Consideration of Reclaimed Water Within General Sewer Plans - March 2000

Statutory Basis

Chapter 90.46 RCW	Reclaimed Water Use
RCW 90.48.112	Consideration of Reclaimed Water
WAC 173-240-050	General Sewer Plans (Department of Ecology)
WAC 246-271-040	Plans for Sewerage Systems (Department of Health)

Introduction

Chapter 90.48 RCW was amended in July 1997 to include a new section, RCW 90.48.112 requiring consideration of reclaimed water in wastewater plans. The purpose of this document is to provide guidance on the interpretation of this statute as well as to define the level of detail necessary for submittal of engineering documents to the Departments of Ecology and Health.

Financial Assistance

The Department of Ecology provides financial assistance for General Sewer Plans and site specific Facility Plans through the Centennial Clean Water Fund and the State Revolving Fund. Informational workshops are conducted in January of each year. Applications must be submitted by the end of February to compete for available funding. To encourage the beneficial use of reclaimed water, Ecology has included additional priority points in the grant/loan application for these projects. Since funding for projects is a competitive process, the utility should also apply to other funding sources such as USDA Rural Development and the Public Works Trust Fund.

Technical Assistance

The Department of Ecology and the Department of Health provide technical assistance as well as a coordinated review and approval of wastewater planning and engineering submittals for domestic facilities. Maximum benefit is obtained when both agencies are contacted during the earliest stages of your planning process.

Definitions:

Reclaimed water - effluent derived in any part from sewage from a wastewater treatment system that has been adequately and reliably treated, so that it is suitable for a beneficial use or a controlled use that would not otherwise occur and is no longer considered wastewater.

Beneficial use - the use of reclaimed water that has been transported from the point of production to the point of use without an intervening discharge to waters of the state, for a beneficial purpose.

Reuse - within this document, reuse refers to the beneficial or controlled use of reclaimed water.

Considering Reclaimed Water:
Requirements listed below are applicable to all general sewer plans (WAC 173-240-050) received by Ecology and (WAC 246-271-040) Health after July 23, 1997. If the feasibility of water reclamation and reuse was not included in an approved general sewer plan, these requirements shall be included within engineering reports or facility plans for domestic wastewater facilities.

Considering water reclamation and reuse opportunities early in the planning process is necessary to identify and implement the most cost-effective alternatives. Proponents are encouraged to explore opportunities for reclaimed water within Comprehensive Water Plans, Growth Management Act Plans, and Sewage Drainage Basin Plans. Integrating wastewater planning with these other planning documents will help identify opportunities as they arise leading to more comprehensive and cost-effective alternatives.

Although the law does not specifically require implementation of a reclaimed water alternative, it strongly encourages it. RCW 90.46.005 states in part that to the extent that reclaimed water is appropriate for beneficial uses, it should be so used to preserve potable water for drinking purposes.

Level of Detail

The general sewer plan should include preliminary engineering in sufficient detail to evaluate both technical and financial feasibility of all alternatives. The evaluation should include a preliminary screening of a full array of alternatives to achieve water supply, pollution control, and other planning objectives. Feasible alternatives would then be selected for a more detailed assessment. The basic requirement is that the general sewer plan be sufficiently complete so that a site-specific engineering report or "facility plan" can be developed from it without substantial alteration of concept and basic considerations.

Elements of Evaluation

A reclaimed water feasibility analysis should include the information listed below. Proponents are also referred to guidance provided in Ecology's Criteria for Sewage Works Design (The Orange Book), December 1998.

1. **Identify existing and future potential uses for reclaimed water.**
   Identify all potential users and uses of reclaimed water. Information should not be limited to service boundaries as a water reclamation project may also offset the need for water in nearby areas. Some examples of uses are residential lawn watering, landscape irrigation, agricultural, industrial, and commercial applications, recreation, fish and wildlife habitat creation and enhancement, and aquifer recharge. A more comprehensive description of uses for reclaimed water is included in the Water Reclamation and Reuse Standards (1997).

2. **For each of the uses identified, estimate the annual or seasonal volume of reclaimed water required**.
   Compare estimates of annual or seasonal volume required to the total production of reclaimed water available. If the beneficial uses are not capable of using the total production of reclaimed water, the proponent must also plan for storage or discharge of the excess.

3. **Determine the level of treatment required.**
   All classes of reclaimed water must be fully oxidized and able to meet a minimum of conventional secondary treatment standards and disinfection requirements at all times. Water reclamation facilities are required to meet more stringent reliability and redundancy requirements than wastewater treatment plants to assure that the water is safe and suitable for direct beneficial uses. Additional treatment requirements may also be necessary depending upon the planned use. For example, Class A reclaimed water requires coagulation and filtration. Treatment requirements for specific uses are defined in the Water Reclamation and Reuse Standards and in The Orange Book, Chapter E1.

4. **Meeting reclaimed water treatment standards.**
   Determine existing wastewater quantity and quality. Evaluate the ability of current or proposed facilities to meet both the treatment and the reliability requirements for the intended uses. Include source control evaluations for constituents that may affect the suitability for reuse or wastewater disposal.

5. **Screen for water rights.**
   An evaluation of the receiving water and downstream water rights should also be performed if the wastewater is currently discharging to ground or surface water. The analysis should determine if there is a reliance on the wastewater discharge. The analysis of downstream water rights should be a screening exercise and the level of detail expanded if reclaimed water is determined feasible for use.

6. **Discuss the general layout of a reclaimed water distribution system for the likely uses identified.**
   Provide a map showing potential routes for trunk lines to provide reclaimed water to the alternative uses identified.

   A major factor for some reclaimed water projects is the cost of distribution. If planning includes major repairs or replacements to a water or sewer transmission or distribution main, evaluate constructing a reclaimed water distribution/transmission line at the same time. Locating treatment plants near potential uses is another way to reduce distribution costs. .

7. **Identify plans to meet future water demands if reclaimed water is not used.**
   Reference information within water supply and growth management plans. Include a discussion of the need for future facilities, groundwater management, costs and customer prices.

8. **Technical Feasibility**
   Compare the various treatment, water supply, distribution and use alternatives and provide a basis for selection or rejection of alternatives. Select the most promising reuse alternatives for further evaluation. Consider reliability of water supply, value of reclaimed water nutrients, groundwater management, wastewater treatment and water quality benefits in your assessment. Estimate capital costs, operational and maintenance costs, engineering feasibility, energy analysis, environmental and water quality impacts, public and market acceptance and water rights.

9. **Economic Feasibility**
   Using life cycle costs, compare unit costs of potable water and wastewater treatment to reclaimed water for the same market under present and future conditions. Future quantity and quality requirements should be considered to determine if it will remain cost-effective to serve users of reclaimed water. The analysis should also account for avoided costs associated with wastewater disposal, water supply, and environmental impact.

Additional Information

Copies of the Water Reclamation and Reuse Standards (#97-23) and Criteria for Sewage Works Design (#98-37 WQ) are available through the Department of Ecology publications office at (360) 407-7472.

Copies can also be downloaded from Ecology's homepage on the worldwide web at http://www.wa.gov/ecology/wq.

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