

Question 88

City of Buckley TMDL Status Report NPDES Phase II Permit Year 3 (January – December 2009)

The following scope of work was created to identify the TMDL needs that the City of Buckley will need to complete, in conjunction with the Pierce county Conservation District, in order to comply with the TMDL requirements associated with the Fecal Coliform TMDL on South Prairie Creek.

As Spiketon Ditch flows into South Prairie Creek, the City will need to investigate it for potential sources of fecal coliform. Identification of the potential sources contributing fecal coliform to Spiketon Ditch and determination of the relative contributions of bacteria from each of the sources will require the following investigations.

1. Locate and map all on-site wastewater systems within the subwatershed. Identify if the systems are functioning properly from information available from the Pierce County Health Department or by dye testing of individual systems and identify the systems that are located in areas that flood frequently. Property owner permission must be obtained to access private property.

Status: City staff is currently working to identify and map on-site septic systems within the drainage area.

2. Locate and map properties where livestock are housed. Inventory the number of animals and management practices for each property. This task could be completed by Pierce County Conservation District.

Status: City staff is currently in the process of identifying properties within the drainage area that have existing livestock and intend to conduct inventories once this information has been determined.

3. Locate and map known areas where wildlife, including birds, congregate. This task could be completed by Pierce County Conservation District.

Status: City staff intends to schedule locating and mapping of wildlife congregation areas once livestock inventories have been completed.

4. Select water quality sampling locations that would provide the most useful information to identify the locations or activities that are significant contributors to bacterial loads. Feasible sampling locations include the four public right-of-way crossings of Spiketon Ditch, however, the optimum locations to support the study goals may be on private property. The City would need to obtain permission for access to private property.

Status: The City’s consultants, Gray & Osborne, are currently developing a Quality Assurance Project Plan (QAPP) that will form the basis of our sampling program. This plan is scheduled to be complete in 2010 and once approved by the City will be implemented.

5. Collect and analyze water samples from selected locations. Samples should be collected during the growing and non-growing seasons since the TMDL identifies different reduction factors for the two seasons. Assume three rounds of samples during the growing and non-growing seasons. The City will need to prepare a Quality Assurance Project Plan (QAPP) that identifies the sampling and analysis protocol. QAPPs must be reviewed and approved by Ecology.

Status: See Status of #4.

6. Analyze water samples for total fecal coliform and conduct pollutant source DNA typing analysis to identify the sources of fecal coliform and relative contribution of each source. This process involves “typing” – or identifying – the types of E. coli bacteria that live within certain species of animals to develop a DNA “fingerprint” for E. coli from different host animals. The DNA of the E. coli from the Spiketon Ditch samples will be compared with known DNA fingerprints. The DNA information will be used to verify the bacterial sources and determine the relative contributions of bacteria from these activities. DNA fingerprinting is done at the University of Washington. The DNA testing procedure is approximately \$100/sample. Assume four sample locations and three samples per each sample day. Total samples: 72.

Status: See Status of #4.

7. Analyze water quality data to determine potential sources of bacterial contamination, relative contribution of the various sources and identify potential total contribution from stormwater. Prepare report.

Status: See Status of #4.

The investigations listed above will require field work, data collection, mapping, water quality sampling, data analysis and reporting. The following is a preliminary estimate of the duration and cost for each of the investigations.

Investigation	Duration	Estimated Cost
1. On-site wastewater system investigation- locate and test	400 hours	\$40,000
2. Livestock locate and practices documentation	200 hours	\$20,000

3. Wildlife locate	150 hours	\$15,000
4. Select WQ sampling stations. Obtain permission to access.	100 hours	\$10,000
5. Collect water quality samples.	120 hours	\$12,000
6. Water quality analysis and DNA fingerprinting		\$10,000
7. Data analysis	100 hours	\$10,000
Estimated Total		\$117,000

The estimated cost to the City for these additional NPDES Phase II requirements is \$117,000. The completion of the first three tasks is estimated to require 8 months. The water quality testing would span approximately 1 year. Data analysis and report writing would take approximately 4 months. The earliest the City would be able to complete the investigations would be 2010 or early 2011.