

Phosphorus Credit Pricing Considerations for Cherry Creek Basin
Cherry Creek Basin Water Quality Authority (Authority)
April 7, 2003

In conjunction with revising the Cherry Creek Basin Trading Program Guidelines, a subcommittee to the Technical Advisory Committee evaluated phosphorus credit pricing. The evaluation considered the actual costs and associated phosphorus credits for the Authority's existing Pollutant Reduction Facilities (PRFs) and estimated costs and phosphorus credits for proposed PRFs.

Recommended Phosphorus Credit Price: Based on this evaluation, the subcommittee recommends an annual lease price of \$550/phosphorus pound and a lump sum price of \$8,930/phosphorus pound. The Authority may annually revise the credit price. A summary of the credit pricing evaluation and present worth costs is provided below.

Existing Authority Pollutant Reduction Facilities

The Authority constructed the following PRFs, between 1990 and 1997, at a capital cost of \$1.65 million (2003 dollars). These approved trade projects established 216 pounds of phosphorus credits in the Phosphorus Bank. The Cherry Creek Reservoir Control Regulation also allocates 216 pounds of phosphorus to the Reserve Pool.

- Shop Creek
- Cottonwood Creek
- Quincy Drainage
- East Shade Shelter Stabilization

Comparison of Initial Credit Pricing Estimates for Existing PRFs and Proposed Authority PRFs

The following table includes estimated phosphorus credit prices based on capital and annual costs associated with the existing and planned PRFs (all costs in 2003 dollars). The PRFs are grouped in two categories: 1) the existing Authority PRFs and 2) the post-2001 proposed PRFs (from 2003 CIP).

PRFs	Total present worth cost, \$	Total annualized cost, \$	Total phosphorus available, pounds	Present worth cost for lump sum purchase, \$/pound	Annual price to lease phosphorus pounds, \$/pound
4 Existing Authority PRFs	2,861,376	174,830	432	6,620	400
Proposed Post-2001 PRFs (2003-2005 CIP) ¹	11,971,920	731,426	1,341	8,930	550

¹ Estimated costs and phosphorus reduction for proposed PRFs. Calculations assume a trading ratio of 2.

Price Considerations

The following factors could be considered for adjusting the estimated credit price.

- A higher trade ratio for future projects increases the costs. For example, increasing the trade ratio for the proposed post-2001 PRFs from 2:1 to 2.5:1 increases the annual cost from \$550/pound to \$680/pound.
- Trading program administration costs could be added into the price—this could be covered in part with the application fee.
- Changing costs of PRF construction over time—the easier projects will be constructed earlier and then become harder/more expensive over time.