Oconee County Storm Water Management Program

IMPAIRED WATERS MONITORING & IMPLEMENTATION PLAN:

2020 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

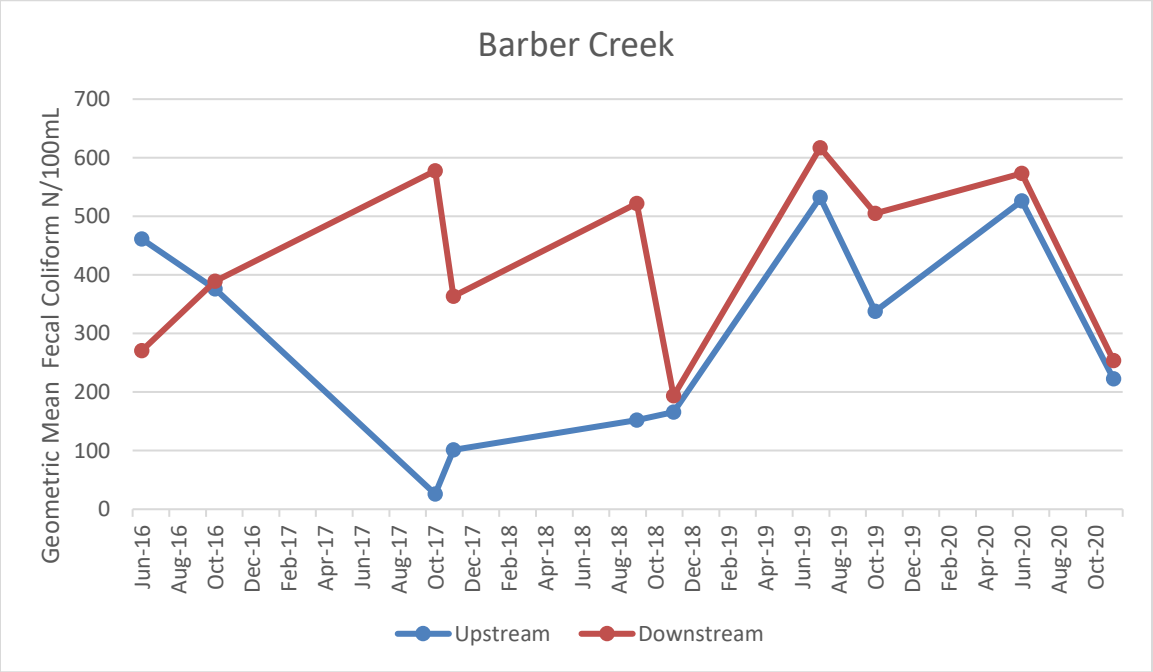
Oconee County Water Resources staff performed monitoring according to the approved plan:

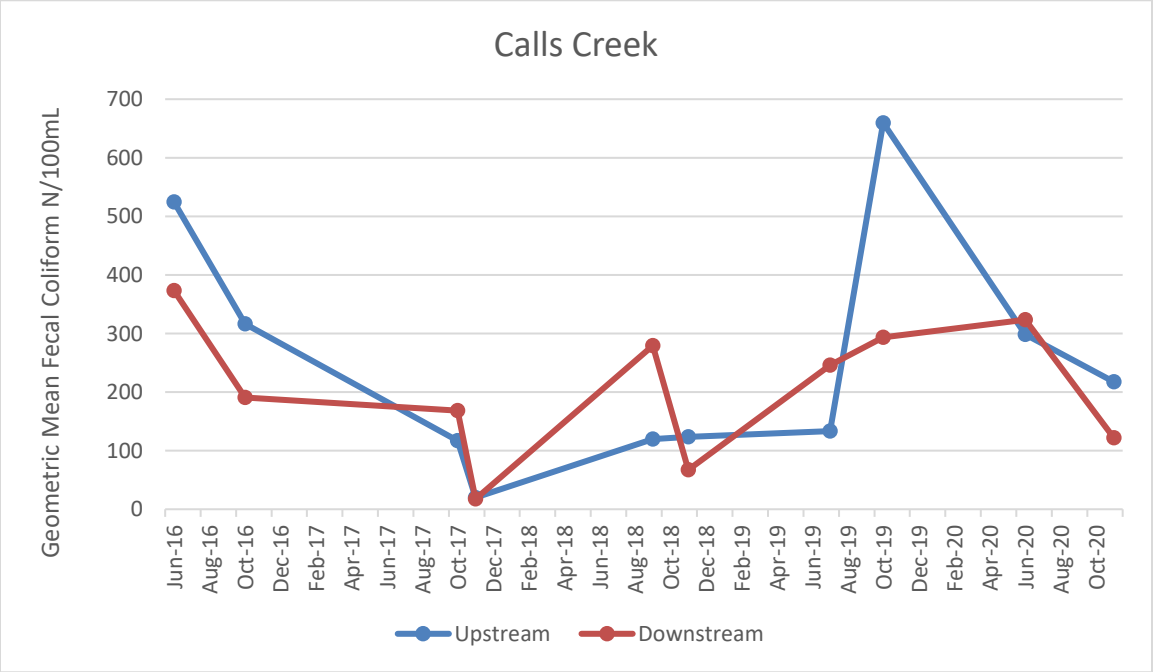
- Upstream & downstream samples were collected from each of the impaired waters in order to calculate two geographic means for the year.
    - A minimum of four samples were collected (one week apart) from each sampling site during the months of June & November.
    - Laboratory analysis for fecal coliform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

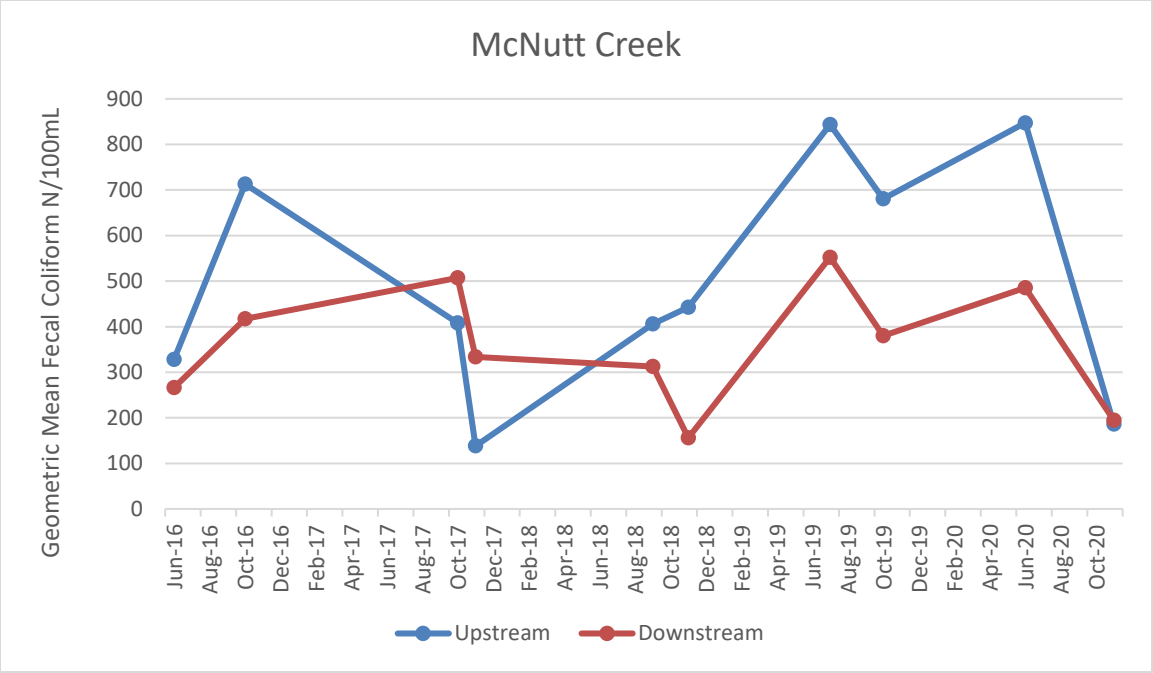
	June – upstream	June – downstream	November – upstream	November - downstream
Barber Creek	526.31	573.20	222.64	253.77
Calls Creek	298.20	323.65	217.71	121.71
McNutt Creek	847.37	485.24	186.49	194.31
Middle Oconee River	374.13	313.20	126.49	89.44

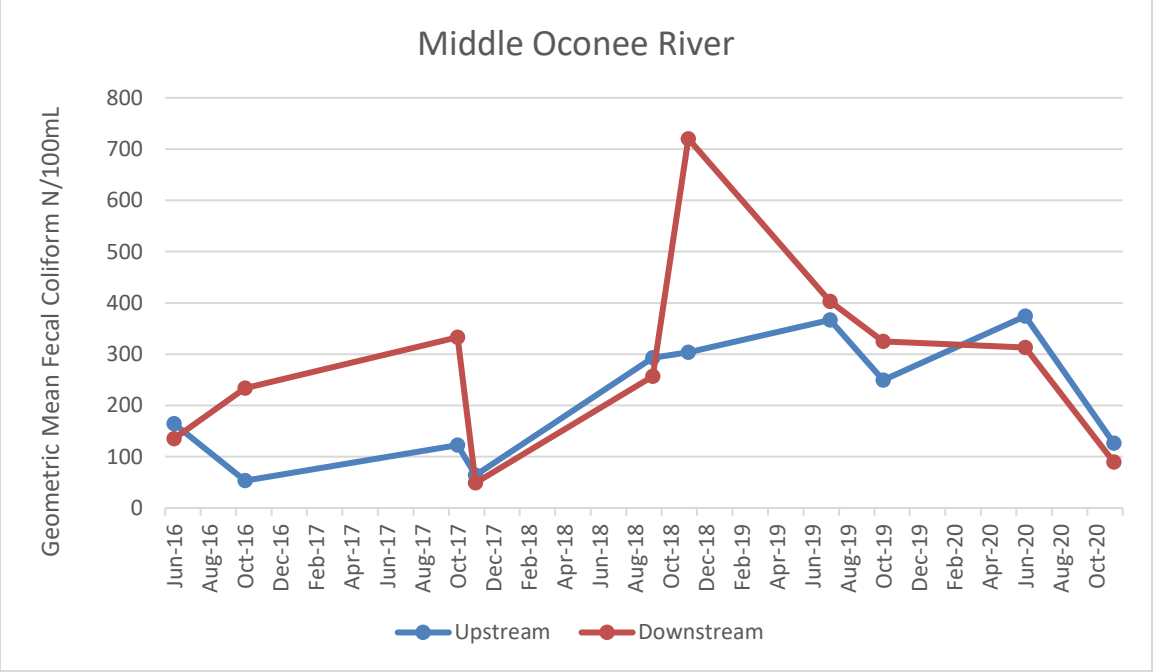
Trend in Water Quality

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






McNutt Creek
Geometric Mean Fecal Coliform N/100mL
900
800
700
600
500
400
300
200
100
0
Jun-16
Aug-16
Oct-16
Dec-16
Feb-17
Apr-17
Jun-17
Aug-17
Oct-17
Dec-17
Feb-18
Apr-18
Jun-18
Aug-18
Oct-18
Dec-18
Feb-19
Apr-19
Jun-19
Aug-19
Oct-19
Dec-19
Feb-20
Apr-20
Jun-20
Aug-20
Oct-20
Upstream
Downstream


Middle Oconee River
Geometric Mean Fecal Coliform N/100mL
800
700
600
500
400
300
200
100
0
Jun-16
Aug-16
Oct-16
Dec-16
Feb-17
Apr-17
Jun-17
Aug-17
Oct-17
Dec-17
Feb-18
Apr-18
Jun-18
Aug-18
Oct-18
Dec-18
Feb-19
Apr-19
Jun-19
Aug-19
Oct-19
Dec-19
Feb-20
Apr-20
Jun-20
Aug-20
Oct-20
Upstream
Downstream

Evaluation

BMPs included from the County's SWMP:

1. Public Education & Outreach BMP #2: website
2. Public Education & Outreach BMP #3: social media program
3. Public Education & Outreach BMP #4: distribution of educational material at events attended by Keep Oconee Beautiful
4. Public Involvement/Participation BMP #2: River cleanup event 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. Pet waste stations at public parks
8. Inspection priority of areas upstream of impaired waters

Some 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. Public education has been 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. OconeeWaters, a local environmental group which is part of the Upper Oconee Watershed Network (UOWN OconeeWaters), has partnered with the county to implement educational outreach programs to address stream pollutants, including the issue of failing septic systems. UOWN OconeeWaters developed "Storm Water Journey," a geocache trail hosted on the Oconee County Storm Water Management webpage that includes educational information about nonpoint source pollution. The partnership has also produced "Protect Our Water," an educational outreach program originally developed in 2019 to target 2nd grade students and their families through the school system. The program is also available digitally on the Oconee County Storm Water Management webpage.

Tracking

The data collected by Water Resources during sampling is attached to this evaluation report.

Fecal Coliform-Membrane Filter
Stormwater Testing
Standard Methods
19th Editlon 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
6/4/20	JS/OD	Lab/Blank	Blank 100 mL	100%	10:33am	6/5/20	24hr	Ø	Ø	44.4	
		Barber/ 9:25am	SW-1Up 1 mL	100%	10:33am	10:33am		9	900	44.4	
		Barber/ 9:25am	SW-1Up 5 mL	100%				8	160		
		Barber/ 8:46am	SW-1Dn 1 mL	100%				5	500		
		Barber/ 8:46am	SW-1Dn 5 mL	100%				15	300		
		Calls/ 9:42am	SW-2Up 1mL	100%	10:33am	10:33am		9	500	44.4	
		Calls/ 9:42am	SW-2Up 5mL	100%	10:58am	10:58am		11	220		
		Calls/ 8:15am	SW-2Dn 1mL	100%				3	300		
		Calls/ 8:15am	SW-2Dn 5mL	100%				7	140		
		McNutt/ 9:10am	SW-3Up 1mL	100%	10:58am	10:58am		5	500	44.4	
		McNutt/ 9:10am	SW-3Up 5mL	100%				32	640		
		McNutt/ 8:38am	SW-3Dn 1mL	100%				1	200		
		McNutt/ 8:38am	SW-3Dn 5mL	100%	11:15am	11:15am		23	460	44.6	
		Middle/ 8:23am	SW-4Up 1mL	100%	11:15am	11:15am		3	300	44.6	
		Middle/ 8:23am	SW-4Up 5mL	100%				13	260		
		Middle/ 7:54am	SW-4Dn 1mL	100%				1	100		
		Middle/ 7:54am	SW-4Dn 5mL	100%				8	160		
		Lab/POS	INF 0.1mL	100%	11:15am	11:15am		TNTC	TNTC	44.6	

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6/11/20	KSB	Lab/Blank 1045	Blank 100 mL	100%	11:25	6/12/20	24hrs	0	NEG	44.5	KSB
↓					↓	11:20	↓			↓	
↓	JJ/DD	Barber/ 8:48	SW-1Up 1 mL	100%		↓		2	200		
		Barber/ "	SW-1Up 5 mL	100%				11	220 →	210	
		Barber/ 9:26	SW-1Dn 1 mL	100%				3	300		
	↓	Barber/	SW-1Dn 5 mL	100%				15	500 →	400	
		Calls/ 8:16	SW-2Up 1mL	100%				0	0 →	170	
		Calls/ "	SW-2Up 5mL	100%				17	340		
		Calls/ 9:42	SW-2Dn 1mL	100%				2	200 →	210	
		Calls/ "	SW-2Dn 5mL	100%				11	220		
		McNutt/ 8:41	SW-3Up 1mL	100%				11	1100 →	1110	
		McNutt/ "	SW-3Up 5mL	100%				56	1120		
		McNutt/ 9:13	SW-3Dn 1mL	100%				4	400 →	480	
		McNutt/ "	SW-3Dn 5mL	100%				28	560		
		Middle/ 7:53	SW-4Up 1mL	100%				3	300 →	280	
		Middle/ "	SW-4Up 5mL	100%				13	260		
		Middle/ 8:24	SW-4Dn 1mL	100%				3	300 →	300	
		Middle/ "	SW-4Dn 5mL	100%				15	300		
	KSB	Lab/POS 9:04	INF 0.1mL	100%				TNTC	POS		

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6/18/20	KSB	Lab/Blank 11am	Blank 100 mL	100%	12:27	6/19/20	24hrs	0	NEG	44.4	KSB
↓					↓	12:30	↓			↓	↓
↓	JJ/DD	Barber/ 8:32	SW-1Up 1 mL	100%		↓		2	200 →	180	
	↓	Barber/ "	SW-1Up 5 mL	100%				8	160		
		Barber/ 9:15	SW-1Dn 1 mL	100%				5	500 →	390	
		Barber/ "	SW-1Dn 5 mL	100%				14	280		
		Calls/ 8:02	SW-2Up 1mL	100%				1	100 →	170	
		Calls/ "	SW-2Up 5mL	100%				12	240		
		Calls/ 9:30	SW-2Dn 1mL	100%				0	0 →	50	
		Calls/ "	SW-2Dn 5mL	100%				5	100		
		McNutt/ 8:25	SW-3Up 1mL	100%				3	300 →	290	
		McNutt/ "	SW-3Up 5mL	100%				14	280		
		McNutt/ 9:02	SW-3Dn 1mL	100%				2	200 →	200	
		McNutt/ "	SW-3Dn 5mL	100%				10	200		
		Middle/ 7:41	SW-4Up 1mL	100%				2	200 →	170	
		Middle/ "	SW-4Up 5mL	100%				7	140		
		Middle/ 8:09	SW-4Dn 1mL	100%				2	200 →	160	
		Middle/ "	SW-4Dn 5mL	100%				6	120		
	KSB	Lab/POS 8:54	INF 0.1mL	100%				TNTC	POS		

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6/25/20	KSB	Lab/Blank 10:20	Blank 100 mL	100%	11:04	6/26/20	24hrs	0	NEG	44.4	KSB
↓					↓	11:15	↓			↓	↓
↓	JS/DD	Barber/ 8:48	SW-1Up 1 mL	100%		↓		42	4200		
		Barber/ "	SW-1Up 5 mL	100%				173	3460 →	3830	
	↓	Barber/ 9:41	SW-1Dn 1 mL	100%				23	2300		
		Barber/ "	SW-1Dn 5 mL	100%				58	1160 →	1730	
		Calls/ 8:15	SW-2Up 1mL	100%				10	1000		
		Calls/ "	SW-2Up 5mL	100%				26	520 →	760	
		Calls/ 9:57	SW-2Dn 1mL	100%				59	5900		
		Calls/ "	SW-2Dn 5mL	100%				180	3600 →	4750	
		McNutt/ 8:41	SW-3Up 1mL	100%				30	3000		
		McNutt/ "	SW-3Up 5mL	100%				131	2620 →	2810	
		McNutt/ 9:27	SW-3Dn 1mL	100%				17	1700		
		McNutt/ "	SW-3Dn 5mL	100%				90	1800 →	1750	
		Middle/ 7:55	SW-4Up 1mL	100%				12	1200		
		Middle/ "	SW-4Up 5mL	100%				87	1740 →	1470	
		Middle/ 8:23	SW-4Dn 1mL	100%				12	1200		
		Middle/ "	SW-4Dn 5mL	100%				94	1880 →	1540	
	KSB	Lab/POS 8:41	INF 0.1mL	100%				TNTC	POS		

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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
11/3/20	[illegible]	Lab/Blank 8:30	Blank 100 mL	100%	10:35 am	11/4/20 10:35 am	24 hr	0		44.8°C	[illegible]
	[illegible]	Barber/ 9:01	SW-1Up 1 mL	100%				10	1000	(780)	
		Barber/ 9:01	SW-1Up 5 mL	100%				28	560		
		Barber/ 8:20	SW-1Dn 1 mL	100%				2	200	(320)	
		Barber/ 8:20	SW-1Dn 5 mL	100%				22	440		
	[illegible]	Calls/ 9:17	SW-2Up 1mL	100%	"			2	200	(200)	
		Calls/ 9:17	SW-2Up 5mL	100%	11:00am	11/4/20	24 hr	10	200	44.8°C	
		Calls/ 7:43	SW-2Dn 1mL	100%		11:00 am		2	200	(150)	
		Calls/ 7:43	SW-2Dn 5mL	100%				5	100		
	SD	McNutt/ 8:41	SW-3Up 1mL	100%				1	100	(160)	
		McNutt/ 8:41	SW-3Up 5mL	100%				11	220	44.6°C	
		McNutt/ 8:12	SW-3Dn 1mL	100%				3	300	270	
		McNutt/ 8:12	SW-3Dn 5mL	100%	11:23 am	11/4/20	24 hr	12	240		
						11:23 am					
	[illegible]	Middle/ 7:53	SW-4Up 1mL	100%	11:23 am			2	200	160	
		Middle/ 7:53	SW-4Up 5mL	100%				6	120		
		Middle/ 7:23	SW-4Dn 1mL	100%				1	100	80	
		Middle/ 7:23	SW-4Dn 5mL	100%				3	60		
		Lab/POS 8:30	INF 0.1mL	100%				TNTC	TNTC		

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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
11/10/20	(BE)	Lab/Blank	Blank 100 mL	100%	10:06 am	11/11/20 10:16		0	0	44.5	BE/(BE)
11/10/20	BE	Barber/ 9:23 am	BC-1Up 1 mL	100%	10:06 am			5	500 →	(450)	
		Barber/ 9:23 am	BC-1Up 5 mL	100%				20	400		
		Barber/ 8:42 am	BC-1Dn 1 mL	100%				4	400 →	(360)	
		Barber/ 8:42 am	BC-1Dn 5 mL	100%				16	320		
11/10/20	BE	Calls/ 9:41 am	CC-2Up 1mL	100%	10:06 am			1	100 →	(80)	
		Calls/ 9:41 am	CC-2Up 5mL	100%	10:38 am	11/11/20 10:38 am		3	60		
		Calls/ 8:08 am	CC-2Dn 1mL	100%				1	100 →	(110)	
		Calls/ 8:08 am	CC-2Dn 5mL	100%				6	120		
11/10/20	BE	McNutt/ 9:08 am	MC-3Up 1mL	100%	10:38 am			3	300 →	(270)	
		McNutt/ 9:08 am	MC-3Up 5mL	100%				12	240		
		McNutt/ 8:34 am	MC-3Dn 1mL	100%				1	100 →	(200)	
		McNutt/ 8:34 am	MC-3Dn 5mL	100%	11:04 am	11/11/20 11:04 am		15	300		
11/10/20	BE	Middle/ 8:17 am	MO-4Up 1mL	100%	11:04 am			2	200 →	(160)	
		Middle/ 8:17 am	MO-4Up 5mL	100%				6	120		
		Middle/ 7:48 am	MO-4Dn 1mL	100%				1	100 →	(80)	
		Middle/ 7:48 am	MO-4Dn 5mL	100%				3	60		
11/10/20	CW	Lab/POS 8:30 am	INF 0.1mL	100%	11:04 am			TNTC	TNTC		

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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
11/17/20	BS	Lab/Blank	Blank 100 mL	100%	10:26am	11/18/20 10:29am	24hrs	0	0	44.5	AH BE
	AH	Barber/ 9:31am	BC-1Up 1 mL	100%	10:26am			***			
		Barber/ ↓	BC-1Up 5 mL	100%				5	100		
		Barber/ 8:50am	BC-1Dn 1 mL	100%				6	600 → 360		
		Barber/ ↓	BC-1Dn 5 mL	100%				6	120		
	AH	Calls/ 9:56am	CC-2Up 1mL	100%	10:26am	↓	↓	***	520	↓	
		Calls/ ↓	CC-2Up 5mL	100%	10:54am	10:54am		26	520		
		Calls/ 8:15am	CC-2Dn 1mL	100%				1	100 → 57		
		Calls/ ↓	CC-2Dn 5mL	100%				2	40		
	AH	McNutt/ 9:16am	MC-3Up 1mL	100%	10:54am			3	300 → 280		
		McNutt/ ↓	MC-3Up 5mL	100%				13	260		
		McNutt/ 8:44am	MC-3Dn 1mL	100%				***			
		McNutt/ ↓	MC-3Dn 5mL	100%	11:15am	11:19am		11	220		
	AH	Middle/ 8:24am	MO-4Up 1mL	100%	11:15am			1	100 → 100		
		Middle/ ↓	MO-4Up 5mL	100%				5	100		
		Middle/ 7:55am	MO-4Dn 1mL	100%				1	100 → 100		
		Middle/ ↓	MO-4Dn 5mL	100%				5	100		
	BS	Lab/POS	INF 0.1mL	100%	11:15am			TNTC	TNTC		

*** Didn't include in calculation

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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
11/24/20	SS/DD	Lab/Blank 7:30	Blank 100 mL	100%	10:54am	11/25/20 10:54am	24 hrs	0		44.6°C	SS/DD
		Barber/ 9:30am	BC-1Up 1 mL	100%				1	100 → 170		
		Barber/ " "	BC-1Up 5 mL	100%				3	40		
		Barber/ 8:56am	BC-1Dn 1 mL	100%				1	100 → 100		
		Barber/ " "	BC-1Dn 5 mL	100%				5	100		
		Calls/ 9:45am	CC-2Up 1mL	100%				3	300 → 270		
		Calls/ " "	CC-2Up 5mL	100%	11:21am			12	240		
		Calls/ 8:28am	CC-2Dn 1mL	100%				2	200 → 190		
		Calls/ " "	CC-2Dn 5mL	100%				0	180		
		McNutt/ 9:18am	MC-3Up 1mL	100%				1	100 → 108		
		McNutt/ " "	MC-3Up 5mL	100%				5	100		
		McNutt/ 8:40am	MC-3Dn 1mL	100%				2	200 → 180		
		McNutt/ " "	MC-3Dn 5mL	100%	11:48am			2	40	44.9°C	
		Middle/ 8:34am	MO-4Up 1mL	100%				1	100 → 100		
		Middle/ " "	MO-4Up 5mL	100%				5	100		
		Middle/ 8:07am	MO-4Dn 1mL	100%				1	100 → 102		
		Middle/ " "	MO-4Dn 5mL	100%				5	100		
		Lab/POS 7:30am	INF 0.1mL	100%				TNTC	TNTC		