

Biologically Available Phosphorus (BAP) Workshop

May 3, 2012

Spokane County Water Resource Center
1004 North Freya St.
Spokane, WA 2012

Objectives: *Build Upon the Original University of Washington BAP Study with an Additional Research Effort to Further a Common Scientific Understanding of BAP and Discuss the Application of this Science to Water Quality Modeling and Effluent Discharge Permitting for the Spokane River*

1. Spokane River Overview

- Recap Why We Are Looking at BAP Relative to the Spokane River TMDL

2. Phosphorus Speciation and Bioavailability

- Water Quality Implications
 - What Does This Mean for Spokane River Water Quality Management?
- Water Quality Modeling
 - Explain Current CE-QUAL- W2 TMDL Model Setup
 - Model Input and Output
 - Sensitivity of Model Results
- Wastewater Treatment Implications
 - Explain Existing and Future Effluent Characteristics

3. Summary of Phase 1 University of Washington BAP Study

- Recap of the Previous Study Results
 - Bananas and Coconuts
- Answer the Questions Posed at the Completion of the First Study
- Address Long Term Bioavailability Issues

4. New Developments in Nutrient Speciation and Bioavailability

- Summary of WERF Research Studies
 - Spokane River Dischargers Contributed to These Studies
- New Concepts of Phosphorus Bioavailability
 - Discussion of Hypothesis that Recalcitrant Dissolved P is Primarily Humic-Metal Complexed Phosphorus
 - Relevance to Spokane River Water Quality Management
 - Application to CE-QUAL- W2 Modeling of Spokane River

5. Phase 2 Phosphorus Bioavailability Study

- Discussion of Proposed Phase 2 Study Objectives
- Phase 2 Study Plan
 - Resolving Issues with Phase 1 Study
 - Scope of Work Tasks for Phase 2 Study
 - Wastewater and Receiving Water Sampling
 - Laboratory Approach
 - QAPP
 - Schedule for Phase 2 Study
 - Draft Results
 - Final Report
- Peer Review Plan

6. Potential Application of Phase 2 Phosphorus Bioavailability Study Results to Spokane River

- CE-QUAL-W2 Modeling
 - Capability of Spokane River Model to Incorporate Study Results
 - Sensitivity Analysis
 - How Important is Influence of BAP on Predicted Water Quality?
- Influence on Wastewater Treatment Process Selection
 - Impact on Effluent Characteristics
- Spokane River TMDL Revisions
 - Equivalency of CE-QUAL-W2 Model Results
- Effluent Discharge Permitting
 - Potential Application to Effluent Limits and Permit Structure
 - Agency Expectations

7. Wrap Up

- Follow-up and Further Communication