

City of Lynnwood Status of TMDL Implementation

March 31st, 2011

1) Pollution Source Control Activities

The Illicit Connection Detection and Elimination program requirement to prevent non-stormwater discharges described in section S5.C.3.b of the City's NPDES Phase II Permit (Permit) shall address commercial animal handling areas and commercial composting facilities, including source control BMPs equivalent to those in the 2005 Western Washington Stormwater Manual Volume 4, pages 2-10 through 2-12.

In 2011, the City adopted a manual for detecting and eliminating illicit connections and discharges. During the 2011 reporting year, there were no illicit discharges identified with respect to fecal coliform bacteria, within the Swamp Creek Basin.

Additional details regarding our illicit discharge detection and elimination program can be found in the City's IDDE Program Manual.

2) Public Involvement

All municipal stormwater permit holders shall prepare a Bacterial Pollution Control Plan (BPCP) as subsection of their Stormwater Management Program (SWMP) to facilitate the public's participation in advising on the development, implementation, and update of TMDL-related portions of the SWMP. The BPCP shall include information on relevant activities being taken to reduce bacterial pollution including ordinances, inspection and enforcement resources and strategies, illicit discharge program elements, and water quality monitoring. Municipal stormwater permittees shall evaluate and document the applicability of the following approaches in the BPCP.

- Receiving water sampling to identify bacterial pollution sources within targeted sub basins.
- Development and implementation of a Pet Waste Ordinance or other equivalent mechanism.
- Evaluation of current water pollution ordinance enforcement capabilities.
- Evaluation of critical areas ordinance in relation to TMDL goals.
- Implementation of an educational program for K-12 students to increase their awareness of bacterial pollution problems.
- Investigation and implementation of methods that prevent additional stormwater bacterial pollution through stormwater treatment, reducing stormwater volumes from existing areas using low impact development retrofitting, and preventing additional sources of stormwater in association with new development using low impact development strategies.

The City has addressed the above requirements in the following manner:

- Bacteria sampling at 4 different locations throughout the City, in accordance with the QAPP (see attached results).

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- Lynnwood has regulations restricting pet waste, which can be found in the Lynnwood Municipal Code at 6.02.160, and 13.04.070.E.1.c, and 13.45.025.A.19.
- Lynnwood works closely with the Community Development Department, and the Snohomish Department of Health when engaging in bacteria-related enforcement. We engage in a perpetual adaptive management after each occurrence, to see what went right and wrong, and to improve our processes.
- Lynnwood's current Critical Areas Regulations meet best available science requirements. However, in 2012, Lynnwood will be amending its Critical Areas Regulations, and will be evaluating how well they correspond to the TMDL.
- Lynnwood has an ongoing K-12 education and grants program, with 3 participating schools in the 2010 – 2011 school year.
- The City completed and adopted an update to the City's Surface Water Management regulations, including water quality and quantity management in May 2010. LID methods are required to be evaluated as a part of all new and redevelopment.

3) TMDL Activity Documentation and Tracking

All municipal stormwater permit holders shall discuss program changes and BPRP activities completed during the previous year in a subsection of their Stormwater Management Program (SWMP) annual report. The purpose of this requirement is to allow for the timely tracking and evaluation of TMDL-related permit requirements by Ecology and the public.

BPRP activities completed during the 2011 reporting year include:

- Created bacteria prevention education and outreach material, including a portable booth and attending several outreach fairs.
- Distributed fecal bacteria information to all City residents which was contained in their utility bill.
- Continued to maintain 2 pet waste stations at City parks.
- Continued bacteria sampling at 4 different locations throughout the City, in accordance with approved QAPP.
- Dispensed pet waste bags and holders to dog owners at various outreach opportunities.

4) Public Outreach and Education

All municipal stormwater permit holders shall increase awareness of bacterial pollution problems and the need to protect water quality by properly managing animal wastes. This requirement shall be considered an additional minimum measure to the Phase I permit (S5.C.10.(b)(ii)). This requirement shall be integrated into one or more of the minimum measures S5.C.1.(a)i through iv for applicable Phase II cities.

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In 2011, the City had an education coordinator responsible for education and outreach. Duties included developing a classroom curriculum, attending education fairs and using education booth, administering stormwater education grants for City schools. Education material includes:

- A portable education booth which may be used at various public events.
- Three different education curriculums aimed at businesses, schools, and citizens.
- Pet waste leash dispensers and refill bags to distribute.
- Education posters and material.
- Distributed an informational flyer to all City residents educating them on the hazards of allowing fecal waste in our storm system (it went out in the utility bills).

5) Water Quality Monitoring

All municipal stormwater permittees must perform or contract out, water quality monitoring in accordance with either Options 1 or 2 below. This monitoring shall be described in a plan prepared in accordance with Ecology's Guidelines for Preparing Quality Assurance Project Plans (QAPPs) for Environmental Studies (Ecology Publication No. 01-03-003 or most current version). Phase II permittees shall submit their QAPP to Ecology for approval within 120 days of permit issuance.

To ensure consistency in its county-wide TMDL monitoring program, Phase I permittee Snohomish County has the option of following monitoring timelines and dates for submitting their QAPP, BPRP, and Early Action Plan (if applicable) following the timelines set forth in the North Creek and Snohomish Tributaries TMDL Detailed Implementation Plans.

Permittees may rely on another entity to satisfy the required TMDL monitoring component. Permittees that are relying on another entity to satisfy this monitoring obligation remain responsible for permit compliance if the other entity fails to perform the required monitoring.

TMDL related monitoring shall begin within 180 days of permit issuance. The monitoring start date will be extended day for day if Ecology requires more than 30 days to review the QAPP. Permittees shall choose one of the two options discussed below

Option 1, Direct Measurement of Stormwater: Estimate the concentration and loading of bacteria to Swamp Creek from stormwater within the permit holder's jurisdiction by sampling representative outfalls within the MS4. Specific sampling locations and frequencies of stormwater outfall monitoring will be determined during Ecology's approval of a prepared QAPP.

Option 2, Indirect Measurement of Pollution Sources (Recommended):

Estimate changes in bacterial levels in Swamp creek as a result of stormwater inputs through receiving water monitoring coupled with flow duration or comparable analyses.

Within Option 2, permittees may either a) measure water quality entering and leaving their jurisdiction or b) measure water quality at the locations specified in Figure 1 of the TMDL as follows:

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- Snohomish County shall monitor bacteria levels at sites SCLU and SCLD and perform flow monitoring at sites Sc and Sl.
- The City of Everett shall monitor bacteria levels at site SCUP, which is in the vicinity of Avondale Road and 119th St SW.
- The City of Kenmore shall monitor bacteria levels at site 0470 and perform flow monitoring at site 56b.
- The Cities of Lynnwood, Mountlake Terrace, and Brier shall monitor bacteria levels at site SRLD. SRLD shall be located at the stream crossing along Cypress Way, Oak Way, or another site approved by Ecology.

Option 2 monitoring must be performed at a frequency that will produce at least 60 data points at each monitoring station over the five year permit cycle.

Permittees must also perform continuous flow monitoring at each monitoring point, or a representative location as approved by Ecology, to determine if a sampling event is affected, or dominated, by storm flows.

The city received an approved QAPP from the WDOE in April 2008. The City began sampling accordingly in May, 2008. Please see attached for sampling results.

6) Coordination of Stormwater Management Activities

In association with Phase I permit condition S5.C(3), Snohomish County shall include the discussion of TMDL-related activities as part of the stormwater management coordination activities for physically connected and shared water bodies.

This requirement is not applicable to Lynnwood. However, Lynnwood regularly attends the Snohomish County coordination meetings.

7) Illicit Discharge Detection and Elimination

The schedule and activities identified for the illicit discharge detection and elimination program in both the Phase I and Phase II permits shall be sufficient to meet TMDL requirements with the following clarifying conditions:

- Phase I Permit—Snohomish County shall give strong consideration to prioritizing Outfall Reconnaissance Inventories (ORIs) in areas where bacterial TMDLs are in place. All ORIs conducted in area covered by this TMDL shall include bacteria source screening for sewage/septic sources. The County shall develop threshold values for responding to obvious bacterial pollution problems and initiating investigation/termination activities as defined in permit condition S5C8(b)(vii).
- Phase II Permit—Water bodies addressed by the TMDL shall be designated as high priority water bodies (see permit condition S.5.C.3.(c)(ii)) and shall receive field assessments and screening prior to other receiving water bodies unless approved in writing from Ecology. The presence of sewage/septic system sources shall be investigated as part of all screenings.

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Lynnwood is incorporating this element in the development of our illicit discharge detection and elimination program. This program manual was adopted in June 2011.

Swamp Creek Bacteria TMDL Sampling for City of Lynnwood

Month	Station ID	Date	Time	Sample ID #	Air Temp	W/A Temp	Weather	Description of Stream	Results
January	SC1	1/27/2011	8:08 AM	SC1-1-33	41	40.0	Sunny, Chill	Clear, Running, High	4 CFU
	SC2	1/27/2011	8:23 AM	SC2-1-33	41	38.0	Slight Fog, Chill	Dark, Still	10 CFU
	GC1	1/27/2011	8:38 AM	GC1-1-33	41	41.5	Slight Fog, Chill	Cloudy/grey, flowing, low	10 CFU
	TC1	1/27/2011	9:00 AM	TC1-1-33	41	39.5	Fog, Chill	Clear, flowing, bubbles, low	4 CFU
February	TC1	1/27/2011	9:03 AM	TC1-2-33	41	39.5	Fog, Chill	Clear, flowing, bubbles, low	4 CFU
	SC1	2/23/2011	8:34 AM	SC1-1-34	35	34.5	Cloudy, Cold	Clear, Running, High	8 CFU
	SC2	2/23/2011	8:35 AM	SC1-2-34	35	34.5	Cloudy, Cold	Clear, Running, High	2 CFU
	GC1	2/23/2011	8:52 AM	SC2-1-34	36	32.0	Cloudy, Cold	Still, Brown	2 CFU
March	GC1	2/23/2011	9:11 AM	GC1-1-34	35	36.0	Cloudy, Cold	Slow Flow, Off-Grey Color	14 CFU
	TC1	2/23/2011	9:30 AM	TC1-1-34	36	37.5	Cloudy, Cold	Low level clear, murky bottom	28 CFU
	SC1	3/23/2011	9:22 AM	SC1-1-35	44	39.5	Sunny,	Clear, running	2 CFU
	SC2	3/23/2011	9:37 AM	SC2-1-35	47	37.5	Sunny,	Clear, brown, still	18 CFU
April	SC2	3/23/2011	9:39 AM	SC2-2-35	47	37.5	Sunny,	Clear, brown, still	8 CFU
	GC1	3/23/2011	9:56 AM	GC1-1-35	47	42.5	Sunny,	Clear, flowing,	8 CFU
	TC1	3/23/2011	10:25 AM	TC1-1-35	50	43.5	Sunny,	Clear, flowing	2 CFU
	SC1	4/27/2011	8:56 AM	SC1-1-36	48	43.5	Broken clouds	Clear, flowing, bubbles, Medium	200 CFU
May	SC2	4/27/2011	9:14 AM	SC2-1-36	48	43.5	Broken clouds	Clear, Still, brown, Medium	42 CFU
	GC1	4/27/2011	9:31 AM	GC1-1-36	48	47.5	Broken clouds	Clear, Flowing, Medium	20 CFU
	GC1	4/27/2011	8:34 AM	GC1-2-36	48	47.5	Broken clouds	Clear, Flowing, Medium	14 CFU
	TC1	4/27/2011	9:49 AM	TC1-1-36	49	46.5	Broken clouds	Clear, Flowing	8 CFU
June	SC1	5/25/2011	9:45AM	SC1-1-37	54	50.5	Cloudy	Clear, bubbles, flowing, medium	48 CFU
	SC2	5/25/2011	9:59AM	SC2-1-37	55	50.5	Cloudy	Dark, Still, Medium	130 CFU
	GC1	5/25/2011	10:10AM	GC1-1-37	55	52.5	Cloudy	Clear, running, low	66 CFU
	TC1	5/25/2011	10:20AM	TC1-1-37	55	50.5	Cloudy	Clear, still, low	6 CFU
July	TC1	5/25/2011	10:22AM	TC1-2-37	55	50.5	Cloudy	Clear, still, low	22 CFU
	SC1	6/22/2011	8:50AM	SC1-1-38	58	55.5	Cloudy	Clear, flowing, medium, brown foam	100 CFU
	SC1	6/22/2011	8:55AM	SC1-2-38	58	55.5	Cloudy	Clear, flowing, medium, brown foam	200 CFU
	SC2	6/22/2011	9:14AM	SC2-1-38	59	60	Cloudy	Dark, brown, still, medium	82 CFU
August	GC1	6/22/2011	9:25AM	GC1-1-38	60	57.5	Cloudy	Clear, flowing, low	110 CFU
	TC1	6/22/2011	9:42AM	TC1-1-38	60	56.5	Cloudy	Clear, flowing, medium	36 CFU
	SC1	7/27/2011	8:59AM	SC1-1-39	59	57.5	Cloudy	Clear, bubbles, flowing, medium	108 CFU
	SC2	7/27/2011	9:35AM	SC2-1-39	60	59	Cloudy	Cloudy, brown, still, medium	42 CFU
September	SC2	7/27/2011	9:36AM	SC2-2-39	60	59	Cloudy	Cloudy, brown, still, medium	49 CFU
	GC1	7/27/2011	9:50AM	GC1-1-39	61	60.5	Cloudy	Cloudy/clear, flowing, medium	56 CFU
	TC1	7/27/2011	10:00AM	TC1-1-39	61	57	Broken clouds	Clear, Running, Medium	200 CFU
	SC1	8/24/2011	8:46AM	SC1-1-40	65	60	Sunny	Milky, Still, Low/Medium	1850 CFU
October	SC2	8/24/2011	9:05AM	SC2-1-40	64	61.5	Sunny	Cloudy, brown, still, medium	180 CFU
	GC1	8/24/2011	9:16AM	GC1-1-40	68	63.5	Sunny	Clear, Running, Low	160 CFU
	GC1	8/24/2011	9:18AM	DC1-2-40	68	63.5	Sunny	Clear, Running, Low	145 CFU
	TC1	8/24/2011	9:31AM	TC1-1-40	69	60.5	Sunny	Clear, Flowing, Low	135 CFU
November	SC1	9/28/2011	8:05AM	SC1-1-41	50	53.5	Sunny	Clear, Flowing, Very Low-Low	160 CFU

Monthly Average

64 CFU

10.8 CFU

8 CFU

57 CFU

54 CFU

106 CFU

91 CFU

494 CFU

*Samples are no longer taken to AmTest, COL WWTP doing analysis.

*8/29/11 Resample of SC1-1-40 showed 3220 and 3440CFU

September	SC2	9/28/2011	8:25AM	SC2-1-41	50	52.5	sunny	Dark, Dark-Brown, Still, Medium	362 CFU
	GC1	9/28/2011	8:37AM	GC1-1-41	52	57	sunny	Clear, Running, Low	125 CFU
	TC1	9/28/2011	8:50AM	TC1-1-41	52	53	sunny	Clear, Running-Flowing, Medium	470 CFU
October	TC1	9/28/2011	8:52AM	TC1-2-41	52	53	sunny	Clear, Running-Flowing, Medium	434 CFU
	SC1	10/26/2011	8:32AM	SC1-1-42	41	43.5	Cloudy	Clear, Bubbles, Flowing, Low	225 CFU
	SC1	10/26/2011	8:35AM	SC1-2-42	41	43.5	Cloudy	Clear, Bubbles, Flowing, Low	205 CFU
	SC2	10/26/2011	8:53AM	SC2-1-42	42	41.5	Cloudy	Cloudy, Still, Medium	36 CFU
	GC1	10/26/2011	9:06AM	GC1-1-42	42	47	Cloudy	Clear, Flowing, Low	4 CFU
	TC1	10/26/2011	9:15AM	TC1-1-42	42	46.5	Cloudy	Clear, Still, Medium	68 CFU
November	SC1	11/23/2011	8:42AM	SC1-1-43	44	45	Rain, Cloudy	Clear, Running, High	1100 CFU
	SC2	11/23/2011	8:58AM	SC2-1-43	45	43	Rain, Cloudy	Clear, Running, High	20 CFU
	SC2	11/23/2011	8:59AM	SC2-2-43	45	43	Rain, Cloudy	Clear, Running, High	24 CFU
	GC1	11/23/2011	9:11AM	GC1-1-43	44	45	Rain, Cloudy	Cloudy, Running, High	<2 CFU
	TC1	11/23/2011	9:26AM	TC1-1-43	44	44	Rain, Cloudy	Cloudy, Running, High	300 CFU
December	SC1	12/28/2011	8:58AM	SC1-1-44	53	45.5	Cloudy	Cloudy, Running, Medium	991 CFU
	SC2	12/28/2011	9:15AM	SC2-1-44	54	43	Cloudy	Dark, Still, Medium	285 CFU
	GC1	12/28/2011	9:30AM	GC1-1-44	53	43.5	Cloudy	Milky, Running, Medium	1100 CFU
	GC1	12/28/2011	9:32AM	GC1-2-44	53	43.5	Cloudy	Milky, Running, Medium	932 CFU
	TC1	12/28/2011	9:43AM	TC1-1-44	53	46	Cloudy	Clear, Flowing, Medium	96 CFU

310 CFU

108 CFU

*11/28/11 Resample of SC1-1-43 showed 115 CFU

289 CFU

680 CFU