

General Guidance for Water Use Data Reporting and Setting System-Specific Source and Storage Sizing Requirements

This document provides general guidance and information related to Utah's water use data reporting and minimum sizing requirements. Please contact the Division of Drinking Water (DDW) for specific questions and detailed clarifications.

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Background

The legislative revisions to Sections 104 and 114 of Utah Code 19-4 (Utah Safe Drinking Water Act) in 2018 require the following:

1. Community water systems serving 500 or more people must collect and report actual water use data to Division of Water Rights (DWRi) annually.
2. The required water use data include:
 - **Peak Day Source Demand,**
 - **Average Annual Demand,**
 - **Number of Retail Equivalent Residential Connections (ERCs), and**
 - **Quantity of Non-Revenue Water.**
3. DDW must set system-specific minimum source and storage sizing requirements based on actual water use data (to replace existing statewide minimum sizing standards).
 - a. **Community Water Systems serving over 3,300 people:** Water systems must submit information for establishing system-specific sizing requirements by March 1, 2019.
 - b. **Community Water Systems serving 500 to 3,300 people:** Water systems must submit information for establishing system-specific sizing requirements by March 1, 2023. DDW must establish sizing requirements by October 1, 2023.
 - c. **Community Water Systems serving fewer than 500 people:** DDW Director shall establish a schedule to transition these systems to system-specific requirements.
 - d. **Non-Community Water systems:** DDW Director shall establish minimum sizing requirements.
4. The information necessary to set the system-specific requirements may be based on:
 - a. Actual water use data required by Utah Code 19-4-104(6)(a), or
 - b. An engineering study or historical data.

Annual Water Use Data Reporting

Utah Code 19-4-104(6)(a) requires four types of water use data that Community Water Systems (CWSs) serving 500 people or more must submit to DWRi annually:

1. **Peak Day Source Demand** is the total source flow into the system to meet the demand of a public water system on the day of highest water consumption in a calendar year. The Peak Day Source Demand is the demand for the entire water system measured at the sources.
 - a. The Peak Day Source Demand typically is met by the flows from all water sources, such as wells, springs, water supply from a water treatment plant, wholesale supply from another water system, etc.
 - b. Incidents such as major water main breaks, fire suppression, or unusual flushing or cleaning typically are not included in the Peak Day Source Demand.
2. **Average Annual Demand** is the total quantity of drinking water produced and delivered to a public water system within a calendar year from the sources. The Average Annual Demand typically is based on the metered water sources.
3. **Number of Retail Equivalent Residential Connections [Total Number of ERC's]**
 - a. The term represents the total number of equivalent residential connections (ERCs) of a water system's retail customers, including (1) the number of residential service connections, and (2) the number of ERCs for non-residential connections (e.g., commercial, industrial, institutional connections).
 - b. Calculating the ERC's for non-residential service connections — the annual metered drinking water volumes delivered to non-residential connections typically are compared to the average of annual metered drinking water volume delivered to a single family residential connection. For example, the total metered demand (in gallons per day) delivered to non-residential connections is divided by the average demand for a single residential connection (in gallons per day).
4. **Quantity of Non-Revenue Water** is the difference between the “Average Annual Demand” (e.g., in gallons or acre-feet) minus the water volume that is metered for billing purpose (e.g., in gallons or acre-feet) within a public water system in a year and minus the wholesale delivery to other water systems. Unmetered park/cemetery connections, leaks, or flushing of hydrants are examples of non-revenue water.

Setting System-Specific Minimum Source and Storage Sizing Requirements

1. DDW will process the water use data transferred from DWRi for conversion to three “per ERC” data types. The following “per ERC” data indicate the source capacity and storage capacity needed for a single residential connection or an ERC:

“Peak Day Demand per ERC” Data = $\frac{[\text{Peak Day Source Demand}]}{[\text{Total Number of ERCs}]}$
(in gallons/day)

“Average Annual Demand per ERC” Data = $\frac{[\text{Average Annual Demand}]}{[\text{Total Number of ERCs}]}$
(in gallons/year)

$$\text{“Equalization Storage per ERC” Data (in gallons)} = \frac{\text{Average Annual Demand per ERC}}{\text{Operational Days in a Year}}$$

2. When a CWS has submitted at least 3 years of the required water use data:

- **System-specific minimum source sizing requirements** are determined based on (1) **the highest of the most recent three years’ values** among the “Peak Day Demand per ERC” data and the “Average Annual Demand per ERC” data, and (2) the “system-specific variability factor” (which varies depending on data consistency).

$$\text{Peak Day Demand per ERC Minimum Sizing Requirement (in gallons/day)} = \text{[“Peak Day Demand per ERC” selected value]} \times [1 + \text{System-Specific Variability Factor}]$$

$$\text{Average Annual Demand per ERC Minimum Sizing Requirement (in gallons/year)} = \text{[“Average Annual Demand per ERC” selected value]} \times [1 + \text{System-Specific Variability Factor}]$$

- **System-specific minimum storage sizing requirement** is determined based on (1) **the highest of the most recent three years’ value** from the “Equalization Storage per ERC” data, and (2) the “system-specific variability factor.”

$$\text{Equalization Storage per ERC Minimum Sizing Requirement (in gallons)} = \text{[“Equalization Storage per ERC” selected value]} \times [1 + \text{System-Specific Variability Factor}]$$

3. **If a CWS does not have the required annual water use data**, an engineering study with supporting information proposing alternative minimum sizing requirements may be submitted to DDW. The engineering study should include all supporting information, assumptions and justifications used to justify alternative minimum sizing requirements. In some cases, DDW may require the study be prepared by a professional engineer if engineering determination needs to be included in the study.
4. **If a water system’s existing equipment cannot collect or monitor the required water use data (e.g., peak day demand data)**, DDW advises against hastily reporting speculative water use data to fulfill the annual reporting requirement. Reporting inaccurate data will lead to erroneous sizing of drinking water infrastructure and result in public health risk. Instead, we recommend water systems (1) explore the option of entering into a corrective action agreement with DDW immediately to establish a compliance schedule, and (2) contact DDW and/or other funding agencies to seek funding assistance for upgrading metering and/or SCADA equipment.
5. The state requirements define the “minimum” sizing (not maximum). Water systems may establish system-specific sizing requirements that are above the minimum requirements set by the state to address operational or design concerns.

6. Until such time as system-specific sizing requirements have been established, water systems shall continue to meet the current minimum sizing requirements in *R309-510*.
7. **Substantial addition to or alteration** of a CWS serving over 3,300 people will not be permitted if a water system has not submitted the information necessary to establish system-specific sizing standards. Projects that add 10% or more ERC's (or population) to the existing system and projects that result in a decrease in the water system's source, storage, or distribution capacities are considered "substantial addition or alteration."

Wholesale Water Suppliers

1. If a CWS delivers drinking water to other regulated public water systems, those connections are considered wholesale connections. The wholesale connections should not be included in the total number of ERCs for the water systems.
2. CWSs supplying water to wholesale connections shall report the Peak Day Source Demand and Average Annual Demand data, including the portion of the source data supplying water to retail connections and the portion serving wholesale connections.
3. When calculating the "Peak Day Demand per ERC" data or the "Average Annual Demand per ERC" data for water systems providing wholesale water, the data used in the calculation should be based on the source data for retail service and should exclude the source data for wholesale outflows.

Additional Resources

- Division of Drinking Water (DDW) Web Site for New Water Use Data Requirements
<https://tinyurl.com/y99vqls7>
- Utah Code 19-4 Section 104 and Section 114 (Effective May 8, 2018)
<https://le.utah.gov/xcode/Title19/Chapter4/19-4.html>
- *Metering Equipment Alternatives and Analysis* (including AMI Technologies and Metering Equipment Technical Specifications), Technical Report by Bowen Collins & Associates and Hansen Allen & Luce (2017 April)
<https://documents.deq.utah.gov/drinking-water/engineering/DDW-2017-015441.pdf>

Summary of New Water Use Data Reporting and Water System Minimum Sizing Requirements (2018 Legislative Revisions to Utah Code 19-4-104 and 114)

I. Annual Water Use Data Reporting by All Community Water Systems Serving 500 People or More

Water Use Data to Be Collected:	Reporting Frequency:	Report Data to:	Reporting Due:
1. Peak Day Source Demand 2. Average Annual Demand 3. Number of Retail Equivalent Residential Connections [<i>Number of Total ERCs</i>] 4. Quantity of Non-revenue Water	Annual	Division of Water Rights (DWRi)	March 1, 2019 for 2018 data; as specified by DWRi for future years

II. Schedule of Water Use Data Reporting and Minimum Sizing Requirements for Community Water Systems (CWS)

Water System Type	3 Years of Data Due	Report Data to	DDW Sets System-Specific Sizing Requirements by
Community Water Systems serving over 3,300 people	March 1, 2019	<ul style="list-style-type: none"> • DWRi – Annual Water Use Data described in 19-4-104(6)(a) • DDW – Engineering Study 	After Division of Drinking Water (DDW) receives acceptable data
Community Water Systems serving between 500 and 3,300 people	March 1, 2023	<ul style="list-style-type: none"> • DWRi – Annual Water Use Data described in 19-4-104(6)(a) • DDW – Engineering Study 	October 1, 2023
Community Water Systems serving fewer than 500 people	TBD	DWRi – Water Use Data (as previously required by DWRi)	TBD
Wholesale Water Suppliers that serve a total population of more than 10,000 people and the wholesale population is 75% or more of the total population served	March 1, 2019 (assume to be same as CWS serving over 3,300 people)	DWRi – Annual Water Use Data	Not Applicable

III. Non-Community Water Systems

DDW Director to establish minimum source and storage sizing standards - no water use reporting or deadlines given for water systems