



Fort Hall Mine Landfill Pilot Study | Bannock County, Idaho

June 2024

Bannock County Tests Groundwater Flow and Groundwater Cleanup Technology

In spring 2023, Bannock County performed two different tests during a pilot study to help inform the groundwater treatment strategy at Fort Hall Mine Landfill. Bannock County will make future cleanup decisions based on the test results.

Test #1—Groundwater Flow Tracer Study

Tracers are substances added to water to track its movement. Tracing groundwater helps explain contaminant movement underground and assess different treatment technologies. Bannock County used a tracer to measure the speed and direction of groundwater flow near the landfill by injecting a sodium bromide tracer into a groundwater well.

Sodium bromide is a safe, naturally occurring substance commonly used as a tracer to study groundwater movement.

Bannock County then sampled groundwater to track the injected tracer in wells around and downgradient of the groundwater well where it was injected. The sample results will help us learn how groundwater flows from the landfill to the Lower Portneuf Valley Aquifer. This knowledge will help the County improve the groundwater treatment strategy.

Figure 1. The landfill and the extent of groundwater contamination shown in color, where red indicates the area of highest concentrations.

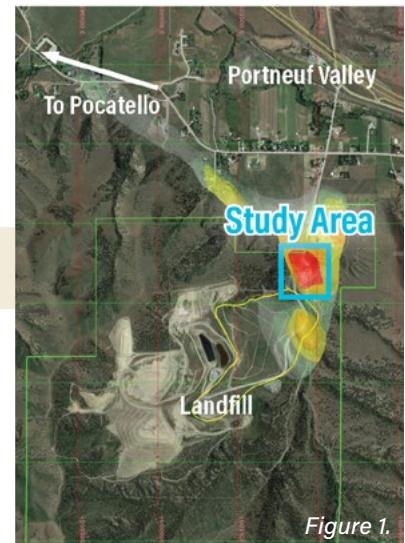


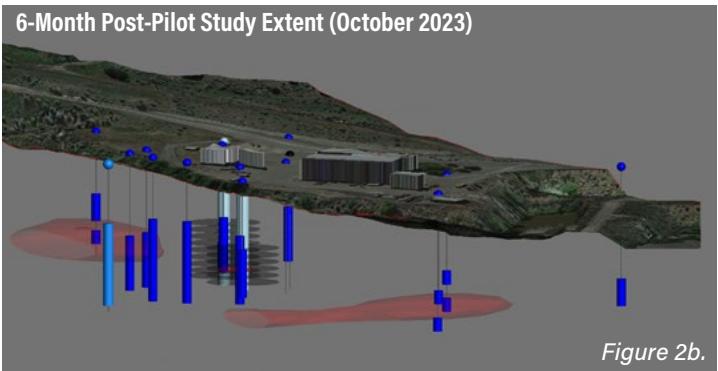
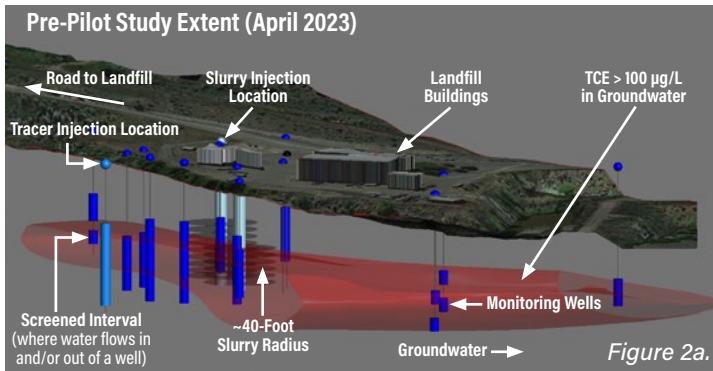
Figure 1.

Test #2—Groundwater Cleanup Study

Bannock County completed a test to learn if an amendment slurry injected into groundwater could break down contaminants in a small test area. The amendment slurry was a liquid mixture of substances that help break down groundwater contaminants. In April 2023, a Bannock County subcontractor injected about 50,000 gallons of amendment slurry into two injection wells in a contaminated area near the landfill office over 2 weeks. We do not expect the slurry to travel more than 40 feet beyond the injection area.

The slurry injection study is a short-term, localized test to evaluate if the amendment slurry breaks down groundwater contaminants in the small test area.

From May 2023 to May 2024, Bannock County sampled nearby wells to check for changes to the groundwater after the injection. If the slurry successfully degrades contaminants in the injection area, then Bannock County may use this cleanup technology on a larger scale to treat the groundwater. Although the pilot study data evaluation is still ongoing, early results suggest that the amendment slurry is helping degrade trichloroethene (TCE). Thus, this approach tested at a small scale may work at a larger scale to improve the groundwater treatment strategy. Bannock County will publish the final pilot study results in 2025.



Figures 2a and 2b show the side view of the study area facing west, including landfill office buildings, groundwater contamination, and test locations. The red area shows concentrations of trichloroethene above 100 micrograms per liter ($\mu\text{g}/\text{L}$). The comparison of early results shows that the slurry is helping degrade the trichloroethene.



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Pilot Study Timeline

Spring 2023

Bannock County completes injections for Test #1 and Test #2.

Summer 2023—Summer 2024

Bannock County samples groundwater to gather results.

Summer 2024

Bannock County sends residents living near the landfill a summary of the interim pilot study results.

2025 (anticipated)

Bannock County posts final pilot study report on the website. Study results will advise future cleanup efforts at the landfill.

Look for more information about a public meeting in 2025, coming soon!

Have thoughts on the testing? Submit a comment!



You can submit comments through the landfill website or by contacting the project team. If you would like to contact the project team directly, please call or email:

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VISIT THE FORT HALL MINE LANDFILL PROJECT WEBSITE FOR MORE INFORMATION.

www.bannockcounty.us/landfill/remediation

You can also scan the QR code with the camera of your phone or computer to access the website.