City of Soda Springs

Municipal / City Water



March 2022

General Types of Municipal Water -

<u>Surface Water</u>

- Creeks / Streams / Rivers
- Reservoirs / Lakes
- Springs (surface groundwater interaction)
- Storage tanks, towers, ponds, reservoirs, etc.

Groundwater

- Subsurface features pools, "rivers", etc.
- Wells ("straws")



General Designation -

- <u>Drinking (or Potable) Water</u> water that is <u>safe</u> to drink and for other domestic purposes
 - Drinking Water for \rightarrow Cooking, Washing and Bathing / Showering
- How "Safe" is safe? limit the amount of impurities
 - Parts per Million (ppm) -1 drop of water in 10-gallon aquarium tank or 1 second in 2 weeks
 - Parts per Billion (ppb) 1 cup of water in Lava Hot Springs swimming pool or 1 second in 32 years
 - Parts per Trillion (ppt) 1 drop of water in Lava Hot Springs swimming pool



• Water Rights -

- <u>(Idaho) Definition</u> A water right is the right to divert the public waters of the State of Idaho and put them to a beneficial use, in accordance with one's priority date.
- Types of Water Sources -
 - Direct Flow vs. Storage
 - <u>Direct Flow</u> Canal / Spring / Creek / Stream / River
 - <u>Storage</u> Tank / Tower / Pool / Lake / Reservoir
 - Both = Groundwater (well vs. "cavern")



• Water Rights, cont'd -

- Types of Users "Beneficial Use"
 - Domestic Use
 - Stock water / Grazing
 - Irrigation
 - Manufacturing / Industrial
 - Mining
 - Hydropower
 - Municipal Use
 - Aquaculture
 - Recreation
 - Fish & Wildlife
 - Other



- Water Rights, cont'd -
 - Elements of a Water Right
 - <u>Point of Diversion</u> -where is it coming from? how is it captured?
 - <u>Use</u> where is it going?
 - <u>Nature of Use</u> what will it be used for?
 - <u>Term</u> when will it be used? year-round vs. seasonal?
 - <u>Quantity</u> how much will be used?
 - Gallon per minute (gpm) [equal to 1,440 gallons per day (gpd)]
 - Cubic feet per second (cfs) [1 cfs = about 450 gpm]
 - Acre-Feet (ac-ft) [just over 325,000 gallons]
 - <u>Priority Date</u> date rights were grant

(senior water rights are "first-in-time, first-in-right")

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<u>Municipal Water</u> - Sources

- Formation Spring
 - Type: Municipal, Groundwater
 - Amount: 5.5 cfs

(about 2,500 gpm)

- Priority Date: 1889
- Term: Year Round
- Ledge Creek, Springs
 - Type: Domestic, Groundwater
 - Amount(s): 10.1 cfs

(over 4,500 gpm)

- Priority Date(s):
 - 1885, 1892, 1898 & 1907

• Term: Year Round





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SODA SPREAM

Municipal Water -

- Hydropower City's power needs) (about 1/6th of
 - Soda Creek
 - Type: Power, Surface Water (pass-thru)
 - Amount(s): 138 cfs
 - Priority Dates:
 - 1907, 1930 & 1932
 - Term: Year Round



Municipal / City Water Formation Springs

Formation Spring

Driveway

Panting |

Formation Well

Formation Cave

Chlorination Building

Formation Water Line

Trail Canyon Road

Formation Spring Well Project

- 2013 Idaho DEQ changed the designation of the water source
- 2014 The City entered a Consent Order with State of Idaho
- 2019 City determined to transition to a groundwater well
- 2020 & 2021 Well drilled, system developed and integrated.
- Project Cost more than \$2 million



Municipal / City Water Ledge Creek, Springs







Municipal / City Water Soda Creek - Power Generation



- Water Rights, cont'd -
 - How much water does the City use each year?
 - Formation Spring 300 million gallons (+/-25%)
 - Ledge Creek Spring
- 785 million gallons (+/- 20%)
 - Total: more than 1.1 billion gallons per year
 - Gallons per day = 3,000,000
 - Gallons per person per day = 1,000 \rightarrow is that High? Normal? Low?



- Water Rights, cont'd -
 - How much water does the City use each year?
 - Gallons per day = 3,000,000
 - Gallons per person per day = 1,000

VERY HIGH! (Idaho and Utah average is about 200 gallons per day per person)

Why is Soda's water usage so high? _____ What can we / should we do about it? _____

