

CITY OF SPOKANE, WASHINGTON

CSO FLOW MONITORING PROJECT

FLOW, FREQUENCY AND DURATION

SEWER MAINTENANCE

**Monthly Report
January 2018**

February 14, 2018
CSOMonthly2018-01.docx

OVERFLOW EVENTS

Table 1 – Flow-Frequency-Duration, provides a summary of the flow volume calculated for the overflow pipes at each site for each event recorded. The flow calculations are based on flow monitor recorded level and velocity measurements.

Table 1 – Flow-Frequency-Duration

Line No.	Regulator Location	CSO No.	Freq.	Date of event ¹	Estimated Total Flow (Gallons) ²	Event Duration (Min. of Overflow)	Comments
1	AL Parkway Storage (West)	2	None				
2	NW Blvd @ Kiernan	6	None				
3	Columbia @ Downriver	7	None				
4	Nettleton @ York/Buckeye	10	None				
5	Nora @ Pettet	12	None				
6	Sherwood @ Summit	14	None				
7	Nettleton @ Ohio	15	None				
8	A @ Linton	16B	None				
9	7th @ Inland Empire	19	None				
10	3500 High Drive	20	None				
11	Main @ Oak	22B	None				Missing data 01/04 13:35 to 01/04 13:40 Missing data 01/19 15:00 to 01/19 15:05
12	Cedar @ Ide	23	None				
13	Riverside @ Cedar (West)	24A	3	Total	946,730	930	
				01/09	448,681	460	
				01/18	430,259	255	
				01/23	67,790	215	
14	Riverside @ Cedar (East)	24B	None				
15	Cedar @ Main	25	1	Total	11,088	55	
				01/18	11,088	55	
16	Riverside @ Lincoln	26	4	Total	2,692,432	1,140	
				01/09	691,379	435	
				01/18	1,247,515	245	
				01/25	753,105	445	
				01/29	433	15	

¹ Designation as an event means that both a level and velocity reading were recorded concurrently. Not all level and velocity readings that were coincident are included in this report, however. The level and velocity readings that appear to be “background noise” from the electronic equipment are not included in the table.

² The flows presented in this column are calculated from measurements of velocity and depth of flow by electronic devices inserted in the water stream. These measurements are subject to singular and possibly cumulative errors. These errors result from limitations inherent in the measuring devices and from the introduction of a measuring device in to the physical flow stream. Also, error in velocity and depth measurements may be and typically are introduced by the physical conditions of each site. The flow numbers presented in this table are estimates only.

Line No.	Regulator Location	CSO No.	Freq.	Date of event ¹	Estimated Total Flow (Gallons) ²	Event Duration (Min. of Overflow)	Comments
17	Arthur @ 5th	33A	1	Total	817	35	Missing data 01/16 13:30 to 01/16 13:35
				01/18	817	35	
18	Perry @ 3rd	33B	None				
19	Arthur @ 3rd	33C	None				
20	Sprague Ave @ Sprague Wy	33-2	None				
21	Riverside @ Napa/Crestline	34	3	Total	734,018	1,400	Missing data 01/04 10:10 to 01/04 10:15 Missing data 01/25 09:45 to 01/25 09:50
				01/09	306,969	530	
				01/18	177,850	240	
				01/23	249,199	630	
22	S. Riverton @ Magnolia	38	None				
23	Rebecca @ Upriver	41	None				
24	Riverton @ Surro	42	None				Missing data 01/22 13:30 to 01/22 13:35
25	RPWRF CSO-Related Bypass	N/A	None				Permit Section S13.H
	Monthly Total		12		4,385,085	3,560	No Dry Weather Overflows No RPWRF CSO-Related Bypasses

Table 2 – Rainfall Summary³

Date	1004	343	344	Shadle	Hartson	City Hall	Joe Albi	RkwdVsta	Station8	W Drive	Nora&Pet	GEG	Snow	Dpth	NWS	Snow	Dpth	SFF
	Rain	Rain	Rain	Rain	Rain	Rain	Rain	Rain	Rain	Rain	Rain	Rain			Rain			Rain
01/01/18	X	-	-	-	-	-	-	-	-	-	-	T	T	2	-	-	4	-
01/02/18	X	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	4	-
01/03/18	X	0.01	-	0.01	-	-	-	-	-	-	-	-	-	2	-	-	4	-
01/04/18	X	-	-	-	-	-	-	-	-	-	-	T	T	2	-	-	4	T
01/05/18	X	0.02	0.06	0.05	0.02	0.04	0.17	0.02	0.19	0.14	0.13	0.04	T	2	0.04	-	4	0.03
01/06/18	X	0.01	0.10	0.10	0.03	0.05	0.23	0.07	0.24	0.26	0.19	0.04	T	2	-	-	4	0.08
01/07/18	X	0.26	0.24	0.07	0.03	0.05	0.22	0.05	0.11	0.22	0.26	0.06	0.20	2	0.10	0.30	4	0.06
01/08/18	X	0.10	0.14	-	-	-	0.03	-	-	0.01	0.07	T	T	2	T	-	3	T
01/09/18	X	0.44	0.37	0.39	0.37	0.40	0.38	0.49	0.47	0.39	0.40	0.33	T	2	0.34	-	3	0.41
01/10/18	X	-	-	-	-	-	-	-	-	-	0.01	T	T	1	-	-	2	-
01/11/18	X	0.01	0.01	0.01	0.63	0.27	0.06	1.05	0.17	0.05	-	0.70	6.30	-	0.68	7.70	3	0.68
01/12/18	X	0.32	0.16	0.18	-	0.53	0.37	-	0.59	0.42	0.14	0.01	0.20	6	0.01	T	9	0.02
01/13/18	X	0.52	0.55	0.44	0.01	0.07	0.35	0.02	0.15	0.40	0.66	0.03	-	2	0.02	-	8	0.04
01/14/18	X	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	6	-
01/15/18	X	0.01	-	0.01	-	-	-	-	-	-	0.01	-	-	1	-	-	4	-
01/16/18	X	0.09	0.06	0.07	0.07	0.07	0.08	0.10	0.04	0.08	0.06	0.09	-	1	0.11	-	4	0.08
01/17/18	X	0.03	0.02	0.03	0.01	0.03	0.04	0.03	0.03	0.03	0.05	0.03	-	T	0.06	-	4	0.04
01/18/18	X	0.37	0.34	0.33	0.32	0.33	0.31	0.51	0.38	0.34	0.30	0.33	-	T	0.32	-	4	0.32
01/19/18	X	-	-	-	-	-	-	-	-	-	0.01	-	-	T	-	-	3	-
01/20/18	X	-	-	-	-	-	-	-	-	-	-	0.01	0.10	T	T	-	2	0.01
01/21/18	X	0.05	0.03	0.03	0.02	0.03	0.03	0.03	0.02	0.04	0.04	0.05	T	T	0.07	0.10	1	0.01
01/22/18	X	-	-	-	-	-	-	-	-	-	-	-	-	T	-	-	T	-
01/23/18	X	0.26	0.17	0.20	0.17	0.30	0.31	0.38	0.17	0.27	0.29	0.33	0.70	-	0.37	0.50	M	0.06
01/24/18	X	0.40	0.33	0.22	0.32	0.30	0.29	0.37	0.28	0.32	0.29	0.33	-	-	0.28	T	M	0.17
01/25/18	X	0.10	0.06	0.07	0.08	0.04	0.03	0.04	0.04	0.09	0.05	0.04	0.10	-	0.01	0.20	M	0.02
01/26/18	X	0.01	0.01	0.01	-	-	0.01	-	-	-	0.01	0.01	0.20	-	T	0.10	M	T
01/27/18	X	0.03	0.03	0.03	-	0.02	0.03	0.01	0.01	0.04	0.03	0.04	0.30	-	0.02	0.20	M	0.02
01/28/18	X	0.01	0.01	0.01	-	0.01	0.02	-	0.01	-	0.01	0.01	T	-	0.01	T	-	0.01
01/29/18	X	0.06	0.06	0.08	0.05	0.07	0.08	0.11	0.09	0.12	0.10	0.07	-	-	0.06	-	-	0.09
01/30/18	X	-	-	-	-	-	-	-	-	-	-	T	M	-	-	-	-	T
01/31/18	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	0X	3.11	2.75	2.34	2.13	2.61	3.04	3.28	2.99	3.22	3.11	2.55	8.10		2.50	9.10		2.15

- E - Erroneous data
- M - Missing data
- P - Partial missing data
- T - Trace of rain/snow
- X - Out of Service

Table 3 – Rain Gauges

1004	Airway Heights
343	23 rd & Ray
344	Division & Manito
Shadle	Shadle Water Tower (was 345)
Hartson	Ray & Hartson (was 346)
City Hall	City Hall (was 347)
Joe Albi	Joe Albi Stadium
RkwdVsta	Rockwood Vista
Station8	Fire Station 8, Rebecca & Mission
W Drive	West Drive Reservoir
Nora&Pet	Nora & Pettet
GEG	Spokane Airport
NWS	National Weather Service – Spokane
SFF	Spokane Felts Field

³ Some rain gauges are heated. Consequently they will tend to record snow melt immediately as rain. The rain gauges that are not heated will typically register snow melt when it actually melts.