Fact

Engineering gas condensate reservoirs is, for the most part, the same as engineering gas reservoirs.

So

What's Special About Gas Condensate Reservoirs?

1. *Sampling* - reservoir fluid compositions are important.

Initial composition is needed for defining in-place reserves.

Compositional variation is important to production economics and field development strategy.

2. *PVT* - retrograde condensation is important to well deliverability, pressure depletion performance, and economics.

Retrograde liquid dropout is (directly) only important to well deliverability.

3. *Reservoir Performance* - The liquid yield decreases when reservoir pressure drops below the dewpoint (GOR increases).

Depletion behavior (pressure-cumulative relationship) is mainly different because the ultimate recovery at blowdown is reduced.

4. ***Well Deliverability*** **- For moderate- and low-permeability reservoirs, reduced deliverability due to near-wellbore condensate blockage may require additional wells and/or more expensive completions (stimulation).**

   Reduced productivity occurs in all gas condensate wells with BHFP lower than the dewpoint. However, for higher-permeability reservoirs, the reduced productivity is negligible compared with other pressures losses in the production system (tubing, pipeline, etc.).

   At "lower" reservoir pressures (towards the end of depletion), gas condensate wells will experience liquid loading problems.

5. *Relative Permeability* - required to model well deliverability loss.

Theoretically, gas-oil gravity drainage at low IFTs and high vertical permeabilities (with complete vertical communication). Blue sky!

6. *Gas Cycling* - potentially significant additional condensate recoveries, but with associated delay in gas sales (and/or required purchase of makeup gas).