

September 2010

TO: Interested Parties  
FROM: Kelly Susewind, Program Manager, Water Quality Program  
RE: Draft Trading Framework Paper for review and comment

Attached is a draft Water Quality Trading Framework paper that we put together over the last couple of months. We felt the need to develop this because last legislative session there was a Water Quality trading bill asking for more guidance and over the last 6 months we have been working to learn more about trading so we can move forward with stakeholders in Spokane and develop a trading program. This document is meant to serve as a “regulatory recipe” if an area is interested in developing a water quality trading program under the clean water act and Washington’s water quality standards.

This framework will guide us as we work on trading in the Spokane and in other areas of the state that are struggling with how to implement waste load allocations in a TMDL. We will keep it as draft document until we actually have a trading program in place and actively engaged in trading then we will update it based on the knowledge gained by developing an actual trading program. Although it will remain in draft **we do want to solicit comments on it and will revise this draft based on those comments.**

There is plenty of good detailed guidance out there on trading programs (EPA’s and Idaho’s most recent guidance) and we did not want to create another detailed guidance piece. We do see the need to be explicit about the steps needed and the regulatory role that Ecology needs to play when setting up a trading program under the Clean Water Act and Washington’s Water Quality Standards.

The revised version would then provide the recipe that we would follow. If you are interested in commenting please get your comments in to: Helen Bresler by October 22, 2010.

**DRAFT**  
**Washington**  
**Water Quality Trading/Offset Framework**

Pollution trading, sometimes called water quality credit trading, uses the market concept to help achieve water quality goals. Trading relies on the fact that many different facilities and activities, such as businesses and industries, wastewater treatment facilities, urban stormwater systems, and agricultural sites, may discharge the same pollutant to a water body, yet may face substantially different costs to control that pollutant. The use of trading allows pollution reduction activities to be assigned a water quality improvement value in the form of “credits” that can then be traded on a local “market” to achieve cost-effective water quality improvements.

Pollution trading can provide advantages in addition to reduced costs for water quality improvements. Pollution to a waterbody can come from both point and nonpoint sources. In some watersheds, it may not be possible for the point sources to achieve a higher level of treatment using the best technology available at this time. In those situations, pollution trading between point sources and nonpoint sources may be the only way for the point source discharger to achieve compliance with state water quality standards. Trading can provide a fund source for nonpoint pollution controls in addition to the currently available fund sources, such as state and federal grant and loan programs. This may be critical in solving our water pollution problems, since nonpoint pollution has been identified nationally as the leading cause of water pollution.

The purpose of water quality credit trading markets is not financial gain. Markets in this context are intended to promote more effective, lower cost reductions of pollutants to restore water quality and maintain healthy rivers, lakes, streams, and estuaries in the future. Financial savings will certainly accrue to those parties that buy credits from others for less than the cost of implementing the pollution reductions themselves. And those that sell water quality credits will, presumably, do so only if the value of the trade is equal to or higher than their investment in the facilities or activities necessary to achieve the pollutant reductions.

“Credits” are simply an accounting mechanism to reflect the value of pollution reductions in terms of water quality benefits, not dollar costs. The differential monetary costs of implementing pollution reductions will vary substantially from situation to situation and over time. Costs are precisely what businesses, industries and local governments will evaluate when considering trading—but they are not relevant to the **environmental value** of the credits in a trading program. The objective of a water quality credit trading program is to facilitate economic exchanges that demonstrably reduce pollution and clean up impaired surface waters more quickly.

Ecology supports the concept of pollution trading markets that:

- Meet the requirements and objectives of Washington’s water quality standards and the federal Clean Water Act.
- Promote cost-effective water quality protection and restoration.
- Result in water quality trades that are verifiable and fully enforceable.

Washington trading programs must also comply with EPA’s trading policy, which recommends that state programs provide:

- Timely public access to information on trades.
- Public participation during program development and implementation.

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- Mechanisms to monitor progress, evaluate program effectiveness, and revise the program as necessary.
- Legal mechanisms to facilitate trading.
- Clearly defined units of trade.
- Methods to quantify credits and address uncertainty.
- Compliance and enforcement provisions.
- Accountability for all trades.
- Assurance that NPDES permit holders meet their permit limits.

For additional information about water quality trading, see:

EPA's water quality trading page: <http://water.epa.gov/type/watersheds/trading.cfm>

EPA's trading policy: [http://www.epa.gov/npdes/pubs/wqtradingtoolkit\\_app\\_b\\_trading\\_policy.pdf](http://www.epa.gov/npdes/pubs/wqtradingtoolkit_app_b_trading_policy.pdf)

EPA's *Water Quality Trading Assessment Handbook*:

[http://water.epa.gov/type/watersheds/trading/upload/2004\\_11\\_08\\_watershed\\_trading\\_handbook\\_national-wqt-handbook-2004.pdf](http://water.epa.gov/type/watersheds/trading/upload/2004_11_08_watershed_trading_handbook_national-wqt-handbook-2004.pdf)

Washington's Offset Rule: <http://apps.leg.wa.gov/WAC/default.aspx?cite=173-201A-450>

## Introduction

### How trading works

- A “cap” or limit, typically determined through a total maximum daily load (TMDL) study, is placed on the total amount of pollutant that can be released from all sources to a water body.
- Point sources of pollution receive a wasteload allocation that is converted to a permit limit.
- Nonpoint pollution sources receive a load allocation, which establishes the baseline that must be met before nonpoint credits that may be traded accrue.
- Point sources can meet their wasteload allocation by:
  1. Meeting the permit limit based on the WLA through on-site actions, (i.e. by reducing the quantity or improving the quality of discharge),
  2. Earning “credits” by implementing pre-approved nonpoint source pollution control measures, or
  3. Buying “credits” from other sources that have reduced pollutants below their own allocation.

### What is a credit?

- A unit of pollutant reduction usually measured in pollutant quantity (pounds) per unit of time at a point of compliance.
- Generated by a point source by over-controlling its discharge—going beyond reductions required by its WLA-based permit limit or its existing permit limit, whichever is more stringent.
- Generated by a nonpoint source from the installation of best management practices beyond those required to meet the most stringent load allocation applicable to that nonpoint source.
- The number of credits used by a point source buyer must be adjusted by a trading ratio.
  - Ratios adjust for the environmental impact of a pollutant discharge being moved from one part of a watershed to another, changes in pollutant form, and uncertainty.
  - Ratios can also be used to add environmental benefit, for instance by retiring a percentage of the credits to ensure a permanent environmental benefit.
- Nonpoint source credits and trading ratios must be measured or calculated from the same baseline used in the TMDL and must be consistent with the assumptions used to develop the load allocation.

### EPA guidance

- Participants must be located within the same watershed
- The appropriate watershed size is determined by ability to establish equivalence of water quality impacts.
- No trading to meet technology-based limits.
- No trading to address toxics.
- No out-of-kind trading.
- Trading may not adversely affect water quality at an intake for drinking water supply.
- Surplus credits are created only when discharge is reduced **below** water quality-based limits or applicable technology-based limits, whichever is more stringent.
- Trading must not result in exceedence of water quality standards, or a violation of antidegradation requirements (no “hot spots”), or cap established by TMDL.
- Credits may only be used to attain more stringent effluent limitation than previous effluent limitations, in the life cycle of an individual permit. Clean Water Act prohibits backsliding on permit effluent limitations. See CFR 122.44(l).

### Elements of a credible water quality trading program

- Must define a common unit of credit, such as pounds of phosphorus per day.
- Credits should be generated and used within the same time period to comply with permit limits and prevent localized exceedence of water quality standards.

- Include methods of managing uncertainty such as using trading ratios, monitoring, modeling, and BMP efficiency estimates.
- Have mechanisms for compliance and enforcement—record-keeping requirements, certifications, inspections, and enforcement.
- Provide adequate public notice and trade transparency.
- Regularly assess results to modify and improve the program.

## **Defining the trading universe**

### **Determining eligible trades**

Ecology, with input from stakeholders, will determine what types of trades will be eligible for each specific pollutant/watershed water quality trading program. Some of the trades that may be evaluated for each program include:

- Between point sources.
- Within a single entity, for example a jurisdiction reducing its own nonpoint discharges to offset its point source discharge or a discharger trading between multiple outfalls from the same plant.
- Between point sources and nonpoint sources.
- Between nonpoint sources.
- Trading one oxygen-related pollutant for another, such as ammonia for phosphorus, if adequate information exists to establish and correlate impacts on water quality.
- Trading a pollutant for a water quality enhancement, such as increasing dissolved oxygen as a trade for reducing phosphorus.
- Trading one form of a pollutant for another form, such as total phosphorus for a soluble or non-soluble form, if adequate information exists to establish and correlate impacts on water quality.

### **Identifying eligible BMPs for nonpoint trades**

To decide which BMPs are likely to provide the most improvement, it is necessary to estimate how much pollution is coming from a watershed or from a specific land use and then to identify the BMPs most likely to address that pollution. It's a good idea to identify a specific, prioritized set that will be used for trading. They may be individual BMPs that may be selected from a list, there may just be one or two BMPs that are eligible, they may be required to be installed and used in a specific order and/or in a specific combination. For instance the decision may be to allow credit to be earned for using direct seed only if the producer also installs a stream buffer of a specific width and plant composition.

### **Quantifying/estimating pollutant reductions**

A standard methodology must be used to estimate the amount of pollution reduction expected from the implementation of eligible BMPs. Monitoring must measure actual reductions periodically and adjust, if necessary, the estimated reductions.

### **Establishing trading ratios**

Factors to consider when establishing a trading ratio:

- Technical and logistical uncertainty—Will this solution actually work? Will it work at this location? Does the BMP estimating equation have a lot of uncertainty?
- Whether the credits are estimated or measured.
- Fate and transport of the pollutant.
- Distance between the pollutant source and the regulatory source—the locational ratio.
- Risk—likelihood of BMP failing or of implementer renegeing.
- Temporal variability—does the BMP remove different amounts of the pollutant at different times?
- Time lag between implementation and full performance.

If the estimated reductions are expected to vary over time or will be difficult to measure, an uncertainty discount may be applied to the credits produced to ensure that the necessary amount of pollution reduction is achieved.

Another adjustment that may be used is a water quality equivalence ratio. This may be set to account for the different effects caused by pollutant discharges in different parts of a watershed. Some pilot trading projects have applied a simple 2:1 ratio to all trades. Others have used a mass balance model that accounts for inputs, withdrawals, and ground water infiltration.

Equivalence ratios will affect the financial attractiveness of trading.

Retiring credits—a certain proportion may be retired, which means that those improvements must remain in place forever.

### **Proposing an alternative trade**

A discharger proposing a trade not on the approved eligible trade list (determined by Ecology) is responsible for showing that it will actually offset a portion of the discharger's water quality-based effluent limit and meet all other trading requirements listed in the Introduction section. To demonstrate the effectiveness of the trade the discharger must use the following process:

#### **Project scoping—proposal and consultation**

Proponent presents trading/offset study proposal to Ecology. Ecology provides initial consultation at conceptual stage and may reject the proposal at this stage. If Ecology agrees that the proposal has merit, it provides clear written feedback regarding the merits of the proposal, weaknesses that must be addressed, and items that must be included.

#### **Quality Assurance Project Plan (QAPP)**

The proponent prepares a QAPP and submits it to Ecology for review and approval. The QAPP must meet Ecology's requirements, which can be found at <http://www.ecy.wa.gov/programs/eap/quality.html>.

A QAPP

- Lists the goals and objectives of a study.
- Identifies the type and quality of data needed.
- Describes the sampling and measurement procedures needed to acquire those data.
- Describes the quality control (QC) and assessment procedures needed to ensure that the study objectives are met.
- Describes the methods to be followed to achieve the requirements contained in the sections below entitled "Discharger Implements Offset" and "Monitoring."

The completed QAPP must be approved by Ecology before the proponent begins collection of new data or any other work on the study.

#### **Study requirements**

- Address all of Ecology's comments and concerns identified in the scoping consultation.
- Description of the management practices and/or technologies proposed to achieve the pollutant reduction and scientific evidence that use of those practices or technologies will actually result in that reduction.
- Determination of the net reduction in pollutant loading to be achieved by the proposed action, considering all relevant environmental influences (natural or otherwise), including seasonal variation

in loading, lag times between installation and achievement of pollutant reduction, uncertainty, and other factors.

- Demonstration through modeling or equivalent actual situations that the reduction will be achieved at the compliance point.
- Demonstration that the pollutant reduction can be measured at both implementation and compliance monitoring locations, or a proposed method to estimate the pollutant reduction.
- Provide design detail at a level that can be field checked (if relevant).
- Implementation milestones with associated timelines.
- A post-implementation monitoring plan that examines implementation effectiveness and the effect of the offset, in terms of water quality, at the compliance location. The plan must propose an analysis method describing how the monitoring data will be evaluated, over time, to determine whether the offset (and associated offset implementation method) have achieved the load reduction. The analysis must consider pollutant variability.
- A date for offset effect to be measurable at the compliance location.

When the study is complete, the proponent submits a draft report to Ecology for review. Ecology determines whether all elements initially required are present and considered competently. Ecology may approve the report or return it with comments that are to be addressed before final approval.

### **Ecology determines offset**

Once the study is approved, based on study report findings and any other supporting data, Ecology determines the amount of credit that will be allowed for the proposed action. Determination includes:

- Finalizing the estimation equation that will be used.
- Setting baseline for nonpoint sources to achieve before they can trade.
- Establishing trading ratios.

### **Implementing the trade/offset**

#### **Implementation requirements**

- Implementation of the offset/credit for any proposed new or expanded actions must be demonstrated to have occurred in advance of the proposed action.
- Point or nonpoint source pollution controls must be secured using binding legal instruments between any involved parties for the life of the project that is being offset. The proponent remains solely responsible for ensuring the success of offsetting activities for both compliance and enforcement purposes.

#### **Ecology issues NPDES permit**

- NPDES permit requires use of best technology dischargers can achieve.
- NPDES permit is written to allow trading for portion of the WLA-based effluent limit that goes beyond best technology dischargers can achieve.
- Credits are linked to NPDES permit. Dischargers will report raw sampling results, as well as trade-adjusted results, on their monthly DMRs. The trade-adjusted results must meet their effluent limits.

The NPDES permit establishes the point source effluent limit and allows the use of approved credits to make up the difference between the best effluent technology can achieve and the effluent limit. By issuing the permit, Ecology presumes that the total of the permittee's own discharge and any credits claimed to meet the TMDL wasteload allocation are in compliance with state water quality standards, provided that the permittee adheres to all conditions of the permit and any other trading requirements. This presumption may be overcome by evidence that the practices providing credit are found to be not effective or not adequately implemented or maintained.

**Permittee implements offset**

- To ensure credits are accrued and used in the same time period, the discharger must certify each month that offset activities/technologies are in place, being operated and maintained correctly, and that pollutant reduction associated with the action is being achieved.
- Ecology may conduct periodic inspections, including but not limited to visual inspections, and water quality monitoring, at any time during the life of the offset.

**Monitoring**

- For point source discharges undergoing technology-based measures, Ecology may verify (pre and post-implementation) the magnitude and quality of discharge at end-of-pipe.
- Participant conducts monitoring as established either through the offset study report or alternatively, through a post-TMDL monitoring plan. Monitoring results and any additional reporting required by Ecology to document the offset are produced and submitted to Ecology monthly.
- Ecology oversees overall TMDL compliance monitoring, which accounts for the cumulative loading including the point and non-point sources at the critical location designated by the TMDL.

**On-going credit accounting**

Any trading program must use an established credit accounting system or establish its own to ensure that credits are accrued, used, and tracked to ensure compliance with NPDES permits and Washington's water quality standards.

**Credit Expiration/Retirement**

Approved credits will expire under the following circumstances:

- If they become actions required by a permit, by a TMDL load or wasteload allocation or TMDL implementation plan, or by policy regulation.
- If the BMPs by which the credits are accrued are shown to be ineffective or less effective than originally expected.
- If the BMP is removed.