LENA: FROM RIVER TO TAP

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PROBLEM STATEMENT

A **dwindling groundwater supply** has prompted a rural Idaho community to transition to sourcing their drinking water from the **Snake River.**

PURPOSE OF PROJECT

Purify drinking water for a small community in Idaho using a **reliable**, **well-engineered** drinking water treatment process to meet water needs of 3.5 MGD.

Granular Activated Carbon Media (GAC)

Photo by: Munirah Alrefaei, 2023

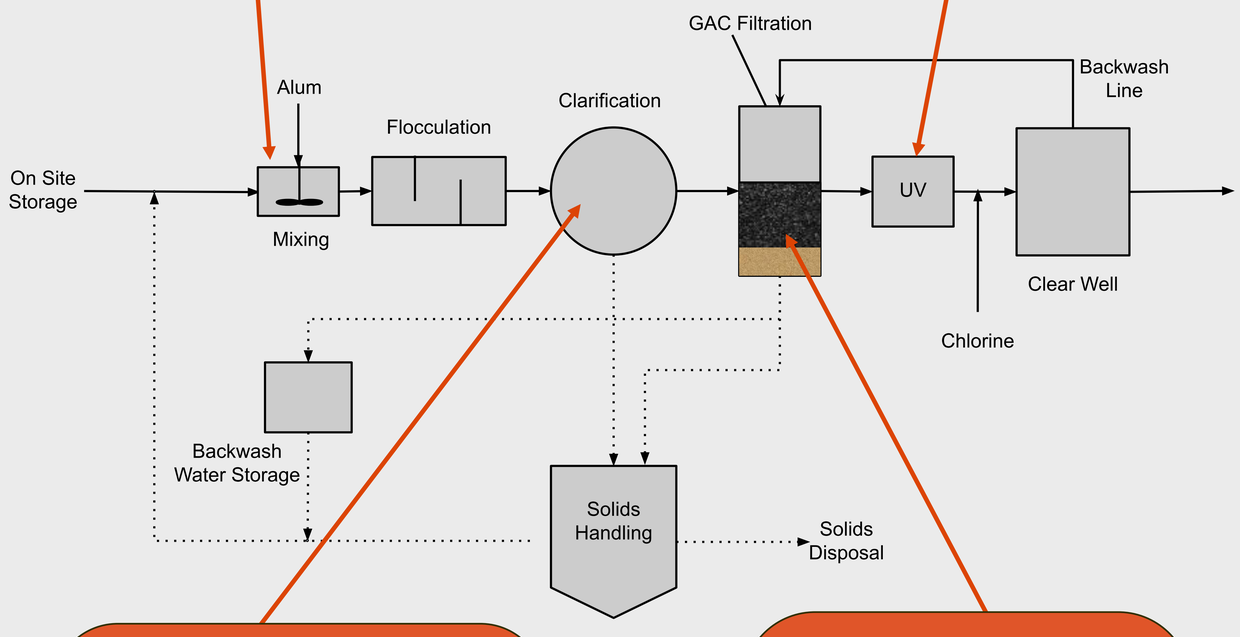
Oregon State University

Coagulation

- Effective **coagulant** dispersion is essential for removing **DBP formation potential.**
- Reduces **turbidity and natural organic matter** in downstream units efficiently.

Ultraviolet (UV) Disinfection

- Inactivates **pathogens** by damaging their DNA & RNA.
- Forms **no disinfection by-products (DBP).**
- Rapid treatment allows for a **small footprint.**



Clarification

- Utilizes **gravity** for cost-effective treatment.
- Removes **algae**, which contributes to **taste** and **odors.**
- Effective in removing **turbidity.**

Filtration

- Treats **taste/odor** and **removes solids.**
- GAC is a **sustainable** material made from **raw organic** sources like coconut shells.
- Media is **recycled and reused** via thermal reactivation.

TrojanUVSwift Disinfection Unit
Photo from:
https://www.trojantechnologies.com/en/

SUMMARY

A drinking water treatment process involving coagulation, clarification, GAC filtration, and UV disinfection provides **purified drinking water** to the community.

NEXT STEPS

- Design of piping and valves.
- Construction of the site.
- Startup and sampling to ensure high water quality.

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