Revising Water System Sizing Requirements (R309-510)

& Outcome of the Legislative Audit

Topics

- Summary - R309-510 PWS Minimum Sizing
- Timeline - Legislative Audit
- Summary - Audit Recommendations
- Biases
- Summary - DDW Action Plans

Utah's Minimum Sizing Regulations

R309-510-7 Source Capacity

R309-510-8 Storage Volume

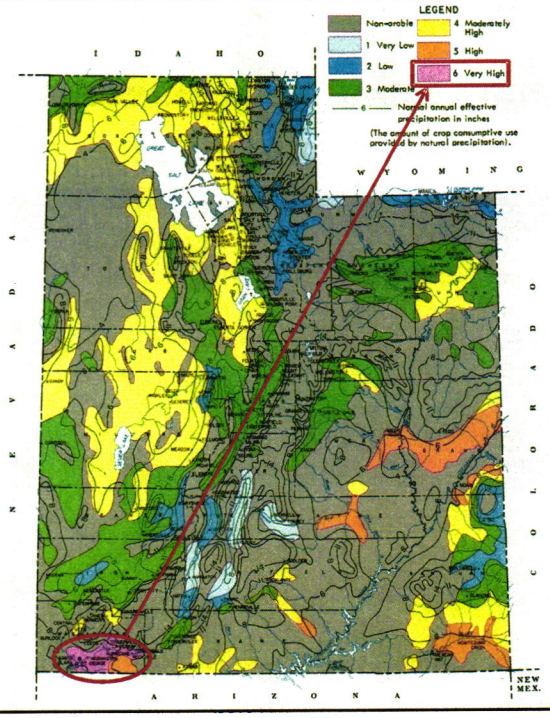
R309-510-9 Distribution System

Minimum Source Sizing Factors

- Indoor vs. Outdoor Water Use
- Peak Day Demand vs. Average Day Demand

Minimum Source Sizing

- **R309-510-7(2) <u>Indoor</u> Water Use**
  - *"In absence of firm water use data, Tables 510-1 and 510-2 shall be used..."*
  - **Equivalent Residential Connection (ERC)**
- **R309-510-7(3) <u>Outdoor</u> Water Use**
  - *"In absence of firm water use data, Tables 510-3 shall be used..."*
  - **Irrigated acre**
  - **Irrigation map zone**



Outdoor Water Use Zones

Indoor Use Demand

Table 510-1
Source Demand for Indoor Use

Type of Connection	Peak Day Demand	Average Yearly Demand
Year-Round Use		
Residential	800 gpd/conn	146,000 gal./conn
ERC	800 gpd/ERC	146,000 gal./ERC
Seasonal / Non-Residential Use		
Modern Recreation Camp	60 gpd/person	(see note 1)
Semi-Developed Camp		
a. With pit privies	5 gpd/person	(See note1)
b. With flush toilets	20 gpd/person	(See note 1)
Hotels, Motel & Resort	150 gpd/unit	(See note1)
Labor Camp	50 gpd/person	(See note1)
Recreational Vehicle Park	100 gpd/pad	(See note1)
Roadway Rest Stop	7 gpd/vehicle	(See note1)
Recreational Home Development	400 gpd/conn	(See note1)

= 400 gpd
= 0.45 acre-feet/yr

Outdoor Use Demand

Table 510-3
Source Demand for Irrigation (Outdoor Use)

Map Zone	Peak Day Demand(gpm/irrigated acre)	Average Yearly Demand(AF/ irrigated acre)
1	2.26	1.17
2	2.80	1.23
3	3.39	1.66
4	3.96	1.87
5	4.52	2.69
6	4.90	3.26

R309-510 Minimum Sizing Requirements for Public Water Systems (PWS)

	Source Capacity	Storage Capacity	Water Rights
Indoor Use	√	√	√
Outdoor Use	√	√	√
Fire Suppression	—	√	—
Emergency	—	—	—

	Source Demand (per ERC)		Storage Volume (per ERC)	Water Rights (per ERC)
Indoor	**Peak Day**	**800 gal/day**	—	—
	Average Yearly	**400 gal/day** (146,000 gal/yr)	**400 gal**	0.45 acre-ft (400 gal x **365 d**)
Outdoor (Zone 4 Example)	Peak Day	3.96 gpm/irr. acre	—	—
	Average Yearly	1.87 acre-ft/yr /irr. acre	2,848 gal	1.87 acre-ft /irr. acre (2,848 gal x **213 d**)
Fire Suppression	—		Determined by fire code official	—
Emergency	—		Determined by water systems	—

Timeline – In the Past

- 2011 March – HB 203 amended Utah's fire code (as a result of the problems Deepwater Distribution Water Company encountered)
- 2011 October - DDW issued response to Herriman City
- 2013 December – DDW responded to Craig Call's inquiry (regarding the lawsuit against WCWCD)
- **2014 February - Legislative audit of R309-510 began**
- **2014 December 18 – Legislative audit report completed**
- **2014 December 18 – Deseret News article published**
- **2014 December 20 - KSL news article published**

Legislative Audit Report - Recommendations

1. **Indoor Source Sizing** - reevaluate & revise based on actual data
2. **Outdoor Source Sizing** – review & establish new requirements based on current research and actual data
3. **Regulatory Process**
   - Revise 510-5 "Reduction of Requirements"
   - Establish a written protocol for reduction requests
   - Consider creating a process for reducing source sizing requirements prior to building low water use developments.
   - Clarify "in absence of firm water use data"
   - Clarify how to address "unaccounted water" and "redundancy"

Critical Biases

1. **35 years of inaction** – several rule revisions of R309-510 occurred through public comment process & continuous on-going data collection
2. **Winter indoor use representing summer indoor use without data support** – underestimate summer indoor use (peak day demand) & overestimate outdoor use demand
3. **Limited sample size & reliance of Div. of Water Rights "Water Use Plan"** – inadequate representation of various PWS types & accurate peak day data
4. **Reducing impact fee and water right purchase cost by modifying DDW regulations** – R309-510 only regulates physical construction & "wet water" source requirements

Timeline – Side Stream

- 2014 August – DDW contacted BYU for program evaluation related to PWS sizing regulations
- 2014 December – BYU MPA Team completed the report and made recommendations to DDW
- 2014 October – DDW reached out to Div. of Water Rights and Div. Water Resources for revising the "water use form"

Action Plan – Short Term

- 2015 January to April – Work with BYU and RWAU to identify the PWS candidates for water use study
- 2015 January to March – Seek feedback from local and state fire authorities regarding fire suppression requirements
- **2015 March/April – Initiate R309-510 rule revision** to address the "Regulatory Process Recommendations" in the Legislative Audit Report (but not the peak day and yearly average sizing standards)

Action Plan – Long Term

- 2015 - Explore possible funding venues to assist water use data collection, including peak day, outdoor use, various climate zone, large vs small, urban vs rural, etc.
- 2015 to 2018 – Collect actual water use data (at least 3 peak seasons) & analyze data
- 2018 – Propose new sizing standards (i.e., revising Tables 510-1, 2, and 3) based on study results