Unconventional petroleum exploitation IV: fractures and proppants

Idealized fractures from hydraulic fracturing from one perforation in one perforation cluster of one fracking stage among 10 to 20 stages in one well

Width ≤ 0.2 inches (5 mm)

Perforated casing

Cement

Four perforation clusters in one frack stage (one fracking episode of 20 minutes to four hours)

Proppants:
- Sand
- Resin-coated sand
- Ceramics

Lesser pressure

Greater pressure

Crushing of sand grains at high pressure, allowing
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(2) dispersion of finer fragments that block flow.

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