LOI # 10

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Organization: City of Spokane

Study Title: Evaluation of TAPE's Definition of Qualifying Storms and Guidance for Eastern Washington (EWA) Climatic Conditions

Which topics from the SWG's priority list (Appendix A) do you propose to address?

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What type of project is being proposed?

Literature review & synthesis;Environmental sampling study;Guidance

Short description of the proposed project

TAPE specifies qualifying storm conditions to support collecting representative samples for evaluating treatment BMP effectiveness. However, the long-duration storm that primarily occurs during the wet season in EWA commonly consists of several short events that together regularly exceed 72 hours, but individually don't meet one or more of the TAPE criteria. Specifically:

- The EWA long-duration storm often exceeds the TAPE maximum 36-hour duration.
- The series of storms that compose the long-duration event are separated by a dry intervening period, which is usually long enough to consider the first storm a separate event but not long enough to consider the second storm a new event.
- If the first storm is sampled, the rainfall depth is usually less than the TAPE minimum and the total sample volume is typically insufficient to analyze all parameters.
- If the first storm is skipped, the first flush of runoff is missed, skewing the influent mean event concentration, making it harder to demonstrate the BMP meets the TAPE treatment goals.

In addition to the challenges with sampling during the long-duration storm, there is no guidance for collecting samples during rain or snow events, which make up a significant number of precipitation events.

The purpose of this study is to develop guidance for collecting data from storms representative of EWA climate conditions. Considering most Washington BMP research has occurred on the western side of the state, providing guidelines for monitoring during EWA storms will help to advance the understanding of BMP function in a semi-arid climate.

What type of information will be collected or analyzed for this proposed study?

Information about the long-duration storm is defined in SWMMEW Appendix 4, which was based on a study published in 2006 that focused on characterizing eastern Washington storms (WSDOT, 2006). Since the study was based on precipitation data collected from 1966 to 2005 and trends in precipitation are known to have changed since then, publicly available rain gauge data will be collected and assessed to determine if and how characteristics of the EWA long-duration storm have changed that would impact this study. Modeling by the Climate Impacts Group had shed light on local changes to precipitation due to climate change. This data could also be evaluated to see if a change in storm events due to climate change is expected in EWA.

The remaining information needed for this study will be collected from a literature search to understand how modifying the qualifying storm conditions could affect data quality as well as the comparability to studies conducted following the current TAPE requirements. Because EWA storms frequently do not meet TAPE qualifying conditions, jurisdictions regularly have to throw out collected samples that do not meet these conditions. Developing a better understanding of how changing qualifying conditions will affect data quality and providing guidance for monitoring long-duration storms will support more efficient use of resources.

What are the anticipated measurable outcomes and key deliverables that will be produced by the proposed study and how will they be used by Permittees and the Washington State Department of Ecology?

A whitepaper synthesizing the literature review, recommendations for applying the results, and gaps. The recommendations will be formatted such that the information can be inserted into

the next update of the TAPE Guidance Manual, with instructions for where to include the recommendations.

List the permittees or agencies you are proposing to coordinate with.

None at this time but we will convene and coordinate with a technical advisory committee that includes TAPE and Ecology staff.