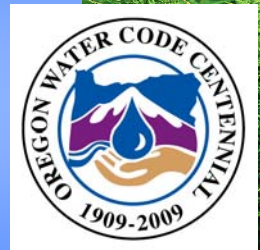


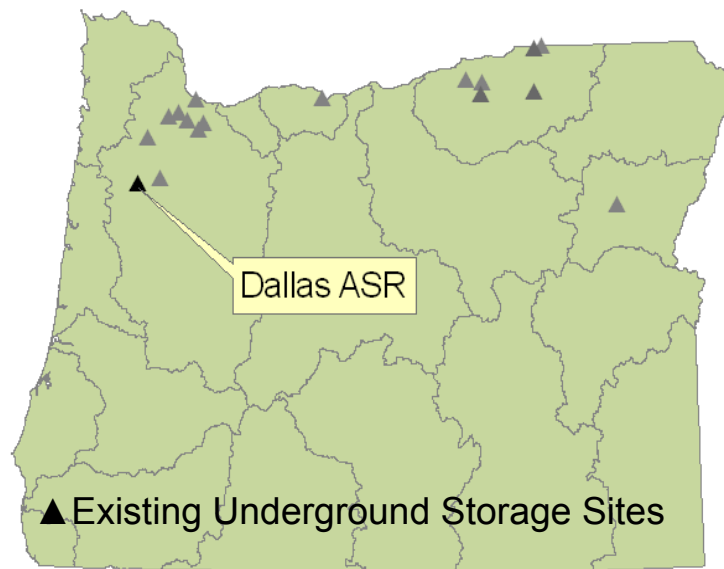


Oregon Underground Storage: City of Dallas, Oregon ASR



Project Background

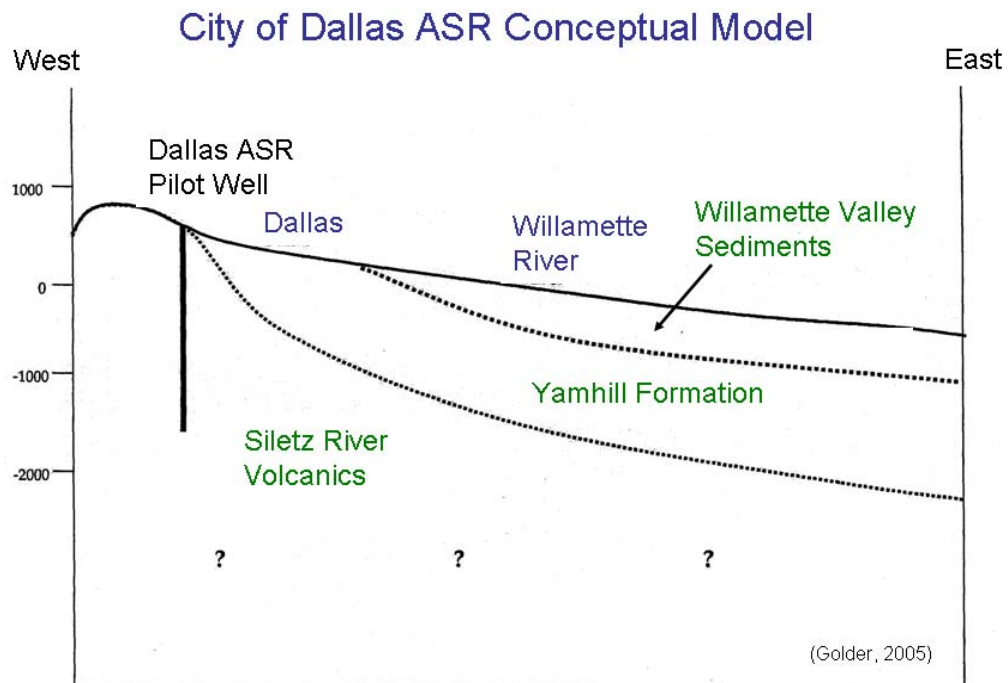
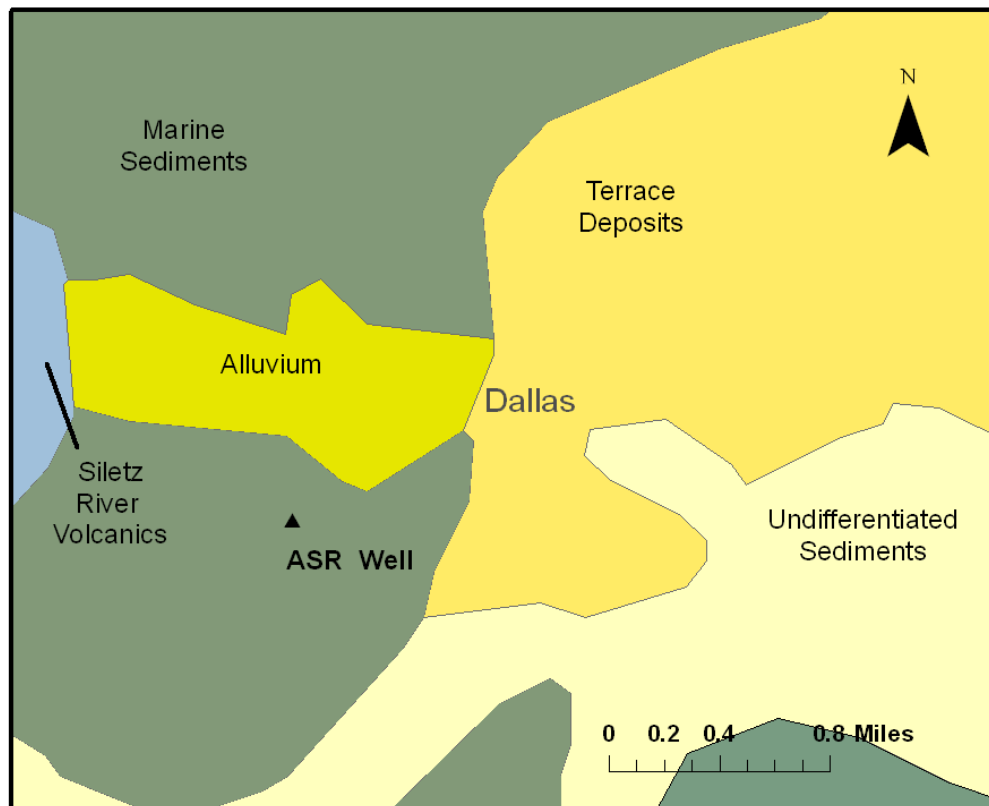
- Dallas, Oregon is located in Polk County, in the western Willamette Valley, and receives approximately 40 inches of precipitation annually.



- The city obtained a limited license to begin ASR testing in 2006.
- This is the first site in Oregon to utilize a brackish aquifer for ASR, meaning the original groundwater has higher levels of sodium than is suitable for drinking water. ASR provides municipal water supply during high demand periods.



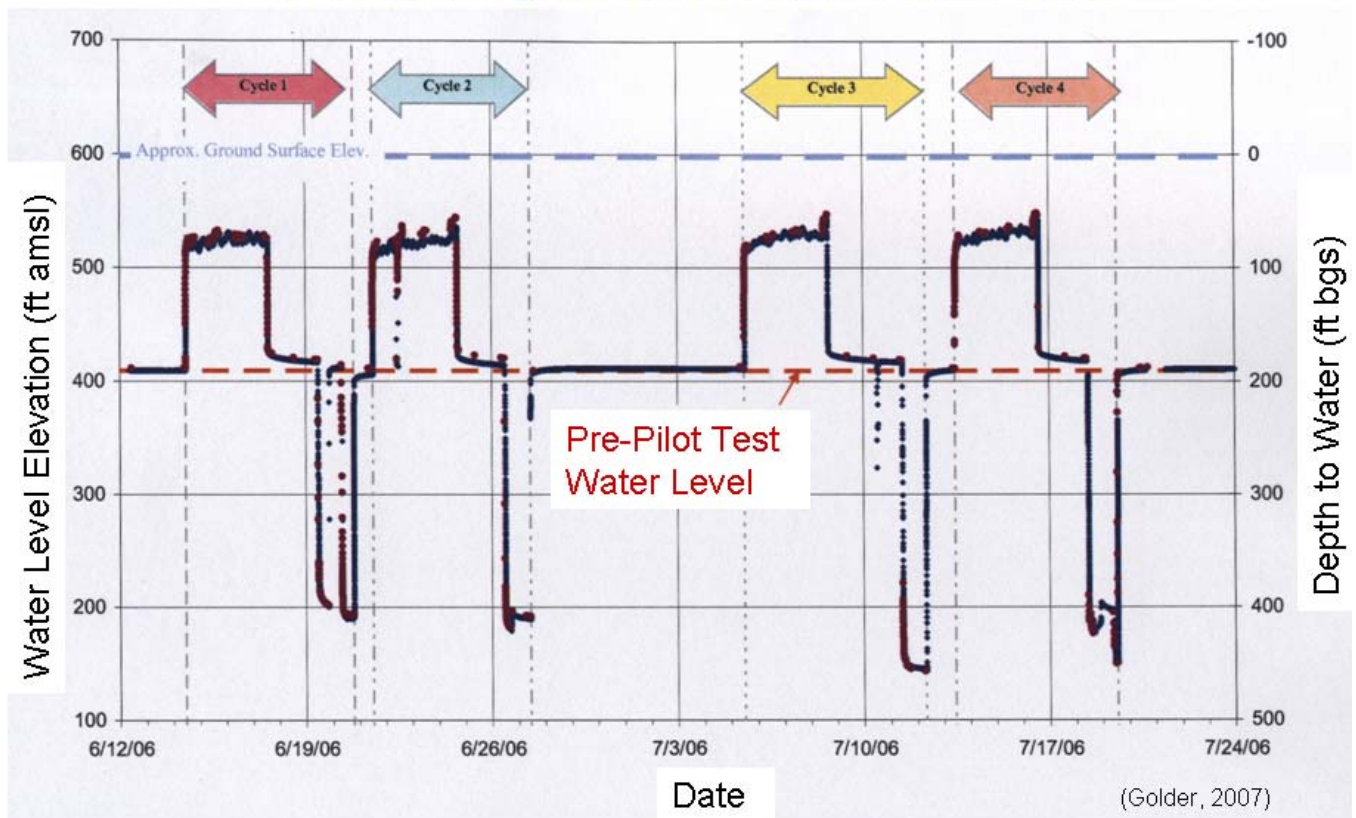
- **Source Water:** Source water is diverted from Rickreall, Applegate, and Rockhouse Creeks, which are all tributaries of the Willamette River.
- **Aquifer:** The storage zone is a Siletz River Basalt aquifer. Marine sediments and various Quaternary-aged unconsolidated deposits overlie these volcanics. Because the groundwater is naturally brackish, the site has unique water quality and recovery efficiency issues. Potable water injected into this lower quality aquifer experiences some mixing and diffusion, which decreases water quality during storage. Although some water is lost to water quality changes, the city extends its usefulness by blending recovered water with water from other sources to dilute the salts from the aquifer.



A conceptual model of the City of Dallas, Oregon's ASR site illustrates the Siletz River Volcanics are overlain by younger sedimentary units.

- **ASR:** The City of Dallas has injected up to 54 million gallons per year, and recovered up to 14.5 million gallons per year to date. Water mixing during ASR has limited the recovery percentage to date.

Dallas, Oregon ASR Water Levels: 2006



This Hydrograph illustrates water level changes in response to injection and recovery at the ASR well.