



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

1250 W Alder St • Union Gap, WA 98903-0009 • (509) 575-2490

August 8, 2018

Mr. Bruce Mills
Public Works Director
City of Kennewick
PO Box 6108
Kennewick, WA 99336 - 0108

RE: Quality Assurance Project Plan (QAPP) Review for
Elementary School Stormwater Education Effectiveness Study

Bruce
Dear Mr. Mills:

The Department of Ecology (Ecology) has reviewed the *Elementary School Stormwater Education Effectiveness Study*, draft dated April 20, 2018, and below are my comments. I am also enclosing Brandi Lubliner, Ecology's QA Coordinator comments with this letter.

Table 2.1 lists the uncompleted tasks.

- Continue to incorporate eastern Washington shrub-steppe vegetation, hydrology and climate into the curriculum. I did see the *Research the Problem* PowerPoints put together for the Tri-Cities and Yakima; will there be more? These are the scenarios that kids are familiar with.
- Please fill in any extra details on class numbers and participants. The delay between receiving the QAPP and providing this review has provided opportunities for progress to be made on providing specifics on participating schools, teachers and classes that were in the future verb tense (Sec. 2.2 & 2.3).
- The questions on the pre and post quiz are too similar. Carefully reword the questions or testing tool to provide an assessment of prior general understanding and specific details. Skilled educators who have been through the program may provide appropriate questions or methods for assessing curriculum.
- Provide the educator workshop dates.
- Provide an observer during pilot testing of the curriculum to take notes on participation, enthusiasm and other possible improvements.



2.6 Potential Constraints Absent or unavailable instructors

- Suggestion... Train 2-3 teachers to present the program throughout the school to provide both consistency and back up. Provide another trained teacher from another class to teach the daily section for a missing instructor.

3.1 Project Team

- Update the list by adding Brandi Lubliner and me to the bottom and removing Karen Dinicola, as reviewers.

3.3 Budget and Funding

- Update any additions or changes to the participating schools and classes.
- Identify the contributing tasks and schedule for the numerous permittees participating in the Drain Ranger program as part of their Ed. and Outreach requirement.
- Is this going to be an ongoing project? No mention has been made of continuing this in the future, but the Drain Ranger program has been listed as an E&O project in annual reports for the past 3-4 yrs.

4.0 Quality Objectives

- Identify who will be compiling and analyzing the data on the Table 3.1. (Possible roles, time lines, commitments for permittees?)
- Clearly state the learning objective. e.g. What part of understanding stormwater is being evaluated? (Stormwater benefits, role in nature, stormwater pollutants, managing stormwater)
 - What demonstrates an Action? What Action was learned or implemented?
 - What demonstrates Knowledge? Why is stormwater important? Good/Bad. When does good become bad?
 - What demonstrates Attitude? Evaluate after each session?
 - (Did the kids engage or tune-out in a lesson. Evaluate what was fun, lost interest, boring, didn't care.)
 - Other?
- What assessment tool will be used to evaluate 'effectiveness' pre and post Drain Ranger program?
 - Suggested questions used for pre-evaluation and post-project.
 - Do you play in the rain/snow? What is the difference?
 - What is stormwater? Why does it runoff?

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- Where does stormwater go? Select right answer(s). Storm drains, soaks in ground, runs down street, goes away, I do not know, goes to stream or river, goes into air...
- Is stormwater clean? When does stormwater get dirty? How can stormwater be cleaned?
- How do we manage stormwater?
- Stormwater causes floods, cleans plants, gets cars dirty, makes mud, waters plants, cleans the street, goes into ground...etc.

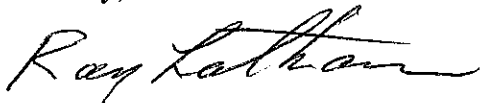
7.1 Study QC Procedures

- What are the standard operating procedures (SOPs) for teaching, presentation (active/passive), testing, and analysis?
- Identify criteria that the assessment is either acceptable or not acceptable. e.g. Completeness, missed sessions, instructor or class missed, not enough data...etc

When you have completed the revisions, please send a pdf of the Signature Page with the added names of Brandi Lubliner, QA Coordinator brandi.lubliner@ecy.wa.gov and myself ray.latham@ecy.wa.gov for our signature. We will also want an electronic copy of the revised study plan and QAPP for Ecology's file.

Please contact me if you have questions or need clarification, I am available at (509) 575-2807 or by email at ray.latham@ecy.wa.gov.

Sincerely,



Ray Latham
Municipal Stormwater Permit Manager
Water Quality Program – Central Region

Enclosure: Lubliner Memo: EWA Effectiveness Study QAPP

cc: Brandi Lubliner Water Quality, Ecology-Lacey
Abbey Stockwell, Water Quality, Ecology-Lacey



DEPARTMENT OF
ECOLOGY
State of Washington

To: Ray Latham, Department of Ecology, Municipal Stormwater Permit Manager
From: Brandi Lubliner, P.E., Department of Ecology, QA Coordinator
Date: June 8, 2018
Subject: Eastern Washington Stormwater Effectiveness Study QAPP Review Comments

This *Eastern Washington Stormwater Effectiveness Studies Quality Assurance Project Plan: Elementary School Stormwater Education Study*, draft dated April 20.0, 2018, is well developed. I reviewed the entire document. The following revisions are necessary for approval.

1. Revise the signature page to specify both Ray Latham Ecology permit/project manager and Brandi Lubliner as Ecology QA Coordinator. Also add row to Table in Section 3.1 adding these same people and roles.
2. Conduct an editorial review to clean up the number of acronyms used for the same phrases.
3. There are a few carry-over sentences from the proposal that say things will be done in the QAPP, Section 2.2, 2.3, 5.2. Update verb tenses and indicate whether the other school districts are included in this study.
4. Section 4 Quality Objectives is a little lean with regard to how the surveys were either devised or will be implemented to prevent bias when assessing Actions, Knowledge, and Attitude. I suspect great care was given to how the questions are phrased, trying to not be leading questions. Also, what is the target completeness goal 90% of how many students? How many surveys will be too little? Who will do the coding on the line drawing questions or other subjective essay answers? Will it be just one person or a team, how will the study assure consistency?
5. I didn't see any formal SOPs, I recommend deleting the acronym throughout since the teachers will be trained.
6. The final report must also go to the Ecology project and permit manager, along with a spreadsheet of all the study data. This means all the useable quality assured data used for the analysis, and the rejected or un-useable data gathered as part of the study. The rejected data can be included in a separate file or a different tab and the reasons for its failure described.

My role as QA Coordinator for municipal stormwater monitoring is relatively new, and was not yet established in the earlier drafts of this QAPP. Please send the final PDF for signature when ready. If you have any further questions, please contact me by email at brandi.lubliner@ecy.wa.gov or by phone at (360) 407-7140.