

**CITY OF ST. JOSEPH WATER FILTRATION PLANT**  
**OPERATIONAL REPORT**  
**MARCH 2016**



**Mission Statement**

WSJOB- The City and Authority working together to provide safe drinking water of the highest quality to all of our customers at the lowest possible price.

## WATER PLANT REPORT-MARCH 2016

Water demand in March was up by 236,000 gallons or a scant 025% from last year. This year 93,987,000 gallons were delivered which compares to 93,751,000 gallons delivered March of 2015. The March 2016 pumpage ranked 27<sup>th</sup> in the thirty year tabulation dating back to 1987.

### **GENERAL ACTIVITIES**

#### Phase 1 SCIP

The RFP for the filtration rate capacity study was revised based upon WSJOB recommendations and advertised publicly on March 10<sup>th</sup>. The bid opening was on April 1<sup>st</sup>. The bids were publicly opened by the City of St. Joseph Deputy Clerk. Five bids were received and are transcribed from the bid tab as follows:

Fishbeck, Thompson, Carr & Huber	\$45,800
Jones & Henry	\$25,930
CH2M Hill	\$35,670
Donahue & Associates	\$34,500
SEH	\$29,850

The filtration rate capacity study was identified in the Strategic Capital Improvement Plan (SCIP). This study will address hydraulic limitations in the filter piping and assess the feasibility of rerating filters 5-12 to handle the increased flow upon retirement of filters 1-4. In addition, a new DWRP project plan will have to be done for the SCIP. The last project plan was completed in 2007 and included the intake, E&P improvements and clarifier upgrades. The DWRP project plan will include the City of St. Joseph distribution system and be submitted in late 2016 upon completion of the filter study.

#### MDEQ Sanitary Survey City of St. Joseph WSSN 6310

MDEQ District Engineer Gary Wozniak completed his second site visit as part of the 2016 Sanitary Survey of the City of St. Joseph community water supply. The Southwest Michigan Sanitary Sewer & Water Authority was evaluated in 2015. The City of St. Joseph community water supply includes the water plant and city owned water distribution system including the water tower located on Cleveland road north of Hilltop. To date filter banks 1-4 and 9-12 have been test washed, a breach in the raw water intake screens has been identified and corrected and file forms have been updated. Mr. Wozniak will return on April 14<sup>th</sup> to evaluate the water plant laboratory. The sanitary survey is a triennially inspection required of all community water supplies under Michigan's Public Act 399 as Amended (Safe Drinking Water Act) which is authorized by the federal SDWA enacted in 1974.

#### Pipe Insulation Project

Plant staff has contracted to replace pipe insulation in the water plant. This work began last year in the north wing of the building and will continue this year in the middle filter bays and clarifier rooms.

Prism Science & Technology was retained to perform a pre-renovation assessment for asbestos-containing materials (ACM). The assessment found that the Bown Pipe Wrap Elbow (4" and 6" O.D.) located in the second floor maintenance shop and the Silver Pipe Wrap "T", Elbow, and Unions located in the steam boiler tunnel on the first floor of the building contained Friable ACM. These areas are not identified for replacement and are intact and considered safe. Of note, no asbestos was found in the large high service suction pipe wrap in the located in the 1931 section of the water plant. This area of the plant is scheduled for demolition in Phase III of the SCIP.

#### Lead & Copper Rule

Water Plant staff conducted a pipe material survey of the homes in our sample pool to verify that the plumbing in the homes is in compliance with the Lead & Copper Rule. Site visits were conducted and information was gathered regarding pipe material, water filters and softeners. (Samples taken downstream of filters and softeners are not permitted). Compliance sampling is done every three years and is due again in 2017.

The City of St. Joseph last sampled for Lead and Copper during the summer of 2014. We were notified by the MDEQ of our compliance with the Safe Drinking Water Act. Our results of 2.0 parts per billion (ppb) for Lead is considerably lower than the action level of 15 ppb for compliance with the SDWA.

#### Spring Intake Inspections/Repair

As soon as weather permits divers will be called in to inspect both intakes. The focus will be on repairing the emergency riser on the South intake. Last season divers discovered that the riser had separated from the pipe. A temporary ballasted plate was placed over the opening at that time.

#### Travel & Training

Staff attended the Spring Regional meeting of the Michigan Section AWWA. Registrations were submitted for staff attendance at the Laboratory Practices Seminar in May and the AWWA Conference and Exposition to be held in June at McCormick Place in Chicago.

#### Fairplain Interconnects

The Fairplain interconnect project which was postponed last Fall will begin in April upon reopening of the Asphalt plants.

# Monthly Maintenance Notes

March 2016

Normal PM Maint. done Monthly	Check all High Service and Low Service Pumps, BPS pumps, Service BPS Chlorinators, Change out air filters on VFD Drives and Air Handlers. Snow Removal at Plant, Booster Stations and Water Towers
03/02/16	DA Dodd - Annual CSD-1 inspections on North and South Plant Boilers
03/10/16	Hydrocorp - Backflow Prevention Device Inspection
3/3 to 3/11/16	Prepped and completed painting pumps, check valves and pipes at Cleveland BPS.
03/11/16	Installed new wet end pump assembly on chlorinator circulation pump at Cleveland BPS.
3/15 to 3/16/16	Drained and Cleaned North Wet Well in N. Low Service building. Added rubber strip to the top of the screen to eliminate debris getting around the top of the screen and into the pump chamber
03/17/16	Drained South Wet Well in N. Low Service building, (Unable to clean chamber due to isolation valve leaking) Added rubber strip to the top of the screen to eliminate debris getting around the top of the screen and into the pump chamber
03/18/16	Prism Science & Tech - Asbestos Assessment on pipe insulation through out the plant.
03/22/16	Installed new Turnbuckle assemblies for moveable wing arm on Clarifier #3.
03/24/16	Calibrated Alum Feeder # 1
03/29/16	West Michigan - SCADA up dates
03/29/16	Mead & White - Lights clarifier 2 & 3 tunnel
03/31/16	Michigan Gas - Replaced leaking regulator on gas supply line to Generator\

**ST. JOSEPH WATER FILTRATION PLANT  
1701 LIONS PARK DRIVE  
SAINT JOSEPH, MI. 49085**

**By: Greg Alimenti  
St. Joseph Water Plant  
700 Broad St.  
Saint Joseph, MI. 49085-1276  
(269) 983-1240**

**MARCH 2016**

DISTRIBUTION:	
Total Gallons	93,987,696
Average Day	3,031,861
Maximum Day	3,222,433
Minimum Day	2,801,779

TREATMENT:	
Total Low Service	96,817,595
Wash Water Gals.	1,146,415
Wash Water %	1.18%
Plant Use Gals.	1,727,052
Plant Use %	1.79%

FILTRATION:		
Ave. Filter Run	62.9	hours
Ave. Filter Rate	2.16	g/sqft/min
Filter Eff. Index	598.1	
Ave. Loss of Head	0.7	feet
Plant Sewer Usage	1,418	\$3,276

LABORATORY REPORT		
Average of	Raw	Tap
Chlorides mg/L	18.6	22.4
Fluoride mg/L	0.13	0.72
Alkalinity mg/L	130	109
Hardness mg/L	158	153
pH	8.1	7.3
Calcium mg/L	43	44
Magnesium mg/L	12	11
Turbidity NTU	1.63	0.04
Temperature °F	43	
Total Coliform		0.0
Chlorine Residual		mg/L Free
Mixing Basin		0.83
Applied		1.67
Tap		1.42
Distribution		1.03

TREATMENT CHEMICAL SUMMARY:					
	Applied mg/L	Total Lbs.	Cost	Inventory lbs.	Days Supply
		CHEMICAL			
Alum (Al <sup>+3</sup> )	2.77	2,239	\$7,372.22	136,752	1894
Chlorine (Cl <sub>2</sub> )	2.67	2,154	\$578.78	13,319	192
Fluoride (F <sub>2</sub> )	0.73	591	\$1,034.99	(4,443)	-233

		REMARKS:			
Total Cost all Chemicals	\$8,985.98				
Chemical Cost per Mil. Gallon Treated	\$92.81				
Chemical Cost per Mil. Gallon Delivered	\$95.61				
PLANT UTILITIES SUMMARY					
Electric:					
Total KWH	202,800	***includes measure of melted snow			
Total Power Cost	\$ 14,196.00	visit the City of Saint Joseph's Home page at <a href="http://www.sjcity.com">www.sjcity.com</a>			
Power Cost per Million Gallon Treated	\$ 146.63	e-mail comments to either: <a href="mailto:operator@sjcity.com">operator@sjcity.com</a> or <a href="mailto:galiment@sjcity.com">galiment@sjcity.com</a>			
Power Cost per Million Gallon Delivered	\$ 170.01	WEATHER CONDITIONS AT THE PLANT		Air Temp. °F	
Gallons Pumped per KWH	404	SJWW Weather Computer		Avg.	42.8
		Rain Guage, Inches	2.18	Max.	68.5
		days it rained***	14	Min.	21.3
Natural Gas:		Wind Speed, Avg	7.9	Lake Temp. °F	
Metered Cubic Feet	1742	Wind Speed, Max	48	Avg.	42.9
Natural Gas Cost	\$963.14	Prevailing Wind Dir.	North	Max	47.2
Emergency Power Diesel Fuel Inv., Gals.	North (F) 2400	Lake Level (USACE)	579.95	Min	37.6
	South (F) 800				

**DISTRIBUTION REPORT**

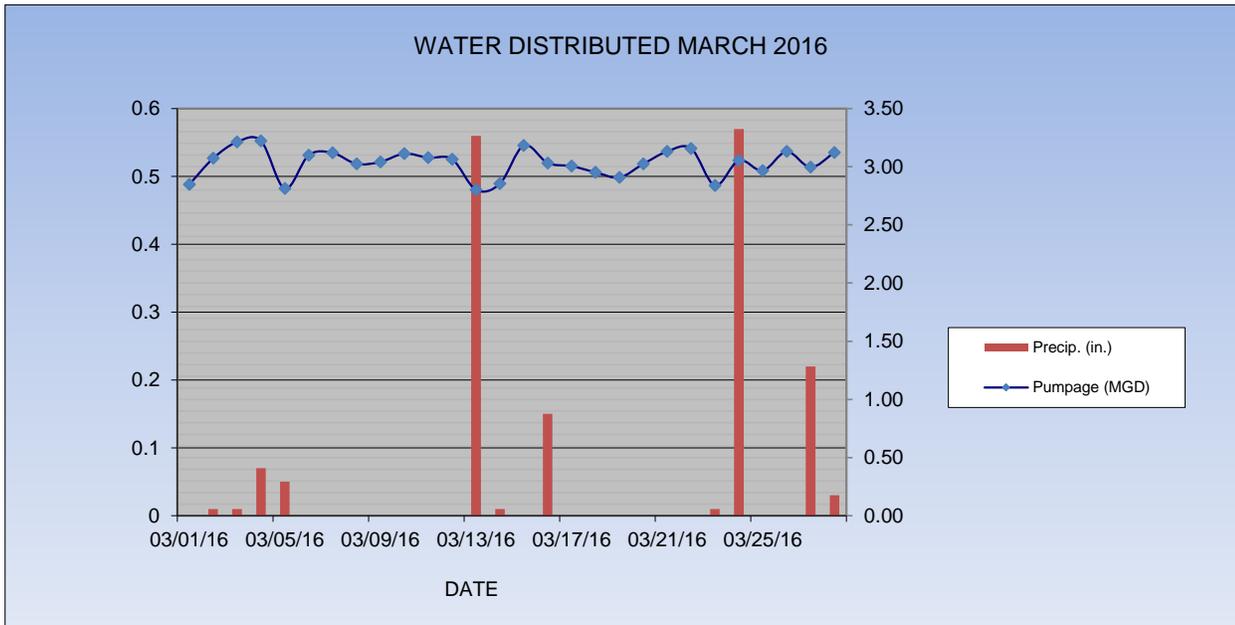
*For the Month of March 2016*

Activity	Number/Description	
Water Main Breaks	0	
MISS DIGS	275	
Delinquent Shut Off	24	SJCT (13 West SJCT, 11 East SJCT)
Delinquent Shut Off (Broken Payment Plans)	0	
Hydrants (Repaired/Replaced)	1	Replaced hydrant on Demorrow Rd North of Rocky Weed (hydrant had been hit by car in February)
Valves	0	
Taps (1")	3	1448 Kristen Path (SJCTY)   New Construction 513 Dunewood Drive (SJ)   New Construction 1177 Forest Brook Drive (LCT)   New Construction
Cross Connection Control (Hydro Designs)		
Repair of Curb box/Shut-Off Valves	0	
Service Repair		
Service Replacements	2	907 State St (City) (Main to curb stop, Ld serv. Leak) 720 Botham Ave. (City), Ld serv leak. 3/4 copper cust side
Water Quality Complaint(s)	0	
Hydrant Flushing to maintain water quality	0	
Hydrant Flushing (Stage 2 Rule)	30,207	
Service line complaints (customer side)	2	
Staff Education/Training	0	OSHA Training
Overtime-Total	48	(Including Sanitary and Storm)
Turn Off	15	(Note: For delinquent Shut off see above)
Turn On	5	
Finals	98	
<b>Meter Repair/Replacement</b>		
		Audit Meter
		Verify Read
		2
Meter Repair		Move Mxu Box
Per detail		New Installation
		5
Meter leaking	1	New Installation-Benton Harbor
Stopped Meter	8	Replaced/various reasons (e.g.downsize, defective)
		2
Faulty Register	1	Rockwell Replacement
Frozen Meter	3	Mxu Replaced
		1
Move Meter Inside		Sprinkler meter removed/line capped
		1
Hard to read	6	Removals/demo
		1
Replace/Adding Sprinkler Meter		Curb box location
		1
Damage to Trt		Broken Remote
New Plumbing		Noisy Meter
		1
New siding		Upgrade 5/8" to 3/4" (upgrade to 1")
Meter sent out for testing		Meter Change/Benton Harbor

**ST JOSEPH WATER PLANT PUMPAGE-WATER DELIVERED/RAINFALL  
MARCH 2016**

DATE	PUMPAGE (gallons)	PUMPAGE (MGD)	Rainfall (in)	Day to Day Comparison 2016/2015	
				2016	2015
03/01/16	2,847,480	2.85	0	2,847,480	3,169,314
03/02/16	3,072,298	3.07	0.01	3,072,298	3,057,944
03/03/16	3,212,572	3.21	0.01	3,212,572	3,080,765
03/04/16	3,222,433	3.22	0.07	3,222,433	3,063,674
03/05/16	2,811,809	2.81	0.05	2,811,809	3,016,862
03/06/16	3,099,476	3.10	0	3,099,476	2,955,544
03/07/16	3,118,615	3.12	0	3,118,615	2,879,636
03/08/16	3,024,342	3.02	0	3,024,342	3,051,116
03/09/16	3,041,386	3.04	0	3,041,386	3,247,004
03/10/16	3,112,954	3.11	0	3,112,954	2,899,137
03/11/16	3,076,680	3.08	0	3,076,680	3,090,980
03/12/16	3,064,409	3.06	0	3,064,409	3,050,080
03/13/16	2,801,779	2.80	0.56	2,801,779	3,141,973
03/14/16	2,854,702	2.85	0.01	2,854,702	2,937,223
03/15/16	3,183,339	3.18	0	3,183,339	3,117,887
03/16/16	3,032,227	3.03	0.15	3,032,227	3,289,056
03/17/16	3,005,103	3.01	0	3,005,103	3,010,897
03/18/16	2,952,386	2.95	0	2,952,386	3,047,958
03/19/16	2,908,356	2.91	0	2,908,356	2,882,691
03/20/16	3,023,771	3.02	0	3,023,771	3,055,335
03/21/16	3,131,149	3.13	0	3,131,149	3,004,689
03/22/16	3,157,458	3.16	0	3,157,458	2,855,133
03/23/16	2,838,973	2.84	0.01	2,838,973	2,981,135
03/24/16	3,055,198	3.06	0.57	3,055,198	3,050,640
03/25/16	2,966,127	2.97	0	2,966,127	3,242,822
03/26/16	3,130,401	3.13	0	3,130,401	2,938,442
03/27/16	2,995,189	3.00	0.22	2,995,189	2,968,888
03/28/16	3,122,626	3.12	0.03	3,122,626	3,095,305
03/29/16	3,005,187	3.01	0	3,005,187	2,576,655
03/30/16	3,046,606	3.05	0.1	3,046,606	3,083,496
03/31/16	3,072,665	3.07	0.39	3,072,665	2,909,666
<b>TOTAL</b>	<b>93,987,696</b>	<b>84.86</b>	<b>2.18</b>	<b>93,987,696</b>	<b>93,751,947</b>

<b>Average Day</b>	<b>3,031,861</b>
<b>Maximum Day</b>	<b>3,222,433</b>
<b>Minimum Day</b>	<b>2,801,779</b>

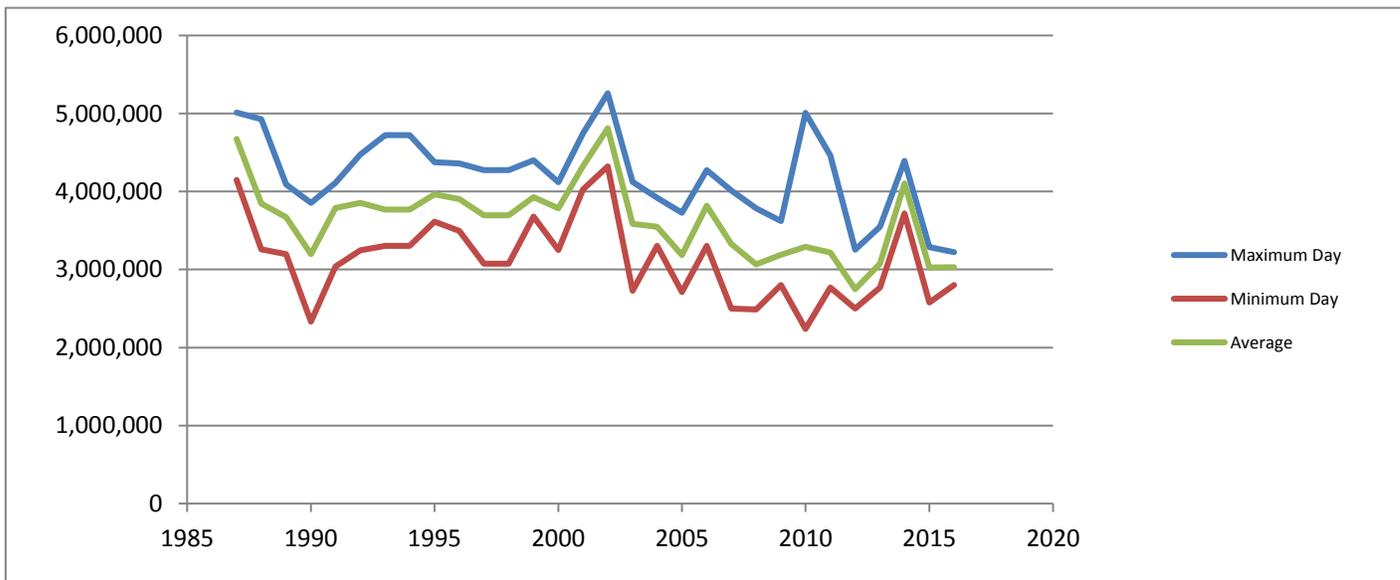


# ST JOSEPH WATER PLANT PUMPAGE-WATER DELIVERED

MARCH 2016

Year	Average	Maximum Day	Minimum Day	Monthly Total
1987	4,671,958	5,010,700	4,148,400	130,492,458
1988	3,845,203	4,924,600	3,256,700	107,872,703
1989	3,672,381	4,088,800	3,197,500	102,101,781
1990	3,195,848	3,854,100	2,333,200	88,167,548
1991	3,789,048	4,110,800	3,036,600	106,819,948
1992	3,854,777	4,475,600	3,246,600	106,036,477
1993	3,767,950	4,721,800	3,303,450	106,411,450
1994	3,767,950	4,721,800	3,303,450	106,411,450
1995	3,964,081	4,375,000	3,613,500	111,268,831
1996	3,903,450	4,361,425	3,495,400	121,006,950
1997	3,693,095	4,275,600	3,076,400	114,485,950
1998	3,693,095	4,275,600	3,076,400	114,485,950
1999	3,927,223	4,401,000	3,679,400	121,743,900
2000	3,785,211	4,118,750	3,251,000	117,341,550
2001	4,322,940	4,742,950	4,023,550	134,011,150
2002	4,810,127	5,259,500	4,322,000	149,113,940
2003	3,582,904	4,124,400	2,727,000	111,070,020
2004	3,549,125	3,917,380	3,304,250	110,022,870
2005	3,184,715	3,728,500	2,713,320	98,726,150
2006	3,817,435	4,273,500	3,304,000	118,340,490
2007	3,329,752	4,013,000	2,498,500	103,222,310
2008	3,065,748	3,783,500	2,486,080	95,038,200
2009	3,188,871	3,621,750	2,800,750	98,855,000
2010	3,290,833	5,010,100	2,238,370	102,015,838
2011	3,218,895	4,463,210	2,767,357	99,785,760
2012	2,748,710	3,254,721	2,500,973	85,210,003
2013	3,074,176	3,547,491	2,769,880	95,299,463
2014	4,102,652	4,391,302	3,719,580	127,182,218
2015	3,024,256	3,289,056	2,576,655	93,751,947
2016	3,031,861	3,222,433	2,801,779	93,987,696

Rank	Year	Monthly Total
1	2002	149,113,940
2	2001	134,011,150
3	1987	130,492,458
4	2014	127,182,218
5	1999	121,743,900
6	1996	121,006,950
7	2006	118,340,490
8	2000	117,341,550
9	1997	114,485,950
10	1998	114,485,950
11	1995	111,268,831
12	2003	111,070,020
13	2004	110,022,870
14	1988	107,872,703
15	1991	106,819,948
16	1993	106,411,450
17	1994	106,411,450
18	1992	106,036,477
19	2007	103,222,310
20	1989	102,101,781
21	2010	102,015,838
22	2011	99,785,760
23	2009	98,855,000
24	2005	98,726,150
25	2013	95,299,463
26	2008	95,038,200
27	2016	93,987,696
28	2015	93,751,947
29	1990	88,167,548
30	2012	85,210,003



SOUTHWEST MICHIGAN REGIONAL SANITARY SEWER & WATER AUTHORITY  
CLEVELAND BOOSTER STATION

HILLTOP BOOSTER STATION

DATE	FLOW MGD	FEED GAL	CHL LBS/DAY	CHLORINE APPLIED mg/l	Cl <sub>2</sub> PRE mg/l	Cl <sub>2</sub> POST mg/l	Cl <sub>2</sub> MON mg/l	FLOW MGD	FEED GAL	CHL LBS/DAY	CHLORINE APPLIED mg/l	Cl <sub>2</sub> PRE mg/l	Cl <sub>2</sub> POST mg/l	Cl <sub>2</sub> MON mg/l	BOOSTER MGD
1-Mar	0.000	0	0.00	0.00	0.97	1.20	1.24	1.627	22	3.12	0.23	1.48	1.42	1.55	1.627
2-Mar	0.000	0	0.00	0.00	0.94	1.22	1.27	1.697	24	3.40	0.24	1.44	1.33	1.40	1.697
3-Mar	0.000	0	0.00	0.00	1.00	1.29	1.28	1.765	57	8.08	0.55	1.98	1.69	1.88	1.765
4-Mar	0.000	0	0.00	0.00	0.79	1.22	1.18	1.604	50	7.09	0.53	1.91	1.51	1.71	1.604
5-Mar	0.000	0	0.00	0.00				1.807	28	3.97	0.26				1.807
6-Mar	0.000	0	0.00	0.00				1.807	28	3.97	0.26				1.807
7-Mar	0.000	0	0.00	0.00	0.88	1.18	1.17	1.807	28	3.97	0.26	2.09	1.61	1.76	1.807
8-Mar	0.000	0	0.00	0.00	0.82	1.11	1.01	1.628	44	6.24	0.46	1.93	1.53	1.70	1.628
9-Mar	0.000	0	0.00	0.00	0.52	1.01	0.99	1.807	63	8.93	0.59	2.19	1.73	1.96	1.807
10-Mar	0.000	0	0.00	0.00	0.73	1.20	1.24	1.706	62	8.79	0.62	2.18	2.06	2.25	1.706
11-Mar	0.000	0	0.00	0.00	0.87	1.05	1.38	1.690	63	8.93	0.63	1.75	1.64	1.77	1.690
12-Mar	0.000	0	0.05	0.00				1.734	60	8.51	0.59				1.734
13-Mar	0.000	0	0.05	0.00				1.734	60	8.51	0.59				1.734
14-Mar	0.000	0	0.05	0.00	1.09	1.32	1.36	1.734	60	8.51	0.59	1.70	1.72	1.94	1.734
15-Mar	1.774	70	9.92	0.67	1.71	1.51	1.72	0.000	1	0.14	0.00	1.48	1.41	1.52	1.774
16-Mar	0.000	0	0.00	0.00	1.29	1.38	1.44	1.881	68	9.64	0.61	2.06	1.73	1.88	1.881
17-Mar	1.381	70	9.92	0.86				0.000	0	0.00	0.00				1.381
18-Mar	0.000	0	0.00	0.00	1.65	1.49	1.69	1.776	76	10.78	0.73	1.77	1.75	1.90	1.776
19-Mar	1.179	66	9.36	0.95				0.611	27	3.83	0.75				1.790
20-Mar	1.179	66	9.36	0.95				0.611	27	3.83	0.75				1.790
21-Mar	1.179	66	9.36	0.95	1.20	1.28	1.32	0.611	27	3.83	0.75	2.01	1.59	1.73	1.790
22-Mar	0.000	0	0.00	0.00	1.14	1.16	1.20	1.813	73	10.35	0.68	1.89	1.64	1.87	1.813
23-Mar	1.659	84	11.91	0.86	1.64	1.67	1.83	0.000	0	0.00	0.00	1.30	1.51	1.70	1.659
24-Mar	0.000	0	0.00	0.00	1.58	1.61	1.66	1.885	71	10.07	0.64	1.93	1.68	1.87	1.885
25-Mar	0.881	41	5.81	0.79				0.933	39	5.53	0.71				1.814
26-Mar	0.881	41	5.81	0.79				0.933	39	5.53	0.71				1.814
27-Mar	0.881	41	5.81	0.79				0.933	39	5.53	0.71				1.814
28-Mar	0.881	41	5.81	0.79	1.50	1.43	1.60	0.933	39	5.53	0.71	2.17	1.99	2.39	1.814
29-Mar	1.854	100	14.18	0.92	2.00	1.68	1.83	0.000	0	0.00	0.00	1.45	1.62	1.78	1.854
30-Mar	0.000	0	0.00	0.00	1.36	1.51	1.61	1.688	54	7.66	0.54	1.29	1.30	1.40	1.688
31-Mar	1.729	90	12.76	0.89	1.75	1.68	1.79	0.000	0	0.00	0.00	1.02	1.31	1.33	1.729
TOTAL	15.459	777	110.2					38.750	1,229	174.25					54.208
AVE DAY	0.499		3.6	0.33	1.2	1.3	1.4	1.2500		5.6	0.47	1.76	1.61	1.78	1.749
MAX	1.854		14.2	0.95	2.0	1.7	1.8	1.8847		10.8	0.75	2.19	2.06	2.39	1.885
MIN	0.000		0.0	0.00	0.5	1.0	1.0	0.0000		0.0	0.00	1.02	1.3	1.33	1.381
MONTHLY TOTALS:	Cleveland	Total MG Treated	15.459	SJCT EAST				Hilltop	Total MG Treated	38.750	Cleveland Pump Station:				15.459
		Untreated	0.000	Average Day		0.165			Treated	38.750	Hilltop Pump Station:				38.75
Total Authority Flow:	57.1843			Month Total		5.123			Untreated	0.000	TOTAL AUTHORITY (Trted.)				54.209

## STAGE 2 D/DBPR MONITORING-HALOACETIC ACIDS

March 2016 Report

WSSN 6310

DBP 1

Date	06/11/15
Site	Blossomland
Dibromoacetic acid	<1
Dichloroacetic acid	13
Monobromoacetic acid	<1
Monochloroacetic acid	<2
Trichloroacetic acid	11
Total HAA5	24

Date	09/16/15
Site	Blossomland
Dibromoacetic acid	<1
Dichloroacetic acid	8.1
Monobromoacetic acid	<1
Monochloroacetic acid	<2
Trichloroacetic acid	12
Total HAA5	20.1

Date	12/09/15
Site	Blossomland
Dibromoacetic acid	<1
Dichloroacetic acid	9.4
Monobromoacetic acid	<1
Monochloroacetic acid	<2
Trichloroacetic acid	18
Total HAA5	27.4

Date	03/16/16
Site	Blossomland
Dibromoacetic acid	<1
Dichloroacetic acid	9.7
Monobromoacetic acid	<1
Monochloroacetic acid	<2
Trichloroacetic acid	15
Total HAA5	24.7

RAA 24 µg/l

## STAGE 2 D/DBPR MONITORING-TTHM

March 2016

WSSN 6310

DBP 1

Date	06/11/15
Site	Blossomland
Bromodichloromethane	8.1
Bromoform	<0.5
Chloroform	16
Dibromochloromethane	3.1
Total Trihalomethanes	27.2

Date	09/16/15
Site	Blossomland
Bromodichloromethane	9.8
Bromoform	<0.5
Chloroform	18
Dibromochloromethane	3.5
Total Trihalomethanes	31.3

Date	12/09/15
Site	Blossomland
Bromodichloromethane	11
Bromoform	<0.5
Chloroform	25
Dibromochloromethane	3.4
Total Trihalomethanes	39.4

Date	03/16/16
Site	Blossomland
Bromodichloromethane	9.2
Bromoform	<0.5
Chloroform	18
Dibromochloromethane	2.6
Total Trihalomethanes	29.8

RAA 32 µg/l

MARCH 2016

CITY OF ST. JOSEPH

WSSN 6310

	TOC Compliance							
	Treated	Source	Formula		Req. TOC	Actual	Alternative	Compl. Perf.
	Tap	Tap	Ratio	Alka- linity	Removal	Ratio/ Remov	Criteria Complied Y/N	
April	1.15	1.48	22.3	118	25	0.89	Yes	1.00
May	1.33	1.71	22.2	123	15	1.48	N(Removal)	1.48
June	1.26	1.50	16.0	109	25	0.64	Yes	1.00
July	1.23	1.67	26.3	110	25	1.05	N(Removal)	1.05
August 2015	1.34	1.60	16.3	108	25	0.65	Yes	1.00
September	1.22	1.55	21.3	108	25	0.85	Yes	1.00
October	1.23	1.58	22.2	109	25	0.89	Yes	1.00
November	1.21	1.56	22.4	113	25	0.90	Yes	1.00
December	1.27	1.46	13.0	111	25	0.52	Yes	1.00
January 2016	1.38	1.86	25.8	111	25	1.03	N(Removal)	1.03
February	1.27	1.76	27.8	122	15	1.86	N(Removal)	1.86
March	1.62	2.32	30.2	140	15	2.01	N(Removal)	2.01
Quarter Avg.								
Annual Avg.	1.29	1.67						1.20

2/22/2016  
3/15/2016