Planning for Water –
Division of Drinking Water’s Perspective
Ying-Ying Macauley

What Are We Facing?

- Growing Population
- Increased Risks and Public Expectation
- Aging Infrastructure
Division of Drinking Water (DDW)

- Ensure a safe and reliable drinking water supply for all
- Regulate over 1,000 public water systems in Utah

Public Water System (PWS) Definition

- Serving ≥ 15 connections
  - Contiguous development – under same ownership or control (regardless of phased construction or occupancy)
  - OR
- Serving ≥ 25 people for 60 days a year
  - practically 8 connections
Public Water Systems in Utah

83% of Utah’s population are served by large & very large water systems

71% of Utah’s PWS are very small systems that serve ≤ 500 people

How Do We Do It?

PWS Design & Construction Standards & Minimum Sizing Requirements

- Source Capacity
- Storage Volume
- Distribution System Sizing
PWS – Water Source Capacity

Average Annual Demand  Peak Day Demand

PWS – Water Source Capacity

• Sufficient to meet one average day demand
• Volume = Indoor + Outdoor + Fire Suppression

Example:
5-Million-Gallon Water Storage Tank

Indoor + Outdoor
EQUALIZATION - 3 MG (60%)
FIRE - 1 MG (20%)
EMERGENCY - 1 MG (20%)
Example: “Platted Subdivision” Approved by County

“Platted Subdivision” Drinking Water Infrastructure

Lot 1 2 3 4 5 6 7
8 9 10 11 12 13
14 15 16 17 18 19

Well 1

Well 2

Well 3

Tank 1

Tank 2

Tank 3

Shared Hatch
**Shallow Wells**
- Drilled in 2009
- 40’ Deep
- Grouted to 30’

**Submetered Properties** – UAC R309-100-4(2)

- Examples
  - Subdivisions & Planned Unit Development (PUDs)
  - Industrial/Commercial Complex
  - Mobile Home Park
  - University or Hospital Campus
  - Military Facilities
Extensive Water Lines Beyond a Master Meter?

Water main break leaves Millcreek homeowners uncertain who to blame for damages

By Horton Covell, KSL | Posted Feb 19th, 2018 7:16pm

Developments & PUDs – Issues to Consider

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<tr>
<th>Issues</th>
<th>Existing</th>
<th>New</th>
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<tr>
<td>1. Master meter allowed? Treated as PWS boundary?</td>
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<td>2. Design &amp; construction standards?</td>
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<td>3. Hydraulic modeling &amp; capacity assessment?</td>
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<td>4. Fire hydrant O &amp; M? Fire truck access?</td>
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<td>5. Distribution system O&amp;M, repair, replacement?</td>
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<td>6. Who pays for what?</td>
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<td>7. Drinking water sampling and monitoring?</td>
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<td>8. Cross connection control?</td>
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<td>9. Easement in place?</td>
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What If a New Development is a Prospective PWS?

- Before constructing the new development:
  - Design & construction of drinking water infrastructure
  - Source protection (example: well location)

How Utah Implements Source Protection

All public water systems in Utah must complete drinking water source protection plans.
Drinking Water Source Protection Ordinances

- **Required for all 1st and 2nd class counties** by May 3, 2010 (Utah Code 19-4-113)

- **17 counties** have adopted some type of Drinking Water Source Protection ordinance

What If a New Development is a Prospective PWS?

- Before constructing a new development:
  - Design & construction of drinking water infrastructure
  - Source protection (well site)

- After exceeding the PWS thresholds (≥ 8 connections or ≥ 25 people)
  - Monitoring, sampling and reporting to DDW
  - Certified water operator
Cape Town, South Africa (2018)
Population 3,776,000

Cape Town introduces ‘world’s first water police’ after drought

The South African city has gone three years without significant rainfall and its reservoirs are running dangerously low.

Cape Town drought limits people to 13 gallons of water a day

PBS

'Cape Town, South Africa (2018)'
Planning for Water

Water Systems

Division of Drinking Water (DDW)
Division of Water Quality (DWRi)
Division of Water Resources (DWRi)

Developers

Planners & Land Use Authority

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