MMSD
PARTNERS FOR A CLEANER ENVIRONMENT

August 13, 2021

Mr. Jacob Wedesky
Wastewater Engineer – Water Quality/Environmental Management
Wisconsin Department of Natural Resources
1027 W. Saint Paul Avenue
Milwaukee, WI 53233

Subject: August 8-10, 2021 Combined Sewer Overflow Event Five-Day Report
WPDES Permit No. WI-0036820-04-0

Mr. Wedesky:

The following information describes the combined sewer overflow and combined sewer wet weather flow treatment process that occurred August 8-10, 2021. This information complies with the reporting terms and conditions listed in section 4.3.5 and 9.2.9 of MMSD's (District) WPDES permit.

Reason for Overflow
The combined sewer overflows occurred due to a heavy rainfall pattern August 6 through August 9. The most intense arrived overnight August 7 into August 8 when 4.06 inches fell at District rain gauge WS1207 in approximately four hours. At approximately 2:00 AM on August 8, the ISS was storing 267 million gallons with an inflow rate of 4.7 billion gallons per day. Therefore, the decision was made to close the combined sewer gates to reserve the remaining capacity for separate sewage and prevent basement backups.

A Depth Duration Frequency Curve is attached and was generated for District rain gauge WS1207, using National Oceanic and Atmospheric Administration Atlas 14, Volume 8, Version 2. This reference shows that this rainfall event was representative of a 50-year recurrence interval storm.

Estimated Duration of Combined Sewer Discharge
Discharges began shortly after the combined sewer gates to the ISS began to close on August 8 at approximately 2:00 AM. All discharges concluded by 11:00 PM on August 10 for a total duration of 69 hours.

Estimated Volume of Discharge
The current estimate of the overflow volume is 380 MG. This amount includes seven combined sewer overflows not tributary to the ISS. See attached Combined Sewer Discharge Points and Receiving Waters Table. The District will continue its analysis of the overflow volumes and will report any significant volume revisions. Discharges were estimated using MMSD model CSOLOG 3.1.

Combined Sewer Wet Weather Flow Treatment Process
To minimize the volume of combined sewer overflows, the Combined Sewer Wet Weather Flow Treatment process was utilized at Jones Island Water Reclamation Facility on August 8, 2021 from 03:00 AM until 2:00 PM for a total of 11 hours. Total volume for this process is estimated to be 16.5 million gallons. The use of the Combined Sewer Wet Weather Flow Treatment process complied with Section 3.2.2.1 of the District's WPDES permit.

Steps Taken to Prevent another Discharge
The District's six-year investment plan calls for $1.4 billion in improvements to regional water reclamation facilities and sewers to reduce the risk of overflows and basement backups. Part of that spending includes the private property inflow and infiltration reduction program throughout our service area. MMSD and Veolia Water Milwaukee will continue to operate the conveyance system, Inline Storage System, Northwest Side Relief Sewer and the water reclamation facilities in a manner to prevent separate sewer overflows and to maximize the capture of combined sewer flow volumes.

For the DNR Compliance Maintenance Annual Report (CMAR), all overflows are assigned to the Jones Island Water Reclamation Facility and the CSO with the highest volume of discharge for this event was CSO 103A at 194 N. Commerce Street.

The following supporting documents are attached:

- WDNR Form 3400-184 – Overflow Notification Summary Report
- Combined Sewer Discharge Points and Receiving Waters Table
- August 6-9 Precipitation Map at District Rain Gauges
- Depth Duration Frequency Curve

If you have any questions concerning this report, please contact me at (414) 277-6384.

Sincerely,

Sharon K. Mertens
Director, Water Quality Protection
Milwaukee Metropolitan Sewerage District

c: K. Lazarski, MMSD
T. Nowicki, MMSD
S. Royer, Veolia Water Milwaukee

State of Wisconsin
Department of Natural Resources
dnr.wi.gov

Sanitary Sewage Overflow Notification Summary Report

Form 3400-184 (R 7/17) Page 1 of 2

◯ Sanitary Sewer Overflow (SSO)
◯ Treatment Facility Overflow (TFO)

Notice: An overflow is defined as a release of wastewater from a sewage collection system (SSO) or from a location within a sewage treatment facility (TFO) other than a permitted outfall structure, directly to a water of the state or land surface. Pursuant to s. 283.55(1)(dm), Wis. Stats., s. NR 210.21(4)(5)(6) Wis. Adm. Code and in accordance with reporting requirements in your WPDES permit, permittees shall submit a written report form for each overflow. This record is used to administer the water quality program, and any personally identifiable information may be provided to requesters as required under the Wisconsin Open Records law (ss. 19.31–19.39, Wis. Stats.).*

Use one form per SSO location. Submit within five calendar days to your Department wastewater representative. Attach additional information as necessary to explain or document each overflow occurrence. A single SSO may be more than one day if the circumstance causing the overflow results in discharge duration more than 24 hours. If there is a stop and restart of the overflow within 24 hours, but it's caused by the same circumstances, report it as one SSO. If the discharges are separated by more than 24 hours, they should be reported as separate SSOs.

Notifications

Department Notification

Permittee (Municipality or Facility Name)	Permit No.
Milwaukee Metropolitan Sewerage District	WI-0036820-04-0

Person Who Contacted the DNR: Sharon K. Mertens

DNR Person Contacted	Date (mm/dd/yyyy)	Time of Day	Within 24 hours?
Jacob Wedesky	08/08/2021	2:15 ◯ am ◉ pm	◉ Yes ◯ No

Public Notification

Date (mm/dd/yyyy)	How the Public was Notified
08/08/2021	Posted on MMSD's website

Describe the actual or potential for human exposure or contact with overflowing wastewater

There is potential for human exposure through recreational use of the waterway

Other Notifications (if applicable)		
	Drinking Water Intake Owner: Cudahy, Milwaukee, North Shore, Oak Creek and South Milw. Waterworks	Date (mm/dd/yyyy): 08/08/2021
	Regional Wastewater Treatment Facility: NA	Date (mm/dd/yyyy):

(Satellite collection permittees are required to submit a copy of this report to the regional plant to which they discharge.)

Wet Weather Information (if applicable)

Was this overflow wet weather related? ◉ Yes ◯ No (skip this section)

Rainfall Start: 08/06/2021 (Date (mm/dd/yyyy)) 3:30 (Start Time) ◉ am ◯ pm 5.2 (Rainfall Amount) inches

Rainfall End: 08/09/2021 (Date (mm/dd/yyyy)) 6:30 (End Time) ◯ am ◉ pm

Contributing Soil or Other Conditions (saturated, frozen, soil type, snowmelt, etc.): _____

Overflow Details

Location (Street Address)

Please see attached for locations of discharges

Location (GPS coordinates, WGS84 standard coordinate system) Latitude: _____ (e.g. 43.075350) Longitude: _____ (e.g. -89.379770)

Overflow Start: 08/08/2021 (Date (mm/dd/yyyy)) 2:00 (Start Time) ◉ am ◯ pm

Overflow End: 08/10/2021 (Date (mm/dd/yyyy)) 11:00 (End Time) ◯ am ◉ pm

69 (Duration) hours 380,000,000 (Volume) gallons

Cause: (select all that apply)

- ☒ Rain
- ☐ Plugged Pipe
- ☐ Snow Melt
- ☐ Broken Pipe
- ☐ Flooding
- ☐ Equipment Failure
- ☐ Power Outage
- ☐ Contractor Related
- ☐ Other–Explain: _____

Overflow Occurred From: (select only one)

- ◯ Lift Station – Name: _____
- ◯ Manhole – MH#: _____
- ◯ Gravity Sewer Pipe
- ◯ Pressure Sewer Pipe (Forcemain)
- ◯ River or Stream Crossing – Select one: ◯ Forcemain ◯ Siphon
- ◉ Permanent Overflow Structure
- ◯ Treatment Plant Unit or Pipe: _____
- ◯ Other: _____

Sanitary Sewage Overflow Notification Summary Report

Destination: (select all that apply)

- ☐ Ditch – Name of surface water it drains to: _____
- ☐ Storm sewer – Name of surface water it goes to: _____
- ☐ Surface water – Name of waterbody: _____
- ☐ Ground – Seeps into soil: _____
- ☒ Other – Describe: _____

Overflow Explanation (This includes any information, whether the overflow was unavoidable to prevent loss of life, personal injury, or severe property damage and whether there were feasible alternatives to the overflow.)

The combined sewer overflows occurred due to a heavy rainfall pattern August 6 through August 9. The most intense arrived overnight August 7th into August 8 when 4.06 inches fell at District rain gauge WS1207 in approximately four hours. At approximately 2:00 AM on August 8, the ISS was storing 267 million gallons with an inflow rate of 4.7 billion gallons a day. Therefore, the decision was made to close the combined sewer gates to reserve the remaining capacity for separate sewage and prevent basement backups.

Immediate Corrective Action and Steps Taken to Reduce this Overflow Volume and Impacts

To minimize the volume of combined sewer overflows, the Combined Sewer Wet Weather Flow Treatment process was utilized at Jones Island Water Reclamation Facility from August 8, 2021 at 03:00 AM until 2:00 PM for a total of 11 hours. Total volume for this process is estimated to be 16.5 million gallons.

Long Term Plan to Reduce, Eliminate, Prevent Reoccurrence of this Overflow

The District's six-year investment plan calls for $1.4 billion in improvements to regional water reclamation facilities and sewers to reduce the risk of overflows and basement backups. Part of that spending includes the private property inflow and infiltration reduction program throughout our service area. MMSD and Veolia Water Milwaukee will continue to operate the conveyance system, Inline Storage System, Northwest Side Relief Sewer and the water reclamation facilities in a manner to prevent separate sewer overflows and to maximize the capture of combined sewer flow volumes.

Building Backups

Number of building backups occurring during this time in Area of Overflow: _____

Locations of Building Backups: (list each one) Tributary municipalities record and respond to backups.

Certification

Authorized Representative Name	Authorized Representative Title
Sharon K. Mertens	Water Quality Protection Division Director
Email Address	**Phone Number**
smertens@mmsd.com	(414) 277-6384

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.

Sharon K. Mertens — Signature of Authorized Representative

8/13/21 — Signed Date (mm/dd/yyyy)

Note: Submit this form to your DNR wastewater representative. Permittees who are required to submit monthly Discharge Monitoring Reports (DMRs) shall report this overflow on the DMR.

DNR Follow-Up Action (DNR Use Only)	

MMSD Reported Overflows
CSO Event: 8/8/21 - 8/12/21

Event Type	Event Date Range	Volume (MG)	Event Reason
CSO Event	8/8/21 - 8/12/21	383	Conveyance Capacity, ISS Gate Closures

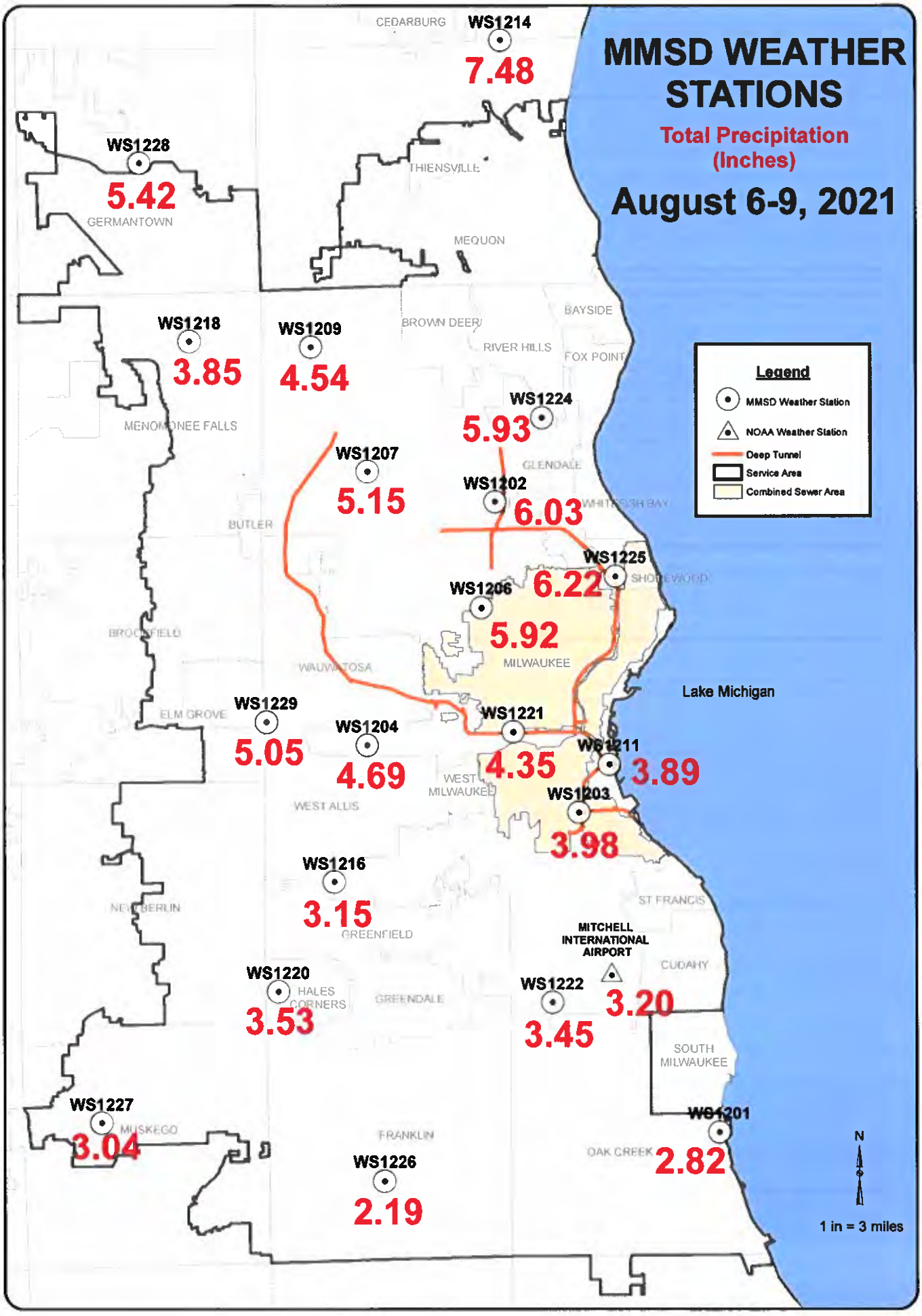
Dropshaft/ Structure	Point No	Serial No	Date	Volume (MG)	Duration (Hrs)	Waterway	Latitude	Longitude	Location
CT3/4	114	182	8/10/21	5.8	3	Menomonee River	43.04116	-87.96752	N. 43rd Street
			8/9/21	2.6	3				
			8/8/21	53.4	9				
		182A	8/10/21	0.1	1		43.04131	-87.96758	4251 W. State Street
			8/8/21	4.9	4				
CT5/6	115	176	8/8/21	14.9	1	Menomonee River	43.03271	-87.94498	N. 25th Street
		177	8/8/21	11.5	1		43.03252	-87.94573	N. 26th Street
		178	8/8/21	3.4	1		43.02792	-87.94793	S. 27th Street at Menomonee River (West outfall)
CT07	116	172	8/8/21	1.7	1	Menomonee River	43.03255	-87.92886	N. Ember Lane (East outfall)
		173	8/8/21	3.4	1		43.03293	-87.93152	N. 15th Street (East outfall)
		174	8/8/21	1.2	1			-87.93162	N. 15th Street (West outfall)
		175	8/8/21	0.7	1		43.03294	-87.93414	N. 17th Street
		185	8/8/21	0.8	1		43.03229	-87.92287	N. 9th Street extended
		190	8/8/21	0.4	1		43.02619	-87.92248	S. 9th Street (West outfall)
		191	8/8/21	0.2	1		43.02620	-87.92523	S. 11th Street
		193	8/8/21	0.7	1		43.02623	-87.92788	S. 13th Street
		194	8/8/21	1.1	1		43.02648	-87.93094	S. Muskego Avenue
CT08	117	148	8/8/21	3.7	2	Menomonee River	43.02295	-87.90559	E. National Avenue
KK01	118	165	8/8/21	7.1	3	Kinnickinnic River	42.99553	-87.91841	S. 6th Street at W. Cleveland Avenue (Middle outfall)
		166	8/8/21	8.2	4		42.99555		S. 6th Street at W. Cleveland Avenue (Nort outfall)
		166A	8/8/21	15.9	4		42.99549	-87.91839	S. 6th Street at W. Cleveland Avenue (Sout outfall)
		167	8/8/21	3.3	2		42.99695	-87.92118	S. 8th Street
KK02	119	164	8/8/21	1.2	2	Kinnickinnic River	42.99704	-87.91221	S. Chase Avenue (South bank)
KK04	121	160	8/8/21	1.7	2	Kinnickinnic River	43.00260	-87.91150	E. Lincoln Avenue (South outfall)
LMN	122	195	8/8/21	43.1	2	Lake Michigan	43.00825	-87.89198	E. Bay Street
NS04	104	091	8/9/21	0.4	1	Milwaukee River	43.08192	-87.89150	E. Edgewood Avenue
			8/8/21	6.0	5				
NS05	105	094	8/8/21	0.9	1	Milwaukee River	43.07467	-87.89295	E. Burleigh Street
NS07	107	099	8/10/21	0.8	11	Milwaukee River	43.05740	-87.89420	E. Boylston Street

MMSD Reported Overflows
CSO Event: 8/8/21 - 8/12/21

Event Type	Event Date Range	Volume (MG)	Event Reason
CSO Event	8/8/21 - 8/12/21	383	Conveyance Capacity, ISS Gate Closures

Dropshaft/ Structure	Point No	Serial No	Date	Volume (MG)	Duration (Hrs)	Waterway	Latitude	Longitude	Location
NS07	107	099	8/9/21	1.1	9	Milwaukee River	43.05740	-87.89420	E. Boylston Street
			8/8/21	4.7	18				
		103	8/8/21	0.4	3		43.05614	-87.90120	N. Marshall Street
		103A	8/10/21	22.7	12		43.05678	-87.90121	1944 N. Commerce Street
			8/9/21	23.8	11				
			8/8/21	45.3	20				
		104	8/8/21	0.1	1		43.05456	-87.90463	N. Holton Street
NS08	108	106	8/8/21	3.8	1	Milwaukee River	43.05222	-87.90744	N. of E. Pleasant Street
		108B	8/8/21	7.3	1		43.05154	-87.90725	E. Pleasant Street at N. Water Street
		111	8/8/21	0.6	3		43.04966	-87.90884	E. Lyon Street
NS09	109	112	8/8/21	0.2	1	Milwaukee River	43.04837	-87.91128	E. Ogden Avenue
		116	8/8/21	0.3	4		43.04424	-87.91283	E. Highland Avenue
		125	8/8/21	0.1	1		43.03875	-87.91036	W. Wisconsin Avenue
NS11	111	089	8/10/21	0.7	2	Milwaukee River	43.08932	-87.89910	E. Capitol Drive
			8/9/21	0.6	3				
			8/8/21	1.6	2				
NS12	112	145	8/10/21	0.6	2	Lincoln Creek	43.09681	-87.95634	N. 35th Street and W. Congress Street
			8/9/21	0.1	1				
			8/8/21	5.3	4				
Non-Trib	CSO-010	010	8/8/21	4.1	3	Menomonee River	43.03190	-87.92179	W. Canal Street at N. 8th Street
	CSO-016	016	8/8/21	0.1	1	Milwaukee River	43.04782	-87.91305	W. Vliet Street extended, east of N. 3rd Street
	CSO-018	018	8/8/21	1.7	2	Milwaukee River	43.02534	-87.90377	S. Water Street at E. Bruce Street
	CSO-197	197	8/8/21	4.7	5	Lincoln Creek	43.10509	-87.95225	W. Hampton Avenue at N. 32nd St
Other	CSO-262	16	8/10/21	1.0	3	Menomonee River	43.04260	-87.98286	N. Hawley Road
			8/9/21	0.8	4				
			8/8/21	2.9	3				
		262	8/8/21	40.3	20		43.04229	-87.98661	N. 59th Street and W. State Street
BS0501		230	8/8/21	1.3	2		43.09654	-87.90702	N Richards St at E Congress St
DC0103		260	8/8/21	5.1	20		42.99501	-87.91759	S 6th St and W Oklahoma Ave

Total Dropshafts: 22 **Total Event Vol (MG): 380.3**


MMSD WEATHER STATIONS
Total Precipitation (Inches)
August 6-9, 2021
WS1214
7.48
WS1228
5.42
GERMANTOWN
WS1218
3.85
WS1209
4.54
WS1224
5.93
WS1207
5.15
WS1202
6.03
WS1225
6.22
WS1206
5.92
MILWAUKEE
WS1229
5.05
WS1204
4.69
WS1221
4.35
WS1211
3.89
WS1203
3.98
WS1216
3.15
GREENFIELD
WS1220
3.53
WS1222
3.45
3.20
MITCHELL INTERNATIONAL AIRPORT
WS1227
3.04
WS1226
2.19
WS1201
2.82
OAK CREEK
Lake Michigan
CEDARBURG
THIENSVILLE
MEQUON
BAYSIDE
BROWN DEER
RIVER HILLS
FOX POINT
MENOMONEE FALLS
GLENDALE
WHITEFISH BAY
SHOREWOOD
BUTLER
BROOKFIELD
WAUWATOSA
ELM GROVE
WEST MILWAUKEE
WEST ALLIS
NEW BERLIN
ST FRANCIS
CUDAHY
HALES CORNERS
GREENDALE
SOUTH MILWAUKEE
MUSKEGO
FRANKLIN
Legend
MMSD Weather Station
NOAA Weather Station
Deep Tunnel
Service Area
Combined Sewer Area
N
1 in = 3 miles

Depth Duration Frequency Curve
Based on NOAA Atlas 14, Vol. 8, Ver. 2
With Rainfall Data from Gauge WS1207 Reported to MMSD
August 6-9, 2021