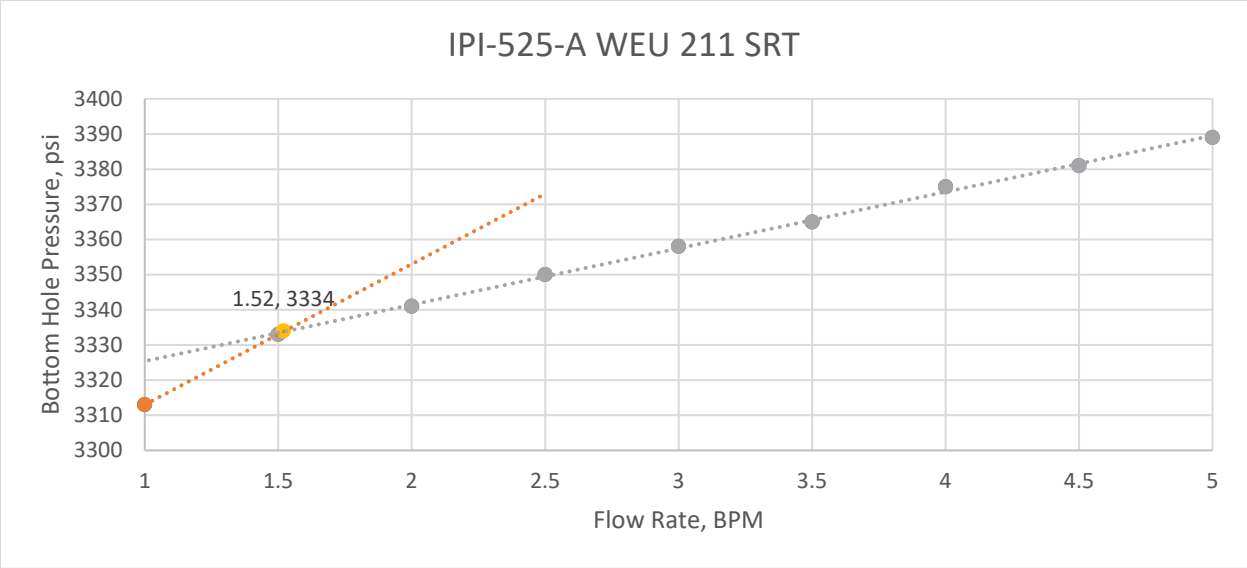
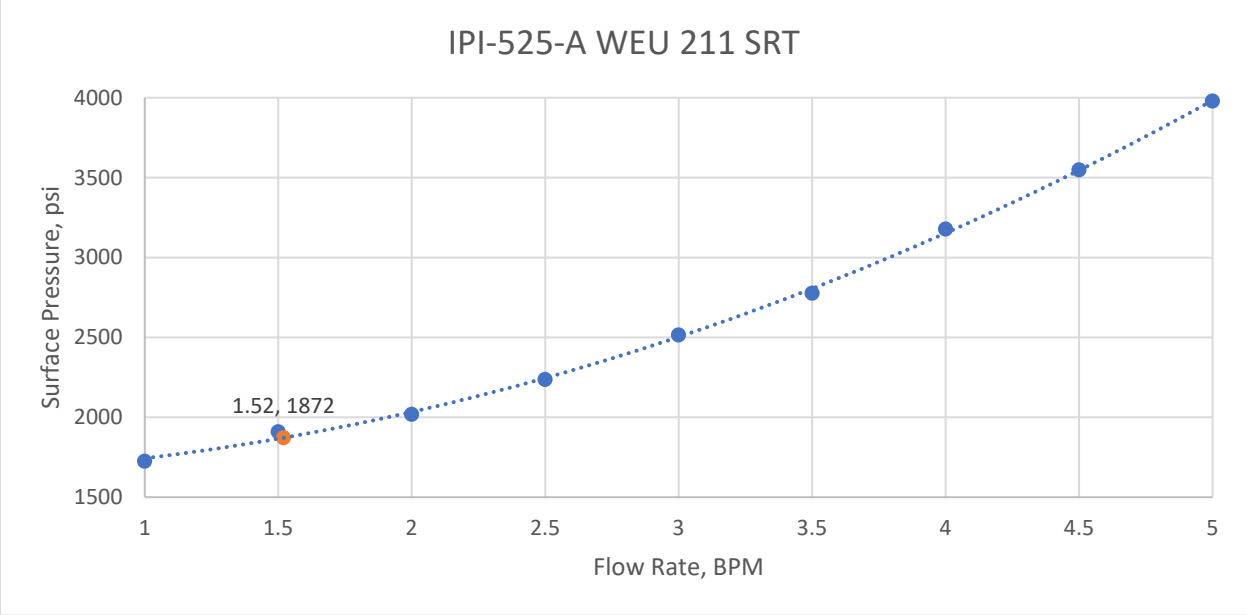
Dean McClure's work for IPI-525-A





$$Pressure\ Gradient = \frac{Fracture\ Pressure}{Depth}$$

$$0.49\ \frac{psi}{ft} \cong \frac{1872\ psi}{3800\ ft}$$

$$\left(pressure\ loss, \frac{psi}{ft}\right) \cong \frac{4.52 * (Flow\ Rate, gpm)^{1.852}}{(Hazen - Williams\ Coefficient)^{1.852} * (Pipe\ Inside\ Diameter, inch)^{4.8704}}$$

$$-0.02\frac{psi}{ft} \cong \frac{4.52 * (63.84)^{1.852}}{(140)^{1.852} * (1.995)^{4.8704}} - \frac{4.52 * (63.84)^{1.852}}{(140)^{1.852} * (2.441)^{4.8704}}$$

$$0.47\frac{psi}{ft} = 0.49\frac{psi}{ft} - 0.02\frac{psi}{ft}$$

$$MSIP = Pressure\ Gradient * Depth - Safety\ Factor$$

$$1795\ psi \cong 0.47 \frac{psi}{ft} * 3926\ ft - 50\ psi$$

	Fresh Water		Salt Water		Delta	
	1.995	2.441	1.995	2.441	Fresh	Salt
Hazen Williams	0.03675	0.01376	0.03756	0.01406	-0.02299	-0.0235
Darch Weisbach	0.02743	0.01126	0.0288	0.01184	-0.01617	-0.01696
Fanning Churchhill	0.02899	0.01155	0.03025	0.01211	-0.01744	-0.01814

Table 1 - Sourced from https://inventory.powerzone.com/resources/friction-loss-calculator/%3Afru%3Dnull%3Avu%3Dnull%3Aplu%3Dnull%3Apidu%3Dnull%3Arhu%3Dnull%3Arflu%3DPSI%3Arfvu%3DFT%2FSec