Linda Engle Introduction: Sustainable Idaho is brought to you by the Portneuf Resource Council.

Madison Long: Welcome to Sustainable Idaho. I'm your host Madison Long and my co-host Holly Wilson will be joining today to help me share what I learned about the inner workings of Pocatello's wastewater management system.

Located just northwest of Pocatello is the Pocatello Wastewater Treatment plant, which is one of the largest plants in Idaho with a sewage system covering over 250 miles with 23 pump stations. Any water that has been adversely affected in quality by human activity is what we refer to as wastewater. This wastewater comes from domestic sewage, industrial discharges, and stormwater runoff, all of which carry pollutants that can pose risks to human health and the environment if left untreated. However, according to Pocatello's Water Pollution Control Department (WPC), when water goes down your sink drain, it can "begin its journey to a bright, clean future." As the sewage treatment plant removes contaminants and impurities, the wastewater will be converted into an effluent that can be safely discharged or re-used.

HW: A few weeks ago, Madison contacted the Pocatello Wastewater treatment plant and spoke with their representative and superintendent Levi Adams over email correspondence. Madison, did Adams inform you how Pocatello cleans its wastewater?

ML: Adams explained to me that the treatment process actually occurs over multiple steps. Before any treatment can take place, Pocatello first physically screens the incoming wastewater, what's called the influent, for the debris that can't be treated. This is usually the garbage that people flush down their drain. The second step involves slowing the flow of water through the primary clarifiers where heavier solids settle out before being pumped to the digester. In the sealed digester tank, solids are broken down by microscopic organisms creating methane gas as a by-product. Idaho Power is actually using that gas to run their generators and produce electricity.

Next the water flows to the secondary, biological treatment where the water is mixed with microorganisms that feed on the remaining organic matter. Here nutrients such as nitrogen and phosphorus, which can be harmful to the water downstream, are removed. Then aluminum sulfate has to be added back in the water to bind with the remaining phosphorus and filter it out. According to Adams, the Portneuf river is already hampered by the amount of phosphorus in it so the city is required to remove as much phosphorus as possible from the effluent before they discharge into the river.

The final step is ultraviolet disinfection. Here all the harmful pathogens are removed and the water can remain safe.

HW: Did Adams talk about the effectiveness of that secondary, biological treatment according to the standards of the Idaho Department of Environmental Quality and the Environmental Protection Agency?

ML: According to Adams and the Pocatello Water Pollution Control website, the city currently meets and surpasses the standards set by the Idaho Department of Environmental Quality. Just on a whole, there are multiple requirements and regulations set up for the city that include water sampling, testing the Portneuf River up and downstream of the wastewater treatment plant, and regulating the industries in town to ensure that the harmful pollutants in the water remain controlled.

HW: The wastewater treatment plant currently cleans an average of 7.5 million gallons of water per day. After treatment, the water is discharged into the Portneuf River. Since the plant treats both industrial and residential wastewater, is the process of getting “sewer service” different?

ML: Adams said that the main differences between commercial or industrial and residential sewer service is the billing and requirements before being treated.

For example, single-family homes typically have a flat sewer service fee, while a commercial customer is typically charged a service fee and a volume-based charge for water and sewer services. Also residents are encouraged to follow the best management practices to improve the efficiency of the treatment plant, with a request to not flush items that can’t be treated at the plant. This can include wipes, paper towels, medication, feminine hygiene products, or hair. Commercial customers, on the other hand, might be required to have pretreatment devices, or sample and report what they are discharging.

HW: Adams reported that the most common pretreatment devices are grease interceptors for restaurants, as well as oil and sand separators for mechanic shops. As populations grow, the demand for wastewater treatment increases, necessitating expansion of water flow capacity, and general infrastructure improvements. To address this, in 2023, Pocatello’s Water Pollution Control Facility introduced their “package #1 improvements. This package highlighted priority issues that were identified in the 2021 wastewater facilities planning study.

Madison, what more did you learn about the Package #1 Improvements?

ML: These improvements were started in 2023, and targeted several components of high importance for the operations of our Pocatello wastewater treatment facility. This included replacing aeration diffusers, which is a device that supports the digestion of organic pollutants in the wastewater by introducing oxygen.

A digester cover was recoated with protective paint to protect from environmental factors such as light, oxygen, and heat, a pumped mixing system was installed in digester #3, the co-generation gas condensate trap which helps the efficiency of the system was replaced, and then lastly a new screw press dewatering system was installed. There’s a lot of technical pieces and factors to each new installation or part replacement but the overall goal is to improve the efficiency of the wastewater system and keep it running for years to come.

HW: The construction for the new improvements cost around $12 million dollars and was funded by user rate dollars reserved in the Water Pollution Control Department capital construction fund.

What can you share about the current status of these improvements and what the plans are for Pocatello's wastewater treatment plant moving forward?

ML: Adams did tell me that all the construction was finished early this summer and everything is online and functioning well. As for moving forward, I learned that the Package #1 improvements are just one piece of the puzzle. As part of that wastewater planning study, there is a 20-year management plan for the facility that goes out to 2030. This all addresses that need to expand, focusing on the first critical items and then laying out the groundwork for additional needed improvements. And that again is part of a bigger comprehensive evaluation of that plant and how to accommodate for future growth.

According to Stantec, a consulting firm in Boise that worked with Pocatello wastewater, there are plans for a new administration building, a capacity increase, and potentially a shift in treatment and disposal on the treatment plants to incorporate composting and other biosolids reuse options. For context the biosolids are any solids produced by the treatment process.

HW: Anytime you wash dishes, the wastewater flows through your plumbing system and into the wastewater treatment plant. If any organic matter is present, it can begin to increase the organic load in the treatment system, leading to bacterial overgrowth and prohibiting further progress. So in your research, did you find any suggestions on how our residents can help to minimize the negative impacts from their wastewater on the treatment plant but also on those downstream?

ML: Yes, the EPA gave many helpful solutions on how to reduce waste pollution and help reduce environmental pollution to help give all citizens a good quality of life. A few of their suggestions include using less water, composting your food scraps rather than using a garbage disposal in the sink which helps remove that additional organic matter in the treatment plant itself, or keeping drinking water in the refrigerator instead of running the tap.

Other resources supported educating yourself and others about the importance of proper waste disposal and the use of eco-friendly products. In the words of the Water Pollution Control Department, the scope of their work starts in the community.

ML Outro: Thank you to Holly Wilson for assisting me in this episode and thank you to Levi Adams for sharing the inside perspective of Pocatello's wastewater facility. Adams suggests to anyone wanting to learn more to do research on the typical treatments at a wastewater plant, but also to request a tour of the plant on the City of Pocatello website under the Water Pollution Control page. More details can be found on our website at KISU.org/SustainableIdaho.

Before we close, we would like to make two important announcements.

The Portneuf Resource Council is looking for electric vehicle owners to show their cars at the September 20th Car Show in Pocatello. To show your car: go to National Drive Electric Month dot org.

Lastly, federal funding for public media is gone. If you enjoy listening to Sustainable Idaho and other KISU programs, please consider donating to keep us on the air.

L Outro: Funding for our Sustainable Idaho Student Hosts is provided in part by this radio station, the ISU Center for Ecological Research and Education, and the Sagebrush Steppe Landtrust through the ISU Career Path Internship Program. Direction, funding, and additional support is provided by the Portneuf Resource Council.