NGL 6A Pore Volume Calculation

Lyons	ρ_f, gm/cc	ρ_{ma}, gm/cc	h, ft	ρ_b, gm/cc	ϕ	ϕ*h, ft
	1.00	2.65	86	2.54	0.07	5.7333
			86		$\Sigma(\phi$*h)=	5.7333

Volume Calculation
B_w= 1.00
S_w= 1.00
r= 1320 ft
V= 5,589,271 bbl

Total Volume
V= 18,925,705 bbl

L Satanka	ρ_f, gm/cc	ρ_{ma}, gm/cc	h, ft	ρ_b, gm/cc	ϕ	ϕ*h, ft
	1.00	2.65	0	2.65	0.00	0.0000
			0		$\Sigma(\phi$*h)=	0.0000

Volume Calculation
B_w= 1.00
S_w= 1.00
r= 1320 ft
V= - bbl

Wolfcamp	ρ_f, gm/cc	ρ_{ma}, gm/cc	h, ft	ρ_b, gm/cc	ϕ	ϕ*h, ft
	1.00	2.71	0	2.71	0.00	0.0000
			0		$\Sigma(\phi$*h)=	0.0000

Volume Calculation
B_w= 1.00
S_w= 1.00
r= 1320 ft
V= - bbl

Amazon	ρ_f, gm/cc	ρ_{ma}, gm/cc	h, ft	ρ_b, gm/cc	ϕ	ϕ*h, ft
	1.00	2.87	25	2.77	0.05	1.3369
			25		$\Sigma(\phi$*h)=	1.3369

Volume Calculation
B_w= 1.00
S_w= 1.00
r= 1320 ft
V= 1,303,306 bbl

Council Grove	ρ_f, gm/cc	ρ_{ma}, gm/cc	h, ft	ρ_b, gm/cc	ϕ	ϕ*h, ft
	1.00	2.87	117	2.74	0.07	8.1337
			117		$\Sigma(\phi$*h)=	8.1337

Volume Calculation
B_w= 1.00
S_w= 1.00
r= 1320 ft
V= 7,929,313 bbl

Admire	ρ_f, gm/cc	ρ_{ma}, gm/cc	h, ft	ρ_b, gm/cc	ϕ	ϕ*h, ft
	1.00	2.65	7	2.58	0.04	0.2970
			7		$\Sigma(\phi$*h)=	0.2970

Volume Calculation
B_w= 1.00
S_w= 1.00
r= 1320 ft
V= 289,508 bbl

Virgil	ρ_f, gm/cc	ρ_{ma}, gm/cc	h, ft	ρ_b, gm/cc	ϕ	ϕ*h, ft
	1.00	2.67	8	2.61	0.04	0.2874
			8		$\Sigma(\phi$*h)=	0.2874

Volume Calculation
B_w= 1.00
S_w= 1.00
r= 1320 ft
V= 280,203 bbl

Missouri	ρ_f, gm/cc	ρ_{ma}, gm/cc	h, ft	ρ_b, gm/cc	ϕ	ϕ*h, ft
	1.00	2.71	22.5	2.64	0.04	0.9211
			22.5		$\Sigma(\phi$*h)=	0.9211

Volume Calculation
B_w= 1.00
S_w= 1.00
r= 1320 ft
V= 897,909 bbl

Fountain	ρ_f, gm/cc	ρ_{ma}, gm/cc	h, ft	ρ_b, gm/cc	ϕ	ϕ*h, ft
	1.00	2.69	12	2.63	0.04	0.4260
			12		$\Sigma(\phi$*h)=	0.4260

Volume Calculation
B_w= 1.00
S_w= 1.00
r= 1320 ft
V= 415,330 bbl

Des Moines	ρ_f, gm/cc	ρ_{ma}, gm/cc	h, ft	ρ_b, gm/cc	ϕ	ϕ*h, ft
	1.00	2.69	25	2.62	0.04	1.0355
			25		$\Sigma(\phi$*h)=	1.0355

Volume Calculation
B_w= 1.00
S_w= 1.00
r= 1320 ft
V= 1,009,484 bbl

Atoka	ρ_f, gm/cc	ρ_{ma}, gm/cc	h, ft	ρ_b, gm/cc	ϕ	ϕ*h, ft
	1.00	2.69	15	2.55	0.08	1.2426
			15		$\Sigma(\phi$*h)=	1.2426

Volume Calculation
B_w= 1.00
S_w= 1.00
r= 1320 ft
V= 1,211,380 bbl

NGL:	NGL C6A
API:	123-40968

SWSE 30-3N-65W 6th PM
Weld County

Used 1,320 ft radius
Tossed out all rows with Gamma Ray ≥ 90 API, Ave Porosity < 0
Volume = (π x (Radius^2)x(Sum of Intervals) = Vol in cubic ft.
Volume in Cubic ft/ 5.6146 cu ft/bbl = Volume in bbl

Injection Intervals	Top ft	Bottom ft	Interval Height	Sum of Φ in 1/2 Ft	Volume bbl
*Lyons	9294	9452	158	1.7537	1,709,756
L. Santanka	9452	9702	250	0.20305	197,962
Wolfcamp	9702	9748	46	0.55755	543,579
Amazon	9748	9792	44	3.3911	3,306,127
Council Grove	9792	9948	156	5.24125	5,109,916
Admire	9948	10050	102	0.8094	789,118
Virgil	10050	10218	168	0.40735	397,143
Missouri	10218	10270	52	0.0714	69,611
Fountain	10270	10540	270	1.36845	1,334,160
Des Moines	10540	10820	280	1.0124	987,032
Atoka	10820	10963	143	0.2557	249,293
				Sum of Volumes:	14,693,697

*perforated in the Lyons Formation f/ 9294'-9320

4/16/2015
E. Hazard
COGCC

DEPT	DCAL	GR	DPHZ	NPOR	Porosity x 1/2-Ft Interval
9294	-2.276	54.4418	-0.3483	0.0498	0.0249
9294.5	-2.2983	37.0505	-0.3574	0.0013	0.00065
9295	-2.276	30.3237	-0.361	0.0014	0.0007
9295.5	-2.2538	32.1738	-0.3538	0.0085	0.00425
9296	-2.2538	33.7279	-0.3396	0.0126	0.0063
9296.5	-2.2538	38.6406	-0.3275	0.0145	0.00725
9297	-2.2983	39.4669	-0.3252	0.0306	0.0153
9297.5	-2.2871	43.3575	-0.3293	0.0252	0.0126
9298	-2.2983	41.3601	-0.3313	0.0212	0.0106
9298.5	-2.2538	41.5832	-0.3273	0.0184	0.0092
9299	-2.2871	39.2893	-0.321	0.0157	0.00785
9299.5	-2.276	39.0566	-0.3171	0.0132	0.0066
9300	-2.276	34.5968	-0.3169	0.0137	0.00685
9300.5	-2.2983	34.7845	-0.3238	0.0278	0.0139
9301	-2.3205	30.9295	-0.3367	0.0406	0.0203
9301.5	-2.2983	34.4994	-0.3553	0.0369	0.01845
9302	-2.2983	31.6036	-0.372	0.0349	0.01745
9302.5	-2.2538	34.1523	-0.3784	0.0489	0.02445
9303	-2.2871	29.9117	-0.3674	0.055	0.0275
9303.5	-2.276	32.3599	-0.3426	0.0411	0.02055
9304	-2.276	31.8502	-0.3188	0.0515	0.02575
9304.5	-2.2871	34.3067	-0.3043	0.0525	0.02625
9305	-2.2983	35.8763	-0.2988	0.0548	0.0274
9305.5	-2.2538	38.1442	-0.2974	0.0388	0.0194
9306	-2.2983	41.5527	-0.3019	0.0342	0.0171
9306.5	-2.276	41.1032	-0.3206	0.0396	0.0198
9307	-2.276	41.3251	-0.3506	0.041	0.0205
9307.5	-2.2983	40.5534	-0.3719	0.0388	0.0194
9308	-2.2538	40.7759	-0.3667	0.0492	0.0246
9308.5	-2.2538	41.6682	-0.3437	0.0477	0.02385
9309	-2.2538	40.3697	-0.3255	0.0533	0.02665
9309.5	-2.2983	38.7768	-0.3167	0.0539	0.02695
9310	-2.276	41.011	-0.3063	0.0434	0.0217
9310.5	-2.2538	41.2918	-0.291	0.0444	0.0222
9311	-2.2538	44.4487	-0.2803	0.0693	0.03465
9311.5	-2.2871	44.0003	-0.2815	0.0608	0.0304
9312	-2.2983	48.4027	-0.2923	0.0484	0.0242
9312.5	-2.2983	45.5069	-0.3056	0.0506	0.0253
9313	-2.3094	46.1763	-0.3136	0.0488	0.0244