

Summary

The Duchesne and Sand Wash fault zones are shallow hingeline faults with no direct basement involvement.

The Duchesne and Sand Wash fault zones terminate at or near, the Mahogany oil shale.

The Sand Wash fault zone is a good exposure of the termination of the shallow hingeline fault system.

The Cedar Ridge faults have oblique-slip movement.

The Cedar Ridge faults are associated with basement-involved wrench-fault movement.

Research Opportunities

Our work on the Duchesne, Sand Wash, and Cedar Ridge fault systems is preliminary and was not the focus of our study. We have presented the data in hopes of encouraging further research on these faults systems. The following are some recommended research activities.

Sand Wash Fault Zone

1. Map the 7.5 quadrangle and the internal structure of the fault zone.
2. Determine if plastic deformation exists in the oil shale below the fault zone.
3. Upward (stratigraphically) modeling of the faults to compare to the Duchesne fault zone.
4. Map or model, the potential displacement below the oil shale. Where would the displacement be, directly below the shallow fault zone or would the displacement shift downdip or updip?
5. Determine if the shallow hingeline faults can be used to identify fault or fracture zones in deeper horizons with oil potential.

Cedar Ridge Fault Zone

1. Map the 7.5 quadrangle; there are many more faults in the area than are currently mapped.
2. Determine the relative motion of the faults from slickensides and other evidence.
3. Model the complete fault system, shallow oblique-slip and basement-involved wrench faults. Is the Peters Point anticline a flower structure?
4. Determine what influence the faulting had on hydrocarbon migration in the area.