

100-NR-2: Groundwater Performance



Overview

Between 1994 and 2006, DOE operated a pump-and-treat system in 100-N Area to reduce the amount of groundwater containing strontium-90 reaching the Columbia River.

In 2006, DOE began testing a new remediation method, apatite sequestration, that immobilizes strontium-90 in the ground.

Limitations

Soil grains in the aquifer and the unsaturated zone absorb strontium-90, making it difficult for a pump-and-treat system to remove. As water flows through the contaminated sediment, it picks up strontium-90, which then moves toward the river.

Conclusions

The 100-N pump-and-treat system removed only 1.8 Curies of strontium-90 from 100-N groundwater. This was less than the amount removed by radioactive decay, so pump-and-treat is not a practical solution for groundwater cleanup.

Early results of apatite sequestration show that it has decreased strontium-90 concentrations at the shoreline.

