

5.1 INTRODUCTION

Chapter 5 of the *2002 Wastewater Facilities Plan* included a comprehensive programmatic analysis of effluent end use alternatives including; discharge to the Spokane River; effluent reuse irrigation for agriculture, poplar tree farms, and urban green spaces; wetlands creation and restoration; and aquifer recharge.

Highly treated wastewater effluent is an important water resource in the Spokane Region. Potential uses could include streamflow augmentation, irrigation, wetlands creation, industrial water supply, and groundwater recharge. The *2002 Wastewater Facilities Plan* describes alternative effluent management strategies and considers their applicability to Spokane County, defines effluent quality requirements, outlines implementation steps, identifies facility needs and associated costs, and lists key advantages and disadvantages for each.

The *Foundational Concepts for the Spokane River TMDL Managed Implementation Plan (Foundational Concepts)* describes several “target pursuit actions” that are either required, or available, to discharge permit holders to help reduce phosphorus loading through other means than wastewater treatment technology alone. A required “target pursuit action” for dischargers is to produce effluent meeting the State of Washington Class A reclaimed water quality standards when the Managed Implementation Plan takes effect. An available “target pursuit action” is for dischargers to reuse the Class A reclaimed water they produce as a result of treatment technology improvements. All reasonable efforts to reuse and/or recharge the aquifer, rather than directly discharging it to the River, particularly in the April-October timeframe, are strongly encouraged consistent with circumstances and opportunities. The Department of Ecology has committed to work with each NPDES discharge permit holder and the Washington State Department of Health to prepare approvable permits that enable timely and successful implementation of these reuse opportunities.

The Spokane County Regional Water Reclamation Facility (SCRWRF) will produce an effluent which meets State of Washington Class A reclaimed water quality standards. This will satisfy the mandatory “target pursuit action” related to reuse.

Spokane County will prepare a detailed *Reclaimed Water Use Plan* in 2007/08 that will identify reuse customers, sites, water demands, and distribution system infrastructure required for potential implementation. This will satisfy the elective “target pursuit action” available to the County for reuse. Spokane County will consider the cost-effectiveness of reuse opportunities in conjunction with the potential for phosphorus loading reduction when selecting reuse projects for implementation.

This chapter briefly describes the concepts for each effluent end use alternative and Figure 5-1 summarizes the planned schedule for preparation of a detailed *Reclaimed Water Use Plan*.

5.1.1 Discharge to Surface Waters

Surface water discharge is the conventional effluent management practice for municipal wastewater plants. During dry summer periods, highly treated effluent provides an important water supply to augment stream flows and support beneficial uses of receiving waters.

5.1.2 Irrigation of Agricultural Land

This alternative investigates the use of treated effluent for irrigation of agricultural properties in Spokane County. Reclaimed water would be used for irrigation on a seasonal basis to match crop demand. For the remainder of the year, effluent would be discharged to surface water.

5.1.3 Irrigation of Poplar Farms

This alternative involves a variation of agricultural reuse in which hybrid poplars would be grown. From an effluent management perspective, poplars are attractive because they have a high water demand. Also, the harvested poplars may produce revenue for the wastewater utility.

The use of poplars is an emerging management practice for municipal wastewater. In the Northwest, several communities are in various stages of implementation. The most established program is in Woodburn, Oregon where poplars have been grown for the past seven years.

5.1.4 Irrigation of Urban Green Spaces

Urban reuse involves the use of treated effluent as an irrigation supply for golf courses, school grounds, parks, and cemeteries. Urban reuse is during the summer months only, when irrigation demand is highest.

Urban irrigation using treated effluent has been practiced for decades across the nation and in the Northwest. In Oregon, Clean Water Services of Washington County has been irrigating school grounds and golf courses with treated effluent for over 20 years. In Washington, urban irrigation was included in several demonstration projects administered by the Departments of Ecology and Health. Treated wastewater effluent is used for landscape irrigation by the City of Sequim, and for irrigation at local churches, city parks, and a private residence in the City of Yelm.

5.1.5 Industrial Reuse

In this alternative, treated effluent would be routed to an industry for use in cooling or process applications. Depending on site-specific requirements, supplemental treatment may be needed to meet water quality requirements for industrial use. Effluent from the industries may be discharged directly to receiving waters or routed to the County's sewer system for treatment in the Spokane County Regional Water Reclamation Facility or the City of Spokane Riverside Park Water Reclamation Facility.

5.1.6 Wetlands Creation or Enhancement

Treated effluent could be used to create constructed mitigation wetlands or used as a reliable water source to restore degraded natural wetlands. Several of the State's reuse demonstration projects have included discharge of treated effluent to constructed wetlands, including projects in Sequim (in Clallam County) and Yelm (in Thurston County).

5.1.7 Groundwater Recharge

Groundwater recharge is the use of treated effluent to supplement natural water supply in subsurface aquifers. This practice has been used for decades in the arid Southwest, and has recently become more common throughout the United States. One of the largest and best-known facilities – Water Factory 21 in Orange County, California – began using its 15-mgd reclamation facility in 1976 to replenish the local aquifer that serves nearly 2 million residents. Through development of Washington’s Water Reclamation and Reuse Standards, the Departments of Health and Ecology established guidelines for recharge of both potable water and non-potable water aquifers using treated effluent. Three demonstration projects in Washington, including two in Grant County are currently using reclaimed water for aquifer recharge. Four other projects in Washington are in various stages of planning, design, and construction.

5.1.8 Public Education

Public education is recognized as an important aspect of developing community support for reclaimed water reuse. As documented in Chapter 8, Spokane County has conducted many public meetings, business forums, and water quality advisory meetings in the course of the planning process, and all have addressed reclaimed water reuse in at least some way. The *Reclaimed Water Use Plan* will further develop public education elements of the program. The May 30, 2007 Reuse Public Meeting/EIS Scoping Meeting provided the community with further information on beneficial reuse of reclaimed water, including an informational mailer distributed to 45,000 wastewater customers.

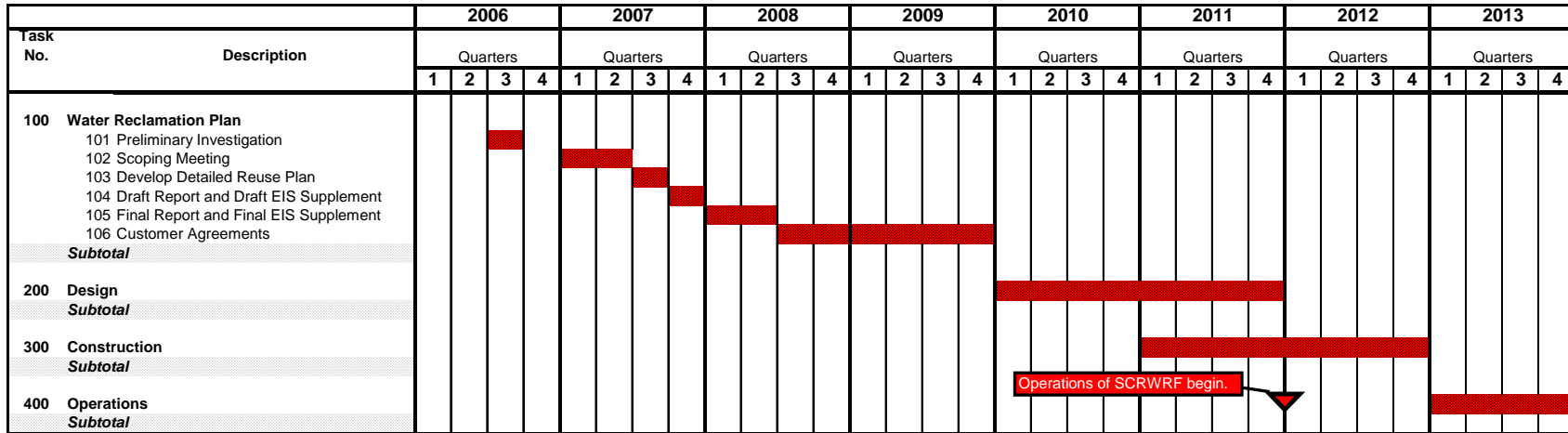


Figure 5-1. Spokane County Reclaimed Water Use Plan Schedule