Concentration of Nitrate and Sulfate

Simulated flow paths indicate that subsurface recharge from the Oquirrh Mountains moves nitrate deeper into the basin-fill aquifer. The existing steady-state numerical simulation of the Tooele Valley ground-water system (Conceptual model: Ground Water, v. 32, no. 6, p. 905-916. Performed: Davis, California.) performed by Lambert, P.M., and Stolp, B.J., 1999, Hydrology and simulation of the ground-water flow system in Tooele Valley, Utah: U.S. Geological Survey Report 98-526-C, 19 p. has some limitations because model boundary conditions may artificially induce flow patterns. However, the data collected to date indicate that nitrate could be transported from the Oquirrh Mountains to the ground-water system in Tooele Valley. These simulations provide some evidence that nitrate could be transported from the Oquirrh Mountains to the ground-water system in Tooele Valley.

FUTURE MOVEMENT OF NITRATE PLUME

Ground-water movement in the east Erda area is generally to the southeast. The nitrate plume is moving rapidly to the northeast. Sources of nitrate in the east Erda area include: (1) discharge from the Oquirrh Mountain block, (2) agricultural runoff, (3) septic systems, and (4) abandoned smelting operations. The subsurface flow path also would reduce the correlation. In the first simulation, model layer 1 is not present and particles were inserted at the top of the saturated zone in model layer 2 in cells traversed by the flow path. Fourteen cells representing Pine Creek were populated with a single particle. Particles were inserted at the top of the saturated zone in model layer 2 in cells traversed by the flow path. In the second simulation, the model boundary conditions may artificially induce flow patterns. However, the data collected to date indicate that nitrate could be transported from the Oquirrh Mountains to the ground-water system in Tooele Valley.

REFERENCES


