

## **Effluent Trading**

(from EPA Region 10 website: [www.epa.gov/r10earth/innovation.htm](http://www.epa.gov/r10earth/innovation.htm), under "Projects")

### **EPA Region 10's Effluent Trading Initiative**

#### ***What is Effluent Trading?***

Effluent trading is an innovative way for water quality agencies and community stakeholders to develop cost-effective solutions to address water quality problems in their watersheds. EPA's regulatory requirement under Section 303(d) of the Clean Water Act to establish Total Maximum Daily Loadings (TMDLs) for each impaired water body provides a tremendous opportunity to apply market-based conservation strategies. Effluent trading may achieve these environmental goals at a lower cost than other regulatory approaches.

A TMDL provides a method for allocating pollutant discharges among sources, by establishing waste load allocations for each point source, and a load allocation for non-point (non-permitted) sources as a whole. These allocations quantify the relationship between pollutant sources and water quality. More specifically, a TMDL is the sum of the waste load allocations to point sources, the load allocations to non-point sources, and natural background, which are set at a level needed to ensure achievement of water quality standards in the impaired water body. A margin of safety is also included in the TMDL to account for any lack of knowledge concerning the relationship between the pollutant loads and the quality of the receiving water body. One result of the TMDL allocation is that discharge sources with the ability to reduce at the lowest cost are not necessarily encouraged to make substantial reductions, since they need only reduce to the level of their load allocation. Other sources may need to make considerable reductions, but their costs may be very high.

Effluent trading allows sources to use the marketplace to determine who will reduce and by how much, by allowing the buying and selling of the assigned allotments. For example, a source that reduces more than what was required can quantify that amount and create a marketable "credit." That credit, in turn, can be purchased by another source, which allows them to increase their discharge by the amount of the credit. The total discharge by both sources remains the same, thereby maintaining overall water quality standards. With trading, the market price determines the most cost-effective distribution. Sources can use the trading of allotments to accommodate anticipated growth or other increases of their discharge, and avoid expensive last-minute technology investments. They may also profit from the adoption of pollution prevention techniques that reduce their discharge by selling their excess allotment in the market.

#### ***What is EPA Region 10's effluent trading initiative?***

EPA-Region 10 enthusiastically supports the concept of effluent trading and is launching several pilot projects from which a region-wide program will be developed. Two projects were selected in July 1997 to receive the initial funding provided - the Lower Boise River in Idaho and the Puyallup/White River System in Washington. While the Lower Boise River Demonstration Project continues to be developed, the Puyallup project was later determined not to be feasible, primarily

due to changing economic circumstances for its point sources. As soon as more funding is available, additional demonstration projects in Oregon and Washington will be selected and launched. A full-time effluent trading coordinator, with considerable experience designing and implementing sulfur dioxide emissions trading for EPA's Acid Rain Program, oversees the effluent trading initiative in the region. Using a workgroup composed of stakeholders, and state and EPA staff, each demonstration project will tailor the effluent trading approach to best meet the needs of the particular river basin or stream segment. While satisfying all existing state and federal environmental protection requirements, the projects are striving to achieve cost savings to the affected sources. In addition, workshops will be held in each state when its demonstration project is launched, so that the stakeholders and the general public will be able to learn more about the concept of effluent trading.

### ***Idaho - Lower Boise River Demonstration Project***

The Lower Boise River was selected as an effluent trading demonstration project because of the significant phosphorous reductions that are anticipated to be required once the TMDLs are established for the Lower Boise River and the Snake River's Brownlee Reservoir, into which the Boise River flows. The TMDLs are scheduled to be completed by the end of 2001. The Lower Boise River community, including six municipalities and several point sources that would be assigned significant reduction responsibilities under the TMDLs, is very interested in effluent trading as a means of meeting the water quality goals at the least possible cost. Effluent trading also offers an important opportunity for the agriculture community (non-point sources) to participate voluntarily in improving water quality in the Lower Boise River Watershed by engaging in trades with point sources.

The Lower Boise Effluent Trading Demonstration Project was launched in the late fall following an effluent trading workshop held in Boise on November 18, 1997. At the workshop, speakers from other states described their experience with effluent trading projects and discussed design and implementation issues. Over 200 people attended the workshop, covering a broad range of constituents in Idaho. Included were representatives of agricultural, forestry, and environmental interests, as well as industry, municipalities, and state government agencies.

Since the workshop, municipal, agriculture, and environmental stakeholders for the Lower Boise Demonstration Project have been meeting with the Idaho Division of Environmental Quality (DEQ) and EPA-Region 10, and with the help of Ross & Associates as a neutral facilitator, to develop the "blueprint" for an effluent trading program in the lower Boise River watershed. Among the municipalities represented are Boise, Meridian, Nampa, Caldwell, and Middleton; other point sources include Micron, Simplot, Armour Fresh Meats, and Idaho Power. The agriculture interests are represented, in part, by the Pioneer Irrigation District, Canyon County and Ada County Soil Conservation Districts, Idaho Farm Bureau, and the Idaho Water Users Association. Environmental interests are represented by Idaho Rivers United and the Idaho Conservation League. The Idaho Soil Conservation Commission and the federal agencies of the Natural Resources Conservation Service and the Bureau of Reclamation are also active participants.

The first six months of the meetings, known as Phase I, were spent with municipalities and agricultural stakeholders in a series of separate meetings to define the economic potential for effluent trading, particularly for point-to-nonpoint source trading, and to establish a strategic plan for the project. The municipalities' estimated costs of reducing phosphorous up to 80%, as may be called for by the TMDLs, and given the watershed's current rate of population growth, ranged from \$20/pound to upwards of \$175/pound for a source's final increment of reduction needed to reach the pollutant target. In contrast, the agriculture sector's estimated costs to reduce phosphorous were thought to range from \$3/pound to \$12/pound. The stakeholders were confident at the end of Phase I that the difference in the costs between the two sectors showed the strong potential for a market and they decided to proceed to the next phase of the project.

### *Current Activity*

Phase II of the project was launched in the summer of 1998 and is expected to be finished in December, 1999, with the completion of the effluent trading program elements and regulatory documents, ready to be submitted to EPA for its approval. The Phase II work involves a core team of the watershed's stakeholders, DEQ, and EPA who are designing the key elements and tasks necessary to implement effluent trading in the watershed. These include developing the market framework design to manage point source-to-point source and point source-to-nonpoint source trades; identifying the monitoring and technical parameters in which trading may take place to ensure the targeted improvement in water quality is achieved as intended by the TMDL; and establishing a list of acceptable reduction activities by nonpoint sources and the appropriate measurement methods that may be offered in a trade with a point source. It is currently anticipated that trading would begin with a model trade in late 1999 or 2000, but build to a larger volume in subsequent years once the framework is in place.

For more information about effluent trading in Region 10, please contact **Claire Schary** at (206) 553-8514, or by e-mail at [schary.claire@epa.gov](mailto:schary.claire@epa.gov).