```
--
-- ========================================================================
-- Black Oil PVT table no. 1
--
-- ------------------------------------------------------------------------
-- BOT v0507
-- Generated from BOT file: "JK1GC.bot"
-- Based on compositions from collector: "BO_Collector"
-- Based on surface process: "Five-Stage"
-- Reservoir EOS = EOSSCNC31+
-- Surface oil EOS = EOSSCNC31+
-- Surface gas EOS = EOSSCNC31+
--
-- NOTE (1): Surface conditions = 14.696 (psia), 60 (F)
--
-- ========================================================================

--
-- ------------------------------------------------------------------------
-- Surface densities for all fluid samples
-- NOTE (2): Manually select oil and gas surface density from the list
below
--
-- ------------------------------------------------------------------------

--  deno (lbm/ft3) denw (lbm/ft3) deng (lbm/ft3)
DENSITY
-- 51.75    *    0.0687  /    -- Feed = EQL_Expt_004_Stg_023, BP =  100.0
-- 51.47    *    0.0718  /    -- Feed = EQL_Expt_004_Stg_022, BP =  200.0
-- 51.01    *    0.0708  /    -- Feed = EQL_Expt_004_Stg_021, BP =  500.0
-- 50.72    *    0.0695  /    -- Feed = EQL_Expt_004_Stg_020, BP = 1000.0
-- 50.65    *    0.0681  /    -- Feed = EQL_Expt_004_Stg_019, BP = 1250.0
-- 50.59    *    0.0668  /    -- Feed = EQL_Expt_004_Stg_018, BP = 1500.0
-- 50.55    *    0.0656  /    -- Feed = EQL_Expt_004_Stg_017, BP = 1750.0
-- 50.53    *    0.0646  /    -- Feed = EQL_Expt_004_Stg_016, BP = 2000.0
-- 50.51    *    0.0636  /    -- Feed = EQL_Expt_004_Stg_015, BP = 2250.0
-- 50.50    *    0.0627  /    -- Feed = EQL_Expt_004_Stg_014, BP = 2500.0
-- 50.50    *    0.0619  /    -- Feed = EQL_Expt_004_Stg_013, BP = 2750.0
-- 50.49    *    0.0612  /    -- Feed = EQL_Expt_004_Stg_012, BP = 3000.0
-- 50.49    *    0.0606  /    -- Feed = EQL_Expt_004_Stg_011, BP = 3250.0
-- 50.49    *    0.0600  /    -- Feed = EQL_Expt_004_Stg_010, BP = 3500.0
-- 50.49    *    0.0595  /    -- Feed = EQL_Expt_004_Stg_009, BP = 3750.0
-- 50.48    *    0.0590  /    -- Feed = EQL_Expt_004_Stg_008, BP = 4000.0
-- 50.46    *    0.0586  /    -- Feed = EQL_Expt_004_Stg_007, BP = 4250.0
-- 50.44    *    0.0582  /    -- Feed = EQL_Expt_004_Stg_006, BP = 4500.0
-- 50.39    *    0.0578  /    -- Feed = EQL_Expt_004_Stg_005, BP = 4750.0
-- 50.31    *    0.0575  /    -- Feed = EQL_Expt_004_Stg_004, BP = 5000.0
-- 50.18    *    0.0571  /    -- Feed = EQL_Expt_004_Stg_003, BP = 5250.0
-- 49.88    *    0.0568  /    -- Feed = EQL_Expt_004_Stg_002, BP = 5500.0
-- 49.73    *    0.0566  /    -- Feed = EQL_Expt_004_Stg_001, BP = 5549.7
-- 44.41    *    0.0676  /    -- Feed = EQV_Expt_004_Stg_023, DP =  100.0
-- 44.33    *    0.0639  /    -- Feed = EQV_Expt_004_Stg_022, DP =  200.0
-- 44.43    *    0.0602  /    -- Feed = EQV_Expt_004_Stg_021, DP =  500.0
-- 44.79    *    0.0581  /    -- Feed = EQV_Expt_004_Stg_020, DP = 1000.0
-- 44.97    *    0.0575  /    -- Feed = EQV_Expt_004_Stg_019, DP = 1250.0
-- 45.13    *    0.0571  /    -- Feed = EQV_Expt_004_Stg_018, DP = 1500.0
-- 45.29    *    0.0569  /    -- Feed = EQV_Expt_004_Stg_017, DP = 1750.0
-- 45.46    *    0.0566  /    -- Feed = EQV_Expt_004_Stg_016, DP = 2000.0
-- 45.62    *    0.0565  /    -- Feed = EQV_Expt_004_Stg_015, DP = 2250.0
-- 45.80    *    0.0564  /    -- Feed = EQV_Expt_004_Stg_014, DP = 2500.0
-- 45.98    *    0.0563  /    -- Feed = EQV_Expt_004_Stg_013, DP = 2750.0
-- 46.17    *    0.0562  /    -- Feed = EQV_Expt_004_Stg_012, DP = 3000.0
-- 46.37    *    0.0562  /    -- Feed = EQV_Expt_004_Stg_011, DP = 3250.0
-- 46.58    *    0.0561  /    -- Feed = EQV_Expt_004_Stg_010, DP = 3500.0
-- 46.80    *    0.0561  /    -- Feed = EQV_Expt_004_Stg_009, DP = 3750.0
-- 47.04    *    0.0561  /    -- Feed = EQV_Expt_004_Stg_008, DP = 4000.0
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-- 47.29    *    0.0561  /    -- Feed = EQV_Expt_004_Stg_007, DP = 4250.0
-- 47.56    *    0.0561  /    -- Feed = EQV_Expt_004_Stg_006, DP = 4500.0
-- 47.86    *    0.0561  /    -- Feed = EQV_Expt_004_Stg_005, DP = 4750.0
-- 48.19    *    0.0562  /    -- Feed = EQV_Expt_004_Stg_004, DP = 5000.0
-- 48.58    *    0.0562  /    -- Feed = EQV_Expt_004_Stg_003, DP = 5250.0
-- 49.13    *    0.0564  /    -- Feed = EQV_Expt_004_Stg_002, DP = 5500.0
   49.34    *    0.0564  /    -- Feed = EQV_Expt_004_Stg_001, DP = 5549.7

-- ------------------------------------------------
-- Oil PVT table no. 1
-- ------------------------------------------------
--  Rs (Mscf/bbl)  pres(psia)  Bo (rb/stb)  Viso (cp)
PVTO
9.831e-003   100.00   1.0904   0.51195
             200.00   1.0886   0.51990
             500.00   1.0834   0.54356
            1000.00   1.0755   0.58235
            1250.00   1.0718   0.60145
            1500.00   1.0684   0.62036
            1750.00   1.0651   0.63909
            2000.00   1.0620   0.65763
            2250.00   1.0591   0.67600
            2500.00   1.0562   0.69420
            2750.00   1.0535   0.71222
            3000.00   1.0510   0.73007
            3250.00   1.0485   0.74775
            3500.00   1.0461   0.76527
            3750.00   1.0438   0.78263
            4000.00   1.0416   0.79982
            4250.00   1.0395   0.81685
            4500.00   1.0375   0.83373
            4750.00   1.0355   0.85045
            5000.00   1.0336   0.86702
            5250.00   1.0318   0.88343
            5500.00   1.0300   0.89969
            5549.67   1.0297   0.90291
            6000.00   1.0267   0.93178
            7000.00   1.0206   0.99421
            8000.00   1.0151   1.05441
            9000.00   1.0102   1.11248
           10000.00    1.0058    1.16852
           11000.00    1.0018    1.22261 /
3.045e-002   200.00   1.1055   0.47042
             500.00   1.0997   0.49299
            1000.00   1.0910   0.53005
            1250.00   1.0870   0.54832
            1500.00   1.0832   0.56642
            1750.00   1.0796   0.58436
            2000.00   1.0762   0.60214
            2250.00   1.0730   0.61977
            2500.00   1.0699   0.63724
            2750.00   1.0670   0.65456
            3000.00   1.0642   0.67172
            3250.00   1.0615   0.68874
            3500.00   1.0589   0.70561
            3750.00   1.0564   0.72233
            4000.00   1.0541   0.73891
            4250.00   1.0518   0.75535
            4500.00   1.0496   0.77165
            4750.00   1.0475   0.78781
            5000.00   1.0454   0.80383
            5250.00   1.0435   0.81971
            5500.00   1.0416   0.83545
            5549.67   1.0412   0.83857
```

Sat

near Critical

$(x_i)_{Incip} \approx y_i$

N_s saturated pressures

$R_s(P_{N_s})$

$P_b(R_s(P_{N_s}))$

B_{ob}

μ_{ob}

Sat. BO PVT

"u" for $R_s(P_{N_s}) = 9.8 \frac{scf}{STB}$

$P_{bN_s} = 100$ psia

Table 'End'

S_{N_s-1}

"u"

```
             6000.00   1.0379   0.86654
             7000.00   1.0314   0.92715
             8000.00   1.0255   0.98572
             9000.00   1.0203   1.04233
             10000.00   1.0156   1.09707
             11000.00   1.0113   1.15000 /

1.021e-001    500.00   1.1523   0.38666
             1000.00   1.1411   0.41951
             1250.00   1.1360   0.43575
             1500.00   1.1312   0.45187
             1750.00   1.1267   0.46788
             2000.00   1.1224   0.48377
             2250.00   1.1184   0.49955
             2500.00   1.1146   0.51522
             2750.00   1.1109   0.53078
             3000.00   1.1075   0.54624
             3250.00   1.1042   0.56158
             3500.00   1.1010   0.57683
             3750.00   1.0980   0.59196
             4000.00   1.0951   0.60699
             4250.00   1.0923   0.62191
             4500.00   1.0896   0.63674
             4750.00   1.0871   0.65145
             5000.00   1.0846   0.66607
             5250.00   1.0822   0.68058
             5500.00   1.0799   0.69499
             5549.67   1.0795   0.69784
             6000.00   1.0756   0.72350
             7000.00   1.0677   0.77932
             8000.00   1.0608   0.83355
             9000.00   1.0546   0.88624
             10000.00   1.0490   0.93741
             11000.00   1.0440   0.98711 /

2.452e-001   1000.00   1.2394   0.29990
             1250.00   1.2320   0.31338
             1500.00   1.2252   0.32680
             1750.00   1.2188   0.34014
             2000.00   1.2129   0.35343
             2250.00   1.2072   0.36665
             2500.00   1.2020   0.37982
             2750.00   1.1970   0.39292
             3000.00   1.1922   0.40596
             3250.00   1.1877   0.41895
             3500.00   1.1835   0.43188
             3750.00   1.1794   0.44474
             4000.00   1.1755   0.45755
             4250.00   1.1718   0.47030
             4500.00   1.1683   0.48298
             4750.00   1.1649   0.49561
             5000.00   1.1616   0.50817
             5250.00   1.1585   0.52068
             5500.00   1.1555   0.53312
             5549.67   1.1549   0.53558
             6000.00   1.1498   0.55781
             7000.00   1.1396   0.60645
             8000.00   1.1307   0.65406
             9000.00   1.1228   0.70062
             10000.00   1.1157   0.74615
             11000.00   1.1094   0.79064 /

3.212e-001   1250.00   1.2835   0.26906
             1500.00   1.2754   0.28130
             1750.00   1.2679   0.29350
             2000.00   1.2609   0.30565
             2250.00   1.2544   0.31775
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             2500.00   1.2482   0.32981
             2750.00   1.2424   0.34184
             3000.00   1.2369   0.35381
             3250.00   1.2318   0.36575
             3500.00   1.2268   0.37765
             3750.00   1.2222   0.38950
             4000.00   1.2177   0.40131
             4250.00   1.2135   0.41308
             4500.00   1.2095   0.42480
             4750.00   1.2056   0.43648
             5000.00   1.2019   0.44812
             5250.00   1.1984   0.45971
             5500.00   1.1950   0.47125
             5549.67   1.1943   0.47354
             6000.00   1.1885   0.49420
             7000.00   1.1770   0.53951
             8000.00   1.1670   0.58401
             9000.00   1.1582   0.62769
             10000.00   1.1503   0.67051
             11000.00   1.1433   0.71247 /

4.011e-001   1500.00   1.3291   0.24302
             1750.00   1.3202   0.25415
             2000.00   1.3120   0.26524
             2250.00   1.3044   0.27630
             2500.00   1.2972   0.28734
             2750.00   1.2905   0.29834
             3000.00   1.2842   0.30932
             3250.00   1.2782   0.32027
             3500.00   1.2726   0.33120
             3750.00   1.2672   0.34209
             4000.00   1.2622   0.35296
             4250.00   1.2573   0.36380
             4500.00   1.2527   0.37461
             4750.00   1.2484   0.38539
             5000.00   1.2442   0.39614
             5250.00   1.2402   0.40685
             5500.00   1.2363   0.41754
             5549.67   1.2356   0.41966
             6000.00   1.2291   0.43880
             7000.00   1.2162   0.48091
             8000.00   1.2050   0.52240
             9000.00   1.1951   0.56325
             10000.00   1.1864   0.60342
             11000.00   1.1786   0.64288 /

4.856e-001   1750.00   1.3766   0.22078
             2000.00   1.3669   0.23090
             2250.00   1.3580   0.24099
             2500.00   1.3497   0.25106
             2750.00   1.3419   0.26112
             3000.00   1.3346   0.27116
             3250.00   1.3277   0.28119
             3500.00   1.3213   0.29120
             3750.00   1.3152   0.30120
             4000.00   1.3094   0.31118
             4250.00   1.3039   0.32114
             4500.00   1.2987   0.33109
             4750.00   1.2937   0.34102
             5000.00   1.2890   0.35092
             5250.00   1.2844   0.36081
             5500.00   1.2801   0.37067
             5549.67   1.2793   0.37263
             6000.00   1.2720   0.39034
             7000.00   1.2575   0.42937
             8000.00   1.2450   0.46796
             9000.00   1.2340   0.50607
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            10000.00   1.2243   0.54365
            11000.00   1.2157   0.58066 /

5.749e-001  2000.00   1.4262   0.20161
            2250.00   1.4158   0.21081
            2500.00   1.4061   0.22000
            2750.00   1.3970   0.22917
            3000.00   1.3886   0.23835
            3250.00   1.3807   0.24751
            3500.00   1.3733   0.25667
            3750.00   1.3663   0.26582
            4000.00   1.3597   0.27497
            4250.00   1.3535   0.28411
            4500.00   1.3476   0.29324
            4750.00   1.3419   0.30236
            5000.00   1.3366   0.31148
            5250.00   1.3315   0.32058
            5500.00   1.3266   0.32967
            5549.67   1.3256   0.33148
            6000.00   1.3174   0.34781
            7000.00   1.3012   0.38392
            8000.00   1.2873   0.41973
            9000.00   1.2751   0.45519
            10000.00   1.2644   0.49026
            11000.00   1.2549   0.52490 /

6.696e-001  2250.00   1.4783   0.18496
            2500.00   1.4670   0.19332
            2750.00   1.4565   0.20169
            3000.00   1.4468   0.21005
            3250.00   1.4377   0.21842
            3500.00   1.4292   0.22678
            3750.00   1.4212   0.23515
            4000.00   1.4136   0.24352
            4250.00   1.4065   0.25188
            4500.00   1.3998   0.26025
            4750.00   1.3934   0.26862
            5000.00   1.3874   0.27699
            5250.00   1.3816   0.28535
            5500.00   1.3761   0.29371
            5549.67   1.3750   0.29537
            6000.00   1.3658   0.31042
            7000.00   1.3477   0.34374
            8000.00   1.3322   0.37690
            9000.00   1.3187   0.40983
            10000.00   1.3068   0.44249
            11000.00   1.2963   0.47483 /

7.702e-001  2500.00   1.5331   0.17037
            2750.00   1.5209   0.17799
            3000.00   1.5096   0.18560
            3250.00   1.4992   0.19323
            3500.00   1.4894   0.20086
            3750.00   1.4802   0.20849
            4000.00   1.4716   0.21613
            4250.00   1.4635   0.22378
            4500.00   1.4559   0.23144
            4750.00   1.4487   0.23910
            5000.00   1.4418   0.24677
            5250.00   1.4353   0.25444
            5500.00   1.4291   0.26211
            5549.67   1.4279   0.26363
            6000.00   1.4176   0.27746
            7000.00   1.3973   0.30816
            8000.00   1.3800   0.33879
            9000.00   1.3651   0.36931
            10000.00   1.3519   0.39965
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             11000.00   1.3403   0.42977 /

8.775e-001   2750.00   1.5912   0.15751
             3000.00   1.5781   0.16444
             3250.00   1.5659   0.17137
             3500.00   1.5547   0.17832
             3750.00   1.5442   0.18528
             4000.00   1.5343   0.19225
             4250.00   1.5251   0.19923
             4500.00   1.5164   0.20622
             4750.00   1.5082   0.21322
             5000.00   1.5005   0.22023
             5250.00   1.4931   0.22725
             5500.00   1.4861   0.23428
             5549.67   1.4848   0.23568
             6000.00   1.4731   0.24836
             7000.00   1.4504   0.27657
             8000.00   1.4312   0.30482
             9000.00   1.4146   0.33303
             10000.00   1.4001   0.36115
             11000.00   1.3873   0.38914 /

9.924e-001   3000.00   1.6530   0.14606
             3250.00   1.6389   0.15237
             3500.00   1.6259   0.15869
             3750.00   1.6138   0.16502
             4000.00   1.6026   0.17136
             4250.00   1.5920   0.17772
             4500.00   1.5821   0.18409
             4750.00   1.5728   0.19048
             5000.00   1.5640   0.19688
             5250.00   1.5557   0.20329
             5500.00   1.5478   0.20971
             5549.67   1.5463   0.21099
             6000.00   1.5332   0.22260
             7000.00   1.5078   0.24848
             8000.00   1.4863   0.27446
             9000.00   1.4679   0.30047
             10000.00   1.4519   0.32648
             11000.00   1.4377   0.35243 /

1.116e+000   3250.00   1.7193   0.13580
             3500.00   1.7042   0.14154
             3750.00   1.6903   0.14729
             4000.00   1.6773   0.15305
             4250.00   1.6652   0.15883
             4500.00   1.6539   0.16463
             4750.00   1.6433   0.17044
             5000.00   1.6333   0.17627
             5250.00   1.6239   0.18212
             5500.00   1.6150   0.18798
             5549.67   1.6132   0.18914
             6000.00   1.5985   0.19974
             7000.00   1.5700   0.22342
             8000.00   1.5460   0.24726
             9000.00   1.5256   0.27120
             10000.00   1.5078   0.29518
             11000.00   1.4922   0.31917 /

1.250e+000   3500.00   1.7910   0.12651
             3750.00   1.7749   0.13172
             4000.00   1.7599   0.13695
             4250.00   1.7460   0.14220
             4500.00   1.7330   0.14746
             4750.00   1.7209   0.15274
             5000.00   1.7095   0.15804
             5250.00   1.6988   0.16336
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```
            5500.00   1.6887   0.16869
            5549.67   1.6867   0.16975
            6000.00   1.6701   0.17941
            7000.00   1.6380   0.20102
            8000.00   1.6113   0.22283
            9000.00   1.5885   0.24479
            10000.00   1.5688   0.26685
            11000.00   1.5516   0.28897 /

1.397e+000  3750.00   1.8694   0.11802
            4000.00   1.8520   0.12276
            4250.00   1.8360   0.12751
            4500.00   1.8210   0.13228
            4750.00   1.8071   0.13706
            5000.00   1.7941   0.14186
            5250.00   1.7819   0.14669
            5500.00   1.7704   0.15152
            5549.67   1.7681   0.15249
            6000.00   1.7492   0.16126
            7000.00   1.7131   0.18092
            8000.00   1.6831   0.20082
            9000.00   1.6577   0.22090
            10000.00   1.6358   0.24113
            11000.00   1.6167   0.26145 /

1.560e+000  4000.00   1.9560   0.11018
            4250.00   1.9373   0.11447
            4500.00   1.9201   0.11878
            4750.00   1.9040   0.12311
            5000.00   1.8890   0.12745
            5250.00   1.8750   0.13181
            5500.00   1.8619   0.13619
            5549.67   1.8594   0.13706
            6000.00   1.8378   0.14500
            7000.00   1.7969   0.16283
            8000.00   1.7631   0.18091
            9000.00   1.7347   0.19921
            10000.00   1.7103   0.21768
            11000.00   1.6890   0.23628 /

1.741e+000  4250.00   2.0534   0.10285
            4500.00   2.0332   0.10673
            4750.00   2.0146   0.11063
            5000.00   1.9972   0.11454
            5250.00   1.9811   0.11847
            5500.00   1.9659   0.12241
            5549.67   1.9630   0.12320
            6000.00   1.9383   0.13036
            7000.00   1.8917   0.14646
            8000.00   1.8535   0.16283
            9000.00   1.8215   0.17943
            10000.00   1.7942   0.19622
            11000.00   1.7705   0.21316 /

1.949e+000  4500.00   2.1652   0.09588
            4750.00   2.1433   0.09938
            5000.00   2.1231   0.10289
            5250.00   2.1043   0.10641
            5500.00   2.0867   0.10995
            5549.67   2.0833   0.11066
            6000.00   2.0548   0.11708
            7000.00   2.0013   0.13155
            8000.00   1.9578   0.14628
            9000.00   1.9215   0.16125
            10000.00   1.8907   0.17642
            11000.00   1.8640   0.19177 /
```

```
2.193e+000  4750.00   2.2978   0.08911
            5000.00   2.2739   0.09224
            5250.00   2.2517   0.09538
            5500.00   2.2310   0.09854
            5549.67   2.2271   0.09917
            6000.00   2.1937   0.10490
            7000.00   2.1316   0.11780
            8000.00   2.0815   0.13096
            9000.00   2.0400   0.14435
            10000.00   2.0049   0.15796
            11000.00   1.9746   0.17175 /

2.493e+000  5000.00   2.4637   0.08229
            5250.00   2.4370   0.08507
            5500.00   2.4123   0.08785
            5549.67   2.4076   0.08841
            6000.00   2.3678   0.09346
            7000.00   2.2943   0.10485
            8000.00   2.2356   0.11646
            9000.00   2.1873   0.12831
            10000.00   2.1467   0.14036
            11000.00   2.1119   0.15260 /

2.900e+000  5250.00   2.6934   0.07493
            5500.00   2.6627   0.07735
            5549.67   2.6568   0.07783
            6000.00   2.6077   0.08220
            7000.00   2.5177   0.09205
            8000.00   2.4467   0.10209
            9000.00   2.3887   0.11233
            10000.00   2.3402   0.12278
            11000.00   2.2989   0.13340 /

3.636e+000  5500.00   3.1299   0.06506
            5549.67   3.1217   0.06545
            6000.00   3.0537   0.06903
            7000.00   2.9311   0.07702
            8000.00   2.8357   0.08515
            9000.00   2.7589   0.09344
            10000.00   2.6953   0.10190
            11000.00   2.6416   0.11052 /

3.985e+000  5549.67   3.3462   0.06143
            6000.00   3.2686   0.06475
            7000.00   3.1294   0.07214
            8000.00   3.0219   0.07964
            9000.00   2.9357   0.08728
            10000.00   2.8647   0.09507
            11000.00   2.8048   0.10302 /

/

-- ------------------------------------------------
-- Gas PVT table no. 1
-- ------------------------------------------------

--  dewpoint(psia)  rv(bbl/Mscf)   Bg(rb/Mscf)  Visg(cp)
PVTG
 100.00 1.5205e-001  4.1279e+001   0.01222 /

 200.00 7.9921e-002  1.9071e+001   0.01282 /

  500.00 3.9473e-002  7.1265e+000   0.01358 /

1000.00 2.8780e-002  3.4011e+000   0.01456 /

1250.00 2.8194e-002  2.6824e+000   0.01513 /
```

3985 scf/STB

U

Table End

S

S

S

S

no "U" tables

Pd	$r_s(P_d)$	$B_{gd,s}$	μ_{gs}	
1500.00	2.8974e-002	2.2122e+000	0.01580	
	2.8194e-002	2.2079e+000	0.01581	/ ⇒ u
1750.00	3.0711e-002	1.8830e+000	0.01658	s
	2.8974e-002	1.8807e+000	0.01658	u
	2.8194e-002	1.8768e+000	0.01659	u
2000.00	3.3213e-002	1.6415e+000	0.01749	s
	3.0711e-002	1.6407e+000	0.01746	u
	2.8974e-002	1.6386e+000	0.01745	u
	2.8194e-002	1.6351e+000	0.01748	u
2250.00	3.6388e-002	1.4583e+000	0.01853	
	3.3213e-002	1.4585e+000	0.01846	
	3.0711e-002	1.4577e+000	0.01842	
	2.8974e-002	1.4559e+000	0.01841	
	2.8194e-002	1.4526e+000	0.01844	/
2500.00	4.0194e-002	1.3159e+000	0.01971	
	3.6388e-002	1.3166e+000	0.01959	
	3.3213e-002	1.3167e+000	0.01950	
	3.0711e-002	1.3159e+000	0.01945	
	2.8974e-002	1.3142e+000	0.01943	
	2.8194e-002	1.3113e+000	0.01947	/
2750.00	4.4622e-002	1.2031e+000	0.02103	
	4.0194e-002	1.2041e+000	0.02084	
	3.6388e-002	1.2045e+000	0.02069	
	3.3213e-002	1.2044e+000	0.02058	
	3.0711e-002	1.2036e+000	0.02052	
	2.8974e-002	1.2020e+000	0.02050	
	2.8194e-002	1.1994e+000	0.02055	/
3000.00	4.9687e-002	1.1124e+000	0.02248	
	4.4622e-002	1.1134e+000	0.02221	
	4.0194e-002	1.1140e+000	0.02199	
	3.6388e-002	1.1141e+000	0.02182	
	3.3213e-002	1.1138e+000	0.02169	
	3.0711e-002	1.1129e+000	0.02162	
	2.8974e-002	1.1114e+000	0.02160	
	2.8194e-002	1.1091e+000	0.02166	/
3250.00	5.5426e-002	1.0387e+000	0.02407	
	4.9687e-002	1.0395e+000	0.02370	
	4.4622e-002	1.0401e+000	0.02340	
	4.0194e-002	1.0402e+000	0.02316	
	3.6388e-002	1.0401e+000	0.02296	
	3.3213e-002	1.0396e+000	0.02282	
	3.0711e-002	1.0386e+000	0.02273	
	2.8974e-002	1.0372e+000	0.02271	
	2.8194e-002	1.0351e+000	0.02278	/
3500.00	6.1900e-002	9.7843e-001	0.02579	
	5.5426e-002	9.7892e-001	0.02532	
	4.9687e-002	9.7917e-001	0.02492	
	4.4622e-002	9.7919e-001	0.02459	
	4.0194e-002	9.7898e-001	0.02432	
	3.6388e-002	9.7852e-001	0.02410	
	3.3213e-002	9.7782e-001	0.02395	
	3.0711e-002	9.7681e-001	0.02385	
	2.8974e-002	9.7541e-001	0.02383	
	2.8194e-002	9.7351e-001	0.02390	/
3750.00	6.9206e-002	9.2899e-001	0.02765	
	6.1900e-002	9.2891e-001	0.02705	
	5.5426e-002	9.2872e-001	0.02654	

(y_i) r_s

r_s

e.g. $P_d = 1250$
$r_s = 0.028194$
$P = 1500$

```
        4.9687e-002  9.2842e-001   0.02612
        4.4622e-002  9.2798e-001   0.02576
        4.0194e-002  9.2741e-001   0.02546
        3.6388e-002  9.2670e-001   0.02523
        3.3213e-002  9.2582e-001   0.02506
        3.0711e-002  9.2473e-001   0.02496
        2.8974e-002  9.2338e-001   0.02493
        2.8194e-002  9.2166e-001   0.02501 /

4000.00 7.7484e-002  8.8844e-001   0.02966
        6.9206e-002  8.8760e-001   0.02891
        6.1900e-002  8.8681e-001   0.02828
        5.5426e-002  8.8603e-001   0.02774
        4.9687e-002  8.8524e-001   0.02729
        4.4622e-002  8.8440e-001   0.02691
        4.0194e-002  8.8351e-001   0.02659
        3.6388e-002  8.8255e-001   0.02634
        3.3213e-002  8.8152e-001   0.02616
        3.0711e-002  8.8035e-001   0.02605
        2.8974e-002  8.7903e-001   0.02602
        2.8194e-002  8.7749e-001   0.02611 /

4250.00 8.6945e-002  8.5542e-001   0.03185
        7.7484e-002  8.5361e-001   0.03092
        6.9206e-002  8.5205e-001   0.03014
        6.1900e-002  8.5064e-001   0.02948
        5.5426e-002  8.4934e-001   0.02891
        4.9687e-002  8.4810e-001   0.02843
        4.4622e-002  8.4690e-001   0.02803
        4.0194e-002  8.4572e-001   0.02769
        3.6388e-002  8.4455e-001   0.02743
        3.3213e-002  8.4336e-001   0.02724
        3.0711e-002  8.4214e-001   0.02712
        2.8974e-002  8.4085e-001   0.02709
        2.8194e-002  8.3946e-001   0.02719 /

4500.00 9.7920e-002  8.2900e-001   0.03427
        8.6945e-002  8.2593e-001   0.03311
        7.7484e-002  8.2338e-001   0.03214
        6.9206e-002  8.2118e-001   0.03133
        6.1900e-002  8.1924e-001   0.03064
        5.5426e-002  8.1748e-001   0.03005
        4.9687e-002  8.1585e-001   0.02954
        4.4622e-002  8.1433e-001   0.02912
        4.0194e-002  8.1290e-001   0.02877
        3.6388e-002  8.1153e-001   0.02849
        3.3213e-002  8.1021e-001   0.02829
        3.0711e-002  8.0893e-001   0.02817
        2.8974e-002  8.0766e-001   0.02814
        2.8194e-002  8.0641e-001   0.02824 /

4750.00 1.1097e-001  8.0870e-001   0.03700
        9.7920e-002  8.0392e-001   0.03552
        8.6945e-002  8.0009e-001   0.03432
        7.7484e-002  7.9690e-001   0.03332
        6.9206e-002  7.9415e-001   0.03248
        6.1900e-002  7.9173e-001   0.03176
        5.5426e-002  7.8956e-001   0.03115
        4.9687e-002  7.8760e-001   0.03063
        4.4622e-002  7.8579e-001   0.03019
        4.0194e-002  7.8413e-001   0.02982
        3.6388e-002  7.8258e-001   0.02953
        3.3213e-002  7.8115e-001   0.02932
        3.0711e-002  7.7981e-001   0.02919
        2.8974e-002  7.7856e-001   0.02916
        2.8194e-002  7.7743e-001   0.02926 /
```

```
5000.00 1.2715e-001  7.9460e-001   0.04022
        1.1097e-001  7.8729e-001   0.03826
        9.7920e-002  7.8173e-001   0.03674
        8.6945e-002  7.7725e-001   0.03550
        7.7484e-002  7.7350e-001   0.03447
        6.9206e-002  7.7027e-001   0.03360
        6.1900e-002  7.6743e-001   0.03286
        5.5426e-002  7.6491e-001   0.03222
        4.9687e-002  7.6264e-001   0.03168
        4.4622e-002  7.6058e-001   0.03122
        4.0194e-002  7.5872e-001   0.03084
        3.6388e-002  7.5702e-001   0.03054
        3.3213e-002  7.5548e-001   0.03032
        3.0711e-002  7.5409e-001   0.03019
        2.8974e-002  7.5286e-001   0.03016
        2.8194e-002  7.5184e-001   0.03026 /

5250.00 1.4905e-001  7.8806e-001   0.04435
        1.2715e-001  7.7630e-001   0.04150
        1.1097e-001  7.6818e-001   0.03949
        9.7920e-002  7.6195e-001   0.03792
        8.6945e-002  7.5691e-001   0.03665
        7.7484e-002  7.5267e-001   0.03559
        6.9206e-002  7.4901e-001   0.03469
        6.1900e-002  7.4582e-001   0.03392
        5.5426e-002  7.4298e-001   0.03327
        4.9687e-002  7.4044e-001   0.03271
        4.4622e-002  7.3816e-001   0.03223
        4.0194e-002  7.3611e-001   0.03184
        3.6388e-002  7.3427e-001   0.03153
        3.3213e-002  7.3264e-001   0.03130
        3.0711e-002  7.3121e-001   0.03116
        2.8974e-002  7.3000e-001   0.03113
        2.8194e-002  7.2908e-001   0.03124 /

5500.00 1.8838e-001  7.9735e-001   0.05132
        1.4905e-001  7.7249e-001   0.04570
        1.2715e-001  7.5983e-001   0.04276
        1.1097e-001  7.5102e-001   0.04069
        9.7920e-002  7.4421e-001   0.03908
        8.6945e-002  7.3866e-001   0.03777
        7.7484e-002  7.3400e-001   0.03667
        6.9206e-002  7.2997e-001   0.03575
        6.1900e-002  7.2645e-001   0.03496
        5.5426e-002  7.2334e-001   0.03428
        4.9687e-002  7.2057e-001   0.03370
        4.4622e-002  7.1809e-001   0.03322
        4.0194e-002  7.1587e-001   0.03281
        3.6388e-002  7.1391e-001   0.03249
        3.3213e-002  7.1219e-001   0.03225
        3.0711e-002  7.1072e-001   0.03211
        2.8974e-002  7.0954e-001   0.03208
        2.8194e-002  7.0870e-001   0.03219 /

5549.67 2.0674e-001  8.0731e-001   0.05440
        1.8838e-001  7.9470e-001   0.05162
        1.4905e-001  7.6957e-001   0.04597
        1.2715e-001  7.5676e-001   0.04301
        1.1097e-001  7.4781e-001   0.04092
        9.7920e-002  7.4090e-001   0.03930
        8.6945e-002  7.3526e-001   0.03798
        7.7484e-002  7.3051e-001   0.03689
        6.9206e-002  7.2642e-001   0.03596
        6.1900e-002  7.2284e-001   0.03516
        5.5426e-002  7.1968e-001   0.03448
        4.9687e-002  7.1686e-001   0.03390
        4.4622e-002  7.1434e-001   0.03341
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        4.0194e-002  7.1210e-001   0.03300
        3.6388e-002  7.1012e-001   0.03268
        3.3213e-002  7.0838e-001   0.03244
        3.0711e-002  7.0691e-001   0.03229
        2.8974e-002  7.0572e-001   0.03226
        2.8194e-002  7.0490e-001   0.03237 /

6000.00 2.0674e-001  7.8611e-001   0.05727
        1.8838e-001  7.7266e-001   0.05432
        1.4905e-001  7.4548e-001   0.04834
        1.2715e-001  7.3137e-001   0.04522
        1.1097e-001  7.2140e-001   0.04302
        9.7920e-002  7.1364e-001   0.04132
        8.6945e-002  7.0727e-001   0.03993
        7.7484e-002  7.0189e-001   0.03878
        6.9206e-002  6.9726e-001   0.03780
        6.1900e-002  6.9320e-001   0.03696
        5.5426e-002  6.8962e-001   0.03625
        4.9687e-002  6.8645e-001   0.03563
        4.4622e-002  6.8363e-001   0.03512
        4.0194e-002  6.8115e-001   0.03469
        3.6388e-002  6.7897e-001   0.03435
        3.3213e-002  6.7711e-001   0.03409
        3.0711e-002  6.7558e-001   0.03394
        2.8974e-002  6.7442e-001   0.03391
        2.8194e-002  6.7374e-001   0.03403 /

7000.00 2.0674e-001  7.4853e-001   0.06362
        1.8838e-001  7.3379e-001   0.06027
        1.4905e-001  7.0342e-001   0.05350
        1.2715e-001  6.8729e-001   0.04998
        1.1097e-001  6.7572e-001   0.04751
        9.7920e-002  6.6662e-001   0.04560
        8.6945e-002  6.5911e-001   0.04406
        7.7484e-002  6.5273e-001   0.04277
        6.9206e-002  6.4721e-001   0.04168
        6.1900e-002  6.4239e-001   0.04075
        5.5426e-002  6.3814e-001   0.03995
        4.9687e-002  6.3440e-001   0.03927
        4.4622e-002  6.3109e-001   0.03870
        4.0194e-002  6.2821e-001   0.03822
        3.6388e-002  6.2574e-001   0.03784
        3.3213e-002  6.2367e-001   0.03756
        3.0711e-002  6.2205e-001   0.03739
        2.8974e-002  6.2094e-001   0.03735
        2.8194e-002  6.2049e-001   0.03748 /

8000.00 2.0674e-001  7.1988e-001   0.07001
        1.8838e-001  7.0432e-001   0.06623
        1.4905e-001  6.7192e-001   0.05860
        1.2715e-001  6.5450e-001   0.05465
        1.1097e-001  6.4191e-001   0.05188
        9.7920e-002  6.3195e-001   0.04975
        8.6945e-002  6.2369e-001   0.04802
        7.7484e-002  6.1666e-001   0.04659
        6.9206e-002  6.1057e-001   0.04538
        6.1900e-002  6.0524e-001   0.04435
        5.5426e-002  6.0055e-001   0.04347
        4.9687e-002  5.9642e-001   0.04271
        4.4622e-002  5.9280e-001   0.04208
        4.0194e-002  5.8965e-001   0.04155
        3.6388e-002  5.8697e-001   0.04113
        3.3213e-002  5.8478e-001   0.04082
        3.0711e-002  5.8310e-001   0.04063
        2.8974e-002  5.8203e-001   0.04059
        2.8194e-002  5.8173e-001   0.04073 /
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```
9000.00 2.0674e-001  6.9713e-001   0.07650
        1.8838e-001  6.8102e-001   0.07227
        1.4905e-001  6.4727e-001   0.06372
        1.2715e-001  6.2897e-001   0.05931
        1.1097e-001  6.1570e-001   0.05622
        9.7920e-002  6.0515e-001   0.05384
        8.6945e-002  5.9639e-001   0.05192
        7.7484e-002  5.8891e-001   0.05033
        6.9206e-002  5.8243e-001   0.04899
        6.1900e-002  5.7675e-001   0.04785
        5.5426e-002  5.7176e-001   0.04687
        4.9687e-002  5.6737e-001   0.04604
        4.4622e-002  5.6352e-001   0.04534
        4.0194e-002  5.6020e-001   0.04476
        3.6388e-002  5.5738e-001   0.04429
        3.3213e-002  5.5509e-001   0.04395
        3.0711e-002  5.5337e-001   0.04375
        2.8974e-002  5.5233e-001   0.04370
        2.8194e-002  5.5216e-001   0.04386 /

10000.00 2.0674e-001  6.7852e-001   0.08311
        1.8838e-001  6.6203e-001   0.07840
        1.4905e-001  6.2733e-001   0.06891
        1.2715e-001  6.0843e-001   0.06401
        1.1097e-001  5.9467e-001   0.06058
        9.7920e-002  5.8371e-001   0.05794
        8.6945e-002  5.7459e-001   0.05582
        7.7484e-002  5.6680e-001   0.05405
        6.9206e-002  5.6004e-001   0.05257
        6.1900e-002  5.5412e-001   0.05131
        5.5426e-002  5.4891e-001   0.05023
        4.9687e-002  5.4433e-001   0.04932
        4.4622e-002  5.4033e-001   0.04855
        4.0194e-002  5.3688e-001   0.04791
        3.6388e-002  5.3396e-001   0.04740
        3.3213e-002  5.3161e-001   0.04702
        3.0711e-002  5.2987e-001   0.04679
        2.8974e-002  5.2886e-001   0.04674
        2.8194e-002  5.2878e-001   0.04691 /

11000.00 2.0674e-001  6.6294e-001   0.08985
        1.8838e-001  6.4618e-001   0.08466
        1.4905e-001  6.1080e-001   0.07418
        1.2715e-001  5.9146e-001   0.06877
        1.1097e-001  5.7735e-001   0.06498
        9.7920e-002  5.6610e-001   0.06207
        8.6945e-002  5.5672e-001   0.05973
        7.7484e-002  5.4870e-001   0.05779
        6.9206e-002  5.4174e-001   0.05616
        6.1900e-002  5.3564e-001   0.05477
        5.5426e-002  5.3027e-001   0.05359
        4.9687e-002  5.2556e-001   0.05258
        4.4622e-002  5.2144e-001   0.05173
        4.0194e-002  5.1789e-001   0.05103
        3.6388e-002  5.1491e-001   0.05047
        3.3213e-002  5.1251e-001   0.05006
        3.0711e-002  5.1076e-001   0.04981
        2.8974e-002  5.0977e-001   0.04975
        2.8194e-002  5.0976e-001   0.04994 /

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