The Uinta Basin produced water project is part of a collaborative effort to promote vulnerable aquifers of the Uinta Basin.

During summer of 2013, I collected 52 water samples from shallow water wells and springs in the Uinta Basin, and I did the sampling for a suite of water quality constituents including 16 dissolved metals (Cu, Cr, Cd, Ni), and nine volatile organic compounds (VOCs). All samples were also analyzed for oxygen and deuterium isotopes.

Chlorides were detected (sites 8, 20, 21, and 22). Diagrams having similar shapes reflect different and mixed aquifer sources. All data are from 2013. Blue polygons indicate the site was a discharge site and red polygons are water (springs) sites in the Uinta Basin. A suite of water-quality constituents were analyzed including total dissolved solids, nitrate, dissolved oxygen, deuterium, and carbon-13.

All sites were sampled for oxygen and deuterium isotopes. Data from all sites show TDS concentrations range from 214 to 5532 mg/L. Specific conductance values for all sites were between 2056 and 3250 µS/cm. Most sites (20 of 22) have nitrate levels below 501 mg/L. Most sites have nitrate levels below 501 mg/L. The highest nitrate level was detected in groundwater at the San Rafael River near Moab. This would be consistent with agriculture and livestock activities, which are known to contribute nitrate to groundwater in the area.

The focus of this study was to establish water-quality baseline in the Uinta Basin where production and disposal of water from shale-hydropressed well fields are occurring. The ultimate goal of this project was to improve the water-quality management and water-use planning in the Uinta Basin.

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