Information Needed for Reduction in Storage Sizing

Public Drinking Water Systems (PWSs) are required to have sufficient "equalization storage" capacity to meet the average day demands for indoor and irrigation water uses, and fire suppression storage volume if the water system is equipped with hydrants for fire suppression or is required by the fire authority to provide fire flow. The default "equalization storage" volumes are outlined in R309-510-8 and Tables 510-4 and 5. The Director may allow a reduced storage sizing requirement per Utah Administrative Code R309-510-5 if the water system presents sufficient and acceptable water system specific data justifying the reduced storage sizing. The reduction request is reviewed on a case-by-case basis due to the wide variety of factors and differences in water systems.

Prior to collecting or compiling the supporting the reduction request, the PWS representative should **consult with the Division of Drinking Water engineering staff to identify the information needed for a reduction request and/or to establish a data collection protocol**.

The list below outlines typical issues to address when requesting for reduced **storage** sizing. The review may include, but is not limited to, the issues identified below.

Intent of the Reduction Request

- Specifics of sizing reduction being sought (e.g., reduction in storage sizing for indoor water use, fire flow, etc.).
- Proposed reduced amount versus the default requirement.

Fire Suppression Storage

- A statement from the local fire code official indicating the required fire flow and duration or water storage volume if the PWS is required to provide fire flow or if the PWS is equipped with hydrants intended for fire suppression.

Nature of Water System and Water Use

- Type of water system (e.g., transient, community, or non-transient non-community, etc.).
- Size and complexity of water system (e.g., multiple ways to move water around, excessive source capacity, multiple storage tanks, number of connections serving, etc).
- Types and purposes of water use (e.g., industrial, residential, restaurant, camp ground, mixed use, etc.).
- Rationale and methodology in determining number of Equivalent Residential Connections (ERCs) for present connections and estimated future connections (if ERCs are used in the calculation).
- Water system configuration and operation strategy in providing redundancies (e.g., spare parts, service area served by multiple tanks or sources, etc.).
- Operation strategy in dealing with water outage and minimizing risk to public health (e.g., storage, water hauling, emergency connection to another system, backup power, etc.).
- Capacity and redundancy of water sources (e.g., emergency source, wholesale connection, etc.).

- Reliability and consistency of water source (e.g., range of seasonal fluctuation of spring flows, gravity feed source, pumped source that is covered by two independent substations or built-in generator or a transfer switch, etc.).

Future Growth and Usage Projections

- Extent of the service area or the water system that is built out.
- History relevant to growth & water system capacity.
- Future development and annexation potential within the service area of the water system.
- How future growth is determined and managed (e.g., zoning ordinances, established process in reviewing and approving new developments, master plans, etc.).
- Current demand versus capacity needed to meet obligated and future demands.
- Letter from local authority with jurisdiction over development and land use supporting the reduction request.
- Potential changes in zoning, densification, or land use designations.

Indoor versus Irrigation Water Use

- Extent of the service connections that are served by a secondary irrigation system or do not have irrigation demand (i.e., the information needed to estimate the irrigation demand imposed on the drinking water system).
- How indoor and irrigation water uses are separated and measured.
- Future plan of conversion from an irrigation system to drinking water or vice versa.
- Urban versus rural (more irrigation use) land use.

Water Use Data

- Actual average day water use data.
- Types of water use data (i.e., metered at the service connections, metered at the sources or pump stations, etc.).
- Sufficient data to establish a statistically significant value (e.g., sufficient data points to represent or account for all or the majority of the water uses, sufficient data points indicative of historical trend such as a minimum of 3 years, etc.).
- Peak Instantaneous Demand when request is for no storage.

Water Loss

- Assessment of water loss through the distribution system (if the water use data are metered at the service connections).
- Accounting for water loss in average day estimates.

Safety Factor

- Safety factors applied in the analysis and rationale.
- Examples
  - Excessive available source with backup power or means of conveyance.
  - Emergency connection to another water system or another emergency source.
  - Reduced storage sizing being 10% above the actual average day indoor water use data.