

A Preliminary Discussion of Fault Styles in the Southwest Uinta Basin, Utah

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Aspects of structural geology were observed during the investigation of the regional stratigraphic trends in the Tertiary Green River Formation in the SW Uinta Basin. The area is dominated by 3°-5° NE regional dip into the basin, interrupted by only a few E-W and NW-SE-trending faults. Most faults exposed at the surface in the SW Uinta Basin can be grouped into two types: shallow, hingeline, Duchesne-graben type, and oblique-slip faults.

The Duchesne fault zone (DFZ) is an E-W trough with a master fault that dips steeply northward and has ~200 m of net displacement. This feature coincides with the southern hinge of the basin structural trough. The fault terminates just above the Mahogany oil shale of the Green River at ~1400 m, or flattens into a low-angle detachment zone at ~1000 m. At Sand Wash, southeast of the DFZ, another graben is exposed in several cliff faces, terminating just above the Mahogany. The graben is ~150 m wide and has only a few meters of throw. We believe this graben represents the downward termination of a DFZ type system.

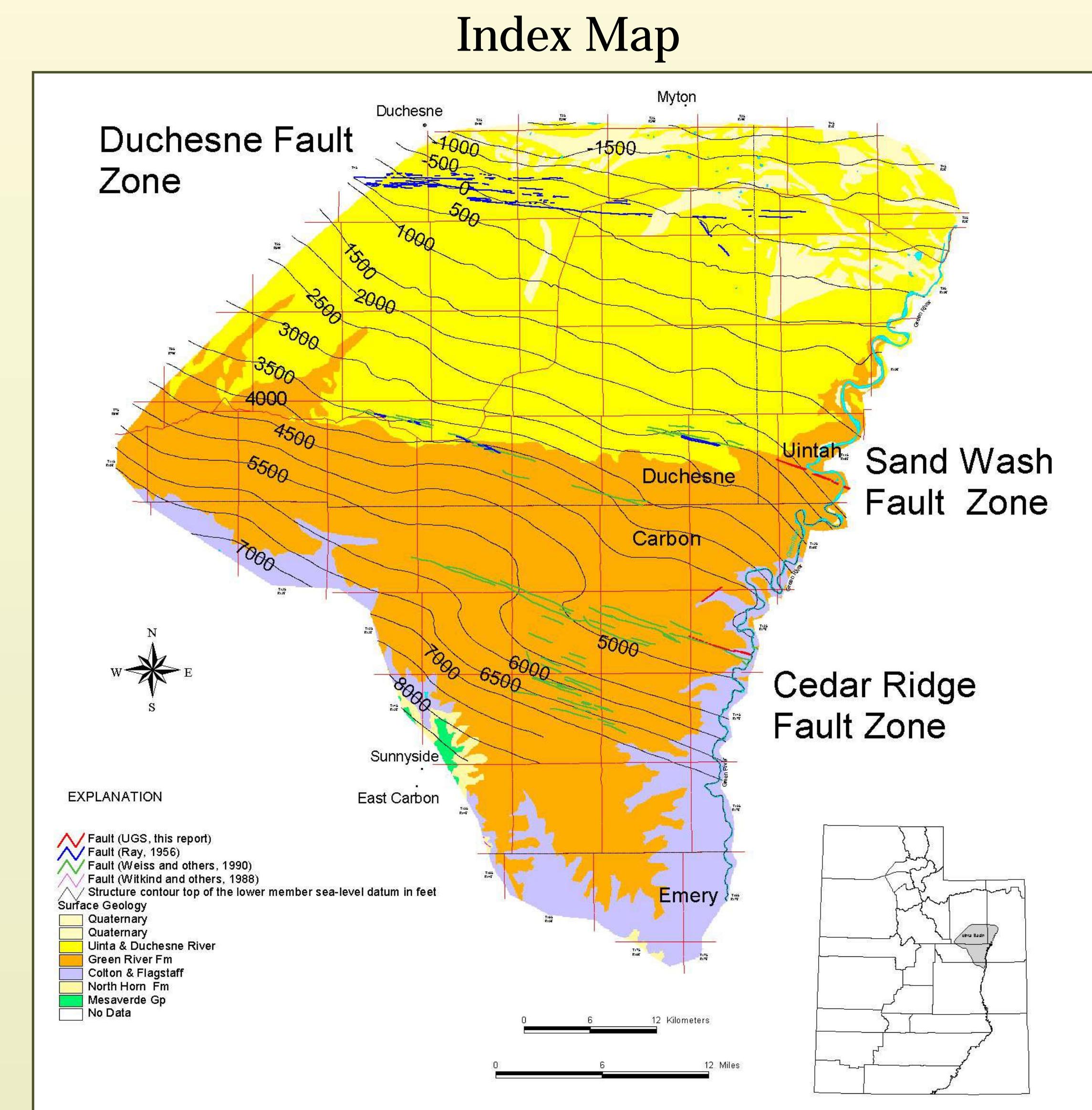
Faults along the southern flank of the Peters Point anticline are exposed in Cedar Ridge Canyon near the junction with Desolation Canyon. These parallel faults have a throw of 1-40+ m, and a wide deformation zone indicating possible significant lateral movement. These oblique-slip faults are associated with a deeper, basement-involved movement. We interpret the faults to be part of a flower structure related to the Garmesa wrench-fault zone that forms the northern margin of the Uncompahgre uplift.

ACKNOWLEDGMENTS

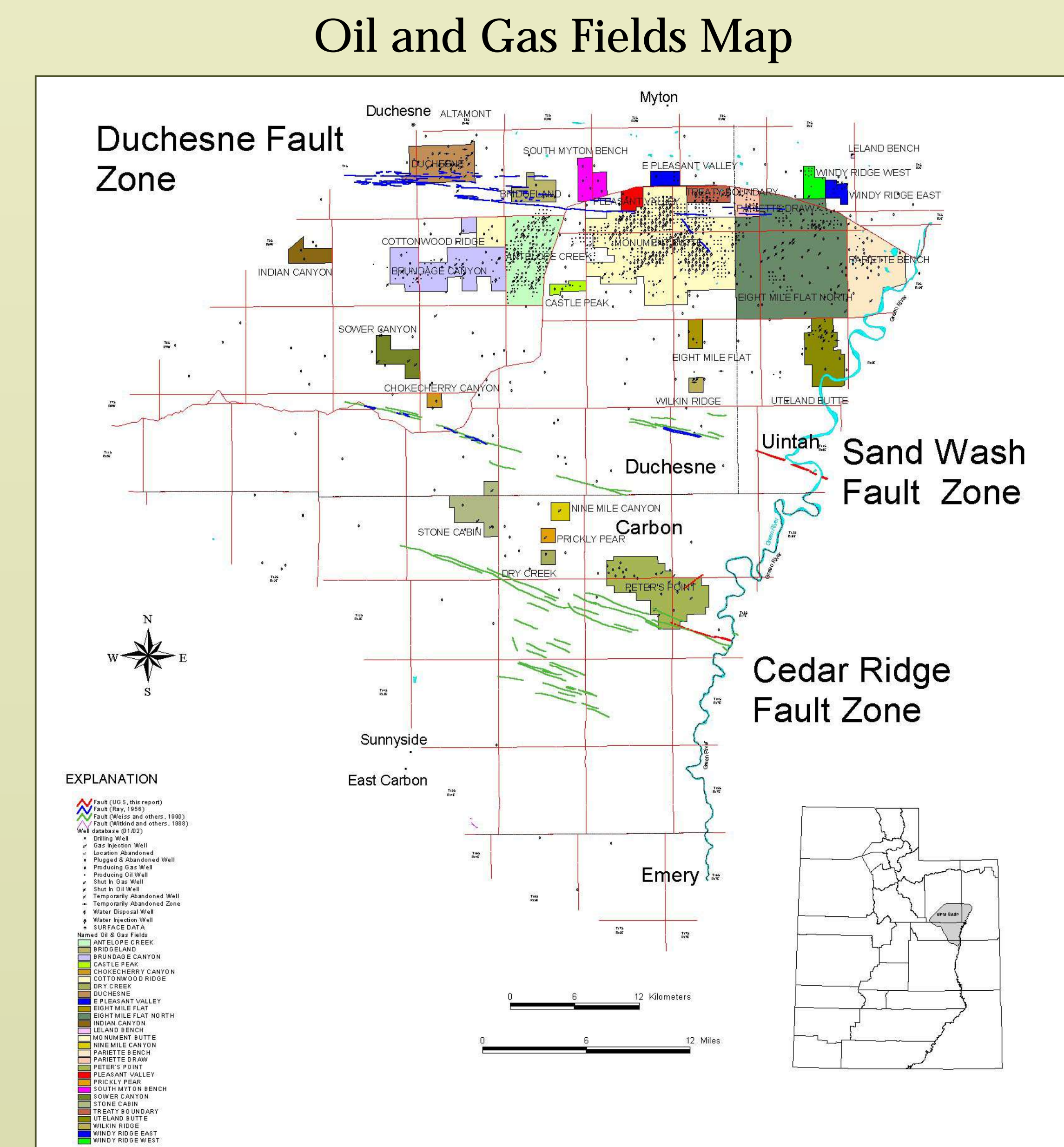
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Faults and surface geology of the southwest Uinta Basin. Structure contours at top of lower member of the Green River Formation, in feet, sea-level datum.



Well locations, and oil and gas fields, in the southwest Uinta Basin.