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Auburn Hills
Beverly Hills
Bingham Farms
Birmingham
Bloomfield Hills
Bloomfield Twp.
Canton Twp.
Commerce Twp.
Dearborn Heights
Farmington
Farmington Hills
Franklin
Garden City
Henry Ford College
Inkster
Lathrup Village
Livonia
Melvindale
Northville
Northville Twp.
Novi
Oak Park
Oakland County
Orchard Lake
Plymouth
Plymouth Twp.
Redford Twp.
Rochester Hills
Romulus
Schoolcraft College
Southfield
Troy
University of
Michigan-Dearborn
Van Buren Twp.
Walled Lake
Washtenaw County
Wayne
Wayne County
Wayne County Airport
Authority
West Bloomfield Twp.
Westland
Wixom

TO: Karen Mondora, ARC Technical Committee Chair
FROM: Annette DeMaria, Executive Director
DATE: January 28, 2020
SUBJECT: Category C Outfall Resampling Results

In 2019, ARC staff re-inspected 26 Category C outfalls in the Rouge River Watershed to determine if future illicit discharge investigations were required. We determined that eight of the outfalls will require additional investigations. These outfalls are in the Village of Beverly Hills and the cities of Livonia, Northville, Plymouth and Wayne. No further investigations are required for the remaining 18 outfalls.

This memorandum summarizes the findings of the 2019 resampling efforts.

Background

In 2018, ARC staff conducted dry weather screening of stormwater outfalls in the Rouge River watershed in accordance with the Rouge River Collaborative Illicit Discharge Elimination Plan (Plan). Based on the results of that screening, twenty-four outfalls were designated to the Category C priority level. Category C outfalls have *E. coli* concentrations between 1,001 and 5,000 MPN/100 ml and are required to be sampled two more times within 12 months to determine if illicit discharge investigations are warranted.

Methodology

The conditions for resampling matched those of the first outfall screening effort. Screening was conducted after a period of at least 48 hours of no rainfall. Screening included notation of depth of flow as well as observations of the surrounding stream and the outfall discharge (See Attachment A). During the original screening, an upstream manhole was surveyed if an outfall was found to be submerged, disconnected, or otherwise unable to be sampled. In these cases, the same manhole was resampled during subsequent screenings.

Each outfall was generally resampled twice. However, if the result from the first resampling event was above 5,000 MPN/100 ml, the outfall was not resampled a second time as it already qualified for elevated prioritization.

According to the Plan, if any of the *E. coli* results are above 5,000 MPN/100 ml, then the outfall is elevated to Category A or B (based on the *E. coli* concentration) and additional illicit discharge investigations are required. The remaining outfalls are designated as Category D and no future actions are required (See Table 1).

Cooperating Partners:
Cranbrook Institute of Science
Friends of the Rouge
Great Lakes Water Authority
Rouge River Advisory Council
SEMCOG
Southeastern Oakland
County Water Authority

Table 1. Priority Categories for Illicit Discharge Investigations

Category	Criteria (MPN/100 mL)	Follow-up Action
A	<i>E. coli</i> >10,000 or unexplained physical characteristics	Conduct advanced investigations – 1 st priority
B	<i>E. coli</i> between 5,001 and 10,000	Conduct advanced investigations – 2 nd priority
C	<i>E. coli</i> between 1,001 and 5,000	Resample 2 more times within 12 months and elevate to Category A or B if either <i>E. coli</i> count is > 5,000. Otherwise move to Category D.
D	<i>E. coli</i> ≤1,000	None

Results

Samples were collected in August and September 2019. Most of the *E. coli* concentrations remained below 5,000 MPN/100 ml (Table 2). This resulted in 17 outfalls being reclassified as Category D. At the remaining eight outfalls, at least one sample had *E. coli* concentrations above 5,000 MPN/100 ml. These outfalls were reclassified as Category A where *E. coli* concentrations exceeded 10,000 MPN/100 ml and Category B where *E. coli* were between 5,001 and 10,000 MPN/100 ml (Table 2).

In 2020, the ARC will begin investigating the Category A and B outfalls in accordance with the Plan and as directed by the Technical Committee.

Table 2. Outfall Resampling Results

Community	Outfall ID	Original Sample Date	Original Sample <i>E. coli</i> [MPN/100 mL]	Resample 1		Resample 2		Final Designation
				8/1/19 <i>E. coli</i> [MPN/100 mL]	8/15/19 <i>E. coli</i> [MPN/100 mL]	9/19/19 <i>E. coli</i> [MPN/100 mL]	9/20/19 <i>E. coli</i> [MPN/100 mL]	
Beverly Hills	BH-2	6/26/2018	1,334	---	383	75	---	Cat D
Beverly Hills	BH-51	7/9/2018	3,076	---	201	>24,196	---	Cat A
Dearborn Heights	DH-Out05SE002	5/29/2018	1,054	3,448	---	---	379	Cat D
Dearborn Heights	DH-Out10SW001-2*	5/29/2018	2,098	20	---	---	75	Cat D
Dearborn Heights	DH-Out20SW001	5/30/2018	2,400	No flow	---	---	No flow	Cat D
Farmington	F-AH	6/8/2018	1,296	---	637	906	---	Cat D
Farmington	F-AH-1	---	---	---	10	97	---	Cat D
Livonia	L-1619	7/12/2018	2,064	---	15,531	---	---	Cat A
Livonia	L-3582	7/12/2018	2,382	1,935	---	5,475	---	Cat B
Livonia	L-4456	7/13/2018	1,050	31	---	10	---	Cat D
Livonia	L-5626	7/16/2018	4,352	98	---	---	20	Cat D
Livonia	L-6187	7/19/2018	1,935	1,725	---	241	---	Cat D
Livonia	L-2129-1*	7/13/2018	1,607	243	---	231	---	Cat D
Livonia	L-48-1*	7/12/2018	2,282	---	1,211	1,317	---	Cat D
Livonia	L-M2008183-1*	7/12/2018	2,064	<1	---	<10	---	Cat D
Livonia	L-U2008220	7/16/2018	1,198	---	<10	<10	---	Cat D
Northville	N-22	6/7/2018	2,755	---	>24,196	---	---	Cat A
Northville	N-23	6/7/2018	3,076	---	9,804	---	---	Cat B
Northville	N-57-1	6/8/2018	3,873	---	6,131	---	---	Cat B
Plymouth	PY-20	5/1/2018	1,274	---	1,223	1,616	---	Cat D
Plymouth	PY-5	5/1/2018	1,500	---	8,164	---	---	Cat B
Walled Lake	WL-1	7/11/2018	1,670	---	41	10	---	Cat D
Wayne	WN-29	5/25/2018	3,076	20	---	---	404	Cat D
Wayne	WN-21A	5/29/2018	4,352	>24,196	---	---	---	Cat A
Westland	WE-SWOF-00355	5/11/2018	3,255	<1	---	---	201	Cat D

*Outfall IDs of the form XX-XXX-# indicate that the first or second upstream manhole was sampled instead of the outfall.

Attachment A. Field Notes

Community	Outfall ID	Resample 1 Notes	Resample 2 Notes
Beverly Hills	BH-2	1/4" flow, sediment deposits	1/4" flow, sediment deposits
Beverly Hills	BH-51	1/4" flow	1/4" flow, foamy appearance to water
Dearborn Heights	DH-Out05SE002	1/2" flow	1/2" flow
Dearborn Heights	DH-Out10SW001-2	Manhole. Sampled trough, depth of flow unknown.	Manhole. Sampled trough, depth of flow unknown.
Dearborn Heights	DH-Out20SW001	No flow	No flow
Farmington	F-AH	Partially submerged	Partially submerged
Farmington	F-AH-1	Manhole not sampled during first effort, but necessary because outfall is submerged. Sampled trough. Depth of flow unknown.	Manhole not sampled during first effort, but necessary because outfall is submerged. Sampled trough. Depth of flow unknown.
Livonia	L-1619	Slow flow, oily sheen	---
Livonia	L-3582	Slow flow, oily sheen	Slow flow
Livonia	L-4456	1/4" flow, sediment deposits.	1/4" flow, sediment deposits, foamy appearance
Livonia	L-5626	1/4" flow, broken concrete near outfall	1/4" flow, broken concrete near outfall
Livonia	L-6187	2.5" flow	2.5" flow
Livonia	L-2129-1	Manhole. Depth of flow unknown.	Manhole. Depth of flow unknown.
Livonia	L-48-1	Manhole, sampled trough. Shallow flow.	Manhole, sampled trough. Shallow flow.
Livonia	L-M2008183-1	Manhole. Depth of flow unknown.	Manhole. Depth of flow unknown.
Livonia	L-U2008220	1/8" flow	1/8" flow
Northville	N-22	1/4" flow	---
Northville	N-23	Slow flow	---
Northville	N-57-1	Manhole, sampled trough. 2.25" flow	---
Plymouth	PY-20	Partially submerged	Partially submerged
Plymouth	PY-5	Partially submerged	---
Walled Lake	WL-1	2" flow	2" flow
Wayne	WN-29	2" flow	2" flow
Wayne	WN-21A	Manhole. Sampled inlet A (24" pipe, bottom of manhole) with heavy flow. Depth of flow unknown.	---
Westland	WE-SWOF-00355	1/4" flow	1/4" flow