An Expanded Wyoming Water Quality Database

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We present a compiled and simplified water quality database for the state of Wyoming, ranging from the surface to depths of 23,758 ft., which is useful for the assessment of CO_2 storage, oil and gas production, and aquifer quality. It includes: 1) the United States Geological Survey (USGS) national produced waters database, 2) the USGS National Water Information System (NWIS), 3) the Wyoming Oil and Gas Conservation Commission produced water database, 4) the Department of Energy (DOE) National Energy Technology Laboratory's (NETL) produced waters database, 5) The University of Wyoming's Wyoming Enhanced Oil Recovery Institute's Wyoming oil reservoir EOR database, and 6) a Greater Green River database originally released to James Coleman (currently USGS) by BP Amoco for 2003 AAPG and RMAG presentations. Care was taken to remove duplicates both within and between input databases by finding analyses with the same API well number, total dissolved solids (TDS) concentration, and sodium concentration. We chose these three attributes to check for duplicates because they exist in all produced water databases (i.e. all except for NWIS). Further, both Sodium and TDS each have up to six significant digits in their concentration values, making a query of false duplicates highly unlikely. Where duplicates were found between databases, they were deleted from the database with fewer analyses. Though all input databases have fewer than 10,000 analyses each, the resulting Wyoming water quality database contains 23,500 spatially distributed non-duplicate analyses with at least formation and TDS data. We will perform further culling on the combined database by sample analysis method and quality.