

**CITY OF SPOKANE,  
WASHINGTON**

**CSO FLOW MONITORING PROJECT**

---

**FLOW, FREQUENCY AND DURATION**

---

**SEWER MAINTENANCE**

**Monthly Report  
December 2022**

**January 6, 2023**  
*CSOMonthly2022-12.docx*

## OVERFLOWEVENTS

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 <sup>1</sup>	Estimated Total Flow (Gallons) <sup>2</sup>	Event Duration (Min. of Overflow)	Comments
1	AL Parkway Storage (West)	2	None				
2	NW Blvd @ Kiernan Ave	6	1	Total	609,643	960	Missing data 12/19 07:50 to 12/19 07:55
				12/27	609,643	960	
3	Columbia @ Downriver	7	None				
4	Cochran @ York	10	None				
5	Pettet Dr & Mansfield	12	1	Total	186,036	455	
				12/27	186,036	455	
6	Sherwood @ Summit	14	None				
7	Nettleton @ Ohio	15	None				Missing data 12/14 15:05 to 12/14 15:10
8	Clarke @ Riverside	16	None				
9	7th @ Inland Empire	19	None				
10	Cedar St @ Summit	23-1	None				Missing data 12/09 09:30 to 12/09 09:35 Missing data 12/19 09:00 to 12/19 09:05 Missing data 12/19 09:10 to 12/20 01:45 Missing data 12/27 09:15 to 12/27 09:20
11	Sprague @ Adams	24-1	1	Total	4,735,641	1,330	
				12/27	4,735,641	1,330	
12	Cedar @ Main	25	None				Missing data 12/15 09:55 to 12/15 10:00

<sup>1</sup> 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.

<sup>2</sup> 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 <sup>1</sup>	Estimated Total Flow (Gallons) <sup>2</sup>	Event Duration (Min. of Overflow)	Comments
13	Lincoln @ Spokane Falls	26	None				Missing data 12/14 12:40 to 12/14 12:45
14	Liberty Park (west end)	33-1	1	Total	805,582	910	
				12/27	805,582	910	
15	Sprague Ave west of Sprague Wy	33-2	0*	Total	146,965	785	*Overflow occurred at same time as CSO 33-1, counting as a single overflow
				12/27	146,965	785	
16	Riverside @ Crestline	34	1	Total	1,405,232	1,130	Missing data 12/14 14:00 to 12/14 14:05
				12/27	1,405,232	1,130	
17	S. Riverton @ Magnolia	38-1	None				
18	Rebecca @ Upriver	41	None				
19	Surro west of Waterworks	42	None				
20	RPWRF CSO-Related Bypass	N/A	None				Permit Section S13.H
	<b>Monthly Total</b>		<b>5</b>		<b>7,889,099</b>	<b>5,570</b>	<b>No Dry Weather Overflows No RPWRF CSO-Related Bypasses</b>

Table 2 – Rainfall Summary<sup>3</sup>

	343	344	Shadle	Hartson	CityHall	RkwdVsta	Station8	W_Drive	Nora&Pet	Lincoln	Northeast	Crest&Hoff	GEG			NWS			SFF
Date	Rain	Rain	Rain	Rain	Rain	Rain	Rain	Rain	Rain	Rain	Rain	Rain	Rain	Snow	Depth	Rain	Snow	Depth	Rain
12/01/22	-	0.01	0.02	0E	0.20	0.18	-	0.18	0E	0.14	0M	0.10	T	T	9.00	T	T	8.00	0.01
12/02/22	0.08	-	-	0E	-	-	-	-	0E	-	0P	-	T	T	8.00	-	-	7.00	-
12/03/22	0.01	-	-	0E	-	-	-	-	0E	-	-	-	-	-	8.00	-	-	7.00	-
12/04/22	-	-	-	0E	-	-	-	-	0E	-	-	-	0.07	0.60	8.00	0.05	0.80	8.00	0.01
12/05/22	0.03	-	-	0E	-	-	-	-	0E	-	-	-	T	0.10	9.00	T	T	8.00	T
12/06/22	-	-	-	0E	-	-	-	-	0E	-	-	-	0.01	0.20	9.00	T	T	8.00	T
12/07/22	-	-	-	0E	0.01	-	-	-	0E	-	-	-	T	T	9.00	T	T	7.00	-
12/08/22	0.02	-	-	0E	0.10	-	0.19	0.06	0E	0.01	-	-	0.34	3.60	8.00	0.38	4.20	13.00	0.18
12/09/22	-	-	-	0E	0.07	-	-	0.06	0E	0.06	0.01	-	T	T	12.00	-	-	13.00	-
12/10/22	0.35	0.63	0.58	0E	0.81	0.71	0.28	0.53	0E	0.49	0.04	0.32	0.85	5.00	13.00	0.67	5.40	14.00	0.36
12/11/22	0.21	0.31	0.01	0E	0.12	0.29	-	0.37	0.04E	0.25	0.01	0.17	-	-	14.00	T	T	15.00	-
12/12/22	0.04	0.05	-	0E	0.01	0.04	-	0.06	0.01E	0.07	-	0.03	-	-	13.00	-	-	15.00	-
12/13/22	-	-	-	0E	-	-	-	-	0E	-	-	-	T	T	12.00	T	T	14.00	T
12/14/22	0.01	-	-	0E	0.04	-	0.03	0.03	0E	0.02	-	0.01	0.06	0.90	12.00	0.04	0.70	14.00	0.07
12/15/22	-	-	-	0E	-	-	-	-	0E	-	-	-	T	T	12.00	T	T	13.00	-
12/16/22	-	-	-	0E	-	-	-	-	0E	-	-	-	T	T	12.00	T	T	13.00	-
12/17/22	-	-	-	0E	-	-	-	-	0E	-	-	-	T	T	12.00	T	T	13.00	T
12/18/22	-	-	-	0E	-	-	-	-	0E	-	-	-	T	T	12.00	0.01	0.20	13.00	0.01
12/19/22	-	-	-	0E	-	-	0.02	-	0E	-	-	-	0.05	0.40	12.00	0.05	0.40	13.00	0.03
12/20/22	-	-	-	0E	-	-	0.14	-	0E	-	-	-	0.22	2.70	14.00	0.19	2.10	16.00	0.18
12/21/22	-	-	-	0E	-	-	-	-	0E	0.01	-	-	-	-	15.00	-	-	16.00	T
12/22/22	-	-	-	0E	-	-	-	-	0E	-	-	-	T	T	14.00	-	-	14.00	-
12/23/22	-	-	-	0E	-	-	0.06	-	0E	-	-	-	0.19	1.70	14.00	0.15	1.60	15.00	T
12/24/22	-	-	-	0E	-	-	0.20	-	0E	-	-	-	0.23	0.30	15.00	0.24	0.40	15.00	0.41
12/25/22	-	-	-	0E	0.10	-	0.10	0.14	0E	0.02	-	-	0.15	-	15.00	T	-	15.00	0.11
12/26/22	1.27	1.95	1.34	0E	1.27	1.42	0.44	1.41	0E	0.97	0.97	0.60	0.46	-	14.00	0.53	-	13.00	0.45
12/27/22	1.02	1.73	0.63	0E	0.77	1.05	0.74	1.15	0E	1.33	1.08	1.34	0.79	T	12.00	0.50	T	12.00	0.74
12/28/22	0.02	0.01	-	0E	-	-	0.01	-	0E	-	0.01	0.01	T	T	8.00	T	T	8.00	0.01
12/29/22	-	-	-	0E	-	-	-	-	0E	-	-	-	T	0.10	7.00	T	T	8.00	-
12/30/22	0.12	0.20	0.14	0E	0.13	0.14	0.07	0.16	0E	0.14	0.15	0.15	0.17	1.30	7.00	0.15	1.80	10.00	0.08
12/31/22	0.02	0.01	0.01	0E	-	-	-	-	0E	0.01	-	0.01	T	T	7.00	T	T	10.00	0.01
Total	3.20	4.90	2.73	0.00E	3.63	3.83	2.28	4.15	0.05E	3.52	2.27M	2.74	3.59	16.90		2.96	17.60		2.66

E – Erroneous Data (Over/Under Count)

M – Missing Data (Whole Day)

P – Partial Missing Data (Less Than 1 Day)

T – Trace of Rain/Snow

<sup>3</sup> 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.

**Table 3 – Rain Gauges**

343	23 <sup>rd</sup> & Ray
344	Division & Manito
Shadle	Shadle Water Tower (was 345)
Hartson	Ray & Hartson (was 346)
CityHall	City Hall (was 347)
Rkw dVsta	Rockwood Vista
Station8	Fire Station 8, Rebecca & Mission
W Drive	West Drive Reservoir
Nora&Pet	Nora & Pettet
Lincoln	Lincoln Rd Lift Station
Northeast	Northeast Lift Station
Crest&Hoff	Crestline & Hoffman
GEG	Spokane Airport
NWS	National Weather Service – Spokane
SFF	Spokane Felts Field