

Spokane River Stewardship Partners

Working every day for a healthy river

Spokane County • City of Spokane • Liberty Lake Sewer & Water District • City of Coeur d'Alene • City of Post Falls • Hayden Area Regional Sewer Board
Avista • Inland Empire Paper Company • Kaiser Aluminum

Spokane River Point Sources Nutrient Bubble Concept

February 24, 2011

Agenda

A decorative blue wavy line that starts on the left, rises to a peak, dips into a shallow valley, and then rises again towards the right edge of the slide.

- Intent of Bubble
- Past Cooperative Agreements
- Current Bubble Examples
- Bubble Foundation
- Simplified Bubble
- Full Scale Bubble

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■ Nutrient Bubble Concept

- Continues to require participating dischargers to meet their combined riverine assessment point modeled nutrient levels
- Provides a framework that allows a participating permittee to access any unused permitted discharge allowances generated by the performance of other bubble participants during a reporting period
- Allows participating dischargers to provide “mutual aide” without incurring additional non-compliance liability

- **Nutrient Bubble Concept**

- Provides a mechanism for integrating, tracking, and accounting for features such as pollutant equivalency and for future features such as trading and bioavailability in a transparent manner
- Implemented when DO TMDL based nutrient discharge limitations in permits become effective

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Spokane River Phosphorous Management Plan



- Management Plan Elements
 - 1989 bi-state agreement included both dischargers and agencies
 - Set a 259 kg/day phosphorous loading for point source dischargers for the months of June through October
 - Established a trigger mechanism for implementing additional controls and the sequencing of those additional controls
 - Set up an industrial discharger bubble with a phosphorous allocation

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Washington Example



- Inland Empire Paper / Kaiser Aluminum
 - Bubble is for total phosphorous for these point source dischargers
 - Permit sets the total phosphorous discharge limitation from the two facilities combined
 - Permit sets individual discharge limitations for total phosphorous for each facility
 - Permit defines non-compliance with respect to the combined limitation
 - If combined limitation is not exceeded, no non-compliance liability incurred for either facility
 - If combined limitation is exceeded, only the facility that exceeds its individual discharge limitation incurs non-compliance liability

Nevada Example



- City of Henderson / City of Las Vegas / Clark County
 - Discharge permits allow for trading through a formalized cooperative agreement
 - Each facility has *“individual permit limitations”* for total phosphorous and ammonia
 - Combined loading for each parameter from all three facilities is defined as the *“sum of the individual permit limitations”*
 - Permittee considered in compliance if
 - They do not exceed their *“individual permit limitation”* taking into account any trades, or
 - The *“sum of the permit limitations”* is not exceeded

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Bubble Foundation



■ Technical Foundation

- Riverine assessment point cumulative nutrient levels from participating dischargers must remain unchanged
- Bubble “factors” are grounded in the CE-QUAL-W2 model assumptions and outputs
- Reporting burden remains with the participating dischargers and includes individual and aggregated discharge compliance information

Bubble Foundation



■ Compliance Foundation

- The bubble concept must be incorporated into the NPDES permits of the participating dischargers
- Permit must provide for an individual participating discharger being in compliance if
 - Shared nutrient bubble is not exceeded, even if one or more dischargers exceeded their individual facility nutrient permit limits, or
 - Individual facility nutrient permit limits are not exceeded
- Permit must provide for an individual participating discharger being in non-compliance if
 - Shared nutrient bubble is exceeded, and
 - Their individual facility nutrient permit limits are exceeded.

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Simplified Nutrient Bubble



- Simplified Nutrient Bubble Inputs
 - Participating point source dischargers
 - Washington and Idaho sources
 - Individual discharger total phosphorus information
 - NPDES permit limitations
 - Reporting period actual discharge data
 - Location ratios for each participating discharger
 - Derived from CE-QUAL-W2 Model

Simplified Nutrient Bubble

REPORTING PERIOD BASIS			
DISCHARGING ENTITY	TOTAL PHOSPHOROUS PERMIT LIMIT (LBS/DAY)	LOCATION RATIO	ASSESSMENT POINT BASIS
DISCHARGER #1			
DISCHARGER #2			
DISCHARGER #3			
DISCHARGER #4			
TOTAL			BASIS

Simplified Nutrient Bubble

REPORTING PERIOD ACTUALS			
DISCHARGING ENTITY	TOTAL PHOSPHORUS DISCHARGE (LBS/DAY)	LOCATION RATIO	ASSESSMENT POINT ACTUALS
DISCHARGER #1			
DISCHARGER #2			
DISCHARGER #3			
DISCHARGER #4			
Total			ACTUALS

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Full Scale Nutrient Bubble



- Initial Full Scale Nutrient Bubble Inputs
 - Participating point source dischargers
 - Washington and Idaho sources
 - Individual discharger total nutrients information
 - NPDES permit limitations for total phosphorous, ammonia, and carbonaceous biological oxygen demand
 - Reporting period actual discharge data for total phosphorous, ammonia, and carbonaceous biological oxygen demand
 - Factors derived from CE-QUAL-W2 model
 - Location ratio for each participating discharger
 - Pollutant equivalency factors for individual facilities

Full Scale Nutrient Bubble



- Future Full Scale Nutrient Bubble Inputs
 - Approved bioavailability factors for total phosphorous
 - Site specific factors developed for individual facilities
 - Approved Trading Credits
 - Entity acquired total phosphorous credits

Full Scale Nutrient Bubble

REPORTING PERIOD BASIS							
DISCHARGING ENTITY	PARAMETER	PERMIT LIMIT (LBS/DAY)	POLLUTANT EQUIVALENCY FACTOR	TOTAL PHOSPHOROUS EQUIVALENT	EQUIVALENT PHOSPHOROUS DISCHARGE	LOCATION RATIO	ASSESSMENT POINT BASIS
DISCHARGER #1	Total Phosphorous						
	Ammonia						
	Carbonaceous BOD						
DISCHARGER #2	Total Phosphorous						
	Ammonia						
	Carbonaceous BOD						
TOTAL							BASIS

Full Scale Nutrient Bubble

REPORTING PERIOD ACTUALS					
DISCHARGING ENTITY	PARAMETER	PARAMETER DISCHARGE (LBS/DAY)	PHOSPHOROUS BIO-AVAILABILITY FACTOR	APPROVED TRADE DISCHARGE CREDIT (LBS/DAY)	NET PARAMETER DISCHARGE (LBS/DAY)
DISCHARGER #1	Total Phosphorous				
	Ammonia				
	Carbonaceous BOD				
DISCHARGER #2	Total Phosphorous				
	Ammonia				
	Carbonaceous BOD				
TOTAL					

Full Scale Nutrient Bubble

TABLE CONTINUED...		REPORTING PERIOD ACTUALS					
DISCHARGING ENTITY	PARAMETER	NET PARAMETER DISCHARGE (LBS/DAY)	POLLUTANT EQUIVALENCY FACTOR	TOTAL PHOSPHOROUS EQUIVALENTS	EQUIVALENT PHOSPHOROUS DISCHARGE	LOCATION RATIO	NET ASSESSMENT POINT ACTUALS
DISCHARGER #1	Total Phosphorous						
	Ammonia						
	Carbonaceous BOD						
DISCHARGER #2	Total Phosphorous						
	Ammonia						
	Carbonaceous BOD						
TOTAL							ACTUALS

Nutrient Bubble Concept

A decorative graphic consisting of two wavy, horizontal lines in shades of blue. The top line is a medium blue, and the bottom line is a lighter blue. They both start on the left, rise to a peak, dip slightly, and then rise again towards the right edge of the slide.

Questions?