



# COUNTY OF ERIE

**MARK C. POLONCARZ**

COUNTY EXECUTIVE

GALE R. BURSTEIN, MD, MPH  
COMMISSIONER OF HEALTH

August 17, 2015,

Abby Snyder, Regional Director  
New York State Department of Environmental Conservation - Region 9  
270 Michigan Avenue  
Buffalo NY 14203-2999

Re: Request for an Investigation of the Sources of Human Fecal (Sewage) Contamination affecting Public Beaches on Lake Erie in Erie County

Dear Ms. Snyder:

The purpose of this letter is to notify the New York State Department of Environmental Conservation (NYSDEC) of contaminant discharges into Lake Erie and several creeks in the vicinities of five public bathing beaches in Erie County. Sampling and analysis by the Erie County Public Health Laboratory and New York State's Wadsworth Laboratory have found these discharges to contain human fecal contamination that negatively impacts the water quality at the bathing beaches. We believe these discharges should be regulated under NYSDEC's Surface Water Quality Standard and/or Municipal Separate Storm Sewer Systems (MS4) Regulation.

Consultants working for the Erie County Department of Health (ECDOH) have completed studies funded by USEPA Great Lakes Restoration Initiative (GRLI) grants. These studies have identified and sampled numerous outfalls and outlets along the Lake Erie shoreline and the banks of the creeks within the study area. Bacterial contaminants and Bacteroides specific to human sources (genetically identified by polymerase chain reaction (PCR) analysis), were detected following rainfall events and were traced to the outlets on the creeks. The study area included the following creeks and associated beaches:

- Big Sister Creek, which impacts Bennett Beach;
- Delaware Creek, which impacts Evans Town Beach;
- Muddy Creek, which impacts Lake Erie Beach;
- Berricks Creek, which impacts Hamburg Town Beach;
- Little Sister Creek, which impacts Wendt Beach.

The point sources of bacterial contamination identified along the five streams are from outfalls (pipes) and outlets (ditches) that makeup the storm sewer system draining into the streams. No direct sanitary sewer or septic system discharges were found. 76 of the 127 flowing outfalls and outlets were the subject of screening and, where appropriate, regulatory and speciation sampling. High levels of bacterial contamination and presence of a human fecal matter component were observed in the results of the sampling at almost all outfalls and outlets along the five (5) streams.

While the studies identified the creeks as the primary sources of contaminants reaching the swimming areas, sanitary surveys of the beaches identified a number of direct discharges to Lake Erie near the beaches. These were

Item  
6(F)

much smaller in volume and concentrations of contaminants because they appeared to be storm water outfalls from limited residential areas (often single lots) in areas served by sanitary sewers.

Detailed reports on each stream and each beach are available at your request. In addition, maps, photos and GPS locations of all identified outfalls and outlets are available if you would like to review them.

Chapter 1 of the New York State Sanitary Code, Subpart 6-2, Bathing Beaches, requires beach operators to prohibit swimming when evidence of contamination is present. The five public beaches in Erie County are regularly monitored for *E.coli* and are required to close when the concentrations exceed the NYSDOH Beach Water Quality Standard of 235 CFU/100mL. The following Table 1 is a summary of the exceedences of the Beach Water Quality Standard at the public beach during the period 2011 - 2014.

**Table 1. 2011 - 2014 Summary of Exceedences Closures (*E.coli* @ 235) vs. Length of Season for Public Beaches**

Public Beaches	2011		2012		2013		2014		Average		%
	Days	Season	Days	Season	Days	Season	Days	Season	Days	Season	
	Closed	Length	Closed	Length	Closed	Length	Closed	Length	Closed	Length	
Hamburg Town Beach	19	86	11	102	22	79	29	101	20.3	92.0	22.0%
Wendt Beach	4	71	7	80	16	79	18	80	11.3	77.5	14.5%
Bennett Beach	3	69	2	80	14	79	25	80	11.0	77.0	14.3%
Evans Town Beach	10	73	3	61	18	66	30	66	15.3	66.5	22.9%
Lake Erie Beach	14	73	0	61	15	66	20	66	12.3	66.5	18.4%
<b>Average</b>	<b>10.0</b>	<b>74.4</b>	<b>4.6</b>	<b>76.8</b>	<b>17.0</b>	<b>73.8</b>	<b>24.4</b>	<b>78.6</b>	<b>14.0</b>	<b>75.9</b>	<b>18.4%</b>

Comprehensive stream surveys on the five streams identified a total of 181 outfalls and outlets. Subsequent observation of these points documented that 127 flowed in wet weather. No direct sanitary sewer or septic system discharges were found. Table 2 is a summary of the outfalls and outlets identified, observed for flow, sampled for screening purposes, sampled for regulatory purposes and tested for the presence of human *Bacteroides spp.*, on the five streams surveyed. (Note: due to budget and logistical constraints, not all outfalls and outlets could be sampled.)

**Table 2 Summary - Outfalls and Outlets - Observed and Sampled**

Streams	Outfalls and Outlets								
	Natural		Man-Made		Total		Flowing and Sampled		
	All	Flowing	All	Flowing	All	Flowing	Screened	Regulatory	Speciation
Muddy Creek	13	7	15	10	28	17	9	8	2
Delaware Creek	26	24	16	13	42	37	17	9	4
Big Sister Creek	27	22	22	12	49	34	12	8	4
Little Sister Creek	8	6	7	6	15	12	9	9	4
Berricks Creek	5	5	42	22	47	27	29	12	4
<b>Totals</b>	<b>79</b>	<b>64</b>	<b>102</b>	<b>63</b>	<b>181</b>	<b>127</b>	<b>76</b>	<b>46</b>	<b>18</b>

*Italics - Estimated for the 2007 Project*

% of the flowing outfalls & outlets      59.8%      36.2%      14.9%

Table 3 summarizes the sampling conducted. Screening involved single grab samples analyzed for *E.coli*; regulatory sampling involved 5 samples collected over a 30-day period, analyzed for fecal coliform and *E.coli*; speciation sampling involved single grab samples analyzed for human *Bacteroides* by PCR method.

Table 3 Summary - Outfalls and Outlets - Sampling Results

Streams	Counts of Outfalls and Outlets Flowing and Sampled						
	Screened		Regulatory (Geometric Mean)			Speciation	
	Locations Sampled	Exceeded	Locations Sampled	Exceeded	Exceeded	Locations Sampled	Human Positive
		Beach WQ Standard		Surface WQ Standard	Beach WQ Standard		
(E.coli)		(Fecal)			(Bacteroides)		
Muddy Creek	9	9	8	8	8	2	1
Delaware Creek	17	17	9	9	9	4	4
Big Sister Creek	12	7	8	7	7	4	4
Little Sister Creek	9	4	9	3	5	4	4
Berricks Creek	29	12	12	12	12	4	4
<b>Totals</b>	<b>76</b>	<b>49</b>	<b>46</b>	<b>39</b>	<b>41</b>	<b>18</b>	<b>17</b>

Geometric means of the analytical results are shown in Tables 4 and 5. (The ID system used below represents the following: stream, segment of the stream and location on the segment, For example, MC2.6 means - MC for Muddy Creek, Segment 2 in ascending order moving upstream and location 6 on the segment moving upstream. The R indicates the receiving water.)

Table 4. Summary of Regulatory Sampling - Fecal Coliform Results by Stream

MUDDY CREEK		DELAWARE CREEK		BIG SISTER CREEK		LITTLE SISTER CREEK		BERRICKS CREEK	
Stream Location	Geo Mean Fecal Coliform (CFU/100mL)	Stream Location	Geo Mean Fecal Coliform (CFU/100mL)	Stream Location	Geo Mean Fecal Coliform (CFU/100mL)	Stream Location	Geo Mean Fecal Coliform (CFU/100mL)	Stream Location	Geo Mean Fecal Coliform (CFU/100mL)
MC1.1	8197	D2.1	1336	BS1.1	535	LS1.1	813	BC2.5	10001
MC1.1R	8153	D2.1-R	1085	BS1.1R	2965	LS1.1-R	353	BC2.5-R	3069
MC1.2	1401	D3.3	918	BS4.1	1196	LS1.2	43	BC9.1	1021
MC1.2R	9059	D3.3-R	1992	BS4.1R	3727	LS1.2-R	420	BC9.1-R	3335
MC2.6	2130	D5.1	1117	BS4.3	977	LS1.3	20	BC11.1	1849
MC2.6R	10001	D5.1-R	1174	BS4.3R	3452	LS1.3-R	355	BC11.1-R	2079
MC3A.3	2456	D5.2	1314	BS6.1	931	LS2.1	290	BC11.2	1675
MC3A.3-R	10001	D5.2-R	1013	BS6.1R	3118	LS2.1-R	263	BC11.2-R	1086
MCSA.3	5335	D5.3	647	BS6.2	815	LS3.1	274	BC12.2	996
MCSA.3-R	10001	D5.3-R	721	BS6.2R	3368	LS3.1-R	248	BC12.2-R	168
MCSB.7	4753	D7.2	970	BS6.4	285	LS5.1	15	BC12.5	2634
MCSB.7-R	6964	D7.2-R	697	BS6.4R	3346	LS5.1-R	385	BC12.5-R	1102
MC6.1	210	D7.3	554	BS10.9	115	LS8.1	104	BC12.6	636
MC6.1-R	3222	D7.3-R	361	BS10.9R	2887	LS8.1-R	209	BC12.6-R	1061
MC6.2	4026	D11.1	607	BS12.5	2708	LS9.1	40	BC12.7	1999
MC6.2-R	5073	D11.1-R	529	BS12.5R	3240	LS9.1-R	268	BC12.7-R	1431
		D11.2	257			LS10.1	141	BC12.9	656
		D11.2-R	363			LS10.1-R	246	BC12.9-R	324
								BC15.1	352
								BC15.1-R	291
								BC15.3	1181
								BC15.3-R	194
								BC15.6	537
								BC15.6-R	143

Table 5. Summary of Regulatory Sampling - *E.coli* Results by Stream

MUDDY CREEK		DELAWARE CREEK		BIG SISTER CREEK		LITTLE SISTER CREEK		BERRICKS CREEK	
Stream Location	Geo Mean	Stream Location	Geo Mean	Stream Location	Geo Mean	Stream Location	Geo Mean	Stream Location	Geo Mean
	<i>E. coli</i> (CFU/100mL)		<i>E. coli</i> (CFU/100mL)		<i>E. coli</i> (CFU/100mL)		<i>E. coli</i> (CFU/100mL)		<i>E. coli</i> (CFU/100mL)
MC1.1	3394	D2.1	781	BS1.1	371	LS1.1	781	BC2.5	10001
MC1.1R	6676	D2.1-R	598	BS1.1R	2678	LS1.1-R	339	BC2.5-R	2968
MC1.2	758	D3.3	352	BS4.1	2174	LS1.2	18	BC9.1	986
MC1.2R	7049	D3.3-R	1164	BS4.1R	3674	LS1.2-R	344	BC9.1-R	3567
MC2.6	1579	D5.1	703	BS4.3	688	LS1.3	22	BC11.1	1879
MC2.6R	8012	D5.1-R	766	BS4.3R	3904	LS1.3-R	360	BC11.1-R	1955
MC3A.3	2598	D5.2	679	BS6.1	790	LS2.1	212	BC11.2	1528
MC3A.3-R	7097	D5.2-R	407	BS6.1R	3026	LS2.1-R	244	BC11.2-R	853
MC5A.3	5886	D5.3	348	BS6.2	1669	LS3.1	305	BC12.2	839
MCSA.3-R	6310	D5.3-R	551	BS6.2R	3909	LS3.1-R	259	BC12.2-R	134
MCSB.7	3390	D7.2	489	BS6.4	181	LS5.1	9	BC12.5	2046
MCSB.7-R	2806	D7.2-R	464	BS6.4R	4036	LS5.1-R	354	BC12.5-R	1326
MC6.1	207	D7.3	287	BS10.9	51	LS8.1	265	BC12.6	662
MC6.1-R	2055	D7.3-R	317	BS10.9R	4260	LS8.1-R	173	BC12.6-R	828
MC6.2	3324	D11.1	259	BS12.5	2702	LS9.1	33	BC12.7	2087
MC6.2-R	2820	D11.1-R	293	BS12.5R	2922	LS9.1-R	249	BC12.7-R	886
		D11.2	202			LS10.1	133	BC12.9	499
		D11.2-R	375			LS10.1-R	201	BC12.9-R	337
								BC15.1	257
								BC15.1-R	272
								BC15.3	1132
								BC15.3-R	223
								BC15.6	344
								BC15.6-R	128

PCR analysis for *Bacteroides* speciation was conducted on a limited number of samples by the NYSDOH Wadsworth Laboratory. Of those analyzed, the overwhelming majority tested positive for human *Bacteroides*. The results are shown in Table 6.

Table 6. Summary of Speciation Sampling Results by Stream

MUDDY CREEK		DELAWARE CREEK		BIG SISTER CREEK		LITTLE SISTER CREEK		BERRICKS CREEK	
Stream Location	Human Fecal Matter ( <i>Bacteroides</i> )	Stream Location	Human Fecal Matter ( <i>Bacteroides</i> )	Stream Location	Human Fecal Matter ( <i>Bacteroides</i> )	Stream Location	Human Fecal Matter ( <i>Bacteroides</i> )	Stream Location	Human Fecal Matter ( <i>Bacteroides</i> )
MC1.1	Positive	D2.1	Positive	BS1.1		LS1.1	Positive	BC2.5	Positive
MC1.1R		D2.1-R		BS1.1R		LS1.1-R		BC2.5-R	
MC1.2		D3.3		BS4.1	Positive	LS1.2		BC9.1	Positive
MC1.2R		D3.3-R		BS4.1R		LS1.2-R		BC9.1-R	
MC2.6		D5.1		BS4.3	Positive	LS1.3	Positive	BC11.1	
MC2.6R		D5.1-R		BS4.3R		LS1.3-R		BC11.1-R	
MC3A.3	Negative	D5.2	Positive	BS6.1		LS2.1		BC11.2	
MC3A.3-R		D5.2-R		BS6.1R		LS2.1-R		BC11.2-R	
MCSA.3		D5.3	Positive	BS6.2	Positive	LS3.1		BC12.2	
MCSA.3-R		D5.3-R		BS6.2R		LS3.1-R		BC12.2-R	
MCSB.7		D7.2		BS6.4		LS5.1		BC12.5	
MCSB.7-R		D7.2-R		BS6.4R		LS5.1-R		BC12.5-R	
MC6.1		D7.3		BS10.9		LS8.1	Positive	BC12.6	
MC6.1-R		D7.3-R		BS10.9R		LS8.1-R		BC12.6-R	
MC6.2		D11.1	Positive	BS12.5	Positive	LS9.1		BC12.7	
MC6.2-R		D11.1-R		BS12.5R		LS9.1-R		BC12.7-R	
		D11.2				LS10.1	Positive	BC12.9	
		D11.2-R				LS10.1-R		BC12.9-R	
								BC15.1	
								BC15.1-R	
								BC15.3	Positive
								BC15.3-R	
								BC15.6	
								BC15.6-R	

The reports, available at your request, include maps of the locations for screening (*E.coli*), regulatory (fecal coliform & *E.coli*) and speciation (*Bacteroides*) sampling on each stream.

To enhance the protection of the public health, ECDOH requests that NYSDEC investigate the sources of contamination discovered by these studies. Please inform ECDOH and NYSDOH of any actions being taken by NYSDEC to investigate and remediate the problems based on this request.

Please, do not hesitate to contact me at (716) 961-6832 or by e-mail at [dolores.funke@erie.gov](mailto:dolores.funke@erie.gov) if further information is needed.

Sincerely,



Dolores M. Funke, P.E.

Director of Environmental Health

cc. Eric Weigert, NYSDOH  
Steven Walters, Town of Hamburg  
Keith Dash, Town of Evans  
Joseph L. Fiegl, P.E., Erie County Division of Sewerage Management  
Troy Schinzel, Erie County Parks Department