Oconee County Storm Water Management Program

IMPAIRED WATERS MONITORING & IMPLEMENTATION PLAN:

2017 Annual Evaluation

Impaired Waters

The following waters have been identified as impaired by the latest 305(b)/303(d) List of Waters & are the subject of this plan. In each case, the pollutant of concern is fecal coliform.

- Barber Creek
- Calls Creek
- McNutt Creek
- Middle Oconee River

Monitoring

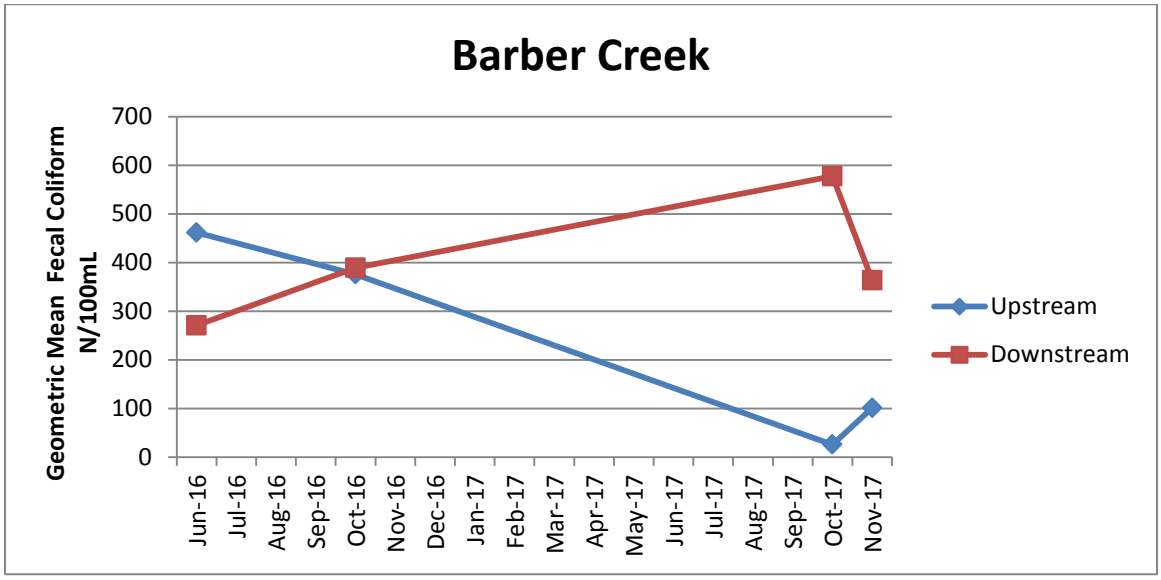
The Oconee County Utility Department performed monitoring according to the approved plan:

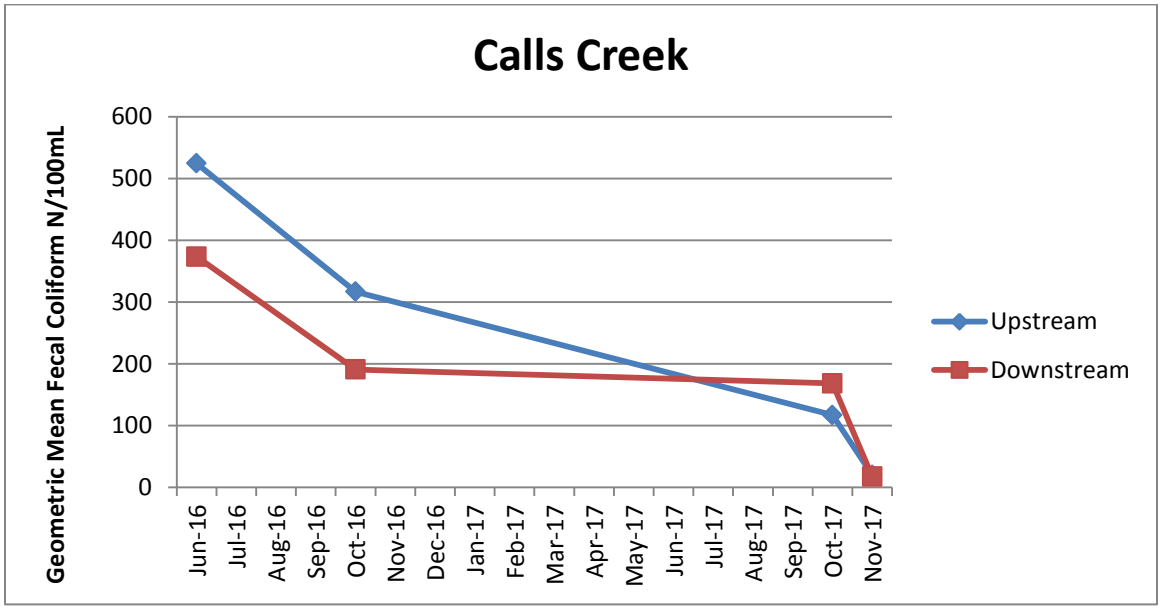
- Upstream & downstream samples were collected from each of the impaired waters in order to calculate two geographic means for the year.
    - A minimum of four samples were collected (one week apart) from each sampling site during the months of October & November
    - Laboratory analysis for fecal coliform was conducted & the geometric mean for each site was calculated. The results are shown in the table below:

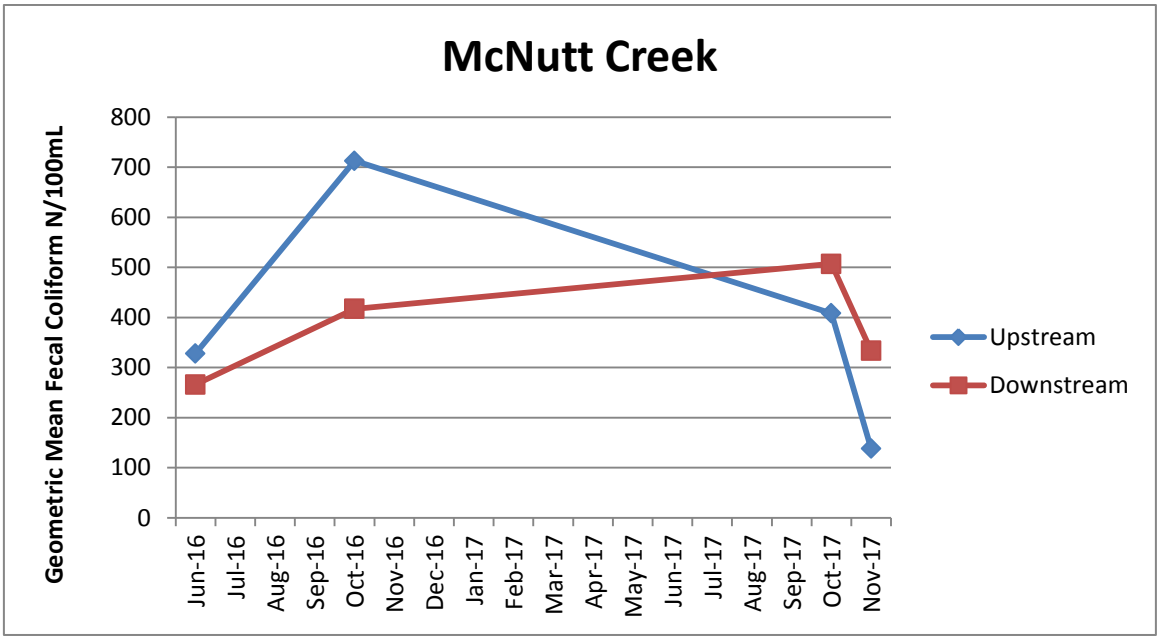
	October – upstream	October – downstream	November – upstream	November - downstream
Barber Creek	25.89	577.41	101.32	363.73
Calls Creek	117.04	168.35	20.00	17.46
McNutt Creek	408.20	507.09	138.14	333.57
Middle Oconee River	122.77	332.70	63.63	48.91

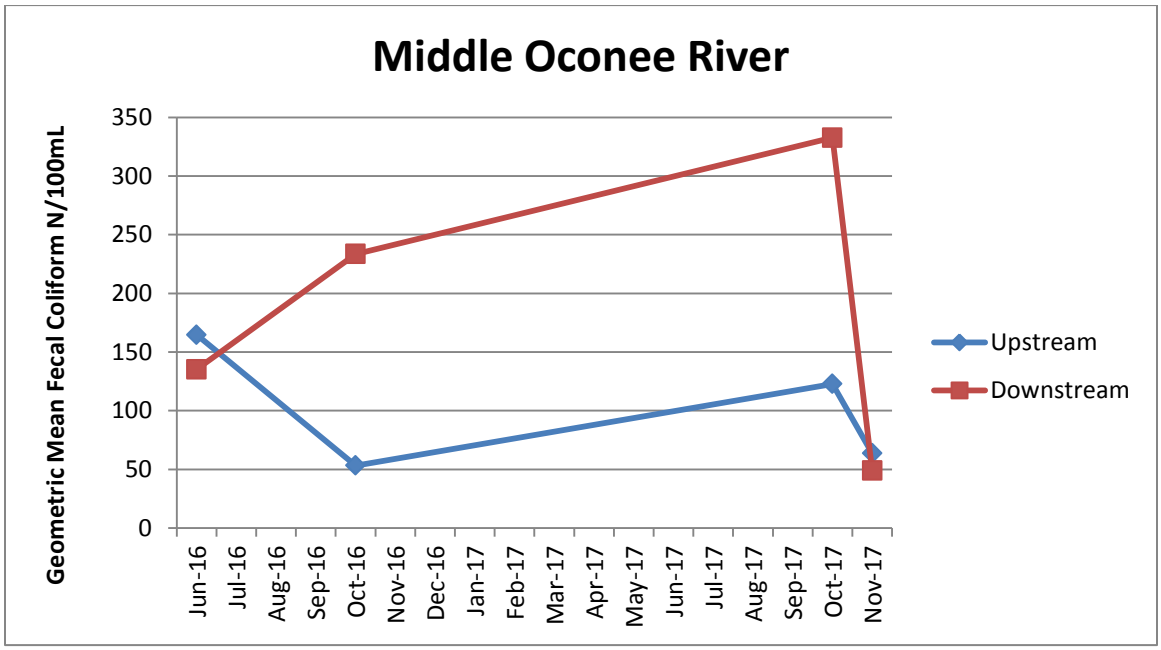
Trend in Water Quality

Following are line graphs comparing data results over time for each of the four impaired waters:






McNutt Creek
Geometric Mean Fecal Coliform N/100mL
800
700
600
500
400
300
200
100
0
Jun-16
Jul-16
Aug-16
Sep-16
Oct-16
Nov-16
Dec-16
Jan-17
Feb-17
Mar-17
Apr-17
May-17
Jun-17
Jul-17
Aug-17
Sep-17
Oct-17
Nov-17
Upstream
Downstream


Middle Oconee River
Geometric Mean Fecal Coliform N/100mL
350
300
250
200
150
100
50
0
Jun-16
Jul-16
Aug-16
Sep-16
Oct-16
Nov-16
Dec-16
Jan-17
Feb-17
Mar-17
Apr-17
May-17
Jun-17
Jul-17
Aug-17
Sep-17
Oct-17
Nov-17
Upstream
Downstream

Evaluation

BMPs included from the County's SWMP:

1. Public Education & Outreach BMP #2: website
2. Public Education & Outreach BMP #3: brochure distribution in County offices
3. Public Education & Outreach BMP #4: distribution of material to school parents
4. Public Education & Outreach BMP #5: distribution of brochures by Keep Oconee Beautiful
5. Illicit Discharge Detection & Elimination BMP #1: ordinance to prohibit illicit discharges to the storm drain system
6. Illicit Discharge Detection & Elimination BMP #3: dry weather screenings

Additional BMPs:

7. Distribution of educational material at public parks
8. Inspection priority of areas upstream of impaired waters

All of the waters addressed in this plan enter into Oconee County already impaired, but the downstream sampling does indicate a higher level of the pollutant in some cases. It is difficult to perform a trend analysis without several years of data; however, the BMPs for public education can be targeted more specifically to address the source of impairment (fecal coliform) in order to try to further reduce the pollutant. It is possible that failing septic tanks could be a contributor. In the future, proper care and maintenance of septic systems will be included in our public educational outreach.

Tracking

The data collected by the Utility Department during sampling is attached to this evaluation report.

Fecal Coliform-Membrane Filter

Standard Methods
19th Edition Method 9222D, P.9-60

Sample Date	Collected By	Sample Location/Time	Sample Identity	Sample Dilution %	Time Placed in Bath	Analysis Date &Time	Incubation Time	Colony Count	Fecal Coliform N/100 mL	Temp of Incubator *C	Analyst Initials
10/4/17	RSB	Lab/Blank 1030	Blank 100 mL	100%	11:35a	10/5/17 11:35a	24hrs	0	0	44.4	RSB
10/4/17	P.L/J.H.	BarberUp/ 8:36	SW-1Up 1 mL	100%				0	0		
↓	↓	BarberUp/ 8:36	SW-1Up 5 mL	100%				14	280		
10/4/17	P.L/J.H.	BarberDn/ 10:05	SW-1Dn 1 mL	100%				5	500		
↓	↓	BarberDn/ ↓	SW-1Dn 5 mL	100%				39	780		
10/4/17	P.L/J.H.	Calls/ 9:00A.M.	SW-2Up 1 mL	100%				2	200		
↓	↓	Calls/ 9:00A.M.	SW-2Up 5 mL	100%				5	100		
10/4/17	P.L./J.H.	Calls/ 9:37A.M.	SW-2Dn 1 mL	100%				2	200		
↓	↓	Calls/ 9:37A.M.	SW-2Dn 5 mL	100%				24	480		
10/4/17	P.L./J.H.	McNutt/ 8:22	SW-3Up 1 mL	100%				2	200	44.5	
↓	↓	McNutt/ 8:22	SW-3Up 5 mL	100%				2	40		
10/4/17	P.L/J.H	McNutt/ 10:10A.M.	SW-3Dn 1 mL	100%				8	800		
↓		McNutt/ ↓	SW-3Dn 5 mL	100%				23	460		
10/4/17	P.L.J.H.	Middle/ 9:45	SW-4Up 1 mL	100%				1	100		
↓	↓	Middle/ 9:45	SW-4Up 5 mL	100%				4	80		
10/4/17	P.L.JH	Middle/ 9:24	SW-4Dn 1 mL	100%				1	100		
↓	↓	Middle/ 9:24	SW-4Dn 5 mL	100%				9	180		

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10/11/17	RSB	Lab/Blank 12p	Blank 100 mL	100%	1255p	10/12/17 12:55p	24 hrs	0		44.5 44.7	RSB
10/11/17	P.L./J.H.	BarberUp/ 11:10 A.M.	SW-1Up 1 mL	100%				0	0		
↓	↓	BarberUp/ ↓	SW-1Up 5 mL	100%				10	200		
10/11/17	P.L./J.H.	BarberDn/ 10:22	SW-1Dn 1 mL	100%				4	400		
↓	P.L./J.H.	BarberDn/ 10:22	SW-1Dn 5 mL	100%				30	600		
10/11/17	P.L./J.H	Calls/ 8:31 A.M.	SW-2Up 1 mL	100%				2	200		
↓	↓	Calls/ ↓	SW-2Up 5 mL	100%				11	220		
10/11/17	P.L./J.H	Calls/ 9:38 A.M.	SW-2Dn 1 mL	100%				1	100		
↓	↓	Calls/ ↓	SW-2Dn 5 mL	100%				14	280		
10/11/17	P.L./J.H	McNutt/ 10:45 A.M.	SW-3Up 1 mL	100%				6	600		
10/11/17	↓	McNutt/ ↓	SW-3Up 5 mL	100%				30	600		
10/11/17	P.L./J.H.	McNutt/ 10:29	SW-3Dn 1 mL	100%				4	400		
↓	P.L./J.H	McNutt/ 10:29	SW-3Dn 5 mL	100%				25	500		
10/11/17	P.L./J.H	Middle/ 10:08 A.M.	SW-4Up 1 mL	100%				6	600		
↓	↓	Middle/ ↓	SW-4Up 5 mL	100%				12	240		
10/11/17	P.L./J.H.	Middle/ 9:45 A.M.	SW-4Dn 1 mL	100%				5	500		
↓	P.L./J.H	Middle/ ↓	SW-4Dn 5 mL	100%				39	780		

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	P.L./J.H	Lab/Blank	Blank 100 mL	100%	12:12p	10/19/17 1:05	24:58 hrs	0	0	44.6	KSB
10/18/17	P.L./J.H	BarberUp/ 8:32AM	SW-1Up 1 mL	100%				0	0		
		BarberUp/ ↓	SW-1Up 5 mL	100%				3	60		
10/18/17	P.L./J.H	BarberDn/ 10:05AM	SW-1Dn 1 mL	100%				3	300		
	↓	BarberDn/ ↓	SW-1Dn 5 mL	100%				20	400		
10/18/17	P.L./J.H.	Calls/ 8:49AM	SW-2Up 1 mL	100%				1	100		
	↓	Calls/ ↓	SW-2Up 5 mL	100%				5	100		
10/18/17	P.L./J.H.	Calls/ 9:32AM.	SW-2Dn 1 mL	100%				1	100		
	↓	Calls/ ↓	SW-2Dn 5 mL	100%				4	80		
10/18/17	P.L./J.H.	McNutt/ 8:17AM	SW-3Up 1 mL	100%				4	400	44.5	
	↓	McNutt/ ↓	SW-3Up 5 mL	100%				12	240		
10/18/17	P.L./J.H	McNutt/ 9:10:10AM	SW-3Dn 1 mL	100%				3	300		
	↓	McNutt/ ↓	SW-3Dn 5 mL	100%				11	220		
10/18/17	P.L./J.H	Middle/ 9:45AM	SW-4Up 1 mL	100%				0	0		
	↓	Middle/ ↓	SW-4Up 5 mL	100%				5	100		
	P.L./J.H	Middle/ DW 9:30AM	SW-4Dn 1 mL	100%				2	200		
		Middle/ ↓	SW-4Dn 5 mL	100%				9	180		

Fecal Coliform-Membrane Filter

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		Lab/Blank	Blank 100 mL	100%	12:30	10/27/17	24 hrs	0	0	44.3	KSB
					↓	1230	↓			↓	↓
10/26/17	P.L./J.H.	BarberUp/ 8:30	SW-1Up 1 mL	100%				2	200		
↓	↓	BarberUp/ ↓	SW-1Up 5 mL	100%				15	300		
10/26/17	P.L./J.H.	BarberDn/ 10:20AM	SW-1Dn 1 mL	100%				11	1100		
↓	↓	BarberDn/ ↓	SW-1Dn 5 mL	100%				50	1000		
10/26/17	P.L./J.H	Calls/ UP 8:45	SW-2Up 1 mL	100%				1	100		
↓	↓	Calls/ ↓	SW-2Up 5 mL	100%				2	40		
10/26/17	P.L./J.H	Calls/ DP 9:40	SW-2Dn 1 mL	100%				3	300		
↓	↓	Calls/ ↓	SW-2Dn 5 mL	100%				5	100		
10/26/17	P.L./J.H	McNutt/ 9:15AM	SW-3Up 1 mL	100%				17	1700	43.7	
↓	↓	McNutt/ ↓	SW-3Up 5 mL	100%				82	1640	↓	
10/26/17	P.L./J.H.	McNutt/ 10:15AM	SW-3Dn 1 mL	100%				10	1000		
↓	↓	McNutt/ ↓	SW-3Dn 5 mL	100%				45	900		
10/26/17	P.L./J.H	Middle/ 9:35AM	SW-4Up 1 mL	100%				8	800		
↓	↓	Middle/ ↓	SW-4Up 5 mL	100%				28	566		
10/26/17	P.L./J.H	Middle/ 9:30AM	SW-4Dn 1 mL	100%				9	900		
↓	↓	Middle/ ↓	SW-4Dn 5 mL	100%				33	660		

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11/1/17	RSB	Lab/Blank 1130	Blank 100 mL	100%	12:30p	11/2/17 12:30p	24 hrs	0	0	44.5	RSB
↓	EC/JH	BarberUp/8:38	SW-1Up 1 mL	100%	↓	↓	↓	1	100	↓	
		BarberUp/	SW-1Up 5 mL	100%				11	220		
		BarberDn/9:59	SW-1Dn 1 mL	100%				2	200		
		BarberDn/	SW-1Dn 5 mL	100%				17	340	↓	
		Calls/ 8:55	SW-2Up 1 mL	100%				0	0		
		Calls/	SW-2Up 5 mL	100%				1	20		
		Calls/ 9:36	SW-2Dn 1 mL	100%				0	0		
		Calls/	SW-2Dn 5 mL	100%				5	100		
		McNutt/ 8:22	SW-3Up 1 mL	100%				2	200	44.4	
		McNutt/	SW-3Up 5 mL	100%				12	240	↓	
		McNutt/ 9:59	SW-3Dn 1 mL	100%				2	200		
		McNutt/	SW-3Dn 5 mL	100%				17	340		
		Middle/ 9:43	SW-4Up 1 mL	100%				3	300	↓	
		Middle/	SW-4Up 5 mL	100%				25	500		
		Middle/ 9:12	SW-4Dn 1 mL	100%				2	200		
		Middle/	SW-4Dn 5 mL	100%				17	340		

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Sample Date	Collected By	Sample Location	Sample Time	Sample Dilution %	Time Placed in Bath	Analysis Date &Time	Incubation Time	Colony Count	Fecal Coliform N/100 mL	Temp of Incubator *C	Analyst Initials
11/8/17	RSB	BarberUp/blank			255p	11/9/17	23:16hrs	0	0		RSB
	P.L.J.H.	BarberUp/1ml	1:06 P.m.	100%		2:10p		0	0		
	↓	BarberUp/5ml	↓	100%				6	120		
	RSB	BarberDn/blank						0	0		
	P.L.J.H	BarberDn/1ml	11:55A.M.	100%				2	200		
	↓	BarberDn/5ml		100%				22	440		
	RSB	CallsUp/blank						0	0		
	P.L.J.H	CallsUp/1ml	1:23P.M.	100%				0	0		
	↓	CallsUp/5ml	↓	100%				4	80		
	RSB	CallsDn/blank						0	0		
	P.L.J.H	CallsDn/1ml	1	100%				0	0		
	↓	CallsDn/5ml	10:55AM	100%				11	220		
	RSB	McNuttUp/blank						0	0		
	P.L.J.H	McNuttUp/ml1	12:54P.m	100%				2	200		
	↓	McNuttUp/ml5	↓	100%				12	240		
	RSB	McnuttDn/blank						0	0		
	P.L.J.H	McNuttDn/1ml	11:50AM	100%				3	300		
	↓	McNuttDn/5ml		100%				18	360		
	RSB	MiddleUp/blank						0	0		
	P.L.J.H	MiddleUp/1ml	11:29AM	100%				0	0		
	↓	MiddleUp/5ml	↓	100%				4	80		
	RSB	MiddleDn/blank						0	0		
	P.L.J.H	MiddleDn/1ml	10:35AM	100%				1	100		
	↓	MiddleDn/5ml	↓	100%				5	100		

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Sample Date	Collected By	Sample Location	Sample Time	Sample Dilution %	Time Placed in Bath	Analysis Date &Time	Incubation Time	Colony Count	Fecal Coliform N/100 mL	Temp of Incubator *C	Analyst Initials
		BarberUp/blank			12pm	11/16/17	24hrs	0	0	44.5	KSD
11/15/17	P.L/E.C.	BarberUp/1ml	8:52A.M.	100%		12p		1	100		
		BarberUp/5ml		100%				5	100		
		BarberDn/blank						0	0		
11/15/17	P.L/E.C.	BarberDn/1ml	10:15A.M.	100%				7	700		
		BarberDn/5ml		100%				36	720		
		CallsUp/blank						0	0		
11/15/17	P.L/E.C.	CallsUp/1ml	9:07A.M.	100%				0	0		
		CallsUp/5ml		100%				2	40		
		CallsDn/blank						0	0		
11/15/17	P.L/E.C.	CallsDn/1ml	9:48A.M.	100%				1	100		
		CallsDn/5ml		100%				3	60		
		McNuttUp/blank						0	0	44.5	
11/15/17	P.L/E.C.	McNuttUp/ml1	8:37A.M.	100%				4	400		
		McNuttUp/ml5		100%				11	220		
		McnuttDn/blank						0	0		
11/15/17	P.L./E.C.	McNuttDn/1ml	10:25A.M.	100%				4	400		
		McNuttDn/5ml		100%				36	720		
		MiddleUp/blank						0	6		
11/15/17	P.L./E.C.	MiddleUp/1ml	10:00A.M.	100%				3	360		
		MiddleUp/5ml		100%				9	180		
		MiddleDn/blank						0	0		
11/15/17	P.L./E.C.	MiddleDn/1ml	9:30A.M.	100%				0	0		
		MiddleDn/5ml		100%				3	60		

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Sample Date	Collected By	Sample Location	Sample Time	Sample Dilution %	Time Placed in Bath	Analysis Date &Time	Incubation Time	Colony Count	Fecal Coliform N/100 mL	Temp of Incubator *C	Analyst Initials
		BarberUp/blank			12:54p	P.L. 11:05	22hrs 9min		0	44.5	
11/22/17	P.L./S.H.	BarberUp/1ml	9:50A.m.	100%				3	300		P.L.
		BarberUp/5ml		100%				12	240		
		BarberDn/blank							0		
11/22/17	P.L./S.H.	BarberDn/1ml	10:35A.m.	100%				6	600		
		BarberDn/5ml		100%				28	560		
11/22/17	P.L./S.H.	CallsUp/blank	9:10A.m.						0		
		CallsUp/1ml	9:10A.m.	100%				1	100		
		CallsUp/5ml		100%				4	80		
		CallsDn/blank							0		
11/22/17	P.L./S.H.	CallsDn/1ml	9:55A.m.	100%				2	200		
		CallsDn/5ml		100%				5	P.L. 100		
		McNuttUp/blank							0	44.3	
11/22/17	P.L./S.H.	McNuttUp/ml1	8:40A.m	100%				4	400		
		McNuttUp/ml5		100%				13	260		
		McnuttDn/blank							0		
11/22/17	P.L./S.H.	McNuttDn/1ml	10:20A.m	100%				2	200		
		McNuttDn/5ml		100%				18	360		
		MiddleUp/blank							0		
11/22/17	P.L./S.H.	MiddleUp/1ml	10:05A.m	100%				0	0		
		MiddleUp/5ml		100%				6	120		
11/22/17	P.L./S.H.	MiddleDn/blank	9:35A.M						0		
		MiddleDn/1ml		100%				1	100		
		MiddleDn/5ml		100%				6	120		

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		BarberUp/blank			12:45p	11/30/17	24:10 hrs	0	0	44.5	KB
11/29/17	P.L/J.H.	BarberUp/1ml	9:46 A.M.	100%	↓	12:50		2	200	↓	
↓	↓	BarberUp/5ml	↓	100%	↓	↓		15	300		
		BarberDn/blank						0	0		
11/29/17	P.L/J.H	BarberDn/1ml	11:25A.M.	100%				1	100		
↓	↓	BarberDn/5ml	↓	100%				20	400		
		CallsUp/blank						0	0		
11/29/17	P. L./J.H.	CallsUp/1ml	10:04A.M.	100%				1	100		
↓	↓	CallsUp/5ml	↓	100%				10	200		
		CallsDn/blank						0	0		
11/29/17	P.L./J.H.	CallsDn/1ml	10:55 A.M.	100%				0	0		
		CallsDn/5ml		100%				0	0		
		McNuttUp/blank						0	0		
11/29/17	P. L./J.H.	McNuttUp/ml1	9:30A.M.	100%				0	0		
↓	↓	McNuttUp/ml5	↓	100%				6	120		
		McnuttDn/blank						0	0		
11/29/17	P.L/J.H	McNuttDn/1ml	11:20A.M.	100%				4	400		
↓	↓	McNuttDn/5ml	↓	100%				14	280		
		MiddleUp/blank						0	0		
11/29/17	P.L/J.H	MiddleUp/1ml	~~10:55 A.M.~~	100%				1	100		
↓	↓	MiddleUp/5ml	11:15 A.M.	100%				7	140		
		MiddleDn/blank						0	0		
11/29/17	P. L/J.H	MiddleDn/1ml	10:35 A.M.	100%				0	0		
↓	↓	MiddleDn/5ml	↓	100%				8	160		