Supporting Information for: Small-angle neutron scattering (SANS) characterization of clay- and carbonate-rich shale at elevated pressures

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7 pages, including 8 figures.

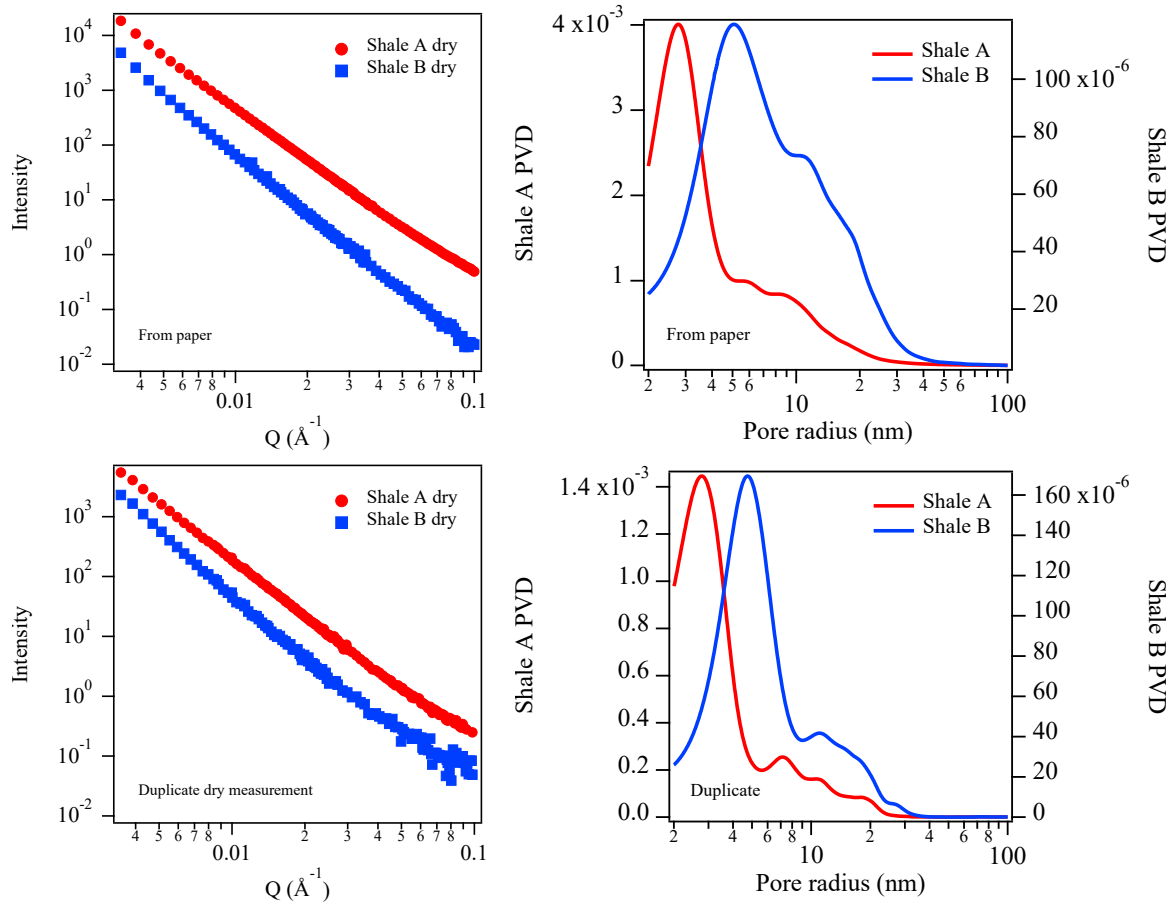

Figure S1. Duplicate dry measurements show consistent intensity differences and dominant pore sizes.

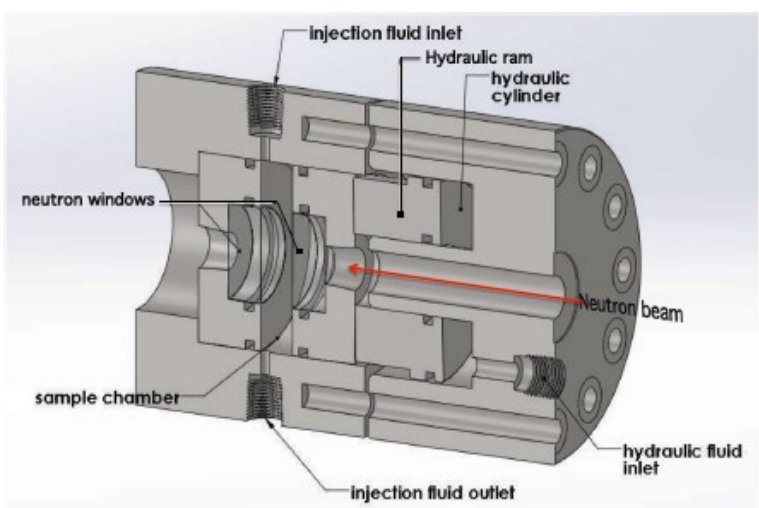

Figure S2. SANS compression cell schematic (from Hjelm et al., 2018)

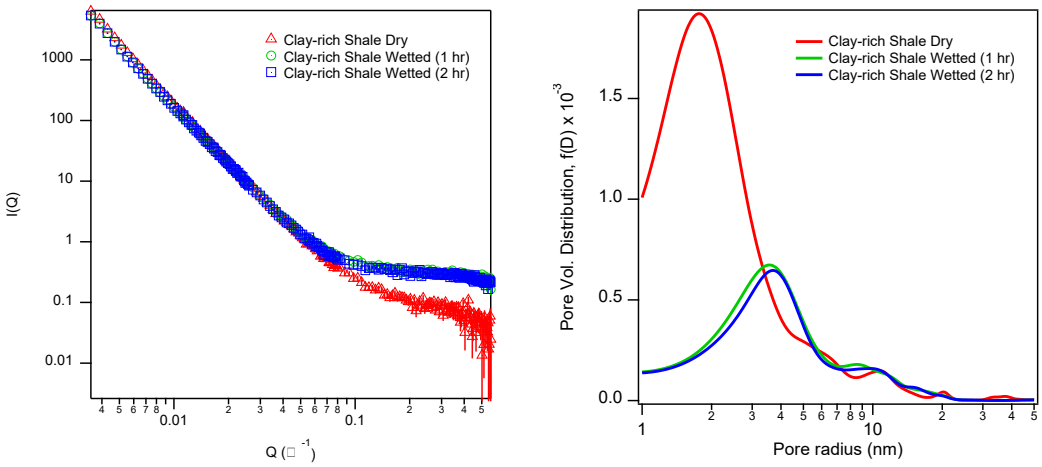

Figure S3. Saturation testing shows the 300 µm shale sample saturates within 5 minutes

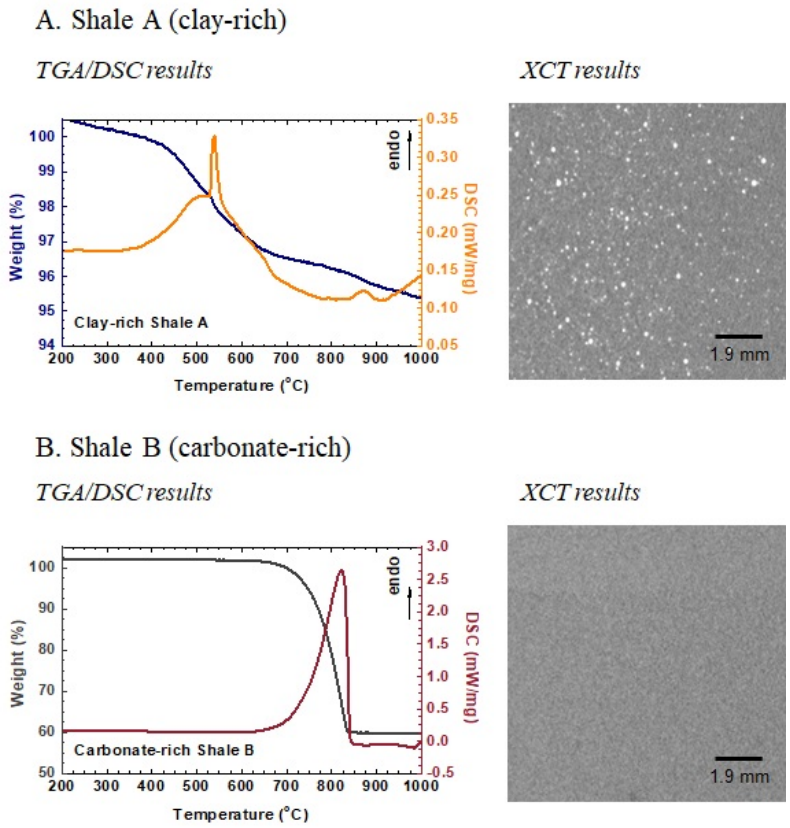

Figure S4. TGA/DCS and XCT images of clay-rich (A) and carbonate-rich (B) shale samples

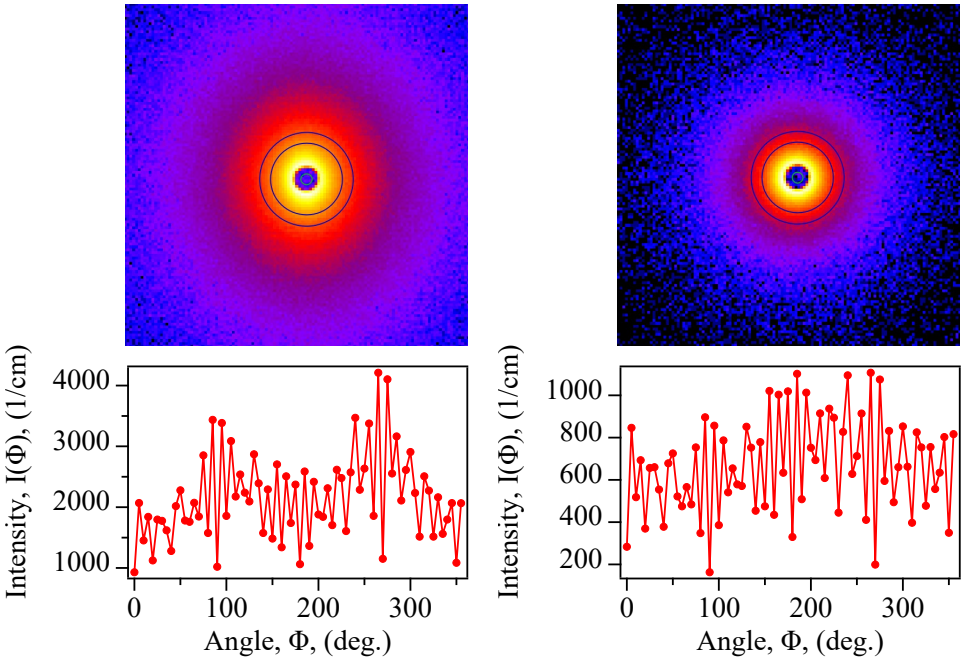

Figure S5. 2D SANS scattering and intensity as a function of azimuthal angle for Shale A and B samples

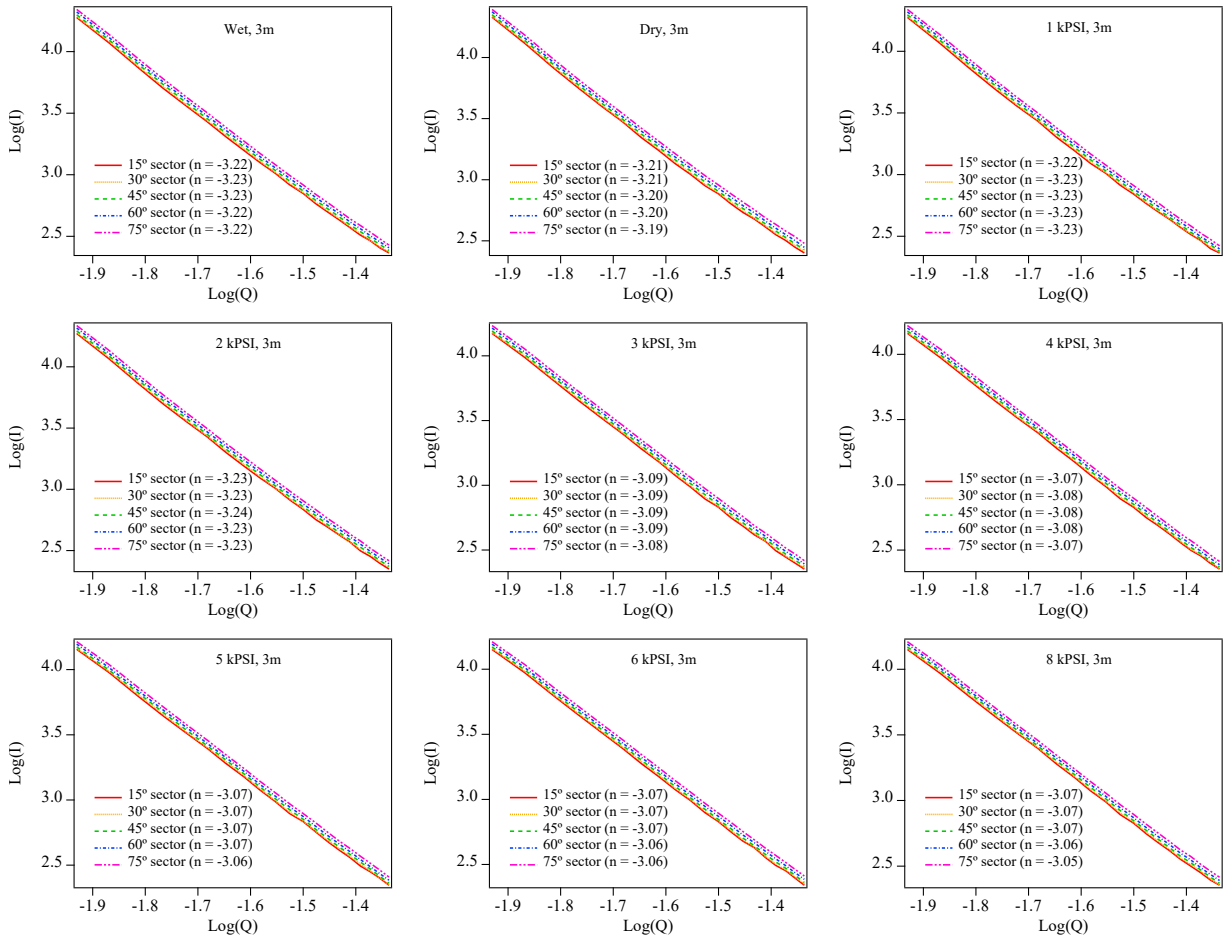

Figure S6. Log(I) vs. Log(Q) taken at 15° section increments for the Shale A scattering profiles at a 3 m sample-to-detector distance. Power law fitting for these low *Q* regions did not change significantly as the section changed. The intensity offset is a result of the anisotropic nature of the samples.

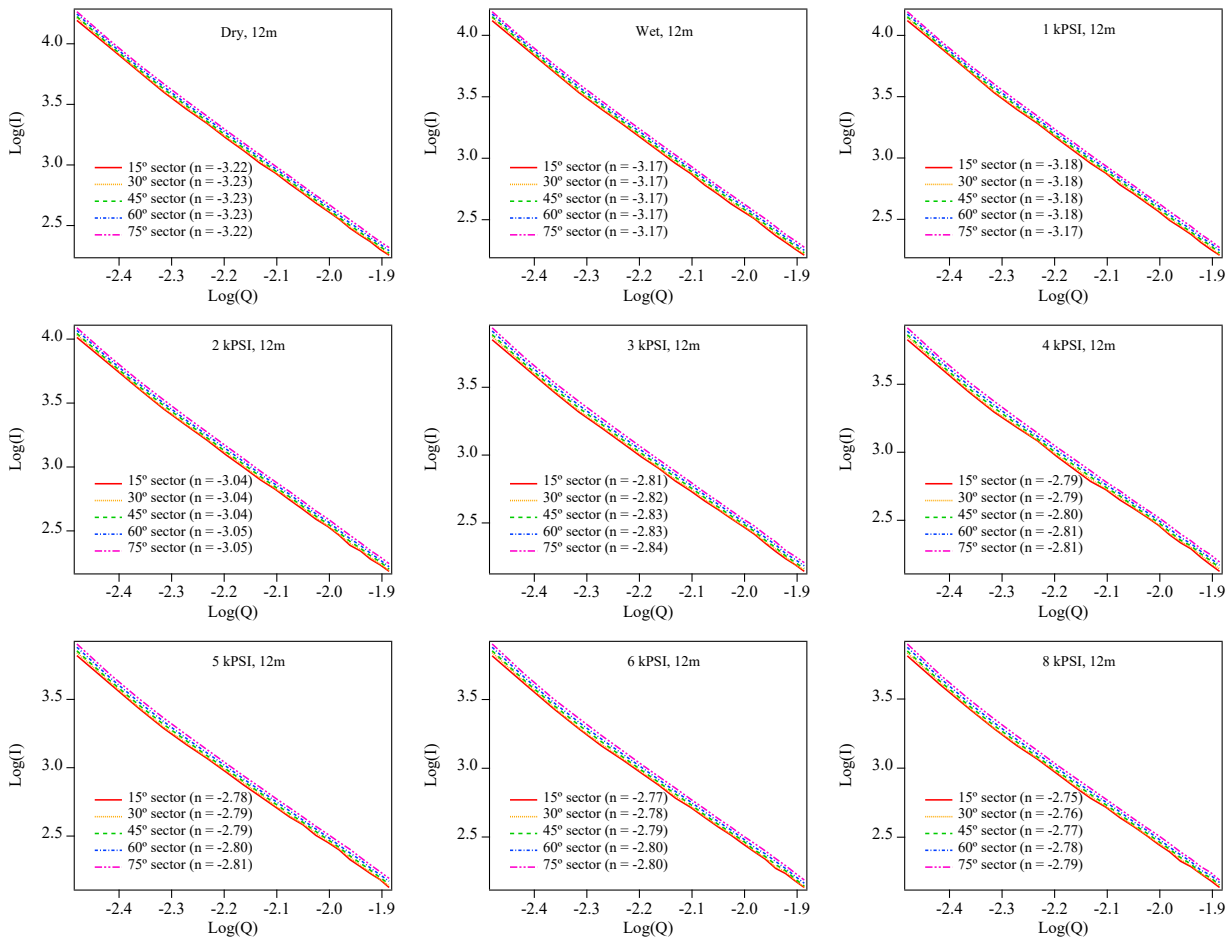

Figure S7. Log(I) vs. Log(Q) taken at 15° section increments for the Shale A scattering profiles at a 12 m sample-to-detector distance. Power law fitting for these low *Q* regions did not change significantly as the section changed. The intensity offset is a result of the anisotropic nature of the samples.

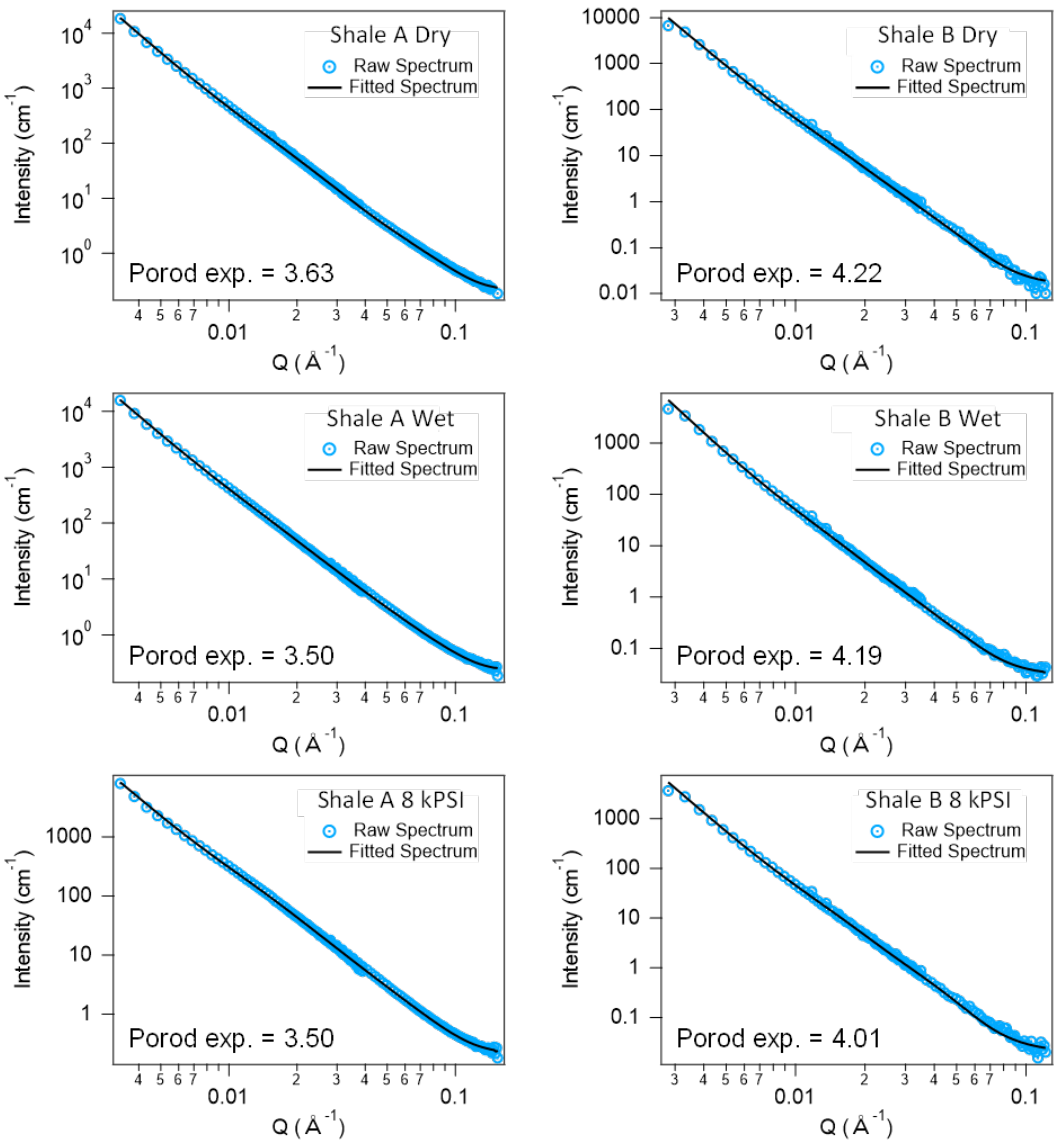

Figure S8. Scattering profiles and profiles fitted using the calculated pore size distributions.

References

Hjelm, R.P., Taylor, M.A., Frash, L.P., Hawley, M.E., Ding, M., Xu, H., Barker, J., Olds, D., Heath, J. and Dewers, T., 2018. Flow-through compression cell for small-angle and ultra-small-angle neutron scattering measurements. *Review of Scientific Instruments*, 89(5), p.055115.