

AVERAGE GRUY NET PAY ZONE VERSUS BATES NO. 3 NET PAY ZONE

Rhodes (Yates-U7R) Interval
T-26-S, R-37-E
Lea County, New Mexico

Average Gruy Rhodes (Yates-U7R) Pay Zone:

Gruy document 0000403 states that the average pay zone consists of 12.2 hydrocarbon feet [$\phi \cdot h \cdot (1 - S_w)$].

Average Bates No. 3 Rhodes (Yates-U7R) Pay Zone:

For the Bates No. 3 Rhodes (Yates-U7R) interval, computer log calculations (utilizing 0.5-foot increment digitized log data) indicate a net pay zone of 13.0 hydrocarbon feet, for $R_w = 0.03$ ohm-meters ($S_w = 34.4\%$). For $R_w = 0.05$ ohm-meters ($S_w = 43.0\%$), the computed net pay zone is 11.3 hydrocarbon feet.

Rhodes Refrac Program
Eight Rhodes Field Wells
Lea County, New Mexico

W.I. = 100%

N.R.I. = 79.27 (Average)

Recommendation

Refracture stimulate and install pumping units on 8 Rhodes Gas Field wells. The total cost for this work is \$790.5M (Meridian's Share = \$790.5M). Risked uplift and reserve additions are 1672 MCFPD and 3312.3 MMCFG. As a whole, the project should pay out in 2.80 years with a 43.18% ROR.

Current Status

Seven of the eight wells are currently producing a total of 570 MCFPD. 400 MCFPD comes from two wells which recently had pumping units installed.

History

The majority of these wells were drilled as storage wells in 1973. However, the Cagle B #1 and the Elliott Fed. No. 3 were drilled in 1936 and 1954 respectively. All of these wells were once part of the Rhodes Storage Unit.

Discussion

Meridian currently operates the majority of wells in the Rhodes Gas Field. Within the area covered by these proposed workovers and previous Rhodes workovers, we have 15,548 MMCF of PDP reserves booked. If an average pay zone consisting of 12.2 hydrocarbon-feet and an average reservoir pressure of 180 psi is assumed, there is up to 24,300 MMCF of recoverable gas in place. In their current condition the wells will not recover the incremental 8,752 MMCFG which is not booked. Three recent workovers which have not been booked yet will account for approximately 2,500 MMCFG of these incremental reserves. A large portion of the remaining 6,252 MMCF of possible reserves will be added by the proposed eight workovers. The estimated uplift and reserve additions are consistent with what has been seen on previous Rhodes workovers. A large upside potential also exists since many of the wells are on the edge of the field and may drain larger areas than the infield wells which were used for analogy.

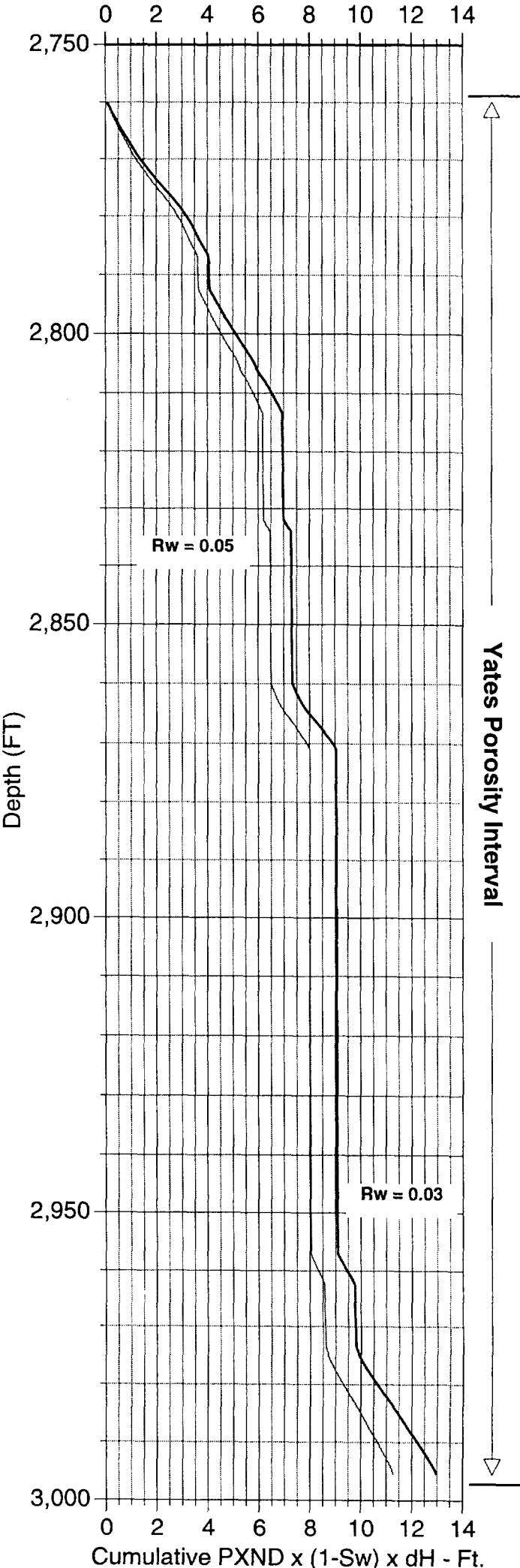
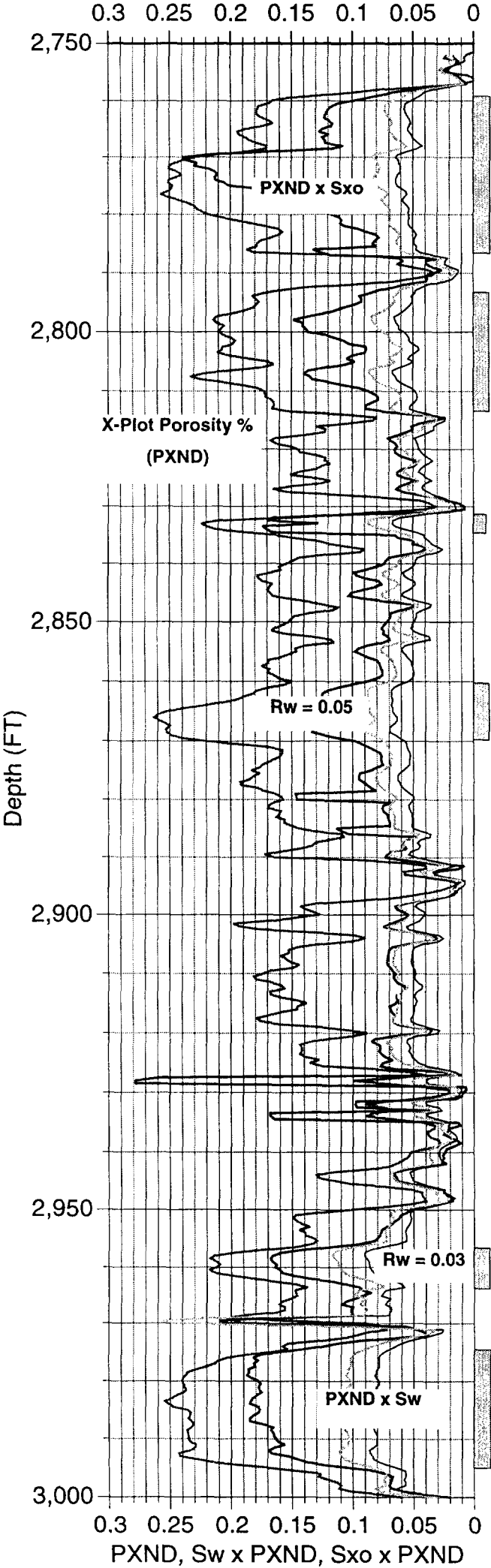
Economics

Presented below is the combined economic prediction for the eight-well program. Company guidelines for pricing and taxation were used.

Net Investment (\$M): 790.5
Discounted Payout (years): 2.80
Discounted ROR (%): 43.18
Net Present Value @ 12% (\$M): 823.1
P/I @ 12% (\$/\$): 0.84
Gross/Net Reserve Adds (MMCF): 3312.3/2610.5
Find & Development Cost (\$/MCF): 0.25

C. T. BATES # 3

X - Plot Porosity (PXND), Sw x PXND, Sxo x PXND vs. Depth
Cumulative Productive Pore Space vs. Depth
Rhodes (Yates-Upper Seven Rivers) Interval
K - 10 - 26S - 37E
Lea County, NM



Permeable Porosity

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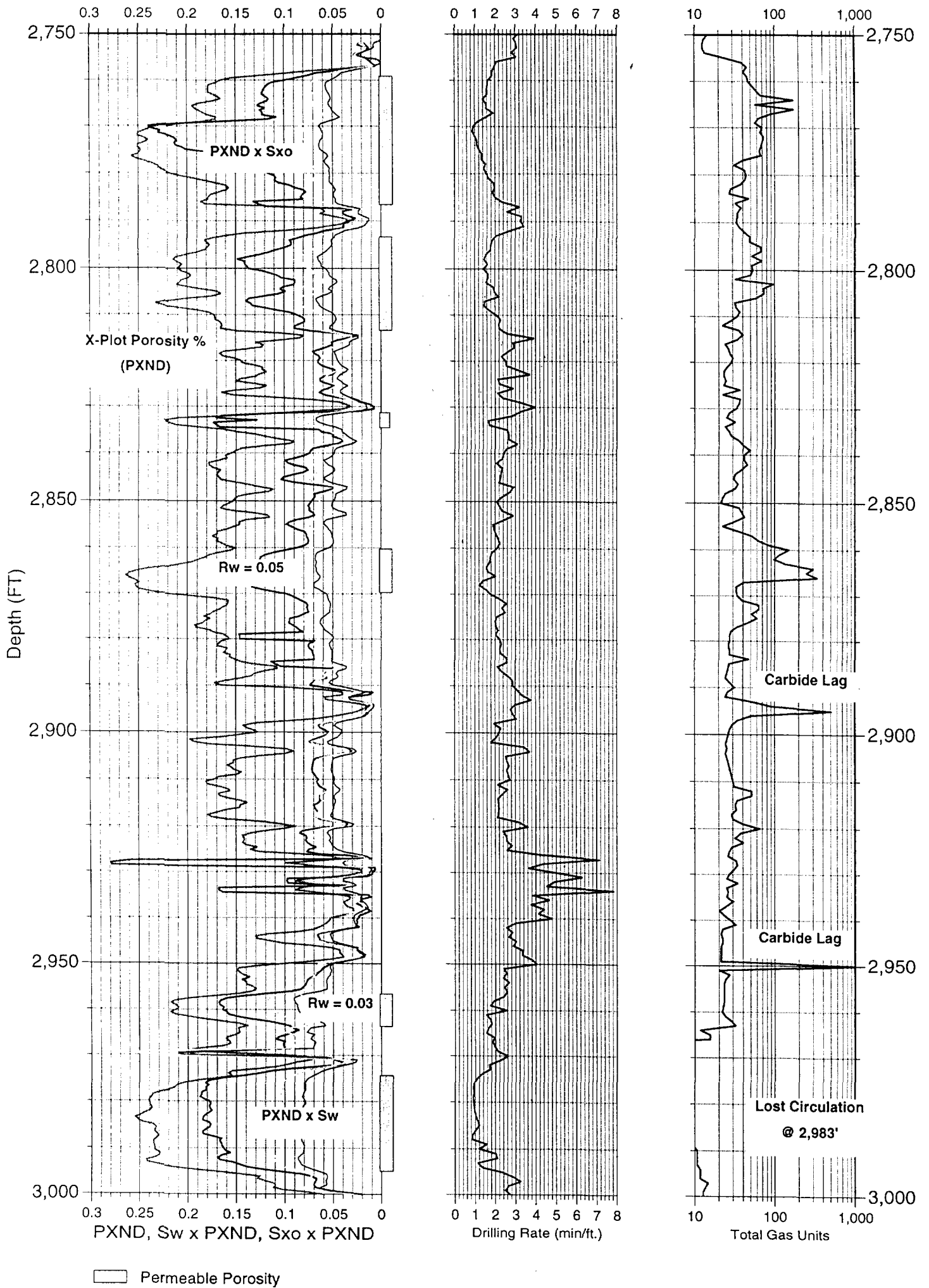
X - Plot Porosity (PXND), Sw x PXND, Sxo x PXND vs. Depth

Mud Log Drilling Rate and

Total Gas Units vs. Depth

K - 10 - 26S - 37E

Lea County, NM



Log Calculations

C. T. Bates # 3

Rhodes (Yates-Upper 7R) Interval

Schlumberger Platform Express Data

(Rw = 0.03)

DEPTH	HLLD	PXND	Sw @ (Rw=0.03)	(Sw x PXND)	Sg=(1-Sw)	PXND x (1-Sw)	Cum PXND x (1-Sw)	dh	Cum dh	PXND x (1-Sw) x dh	Cum PXND x dh
2,775.0	7.57342	0.24755	0.25420	0.06293	0.74580	0.18462	4.82815	0.5	15.5	2.26966	6.28126
2,775.5	8.46776	0.24831	0.23970	0.05952	0.76030	0.18879	5.01694	0.5	16.0	2.36405	6.52957
2,776.0	9.53183	0.25052	0.22390	0.05609	0.77610	0.19443	5.21137	0.5	16.5	2.46127	6.78009
2,776.5	9.93482	0.25712	0.21370	0.05495	0.78630	0.20217	5.41355	0.5	17.0	2.56235	7.03721
2,777.0	9.22015	0.25231	0.22610	0.05705	0.77390	0.19526	5.60881	0.5	17.5	2.65998	7.28952
2,777.5	8.64273	0.24335	0.24210	0.05892	0.75790	0.18443	5.79324	0.5	18.0	2.75220	7.53287
2,778.0	9.08034	0.23539	0.24420	0.05748	0.75580	0.17791	5.97115	0.5	18.5	2.84115	7.76826
2,778.5	9.95344	0.23020	0.23850	0.05490	0.76150	0.17530	6.14645	0.5	19.0	2.92880	7.99846
2,779.0	10.60395	0.22808	0.23320	0.05319	0.76680	0.17489	6.32134	0.5	19.5	3.01625	8.22654
2,779.5	10.30275	0.22349	0.24140	0.05395	0.75860	0.16954	6.49088	0.5	20.0	3.10102	8.45003
2,780.0	10.52810	0.21792	0.24500	0.05339	0.75500	0.16453	6.65541	0.5	20.5	3.18328	8.66795
2,780.5	10.65996	0.20810	0.25490	0.05304	0.74510	0.15506	6.81047	0.5	21.0	3.26081	8.87605
2,781.0	10.50040	0.19610	0.27260	0.05346	0.72740	0.14264	6.95311	0.5	21.5	3.33213	9.07215
2,781.5	10.34237	0.18343	0.29360	0.05386	0.70640	0.12957	7.08268	0.5	22.0	3.39692	9.25558
2,782.0	10.70558	0.17239	0.30710	0.05294	0.69290	0.11945	7.20213	0.5	22.5	3.45664	9.42797
2,782.5	11.86644	0.16146	0.31140	0.05028	0.68860	0.11118	7.31331	0.5	23.0	3.51224	9.58943
2,783.0	12.71848	0.15715	0.30900	0.04856	0.69100	0.10859	7.42190	0.5	23.5	3.56653	9.74658
2,783.5	13.56527	0.15985	0.29420	0.04703	0.70580	0.11282	7.53473	0.5	24.0	3.62294	9.90643
2,784.0	12.73500	0.16709	0.29050	0.04854	0.70950	0.11855	7.65328	0.5	24.5	3.68222	10.07352
2,784.5	12.28251	0.17519	0.28210	0.04942	0.71790	0.12577	7.77905	0.5	25.0	3.74510	10.24871
2,785.0	12.56590	0.17804	0.27440	0.04885	0.72560	0.12919	7.90823	0.5	25.5	3.80969	10.42675
2,785.5	13.50677	0.17871	0.26370	0.04713	0.73630	0.13158	8.03982	0.5	26.0	3.87549	10.60546
2,786.0	13.29434	0.18647	0.25480	0.04751	0.74520	0.13896	8.17877	0.5	26.5	3.94497	10.79193
2,786.5	15.36629	0.18113	0.24390	0.04418	0.75610	0.13695	8.31573	0.5	27.0	4.01344	10.97306
2,787.0	26.50821	0.10553	0.31880	0.03364	0.68120	0.07189	8.38761	0.5	27.5	4.04938	11.07859
2,792.5	16.39370	0.14074	0.30400	0.04278	0.69600	0.09796	8.83868	0.5	28.0	4.09836	11.12137
2,793.0	13.06231	0.15903	0.30140	0.04793	0.69860	0.11110	8.94978	0.5	28.5	4.15391	11.16931
2,793.5	12.68185	0.17275	0.28150	0.04863	0.71850	0.12412	9.07390	0.5	29.0	4.21597	11.21794
2,794.0	11.36378	0.18213	0.28210	0.05138	0.71790	0.13075	9.20465	0.5	29.5	4.28135	11.26931

Log Calculations

C. T. Bates # 3

Rhodes (Yates-Upper 7R) Interval
Schlumberger Platform Express Data
(Rw = 0.03)

DEPTH	HLLD	PXND	Sw @ (Rw=0.03)	(Sw x PXND)	Sg=(1-Sw)	PXND x (1-Sw)	Cum PXND x (1-Sw)	dh	Cum dh	PXND x (1-Sw) x dh	Cum PXND x dh
2,794.5	11.69541	0.17893	0.28310	0.05066	0.71690	0.12827	9.33293	0.5	30.0	4.34549	11.31997
2,795.0	11.79521	0.17659	0.28560	0.05043	0.71440	0.12616	9.45908	0.5	30.5	4.40856	11.37040
2,795.5	10.87500	0.17928	0.29300	0.05253	0.70700	0.12675	9.58583	0.5	31.0	4.47194	11.42293
2,796.0	9.97568	0.18157	0.30200	0.05483	0.69800	0.12674	9.71257	0.5	31.5	4.53531	11.47777
2,796.5	8.98991	0.18963	0.30460	0.05776	0.69540	0.13187	9.84444	0.5	32.0	4.60124	11.53553
2,797.0	7.98902	0.20020	0.30610	0.06128	0.69390	0.13892	9.98336	0.5	32.5	4.67070	11.59681
2,797.5	6.98244	0.21153	0.30990	0.06555	0.69010	0.14598	10.12933	0.5	33.0	4.74369	11.66236
2,798.0	7.15940	0.21403	0.30240	0.06472	0.69760	0.14931	10.27864	0.5	33.5	4.81834	11.72709
2,798.5	7.41138	0.21106	0.30140	0.06361	0.69860	0.14745	10.42609	0.5	34.0	4.89207	11.79070
2,799.0	7.93079	0.20518	0.29980	0.06151	0.70020	0.14367	10.56975	0.5	34.5	4.96390	11.85221
2,799.5	7.84836	0.20711	0.29850	0.06182	0.70150	0.14529	10.71504	0.5	35.0	5.03654	11.91403
2,800.0	9.18986	0.20982	0.27230	0.05713	0.72770	0.15269	10.86773	0.5	35.5	5.11289	11.97117
2,800.5	9.98021	0.20587	0.26630	0.05482	0.73370	0.15105	11.01877	0.5	36.0	5.18841	12.02599
2,801.0	10.55371	0.19860	0.26850	0.05332	0.73150	0.14528	11.16405	0.5	36.5	5.26105	12.07932
2,801.5	10.58733	0.19609	0.27150	0.05324	0.72850	0.14285	11.30690	0.5	37.0	5.33247	12.13255
2,802.0	11.78324	0.19832	0.25440	0.05045	0.74560	0.14787	11.45477	0.5	37.5	5.40641	12.18301
2,802.5	14.20767	0.20607	0.22300	0.04595	0.77700	0.16012	11.61489	0.5	38.0	5.48646	12.22896
2,803.0	14.65383	0.20748	0.21810	0.04525	0.78190	0.16223	11.77711	0.5	38.5	5.56758	12.27421
2,803.5	12.71073	0.21092	0.23030	0.04857	0.76970	0.16235	11.93946	0.5	39.0	5.64875	12.32279
2,804.0	10.93355	0.19939	0.26270	0.05238	0.73730	0.14701	12.08647	0.5	39.5	5.72226	12.37517
2,804.5	10.18081	0.18499	0.29340	0.05428	0.70660	0.13071	12.21718	0.5	40.0	5.78761	12.42944
2,805.0	11.97293	0.16902	0.29620	0.05006	0.70380	0.11896	12.33614	0.5	40.5	5.84709	12.47951
2,805.5	9.99066	0.16503	0.33200	0.05479	0.66800	0.11024	12.44638	0.5	41.0	5.90221	12.53430
2,806.0	7.79047	0.17534	0.35390	0.06205	0.64610	0.11329	12.55967	0.5	41.5	5.95886	12.59635
2,806.5	6.69056	0.20136	0.33250	0.06695	0.66750	0.13441	12.69407	0.5	42.0	6.02606	12.66330
2,807.0	6.77504	0.22152	0.30040	0.06654	0.69960	0.15498	12.84905	0.5	42.5	6.10355	12.72985
2,807.5	7.24166	0.23306	0.27620	0.06437	0.72380	0.16869	13.01774	0.5	43.0	6.18789	12.79422
2,808.0	7.43715	0.22444	0.28300	0.06352	0.71700	0.16092	13.17866	0.5	43.5	6.26835	12.85773
2,808.5	8.23080	0.20570	0.29350	0.06037	0.70650	0.14533	13.32399	0.5	44.0	6.34102	12.91811
2,809.0	9.52463	0.18971	0.29580	0.05612	0.70420	0.13359	13.45758	0.5	44.5	6.40781	12.97422
2,809.5	11.53207	0.17778	0.28690	0.05101	0.71310	0.12677	13.58436	0.5	45.0	6.47120	13.02523

Log Calculations
C. T. Bates # 3

Rhodes (Yates-Upper 7R) Interval
Schlumberger Platform Express Data
(Rw = 0.03)

DEPTH	HLLD	PXND	Sw @ (Rw=0.03)	(Sw x PXND)	Sg=(1-Sw)	PXND x (1-Sw)	Cum PXND x (1-Sw)	dh	Cum dh	PXND x (1-Sw) x dh	Cum PXND x dh
2,810.0	12.89467	0.17259	0.27950	0.04824	0.72050	0.12435	13.70871	0.5	45.5	6.53338	13.07347
2,810.5	13.62504	0.17140	0.27380	0.04693	0.72620	0.12447	13.83318	0.5	46.0	6.59561	13.12040
2,811.0	13.91467	0.17128	0.27110	0.04643	0.72890	0.12485	13.95803	0.5	46.5	6.65804	13.16683
2,811.5	13.42390	0.16637	0.28410	0.04727	0.71590	0.11910	14.07713	0.5	47.0	6.71759	13.21410
2,812.0	12.25657	0.16481	0.30020	0.04948	0.69980	0.11533	14.19246	0.5	47.5	6.77525	13.26357
2,812.5	10.88547	0.16438	0.31940	0.05250	0.68060	0.11188	14.30434	0.5	48.0	6.83119	13.31607
2,813.0	10.63363	0.16631	0.31940	0.05312	0.68060	0.11319	14.41753	0.5	48.5	6.88779	13.36919
2,813.5	13.80953	0.14927	0.31220	0.04660	0.68780	0.10267	14.52020	0.5	49.0	6.93912	13.41580
2,832.0	8.01065	0.15064	0.40620	0.06119	0.59380	0.08945	17.55523	0.5	49.5	6.98385	13.47699
2,832.5	6.66863	0.20941	0.32030	0.06707	0.67970	0.14234	17.69756	0.5	50.0	7.05502	13.54406
2,833.0	6.64833	0.22402	0.29990	0.06718	0.70010	0.15684	17.85440	0.5	50.5	7.13343	13.61124
2,833.5	7.23250	0.21973	0.29310	0.06440	0.70690	0.15533	18.00973	0.5	51.0	7.21110	13.67565
2,834.0	9.35390	0.21171	0.26750	0.05663	0.73250	0.15508	18.16480	0.5	51.5	7.28864	13.73228
2,860.0	10.27570	0.14997	0.36030	0.05403	0.63970	0.09594	23.46002	0.5	52.0	7.33660	13.78631
2,860.5	8.03145	0.15544	0.39320	0.06112	0.60680	0.09432	23.55434	0.5	52.5	7.38376	13.84743
2,861.0	6.86193	0.16785	0.39390	0.06612	0.60610	0.10173	23.65607	0.5	53.0	7.43463	13.91355
2,861.5	6.50528	0.17784	0.38190	0.06792	0.61810	0.10992	23.76599	0.5	53.5	7.48959	13.98147
2,862.0	6.52752	0.18136	0.37380	0.06779	0.62620	0.11357	23.87956	0.5	54.0	7.54638	14.04926
2,862.5	6.48620	0.18885	0.36010	0.06800	0.63990	0.12085	24.00041	0.5	54.5	7.60680	14.11726
2,863.0	6.66431	0.19471	0.34460	0.06710	0.65540	0.12761	24.12802	0.5	55.0	7.67061	14.18436
2,863.5	6.57641	0.20710	0.32610	0.06754	0.67390	0.13956	24.26758	0.5	55.5	7.74039	14.25189
2,864.0	6.46227	0.22094	0.30840	0.06814	0.69160	0.15280	24.42039	0.5	56.0	7.81679	14.32003
2,864.5	6.69891	0.23966	0.27920	0.06691	0.72080	0.17275	24.59313	0.5	56.5	7.90316	14.38695
2,865.0	6.67124	0.25168	0.26640	0.06705	0.73360	0.18463	24.77776	0.5	57.0	7.99548	14.45399
2,865.5	6.97994	0.25951	0.25260	0.06555	0.74740	0.19396	24.97172	0.5	57.5	8.09246	14.51955
2,866.0	7.45904	0.26292	0.24120	0.06342	0.75880	0.19950	25.17123	0.5	58.0	8.19221	14.58296
2,866.5	7.43670	0.25922	0.24500	0.06351	0.75500	0.19571	25.36694	0.5	58.5	8.29006	14.64647

Log Calculations
C. T. Bates # 3

Rhodes (Yates-Upper 7R) Interval
Schlumberger Platform Express Data
(Rw = 0.03)

DEPTH	HLLD	PXND	Sw @ (Rw=0.03)	(Sw x PXND)	Sg=(1-Sw)	PXND x (1-Sw)	Cum PXND x (1-Sw)	Cum dh	PXND x (1-Sw) x dh	Cum PXND x dh
2,867.0	7.02606	0.25376	0.25750	0.06534	0.74250	0.18842	25.55535	59.0	8.38427	14.71181
2,867.5	6.33229	0.24962	0.27570	0.06882	0.72430	0.18080	25.73615	59.5	8.47467	14.78063
2,868.0	6.14126	0.25336	0.27590	0.06990	0.72410	0.18346	25.91961	60.0	8.56640	14.85054
2,868.5	6.29613	0.25242	0.27350	0.06904	0.72650	0.18338	26.10300	60.5	8.65809	14.91957
2,869.0	7.23526	0.24929	0.25830	0.06439	0.74170	0.18490	26.28789	61.0	8.75054	14.98396
2,869.5	8.08239	0.23941	0.25450	0.06093	0.74550	0.17848	26.46637	61.5	8.83978	15.04489
2,870.0	9.36266	0.22104	0.25610	0.05661	0.74390	0.16443	26.63081	62.0	8.92200	15.10150
2,870.5	9.75226	0.19576	0.28330	0.05546	0.71670	0.14030	26.77111	62.5	8.99215	15.15696
2,871.0	9.89393	0.17084	0.32230	0.05506	0.67770	0.11578	26.88688	63.0	9.05004	15.21202
2,957.0	4.06079	0.17350	0.49540	0.08595	0.50460	0.08755	39.70054	63.5	9.09381	15.29798
2,957.5	3.66841	0.19797	0.45680	0.09043	0.54320	0.10754	39.80807	64.0	9.14758	15.38841
2,958.0	3.68109	0.21379	0.42230	0.09028	0.57770	0.12351	39.93158	64.5	9.20933	15.47869
2,958.5	3.79900	0.21694	0.40960	0.08886	0.59040	0.12808	40.05966	65.0	9.27337	15.56755
2,959.0	3.98387	0.21224	0.40890	0.08678	0.59110	0.12546	40.18512	65.5	9.33610	15.65433
2,959.5	3.98716	0.20913	0.41480	0.08675	0.58520	0.12238	40.30750	66.0	9.39729	15.74108
2,960.0	4.05552	0.21187	0.40590	0.08600	0.59410	0.12587	40.43337	66.5	9.46023	15.82708
2,960.5	4.16805	0.21814	0.38890	0.08483	0.61110	0.13331	40.56668	67.0	9.52688	15.91191
2,961.0	4.36732	0.21313	0.38890	0.08289	0.61110	0.13024	40.69692	67.5	9.59200	15.99480
2,961.5	4.80557	0.19876	0.39750	0.07901	0.60250	0.11975	40.81667	68.0	9.65188	16.07381
2,962.0	5.86051	0.18290	0.39120	0.07155	0.60880	0.11135	40.92802	68.5	9.70756	16.14536
2,962.5	7.16385	0.16499	0.39220	0.06471	0.60780	0.10028	41.02830	69.0	9.75770	16.21007
2,973.5	7.95287	0.15453	0.39750	0.06143	0.60250	0.09310	42.34620	69.5	9.80425	16.27149
2,974.0	6.93804	0.15786	0.41660	0.06576	0.58340	0.09210	42.43829	70.0	9.85030	16.33726
2,974.5	6.01792	0.15404	0.45840	0.07061	0.54160	0.08343	42.52172	70.5	9.89201	16.40787
2,975.0	5.30783	0.16849	0.44620	0.07518	0.55380	0.09331	42.61503	71.0	9.93866	16.48305
2,975.5	4.95233	0.18878	0.41230	0.07783	0.58770	0.11095	42.72598	71.5	9.99414	16.56088
2,976.0	4.81574	0.20358	0.38770	0.07893	0.61230	0.12465	42.85063	72.0	10.05646	16.63981

Log Calculations

C. T. Bates # 3

Rhodes (Yates-Upper 7R) Interval

Schlumberger Platform Express Data

(Rw = 0.03)

DEPTH	HLLD	PXND	SW @ (Rw=0.03)	(Sw x PXND)	Sg=(1-Sw)	PXND x (1-Sw)	Cum PXND x (1-Sw)	dh	Cum dh	PXND x (1-Sw) x dh	Cum PXND x dh
2,976.5	4.86553	0.21103	0.37210	0.07852	0.62790	0.13251	42.98314	0.5	72.5	10.12272	16.71834
2,977.0	4.84317	0.21343	0.36880	0.07871	0.63120	0.13472	43.11785	0.5	73.0	10.19008	16.79705
2,977.5	4.87952	0.22053	0.35560	0.07842	0.64440	0.14211	43.25996	0.5	73.5	10.26113	16.87547
2,978.0	4.64468	0.22907	0.35080	0.08036	0.64920	0.14871	43.40867	0.5	74.0	10.33549	16.95583
2,978.5	4.57071	0.23610	0.34310	0.08101	0.65690	0.15509	43.56377	0.5	74.5	10.41303	17.03683
2,979.0	4.45964	0.23722	0.34570	0.08201	0.65430	0.15521	43.71898	0.5	75.0	10.49064	17.11884
2,979.5	4.64410	0.23956	0.33550	0.08037	0.66450	0.15919	43.87817	0.5	75.5	10.57023	17.19921
2,980.0	4.85716	0.24057	0.32670	0.07859	0.67330	0.16198	44.04015	0.5	76.0	10.65122	17.27781
2,980.5	4.86491	0.23909	0.32840	0.07852	0.67160	0.16057	44.20072	0.5	76.5	10.73151	17.35632
2,981.0	4.54667	0.23834	0.34080	0.08123	0.65920	0.15711	44.35783	0.5	77.0	10.81006	17.43755
2,981.5	4.51914	0.23723	0.34340	0.08146	0.65660	0.15577	44.51360	0.5	77.5	10.88795	17.51902
2,982.0	4.74569	0.23938	0.33210	0.07950	0.66790	0.15988	44.67348	0.5	78.0	10.96789	17.59851
2,982.5	4.82013	0.24497	0.32200	0.07888	0.67800	0.16609	44.83957	0.5	78.5	11.05093	17.67739
2,983.0	4.63447	0.24871	0.32350	0.08046	0.67650	0.16825	45.00782	0.5	79.0	11.13506	17.75785
2,983.5	4.58647	0.25497	0.31720	0.08088	0.68280	0.17409	45.18191	0.5	79.5	11.22211	17.83873
2,984.0	4.55753	0.25102	0.32320	0.08113	0.67680	0.16989	45.35180	0.5	80.0	11.30705	17.91986
2,984.5	4.57175	0.24734	0.32750	0.08100	0.67250	0.16634	45.51814	0.5	80.5	11.39022	18.00086
2,985.0	4.49675	0.23619	0.34580	0.08167	0.65420	0.15452	45.67266	0.5	81.0	11.46748	18.08254
2,985.5	4.29441	0.23309	0.35860	0.08359	0.64140	0.14950	45.82216	0.5	81.5	11.54223	18.16612
2,986.0	4.18326	0.23367	0.36240	0.08468	0.63760	0.14899	45.97115	0.5	82.0	11.61672	18.25080
2,986.5	4.06563	0.23490	0.36570	0.08590	0.63430	0.14900	46.12015	0.5	82.5	11.69122	18.33671
2,987.0	4.01194	0.23201	0.37270	0.08647	0.62730	0.14554	46.26569	0.5	83.0	11.76399	18.42318
2,987.5	4.11968	0.23093	0.36950	0.08533	0.63050	0.14560	46.41129	0.5	83.5	11.83679	18.50851
2,988.0	4.32073	0.23279	0.35790	0.08332	0.64210	0.14947	46.56076	0.5	84.0	11.91153	18.59182
2,988.5	4.42147	0.23590	0.34920	0.08238	0.65080	0.15352	46.71428	0.5	84.5	11.98829	18.67420
2,989.0	4.57273	0.23553	0.34390	0.08100	0.65610	0.15453	46.86882	0.5	85.0	12.06556	18.75520
2,989.5	4.67795	0.23489	0.34090	0.08007	0.65910	0.15482	47.02363	0.5	85.5	12.14296	18.83527
2,990.0	4.64924	0.23476	0.34220	0.08033	0.65780	0.15443	47.17806	0.5	86.0	12.22018	18.91560
2,990.5	4.62470	0.23397	0.34420	0.08053	0.65580	0.15344	47.33149	0.5	86.5	12.29690	18.99614
2,991.0	4.60851	0.22913	0.35210	0.08068	0.64790	0.14845	47.47995	0.5	87.0	12.37112	19.07681
2,991.5	4.29802	0.22946	0.36410	0.08355	0.63590	0.14591	47.62586	0.5	87.5	12.44408	19.16036

Log Calculations
C. T. Bates # 3

Rhodes (Yates-Upper 7R) Interval
Schlumberger Platform Express Data
(Rw = 0.03)

DEPTH	HLLD	PXND	Sw @ (Rw=0.03)	(Sw x PXND)	Sg=(1-Sw)	PXND x (1-Sw)	Cum PXND x (1-Sw)	dh	Cum dh	PXND x (1-Sw) x dh	Cum PXND x dh
2,992.0	4.00559	0.23365	0.37040	0.08654	0.62960	0.14711	47.77297	0.5	88.0	12.51763	19.24690
2,992.5	4.07767	0.24292	0.35310	0.08578	0.64690	0.15714	47.93011	0.5	88.5	12.59621	19.33268
2,993.0	4.24820	0.24209	0.34710	0.08403	0.65290	0.15806	48.08817	0.5	89.0	12.67524	19.41671
2,993.5	4.40003	0.22893	0.36070	0.08258	0.63930	0.14635	48.23453	0.5	89.5	12.74841	19.49928
2,994.0	4.94043	0.21659	0.35980	0.07793	0.64020	0.13866	48.37319	0.5	90.0	12.81774	19.57721
2,994.5	5.84676	0.19544	0.36650	0.07163	0.63350	0.12381	48.49700	0.5	90.5	12.87965	19.64884
2,995.0	7.41595	0.16855	0.37740	0.06361	0.62260	0.10494	48.60194	0.5	91.0	12.93212	19.71245
2,995.5	9.24304	0.14688	0.38790	0.05697	0.61210	0.08991	48.69184	0.5	91.5	12.97707	19.76943

Note: H = 91.5 ft., ϕ x H = 19.77, ϕ = 19.77 / 91.5, ϕ = 21.60%

For Rw = 0.03 : Cum ϕ x H (1-Sw) = 12.977, 1-Sw = 12.977 / 19.77, Sw = 0.344

Log Calculations

C. T. Bates # 3

Rhodes (Yates-Upper 7R) Interval
Schlumberger Platform Express Data
(Rw = 0.05)

DEPTH	HLLD	PXND	Sw @ (Rw=0.05)	(Sw x PXDN)	Sg=(1-Sw)	PXDN x (1-Sw)	Cum PXDN x (1-Sw)	dh	Cum dh	PXND x (1-Sw) x dh	Cum PXND x (1-Sw) x dh	Cum PXND x dh
2760.0	11.07300	0.16551	0.40600	0.06720	0.59400	0.09831	0.29467	0.5	0.5	0.04916	0.04916	0.16551
2760.5	9.44837	0.16906	0.43030	0.07275	0.56970	0.09631	0.39098	0.5	1.0	0.09731	0.09731	0.33457
2761.0	9.20500	0.17747	0.41530	0.07370	0.58470	0.10377	0.49475	0.5	1.5	0.14920	0.14920	0.51204
2761.5	9.25178	0.17813	0.41270	0.07351	0.58730	0.10462	0.59937	0.5	2.0	0.20150	0.20150	0.69017
2762.0	9.55736	0.17820	0.40590	0.07233	0.59410	0.10587	0.70524	0.5	2.5	0.25444	0.25444	0.86837
2762.5	9.91402	0.17812	0.39870	0.07102	0.60130	0.10710	0.81234	0.5	3.0	0.30799	0.30799	1.04649
2763.0	10.49400	0.17382	0.39710	0.06902	0.60290	0.10480	0.91713	0.5	3.5	0.36039	0.36039	1.22031
2763.5	10.99182	0.16841	0.40050	0.06745	0.59950	0.10096	1.01810	0.5	4.0	0.41087	0.41087	1.38872
2764.0	11.08709	0.16518	0.40660	0.06716	0.59340	0.09802	1.11611	0.5	4.5	0.45988	0.45988	1.55390
2764.5	10.50126	0.17394	0.39670	0.06900	0.60330	0.10494	1.22105	0.5	5.0	0.51235	0.51235	1.72784
2765.0	10.13526	0.18733	0.37490	0.07023	0.62510	0.11710	1.33815	0.5	5.5	0.57090	0.57090	1.91517
2765.5	10.55486	0.19438	0.35410	0.06883	0.64590	0.12555	1.46370	0.5	6.0	0.63367	0.63367	2.10955
2766.0	11.39817	0.19271	0.34370	0.06623	0.65630	0.12648	1.59018	0.5	6.5	0.69691	0.69691	2.30226
2766.5	11.73244	0.18792	0.34740	0.06528	0.65260	0.12264	1.71281	0.5	7.0	0.75823	0.75823	2.49018
2767.0	12.98540	0.18411	0.33700	0.06205	0.66300	0.12206	1.83488	0.5	7.5	0.81926	0.81926	2.67429
2767.5	14.45142	0.17859	0.32940	0.05883	0.67060	0.11976	1.95464	0.5	8.0	0.87914	0.87914	2.85288
2768.0	16.65374	0.17024	0.32190	0.05480	0.67810	0.11544	2.07008	0.5	8.5	0.93686	0.93686	3.02312
2768.5	13.36357	0.17132	0.35700	0.06116	0.64300	0.11016	2.18024	0.5	9.0	0.99194	0.99194	3.19444
2769.0	9.72818	0.18724	0.38290	0.07169	0.61710	0.11555	2.29579	0.5	9.5	1.04971	1.04971	3.38168
2769.5	7.73110	0.20962	0.38360	0.08041	0.61640	0.12921	2.42500	0.5	10.0	1.11432	1.11432	3.59130
2770.0	7.18558	0.22880	0.36460	0.08342	0.63540	0.14538	2.57038	0.5	10.5	1.18701	1.18701	3.82010
2770.5	7.81271	0.23904	0.33470	0.08001	0.66530	0.15903	2.72941	0.5	11.0	1.26653	1.26653	4.05914
2771.0	7.91769	0.24495	0.32440	0.07946	0.67560	0.16549	2.89490	0.5	11.5	1.34927	1.34927	4.30409
2771.5	8.35970	0.25023	0.30910	0.07735	0.69090	0.17288	3.06778	0.5	12.0	1.43571	1.43571	4.55432
2772.0	8.28704	0.25039	0.31020	0.07767	0.68980	0.17272	3.24050	0.5	12.5	1.52207	1.52207	4.80471
2772.5	8.20224	0.24341	0.32080	0.07809	0.67920	0.16532	3.40582	0.5	13.0	1.60473	1.60473	5.04812
2773.0	7.60252	0.24018	0.33770	0.08111	0.66230	0.15907	3.56490	0.5	13.5	1.68427	1.68427	5.28830
2773.5	7.41108	0.24436	0.33610	0.08213	0.66390	0.16223	3.72713	0.5	14.0	1.76538	1.76538	5.53266
2774.0	7.23060	0.25041	0.33210	0.08316	0.66790	0.16725	3.89437	0.5	14.5	1.84901	1.84901	5.78307
2774.5	7.33090	0.25064	0.32950	0.08259	0.67050	0.16805	4.06243	0.5	15.0	1.93304	1.93304	6.03371

Log Calculations
C. T. Bates # 3

Rhodes (Yates-Upper 7R) Interval
Schlumberger Platform Express Data
(Rw = 0.05)

DEPTH	HLLD	PXND	Sw @ (Rw=0.05)	(Sw x PXDN)	Sg=(1-Sw)	PXDN x (1-Sw)	Cum PXDN x (1-Sw)	dh	Cum dh	PXND x (1-Sw) x dh	Cum PXND x dh
2775.0	7.57342	0.24755	0.32820	0.08125	0.67180	0.16630	4.22873	0.5	15.5	2.01619	6.28126
2775.5	8.46776	0.24831	0.30950	0.07685	0.69050	0.17146	4.40019	0.5	16.0	2.10192	6.52957
2776.0	9.53183	0.25052	0.28910	0.07243	0.71090	0.17809	4.57829	0.5	16.5	2.19096	6.78009
2776.5	9.93482	0.25712	0.27590	0.07094	0.72410	0.18618	4.76447	0.5	17.0	2.28405	7.03721
2777.0	9.22015	0.25231	0.29190	0.07365	0.70810	0.17866	4.94313	0.5	17.5	2.37338	7.28952
2777.5	8.64273	0.24335	0.31260	0.07607	0.68740	0.16728	5.11041	0.5	18.0	2.45702	7.53287
2778.0	9.08034	0.23539	0.31520	0.07419	0.68480	0.16120	5.27160	0.5	18.5	2.53762	7.76826
2778.5	9.95344	0.23020	0.30790	0.07088	0.69210	0.15932	5.43092	0.5	19.0	2.61728	7.99846
2779.0	10.60395	0.22808	0.30110	0.06867	0.69890	0.15941	5.59033	0.5	19.5	2.69698	8.22654
2779.5	10.30275	0.22349	0.31170	0.06966	0.68830	0.15383	5.74416	0.5	20.0	2.77390	8.45003
2780.0	10.52810	0.21792	0.31620	0.06891	0.68380	0.14901	5.89317	0.5	20.5	2.84841	8.66795
2780.5	10.65996	0.20810	0.32910	0.06849	0.67090	0.13961	6.03278	0.5	21.0	2.91821	8.87605
2781.0	10.50040	0.19610	0.35190	0.06901	0.64810	0.12709	6.15988	0.5	21.5	2.98176	9.07215
2781.5	10.34237	0.18343	0.37910	0.06954	0.62090	0.11389	6.27377	0.5	22.0	3.03870	9.25558
2782.0	10.70558	0.17239	0.39640	0.06834	0.60360	0.10405	6.37782	0.5	22.5	3.09073	9.42797
2782.5	11.86644	0.16146	0.40200	0.06491	0.59800	0.09655	6.47438	0.5	23.0	3.13901	9.58943
2783.0	12.71848	0.15715	0.39900	0.06270	0.60100	0.09445	6.56882	0.5	23.5	3.18623	9.74658
2783.5	13.56527	0.15985	0.37980	0.06071	0.62020	0.09914	6.66796	0.5	24.0	3.23580	9.90643
2784.0	12.73500	0.16709	0.37500	0.06266	0.62500	0.10443	6.77239	0.5	24.5	3.28802	10.07352
2784.5	12.28251	0.17519	0.36420	0.06380	0.63580	0.11139	6.88378	0.5	25.0	3.34371	10.24871
2785.0	12.56590	0.17804	0.35430	0.06308	0.64570	0.11496	6.99874	0.5	25.5	3.40119	10.42675
2785.5	13.50677	0.17871	0.34050	0.06085	0.65950	0.11786	7.11660	0.5	26.0	3.46012	10.60546
2786.0	13.29434	0.18647	0.32890	0.06133	0.67110	0.12514	7.24174	0.5	26.5	3.52269	10.79193
2786.5	15.36629	0.18113	0.31490	0.05704	0.68510	0.12409	7.36583	0.5	27.0	3.58474	10.97306
2787.0	26.50821	0.10553	0.41150	0.04343	0.58850	0.06210	7.42793	0.5	27.5	3.61579	11.07859
2792.5	16.39370	0.14074	0.39240	0.05523	0.60760	0.08551	7.80650	0.5	28.0	3.65855	11.12137
2793.0	13.06231	0.15903	0.38900	0.06186	0.61100	0.09717	7.90367	0.5	28.5	3.70713	11.16931
2793.5	12.68185	0.17275	0.36350	0.06279	0.63650	0.10996	8.01363	0.5	29.0	3.76211	11.21794
2794.0	11.36378	0.18213	0.36420	0.06633	0.63580	0.11580	8.12942	0.5	29.5	3.82001	11.26931

Log Calculations

C. T. Bates # 3

Rhodes (Yates-Upper 7R) Interval

Schlumberger Platform Express Data

(Rw = 0.05)

DEPTH	HLLD	PXND	Sw @ (Rw=0.05)	(Sw x PXDN)	Sg=(1-Sw)	PXDN x (1-Sw)	Cum PXDN x (1-Sw)	dh	Cum dh	PXND x (1-Sw) x dh	Cum PXND x dh
2794.5	11.69541	0.17893	0.36540	0.06538	0.63460	0.11355	8.24297	0.5	30.0	3.87678	11.31997
2795.0	11.79521	0.17659	0.36870	0.06511	0.63130	0.11148	8.35445	0.5	30.5	3.93252	11.37040
2795.5	10.87500	0.17928	0.37820	0.06780	0.62180	0.11148	8.46593	0.5	31.0	3.98826	11.42293
2796.0	9.97568	0.18157	0.38990	0.07079	0.61010	0.11078	8.57671	0.5	31.5	4.04365	11.47777
2796.5	8.98991	0.18963	0.39330	0.07458	0.60670	0.11505	8.69175	0.5	32.0	4.10117	11.53553
2797.0	7.98902	0.20020	0.39520	0.07912	0.60480	0.12108	8.81284	0.5	32.5	4.16171	11.59681
2797.5	6.98244	0.21153	0.40000	0.08461	0.60000	0.12692	8.93975	0.5	33.0	4.22517	11.66236
2798.0	7.15940	0.21403	0.39050	0.08358	0.60950	0.13045	9.07021	0.5	33.5	4.29040	11.72709
2798.5	7.41138	0.21106	0.38920	0.08214	0.61080	0.12892	9.19912	0.5	34.0	4.35485	11.79070
2799.0	7.93079	0.20518	0.38700	0.07940	0.61300	0.12578	9.32490	0.5	34.5	4.41774	11.85221
2799.5	7.84836	0.20711	0.38540	0.07982	0.61460	0.12729	9.45219	0.5	35.0	4.48139	11.91403
2800.0	9.18986	0.20982	0.35150	0.07375	0.64850	0.13607	9.58825	0.5	35.5	4.54942	11.97117
2800.5	9.98021	0.20587	0.34380	0.07078	0.65620	0.13509	9.72335	0.5	36.0	4.61697	12.02599
2801.0	10.55371	0.19860	0.34660	0.06883	0.65340	0.12977	9.85311	0.5	36.5	4.68185	12.07932
2801.5	10.58733	0.19609	0.35050	0.06873	0.64950	0.12736	9.98047	0.5	37.0	4.74553	12.13255
2802.0	11.78324	0.19832	0.32850	0.06515	0.67150	0.13317	10.11364	0.5	37.5	4.81212	12.18301
2802.5	14.20767	0.20607	0.28790	0.05933	0.71210	0.14674	10.26039	0.5	38.0	4.88549	12.22896
2803.0	14.65383	0.20748	0.28150	0.05841	0.71850	0.14907	10.40946	0.5	38.5	4.96002	12.27421
2803.5	12.71073	0.21092	0.29740	0.06273	0.70260	0.14819	10.55765	0.5	39.0	5.03412	12.32279
2804.0	10.93355	0.19939	0.33920	0.06763	0.66080	0.13176	10.68941	0.5	39.5	5.10000	12.37517
2804.5	10.18081	0.18499	0.37880	0.07007	0.62120	0.11492	10.80433	0.5	40.0	5.15746	12.42944
2805.0	11.97293	0.16902	0.38230	0.06462	0.61770	0.10440	10.90873	0.5	40.5	5.20966	12.47951
2805.5	9.99066	0.16503	0.42870	0.07075	0.57130	0.09428	11.00301	0.5	41.0	5.25680	12.53430
2806.0	7.79047	0.17534	0.45690	0.08011	0.54310	0.09523	11.09824	0.5	41.5	5.30441	12.59635
2806.5	6.69056	0.20136	0.42930	0.08644	0.57070	0.11492	11.21315	0.5	42.0	5.36187	12.66330
2807.0	6.77504	0.22152	0.38780	0.08591	0.61220	0.13561	11.34877	0.5	42.5	5.42968	12.72985
2807.5	7.24166	0.23306	0.35650	0.08309	0.64350	0.14997	11.49874	0.5	43.0	5.50467	12.79422
2808.0	7.43715	0.22444	0.36530	0.08199	0.63470	0.14245	11.64119	0.5	43.5	5.57589	12.85773
2808.5	8.23080	0.20570	0.37890	0.07794	0.62110	0.12776	11.76896	0.5	44.0	5.63977	12.91811
2809.0	9.52463	0.18971	0.38190	0.07245	0.61810	0.11726	11.88621	0.5	44.5	5.69840	12.97422
2809.5	11.53207	0.17778	0.37040	0.06585	0.62960	0.11193	11.99815	0.5	45.0	5.75437	13.02523

Log Calculations
C. T. Bates # 3
Rhodes (Yates-Upper 7R) Interval
Schlumberger Platform Express Data
(Rw = 0.05)

DEPTH	HLLD	PXND	Sw @ (Rw=0.05)	(Sw x PXDN)	Sg=(1-Sw)	PXDN x (1-Sw)	Cum PXDN x (1-Sw)	dh	Cum dh	PXND x (1-Sw) x dh	Cum	PXND x dh
2810.0	12.89467	0.17259	0.36080	0.06227	0.63920	0.11032	12.10846	0.5	45.5	5.80953	13.07347	13.07347
2810.5	13.62504	0.17140	0.35340	0.06057	0.64660	0.11083	12.21929	0.5	46.0	5.86494	13.12040	13.12040
2811.0	13.91467	0.17128	0.35000	0.05995	0.65000	0.11133	12.33062	0.5	46.5	5.92061	13.16683	13.16683
2811.5	13.42390	0.16637	0.36680	0.06102	0.63320	0.10535	12.43597	0.5	47.0	5.97328	13.21410	13.21410
2812.0	12.25657	0.16481	0.38750	0.06386	0.61250	0.10095	12.53692	0.5	47.5	6.02375	13.26357	13.26357
2812.5	10.88547	0.16438	0.41230	0.06777	0.58770	0.09661	12.63352	0.5	48.0	6.07205	13.31607	13.31607
2813.0	10.63363	0.16631	0.41230	0.06857	0.58770	0.09774	12.73126	0.5	48.5	6.12092	13.36919	13.36919
2813.5	13.80953	0.14927	0.40310	0.06017	0.59690	0.08910	12.82036	0.5	49.0	6.16547	13.41580	13.41580
2832.0	8.01065	0.15064	0.52450	0.07901	0.47550	0.07163	15.46379	0.5	49.5	6.20129	13.47699	13.47699
2832.5	6.66863	0.20941	0.41350	0.08659	0.58650	0.12282	15.58661	0.5	50.0	6.26270	13.54406	13.54406
2833.0	6.64833	0.22402	0.38710	0.08672	0.61290	0.13730	15.72391	0.5	50.5	6.33135	13.61124	13.61124
2833.5	7.23250	0.21973	0.37840	0.08315	0.62160	0.13658	15.86049	0.5	51.0	6.39964	13.67565	13.67565
2834.0	9.35390	0.21171	0.34530	0.07310	0.65470	0.13861	15.99910	0.5	51.5	6.46894	13.73228	13.73228
2860.0	10.27570	0.14997	0.46510	0.06975	0.53490	0.08022	20.57518	0.5	52.0	6.50905	13.78631	13.78631
2860.5	8.03145	0.15544	0.50760	0.07890	0.49240	0.07654	20.65172	0.5	52.5	6.54732	13.84743	13.84743
2861.0	6.86193	0.16785	0.50860	0.08537	0.49140	0.08248	20.73420	0.5	53.0	6.58856	13.91355	13.91355
2861.5	6.50528	0.17784	0.49300	0.08768	0.50700	0.09016	20.82436	0.5	53.5	6.63365	13.98147	13.98147
2862.0	6.52752	0.18136	0.48260	0.08752	0.51740	0.09384	20.91820	0.5	54.0	6.68056	14.04926	14.04926
2862.5	6.48620	0.18885	0.46490	0.08780	0.53510	0.10105	21.01925	0.5	54.5	6.73109	14.11726	14.11726
2863.0	6.66431	0.19471	0.44490	0.08663	0.55510	0.10808	21.12734	0.5	55.0	6.78513	14.18436	14.18436
2863.5	6.57641	0.20710	0.42100	0.08719	0.57900	0.11991	21.24725	0.5	55.5	6.84509	14.25189	14.25189
2864.0	6.46227	0.22094	0.39810	0.08796	0.60190	0.13298	21.38023	0.5	56.0	6.91158	14.32003	14.32003
2864.5	6.69891	0.23966	0.36050	0.08640	0.63950	0.15326	21.53349	0.5	56.5	6.98821	14.38695	14.38695
2865.0	6.67124	0.25168	0.34400	0.08658	0.65600	0.16510	21.69860	0.5	57.0	7.07076	14.45399	14.45399
2865.5	6.97994	0.25951	0.32610	0.08463	0.67390	0.17488	21.87348	0.5	57.5	7.15820	14.51955	14.51955
2866.0	7.45904	0.26292	0.31140	0.08187	0.68860	0.18105	22.05453	0.5	58.0	7.24873	14.58296	14.58296
2866.5	7.43670	0.25922	0.31630	0.08199	0.68370	0.17723	22.23176	0.5	58.5	7.33734	14.64647	14.64647

Log Calculations
C. T. Bates # 3
Rhodes (Yates-Upper 7R) Interval
Schlumberger Platform Express Data
(Rw = 0.05)

DEPTH	HLLD	PXND	Sw @ (Rw=0.05)	(Sw x PXDN)	Sg=(1-Sw)	PXDN x (1-Sw)	Cum PXDN x (1-Sw)	dh	Cum dh	PXND x (1-Sw) x dh	Cum
											PXND x dh
2867.0	7.02606	0.25376	0.33240	0.08435	0.66760	0.16941	22.40117	0.5	59.0	7.42205	14.71181
2867.5	6.33229	0.24962	0.35600	0.08886	0.64400	0.16076	22.56192	0.5	59.5	7.50243	14.78063
2868.0	6.14126	0.25336	0.35610	0.09022	0.64390	0.16314	22.72506	0.5	60.0	7.58399	14.85054
2868.5	6.29613	0.25242	0.35300	0.08910	0.64700	0.16332	22.88838	0.5	60.5	7.66565	14.91957
2869.0	7.23526	0.24929	0.33350	0.08314	0.66650	0.16615	23.05453	0.5	61.0	7.74873	14.98396
2869.5	8.08239	0.23941	0.32850	0.07865	0.67150	0.16076	23.21529	0.5	61.5	7.82911	15.04489
2870.0	9.36266	0.22104	0.33060	0.07308	0.66940	0.14796	23.36326	0.5	62.0	7.90309	15.10150
2870.5	9.75226	0.19576	0.36580	0.07161	0.63420	0.12415	23.48741	0.5	62.5	7.96517	15.15696
2871.0	9.89393	0.17084	0.41610	0.07109	0.58390	0.09975	23.58716	0.5	63.0	8.01504	15.21202
2957.0	4.06079	0.17350	0.63960	0.11097	0.36040	0.06253	34.32492	0.5	63.5	8.04631	15.29798
2957.5	3.66841	0.19797	0.58970	0.11674	0.41030	0.08123	34.40615	0.5	64.0	8.08692	15.38841
2958.0	3.68109	0.21379	0.54510	0.11654	0.45490	0.09725	34.50340	0.5	64.5	8.13555	15.47869
2958.5	3.79900	0.21694	0.52880	0.11472	0.47120	0.10222	34.60562	0.5	65.0	8.18666	15.56755
2959.0	3.98387	0.21224	0.52780	0.11202	0.47220	0.10022	34.70584	0.5	65.5	8.23677	15.65433
2959.5	3.98716	0.20913	0.53550	0.11199	0.46450	0.09714	34.80298	0.5	66.0	8.28534	15.74108
2960.0	4.05552	0.21187	0.52410	0.11104	0.47590	0.10083	34.90381	0.5	66.5	8.33576	15.82708
2960.5	4.16805	0.21814	0.50210	0.10953	0.49790	0.10861	35.01242	0.5	67.0	8.39906	15.91191
2961.0	4.36732	0.21313	0.50200	0.10699	0.49800	0.10614	35.11856	0.5	67.5	8.44313	15.99480
2961.5	4.80557	0.19876	0.51320	0.10200	0.48680	0.09676	35.21532	0.5	68.0	8.49151	16.07381
2962.0	5.86051	0.18290	0.50500	0.09236	0.49500	0.09054	35.30585	0.5	68.5	8.53678	16.14536
2962.5	7.16385	0.16499	0.50640	0.08355	0.49360	0.08144	35.38729	0.5	69.0	8.57750	16.21007
2973.5	7.95287	0.15453	0.51310	0.07929	0.48690	0.07524	36.20504	0.5	69.5	8.61512	16.27149
2974.0	6.93804	0.15786	0.53780	0.08490	0.46220	0.07296	36.27800	0.5	70.0	8.65160	16.33726
2974.5	6.01792	0.15404	0.59170	0.09115	0.40830	0.06289	36.34090	0.5	70.5	8.68304	16.40787
2975.0	5.30783	0.16849	0.57600	0.09705	0.42400	0.07144	36.41234	0.5	71.0	8.71876	16.48305
2975.5	4.95233	0.18878	0.53230	0.10049	0.46770	0.08829	36.50063	0.5	71.5	8.76291	16.56088
2976.0	4.81574	0.20358	0.50050	0.10189	0.49950	0.10169	36.60232	0.5	72.0	8.81376	16.63981

Log Calculations
C. T. Bates # 3
Rhodes (Yates-Upper 7R) Interval
Schlumberger Platform Express Data
(Rw = 0.05)

DEPTH	HLLD	PXND	Sw @ (Rw=0.05)	(Sw x PXDN)	Sg=(1-Sw)	PXDN x (1-Sw)	Cum PXDN x (1-Sw)	dh	Cum dh	PXND x (1-Sw) x dh	Cum PXND x dh
2976.5	4.86553	0.21103	0.48040	0.10138	0.51960	0.10965	36.71197	0.5	72.5	8.86858	16.71834
2977.0	4.84317	0.21343	0.47610	0.10161	0.52390	0.11182	36.82378	0.5	73.0	8.92449	16.79705
2977.5	4.87952	0.22053	0.45900	0.10122	0.54100	0.11931	36.94309	0.5	73.5	8.98414	16.87547
2978.0	4.64468	0.22907	0.45290	0.10375	0.54710	0.12532	37.06841	0.5	74.0	9.04680	16.95583
2978.5	4.57071	0.23610	0.44300	0.10459	0.55700	0.13151	37.19992	0.5	74.5	9.11256	17.03683
2979.0	4.45964	0.23722	0.44640	0.10590	0.55360	0.13132	37.33125	0.5	75.0	9.17822	17.11884
2979.5	4.64410	0.23956	0.43310	0.10375	0.56690	0.13581	37.46705	0.5	75.5	9.24612	17.19921
2980.0	4.85716	0.24057	0.42170	0.10145	0.57830	0.13912	37.60618	0.5	76.0	9.31568	17.27781
2980.5	4.86491	0.23909	0.42400	0.10137	0.57600	0.13772	37.74389	0.5	76.5	9.38454	17.35632
2981.0	4.54667	0.23834	0.44000	0.10487	0.56000	0.13347	37.87736	0.5	77.0	9.45128	17.43755
2981.5	4.51914	0.23723	0.44340	0.10519	0.55660	0.13204	38.00940	0.5	77.5	9.51730	17.51902
2982.0	4.74569	0.23938	0.42880	0.10265	0.57120	0.13673	38.14614	0.5	78.0	9.58567	17.59851
2982.5	4.82013	0.24497	0.41580	0.10186	0.58420	0.14311	38.28925	0.5	78.5	9.65722	17.67739
2983.0	4.63447	0.24871	0.41760	0.10386	0.58240	0.14485	38.43410	0.5	79.0	9.72965	17.75785
2983.5	4.58647	0.25497	0.40950	0.10441	0.59050	0.15056	38.58466	0.5	79.5	9.80493	17.83873
2984.0	4.55753	0.25102	0.41730	0.10475	0.58270	0.14627	38.73093	0.5	80.0	9.87806	17.91986
2984.5	4.57175	0.24734	0.42280	0.10458	0.57720	0.14276	38.87369	0.5	80.5	9.94944	18.00086
2985.0	4.49675	0.23619	0.44650	0.10546	0.55350	0.13073	39.00442	0.5	81.0	10.01481	18.08254
2985.5	4.29441	0.23309	0.46290	0.10790	0.53710	0.12519	39.12962	0.5	81.5	10.07740	18.16612
2986.0	4.18326	0.23367	0.46790	0.10933	0.53210	0.12434	39.25395	0.5	82.0	10.13957	18.25080
2986.5	4.06563	0.23490	0.47210	0.11090	0.52790	0.12400	39.37795	0.5	82.5	10.20157	18.33671
2987.0	4.01194	0.23201	0.48120	0.11164	0.51880	0.12037	39.49832	0.5	83.0	10.26176	18.42318
2987.5	4.11968	0.23093	0.47710	0.11018	0.52290	0.12075	39.61907	0.5	83.5	10.32213	18.50851
2988.0	4.32073	0.23279	0.46210	0.10757	0.53790	0.12522	39.74429	0.5	84.0	10.38474	18.59182
2988.5	4.42147	0.23590	0.45080	0.10634	0.54920	0.12956	39.87385	0.5	84.5	10.44952	18.67420
2989.0	4.57273	0.23553	0.44400	0.10458	0.55600	0.13095	40.00480	0.5	85.0	10.51500	18.75520
2989.5	4.67795	0.23489	0.44010	0.10338	0.55990	0.13151	40.13632	0.5	85.5	10.58076	18.83527
2990.0	4.64924	0.23476	0.44170	0.10369	0.55830	0.13107	40.26738	0.5	86.0	10.64629	18.91560
2990.5	4.62470	0.23397	0.44440	0.10398	0.55560	0.12999	40.39738	0.5	86.5	10.71129	18.99614
2991.0	4.60851	0.22913	0.45460	0.10416	0.54540	0.12497	40.52235	0.5	87.0	10.77377	19.07681
2991.5	4.29802	0.22946	0.47000	0.10785	0.53000	0.12161	40.64396	0.5	87.5	10.83458	19.16036

Log Calculations
C. T. Bates # 3

Rhodes (Yates-Upper 7R) Interval
Schlumberger Platform Express Data
(Rw = 0.05)

DEPTH	HLLD	PXND	Sw @ (Rw=0.05)	(Sw x PXDN)	Sg=(1-Sw)	PXDN x (1-Sw)	Cum PXDN x (1-Sw)	dh	Cum dh	PXND x (1-Sw) x dh	Cum PXND x dh
2992.0	4.00559	0.23365	0.47820	0.11173	0.52180	0.12192	40.76588	0.5	88.0	10.89554	19.24690
2992.5	4.07767	0.24292	0.45580	0.11072	0.54420	0.13220	40.89808	0.5	88.5	10.96163	19.33268
2993.0	4.24820	0.24209	0.44810	0.10848	0.55190	0.13361	41.03169	0.5	89.0	11.02844	19.41671
2993.5	4.40003	0.22893	0.46560	0.10659	0.53440	0.12234	41.15403	0.5	89.5	11.08961	19.49928
2994.0	4.94043	0.21659	0.46450	0.10061	0.53550	0.11598	41.27001	0.5	90.0	11.14760	19.57721
2994.5	5.84676	0.19544	0.47320	0.09248	0.52680	0.10296	41.37297	0.5	90.5	11.19908	19.64884
2995.0	7.41595	0.16855	0.48720	0.08212	0.51280	0.08643	41.45940	0.5	91.0	11.24230	19.71245
2995.5	9.24304	0.14688	0.50070	0.07354	0.49930	0.07334	41.53274	0.5	91.5	11.27897	19.76943

Note: H = 91.5 ft., $\phi \times H = 19.77$, $\phi = 19.77 / 91.5$, $\phi = 21.60\%$

For Rw = 0.05 : Cum $\phi \times H (1-Sw) = 11.278$, $1-Sw = 11.278 / 19.77$, Sw = 0.430