



GEMI®

Collecting the Drops:

A Water  
Sustainability  
Planner

## Case Example

### Roche: Reusing Pump Flush Water

*Roche Colorado, one of the Roche facilities in the U.S., is a 30-acre pharmaceutical plant in Boulder that requires water for its production processes. One simple method of water conservation employed by Roche is lowering seal flush flow rates in wastewater treatment pumps.*

**About the wastewater system.** Because the plant's production processes use many chemicals, much of the site's wastewater must be treated before being released into the municipal sewer system. The wastewater treatment system is served by six pumps ranging in size between 5 and 15 horsepower to move the process water through the treatment process. Before the wastewater treatment pump project was undertaken, the Boulder plant's pumps had a seal flush flow rate of four gallons per minute (GPM).

**Project implementation.** Roche staff found an opportunity to reduce water loss at the pump seal by installing a different seal type. With the new seal type, the pumps' seal flush flow could be eliminated or replaced with used process water without any adverse effects on the pumps. The staff then upgraded the seal systems on two of the six pumps and started using process water instead of city water for seal flushing on the other four pumps.

**Results.** The implementation of the water conservation measures yielded important water savings. Before the water conservation measures, the company's annual water consumption was over 10 million gallons for its wastewater treatment processes. The modifications made to the six wastewater treatment pumps resulted in a decrease in water consumption of more than 10,000 gallons per day. The project resulted in aggregate annual water savings of about 3.7 million gallons and \$17,500 (USD) per year. The total project costs were \$23,300 and with total savings of \$17,500, the simple payback was 16 months.

**Lessons learned.** Often, successful water conservation projects can be implemented quickly and easily, and without large capital expenditures. Periodic evaluations of applications that require water can establish whether the assumptions concerning its use are valid. Converting the pump seal flush water from domestic to process water on the wastewater treatment pumps resulted in substantial water savings without impairing the pumps' operation. By re-examining these applications' water use and sharing ideas with their municipal water company, staff at Roche Colorado could conceptualize ways to reduce their water consumption. Such an approach can be applied in many industrial facilities.