

FORMATION RECORD

FROM	TO	THICKNESS IN FEET	FORMATION	
7249	7259	10	Drill stem test	Dev. 2 hrs. 3 hrs. 5/8" HEC, 1" SC, no WC, gas 60 min. too small to measure Rec. 220' heavily gas-cut mud, no shows, oil or water. MFP 60-80%, S-I 20 min MFP 300%, HH 4000-3950%
7259	7267	8	8-3/4" dia. core	Bbl. jammed. 30-40 MFP. Rec. 8', 7259-60 green waxy shale, 7260-67 finely crystalline to medium crystalline brown dolomite, abundant fractures, trace blue fluorescence and odor
7257	7267	10	Drill stem test	Devonian. 2 hrs. 2 hrs. 5/8" HEC, 1" SC, no WC, gas 5 min. (Est. 106 MFP 24 hrs.) (5 min after tool closed began unloading mud salt water & oil for 2 hrs) Died. Rec. 1840' oil Gravity 47.4° @ 60°, 90' oil & gas cut BS & W, 1530' gas-cut water, slightly salty. (40,825 chloride content on water, 2000 sulphide content on water, no starch) MFP 700-1650%, S-I 15 min. MFP 2675%, HH 3850-3675%.
7267	7287	20	8-3/4" dia. core	Rec. 20', 7267-85 finely crystalline tan and gray fractured dolomite, trace to 10% fractured porosity no shows; 7285-87 finely crystalline tan dense dolomite, no shows, 35-50 MFP
7287	7307	20	8-3/4" dia. core	Rec. 20', 7287-96 finely crystalline tan dolomite w/minor gray shale partings highly fractured slight sulphur odor, no oil, gas or water; 7296-7302 finely crystalline tan dolomite w/gray brown chert stringers no shows, 7302-7307 finely crystalline tan dolomite, fair vertical fractures, no shows.
7297	7307	10	Drill stem test	Dev. 1 hr. 25 min. 5/8" HEC 1" SC, no WC, weak blow 15 min. Died, in 55 min. Rec. 40' drlg. mud, MFP 0%, S-I 15 min MFP 0% HH 3800%.
7307	7327	20	8-3/4" dia. core	Rec. 20' finely crystalline gray dolomite w/chert stringers, trace vertical fractures. Slight bleeding of gas, slight sulphur and oil odor. Bottom highly fractured.
7310	7327	17	Drill stem test	(Devonian) 2 hrs. 5/8" HEC 1" SC, no WC. Good blow air weakening gradually, MFP 0%, S-I 15 min MFP 350%, HH 4400-4200%. Rec. 220' fluid 190' gas-cut drlg. mud, 30' salt water, cut w/gas & drlg. mud, slight show of oil above tool.
7327	7328	1	No formation logged.	Made 1' while condition hole (with bit)
7328	7343	15	8-3/4" dia. core	Rec. 15' 7328-34 finely crystalline tan granular dolomite w/gray chert stringers, few tight fractures and good trace blue fluorescence; 7334-43 finely crystalline gray to tan stylolitic dolomite w/dark gray shale partings, trace tight fractures, slight sulphur odor, no shows.
			<u>Strapped drill pipe 7343 = 7346</u>	
3401	7346	3945	Schlumberger ran caliper	Centralisers at 7339, 7274, 7211, Scratchers at 7230, 7240, 7344.88
			<u>Set 7" CP @ 7346 w/2 stress tool @ 6854. Cemented w/110-14. Circ. 5 hrs. (below the collar) and 675 sec @ 180 wallite. 100 west (thru the collar) WGS 24 hrs.</u>	
			Ran Halliburton temp. survey	Approx. top cement @ 2970' Tested w/2000% 30 min. no break.
			6700	7255,

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			Drill Stem Test (con't)	Rec. 15' drlg. mud no shows, weak blow air 25 min dial, HWP 0-0, 15 min S-I HWP 0-0, RH 3750-3750
6795	6805	10	8-3/4" dia. core	Rec. 9' (top) finely crystalline tan to brown lime with gray shale partings, no shows.
6805	6816	11	8-3/4" dia. core	Rec. 12' black and gray shale with streaks finely crystalline brown shaley lime, no shows.
6816	6836	20	8-3/4" dia. core	Rec. 20', 6816-6819 finely crystalline gray lime with gray shale partings; 6819-22, finely crystalline gray shaley lime, 30% gray shale, 6822-31, gray shale, 10-20% finely crystalline gray lime, 6831-33 gray shale w/trace lime 6833-36 red shale w/trace lime, no shows.
6836	6945	109	lime and shale	2" @ 6840
6945	6968	23	Shale & sandy lime	
6968	7001	33	lime & shale	Picked by Rotary Engr. 7000-01 trace blue fluorescence, show gas. (possible Miss.) 2 pkrs. 1 hr. 5/8" HEC 1" SC, no WC, nothing to surface, Rec. 45' very slightly gas-cut drlg. mud. HWP 0-300, 15 min S-I HWP 0-0 RH 3585-3570.
6968	7001	17	Drill stem test	
7001	7022	21	Shale & chert	2" @ 7018 <u>Tentative top of Mississippian 7010'</u>
7022	7060	38	Chert & lime	Drlg. break 7044-7058 from 30-40 MPF to 20 MPF Trace to 10% inter-crystalline porosity, 10% blue fluorescence no stain, gas show by Rotary Engrs.
7044	7060	16	Drill stem test	2 packers 3 hr. 5/8" HEC 1" SC, no WC, gas 1 hr. 25 min too small to measure, Rec. 130' gas-cut drlg. mud, no water, SFP 0-0, HWP 0-0, 15 min S-I HWP 7250, RH 3450-3500.
7060	7132	72	lime & chert	1 1/2" @ 7120
7132	7170	38	Shale & lime	
7170	7200	30	Shale, lime, streaks of chert	
7200	7214	14	Shale & lime	
7214	7249	35	Shale & sand	<u>Top Devonian 7244'</u> Drlg. time 7245-7249, 15 MPF to 8 MPF. Coarsely crystalline tan dolomite
7239	7249	10	Drill stem test	Dev. 2 pkrs. 3 hrs. 4 min 5/8" HEC 1" SC, no WC, gas 2 min (2140.86 MPF 24 hrs) mud 12 min, oil 17 min. clean 5 min. Flowed 121.05 BO 2-3/4 hrs. OGR 1946/1 2/10 of 15 BS, no water SFP 140-160, Grw. 52.4° @ 60°, HWP 875-1100, S-I 15 min HWP 2525, RH 3825-3775, Rec. 660' free oil.
7249	7251	2	8-3/4" dia. core	Blk. jammed. Rec 2' finely crystalline gray dolomite trace fractures blue fluorescence.
7251	7299	8	8-3/4" dia. core	Rec. 8' 7251-52 finely crystalline brown dolomite trace small vuggy porosity 2 - 1" and 1 - 2" vugs. 10% blue fluorescence, good odor; 7252-54 finely crystalline to medium crystalline brown dolomite 10% fractures, trace to 10% vuggy porosity, bleeding oil, 10% blue fluorescence; 7254-55 medium crystalline gray dolomite, green shale partings, 10% small vuggy porosity, trace blue fluorescence, fair odor, 7255-57, medium crystalline brown dolomite, trace small vuggy porosity trace fractures, trace blue fluorescence; 7257-79 green waxy shale, trace pyrite, no shows.

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5675	5707	32	Shale & shells	
5707	5734	27	Shale & lime streaks	
5734	5810	76	Lime & shale	
5810	5856	46	Shale	1/2" @ 5819
5856	5918	62	Lime & shale	3/4" @ 5885
5918	5944	26	Shale & lime streaks	
5944	6007	63	Lime & shale	
6007	6023	16	Shale	
6023	6063	40	Shale & lime	1 1/2" @ 6050
6063	6080	17	Shale	
6080	6102	22	Shale & lime	
6102	6111	9	Shale & dolomite	
6111	6128	17	Dolomite	Pin point porosity 6095-6104 and 6113-6115, little stain oil, basal also.
6088	6128	40	Drill Stem Test	Basal Also, 2 packers 1 hr. 5/8" HEC, 1" SC, No WC, no gas or fluid to surface Rec. 29' drlg. mud, no shows, NHP 0', 15 min S-I HEP 0', RH 3225-3225 1/2.
6128	6210	82	Lime & shale	
6210	6213	3	Lime	
				<u>Perm Perm. 6195'</u>
6213	6344	131	Shale & lime	1-3/4" @ 6265, 1-3/4" @ 6320.
6344	6355	11	Lime & chert streaks	
6355	6416	61	Lime & shale	Drlg. time 18 to 6 or 7 NHP @ 6410', 1-3/4" @ 6405
6416	6426	10	8-3/4" dia. core	Rec. 9', 6416-6418 1/2 finely crystalline gray shaley lime, 6418 1/2 to 6425, finely crystalline gray lime, trace gray shale throughout.
6426	6678	252	Shale & lime	1-3/4" @ 6444, 2" @ 6532, 6635-6645 trace to pin-point porosity, no stain or fluorescence. Perm Perm.
6678	6699	21	Lime	
6629	6699	70	Drill stem test	Perm Perm, 2 packers 1 hr. 5/8" HEC, 1" SC, No WC, weak blow air 17 min., died, closed tool, re-opened & had weak blow 7 min. & died. Rec. 60' drlg. mud, no shows, NHP 100', S-I 15 min HEP 0' RH 3650-3600'
6699	6701	2	8-3/4" dia. core	Rec. 2', fine crystalline tan to gray lime, no shows
6701	6711	10	8-3/4" dia. core	Rec. 10' finely crystalline tan lime, Perm Perm, no shows.
6711	6721	10	8-3/4" dia. core	Rec. 10' finely crystalline to very finely crystalline brown lime, no shows. Black shale partings in bottom 3'.
6721	6725	4	8-3/4" dia. core	Quit cutting. Rec. 3' brown lime and black shale
6725	6745	20	8-3/4" dia. core	Rec. 20' finely crystalline gray lime, red & gray partings thru-out, no shows.
6745	6765	20	8-3/4" dia. core	Rec. 20' finely crystalline tan to brown lime, shale stringers thru-out, no shows.
6765	6785	20	8-3/4" dia. core	Rec. 20' finely crystalline to medium crystalline tan and brown lime, slightly stylolite (6767-6769) inter-crystalline vuggy porosity, good odor, good fluorescence; 6769-6773 pin-point porosity slight odor, no fluorescence, 6783-6784 vuggy and inter-crystalline porosity, good odor, no fluorescence.
6755	6785	30	Drill stem test	Perm Perm, 2 packers, 2 hrs. 5/8" HEC 1" SC, No WC gas 65min. too small to measure. Rec. 105' drlg. mud, no shows. NHP 100-100', S-I 15 min HEP 900' RH 3750-3450'.
6785	6795	10	8-3/4" dia. core	Rec. 10' medium crystalline brown lime, several fractures thru-out. Trace to pin-point porosity in bottom 6' trace blue fluorescence and stain. 30 NHP
6780	6795	15	Drill Stem Test	Perm Perm, 2 packers 1 hr. 5/8" HEC 1" SC, No WC, no gas or fluid to surface.

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FROM	TO	THICKNESS IN FEET	FORMATION
0	13.9	13.9	From top of Rotary Drilling Rushing to 13-3/8" OD casing.
13.9	470	456.1	Red bed $\frac{1}{2}^{\circ}$ @ 100, $\frac{1}{2}^{\circ}$ @ 400
470	665	195	Red bed and shale $\frac{1}{2}^{\circ}$ @ 650
665	675	10	Anhydrite
			<u>Set 13-3/8" OD @ 675' w/1000 sec</u> <u>(600-650, 200 sec), 0.1 sec. out 200</u> <u>sec. Railed dry. Remained dry</u> <u>3 hrs.</u>
675	740	65	Red bed
740	750	10	Anhydrite and Red bed
750	932	182	Salt, anhydrite & red bed, $3/4^{\circ}$ @ 850
932	1100	168	Anhydrite and salt
1100	1384	284	Red bed and salt 1° @ 1375
1384	1414	30	Anhydrite
1414	1733	319	Anhydrite and salt $3/4^{\circ}$ @ 1474
1733	1809	70	Red rock & anhydrite $3/4^{\circ}$ @ 1750
1809	1899	96	Anhydrite and red shale
1899	1985	86	Red bed
1985	2094	109	Anhydrite & lime $3/4^{\circ}$ @ 2000
2094	2131	37	Anhydrite, lime & shale
2131	2256	125	Anhydrite & lime $3/4^{\circ}$ @ 2250
2256	2285	29	Anhydrite
2285	2353	68	Anhydrite, lime & shale
2353	2377	24	Anhydrite & lime $\frac{1}{2}^{\circ}$ @ 2325
2377	2440	63	Lime, anhydrite & shale $3/4^{\circ}$ @ 2425
2440	2534	94	Lime, & anhydrite
2534	2546	12	Anhydrite, shale & Red bed, $3/4^{\circ}$ @ 2545
2546	2699	113	Anhydrite & lime $\frac{1}{2}^{\circ}$ @ 2550 Brown lime, trace to 10% porosity little oil, Stain and odor.
2588	2699	71	Drill stem test (San Andres) 1 packer, 3 hrs. 5/8" HEC, 1" SC, No WC, gas 90 min. (Vol. too small to measure) No Fluid to surface, Rec. 210' drig. and out w/ sulphur, oil & gas, HWP 150-150#, 15 min. S-I HWP 425#, RH 1575-1600#.
2679	2667	8	Lime
2667	2731	64	Lime & anhydrite
2731	2743	12	Dolomite
2743	2837	94	Lime & anhydrite $\frac{1}{2}^{\circ}$ @ 2825
2837	2864	27	Lime
2864	3089	225	Lime & anhydrite $3/4^{\circ}$ @ 3025, $\frac{1}{2}^{\circ}$ @ 3075
3089	3107	18	Lime
			<u>Top of Glorietta 3100',</u> <u>360' high to Lighthouse #1</u>
3107	3112	5	8-3/4" conventional core Rec. $\frac{1}{2}^{\circ}$ sand w/trace sulphur, base of San Andres Reamed 8-3/4" to 12 1/2" 3107-3112
3112	3137	25	Sandy dolomite & lime $\frac{1}{2}^{\circ}$ @ 3130
3137	3146	9	Dolomite & lime
3146	3169	23	Lime, anhy. streaks sandy dolomite
3169	3228	59	Lime & dolomite $\frac{1}{2}^{\circ}$ @ 3185
			<u>Top Yano 3210, 360' high</u> <u>to Lighthouse #1</u>
3228	3231	3	Lime & anhydrite $3/4^{\circ}$ @ 3230
3231	3280	49	Dolomite & lime
3280	3365	85	Lime & anhydrite
3365	3400	35	Anhy., lime & streaks of shale
670	3402	2732	Halliburton run calipers
670	3401	2731	Run Schlumberger
			<u>Set 9-5/8" OD Casing @ 3400 w/1600</u> <u>sec @ 250 sec wallite. and 150</u> <u>sec. rest (2006). No cement circ.</u>
200	3312	3112	Halliburton run temp. survey Approx. top cement @ 490'
			Test 9-5/8" OD w/1000# 30 min. no break.
3312	3400	88	Drill plug. Tested 1000# 30 min no break
3400	3530	130	Lime & anhydrite
3530	3622	92	Sand
3622	3962	340	Sand & lime Straight at 3830
3962	4084	122	Sand & anhydrite $\frac{1}{2}^{\circ}$ @ 4053
4084	4168	84	Lime
4168	4277	109	Sandy lime w/streaks anhy.
4277	4362	85	Sandy lime & anhydrite
4362	4450	88	Anhydrite, salt & lime 1° @ 4425
4450	4536	86	Lime & anhydrite streaks
4536	5288	752	Lime & anhydrite $3/4^{\circ}$ @ 4635, $3/4^{\circ}$ @ 4824
5288	5333	45	Shale & lime
5333	5380	47	Anhydrite, lime, streaks shale $3/4^{\circ}$ @ 5350
			<u>Top Abu shale 5360', 371' high to</u> <u>Lighthouse #1</u>
5380	5404	24	Shale & anhydrite
5404	5525	121	Shale & lime
5525	5543	18	Shale
5543	5599	16	Red shale & lime shells
5599	5990	31	Shale & lime
5990	5617	27	Shale
5617	5632	15	Shale & shells
5632	5639	7	Chert
5639	5675	36	Shale $\frac{1}{2}^{\circ}$ @ 4660