Time In	Date In	Description	Value	Status
	07:34:38.728	4/3/2017	TWAS TANK NO.3 HIGH LEVEL	ALARM	CFN
	07:21:55.639	4/3/2017	SECONDARY CLARIFIER 2 SLDG BLA	HIGH LEVEL	CFN
	06:50:59.575	4/3/2017	GRIT SCREW 1 ZERO SPEED	ZERO SPEED	CFN
✓	06:33:13.604	4/3/2017	AERATION TRAIN 1 INFLUENT DO HIG	HIGH DO	CFN
✓	06:31:09.051	4/3/2017	BYPASS WEIR GATE NOT FULLY CL	NOT CLOSED	CFN

Total Alarms: 11 | Filter: Off | Sort: Time In, Descending | Run



date:	4/2/2017	Flow, MG	SVI	MLSS	lbs	sr oper	setting selected, MG
bypass start time:	12:15pm	33.5	600	1565	215000	jb/il	20
bypass stop time:	10:30pm	27.5					

BYPASS EVENT: 2017-07

HAVERHILL, MA - WWTP - DAILY LOG

Date: 04/03/17

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	Isaiah Lewis	Waino Waisanen	Walter Alce	
2nd	Norm Paquette	Norm Paquette	Walter Alce	Kevin Rutledge
3rd	Jim Bevelaqua		Waino Waisanen	
	Mark B			

WEATHER: Snowmelt Yes
Hi: 56 Lo: 26 Ob: 26
Rain: Snow:
Conditions: Clear 1.0 snowcover

LAB

INFLUE	Q,Daily Total	MAX	MIN
	27.15	35.84	19.84
Q,byp	start/stop times am or pm & Q	6:30 am	
Q,byp	Status		
Q,bypa	4.37	Q to 2nd	22.78

PRIMARY SCUM LEVEL:

	Old	New	Plant	Pump Station	Grit quty
1st	3.59	4.76	2		yd3
2nd	3.61	9.40	2		
3rd	4.5	6.5	2		

SCREENINGS CARTS:

PLANT (*1600) POWER

End 1st	KVA (06)		KW (06)
End 2rd	KVA (06)		KW (06
End 3rd	KVA (06)		KW (06

Centrifuge:	464
Primary:	5592
Secondary:	2868
Aeration:	0
Total:	15752

12 Mid PUMP STATION (*450) POWER

12 Mid	Start 1st	KW(06) KVA(
12 Mid	Start 2nd	3.75 3.83
12 Mid	Start 3rd	KW(06) KVA(

COLLECTOR SPEED

	#1	#2	#3
1st	slow	off	slow
2nd	slow	off	slow
3rd	slow	off	slow
PSTs on-line		2	

AERATION: Dissolved Oxygen

ATs on-line 3

#1	AT#1 infl do avg	6.3
#3	AT#1 effl do avg	3.7
#4	AT#2 infl do avg	2.5
#6	AT#2 effl do avg	2.5

Gravity Thickeners DOB:

	#1	#2
1st	3	3
2nd	3	3.5
3rd	3	3

Torque:

	#1	#2
1st	n/a	n/a
2nd	n/a	n/a
3rd	/	/

Weekly Septage Pumped Gals

SEPTAGE LEVEL

1st 6.04 ft
2nd ft
3rd ft

Cl2 vol

	Tank #1	Tank #2
1st		2428
2nd		2350
3rd		
Total	241	Gallons

TWAS LEVELS:

	#1	#2	#3
1st	F	F	F
2nd	F	F	F
3rd	7	10	10

Dosage Setpoint

Effluent Cl2, mg/l 1.25

Inplant _____/_____ 1.50
_____/_____ 1.25

CHLORINE RESIDUAL: 0.23 mg/l

CHEMICALS:

Sodium Hypo_____ 10
Polymer dry ___ 259
Hydroxide_____ 11
Polymer liq.__ 694
Alpha Lox 15_____drums

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
7.0	5.3	7.3	8.8	5.6	3.7

RAS# _____ SC# _____	RAS# _____ SC# _____	RAS# _____ SC# _____	____
0.00	3.40	3.39	3.39

SECONDARY CLARIFIERS

SSTs on-line 3

Depth of Blankets Daily average

#1	#2	#3
13.23	9.4	12.8

DOB by Operators

	#1		#2		#3	
1st	12.0	13.0	12.0	14.0	12.0	13.0
2nd	11.5	14.0	13.5	14.5	12.5	14.0
3rd	13.0		12.0		13.0	

HAVERHILL, MA - WWTP - DAILY LOG

Date: 04/04/17

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	Paszko/jBevi		Walter Alce	
2nd	Norm Paquette	Norm Paquette	Walter Alce	Kevin Rutledge
3rd	Lewis/Pasko	Walter Alce	Waino Waisanen	
	Mark B			

WEATHER: Snowmelt Yes
Hi: 59 Lo: 26 Ob: 39
Rain: 0.02 Snow:
Conditions: Rain snowcover

LAB

INFLUE	Q,Daily Total	MAX	MIN
	36.75	53.94	21.81

Q,byp start/stop times am or pm & Q
Q,byp Status activated
Q,bypa 12.76 Q to 2nd 23.99

PRIMARY SCUM LEVEL: **SCREENINGS CARTS:**

	Old	New	Plant	Pump Station	Grit quty
1st	4.49	4.84	2		16 yd3
2nd	4.41	6.11	2	0	
3rd	4.54	6.02	2	0	

PLANT (*1600) POWER

Centrifuge:	461	12 Mid
Primary:	5885	12 Mid
Secondary:	2868	12 Mid
Aeration:	0	12 Mid
Total:	15092	

End 1st_____KVA (06)_____KW (06)
End 2rd_____KVA (06)_____KW (06
End 3rd_____KVA (06)_____KW (06

PUMP STATION (*450) POWER

Start 1st _____KW(06) _____KVA(
Start 2nd_ 3.75 3.83
Start 3rd_____KW(06) _____KVA(

COLLECTOR SPEED

	#1	#2	#3
1st___	slow	off	slow
2nd___	slow	off	slow
3rd___	slow	off	slow
	PSTs on-line	2	

AERATION: Dissolved Oxygen

ATs on-line 3

#1_____	AT#1 infl do avg	6.6
#3_____	AT#1 effl do avg	4.0
#4_____	AT#2 infl do avg	4.1
#6_____	AT#2 effl do avg	3.7

Gravity Thickeners DOB: **Torque:**

	#1	#2	#1	#2
1st	3	3	N/A	N/A
2nd	3	7	N/A	N/A
3rd	1	4	n/a	n/a

Weekly Septage Pumped Gals

SEPTAGE LEVEL

1st_____ 7.40 ft
2nd_____ft
3rd_____ft

Cl2 vol

	Tank #1	Tank #2
1st		2200
2nd		2091
3rd		
Total	289 Gallons	

TWAS LEVELS:

	#1	#2	#3
1st	9	11	9
2nd	10	F	13
3rd	6	9	9

Dosage Setpoint

Effluent Cl2, mg/l 1.25

Inplant _____/_____/____ 1.50
_____/_____/____ 1.25

CHLORINE RESIDUAL: 0.47 mg/l

CHEMICALS: Sodium Hypo_____ 10 Polymer dry ___ 256 Polymer liq.__ 592
Hydroxide_____ 11 Alpha Lox 15_____drums

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
6.0	6	4.4	6.3	4.9	7.7

RAS# _____ SC# _____	RAS# _____ SC# _____	RAS# _____ SC# _____	____
0.00	3.39	3.39	3.39

SECONDARY CLARIFIERS SSTs on-line 3

Depth of Blankets Daily average

#1	#2	#3
10.52	9.4	10.7

DOB by Operators

	#1		#2		#3	
1st	10.0	8.0	8.0	6.0	10.0	9.0
2nd	8.0	7.5	6.0	5.5	9.0	7.5
3rd	9.0	13.0	9.0	13.0	11.0	13.0

HAVERHILL, MA - WWTP - DAILY LOG

Date: 04/05/17

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	William Paszko	Kevin Rutledge	Kevin Rutledge	
2nd	Norm Paquette	Walter Alce	kevin Rutledge	Norm Paquette
3rd	Paquette/	Paquette/	Waino Waisanen	Paquette/
	Mark B			

WEATHER: Snowmelt Yes
Hi: 40 Lo: 36 Ob: 36
Rain: 0.81 Snow:
Conditions: Cloudy snowcover

LAB

INFLUE	Q,Daily Total	MAX	MIN
	30.85	59.23	24.38

Q,byp start/stop times am or pm & Q
Q,byp Status activated
Q,bypa 8.33 Q to 2nd 22.52

PRIMARY SCUM LEVEL: **SCREENINGS CARTS:**

	Old	New	Plant	Pump Station	Grit quty
1st	6.49	5.13	2/3		20 yd3
2nd	7.57	5.57	3/0	0	
3rd	7.51	7.00	0	0	

PLANT (*1600) POWER

End 1st	KVA (06)	KW (06)
End 2rd	KVA (06)	KW (06
End 3rd	KVA (06)	KW (06

Centrifuge:	434
Primary:	5856
Secondary:	2929
Aeration:	0
Total:	14916

12 Mid **PUMP STATION (*450) POWER**
12 Mid Start 1st KW(06) KVA(
12 Mid Start 2nd 3.75 3.83
12 Mid Start 3rd KW(06) KVA(

COLLECTOR SPEED

	#1	#2	#3
1st	slow	off	slow
2nd	slow	off	slow
3rd	slow	off	slow

PSTs on-line 2

AERATION: Dissolved Oxygen

ATs on-line 3

#1	AT#1 infl do avg	6.8
#3	AT#1 effl do avg	4.7
#4	AT#2 infl do avg	5.7
#6	AT#2 effl do avg	4.5

Gravity Thickeners DOB:

	#1	#2
1st	1	3
2nd	2	5
3rd	3	6

Torque:

	#1	#2
1st	N/A	N/A
2nd	n/a	n/a
3rd	n/a	n/a

Weekly Septage Pumped Gals

SEPTAGE LEVEL
1st 8.56 ft
2nd ft
3rd ft

Cl2 vol

	Tank #1	Tank #2
1st		1871
2nd		1770
3rd		
Total	278 Gallons	

TWAS LEVELS:

	#1	#2	#3
1st	5	12	5
2nd	11	F	13
3rd	7	11	10

Dosage Setpoint
Effluent Cl2, mg/l 1.20
Inplant _____/_____ 1.50
_____/_____ 1.25

CHLORINE RESIDUAL: 0.49 mg/l

CHEMICALS:
Sodium Hypo_____ 10
Polymer dry ___ 253
Hydroxide_____ 11
Polymer liq.__ 527
Alpha Lox 15_____drums

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
5.0	8	4.0	8.3	7.8	7.8

RAS# _____ SC# _____	RAS# _____ SC# _____	RAS# _____ SC# _____	____
0.00	3.38	3.39	3.39

SECONDARY CLARIFIERS
SSTs on-line 3

Depth of Blankets Daily average

#1	#2	#3
10.62	9.7	9.4

DOB by Operators

	#1		#2		#3	
1st	10.0	6.0	12.0	7.0	10.0	6.0
2nd	7.0	9.5	8.0	10.0	7.5	9.0
3rd	11.5		11.0		9.0	

HAVERHILL, MA - WWTP - DAILY LOG

Date: 04/06/17

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	William Paszko		Walter Alce	
2nd	Norm Paquette	Norm Paquette	Walter Alce	Kevin Rutledge
3rd	Jim Bevelaqua	Isaiah Lewis	Waino Waisanen	Brasier

Mark B

WEATHER: Snowmelt Yes
Hi: 44 Lo: 36 Ob: 37
Rain: Snow:
Conditions: Cloudy snowcover

LAB

INFLUE	Q,Daily Total	MAX	MIN
	40.77	58.78	21.96

Q,byp	start/stop times am or pm & Q	stop	1:30 am
Q,byp	Status	inactivated	
Q,bypa	16.99	Q to 2nd	23.78

PRIMARY SCUM LEVEL:

	Old	New
1st	7.35	10.20
2nd	7.21	5.20
3rd	9.70	4.50

SCREENINGS CARTS:

	Plant	Pump Station	Grit quty
	0		20 yd3
	0	0	
	0	0	

PLANT (*1600) POWER

End 1st	KVA (06)		KW (06)
End 2rd	KVA (06)		KW (06
End 3rd	KVA (06)		KW (06

Centrifuge:	483	12 Mid
Primary:	6044	12 Mid
Secondary:	2905	12 Mid
Aeration:	0	12 Mid
Total:	15040	

PUMP STATION (*450) POWER

Start 1st	KW(06)	KVA(
Start 2nd	3.75	3.83
Start 3rd	KW(06)	KVA(

COLLECTOR SPEED

	#1	#2	#3
1st	slow	off	slow
2nd	slow	off	slow
3rd	slow	off	slow
PSTs on-line		2	

AERATION: Dissolved Oxygen

ATs	on-line	3
#1	AT#1 infl do avg	6.8
#3	AT#1 effl do avg	4.3
#4	AT#2 infl do avg	5.6
#6	AT#2 effl do avg	4.2

Gravity Thickeners DOB:

	#1	#2
1st	1	4
2nd	2	3
3rd	2	3

Torque:

	#1	#2
1st	N/A	N/A
2nd	n/a	n/a
3rd	/	/

Weekly Septage Pumped Gals

SEPTAGE LEVEL

1st	8.66	ft
2nd		ft
3rd		ft

Cl2 vol

	Tank #1	Tank #2
1st		1636
2nd		1543
3rd		1378
Total	305	Gallons

TWAS LEVELS:

	#1	#2	#3
1st	7	13	7
2nd	12	F	13
3rd	5	10	9

Dosage Setpoint

Effluent Cl2, mg/l 1.20

Inplant _____/_____ 1.50
_____/_____ 1.20

CHLORINE RESIDUAL: 0.36 mg/l

CHEMICALS:

Sodium Hypo	10	Polymer dry	250	Polymer liq.	2740
		Hydroxide	9	Alpha Lox 15	drums

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
8.0	8	8.3	7.3	5	5.5

RAS#	SC#	RAS#	SC#	RAS#	SC#	
0.00		3.39		3.38		3.38

SECONDARY CLARIFIERS

SSTs on-line 3

Depth of Blankets Daily average

#1	#2	#3
10.81	9.8	11.2

DOB by Operators

	#1		#2		#3	
1st	11.0	12.0	6.0	7.0	11.0	12.0
2nd	14.0	9.0	10.5	10.0	13.0	10.0
3rd	8.0	7.0	12.0	9.0	9.0	8.0

comments logbook for 4/3/2017
7/6/2017 11:39:48 AM

	Comment
1	6:49:00 AM CONTROL_ROOM Primary and Secondary Plant Checks, Collected Composite Samples, Chemical Inventory, Weather I DOB's High, Activated Bypass at 6:30 am, Both Grit Hoppers Full, Emptied #1 Hopper, #2 will not Op
2	9:08:00 AM CONTROL_ROOM primary check, putting DAF #1 on water at 7:45am, cleaned GT WEIRS, GRIT SYSTEM in CYCLE M process on-line, secondary check...AM SC OSG adjustments...80/85 - 40/35 - 85, BY_PASS is ACTI pump sequence with #1 WWP down on HIGH VIBRATION and #2 WWP set as 2nd LAG and still in E SAM's to empty both GRIT HOPPERS TODAY, WIMS DAF /CENTRIFUGE DATA ENTRY. nrp
3	9:31:00 AM CONTROL_ROOM shutting by-pass down per directive from fgh at 9:30 am. nrp
4	11:31:00 AM CONTROL_ROOM RECORDED AND RESET SEPTAGE TOTALIZER. NRP
5	1:20:00 PM CONTROL_ROOM ordered 2500 gallons C-721 liquid polymer...ETA unknown, all 3 SC's are washing out as of 12N...inc MGD...BY-PASS remaining OFF per early morning directive from FGH, SAM's driver arrived with a sr (!!!???)...emptied on-line hopper (~2 yds3)...SAM's driver did not want to risk damaging his trailer em SAM's/MIKE R. and requested full size sludge trailer be brought and left under grit hoppers...trailer is SAM's/MIKE R. putting DAF #1 on WAS at ~1:30 pm. nrp
6	1:51:00 PM CONTROL_ROOM RE-ACTIVATING BY-PASS per FGH directive at ~1:45PM, flushing/back-flushing #4 WAS p./#3 SC, s on 4/4/17...K. RUTLEDGE to work shift in its' entirety, posting OT for centrifuge process runs on 4/8/1
7	4:09:00 PM CONTROL_ROOM Primary and secondary plant checks - Operating #1 centrifuge and #1 DAF - Started solids lab - Ope Bypassing, Bypass Flow Control is not accurate, if we want to send 20 MGD to the secondary we nee -====---------Jbev
8	8:29:00 PM CONTROL_ROOM Completed centrifuge run and started flush cycle - Filled blended sludge tank and flushed - Finished s
9	10:10:00 PM PJESSEL Collection crew will be at the Upper Siphon at 4:00 AM if need call Zeb Day 978-891-0276. The CSO upcoming storm.

comments logbook for 4/4/2017
7/6/2017 11:40:07 AM

	Comment
1	4:14:00 AM PJESSEL Collection crew Zeb and Pedro, standing by at Upper Siphon if they are needed call Zeb at 978-891-(
2	6:19:00 AM CONTROL_ROOM weather info; collected composite samples; plant checks; chemical inv; operating DAF #1 thru the modes; Secondary By-Pass is activated thru the shift; J Bevi staying over for a rain event; .58 mg/l around 4:30 am; adjusted OSG to SC #2; North Ave LS high water alarm, notified Dave Shaw; slud
3	11:32:00 AM CONTROL_ROOM primary check, operating DAF #1, centrifuge process on-line, emptied BOTH GRIT HOPPERS...BOT OPEN...EMPTY SLUDGE TRAILER in GRIT BAY, flushing/back-flushing #1 GRIT PUMP/#1 GRIT TR secondary check...AM SC OSG adjustment made...85 - 43/47 - 85, cleaned AT DO PROBES, pump s panel...new pump lag sequence 3-4-1-2... #2 WWp put back in STAND-BY, scheduling rain event 3p- increased flow to secondary from BY-PASS to 25 MGD per FGH. nrp
4	2:03:00 PM CONTROL_ROOM increased flow to secondary from BY-PASS to 30 MGD per FGH. nrp
5	2:08:00 PM CONTROL_ROOM PM SC OSG adjustment 85 - 47 - 85/90. nrp
6	2:17:00 PM PJESSEL Keep an eye on the Marginal Pump Station River level. try to write down when you observe this level LIT-240. With enough data points we should be able to add a number to both LIT instruments and arr
7	3:58:00 PM PJESSEL Marginal Pump Station may not run until LIT-330 Middle Siphon Level meter begins to overflow. Part new 24-inch sewer from the entrance of the pump station into the siphon chamber. However, visually
8	9:06:00 PM CONTROL_ROOM Primary and Secondary Plant Checks, Operating #1 DAF, Shut Down Centrifuge, Finished Blend, Flu 11-7am Rain event, SC Gate Adjustment, Pump Station Check, Flushed #1 Grit Pump, Plant Water L valved out WO# 12917, Finished Solids Lab, Carleton St Lift Station High Wet Well Alarm - Notified C

comments logbook for 4/5/2017
7/6/2017 11:40:28 AM

	Comment
1	5:57:00 AM CONTROL_ROOM weather info; collected composite samples; plant checks; chemical inv; operating DAF #1 thru the modes; changed screenings cart; adjusted OSG to SC #2; flushing Grit Pump #1 after midnight; af emptied out, received two high flows from both Upper and Lower Siphon's dry weather Gates openin Gate closed to protect the pump station (only time during the rain storm), the third wastewater pump modulating gate slowly opened; .87 mg/l hypo residual at 5 am; wp
2	6:22:00 AM CONTROL_ROOM Secondary By-Pass on thru the shift, making adjustments as blankets changed; sludge hauler in at 6
3	11:34:00 AM CONTROL_ROOM primary check, operating DAF #1, emptied 3 screenings carts, cleaned GT WEIRS, pumping primary C-721 LIQUID POLYMER delivery at 7AM (?...time of delivery)...received ~2297 gallons...2500 gallon two operators, secondary check...multiple AM SC OSG adjustments made...@ 8:30am...85 - 45/40 - 85...increased flow to secondary from BY-PASS to 28 MGD per FGH, pump station check...both BAR mode, emptied GRIT HOPPER #1 and left SLIDE GATE OPEN, WIMS DAF/CENTRIFUGE DATA EN NO-SHOW ?!, back-flushing into GT #2...HIGH TORQUE alarm. nrp
4	3:13:00 PM CONTROL_ROOM marginal station check...training M. Brasier and K. Rutledge in MS SOP, PM SC OSG adjustment...90
5	3:27:00 PM CONTROL_ROOM primary check, operating DAF #1, centrifuge process on-line, secondary check...lowered flow to seco SC OSG adjustment...90/85 - 35 - 85/90, collected DAF and CENTRIFUGE COMPOSITE samples a

comments logbook for 4/6/2017
7/6/2017 11:40:56 AM

	Comment
1	6:12:00 AM CONTROL_ROOM weather info; collected composite samples; plant checks; chemical inv; operating DAF #1 thru the hand modes; adjusted OSG's to all SC's thru the shift; Secondary By-Pass off at 1:30 am; bar rack at 2 am; Carlton Street LS alarm, notified Dave Shaw at 2:40 am; emptied grit hopper; .45 mg/l hyp
2	6:33:00 AM CONTROL_ROOM sludge hauler in at 6:30 am; wp
3	10:50:00 AM CONTROL_ROOM primary check, operating DAF #1, emptied GRIT HOPPER #1, put both STEP SCREENS and WASH meeting 8am - 9:30am, pumping PRIMARY SCUM, centrifuge process on-line, secondary check...AM pump station check, putting BY-PASS back on-line at ~8am, running MARGINAL STATION at ~10am WELL LEVEL at 7'...KR manning station, scheduling RAIN EVENT for 3p-11p shift tonite...I. LEWIS t
4	1:15:00 PM CONTROL_ROOM scheduling additional help for 3p-11p and 11p-7a shifts...Brasier and Rutledge to fill shifts respectivel 50 - 80. nrp
5	1:25:00 PM CONTROL_ROOM high flows affecting primary scum well...shut ROTATING SCUM TROUGHS OFF until flows subside..
6	2:16:00 PM CONTROL_ROOM PM SC OSG adjustments made at 1:30pm...75/80 - 50/45 - 80, third set of DOB's taken at 1:30pm ar
7	2:26:00 PM CONTROL_ROOM pump station modulating gate closing for a second time today...29%...MIDDLE SIPHON LIT - 330 rea LIT - 330. nrp
8	4:27:00 PM CONTROL_ROOM Primary and secondary plant checks - Operating #1 centrifuge and #1 DAF - Pump station check - M solids lab ----------==----------Jbev
9	6:54:00 PM CONTROL_ROOM Completed centrifuge run and started flush cycle - Filled blended sludge tank and flushed - Marginal and wet well level of 5.5', pumped down wet well - Paszko called in sick for 11-7 shift, filled vacancy -
10	9:49:00 PM CONTROL_ROOM Put Marginal pump station on line at 8:PM and shut down at 9:30 PM - Increasing flow to secondary, -------==-------Jbev

BYPASS MULTI TREND

CITY OF HAVERHILL, MA - WWTF

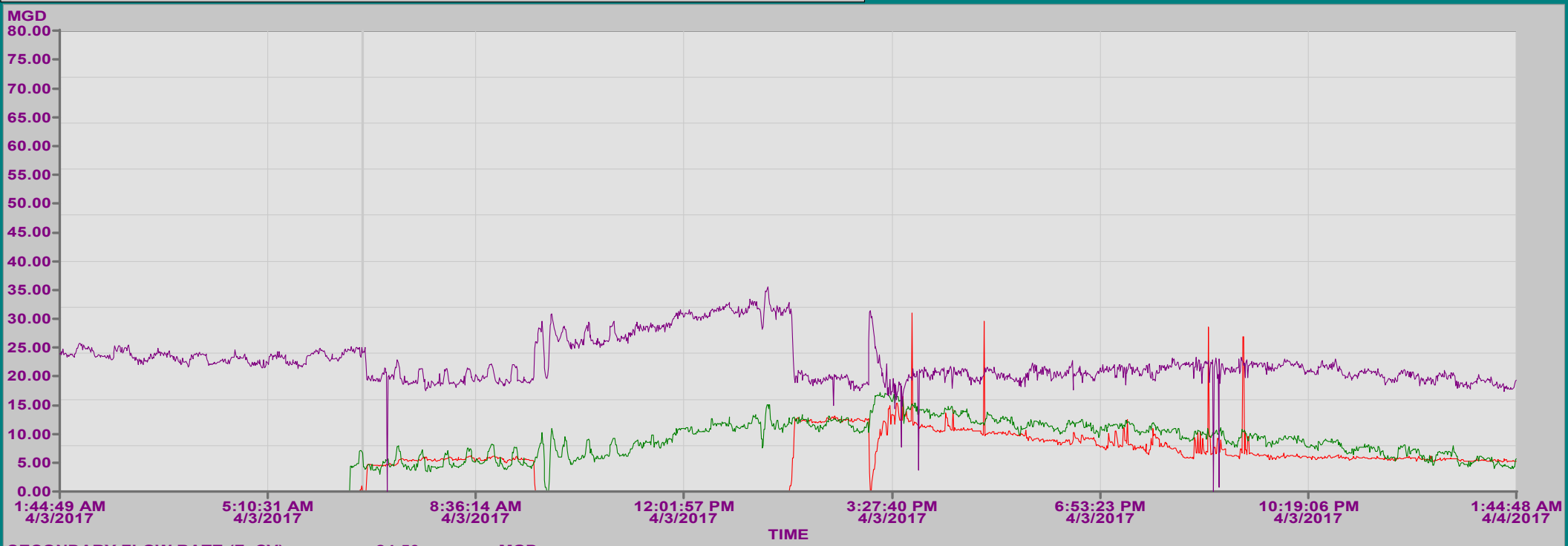
LOGIN

4/4/2017

7:45:13 AM

ALARMS | HISTORY MENU

MAIN MENU | BYPASS



SECONDARY FLOW RATE (F_CV)	24.50	MGD
BYPASS FLOW (F_CV)	0.47	MGD
BYPASS FLOW AUTO SP (F_CV)	6.83	MGD
BYPASS CHLORINE (F_CV)	0.00	PPM

◄◄ | ◄ | Switch to 7Days | ► | ►►

BYPASS MULTI TREND

CITY OF HAVERHILL, MA - WWTF

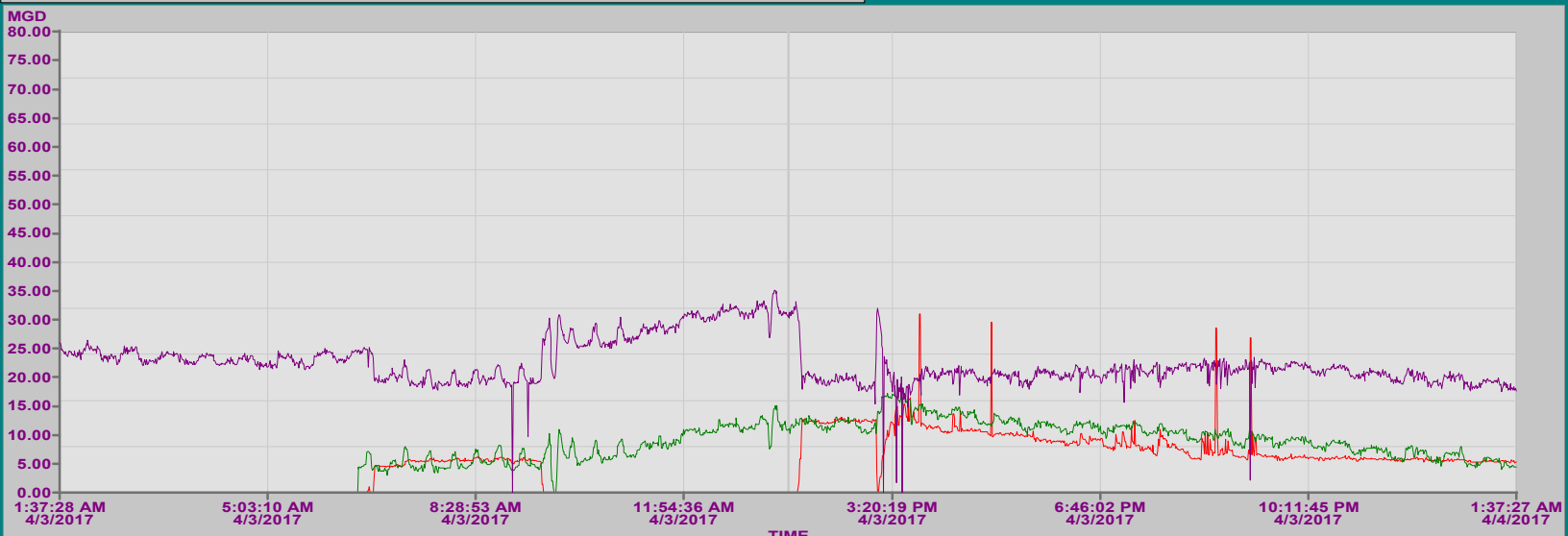
LOGIN

4/4/2017

7:40:07 AM

ALARMS | HISTORY MENU

MAIN MENU | BYPASS



SECONDARY FLOW RATE (F_CV)	30.40	MGD
BYPASS FLOW (F_CV)	0.00	MGD
BYPASS FLOW AUTO SP (F_CV)	10.91	MGD
BYPASS CHLORINE (F_CV)	0.00	PPM

◀◀ ◀ Switch to 7Days ▶ ▶▶

BYPASS MULTI TREND

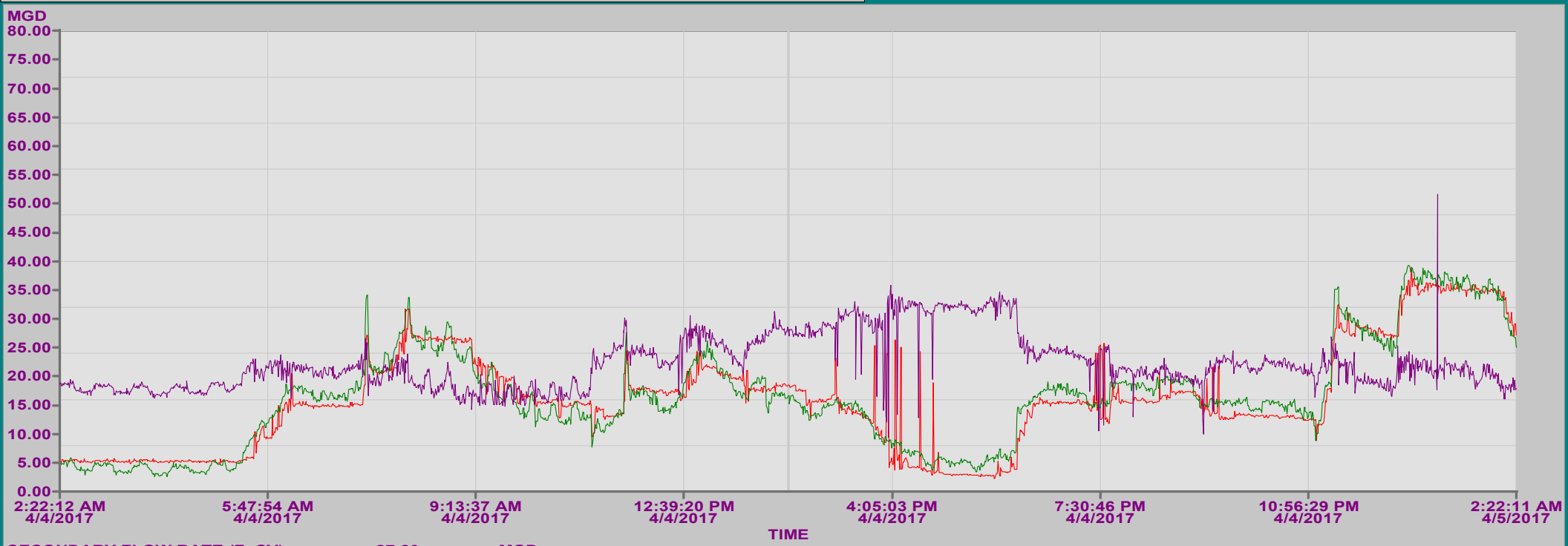
CITY OF HAVERHILL, MA - WWTF

LOGIN

4/5/2017

8:22:33 AM

ALARMS | HISTORY MENU | MAIN MENU | BYPASS



SECONDARY FLOW RATE (F_CV)	27.89	MGD
BYPASS FLOW (F_CV)	18.48	MGD
BYPASS FLOW AUTO SP (F_CV)	16.60	MGD
BYPASS CHLORINE (F_CV)	0.00	PPM

◄◄ | ◄ | Switch to 7Days | ► | ►►

BYPASS MULTI TREND

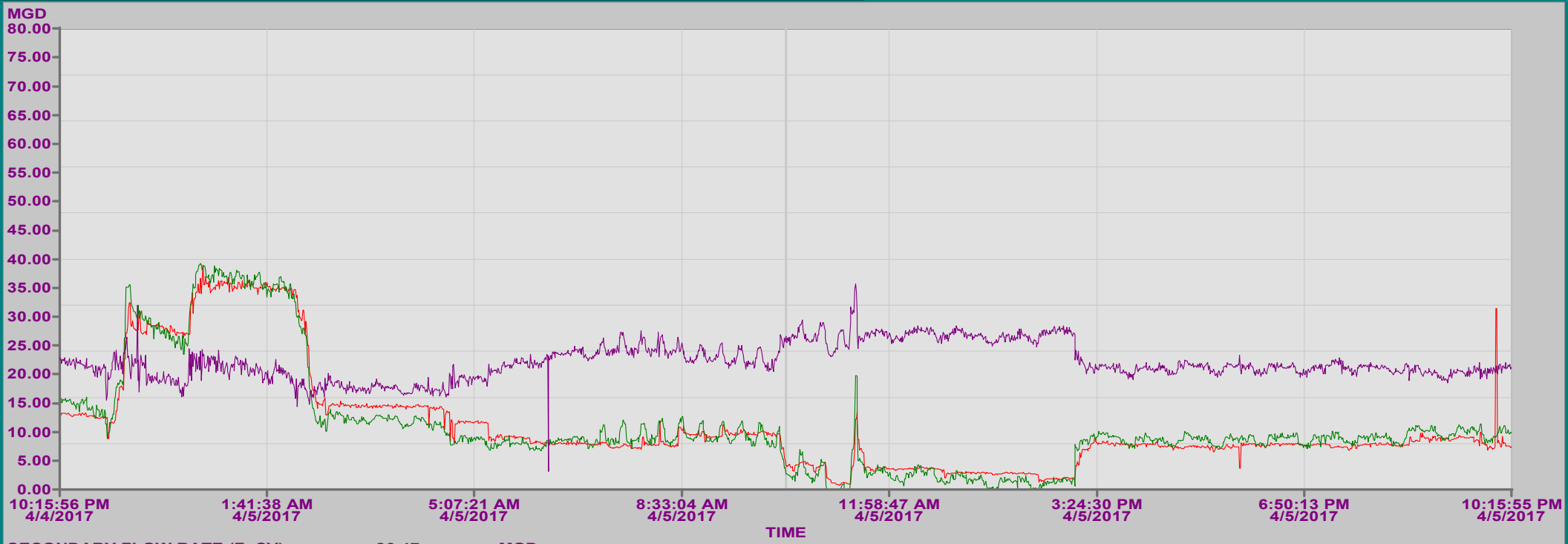
CITY OF HAVERHILL, MA - WWTF

LOGIN

4/6/2017

10:16:25 AM

ALARMS | HISTORY MENU | MAIN MENU | BYPASS



SECONDARY FLOW RATE (F_CV)	26.47	MGD
BYPASS FLOW (F_CV)	4.27	MGD
BYPASS FLOW AUTO SP (F_CV)	2.81	MGD
BYPASS CHLORINE (F_CV)	0.00	PPM

◄◄ ◄ Switch to 7 Days ► ►►

BYPASS MULTI TREND

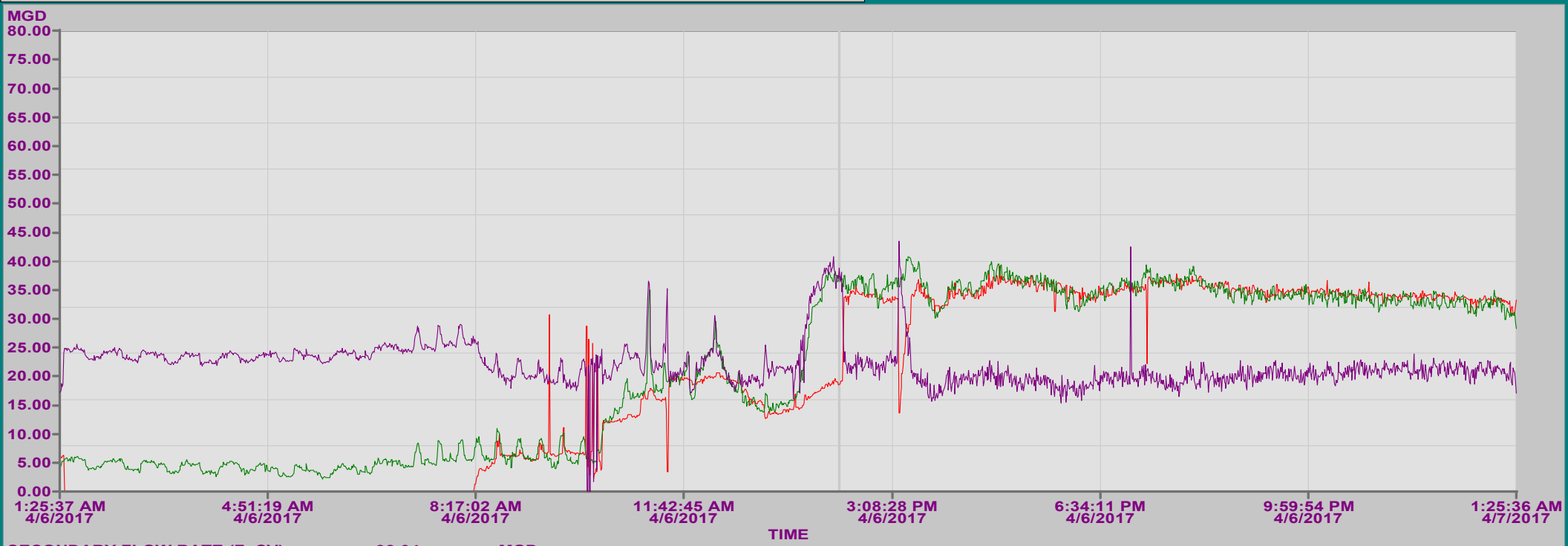
CITY OF HAVERHILL, MA - WWTF

LOGIN

4/7/2017

7:27:49 AM

ALARMS | HISTORY MENU | MAIN MENU | BYPASS



SECONDARY FLOW RATE (F_CV)	38.04	MGD
BYPASS FLOW (F_CV)	18.51	MGD
BYPASS FLOW AUTO SP (F_CV)	37.06	MGD
BYPASS CHLORINE (F_CV)	0.00	PPM

◄◄ ◄ Switch to 7Days ► ►►

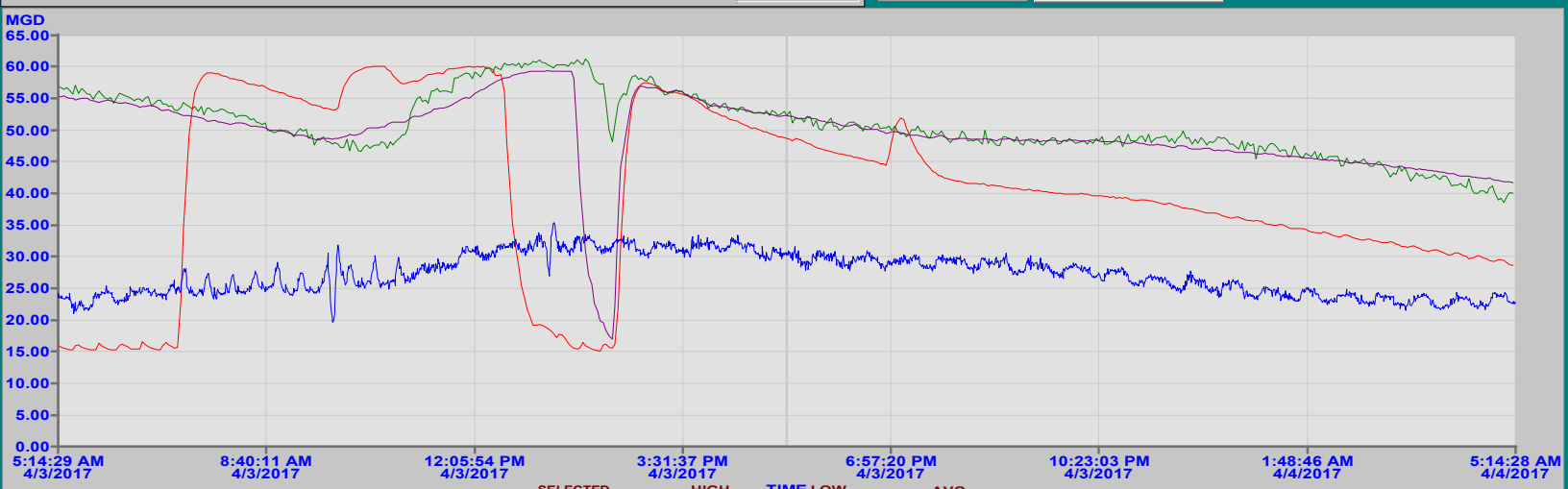
PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

LOGIN | 7/6/2017 | 11:14:44 AM

ALARMS | HISTORY MENU | MAIN MENU | MAIN PUMP STAT

INF. FLOW 8.46 MGD



	SELECTED	HIGH	TIME LOW	AVG.
INFLUENT FLOW (F_CV)	30.18	35.36	19.66	27.21
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	12.88	15.07	9.51	12.50
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	11.98	14.79	3.71	10.04
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	12.87	14.61	4.19	12.18

◀◀ | ◀ | Switch to 7Days | ▶ | ▶▶

Ack	Time In	Date In	Description	Value	Status
✓	08:14:50.377	7/5/2017	GRIT CLASSIFIER 1 LOW FLOW	LOW FLOW	CFN
✓	11:59:52.394	7/3/2017	SECONDARY CLARIFIER 1 SLDG BLA	HIGH LEVEL	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 MOTOR HIGH T	HIGH TEMP	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 DISCH HIGH TE	HIGH TEMP	CFN
✓	08:32:11.603	6/29/2017	GRIT CLASSIFIER 1 PULL CORD	PULL CORD	CFN

Total Alarms: 7 | Filter: Off | Sort: Time In, Descending | Run

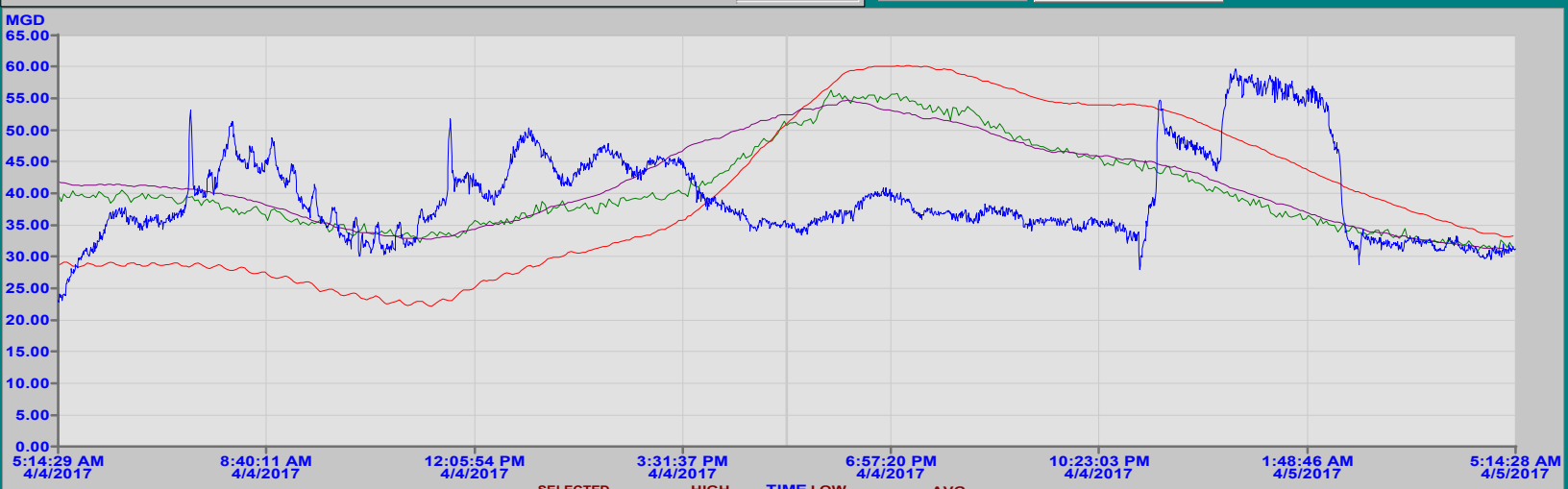
PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

LOGIN | 7/6/2017 | 11:16:19 AM

ALARMS | HISTORY MENU | MAIN MENU | MAIN PUMP STAT

INF. FLOW 8.11 MGD



	SELECTED	HIGH	TIME LOW	AVG.
INFLUENT FLOW (F_CV)	35.20	59.61	22.86	39.44
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	12.50	13.85	7.52	10.02
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	12.55	14.80	5.46	9.78
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	12.91	13.46	7.65	10.24

◀◀ | ◀ | Switch to 7Days | ▶ | ▶▶

Ack	Time In	Date In	Description	Value	Status
✓	08:14:50.377	7/5/2017	GRIT CLASSIFIER 1 LOW FLOW	LOW FLOW	CFN
✓	11:59:52.394	7/3/2017	SECONDARY CLARIFIER 1 SLDG BLA	HIGH LEVEL	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 MOTOR HIGH T	HIGH TEMP	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 DISCH HIGH TE	HIGH TEMP	CFN
✓	08:32:11.603	6/29/2017	GRIT CLASSIFIER 1 PULL CORD	PULL CORD	CFN

Total Alarms: 7 | Filter: Off | Sort: Time In, Descending | Run

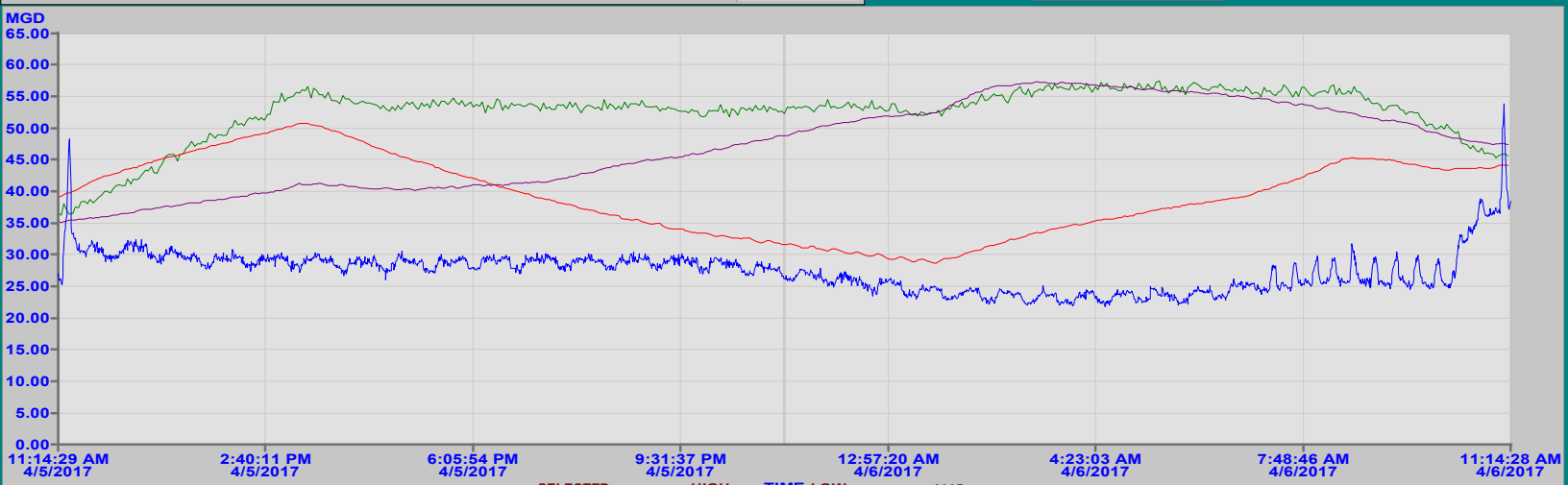
PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

LOGIN | 7/6/2017 | 11:17:34 AM

ALARMS | HISTORY MENU | MAIN MENU | MAIN PUMP STAT

INF. FLOW 8.15 MGD



	SELECTED	HIGH	TIME LOW	AVG.
INFLUENT FLOW (F_CV)	26.19	53.87	21.81	27.42
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	12.88	14.14	8.93	12.92
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	7.77	12.50	7.05	9.68
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	12.00	14.10	8.65	11.63

◀◀ | ◀ | Switch to 7Days | ▶ | ▶▶

Ack	Time In	Date In	Description	Value	Status
✓	08:14:50.377	7/5/2017	GRIT CLASSIFIER 1 LOW FLOW	LOW FLOW	CFN
✓	11:59:52.394	7/3/2017	SECONDARY CLARIFIER 1 SLDG BLA	HIGH LEVEL	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 MOTOR HIGH T	HIGH TEMP	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 DISCH HIGH TE	HIGH TEMP	CFN
✓	08:32:11.603	6/29/2017	GRIT CLASSIFIER 1 PULL CORD	PULL CORD	CFN

Total Alarms: 7 | Filter: Off | Sort: Time In, Descending | Run

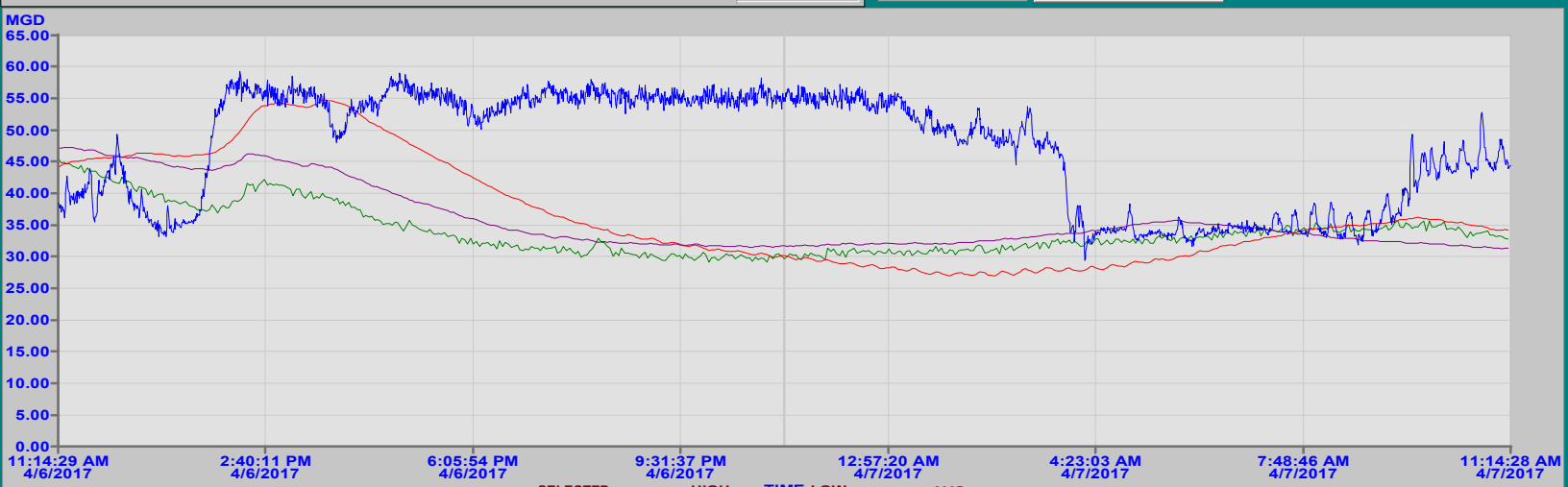
PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

LOGIN | 7/6/2017 | 11:19:55 AM

ALARMS | HISTORY MENU | MAIN MENU | MAIN PUMP STAT

INF. FLOW 9.05 MGD

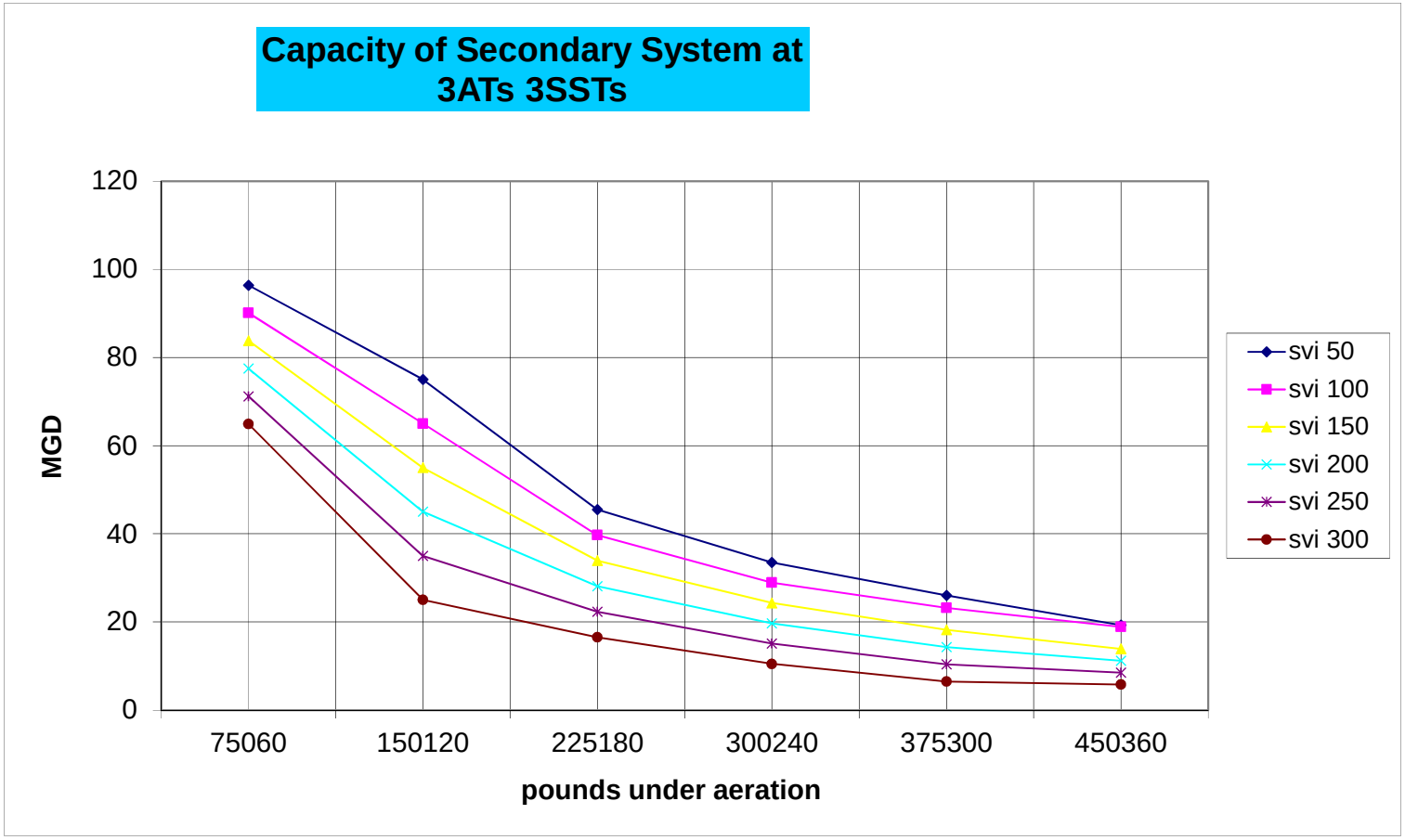


	SELECTED	HIGH	TIME LOW	AVG.
INFLUENT FLOW (F_CV)	55.11	59.32	29.43	47.11
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	7.29	11.21	7.17	8.35
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	7.42	13.48	6.63	9.03
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	7.82	11.63	7.69	8.84

◄◄ | ◄ | Switch to 7Days | ► | ►►

Ack	Time In	Date In	Description	Value	Status
	11:17:50.112	7/6/2017	GRIT CLASSIFIER 2 ZERO SPEED	NORMAL	CFN
✓	08:14:50.377	7/5/2017	GRIT CLASSIFIER 1 LOW FLOW	LOW FLOW	CFN
✓	11:59:52.394	7/3/2017	SECONDARY CLARIFIER 1 SLDG BLA	HIGH LEVEL	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 MOTOR HIGH T	HIGH TEMP	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 DISCH HIGH TE	HIGH TEMP	CFN

Total Alarms: 8 | Filter: Off | Sort: Time In, Descending | Run



date:	4/3/2017		Flow, MG	SVI	MLSS	lbs	sr oper	setting selected, MG
bypass start time:	6:40am		24	600	1565	215000	various	20-35
bypass stop time:	1:30am	4/6/2017	25	varying	varying	varying		

BYPASS EVENT: 2017-08

HAVERHILL, MA - WWTP - DAILY LOG

Date: 04/07/17

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	Jim Bevelaqua	Rutledge	Kevin Rutledge	
2nd	Norm Paquette	Walter Alce	kevin Rutledge	Norm Paquette
3rd	Isaiah Lewis		Waino Waisanen	
	Mark B			

WEATHER: Snowmelt
Hi: 46 Lo: 37 Ob: 45
Rain: 1.15 Snow:
Conditions: snowcover

LAB

INFLUE	Q,Daily Total	MAX	MIN
	37.20	56.68	27.71

Q,byp start/stop times am or pm & Q
Q,byp Status activated
Q,bypa 13.18 Q to 2nd 24.02

PRIMARY SCUM LEVEL:

	Old	New
1st	16.8	4.5
2nd	5.66/E	5.11
3rd	E	2.19

SCREENINGS CARTS:

	Plant	Pump Station	Grit quty
1st	0	0	yd3
2nd	0	0	
3rd	0		

PLANT (*1600) POWER

End 1st_____KVA (06)_____KW (06)
End 2rd_____KVA (06)_____KW (06
End 3rd_____KVA (06)_____KW (06

Centrifuge:	478
Primary:	5701
Secondary:	2700
Aeration:	0
Total:	13829

12 Mid **PUMP STATION (*450) POWER**
12 Mid Start 1st _____KW(06) _____KVA(
12 Mid Start 2nd_ 3.83 3.92
12 Mid Start 3rd_____KW(06) _____KVA(

COLLECTOR SPEED

	#1	#2	#3
1st___	slow	off	slow
2nd___	slow	off	slow
3rd___	slow	off	slow

PSTs on-line 2

AERATION: Dissolved Oxygen

ATs on-line 3

#1_____	AT#1 infl do avg	6.9
#3_____	AT#1 effl do avg	6.0
#4_____	AT#2 infl do avg	6.1
#6_____	AT#2 effl do avg	4.8

Gravity Thickeners DOB:

	#1	#2
1st	3	4
2nd	<1	4
3rd	<1	4

Torque:

	#1	#2
1st	/	/
2nd	n/a	n/a
3rd	n/a	n/a

Weekly Septage Pumped Gals

SEPTAGE LEVEL
1st_____ 6.10 ft
2nd_____ft
3rd_____ft

Cl2 vol

	Tank #1	Tank #2
1st		1284
2nd		1175
3rd		1081
Total	316 Gallons	

TWAS LEVELS:

	#1	#2	#3
1st	8	9	8
2nd	10	13	10
3rd	5	7	6

Dosage Setpoint
Effluent Cl2, mg/l 1.20

Inplant _____/_____ 1.50
_____/_____ 1.20

CHLORINE RESIDUAL: 0.52 mg/l

CHEMICALS:
Sodium Hypo_____ 10
Polymer dry ___ 246
Hydroxide_____ 9
Polymer liq.__ 2878
Alpha Lox 15_____drums

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
7.0	8	4.6	7.6	5.2	7.3

RAS# _____ SC# _____	RAS# _____ SC# _____	RAS# _____ SC# _____	____
0.00	3.39	3.39	3.39

SECONDARY CLARIFIERS
SSTs on-line 3

Depth of Blankets Daily average

#1	#2	#3
8.28	8.5	8.0

DOB by Operators

	#1		#2		#3	
1st	6.0	8.0	7.0	8.0	7.0	9.0
2nd	7.0	6.0	7.0	7.0	8.0	7.0
3rd	7.0	7.0	7.0	9.0	7.0	7.0

comments logbook for 4/7/2017
7/6/2017 11:41:17 AM

	Comment
1	1:56:00 AM CONTROL_ROOM Plant checks - Operating #1 DAF - Flushing grit pumps and lines - Collected weather data, chemical Jbev
2	2:03:00 AM CONTROL_ROOM Increasing flow to secondary ---===---Jbev
3	5:49:00 AM CONTROL_ROOM Bypassing in auto, increasing flow to secondary -Flushing grit pumps and suction line again - Final re
4	1:53:00 PM FHAFFTY please be advised that maint will be in working on pst 2., fgh
5	1:55:00 PM CONTROL_ROOM primary check, operating DAF #1, pumping out PT #2 for maintenance...flushed/back-flushed PSP#2 lost flow to GT #1...DAF #2 overflowed from OVERFLOW LINE backing up (?)...re-positioning both G maintenance working on replacing flights on PT #2, switched over to GRIT CLASSIFIER #2/ GRIT H not run in AUTO...put classifier in LOCAL mode on MCC panel and OIT, centrifuge process on-line, p AT BLOWER #2 switched back to INFLUENT PACE and VALVED into AT #2 INFLUENT (found blowe PACE/EFFLUENT ?), pump station check,BY_PASS ON thru-out shift...flow hovering around 40MGD water. nrp
6	9:51:00 PM CONTROL_ROOM Primary and Secondary Plant Checks, Operating #1 DAF, Shut Down #1 Centrifuge, Finished Blend, through line, Classifier #2 not Reading Grit Flow, Called in Pingree to fix Flow Meter, Paszko Called i Lab, Final Readings, IL

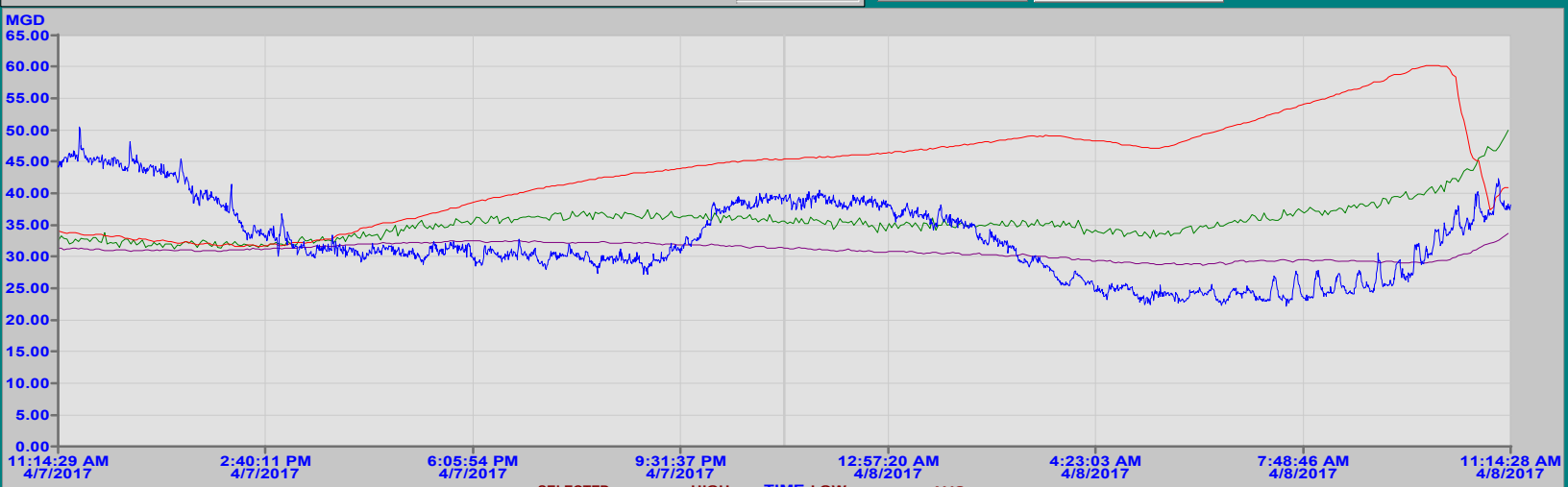
PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

LOGIN | 7/6/2017 | 11:20:35 AM

ALARMS | HISTORY MENU | MAIN MENU | MAIN PUMP STAT

INF. FLOW 8.80 MGD

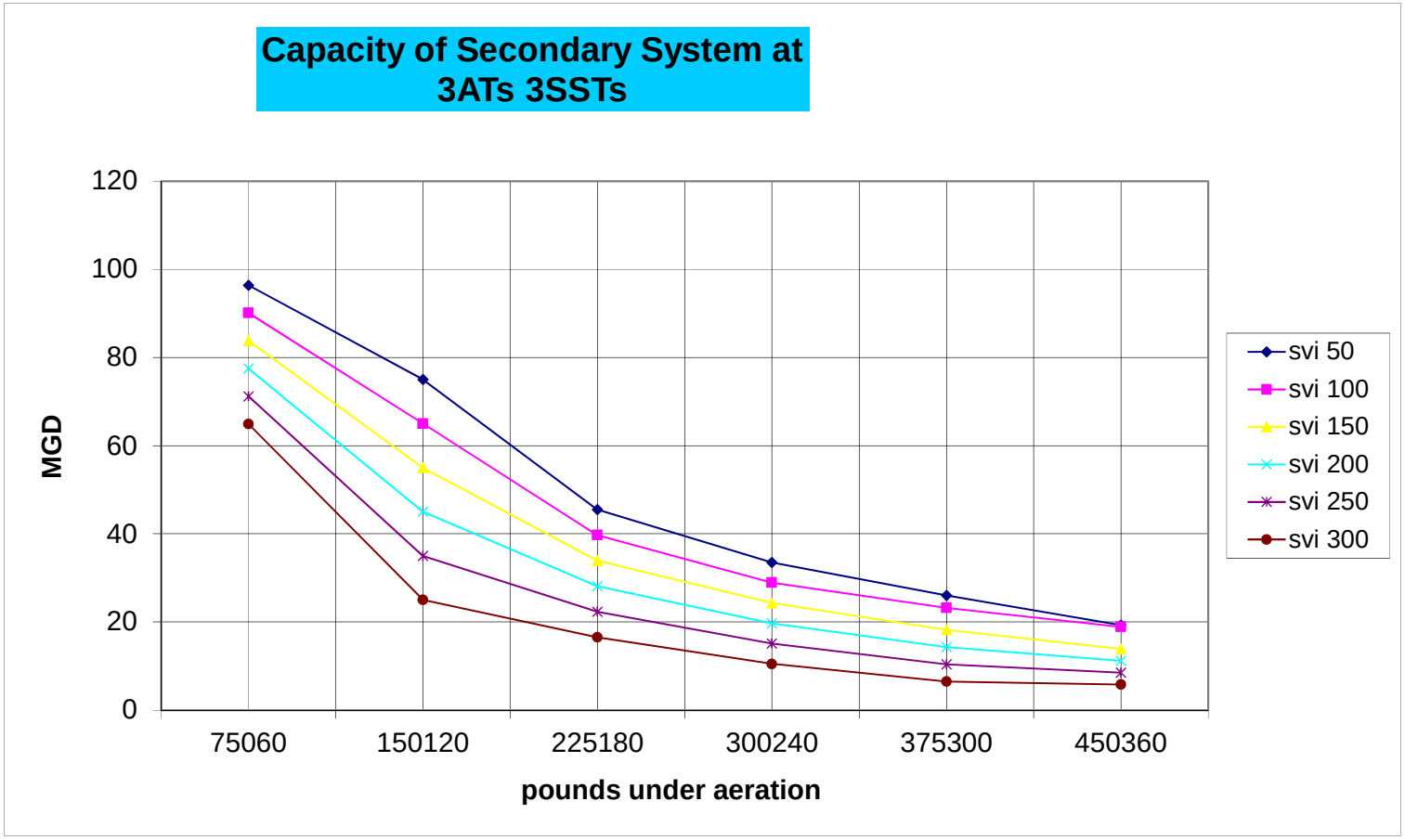


	SELECTED	HIGH	TIME LOW	AVG.
INFLUENT FLOW (F_CV)	39.30	50.53	22.21	32.45
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	8.75	12.29	7.68	8.72
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	11.19	14.81	7.76	10.75
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	7.72	8.30	7.06	7.59

◀◀ | ◀ | Switch to 7Days | ▶ | ▶▶

Ack	Time In	Date In	Description	Value	Status
	11:17:50.112	7/6/2017	GRIT CLASSIFIER 2 ZERO SPEED	NORMAL	CFN
✓	08:14:50.377	7/5/2017	GRIT CLASSIFIER 1 LOW FLOW	LOW FLOW	CFN
✓	11:59:52.394	7/3/2017	SECONDARY CLARIFIER 1 SLDG BLA	HIGH LEVEL	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 MOTOR HIGH T	HIGH TEMP	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 DISCH HIGH TE	HIGH TEMP	CFN

Total Alarms: 6 | Filter: Off | Sort: Time In, Descending | Run



date:	4/6/2017		Flow, MG	SVI	MLSS	lbs	sr oper	setting selected, MG
bypass start time:	8:20am		26	520	1560	218000	various	20
bypass stop time:	5:15am	4/8/2017	23	varying	varying	varying		

BYPASS EVENT: 2017-09

HAVERHILL, MA - WWTP - DAILY LOG

Date: 04/08/17

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	Isaiah Lewis		Brasier/Waino	
2nd	Isaiah Lewis	kevin Rutledge	Mark Brasier	
3rd	Lewis/Paquette	Kevin Rutledge	Waino Waisanen	
	Kevin R			

WEATHER: Snowmelt Yes
Hi: 55 Lo: 37 Ob: 37
Rain: Snow:
Conditions: Clear 0.0 snowcover

LAB

INFLUE	Q,Daily Total	MAX	MIN
	29.95	52.74	22.22

Q,byp start/stop times am or pm & Q: end 5am
Q,byp Status:
Q,bypa 4.76 Q to 2nd 25.19

PRIMARY SCUM LEVEL:

	Old	New
1st	0	4.49
2nd	0	4.09
3rd	0	6.61

SCREENINGS CARTS:

	Plant	Pump Station	Grit quty
1st	0		yd3
2nd	0		
3rd	0		

PLANT (*1600) POWER

End 1st	KVA (06)	KW (06)
End 2rd	KVA (06)	KW (06
End 3rd	KVA (06)	KW (06

		12 Mid
Centrifuge:	563	
Primary:	5852	12 Mid
Secondary:	2598	12 Mid
Aeration:	0	12 Mid
Total:	13891	

PUMP STATION (*450) POWER

Start 1st	KW(06) KVA(
Start 2nd	KW(06) KVA(
Start 3rd	KW(06) KVA(

COLLECTOR SPEED

	#1	#2	#3
1st	slow	off	slow
2nd	slow	off	slow
3rd	slow	off	slow

PSTs on-line: 2

AERATION: Dissolved Oxygen

ATs on-line: 3

#1	AT#1 infl do avg	6.5
#3	AT#1 effl do avg	5.9
#4	AT#2 infl do avg	6.1
#6	AT#2 effl do avg	4.8

Gravity Thickeners DOB:

	#1	#2
1st	0	4
2nd	0	4
3rd	0	5

Torque:

	#1	#2
1st	n/a	n/a
2nd	n/a	n/a
3rd	n/a	n/a

Weekly Septage Pumped Gals

SEPTAGE LEVEL

1st 6.04 ft
2nd ft
3rd ft

Cl2 vol

	Tank #1	Tank #2
1st		995
2nd		893
3rd		815
Total	256	Gallons

TWAS LEVELS:

	#1	#2	#3
1st	6	9	7
2nd	10	13	10
3rd	5	6	6

Dosage Setpoint

Effluent Cl2, mg/l: 1.20

Inplant: _____/_____/_____
_____/_____/_____

CHLORINE RESIDUAL: 0.36 mg/l

CHEMICALS:

Sodium Hypo 10
Polymer dry 242
Hydroxide 9
Polymer liq. 2820
Alpha Lox 15 drums

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
6.2	5.5	6.0	7.5	4.5	7.0

RAS# SC#	RAS# SC#	RAS# SC#	
0.00	3.38	3.39	3.39

SECONDARY CLARIFIERS

SSTs on-line: 3

Depth of Blankets Daily average

#1	#2	#3
9.21	10.5	8.1

DOB by Operators

	#1		#2		#3	
1st	7.0	7.0	10.0	11.0	7.0	6.0
2nd	11.0	13.0	14.0	13.0	9.0	12.0
3rd	9.0	7.0	8.0	6.5	7.0	7.0

comments logbook for 4/8/2017
7/6/2017 11:41:40 AM

	Comment
1	6:33:00 AM CONTROL_ROOM Primary and Secondary Plant Checks, Operating #1 DAF Thru Shift, Emptied Composite Sampples, (Down #1 GT, Bypass off @ 5am, SC Gate Adjustments, Final Readings, IL
2	3:06:00 PM CONTROL_ROOM Primary and Secondary Plant Checks, Operating #1 DAF and #1 Centrifuge, Breaking up Grease Ch unplug inlet line with Jet Machine, Keeping Rutledge on to assist, Pumped Down Marginal Station W Activated Bypass @ 1:15pm, Started Solids Lab, Maint finished Flights on PT #2 - Still need to fix Mo Blower is Back Online, Final Readings, IL
3	6:31:00 PM CONTROL_ROOM Plant Checks, Finished Solids Lab, Shut Down #1 Centrifuge, Ran Out of TWAS, Flushed TPS Pump Choked GT #1 Back to approx 90%, IL

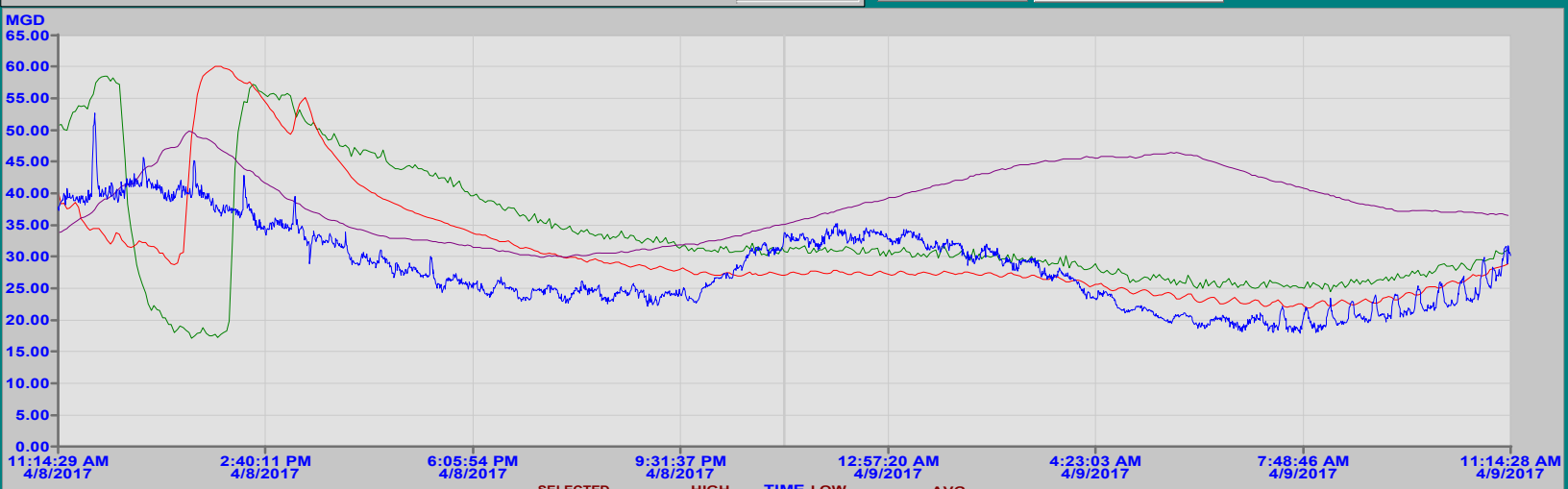
PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

LOGIN | 7/6/2017 | 11:21:06 AM

ALARMS | HISTORY MENU | MAIN MENU | MAIN PUMP STAT

INF. FLOW 8.69 MGD

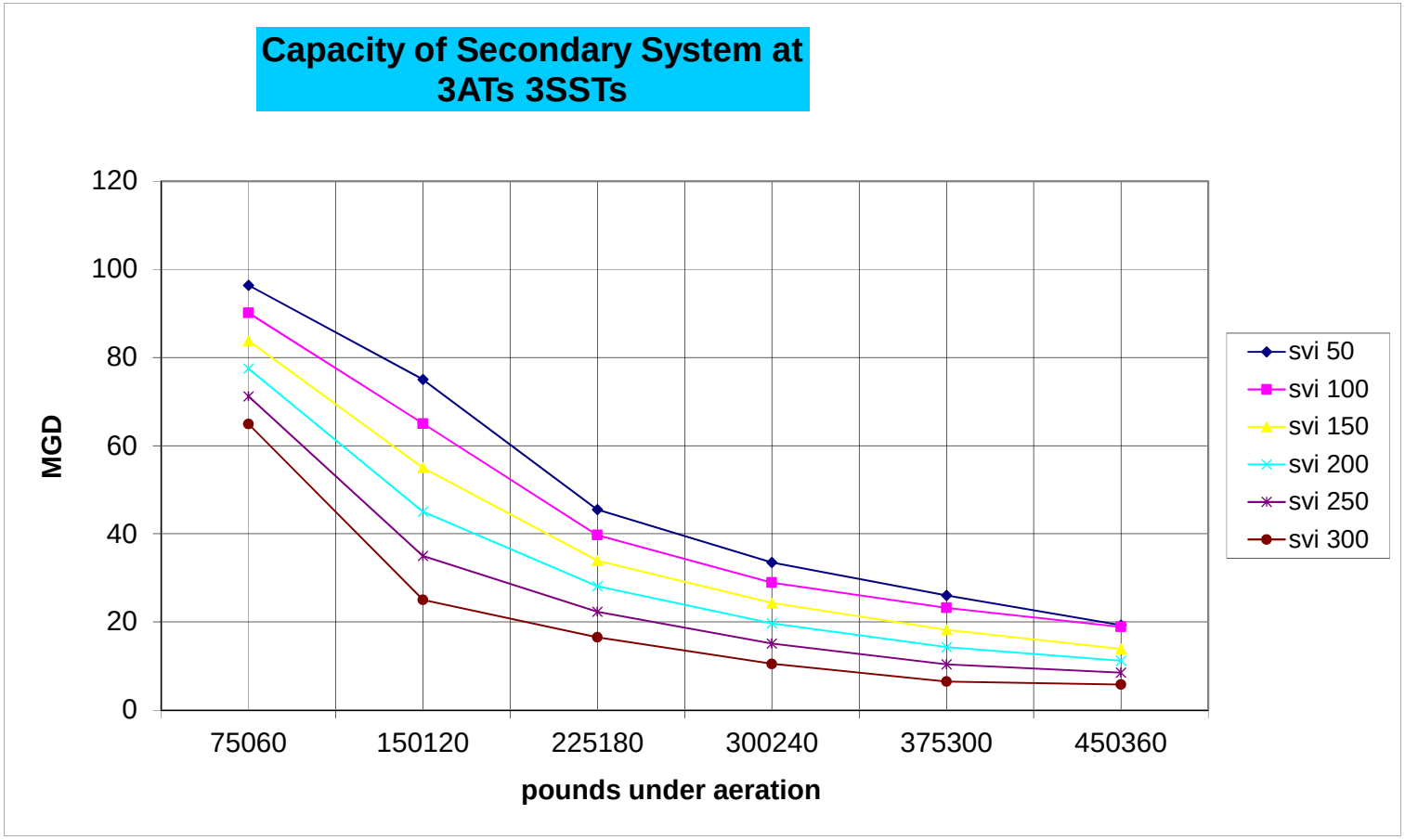


	SELECTED	HIGH	TIME LOW	AVG.
INFLUENT FLOW (F_CV)	33.70	52.66	17.95	28.21
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	7.58	14.41	4.20	8.21
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	6.66	14.78	5.38	7.64
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	8.65	12.26	7.36	9.47

◀◀ | ◀ | Switch to 7Days | ▶ | ▶▶

Ack	Time In	Date In	Description	Value	Status
	11:17:50.112	7/6/2017	GRIT CLASSIFIER 2 ZERO SPEED	NORMAL	CFN
✓	08:14:50.377	7/5/2017	GRIT CLASSIFIER 1 LOW FLOW	LOW FLOW	CFN
✓	11:59:52.394	7/3/2017	SECONDARY CLARIFIER 1 SLDG BLA	HIGH LEVEL	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 MOTOR HIGH T	HIGH TEMP	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 DISCH HIGH TE	HIGH TEMP	CFN

Total Alarms: 8 | Filter: Off | Sort: Time In, Descending | Run



date:	4/8/2017		Flow, MG	SVI	MLSS	lbs	sr oper	setting selected, MG
bypass start time:	1:15pm		41				various	25
bypass stop time:	5:30am	4/10/2017	18	varying	varying	varying		

BYPASS EVENT: 2017-10

HAVERHILL, MA - WWTP - DAILY LOG

Date: 04/09/17

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	Norm Paquette	Norm Paquette		Paquette
2nd	Isaiah Lewis			
3rd	Lewis/Paquette			
	Kevin R			

WEATHER: Snowmelt
Hi: 53 Lo: 32 Ob: 32
Rain: Snow:
Conditions: Clear snowcover

LAB

INFLUE	Q,Daily Total	MAX	MIN
	25.43	36.19	17.75

Q,byp start/stop times am or pm & Q: Start @ 2pm
Q,byp Status:
Q,bypa 2.49 Q to 2nd 22.94

PRIMARY SCUM LEVEL:

	Old	New	Plant	Pump Station	Grit quty
1st	0.24	6.36	0		yd3
2nd	.32	7.69	0/1		
3rd	.31	4.09	1		

SCREENINGS CARTS:

PLANT (*1600) POWER

End 1st	KVA (06)		KW (06)
End 2rd	KVA (06)		KW (06
End 3rd	KVA (06)		KW (06

Centrifuge:	41
Primary:	4893
Secondary:	2650
Aeration:	0
Total:	13408

12 Mid PUMP STATION (*450) POWER

12 Mid	Start 1st	KW(06)	KVA(
12 Mid	Start 2nd	KW(06)	KVA(
12 Mid	Start 3rd	KW(06)	KVA(

COLLECTOR SPEED

	#1	#2	#3
1st	slow	off	slow
2nd	slow	off	slow
3rd	slow	off	slow

PSTs on-line: 2

AERATION: Dissolved Oxygen

ATs on-line: 3

#1	AT#1 infl do avg	6.0
#3	AT#1 effl do avg	4.7
#4	AT#2 infl do avg	5.5
#6	AT#2 effl do avg	4.0

Gravity Thickeners DOB:

	#1	#2
1st	<1	5
2nd	2	4
3rd	3	5

Torque:

	#1	#2
1st	n/a	n/a
2nd	n/a	n/a
3rd	n/a	n/a

Weekly Septage Pumped Gals

SEPTAGE LEVEL
1st 8.28 ft
2nd ft
3rd ft

Cl2 vol

	Tank #1	Tank #2
1st		721
2nd		674
3rd		611
Total	211 Gallons	

TWAS LEVELS:

	#1	#2	#3
1st	5	6	6
2nd	9	12	10
3rd	11	13	12

Dosage Setpoint
Effluent Cl2, mg/l: 1.20

Inplant ____/____ 1.5
____/____ 1.2

CHLORINE RESIDUAL: 0.37 mg/l

CHEMICALS:
Sodium Hypo 10
Polymer dry 238
Hydroxide 9
Polymer liq. 2729
Alpha Lox 15 drums

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
8.0	7	7.4	8.9	3.1	4.6

RAS# SC#	RAS# SC#	RAS# SC#	
0.00	3.40	3.39	3.39

SECONDARY CLARIFIERS
SSTs on-line: 3

Depth of Blankets

#1	#2	#3
8.91	8.5	9.1

Daily average

DOB by Operators

	#1		#2		#3	
1st	6.0	5.0	6.0	5.0	9.0	11.0
2nd	5.0	8.0	4.0	9.0	9.0	9.0
3rd	11.0	9.5	13.0	9.0	10.0	6.0

comments logbook for 4/9/2017
7/6/2017 11:42:01 AM

	Comment
1	6:29:00 AM CONTROL_ROOM primary check, operating DAF #1, chemical inventory, weather data, secondary check, multiple SC O 92/85, @ 5:30 am 85/90 - 40/45 - 85/75, BY-PASS on thru out shift...RIVER WATER BEING TAKEN I
2	7:28:00 AM PJESSEL Merrimack River elevation has remain about the same (LIT-140 at 9.8'), influent flow now near and b with the treatment plant flows.
3	12:45:00 PM PJESSEL WWTP flow 18 MGD at 6:44 AM LIT-140 9.7 now LIT-140 10.5 Flow over 30 MGD Middlesex CSO ri gate nut to attempt to close tomorrow. hopefully LIT-140 will below 9.5 So I stand corrected Norm and
4	2:18:00 PM CONTROL_ROOM Primary and Secondary Plant Check, Operating #1 DAF, Bypass off @ 9am, Reset TWAS Blower #2, Inlet Gate to approx 50% to Balance flow, Reset Primary Scum, Pump 1b will not Pump WO #12924, Remove Build Up, Finished Blend, Flushed TPS Pumps, SC Gate Adjustments, Started DAF Solids L Out Screenings Cart on Step Screen #1, Final Readings, IL
5	5:21:00 PM CONTROL_ROOM Plant Checks, Finished Solids Lab, Shutting Down #1 DAF

BYPASS MULTI TREND

CITY OF HAVERHILL, MA - WWTF

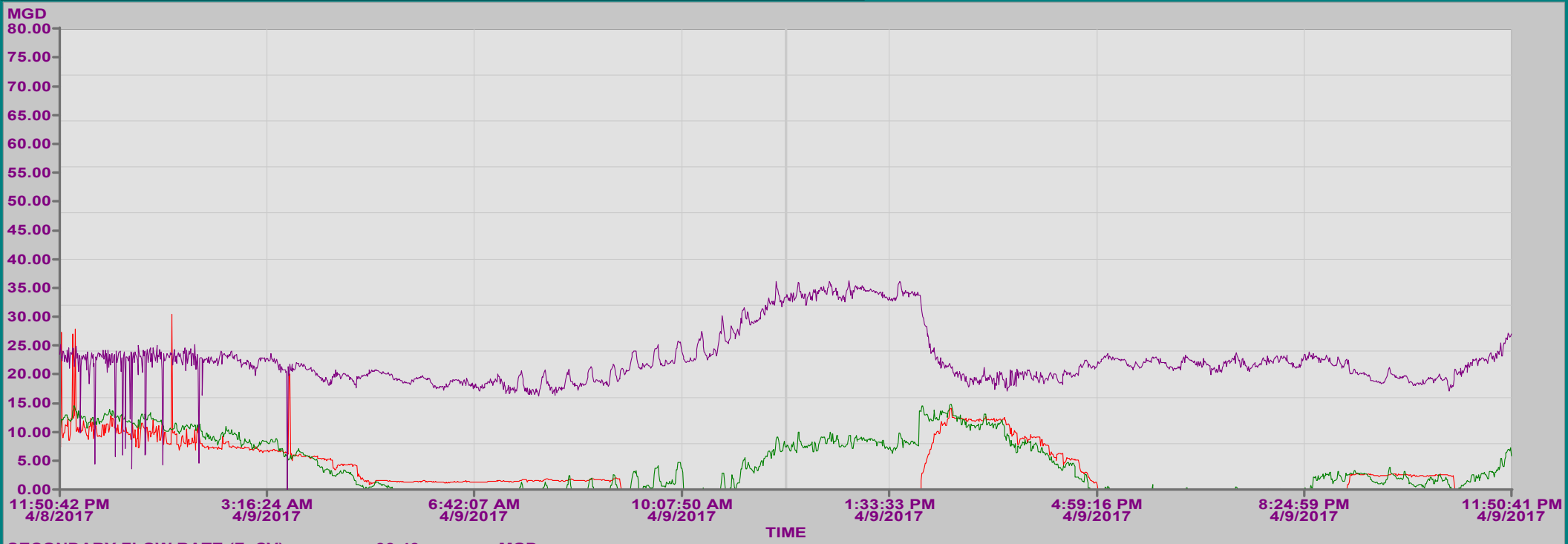
LOGIN

4/10/2017

11:50:55 AM

ALARMS | HISTORY MENU

MAIN MENU | BYPASS



SECONDARY FLOW RATE (F_CV)	33.43	MGD
BYPASS FLOW (F_CV)	0.00	MGD
BYPASS FLOW AUTO SP (F_CV)	7.36	MGD
BYPASS CHLORINE (F_CV)	0.00	PPM

◄◄ | ◄ | Switch to 7Days | ► | ►►

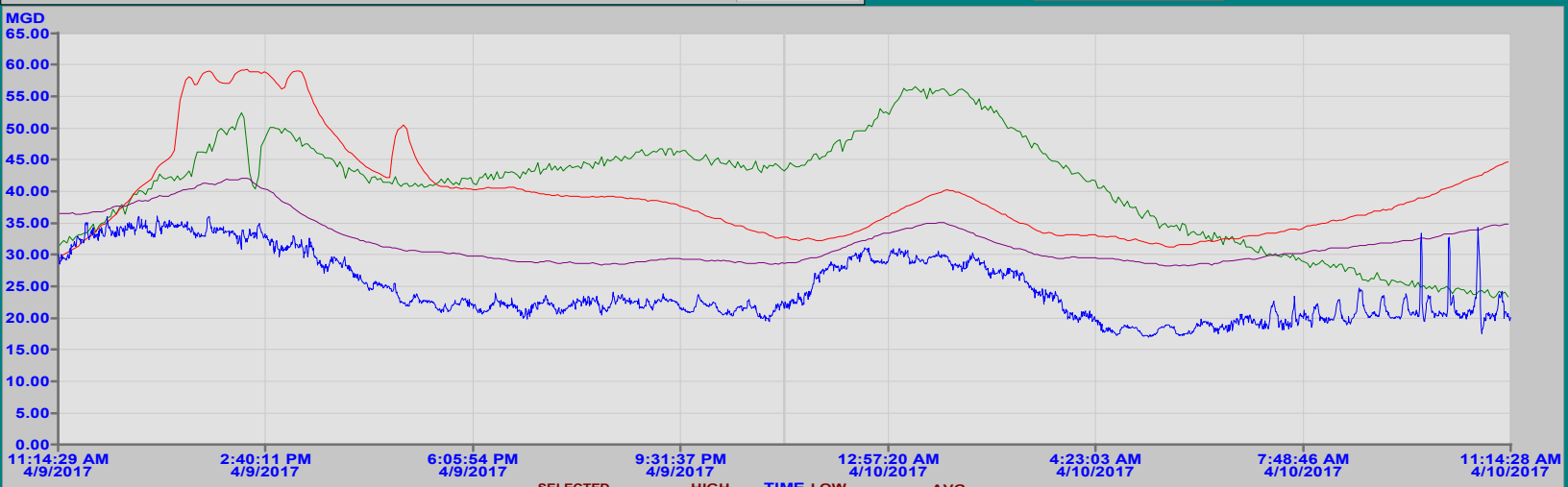
PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

LOGIN | 7/6/2017 | 11:28:01 AM

ALARMS | HISTORY MENU | MAIN MENU | MAIN PUMP STAT

INF. FLOW 9.71 MGD



	SELECTED	HIGH	TIME LOW	AVG.
INFLUENT FLOW (F_CV)	21.58	36.15	17.02	24.66
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	10.66	13.93	5.71	10.04
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	8.07	14.58	7.17	9.67
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	7.05	10.37	6.96	7.90

◀◀ | ◀ | Switch to 7Days | ▶ | ▶▶

Ack	Time In	Date In	Description	Value	Status
	11:17:50.112	7/6/2017	GRIT CLASSIFIER 2 ZERO SPEED	NORMAL	CFN
✓	08:14:50.377	7/5/2017	GRIT CLASSIFIER 1 LOW FLOW	LOW FLOW	CFN
✓	11:59:52.394	7/3/2017	SECONDARY CLARIFIER 1 SLDG BLA	HIGH LEVEL	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 MOTOR HIGH T	HIGH TEMP	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 DISCH HIGH TE	HIGH TEMP	CFN

Total Alarms: 6 | Filter: Off | Sort: Time In, Descending | Run

BYPASS EVENT: 2017-11

HAVERHILL, MA - WWTP - DAILY LOG

Date: 04/10/17

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	Norm Paquette	Norm Paquette	Walter Alce	Paquette
2nd	Jim Bevelaqua		Alce	Rutledge
3rd	Jbev / Paszko		Waino Waisanen	

WEATHER: Snowmelt
Hi: Lo: Ob:
Rain: Snow:
Conditions: snowcover

LAB

INFLUE	Q,Daily Total	MAX	MIN
	20.77	33.65	17.04

Q,byp start/stop times am or pm & Q

Q,byp Status

Q,bypa 1.00 Q to 2nd 19.77

PRIMARY SCUM LEVEL: **SCREENINGS CARTS:**

	Old	New	Plant	Pump Station	Grit quty
1st	0.28	7.22	1		yd3
2nd	.38	5.37	1		
3rd	.38	6.50	1		

PLANT (*1600) POWER

End 1st_____KVA (06)_____KW (06)
End 2rd_____KVA (06)_____KW (06
End 3rd_____KVA (06)_____KW (06

Centrifuge:	579
Primary:	5510
Secondary:	2636
Aeration:	0
Total:	14700

12 Mid **PUMP STATION (*450) POWER**

12 Mid Start 1st _____KW(06) _____KVA(
12 Mid Start 2nd_____KW(06) _____KVA(
12 Mid Start 3rd_____KW(06) _____KVA(

COLLECTOR SPEED

	#1	#2	#3
1st___	slow	off	slow
2nd___	slow	off	slow
3rd___	slow	off	slow

PSTs on-line

AERATION: Dissolved Oxygen

ATs on-line

#1_____	AT#1 infl do avg	4.9
#3_____	AT#1 effl do avg	3.7
#4_____	AT#2 infl do avg	4.6
#6_____	AT#2 effl do avg	3.2

Gravity Thickeners DOB: **Torque:**

	#1	#2	#1	#2
1st	2	5	n/a	n/a
2nd	3	6	/	/
3rd	2	5	/	/

Weekly Septage Pumped Gals

SEPTAGE LEVEL

1st_____ 5.36 ft
2nd_____ft
3rd_____ft

Cl2 vol

	Tank #1	Tank #2
1st		548
2nd		485
3rd		
Total	195 Gallons	

TWAS LEVELS:

	#1	#2	#3
1st	11	13	12
2nd	12	13	13
3rd			

Dosage Setpoint

Effluent Cl2, mg/l 1.20

Inplant _____/_____ 1.5
_____/_____ 1.2

CHLORINE RESIDUAL: 0.48 mg/l

CHEMICALS:

Sodium Hypo_____drums
Polymer dry _____bags
Polymer liq._____gallons
Hydroxide_____drums
Alpha Lox 15_____drums

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
7.7	3.4	8	7	8	6.5

RAS# _____ SC# _____ RAS# _____ SC# _____ RAS# _____ SC# _____ ____

0.00	3.39	3.39 3.39

SECONDARY CLARIFIERS

SSTs on-line

Depth of Blankets Daily average

#1	#2	#3
7.99	10.9	9.0

DOB by Operators

	#1		#2		#3	
1st	13.5	7.0	9.5	7.0	8.0	6.5
2nd	6.0	4.0	7.0	12.0	7.0	9.0
3rd						

comments logbook for 4/10/2017
7/6/2017 11:42:20 AM

	Comment
1	6:14:00 AM CONTROL_ROOM primary check, emptied grit hopper, chemical inventory, step screens/wash presses running in local, c check...multiple SC OSG adjustments made...@12M 90/75 - 40/45 - 90/95 and @3AM 75/70 - 45/50 RIVER WATER CONTINUES TO BE COMING INTO WWTP...HIGH FLOWS COINCIDING WITH HIC
2	10:28:00 AM CONTROL_ROOM Primary and secondary plant checks - Operating #1 DAF - Monthly staff meeting 8:AM - 10:PM - Star cleaning off bar racks - Marginal pump station check, River elev. 10.67' Wet Well elev. 5.8' - Pumping trough for repairs ------==---------Jbev
3	2:48:00 PM PJESSEL City Engineer's Office found SMH-6151 cover off on the concrete road near Buttonwoods Ave. Highw WW935. Flow seems to be a lot lower than the last two days in the low to mid 20's.
4	3:07:00 PM CONTROL_ROOM Lowered AT DO control set points by 1PPM each - Plant checks Operating #1 DAF and #2 centrifuge down #1 GT, keeps torqueing out - Cleaning off #2 GT - Filling blended sludge tank -----==--------Jbev

BYPASS MULTI TREND

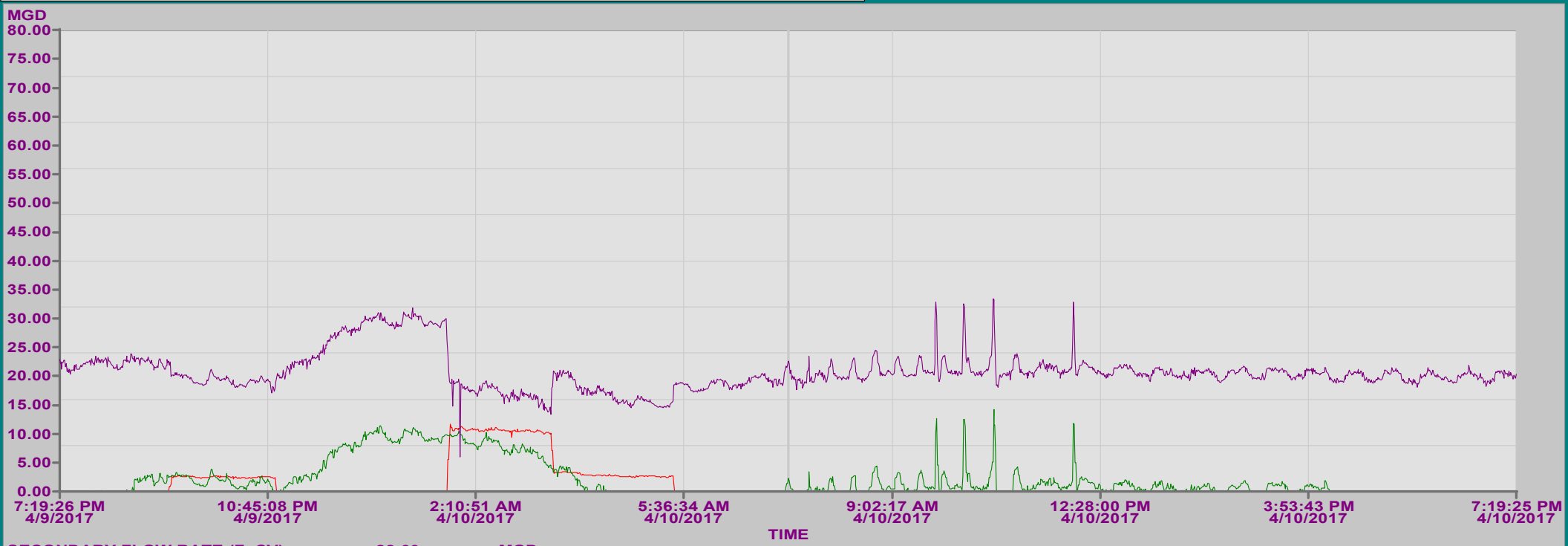
CITY OF HAVERHILL, MA - WWTF

LOGIN

4/11/2017

7:19:51 AM

ALARMS | HISTORY MENU | MAIN MENU | BYPASS



SECONDARY FLOW RATE (F_CV)	22.60	MGD
BYPASS FLOW (F_CV)	0.00	MGD
BYPASS FLOW AUTO SP (F_CV)	2.20	MGD
BYPASS CHLORINE (F_CV)	0.00	PPM

◄◄ | ◄ | Switch to 7Days | ► | ►►

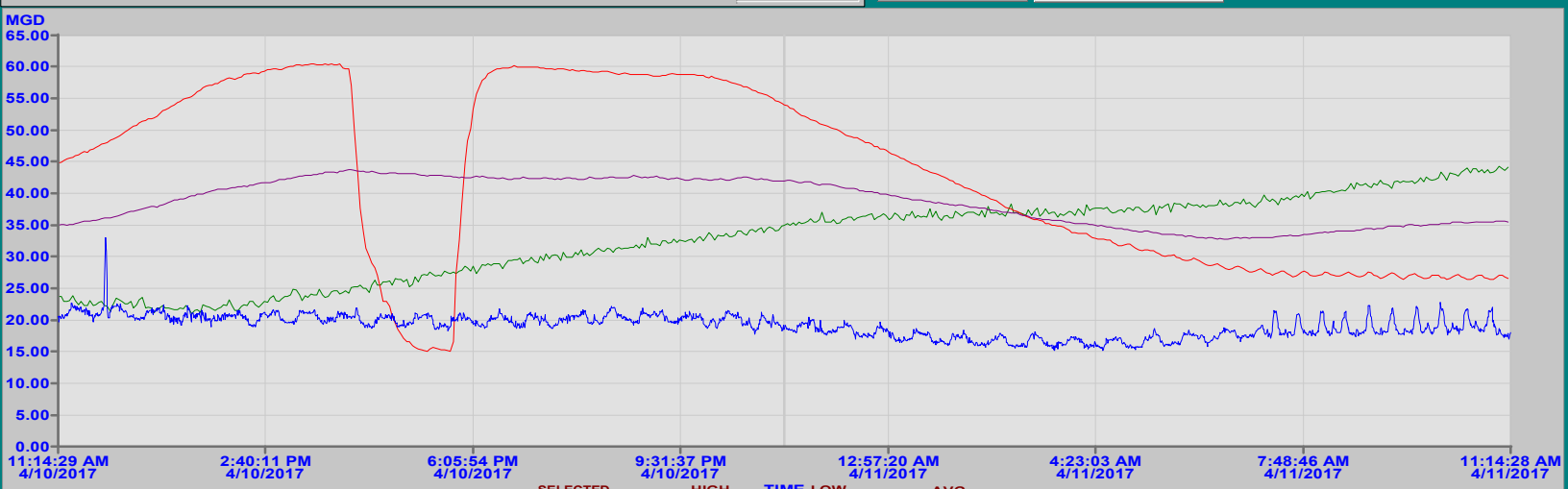
PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

LOGIN | 7/6/2017 | 11:28:30 AM

ALARMS | HISTORY MENU | MAIN MENU | MAIN PUMP STAT

INF. FLOW 9.66 MGD



	SELECTED	HIGH	TIME LOW	AVG.
INFLUENT FLOW (F_CV)	18.55	32.97	15.11	19.06
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	8.59	10.91	5.16	8.08
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	13.28	14.86	3.71	10.57
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	10.34	10.77	8.06	9.52

◀◀ | ◀ | Switch to 7Days | ▶ | ▶▶

Ack	Time In	Date In	Description	Value	Status
	11:17:50.112	7/6/2017	GRIT CLASSIFIER 2 ZERO SPEED	NORMAL	CFN
✓	08:14:50.377	7/5/2017	GRIT CLASSIFIER 1 LOW FLOW	LOW FLOW	CFN
✓	11:59:52.394	7/3/2017	SECONDARY CLARIFIER 1 SLDG BLA	HIGH LEVEL	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 MOTOR HIGH T	HIGH TEMP	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 DISCH HIGH TE	HIGH TEMP	CFN

Total Alarms: 6 | Filter: Off | Sort: Time In, Descending | Run

BYPASS EVENT: 2017-12

HAVERHILL, MA - WWTP - DAILY LOG

Date: 04/25/17

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	Isaiah Lewis		Walter Alce	
2nd	Norm Paquette	Norm Paquette	Walter Alce	Kevin Rutledge
3rd	Paszko/Lewis	Walter Alce	Waino Waisanen	
	Mark B			

WEATHER: Snowmelt
Hi: 71 Lo: 38 Ob: 46
Rain: Snow:
Conditions: Cloudy snowcover

LAB

INFLUE	Q,Daily Total	MAX	MIN
	16.70	50.32	9.25
Q,byp	start/stop times am or pm & Q	Start @ 10:30pm	
Q,byp	Status	activated	
Q,bypa	0.40	Q to 2nd	16.30

PRIMARY SCUM LEVEL:

SCREENINGS CARTS:

	Old	New	Plant	Pump Station	Grit quty
1st	.94	5.21	3		yd3
2nd	1.07	5.97	3	1	
3rd	1.02	7.65	3		

PLANT (*1600) POWER

End 1st_____KVA (06)_____KW (06)
End 2rd_____KVA (06)_____KW (06
End 3rd_____KVA (06)_____KW (06

Centrifuge:	501
Primary:	5626
Secondary:	2190
Aeration:	0
Total:	14943

12 Mid **PUMP STATION (*450) POWER**
12 Mid Start 1st _____KW(06) _____KVA(
12 Mid Start 2nd_ 1.52 1.63
12 Mid Start 3rd_____KW(06) _____KVA(

COLLECTOR SPEED

	#1	#2	#3
1st___	slow	slow	slow
2nd___	slow	slow	slow
3rd___	slow	slow	slow

PSTs on-line 3

AERATION: Dissolved Oxygen

ATs on-line 3

#1_____	AT#1 infl do avg	2.3
#3_____	AT#1 effl do avg	2.3
#4_____	AT#2 infl do avg	3.3
#6_____	AT#2 effl do avg	2.6

Gravity Thickeners DOB:

	#1	#2
1st	3	3
2nd	4	2
3rd	4	5

Torque:

	#1	#2
1st	n/a	n/a
2nd	n/a	n/a
3rd	N/A	N/A

Weekly Septage Pumped Gals

SEPTAGE LEVEL
1st_____ 8.79 ft
2nd_____ft
3rd_____ft

Cl2 vol

	Tank #1	Tank #2
1st	3203	
2nd	3164	
3rd	3210	
Total	135	Gallons

TWAS LEVELS:

	#1	#2	#3
1st	6	8	7
2nd	11	13	9
3rd	7	9	6

Dosage Setpoint
Effluent Cl2, mg/l 1.00

Inplant _____/_____ 1.50
_____/_____ 1.05

CHLORINE RESIDUAL: 0.26 mg/l

CHEMICALS:
Sodium Hypo_____ 9
Polymer dry ___ 176
Hydroxide_____ 9
Polymer liq.__ 1186
Alpha Lox 15_____drums

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
6.9	8.0	5.6	6.9	5	8

RAS# _____ SC# _____	RAS# _____ SC# _____	RAS# _____ SC# _____	____
0.00	2.91	2.93	2.93

SECONDARY CLARIFIERS
SSTs on-line 3

Depth of Blankets Daily average

#1	#2	#3
8.27	7.8	7.2

DOB by Operators

	#1		#2		#3	
1st	5.0	4.0	5.0	5.0	5.0	5.0
2nd	4.5	6.0	5.0	5.0	5.0	4.0
3rd	5.0	6.0	6.0	8.0	5.0	6.0

comments logbook for 4/25/2017
7/6/2017 11:42:50 AM

	Comment
1	6:02:00 AM CONTROL_ROOM Primary and Secondary Plant Checks, Operating #1 DAF thru Shift, Collected Composite Samples, C Readings, IL
2	10:47:00 AM CONTROL_ROOM primary check, operating DAF #1, cleaned GT WEIRS, pumping PRIMARY SCUM, centrifuge proces trailer in GRIT GARAGE are OPEN, found SELECTOR SWITCH at pump for #1 SEPTAGE PUMP in position on SCADA (?)...put SELECTOR SWITCH for #1 SEPTAGE PUMP in ON position, replaced b LIGHT on SUMP PUMP STATUS PANEL in AGF BASEMENT, secondary check...status quo on SE C station check...put #2 WWP in STAND-BY from OFF position per IL via FGH, marginal station check, 11p-7a...Alces will work 3p-11p (Paszko available if needed) and Rutledge (on-call) and Brasier to wo operators for shift), cleaned AT DO PROBES, lowered NaOCl dose. nrp
3	2:12:00 PM CONTROL_ROOM PM SC OSG adjustments made...90/85 - 54/57 - 73/77. nrp
4	2:31:00 PM CONTROL_ROOM WIMS DAF/CENTRIFUGE DATA ENTRY. nrp
5	6:16:00 PM CONTROL_ROOM DAF #1 on line thru the shift; centrifuge is on line at the start of the shift; started process lab work; racks in hand mode; W Alce on shift to assist for a rain event; .83 mg/l hypo residual at 4 pm, lowere adjusted OSG's to all the SC's; Marginal PS checked, RL was 7.8 feet and the WW level was 3.0 fe
6	10:26:00 PM CONTROL_ROOM Turned RAS Rates to 3.25 mgd, Activated Bypass @ 10:30pm - SC #2 Wash Out, Final Readings, IL

BYPASS MULTI TREND

CITY OF HAVERHILL, MA - WWTF

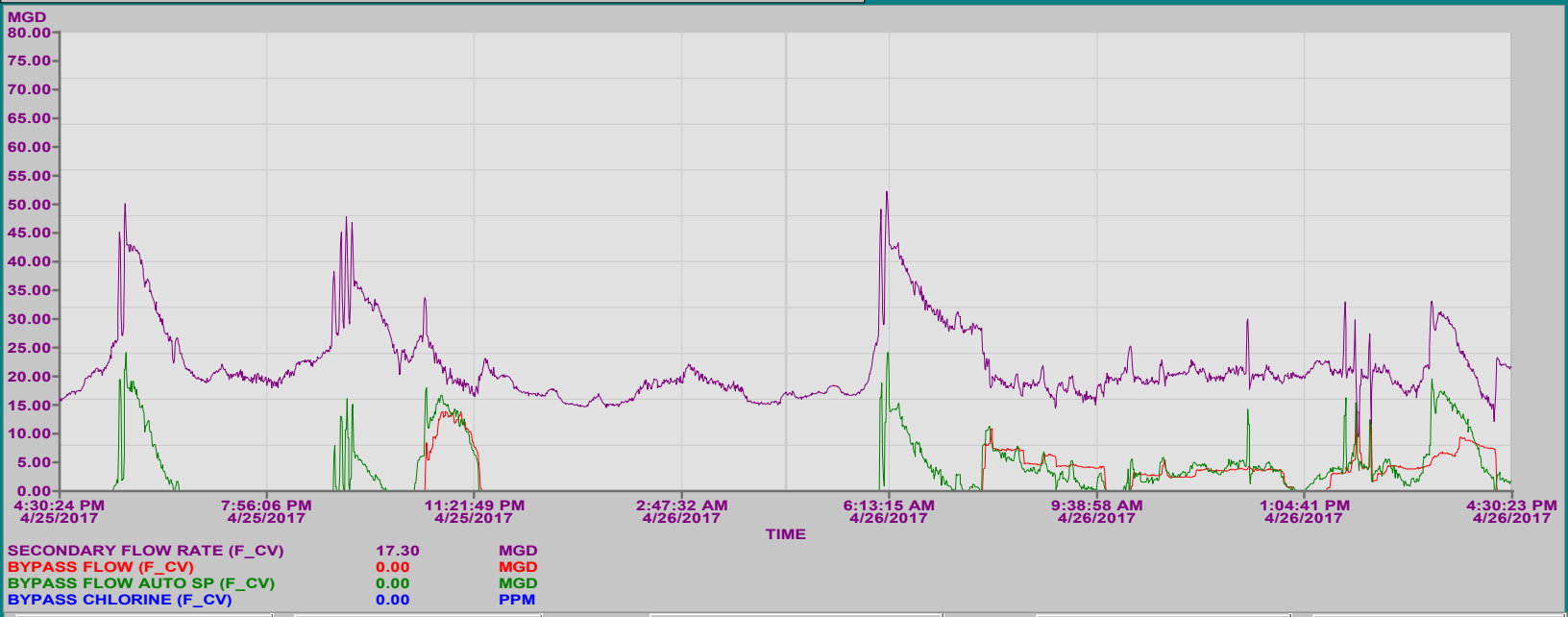
LOGIN

7/6/2017

10:30:42 AM

ALARMS | HISTORY MENU

MAIN MENU | BYPASS



SECONDARY FLOW RATE (F_CV)	17.30	MGD
BYPASS FLOW (F_CV)	0.00	MGD
BYPASS FLOW AUTO SP (F_CV)	0.00	MGD
BYPASS CHLORINE (F_CV)	0.00	PPM

◀◀ | ◀ | Switch to 7Days | ▶ | ▶▶

PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

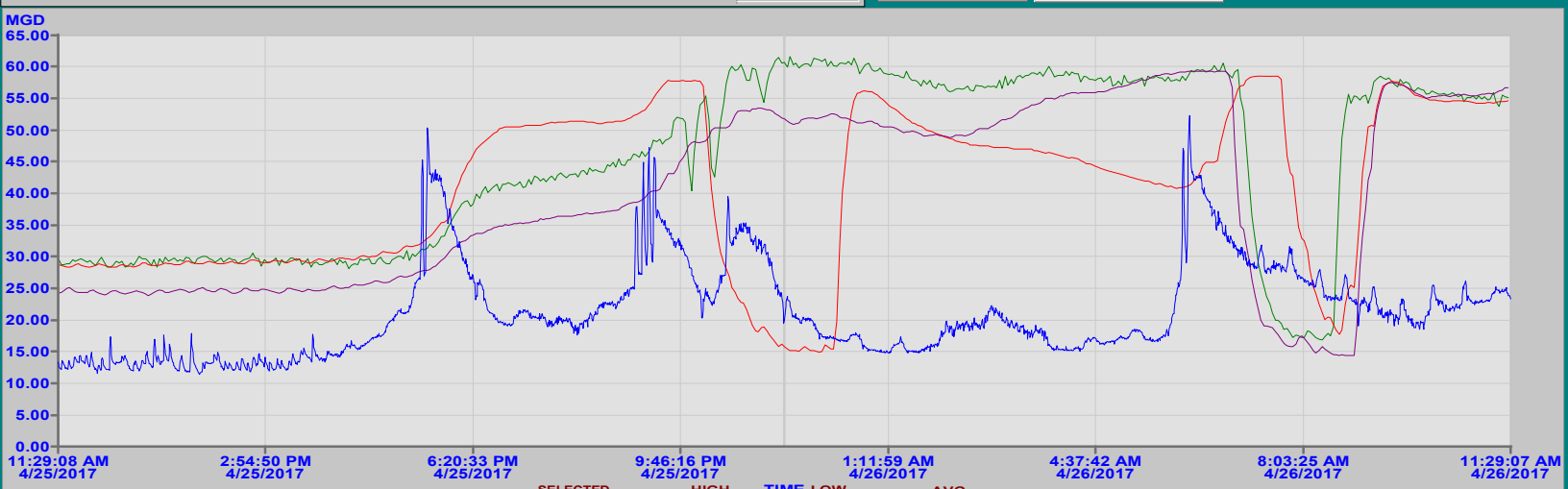
LOGIN

7/6/2017

11:29:12 AM

ALARMS | HISTORY MENU | MAIN MENU | MAIN PUMP STAT

INF. FLOW 9.70 MGD

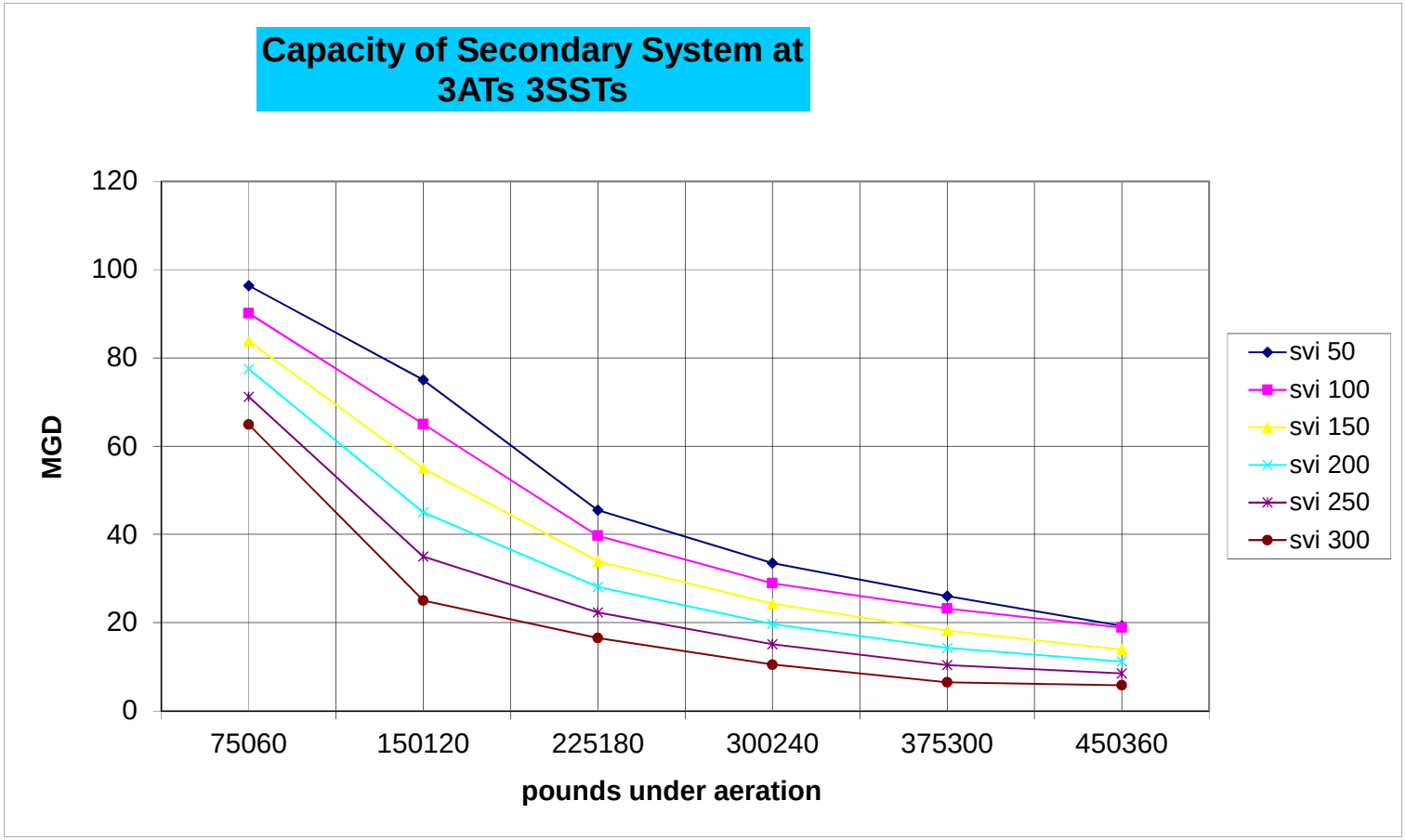


	SELECTED	HIGH	TIME LOW	AVG.
INFLUENT FLOW (F_CV)	19.78	52.26	11.46	21.29
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	14.94	15.15	4.15	11.15
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	3.88	14.41	3.68	10.05
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	12.73	14.60	3.53	9.89

◀◀ | ◀ | Switch to 7Days | ▶ | ▶▶

Ack	Time In	Date In	Description	Value	Status
	11:17:50.112	7/6/2017	GRIT CLASSIFIER 2 ZERO SPEED	NORMAL	CFN
✓	08:14:50.377	7/5/2017	GRIT CLASSIFIER 1 LOW FLOW	LOW FLOW	CFN
✓	11:59:52.394	7/3/2017	SECONDARY CLARIFIER 1 SLDG BLA	HIGH LEVEL	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 MOTOR HIGH T	HIGH TEMP	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 DISCH HIGH TE	HIGH TEMP	CFN

Total Alarms: 8 | Filter: Off | Sort: Time In, Descending | Run



date:	4/25/2017	Flow, MG	SVI	MLSS	lbs	sr oper	setting selected, MG
bypass start time:	10:30pm	33	350	2030	137000	il/bp	20
bypass stop time:	11:30pm	21					

BYPASS EVENT: 2017-13

HAVERHILL, MA - WWTP - DAILY LOG

Date: 04/26/17

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	Isaiah Lewis	Braiser/Rutledge	Kevin Rutledge	
2nd	Norm Paquette	Walter Alce	kevin Rutledge	Norm Paquette
3rd	Pas/Lewis		Waino Waisanen	
	Mark B			

WEATHER: Snowmelt
Hi: 49 Lo: 44 Ob: 47
Rain: 0.82 Snow:
Conditions: Rain snowcover

LAB

INFLUE	Q,Daily Total	MAX	MIN
	21.22	50.89	14.74
Q,byp	start/stop times am or pm & Q	start 8 am	stop 4:15 pm
Q,byp	Status	activated	
Q,bypa	1.47	Q to 2nd	19.75

PRIMARY SCUM LEVEL:

SCREENINGS CARTS:

	Old	New	Plant	Pump Station	Grit quty
1st	1.05	4.99	3		yd3
2nd	1.10	7.41	3/0	1/0	
3rd	1.10	6.69	0		

PLANT (*1600) POWER

End 1st_____KVA (06)_____KW (06)
End 2rd_____KVA (06)_____KW (06
End 3rd_____KVA (06)_____KW (06

Centrifuge:	529
Primary:	5628
Secondary:	2278
Aeration:	0
Total:	14909

12 Mid **PUMP STATION (*450) POWER**
12 Mid Start 1st _____KW(06) _____KVA(
12 Mid Start 2nd_ 2.52 2.61
12 Mid Start 3rd_____KW(06) _____KVA(

COLLECTOR SPEED

	#1	#2	#3
1st___	slow	slow	slow
2nd___	slow	slow	slow
3rd___	slow	slow	slow

PSTs on-line 3

AERATION: Dissolved Oxygen

ATs on-line 3

#1_____	AT#1 infl do avg	3.5
#3_____	AT#1 effl do avg	2.6
#4_____	AT#2 infl do avg	3.4
#6_____	AT#2 effl do avg	2.5

Gravity Thickeners DOB:

	#1	#2
1st	3	4
2nd	6	6
3rd	4	5

Torque:

	#1	#2
1st	n/a	n/a
2nd	n/a	n/a
3rd	n/a	n/a

Weekly Septage Pumped Gals

SEPTAGE LEVEL
1st_____ 6.31 ft
2nd_____ft
3rd_____ft

Cl2 vol

	Tank #1	Tank #2
1st	3055	
2nd	2984	
3rd	2945	
Total	158	Gallons

TWAS LEVELS:

	#1	#2	#3
1st	7	10	7
2nd	11	F	10
3rd	4	4	4

Dosage Setpoint
Effluent Cl2, mg/l 0.95

Inplant _____/_____ 1.50
_____/_____ .95

CHLORINE RESIDUAL: 0.52 mg/l

CHEMICALS:
Sodium Hypo_____ 9
Polymer dry ___ 173
Hydroxide_____ 9
Polymer liq.__ 1065
Alpha Lox 15_____drums

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
7.6	7.8	5.8	6.9	3	7

RAS# _____ SC# _____	RAS# _____ SC# _____	RAS# _____ SC# _____	____
0.00	3.09	3.12	3.12

SECONDARY CLARIFIERS
SSTs on-line 3

Depth of Blankets Daily average

#1	#2	#3
12.96	11.8	9.5

DOB by Operators

	#1		#2		#3	
1st	12.0	14.0	14.0	10.0	13.0	13.0
2nd	13.0	11.5	12.5	12.0	12.0	12.0
3rd	11.0	11.0	13.0	12.0	13.0	13.0

comments logbook for 4/26/2017
7/6/2017 11:43:18 AM

	Comment
1	6:44:00 AM CONTROL_ROOM Primary and Secondary Plant Checks, Operating #1 DAF Thru Shift, Bypass Off @ 11:30pm - Foreca Chemical Inventory, Weather Info, Step Screens in Local Mode, High Blankets Thru Shift, Final Read
2	9:01:00 AM CONTROL_ROOM marginal station check, WIMS DAF/CENTRIFUGE DATA ENTRY. nrp
3	10:19:00 AM CONTROL_ROOM primary check, operating DAF #1, opened both GRIT HOPPER SLIDE GATES...leaving BOTH gates PRESSES AND STEP SCREENS in LOCAL, pumping primary scum, activated BY-PASS at ~ 8AM-9 secondary...8:30 AM SC DOB's 13-12.5-12...incoming flow ~ 28 MGD, secondary check...status quo BACK-UP/OVERFLOWING RETENTION WALLS...ALL SC's now covered with FOG BLANKETS (AC at 3-1-4-2, emptied screenings carts at WWTP and PUMP STATION...4 carts total, flushing/back-flus lowered NaOCl dose 1.00/.95, BY-PASS being intermittently activated thru out shift based on AGREE nrp
4	12:38:00 PM CONTROL_ROOM BY-PASS will remain on for duration of shift...incoming flow remaining consistent at ~24 - 25 MGD...s ~12'...~20 MGD being sent to secondary. nrp
5	6:00:00 PM CONTROL_ROOM plant checks; operating DAF #1 thru the shift; Centrifuge #2 on line until 6 pm; started process lab v down Secondary By-Pass once the flow dropped below 20 MGD at 4:15 pm; bar racks and step scre trailer, approx 5 yd's on the ground; completed process lab work; small washout from SC's #2 and
6	8:35:00 PM CONTROL_ROOM Could Not Get Sam's Trucking in to move trailer for Sludge Spill, They will leave bay empty in the am Finished Solids Lab, SC Gate Adjustments, Waino Clearing off Sludge from trailer gate so it can be c

PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

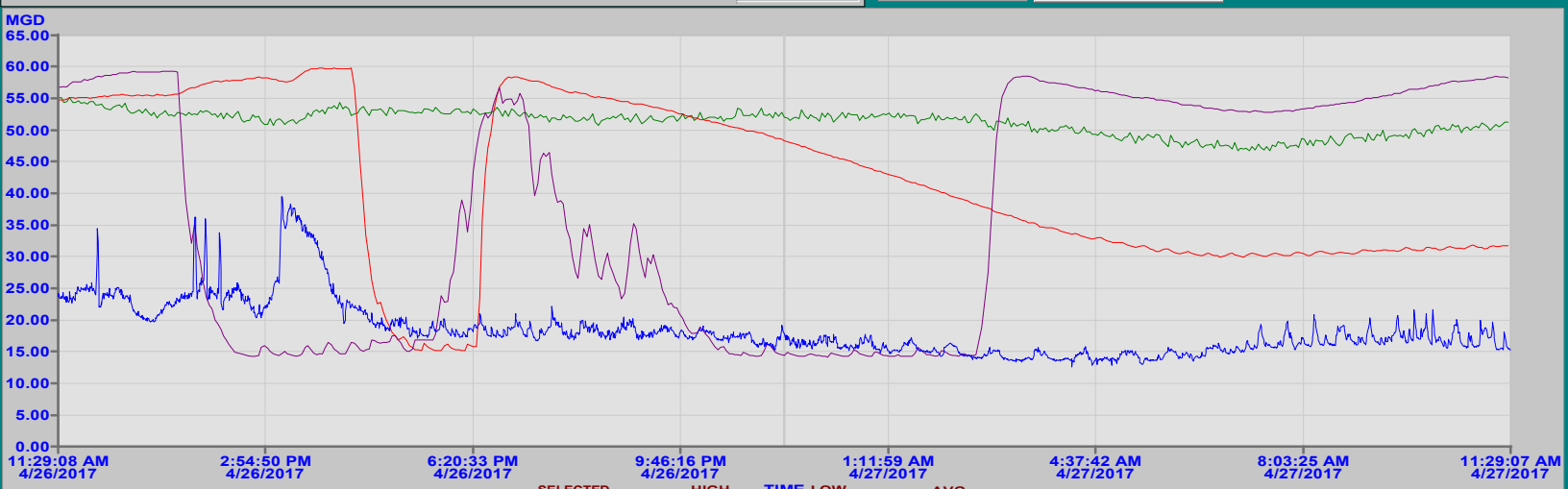
LOGIN

7/6/2017

11:29:43 AM

ALARMS | HISTORY MENU | MAIN MENU | MAIN PUMP STAT

INF. FLOW 9.38 MGD

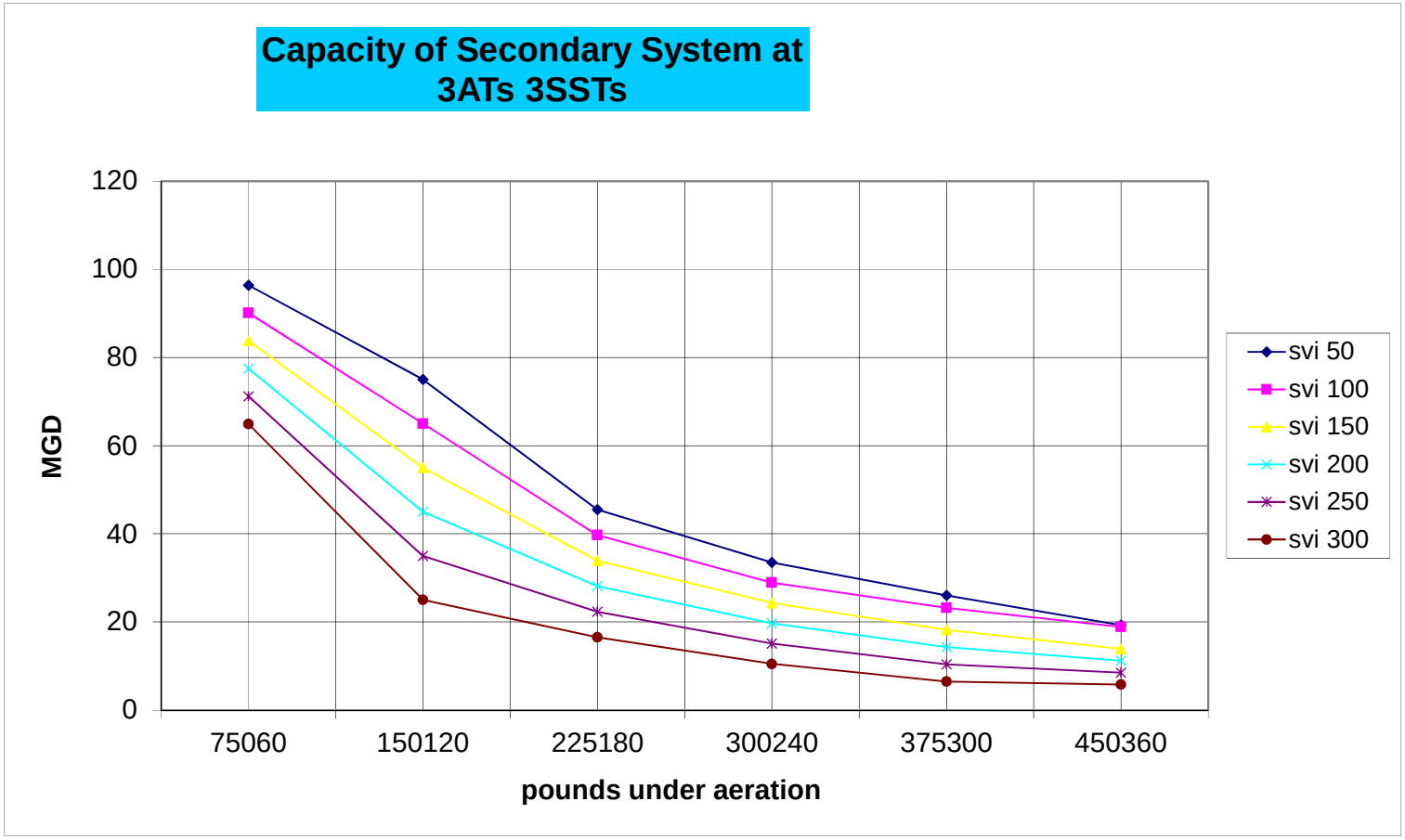


	SELECTED	HIGH	TIME LOW	AVG.
INFLUENT FLOW (F_CV)	17.89	39.49	12.63	18.43
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	12.81	13.58	11.49	12.61
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	11.89	14.71	3.72	10.35
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	3.54	14.60	3.49	9.17

◄◄ | ◄ | Switch to 7Days | ► | ►►

Ack	Time In	Date In	Description	Value	Status
	11:17:50.112	7/6/2017	GRIT CLASSIFIER 2 ZERO SPEED	NORMAL	CFN
✓	08:14:50.377	7/5/2017	GRIT CLASSIFIER 1 LOW FLOW	LOW FLOW	CFN
✓	11:59:52.394	7/3/2017	SECONDARY CLARIFIER 1 SLDG BLA	HIGH LEVEL	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 MOTOR HIGH T	HIGH TEMP	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 DISCH HIGH TE	HIGH TEMP	CFN

Total Alarms: 8 | Filter: Off | Sort: Time In, Descending | Run



date:	4/26/2017	Flow, MG	SVI	MLSS	lbs	sr oper	setting selected, MG
bypass start time:	7:45am	28	410	1340	180000	nrp/il/bp	20
bypass stop time:	4:15pm	21					

BYPASS EVENT: 2017-14

HAVERHILL, MA - WWTP - DAILY LOG

Date: 05/05/17

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	William Paszko		Norm Paquette	
2nd	Thomas Riley	Walter Alce	Norm Paquette	Tom Riley
3rd	Riley/Bevelaqua	Mark Brasier	Waino Waisanen	
	Mark B			

WEATHER: Snowmelt
Hi: 62 Lo: 34 Ob: 46
Rain: Snow:
Conditions: Cloudy snowcover

LAB

INFLUE	Q,Daily Total	MAX	MIN
	22.53	*62.44*	8.98

Q,byp start/stop times am or pm & Q
Q,byp Status inactivated
Q,bypa 5.39 Q to 2nd 17.14

PRIMARY SCUM LEVEL: **SCREENINGS CARTS:**

	Old	New	Plant	Pump Station	Grit quty
1st	1.17	10.20	0/1		5 yd3
2nd	1.17	10.2	1		
3rd	1.17	6.11	1		

PLANT (*1600) POWER

End 1st_____KVA (06)_____KW (06)	Centrifuge:	494
End 2rd_____KVA (06)_____KW (06	Primary:	5314
End 3rd_____KVA (06)_____KW (06	Secondary:	2252
	Aeration:	0
	Total:	14711

12 Mid **PUMP STATION (*450) POWER**
12 Mid Start 1st _____KW(06) _____KVA(
12 Mid Start 2nd_ 2.53 2.61
12 Mid Start 3rd_____KW(06) _____KVA(

COLLECTOR SPEED

	#1	#2	#3
1st___	slow	slow	slow
2nd___	slow	slow	slow
3rd___	slow	slow	slow

PSTs on-line 3

AERATION: Dissolved Oxygen

ATs on-line 3

#1_____	AT#1 infl do avg	2.0
#3_____	AT#1 effl do avg	1.3
#4_____	AT#2 infl do avg	2.4
#6_____	AT#2 effl do avg	1.4

Gravity Thickeners DOB: **Torque:**

	#1	#2	#1	#2
1st	2	4	n/a	n/a
2nd	5	5	/	/
3rd	6	6	/	/

Weekly Septage Pumped Gals

SEPTAGE LEVEL
1st_____ 6.98 ft
2nd_____ft
3rd_____ft

Cl2 vol

	Tank #1	Tank #2
1st	2005	
2nd	1973	
3rd	1903	
Total	150	Gallons

TWAS LEVELS:

	#1	#2	#3
1st	3	4	3
2nd	8	9	7
3rd	5	7	7

Dosage Setpoint
Effluent Cl2, mg/l 0.90

Inplant _____/_____/_____
_____/_____/_____

CHLORINE RESIDUAL: 0.50 mg/l

CHEMICALS: Sodium Hypo_____9 Polymer dry __ 147 Polymer liq.__ 1962
Hydroxide_____ 7 Alpha Lox 15_____drums

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
8.0	8	8	6	6.4	9

RAS# _____ SC# _____	RAS# _____ SC# _____	RAS# _____ SC# _____	____
0.00	2.82	3.02	3.02

SECONDARY CLARIFIERS SSTs on-line 3

Depth of Blankets Daily average

#1	#2	#3
12.37	8.5	9.6

DOB by Operators

	#1		#2		#3	
1st	9.0	8.0	8.0	7.0	8.0	7.0
2nd	8.0	12.0	7.0	8.0	7.0	8.0
3rd	14.0	12.0	11.0	12.0	10.0	12.0

comments logbook for 7/19/2017
7/19/2017 12:06:16 PM

	Comment
1	6:17:00 AM CONTROL_ROOM Primary and Secondary Plant Checks, Operating #2 DAF thru Shift, Collected Composite Samples, C Blend, Flushed TPS Pumps, Switched to #1 Hypo Tank, Lowered Hypo Dosage to 2.00 mg/L, Final R
2	11:37:00 AM CONTROL_ROOM primary check, operating DFA #2, centrifuge process on-line, put 2nd KMnO4 STATION in screenings WEIRS...FOG continues to POUR out of #1 GT CW, secondary check...put #5 ATB back on-line (LOC are OPEN similar to valving of #2 ATB...valving uniformity between tanks, all AT's covered with FOG.. with hose to channel still on and running, adding NaOCl to GT's thru #5 NaOCl pump which is runnin running in SLOW, maintenance unplugged primary scum line...pumping primary scum, pump station have ACTIVE ALARMS, marginal station check...LIT 3.1 - WW 3.5 - RIVER LEVEL 7.27, AM SC OSC DAF/CENTRIFUGE DATA ENTRY, lowered NaOCL dose to EFFLUENT 2.00/1.80, emptied 3 SCREE

BYPASS MULTI TREND

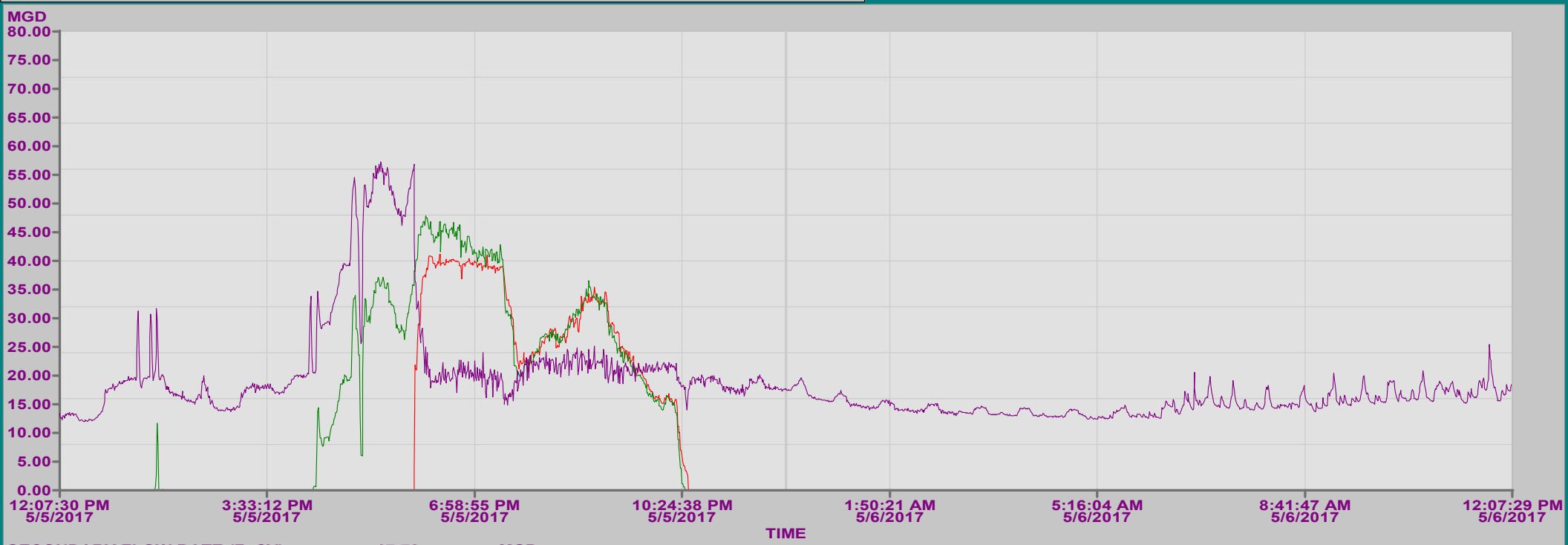
CITY OF HAVERHILL, MA - WWTF

LOGIN

7/19/2017

12:07:39 PM

ALARMS | HISTORY MENU | MAIN MENU | BYPASS



SECONDARY FLOW RATE (F_CV)	17.72	MGD
BYPASS FLOW (F_CV)	0.00	MGD
BYPASS FLOW AUTO SP (F_CV)	0.00	MGD
BYPASS CHLORINE (F_CV)	0.00	PPM

◄◄ | ◄ | Switch to 7 Days | ► | ►►

PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

LOGIN

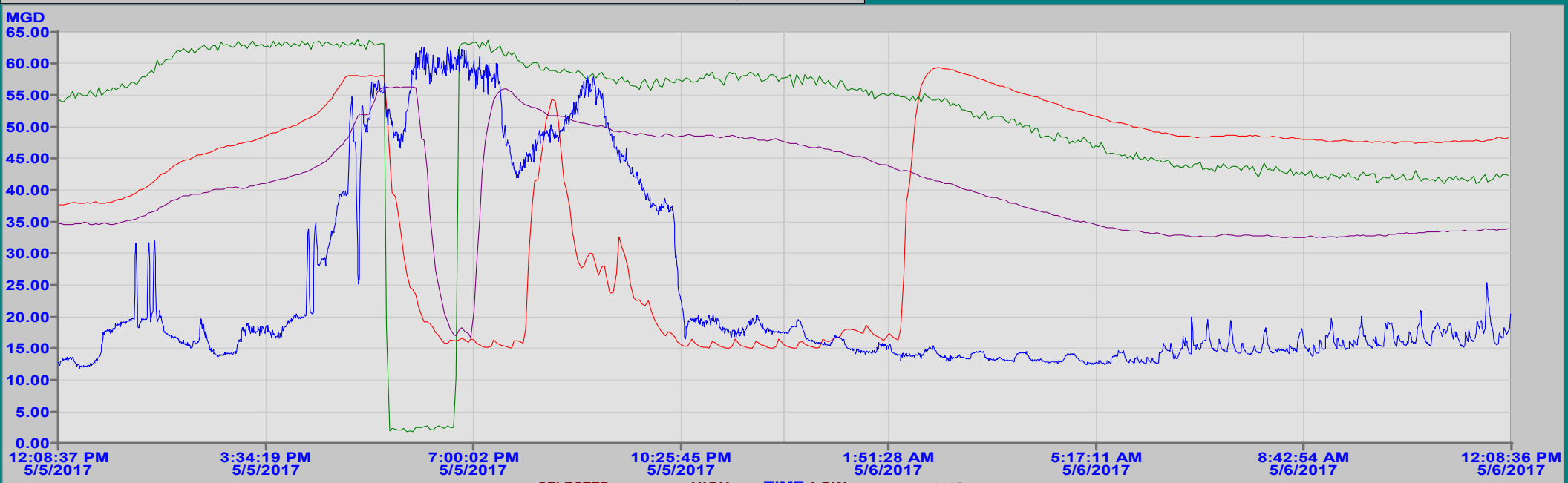
7/19/2017

12:08:44 PM

ALARMS | HISTORY MENU

MAIN MENU | MAIN PUMP STAT

INF. FLOW 7.98 MGD

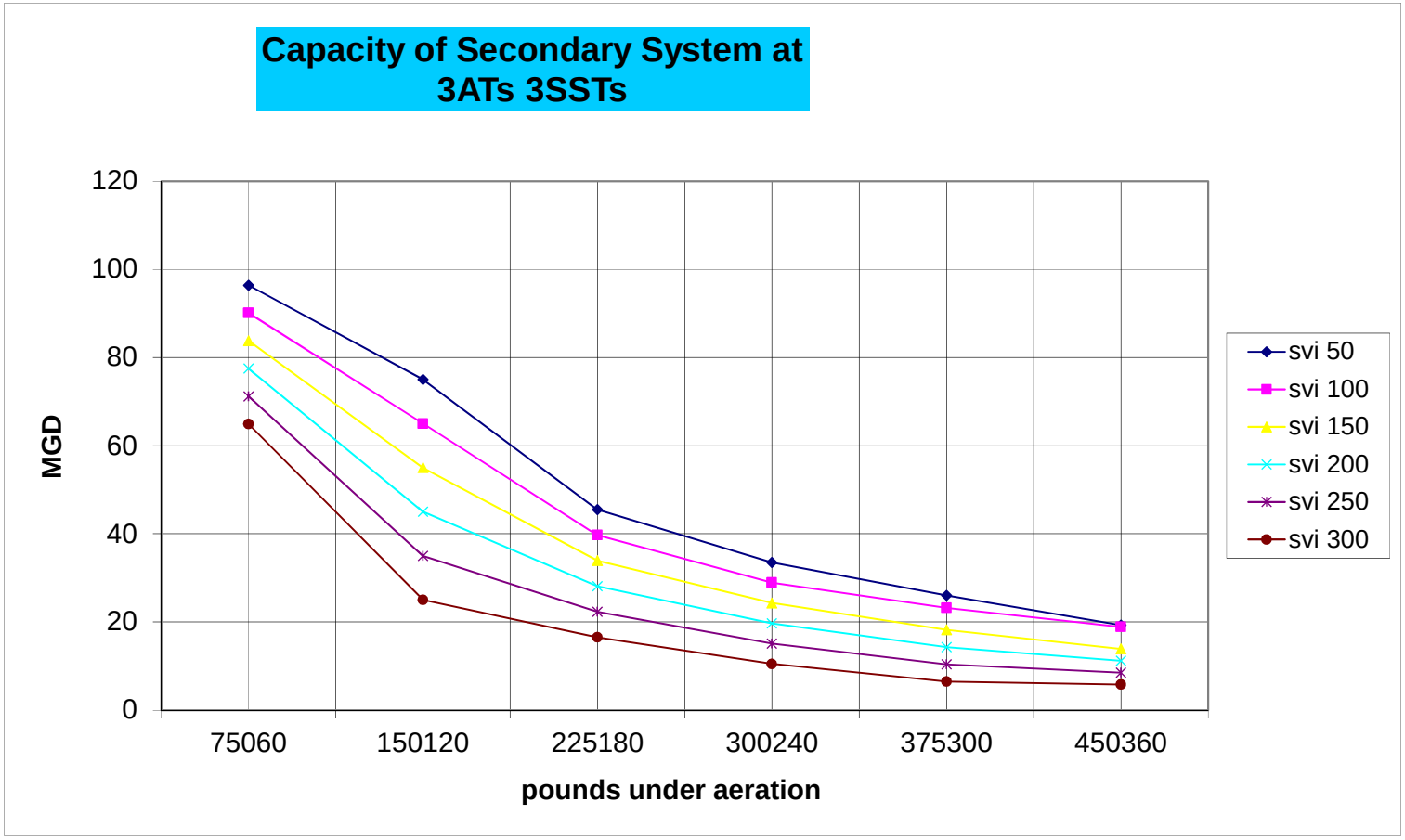


	SELECTED	HIGH	TIME LOW	AVG.
INFLUENT FLOW (F_CV)	17.35	62.59	11.75	24.27
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	14.20	15.69	0.44	12.49
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	3.83	14.62	3.69	9.66
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	11.72	13.85	4.13	9.93

◀◀ ◀ Switch to 7Days ▶ ▶▶

Ack	Time In	Date In	Description	Value	Status
	11:41:58.543	7/19/2017	GRIT CLASSIFIER 2 ZERO SPEED	NORMAL	CFN
✓	11:11:14.776	7/19/2017	SOD. HYPO TANK 2 LOW ALARM	LOW	CFN
✓	08:13:40.306	7/19/2017	MAIN ST PUMP 1 OVER TEMPERATU	OVERTEMP	CFN
✓	00:42:26.921	7/19/2017	SECONDARY CLARIFIER 1 SLDG BLA	HIGH LEVEL	CFN
✓	18:36:08.128	7/18/2017	LOWER SIPHON RIVER LEVEL HIGH	ROHIBIT CSO	CFN

Total Alarms: 12 | Filter: Off | Sort: Time In, Descending | Run



date:	5/5/2017	Flow, MG	SVI	MLSS	lbs	sr oper	setting selected, MG
bypass start time:	6:00pm	57	450	1900	152000	tr/jb	20
bypass stop time:	10:30pm	20					

BYPASS EVENT: 2017-15

HAVERHILL, MA - WWTP - DAILY LOG

Date: 05/14/17

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	Jim Bevelaqua	Lewis		
2nd	William Paszko	kevin Rutledge		
3rd	Pas/JBevi	Kevin Rutledge		
	Mark B			

WEATHER: Snowmelt
Hi: 54 Lo: 38 Ob: 45
Rain: 0.48 Snow:
Conditions: Rain snowcover

LAB

INFLUE	Q,Daily Total	MAX	MIN
	24.09	*60.49*	9.79
Q,byp	start/stop times am or pm & Q	6:AM	stop 5 pm
Q,byp	Status	inactivated	
Q,bypa	4.36	Q to 2nd	19.73

PRIMARY SCUM LEVEL: **SCREENINGS CARTS:**

	Old	New	Plant	Pump Station	Grit quty
1st	1.19	10.2	0		4 yd3
2nd	1.30	10.20	0		
3rd	1.29	7.37	0/2		

PLANT (*1600) POWER

End 1st_____KVA (06)_____KW (06)	Centrifuge:	33
End 2rd_____KVA (06)_____KW (06	Primary:	4185
End 3rd_____KVA (06)_____KW (06	Secondary:	2390
	Aeration:	0
	Total:	13549

12 Mid PUMP STATION (*450) POWER

12 Mid Start 1st _____KW(06) _____KVA(
12 Mid Start 2nd_____KW(06) _____KVA(
12 Mid Start 3rd_____KW(06) _____KVA(

COLLECTOR SPEED

	#1	#2	#3
1st___	slow	slow	slow
2nd___	slow	slow	slow
3rd___	slow	slow	slow
PSTs on-line		3	

AERATION: Dissolved Oxygen

ATs on-line 3

#1_____	AT#1 infl do avg	3.2
#3_____	AT#1 effl do avg	1.8
#4_____	AT#2 infl do avg	3.1
#6_____	AT#2 effl do avg	2.3

Gravity Thickeners DOB:

	#1	#2
1st	3	3
2nd	4	4
3rd	4	5

Torque:

	#1	#2
1st	/	/
2nd	n/a	n/a
3rd	n/a	n/a

Weekly Septage Pumped Gals

SEPTAGE LEVEL

1st_____ 5.91 ft
2nd_____ft
3rd_____ft

Cl2 vol

	Tank #1	Tank #2
1st	890	
2nd	791	
3rd		
Total	184 Gallons	

TWAS LEVELS:

	#1	#2	#3
1st	3	3	3
2nd	12	13	11
3rd	F	F	F

Dosage Setpoint

Effluent Cl2, mg/l 1.10

Inplant _____/_____/_____
_____/_____/_____

CHLORINE RESIDUAL: 0.22 mg/l

CHEMICALS:

Sodium Hypo_____ 8
Polymer dry ___ 113
Hydroxide_____ 6
Polymer liq.__ 874
Alpha Lox 15_____drums

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
9.0	8	8	7	8	7

RAS# _____ SC# _____	RAS# _____ SC# _____	RAS# _____ SC# _____	____
0.00	3.09	3.20	3.20

SECONDARY CLARIFIERS

SSTs on-line

Depth of Blankets Daily average

#1	#2	#3
10.84	10.5	8.8

DOB by Operators

	#1		#2		#3	
1st	5.0	10.0	5.0	10.0	5.0	10.0
2nd	13.0	11.0	13.0	12.0	11.0	8.0
3rd	10.0		11.0		8.0	

comments logbook for 5/14/2017
7/6/2017 11:45:47 AM

	Comment
1	5:47:00 AM CONTROL_ROOM Primary and secondary plant checks - Operating #1 DAF - Lewis here for rain event assist - Pulled ro Started bypassing at 6:AM high flow of 60 MGD and high DOB's 10's --------==----------Jbev
2	6:10:00 AM CONTROL_ROOM Flushing grit pumps ----------==--------Jbev
3	3:50:00 PM CONTROL_ROOM plant checks; MB completing weekend lab work; KR staying over the entire shift for a rain event; flu and step screens in HAND modes; Secondary By-Pass activated thru the shift, lowered by-pass limit #2; started and completed DAF lab work; shut down DAF #1 at 12 Noon, near full TWAS tanks; em hypo residual at 10 am and .22 mg/l hypo residual at 3 pm; observed River Level rising on the CSO Station at 3:30 pm, recorded the RL at 9.13' and the WW level at 4.75', pumped down the wet well fo carts; wp
4	5:13:00 PM CONTROL_ROOM out of Secondary By-Pass at 5 pm; called in Mark Brasier to assist JBevi during shift change; wp

BYPASS MULTI TREND

CITY OF HAVERHILL, MA - WWTF

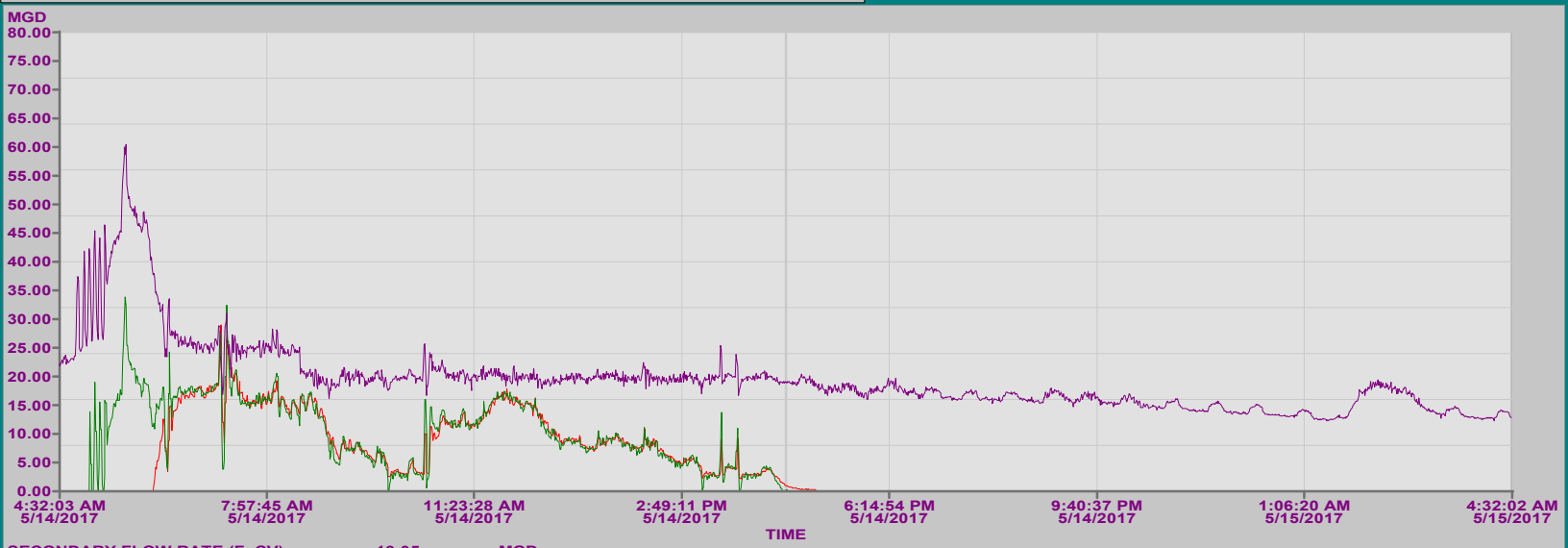
LOGIN

7/6/2017

10:32:18 AM

ALARMS | HISTORY MENU

MAIN MENU | BYPASS



SECONDARY FLOW RATE (F_CV)	19.05	MGD
BYPASS FLOW (F_CV)	1.06	MGD
BYPASS FLOW AUTO SP (F_CV)	0.12	MGD
BYPASS CHLORINE (F_CV)	0.00	PPM

◀◀ | ◀ | Switch to 7Days | ▶ | ▶▶

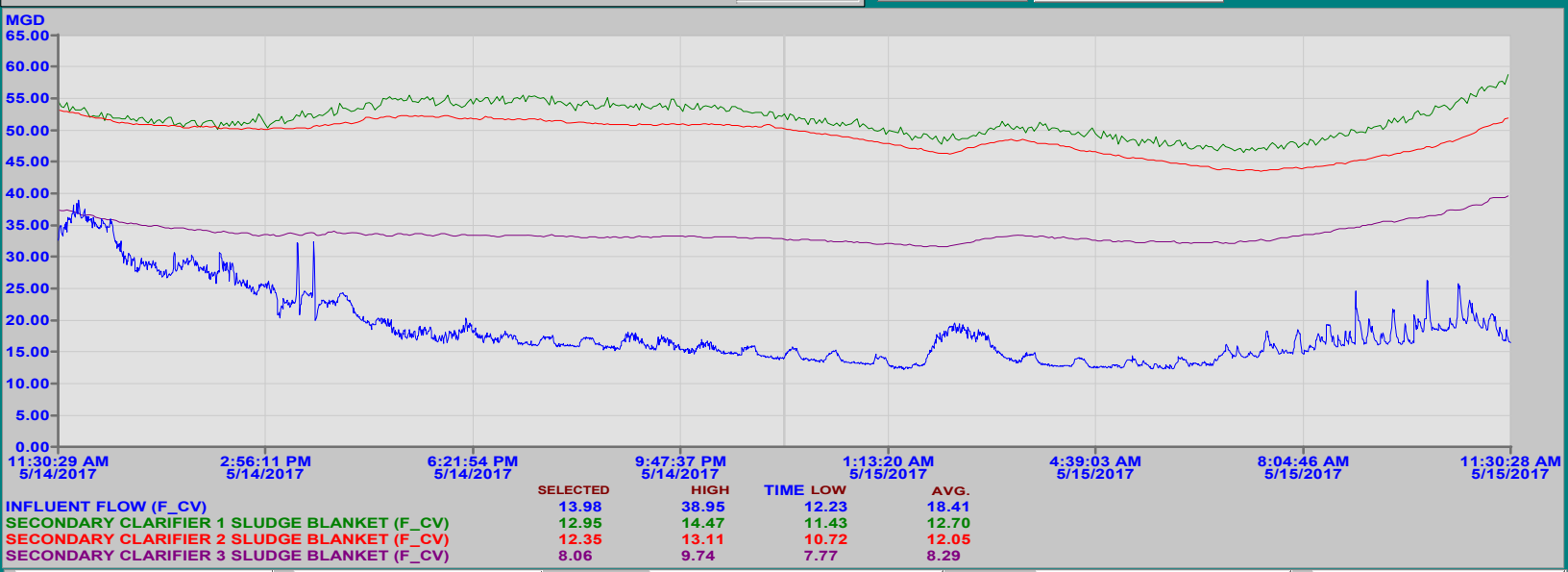
PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

LOGIN | 7/6/2017 | 11:30:34 AM

ALARMS | HISTORY MENU | MAIN MENU | MAIN PUMP STAT

INF. FLOW 10.76 MGD

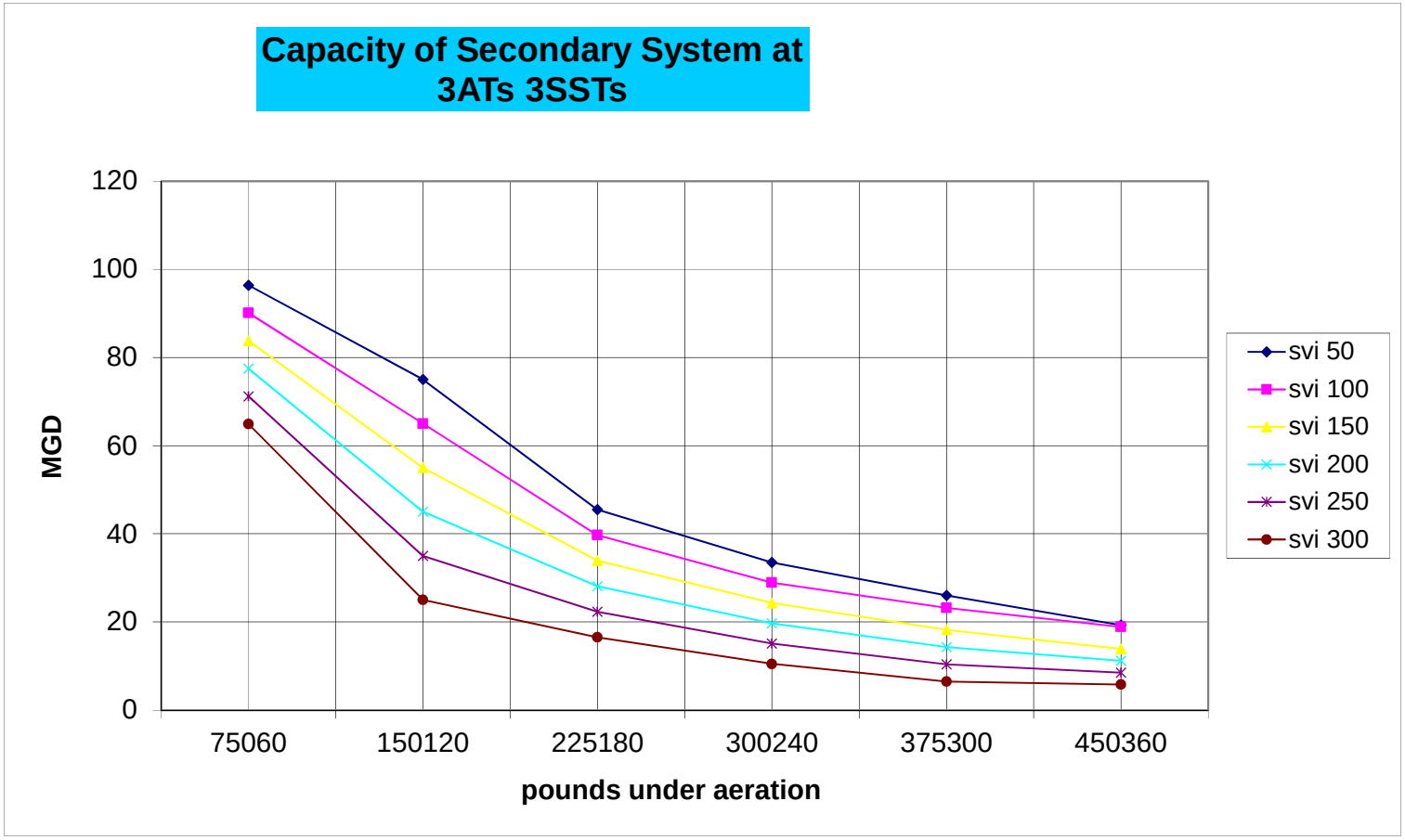


	SELECTED	HIGH	TIME LOW	AVG.
INFLUENT FLOW (F_CV)	13.98	38.95	12.23	18.41
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	12.95	14.47	11.43	12.70
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	12.35	13.11	10.72	12.05
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	8.06	9.74	7.77	8.29

◀◀ | ◀ | Switch to 7Days | ▶ | ▶▶

Ack	Time In	Date In	Description	Value	Status
	11:17:50.112	7/6/2017	GRIT CLASSIFIER 2 ZERO SPEED	NORMAL	CFN
✓	08:14:50.377	7/5/2017	GRIT CLASSIFIER 1 LOW FLOW	LOW FLOW	CFN
✓	11:59:52.394	7/3/2017	SECONDARY CLARIFIER 1 SLDG BLA	HIGH LEVEL	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 MOTOR HIGH T	HIGH TEMP	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 DISCH HIGH TE	HIGH TEMP	CFN

Total Alarms: 6 | Filter: Off | Sort: Time In, Descending | Run



date:	5/14/2017	Flow, MG	SVI	MLSS	lbs	sr oper	setting selected, MG
bypass start time:	6:00am	40	380	1535	145000	bp/jb	20-25
bypass stop time:	5:00pm	20					

BYPASS EVENT: 2017-16

HAVERHILL, MA - WWTP - DAILY LOG

Date: 06/06/17

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	William Paszko	Walter Alce	Norm Paquette	
2nd	Jim Bevelaqua		Norm Paquette	Alce
3rd	Lewis/Bev/Paszko		Waino Waisanen	

WEATHER: Snowmelt
Hi: 55 Lo: 48 Ob: 48
Rain: 0.97 Snow:
Conditions: Rain snowcover

LAB

INFLUE	Q,Daily Total	MAX	MIN
	28.14	*65.00*	16.04
Q,byp	start/stop times am or pm & Q	ırt 12:45 am /3:30pm	3:35 am/ 5:30pm
Q,byp	Status	activated	
Q,bypa	2.09	Q to 2nd	26.05

PRIMARY SCUM LEVEL:

	Old	New	Plant	Pump Station	Grit quty
1st	1.20	7.62	2/4		6 yd3
2nd	1.2	4.48	4	2	
3rd	1.20	6.00	4	2	

SCREENINGS CARTS:

PLANT (*1600) POWER

Centrifuge:	475
Primary:	5253
Secondary:	2078
Aeration:	0
Total:	15796

End 1st_____KVA (06)_____KW (06)
End 2rd_____KVA (06)_____KW (06
End 3rd_____KVA (06)_____KW (06

12 Mid PUMP STATION (*450) POWER

12 Mid Start 1st _____KW(06) _____KVA(
12 Mid Start 2nd_____KW(06) _____KVA(
12 Mid Start 3rd_____KW(06) _____KVA(

COLLECTOR SPEED

	#1	#2	#3
1st___	slow	slow	slow
2nd___	slow	slow	slow
3rd___	slow	slow	slow

PSTs on-line 3

AERATION: Dissolved Oxygen

ATs on-line 3

#1_____	AT#1 infl do avg	4.0
#3_____	AT#1 effl do avg	2.6
#4_____	AT#2 infl do avg	4.0
#6_____	AT#2 effl do avg	2.6

Gravity Thickeners DOB:

	#1	#2
1st	6	6
2nd	8	5
3rd	6	6

Torque:

	#1	#2
1st	n/a	n/a
2nd	/	/
3rd	n/a	n/a

Weekly Septage Pumped Gals

SEPTAGE LEVEL

1st_____ 7.68 ft
2nd_____ft
3rd_____ft

Cl2 vol

	Tank #1	Tank #2
1st		2843
2nd		2773
3rd		
Total	286 Gallons	

TWAS LEVELS:

	#1	#2	#3
1st	5	6	13
2nd	9	10	14
3rd	6	9	10

Dosage Setpoint

Effluent Cl2, mg/l 1.45

Inplant _____/_____/_____
_____/_____/_____

CHLORINE RESIDUAL: 0.46 mg/l

CHEMICALS:

Sodium Hypo_____ 14
Polymer dry ___ 113
Hydroxide_____ 22
Polymer liq.__ 1326
Alpha Lox 15_____drums

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
6.0	5	3	4	6.2	5.8

RAS# _____ SC# _____	RAS# _____ SC# _____	RAS# _____ SC# _____	____
0.00	2.56	2.90	2.90

SECONDARY CLARIFIERS

SSTs on-line 3

Depth of Blankets Daily average

#1	#2	#3
11.82	11.0	6.0

DOB by Operators

	#1		#2		#3	
1st	6.0	12.0	4.0	13.0	3.0	5.0
2nd	6.0	5.0	11.0	9.0	3.0	4.0
3rd	13.0		14.0		10.0	

comments logbook for 6/6/2017
7/6/2017 11:46:17 AM

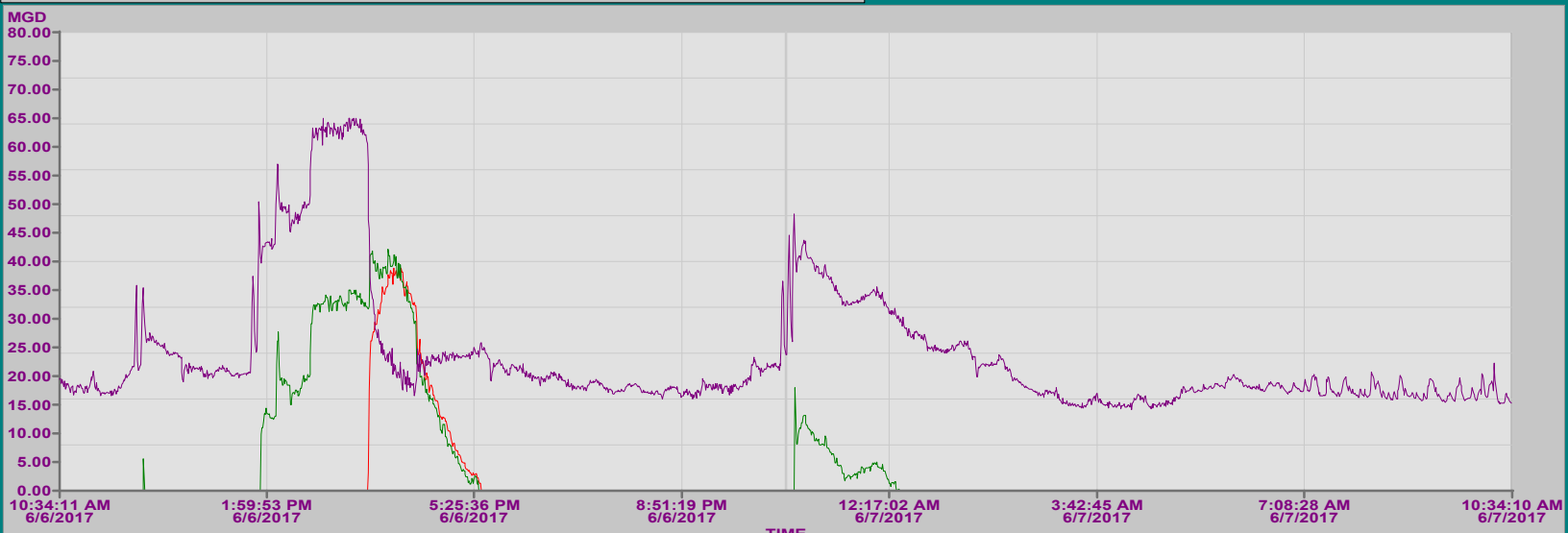
	Comment
1	6:08:00 AM CONTROL_ROOM weather info; collected composite samples; plant checks; chemical inv; operating DAF #2 thru the mode; step screens in local modes; Walter Alce on shift for assistance; increased RAS rates at 12 n shift; emptied grit hopper thru the shift; flushed Grit Pump #1 thru the shift; started Secondary By P increased hypo dosage as per By Pass requirements; .47 mg/l hypo residual at 5 am; flushed Prima
2	12:46:00 PM CONTROL_ROOM Primary and secondary plant checks - Operating #2 centrifuge and #2 DAF - Pump station check - Cl
3	2:28:00 PM CONTROL_ROOM Scheduling for 3-11 rain event assist, Jbev / Paszko----==------Jbev
4	8:50:00 PM CONTROL_ROOM Primary and Secondary Plant Checks, Operating #2 DAF, Shutting Down #2 Centrifuge, Finished Ble Local Mode, Activated Secondary Bypass at 3:30pm - Washout, SC Gate Adjustments, Out of Bypass

BYPASS MULTI TREND

CITY OF HAVERHILL, MA - WWTF

LOGIN | 7/6/2017 | 10:34:18 AM

ALARMS | HISTORY MENU | MAIN MENU | BYPASS



SECONDARY FLOW RATE (F_CV)	23.83	MGD
BYPASS FLOW (F_CV)	0.00	MGD
BYPASS FLOW AUTO SP (F_CV)	0.00	MGD
BYPASS CHLORINE (F_CV)	0.00	PPM

◀◀ | ◀ | Switch to 7Days | ▶ | ▶▶

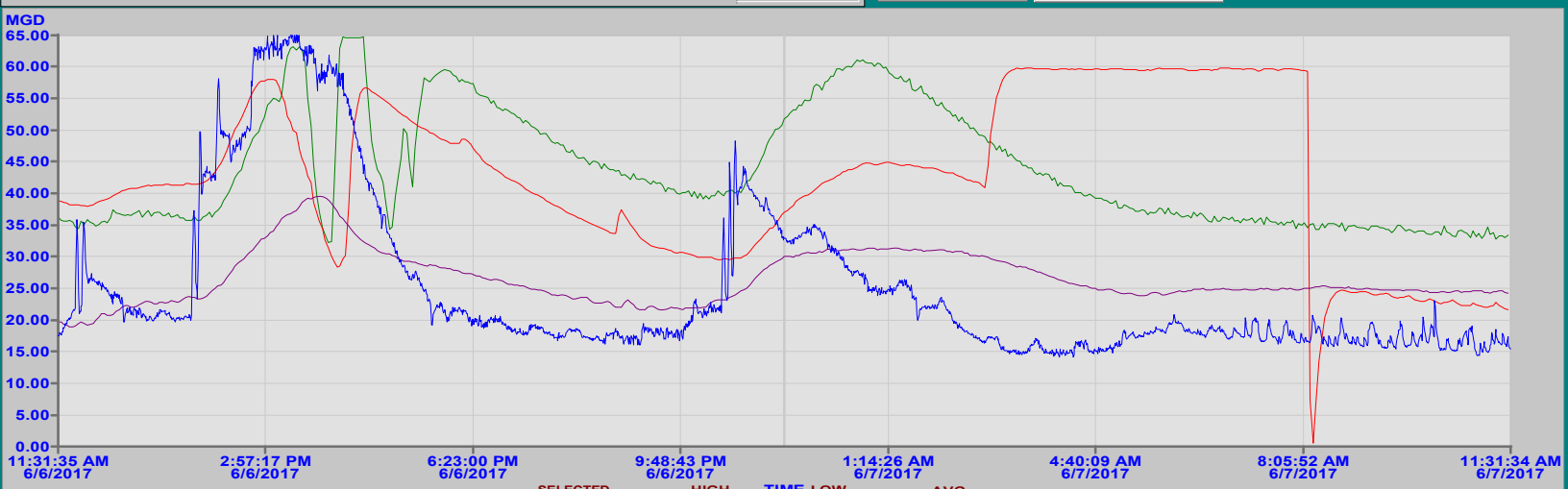
PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

LOGIN | 7/6/2017 | 11:31:39 AM

ALARMS | HISTORY MENU | MAIN MENU | MAIN PUMP STAT

INF. FLOW 10.81 MGD

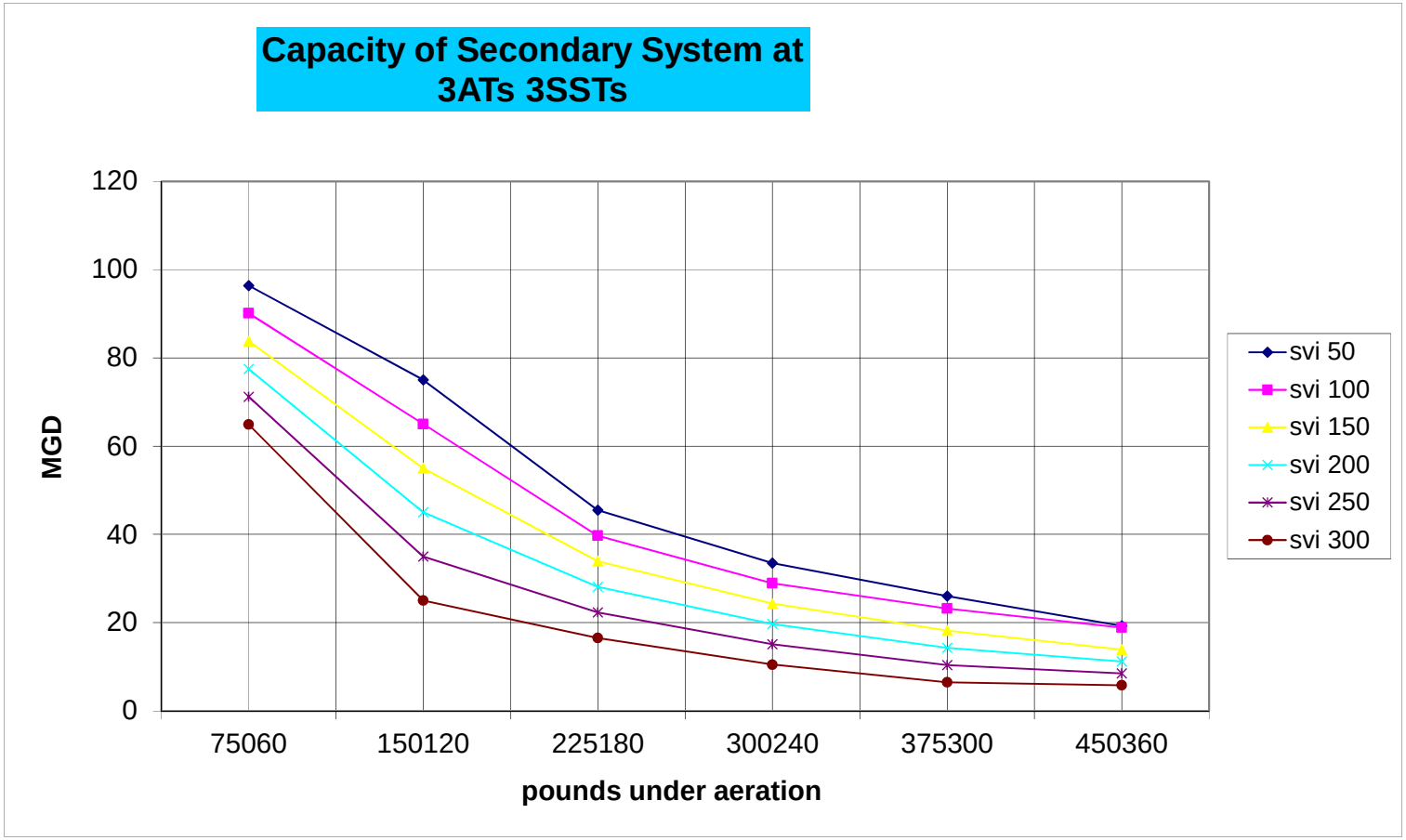


	SELECTED	HIGH	TIME LOW	AVG.
INFLUENT FLOW (F_CV)	32.97	65.00	14.13	25.09
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	12.74	15.91	7.93	10.81
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	9.10	14.73	0.12	10.52
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	7.39	9.71	4.66	6.55

◀◀ | ◀ | Switch to 7Days | ▶ | ▶▶

Ack	Time In	Date In	Description	Value	Status
✓	08:14:50.377	7/5/2017	GRIT CLASSIFIER 1 LOW FLOW	LOW FLOW	CFN
✓	11:59:52.394	7/3/2017	SECONDARY CLARIFIER 1 SLDG BLA	HIGH LEVEL	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 MOTOR HIGH T	HIGH TEMP	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 DISCH HIGH TE	HIGH TEMP	CFN
✓	08:32:11.603	6/29/2017	GRIT CLASSIFIER 1 PULL CORD	PULL CORD	CFN

Total Alarms: 7 | Filter: Off | Sort: Time In, Descending | Run



date:	6/6/2017	Flow, MG	SVI	MLSS	lbs	sr oper	setting selected, MG
bypass start time:	12:50am	50	220	1460	152000	il/jb/bp	20-35
bypass stop time:	5:30pm	26					

BYPASS EVENT: 2017-17

HAVERHILL, MA - WWTP - DAILY LOG

Date: 06/27/17

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	William Paszko		Norm Paquette	
2nd	Thomas Riley	Tom Riley	Norm Paquette	Kevin Rutledge
3rd	Jim Bevelaqua		Waino Waisanen	
	Brasier/Walter			

WEATHER: Snowmelt
Hi: 77 Lo: 55 Ob: 55
Rain: Snow:
Conditions: artly Cloudy snowcover

LAB

INFLUE	Q,Daily Total	MAX	MIN
	17.59	*62.23*	5.97
Q,byp	start/stop times am or pm & Q	start 5:15 pm	stop 9;00 pm
Q,byp	Status	activated	
Q,bypa	2.49	Q to 2nd	15.10

PRIMARY SCUM LEVEL:

	Old	New
1st	1.31	5.29
2nd	1.31	5.58
3rd	2.6	6.20

SCREENINGS CARTS:

	Plant	Pump Station	Grit quty
	2		9 yd3
	2	3	
	3	3	

PLANT (*1600) POWER 5;15

End 1st	KVA (06)	KW (06)
End 2rd	KVA (06)	KW (06
End 3rd	KVA (06)	KW (06

Centrifuge:	437	12 Mid
Primary:	5558	12 Mid
Secondary:	3539	12 Mid
Aeration:	0	12 Mid
Total:	18202	

PUMP STATION (*450) POWER

Start 1st	KW(06)	KVA(
Start 2nd	3.73	3.82
Start 3rd	KW(06)	KVA(

COLLECTOR SPEED

	#1	#2	#3
1st	slow	slow	slow
2nd	slow	slow	slow
3rd	slow	slow	slow

PSTs on-line 3

AERATION: Dissolved Oxygen

ATs on-line 3

#1	AT#1 infl do avg	3.0
#3	AT#1 effl do avg	2.3
#4	AT#2 infl do avg	2.3
#6	AT#2 effl do avg	2.0

Gravity Thickeners DOB:

	#1	#2
1st	4	2
2nd	6	3
3rd	5	3

Torque:

#1	#2
n/a	n/a
/	/

Weekly Septage Pumped Gals

SEPTAGE LEVEL

1st	8.97	ft
2nd		ft
3rd	6.4	

Cl2 vol

	Tank #1	Tank #2
1st	532	
2nd	423/2193	3333
3rd	1990	
Total	361	Gallons

TWAS LEVELS:

	#1	#2	#3
1st	3	5	8
2nd	4	11	12
3rd	4	5	9

Dosage Setpoint

Effluent Cl2, mg/l 1.45

Inplant _____/_____/_____
_____/_____/_____

CHLORINE RESIDUAL: 0.32 mg/l

CHEMICALS:

Sodium Hypo	11	Polymer dry	279
		Hydroxide	17
Polymer liq.	2636		
Alpha Lox 15	drums		

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
6.0	3	6.9	6.9	6.4	6.5

RAS#	SC#	RAS#	SC#	RAS#	SC#	
0.00		2.91		2.98		2.98

SECONDARY CLARIFIERS

SSTs on-line 3

Depth of Blankets

#1	#2	#3	Daily average
12.01	9.1	9.1	

DOB by Operators

	#1		#2		#3	
1st	7.0	7.0	8.0	7.0	7.0	7.0
2nd	7.0	9.0	8.0	9.0	8.0	8.0
3rd	11.0	13.0	11.0	13.0	10.0	12.0

comments logbook for 6/27/2017
7/6/2017 11:46:42 AM

	Comment
1	6:05:00 AM CONTROL_ROOM weather info; collected composite samples; plant checks; chemical inv; operating DAF #2 thru the modes; adding hypo to both GT's with Hypo Pump #5; emptied grit hopper; .41 mg/l hypo residual a
2	8:37:00 AM CONTROL_ROOM Plant checks, switching WAs pumps(LAST DONE 6-12-17) , valving all flow for 2hrs to #3 AT to see cleaning GT weirs, AT -DO probes, tjr
3	10:50:00 AM CONTROL_ROOM Pump Station checked, spread dry hypo around leaking collection system dumpster/ near Gt's per jes
4	2:59:00 PM CONTROL_ROOM At gates all back to normal, no luck with scom blanket in channel, 2nd set blankets, T-Storms movein screens in local/constant, recieved 5100gal. Hypo ., final readings, tjr
5	4:31:00 PM CONTROL_ROOM Primary and secondary plant checks - Started solids lab - Heavy rain, thunder showers -Changed scr water pump cone valve failure to open, pump station check and reset cone valve, 3:15 PM , three pu --==----Jbev
6	8:07:00 PM CONTROL_ROOM Started bypassing at 5:15 PM, flow 60 MGD, very heavy rain - Completed centrifuge run and started flushed - Operating #1 primary scum tipper manually , to much FOG's - Finished solids lab -----==-----

BYPASS MULTI TREND

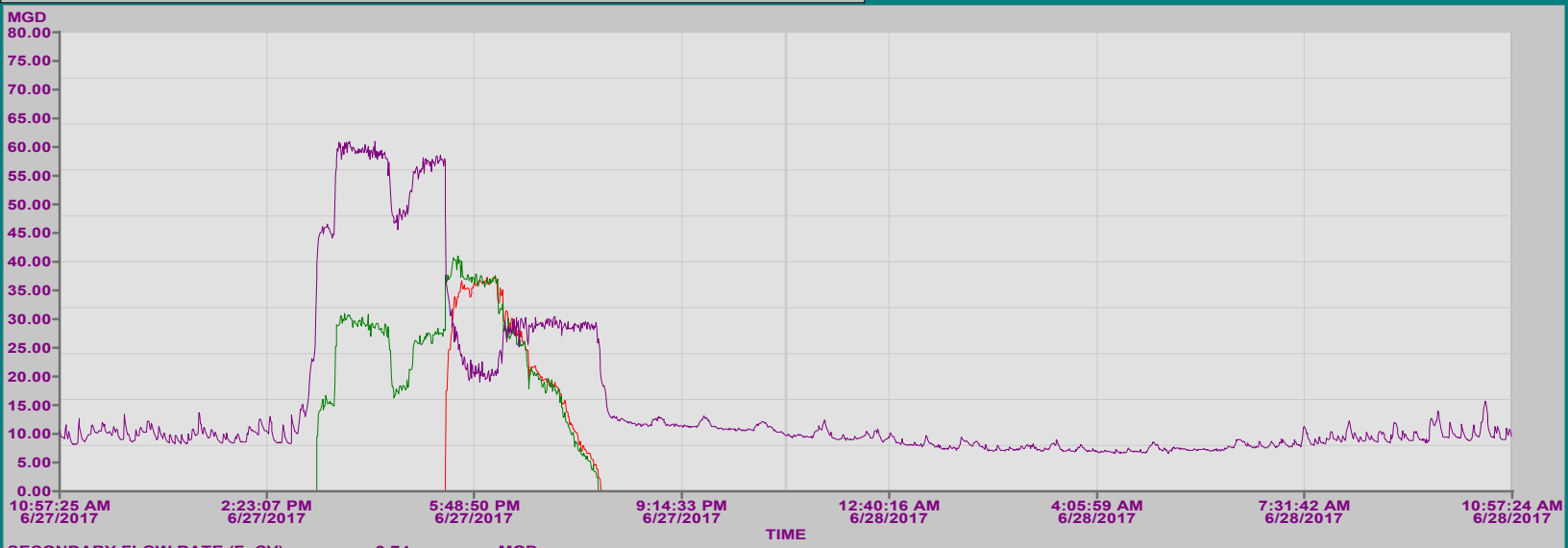
CITY OF HAVERHILL, MA - WWTF

LOGIN

7/6/2017

10:57:30 AM

ALARMS | HISTORY MENU | MAIN MENU | BYPASS



SECONDARY FLOW RATE (F_CV)	9.74	MGD
BYPASS FLOW (F_CV)	0.00	MGD
BYPASS FLOW AUTO SP (F_CV)	0.00	MGD
BYPASS CHLORINE (F_CV)	0.00	PPM

◀◀ ◀ Switch to 7Days ▶ ▶▶

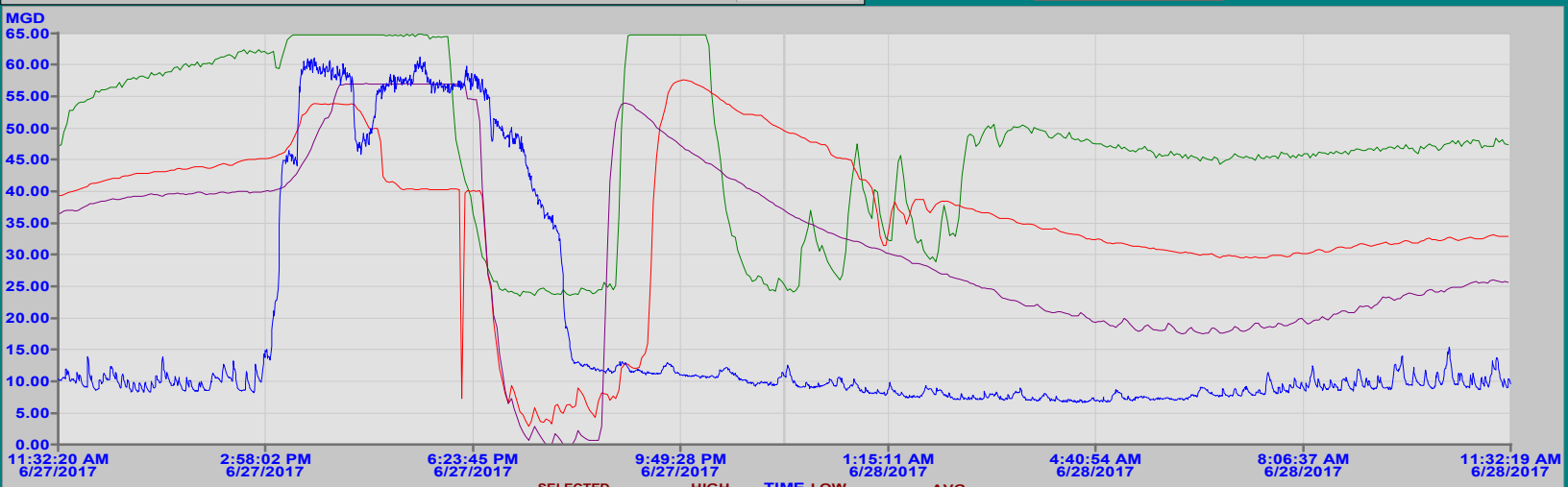
PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

LOGIN | 7/6/2017 | 11:32:24 AM

ALARMS | HISTORY MENU | MAIN MENU | MAIN PUMP STAT

INF. FLOW 10.00 MGD

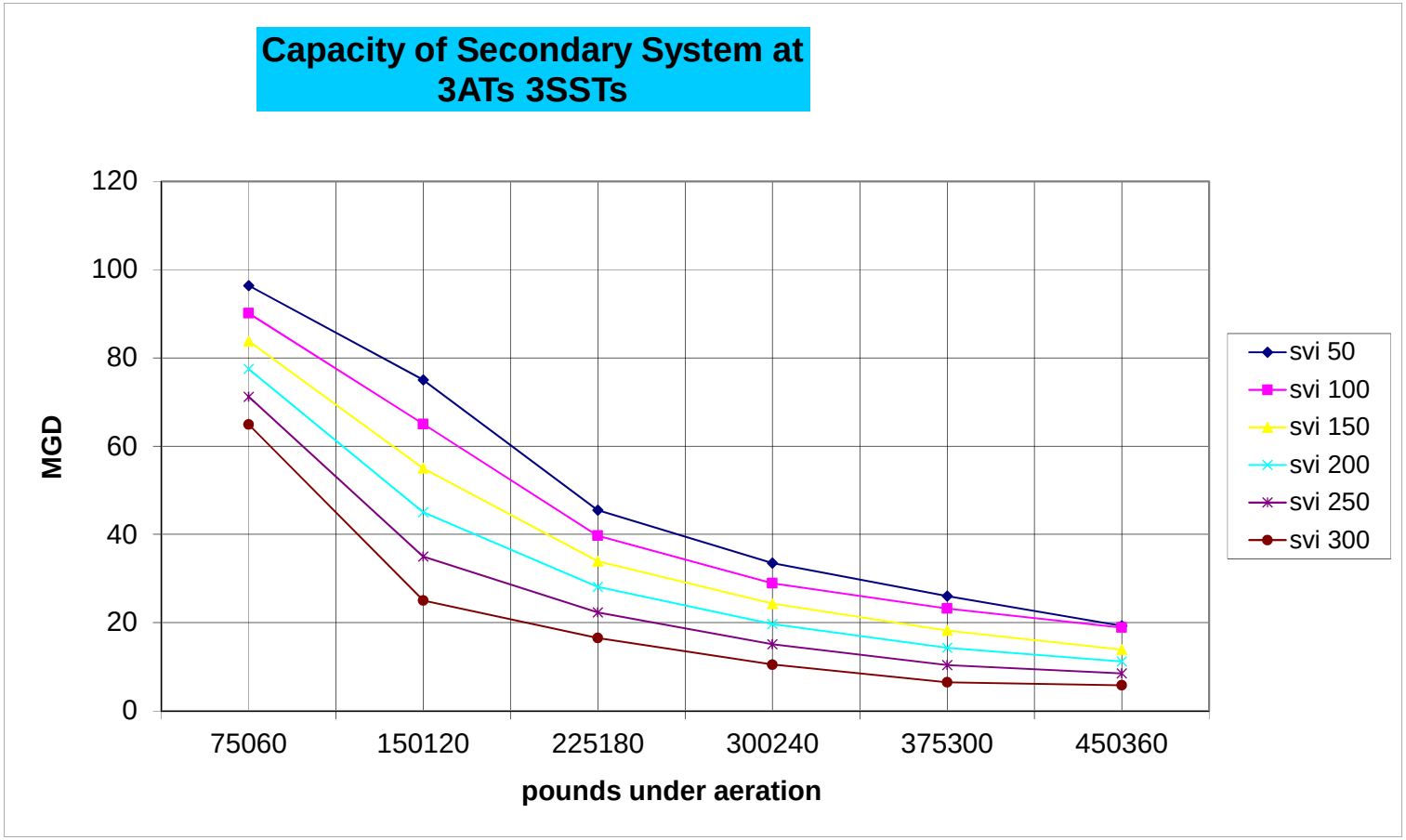


	SELECTED	HIGH	TIME LOW	AVG.
INFLUENT FLOW (F_CV)	10.85	61.18	6.64	17.91
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	6.22	15.96	5.78	11.62
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	12.20	14.18	0.72	8.88
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	9.11	14.03	0.00	7.72

◀◀ | ◀ | Switch to 7Days | ▶ | ▶▶

Ack	Time In	Date In	Description	Value	Status
✓	08:14:50.377	7/5/2017	GRIT CLASSIFIER 1 LOW FLOW	LOW FLOW	CFN
✓	11:59:52.394	7/3/2017	SECONDARY CLARIFIER 1 SLDG BLA	HIGH LEVEL	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 MOTOR HIGH T	HIGH TEMP	CFN
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 DISCH HIGH TE	HIGH TEMP	CFN
✓	08:32:11.603	6/29/2017	GRIT CLASSIFIER 1 PULL CORD	PULL CORD	CFN

Total Alarms: 7 | Filter: Off | Sort: Time In, Descending | Run



date:	6/27/2017	Flow, MG	SVI	MLSS	lbs	sr oper	setting selected, MG
bypass start time:	5:20pm	57	490	1840	144000	jb	20-30
bypass stop time:	7:50pm	29					

BYPASS EVENT: 2017-18

HAVERHILL, MA - WWTP - DAILY LOG

Date: 06/30/17

	SENIOR OPERATOR:	Primary Operator:	Centrifuge	Secondary Operator
1st	William Paszko			
2nd	Thomas Riley	Walter Alce	kevin Rutledge	Tom Riley
3rd	Isaiah Lewis	Kevin Rutledge	Waino Waisanen	

WEATHER: Snowmelt
Hi: 76 Lo: 57 Ob: 68
Rain: Snow:
Conditions: Clear snowcover

LAB

INFLUE	Q,Daily Total	MAX	MIN
	14.76	*64.56*	5.68

Q,byp start/stop times am or pm & Q
Q,byp Status inactivated
Q,bypa 1.89 Q to 2nd 12.87

PRIMARY SCUM LEVEL: **SCREENINGS CARTS:**

	Old	New	Plant	Pump Station	Grit quty
1st	1.18	4.91	0		16 yd3
2nd	1.18	6.48	0		
3rd	1.09	8.13	0/1		

PLANT (*1600) POWER

End 1st_____KVA (06)_____KW (06)
End 2rd_____KVA (06)_____KW (06
End 3rd_____KVA (06)_____KW (06

Centrifuge:	431
Primary:	5579
Secondary:	3172
Aeration:	0
Total:	17995

12 Mid **PUMP STATION (*450) POWER**
12 Mid Start 1st _____KW(06) _____KVA(
12 Mid Start 2nd_ 3.88 4.00
12 Mid Start 3rd_____KW(06) _____KVA(

COLLECTOR SPEED

	#1	#2	#3
1st___	slow	slow	slow
2nd___	slow	slow	slow
3rd___	slow	slow	slow

PSTs on-line 3

AERATION: Dissolved Oxygen

ATs on-line 3

#1_____	AT#1 infl do avg	3.1
#3_____	AT#1 effl do avg	2.4
#4_____	AT#2 infl do avg	3.5
#6_____	AT#2 effl do avg	2.3

Gravity Thickeners DOB: **Torque:**

	#1	#2	#1	#2
1st	4	3	n/a	n/a
2nd	6	5		
3rd	6	3	n/a	n/a

Weekly Septage Pumped Gals

SEPTAGE LEVEL
1st_____ 6.36 ft
2nd_____ft
3rd_____ft

Cl2 vol	Tank #1	Tank #2
1st	1268	
2nd	1172	
3rd	1034	
Total	365	Gallons

TWAS LEVELS:

	#1	#2	#3
1st	0	3	3
2nd	3	5	7
3rd	1	4	5

Dosage Setpoint
Effluent Cl2, mg/l 1.30

Inplant _____/_____/_____
_____/_____/_____

CHLORINE RESIDUAL: 0.49 mg/l

CHEMICALS:
Sodium Hypo_____ 11
Polymer dry __ 266
Hydroxide_____ 17
Polymer liq.__ 2446
Alpha Lox 15_____drums

SECONDARY SCUM:

#1	#2	#1	#2	#1	#2
6.0	6	5	5.5	7.6	7.1

RAS# _____ SC# _____	RAS# _____ SC# _____	RAS# _____ SC# _____	____
0.00	2.41	2.40	2.40

SECONDARY CLARIFIERS
SSTs on-line 3

Depth of Blankets Daily average

#1	#2	#3
12.14	7.3	7.4

DOB by Operators

	#1		#2		#3	
1st	8.0	7.0	6.0	5.0	6.0	5.0
2nd	7.0	7.0	5.0	7.0	5.0	7.0
3rd	7.0	7.0	7.0	7.0	7.0	7.0

comments logbook for 6/30/2017
7/6/2017 11:47:01 AM

	Comment
1	6:10:00 AM CONTROL_ROOM weather info; collected composite samples; plant checks; chemical inv; operating DAF #2 thru the modes; emptied grit hopper; adding hypo to both GT's; sludge hauler in at 4:45 am; Main Street LS .72 mg/l hypo residual at 5 am, lowered hypo dosage to 1.30 mg/l from 1.35 mg/l; wp
2	10:02:00 AM CONTROL_ROOM Plant check completed, DAF + centrifuge running, pumped primary scum, slowed DAF down for 24/7 of our schedule for weekend + next week, Grit will be picked up today or tomorrow, Bradford welding Waino called/ said he also had problem with leveling screw in sludge garage shutting off when Lid-Sv yesterday and should be looked at as a program flaw. Everything else (sludge pumps and conveyors in garage !!!!, Pingree has not found and problems electricly, tjr
3	11:10:00 PM CONTROL_ROOM Plant Checks, Operating #2 DAF, Shut Down Centrifuge, Flushed TPS Pumps, Step Screens and Ba for High Flows, Reset #3 WW Pump Cone Valve Failure - Pump would only run in first lag position, C Step Screen #2, Finished Solids Lab, Scheduled J Bev for 11-7a rain, Marginal Station Checks, #2 P Flush, Closed Inlet Gates to #2 PT and Shut off Chain and flights, Bypassing @ 9:30pm, Final Readi

BYPASS MULTI TREND

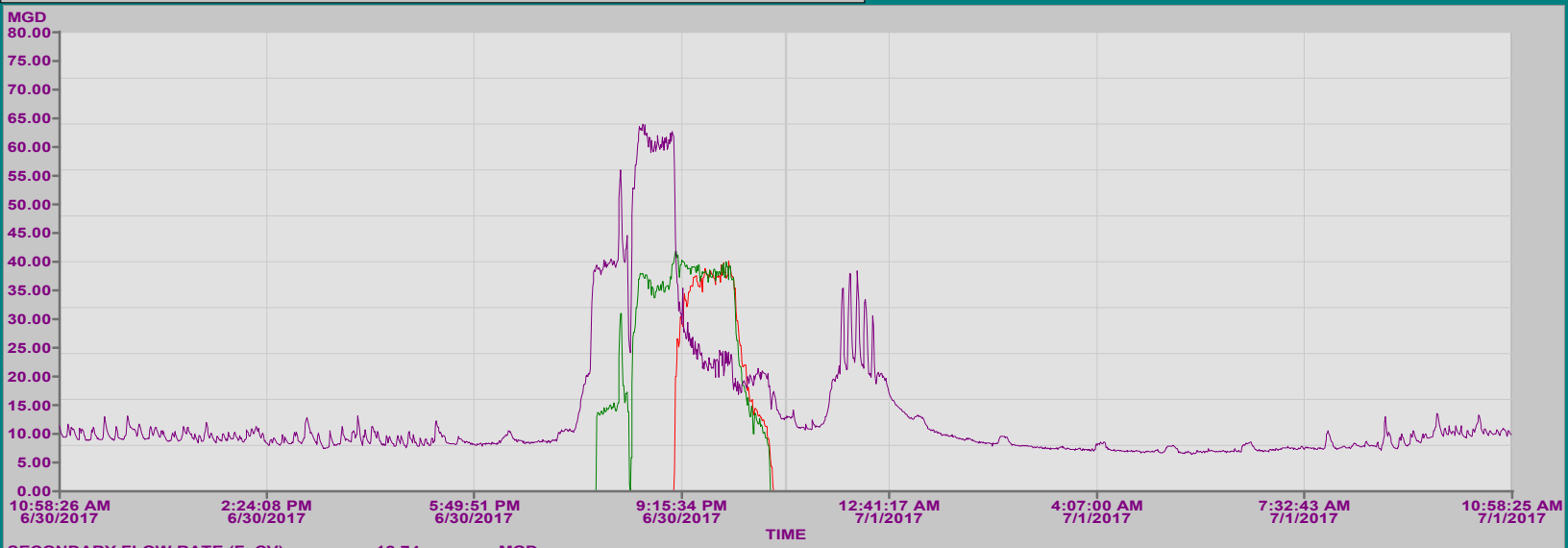
CITY OF HAVERHILL, MA - WWTF

LOGIN

7/6/2017

10:58:29 AM

ALARMS | HISTORY MENU | MAIN MENU | BYPASS



SECONDARY FLOW RATE (F_CV)	12.74	MGD
BYPASS FLOW (F_CV)	0.00	MGD
BYPASS FLOW AUTO SP (F_CV)	0.00	MGD
BYPASS CHLORINE (F_CV)	0.00	PPM

◀◀ ◀ Switch to 7Days ▶ ▶▶

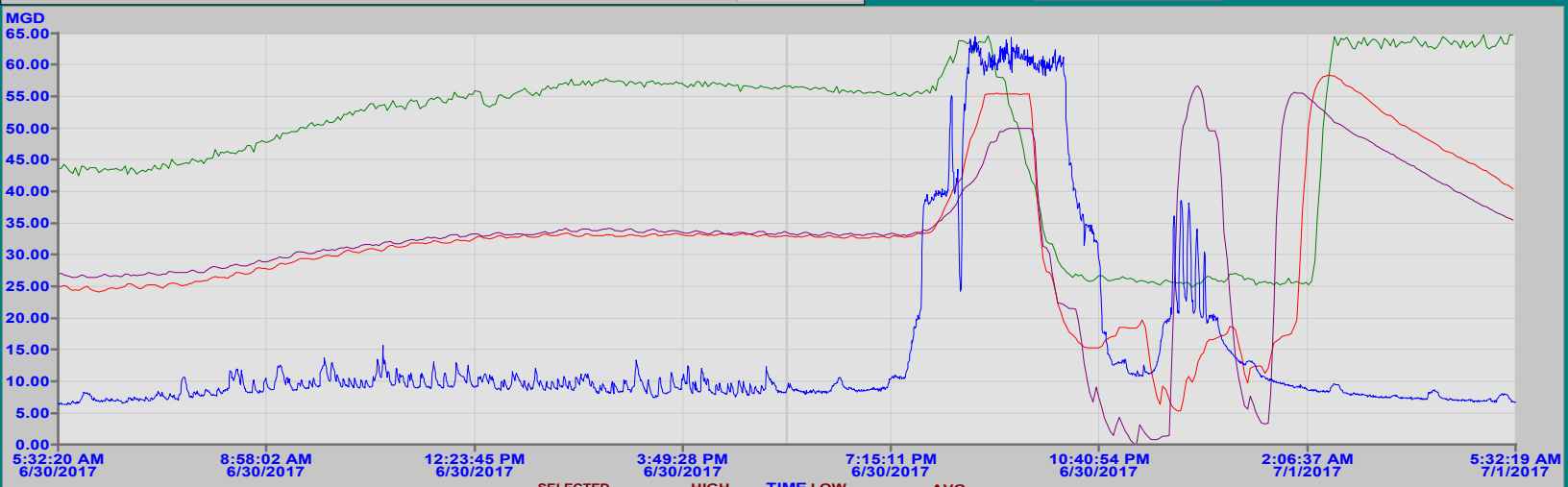
PLANT INFLUENT FLOW

CITY OF HAVERHILL, MA - WWTF

LOGIN | 7/6/2017 | 11:32:54 AM

ALARMS | HISTORY MENU | MAIN MENU | MAIN PUMP STAT

INF. FLOW 9.63 MGD



	SELECTED	HIGH	TIME LOW	AVG.
INFLUENT FLOW (F_CV)	8.60	64.48	6.30	15.08
SECONDARY CLARIFIER 1 SLUDGE BLANKET (F_CV)	13.93	15.92	6.12	12.12
SECONDARY CLARIFIER 2 SLUDGE BLANKET (F_CV)	8.13	14.36	1.31	7.89
SECONDARY CLARIFIER 3 SLUDGE BLANKET (F_CV)	8.24	13.94	0.01	8.03

◀◀ | ◀ | Switch to 7Days | ▶ | ▶▶

Ack	Time In	Date In	Description	Value	Status
✓	08:14:50.377	7/5/2017	GRIT CLASSIFIER 1 LOW FLOW	LOW FLOW	CFN
✓	11:59:52.394	7/3/2017	SECONDARY CLARIFIER 1 SLDG BLA	HIGH LEVEL	CFN
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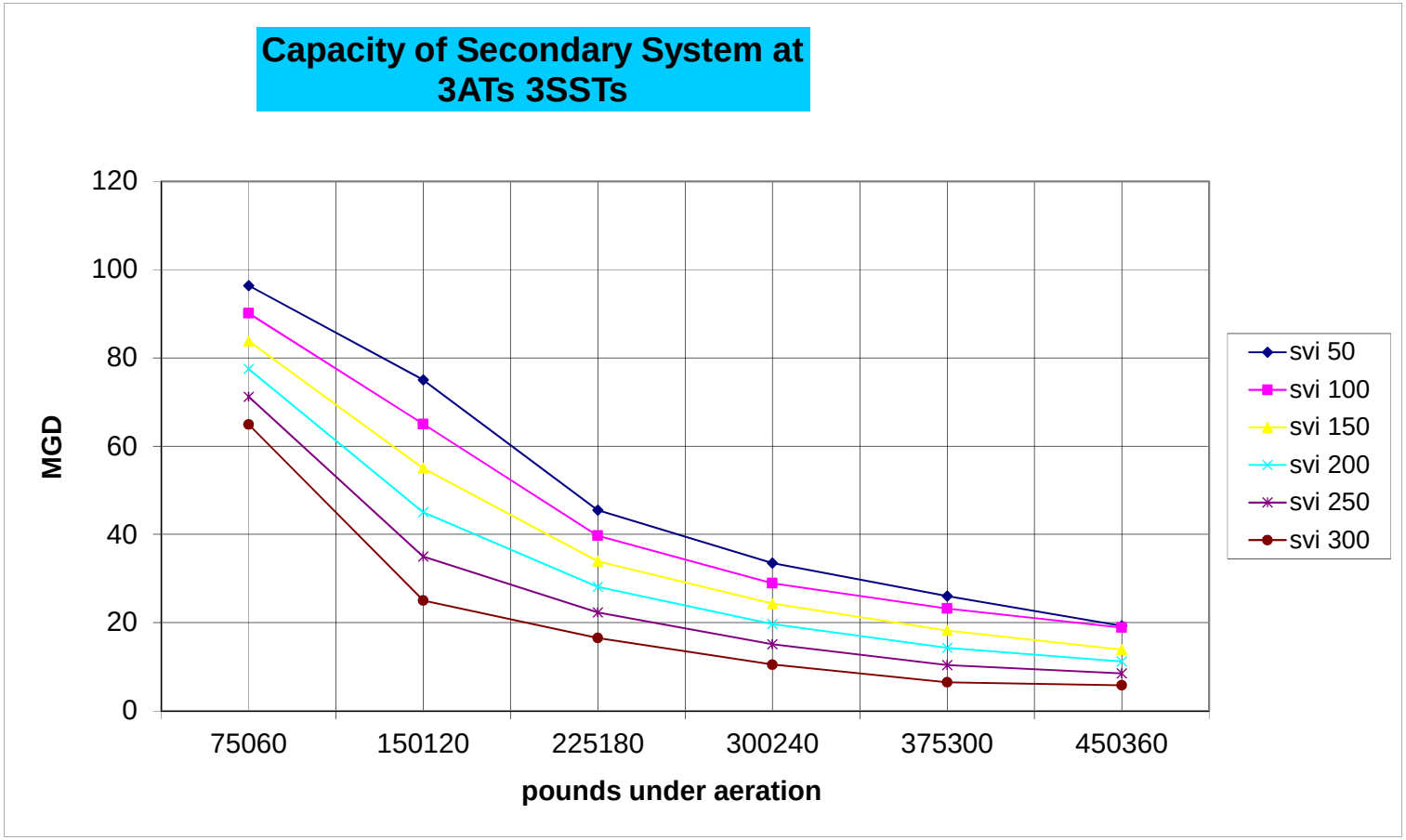
✓	07:43:14.548	7/2/2017	AERATION BLOWER 5 DISCH HIGH TE	HIGH TEMP	CFN
✓	08:32:11.603	6/29/2017	GRIT CLASSIFIER 1 PULL CORD	PULL CORD	CFN

Total Alarms: 7 | Filter: Off | Sort: Time In, Descending | Run



date:	6/30/2017	Flow, MG	SVI	MLSS	lbs	sr oper	setting selected, MG
bypass start time:	9:10pm	59	460	1680	119000	il	20-25
bypass stop time:	10:45pm	16					


HAVERHILL
PENTUCKET
SETTLED 1640. INSTITUTED A CITY. 1870.