

Title:

Groundwater Remediation at an In Situ Oil Shale Test Facility, Green River Basin, Wyoming

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From 1965 through 1979, parent organizations of the U.S. Department of Energy (USDOE) conducted a series of in situ oil shale experiments in southwestern Wyoming. The test facility was located west of Rock Springs, Wyoming and was designated as the Rock Springs Oil Shale Retort Test Site (RSOSRTS). The site is located along the eastern flank of the Green River Basin. During the testing period, fracturing and in situ retorting experiments were conducted at depths of 40 to 240 feet. Of the 12 individual test sites at RSOSRTS, only 6 sites underwent retorting attempts (Sites 2, 4, 6, 7, 9, and 12). Groundwater monitoring at RSOSRTS revealed organic contamination at Sites 4, 6, 7, 9, and 12. Sites 4 and 9 had benzene concentrations greater than 1000 µg/L.

During 1996, USDOE initiated a groundwater remediation program at RSOSRTS to reduce volatile organic concentrations to within acceptable (regulatory) limits. Potential remediation technologies were evaluated and several technologies were field-tested. Air sparging was selected as the most promising remediation technology. An air sparging demonstration (six sparge wells) was initiated at Site 4 during the fall of 1998. The demonstration area was expanded to a full remediation facility over several years to a total of 21 wells. Air sparge operations were subsequently initiated at Sites 6, 7, 9, and 12. This report will describe the continuing groundwater remediation at RSOSRTS and will focus on the results of Site 4 where benzene concentrations have been reduced by greater than 95%.

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