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Measuring Water Use

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Definition ▲

Source Water Measuring: The measurement of ground water withdrawals or surface water diversions, commonly referred to as *source metering*, involves the installation of gauges or other measurement devices where water is withdrawn from the ground or diverted from surface water to determine how much water is being used.

Purpose ▲

Measuring water at the source of a surface water diversion or ground water withdrawal is essential to effectively manage water supplies. Successful water supply management requires knowing how much water is actually being used and whether water is available for new uses.

Benefits of Measuring Water Use ▲

Measuring water use benefits the public in many ways, such as:

- Informing water users how much water they are using, which allows them to better manage their water use.
- Providing a tool for ensuring compliance with water rights and increasing fairness among users who measure and those who don't.
- Supplying information for water resource planning and management.

The State Law ▲

The state water measuring law is RCW 90.03.360, *Controlling works and measuring devices -- Metering of diversions -- Impact on fish stock*. This is part of the state *Water Code*, Chapter 90.03 RCW, which was substantially revised in 1993. The 1993 revisions require measuring for all surface water diversions. The Department of Ecology (Ecology) *must* require measuring as a condition for all new surface water right permits *and* for existing water rights that meet at least one of the following criteria:

- Surface water diversions greater than one cubic feet of water per second, or
- Diversions and withdrawals from surface and ground water sources that support fish stocks classified as critical or depressed by the Washington Department of Fish and Wildlife.

Since the 1993 revision of the state water measuring law, Ecology has been requiring measuring devices on all surface water withdrawals larger than one cubic foot per second. Since 1999, Ecology has also been requiring measuring devices on all new water rights for surface and ground water withdrawals, as well as on changes, transfers and enforcement actions.

The New Rule ▲

Introduction

Requirements for Measuring and Reporting Water Use, Chapter 173-173 WAC became effective on January 21, 2002. The new rule replaces the outdated 1969 rule (Chapter 508-64 WAC). The following changes have been made:

- Who must measure and when it is required is clarified.
- Specific data collection and reporting requirements are added. The frequency of recording measurements is based on the size of the diversion or withdrawal.
- Requirements for both open channel and pipe diversions are included. The former rule only discussed pipe flow.
- Performance of the meter or gage is the focus of the "hardware" requirements (e.g. required accuracy and installation concerns). The former rule had detailed, prescriptive elements (e.g. exact type of meter and materials).
- Metering accuracy requirements have been relaxed.
- Indirect measurement methods will be allowed in certain circumstances.

Why is there a new rule?

In March 1999, American Rivers, the Center for Environmental Law and Policy, Washington Environmental Council, Pacific Coast Federation of Fishermen's Associations, and the Institute for Fisheries Resources filed suit (565 KB PDF) against Ecology for not complying with the 1993 water measuring law.

A summary judgment (307 KB PDF) was filed in March 2000. A summary judgment is a procedural tool that is used to settle a controversy without a trial.

In December 2000, the Thurston County Superior Court issued a final ruling (661 KB PDF) in this case. The court ordered Ecology to submit a Compliance Plan (77 KB PDF), which was done on March 30, 2001. It describes how Ecology will bring its water compliance program into line with the state water measuring law by December 31, 2002. The Compliance Plan is discussed in greater detail below.

- **Measuring Lawsuit** American Rivers, et al. vs. Dept. of Ecology March 1999 (565 KB PDF)
- **Summary Judgment** American Rivers, et al. vs. Dept. of Ecology March 2000 (307 KB PDF)
- **Measuring Ruling** American Rivers, et al. vs. Dept. of Ecology December 2000 (661 KB PDF)

What is the purpose of this rule?

Ecology's purpose for this rule is to establish requirements for measuring and reporting water use:

1. This rule establishes standards of acceptability for measuring devices and methods, as well as requirements for recording and reporting water use data.
2. All measuring devices or measuring methods required to be installed under this rule must conform to requirements for measuring devices and methods described in this rule or other methods approved by Ecology.

What is the statutory authority for this rule?

- RCW 43.21A.064(8) - "Department of Ecology: Powers and duties -- Water resources."
- RCW 43.27A(090)(11) - "Water Resources: Powers and duties of department."
- Chapter 90.03.360 - "Water Code: Controlling works and measuring devices -- Metering of diversions -- Impact on fish stock."
- Chapter 90.44.050, 250 and 450 - "Regulation of Public Ground Waters: Permit to withdraw; Investigations -- Reports of appropriators; and Metering or measuring ground water withdrawals -- Reports."

What are the goals of this rule?

1. To ensure the reliable, accurate measurement of state water that is diverted, withdrawn, stored and used so that sound decisions may be made in administering state water laws and regulations.
2. The following are specific goals for the enforcement of water measurement and the reporting of measurement data:
 - determining whether water is available for appropriation
 - assessing and enforcing water rights compliance
 - understanding the hydrology of surface and ground waters
 - protecting instream resources
 - managing and planning the state's watersheds
 - informing water users about how much and when water is used

Does the benefit of this rule outweigh the costs?

RCW 34.05.328(1)(c) requires that, prior to the adoption of certain rules, a determination be made that "...the probable benefits of the rule are greater than its probable costs..." A cost-benefit analysis of this rule was performed and is available in the following document: "**Evaluation of Probable Benefits and Costs**, Chapter 173-173 WAC, Requirements for Measuring and Reporting Water Use." (83 KB PDF)

Compliance Plan

Implementing the new rule

The March 2001 Compliance Plan (77 KB PDF) calls for the water users comprising the top 80 percent of total water use in 16 *fish critical* watersheds (288 KB PDF) to conform their measuring and reporting practices with the requirements of the new water measuring rule. This will only affect a small percentage of water-right holders statewide (approximately 1000). The majority of these water users are already measuring their water, such as public utilities and large agricultural operations. However, identified parties will now need to submit their measuring data to Ecology:

Orders have been mailed to all those water-right holders identified as using 80% of the water in the fish critical watersheds.

Additionally, under Chapter 173-173 WAC, Ecology will require water right holders requesting changes or extensions to existing rights to measure and report in some circumstances.

- **Map of 16 Fish Critical Watersheds**
(288 KB PDF)
- **Map of Basins where 80% or more of Water use is Metered and Reported**
(705 KB PDF)
- **Summary data table of Top 80% Water Use in Fish Critical Watersheds**
(59 KB PDF)
- **Metering Order Compliance Form**
(536 KB MS Word document - can be filled out online and printed)

Compliance plan timeline

(in the 16 *fish critical* watersheds)

- **March 31, 2002** Issue measurement orders to holders of claims, permits and certificates who are already required to measure so they conform to the revised rule.
- **June 30, 2002** Issue measurement orders to 25 percent of the largest holders of claims, permits and certificates.
- **September 30, 2002** Issue orders to an additional 50 percent of the largest holders of claims, permits and certificates.
- **December 31, 2002** Issue orders to the remaining largest holders of claims, permits and certificates.

The next stage of implementation

In 2003 Ecology will evaluate the need to require additional users to record and report water use information.

Links ▲

- U.S. Bureau of Reclamation Water Measurement Manual
- U.S. Bureau of Reclamation Hydromet System - a network of automated hydrologic and meteorological monitoring stations located throughout the Pacific Northwest that can be useful for water management.
- U.S. Geological Survey - Water Use in the United States

Contacts ▲

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