Comments of
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regarding
Water Storage versus Water Conservation in the Yakima Basin
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Between 40-60% of the crops in the Yakima valley are still grown with rill, furrow and other inefficient on-farm water application technologies, according to the statistics I have seen. There has never been a sophisticated analysis of what water could be made available from upgrading irrigation delivery and on farm-systems in the Yakima valley to best available technologies, to my knowledge, although this kind of analysis is performed quite regularly in other water scarce areas, such as in the Central Valley of California (irrigation districts there have upgraded their systems and sold the water yielded to cities). Moreover, no analysis has been done of the potential for water transfers and other market based incentives to address the legitimate water needs of the Yakima basin, yet as much as 40% of the basin is in forage and other relatively low value crops. Water was leased last summer in the Yakima basin for from $50 to almost $500/acre foot for only one irrigation season or part of the irrigation season, which shows that there is a strong market incentive for the transfer of water from lower value crops to high value crops and other uses. Until such legitimate analyses are done, it is simply not fiscally responsible, let alone environmentally responsible, to advocate new supplies.

Moreover, conservation and water transfers have other benefits, which are never taken into account. Besides avoiding the astronomical costs of new supplies, they also avoid the external costs of new supplies, that is, damage to the environment. This proposal would take water from Hanford Reach water supplies, where other programs are working to restore habitat conditions. It is trying to rob Peter to pay Paul instead of just paying the piper, which is to deal with the problem in the basin itself.

Conservation not only means stretching current supplies farther. The same technologies that increase efficiency also decrease the water *quality* impacts of irrigation water use. Drip irrigation, for instance, results in very little sediment runoff to the river compared to rill, furrow, and flood irrigation methods. Reports from the Department of Ecology a few years ago showed that at least 24 dump truck loads of soil - 355 tons - were washing off farms and into the Yakima river on a daily basis. The sediment chokes aquatic life and is laden with farm chemicals, some of which are toxic to fish and dangerous to people. It fills up pores in river gravel and destroys the homes and habitat of aquatic insects and salmon nests. It also increases water temperature, sometimes drastically, because it soaks up light and heat. And a 1993 study showed Yakima river fish had one of the highest concentrations of the carcinogenic pesticide DDT in the country, prompting the state Health Department to warn people not to eat many bottom fish from the lower river. The culprit is 19th century irrigation practices,

such as rill, furrow and flood irrigation, that cause the soil, laden with fertilizers and pesticides, including the persistent pesticide DDT, to run off into the river. Twenty-first Century practices can be an important part of the solution. Moreover, modern application systems such as drip produce better crops. In other words, conservation and demand-side management can result in a win-win-win situation.

Instead of building new dams and diversions at exorbitant prices, both to our pocketbooks and to our river systems, we must ask how we can provide more benefit from each gallon of water we remove from nature. Experts suggest we need to double water productivity over the next 30 years if we are to successfully meet the needs of 8 billion people while protecting the health of the aquatic environmental. Highly efficient drip irrigation only accounts for approximately 1% of global irrigated area today. Farmers need to become comfortable with information technologies that tell them precisely how much water to apply to their crops and when to apply it. Industries must move to nearly complete internal water recycling, which will cut pollution and water use dramatically. And homes and communities must move from thirsty green laws to native landscaping, conserving water and enhancing biological diversity.

Conservation, often viewed as just an emergency response to drought, must be transformed into a suite of measures resulting in cost-effective and environmentally sound ways of balancing water budgets. Just as energy planners have discovered that it is often cheaper to save energy (e.g., home insulation, compact fluorescent lights) than to build more power plants, water planners must realize that an assortment of water efficiency measures can result in *permanent* water savings which can delay or obviate altogether the need for expensive new dams and reservoirs, groundwater wells, and treatment plants. Managing water demand rather than continuously seeking to meet it can also result in tremendous costs savings and protect the environment at the same time.

Pricing incentives may be one of the most important steps we can take in a comprehensive conservation strategy. Proper pricing gives consumers an accurate signal about just how costly water is, and allows them to respond accordingly. More than 100 demand studies have determined that water pricing, in the form of increasing block rates, is a powerful conservation tool at the disposal of water utilities.

Conservation-based pricing structures have been successful not only in urban settings, but in agricultural settings as well, and have been endorsed (but not often implemented) by the Bureau of Reclamation. Moreover, as I noted above, changes in irrigation practices in response to conservation measures, motivated by inclining water rate structures and decreased deliveries, have been rewarded with yield improvements. Surface irrigation methods that result in non-uniform infiltration of water can reduce yields for crops that are susceptible to

overwatering.

Not only do many current pricing structures not reflect the true cost of the resource, some utilities actually reward waste by charging less the more that is consumed (declining block rates). Moreover, many water users are not even metered, which precludes even the possibility of charging people appropriately for their water use. Metering is not only a prerequisite to the success of most conservation measures, it encourages savings in and of itself simply by making people aware of the link between their water bill and their water use.

The 1994 Yakima River Basin Water Enhancement Project legislation has only begun to be implemented. The purpose of that legislation was to finance conservation and other system improvements in the Yakima basin to increase the stability of irrigation water and to transfer water to instream flows for salmon and steelhead recovery. An illustration of what technology improvements can do is the Yakima-Tieton irrigation district, which was able to decrease its diversions dramatically after installing a pressurized conveyance system in the mid-1980s. It is difficult at best to know the extent to which we may need additional storage in the basin and where it would make most sense without implementing the YRWEP legislation, and without fully implementing water trading programs, conservation-based pricing, and other conservation technologies suggested by Congress in that legislation.

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