
**Pacific Northwest
National Laboratory**

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**RCRA Groundwater Quality
Assessment Report for Single-Shell
Tank Waste Management Area T
(January 1998 through
December 2001)**

D. G. Horton
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July 2002



Prepared for the U.S. Department of Energy
under Contract DE-AC06-76RL01830

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Richland, Washington 99352

Summary

Single-shell Tank Waste Management Area (WMA) T at the Hanford Site is located in the northern 200 West Area. WMA T contains twelve primary single-shell carbon steel tanks, four ancillary tanks, and their auxiliary equipment. The tank farm was constructed in 1943 and 1944. During operations, tanks received mixed waste from the processing of spent reactor fuel to recover plutonium as part of the Hanford Site's defense mission. The tank farm ceased operations in 1980 and is currently regulated as a *Resource Conservation and Recovery Act* (RCRA) Interim Status Facility.

WMA T was placed in RCRA Groundwater Quality Assessment in 1993 and has remained in that status because of indications that contaminants from within the waste management area are entering groundwater.

The water table is declining and groundwater flow directions have changed in the vicinity of WMA T since initiation of assessment monitoring in 1993. These changes are a result of the cessation of effluent discharge to ground in 1995. Seven new RCRA monitoring wells have been constructed since 1997 to meet the groundwater monitoring needs resulting from changing water levels and flow directions and to assess contamination in groundwater.

Evaluation of groundwater data indicates that no RCRA-regulated contaminants from WMA T have affected groundwater. However, the contaminant technetium-99, regulated by the *Atomic Energy Act*, forms a plume detected near the northeastern corner of WMA T. That plume has its origin from the WMA and is largely contained near the top of the aquifer. This zone appears to have relatively low permeability based on pumping data obtained during well development and hydrological testing. In about 1997, the groundwater flow direction began to change from toward the northeast to toward the east or slightly north of east and, since then, the existing plume has apparently been drifting in that direction. If the measured flow velocity of 0.029 m/d is representative of the aquifer in the area, the plume would have moved approximately 42 meters east of well 299-W11-27 since 1998 when flow directions became stable. The high concentrations of technetium-99 seen in well 299-W11-27 in 1998 have not reached well 299-W11-39, which is 23 meters east of well 299-W11-27. This suggests either a slower rate of movement for the technetium-99 plume in the area or the mass of the plume passed to the north of the well. If tank waste contaminants are restricted to a low permeability portion of the aquifer, the lateral extent of the contaminants may be relatively small due to slow contaminant movement.

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