FLOW OF FLUIDS IN POROUS MEDIA

Reservoir Pressure Effects Computations

Production Rate (STBbl/Day)	10
Time of Operation (Days)	10950
Initial Reservoir Pressure (psia)	150
Injected Fluid Viscosity (cp)	0.75
Formation Volume Factor (ResBbl/STBbl)	1
Formation Porosity (Percent)	35
Formation Permeability (md)	1000
Formation Interval Thickness (Ft)	100
Formation Compressibility (1/psi)	1.50E-05
Specified Radius (Ft)	13405.8
Computed Pressure Change @ Specified Radius (psia)	**-0.029**
Resulting Reservoir Pressure @ Specified Radius (psia)	**150.0**

Compute Diffusivity Fac

Numerator
Denominator

Diffusivity Factor =

Compute "x"

Numerator

Denominator

x =

Compute Ei(-x)

Ei(-x)

Compute Reservoir Pressure Change @ Specified Radius

Numerator
Denominator

Pressure Change =

Resulting Reservoir Pressure @ Specified Radius =

tor
6.32
3.94E-06
1.61E+06
179715474
7.03E+10
2.56E-03
1.6337E-06
9.2805E-10
4.4482E-13
1.8194E-16
-5.39
7.5
1416
-0.029

150.0

Examples of Results of Drawdown Computations
Individual Wells

WSW MAP ID	WELL USE	10 BWPD WSW EST. FEET TO TPW-14	1000 md WSW EST. DRAWDOWN PSI	WSW EST. DRAWDOWN FT
1	R	13405.8	-0.028404	-0.065313
2	R	11187.0	-0.030303	-0.069679
3	R	11109.5	-0.030376	-0.069847
4	R	8609.9	-0.033053	-0.076002
6	R	7648.5	-0.034297	-0.078862
7	R	7130.3	-0.035034	-0.080558
9	R	9939.7	-0.031544	-0.072533
10	R	9230.1	-0.032322	-0.074322
160	R	9198.6	-0.032358	-0.074404
11	R	6680.3	-0.035719	-0.082133
12	R	10588.5	-0.030880	-0.071006
14	R	5806.2	-0.037193	-0.085522
15	R	5080.2	-0.038597	-0.088751
16	R	5943.9	-0.036947	-0.084956
17	R	4359.7	-0.040205	-0.092449
18	R	4100.9	-0.040849	-0.093928
19	R	7820.6	-0.034063	-0.078325
22	R	5252.2	-0.038247	-0.087946
23	R	10167.1	-0.031306	-0.071987
26	R	7079.8	-0.035109	-0.080729
27	R	6692.8	-0.035699	-0.082088
30	R	3803.0	-0.041641	-0.095751
31	R	5141.9	-0.038470	-0.088459
32	R	4497.1	-0.039879	-0.091698
35	R	3398.4	-0.042824	-0.098471
36	R	3339.8	-0.043007	-0.098891
37	R	2493.7	-0.046079	-0.105955
38	R	1199.4	-0.053776	-0.123654
39	R	1596.7	-0.050767	-0.116736
42	R	7192.8	-0.034942	-0.080347
43	R	7996.6	-0.033829	-0.077787
44	R	13384.1	-0.028421	-0.065352
45	R	5910.3	-0.037006	-0.085093
46	R	5334.6	-0.038083	-0.087570
48	R	3378.2	-0.042887	-0.098615
49	R	3864.9	-0.041472	-0.095361
50	R	3788.4	-0.041682	-0.095844
51	R	2955.9	-0.044291	-0.101844

53	R	3545.3	-0.042379	-0.097448
54	R	4189.8	-0.040623	-0.093410
56	R	7085.2	-0.035101	-0.080711
60	R	12344.5	-0.029269	-0.067303
62	R	9458.5	-0.032065	-0.073731
63	R	10168.2	-0.031305	-0.071984
72	R	5703.9	-0.037380	-0.085952
74	R	10782.8	-0.030689	-0.070567
75	R	12136.9	-0.029447	-0.067712
76	R	12696.9	-0.028974	-0.066623
79	R	11479.1	-0.030032	-0.069057
80	R	15958.4	-0.026577	-0.061111
81	R	15970.2	-0.026569	-0.061093
82	R	17136.8	-0.025830	-0.059395
83	R	20154.3	-0.024133	-0.055492
84	R	17373.8	-0.025686	-0.059064
85	R	18827.7	-0.024845	-0.057129
86	R	18351.8	-0.025113	-0.057745
87	R	18200.9	-0.025199	-0.057944
92	R	11158.2	-0.030330	-0.069741
93	R	10003.2	-0.031477	-0.072379
94	R	10873.5	-0.030601	-0.070365
95	R	10676.1	-0.030794	-0.070807
96	R	10391.3	-0.031077	-0.071460
97	R	10760.1	-0.030711	-0.070618
102	R	10752.4	-0.030719	-0.070635
108	R	13076.7	-0.028665	-0.065912
109	R	10010.4	-0.031470	-0.072362
110	R	10530.5	-0.030938	-0.071139
114	R	13500.7	-0.028330	-0.065143
115	R	13193.9	-0.028571	-0.065697
116	R	11597.5	-0.029924	-0.068809
117	R	11421.6	-0.030085	-0.069178
118	R	11782.4	-0.029758	-0.068427
119	R	12120.6	-0.029461	-0.067744
120	R	11245.8	-0.030248	-0.069552
121	R	11607.9	-0.029915	-0.068787
122	R	13740.8	-0.028145	-0.064717
123	R	14381.4	-0.027667	-0.063619
124	R	15599.6	-0.026815	-0.061659
126	R	17048.9	-0.025884	-0.059518
127	R	17962.6	-0.025337	-0.058261
128	R	18078.2	-0.025270	-0.058107
130	R	18364.4	-0.025106	-0.057729
131	R	17450.9	-0.025640	-0.058957
132	R	18766.3	-0.024879	-0.057208
133	R	19043.1	-0.024726	-0.056856
134	R	19989.8	-0.024219	-0.055689

135	R	19652.5	-0.024397	-0.056098
136	R	24401.2	-0.022136	-0.050900
137	R	26779.5	-0.021167	-0.048672
143	R	14878.4	-0.027311	-0.062800
144	R	15505.3	-0.026878	-0.061805
145	R	15529.9	-0.026862	-0.061767
146	R	16711.6	-0.026093	-0.060000
147	R	17838.8	-0.025410	-0.058428
148	R	18465.4	-0.025048	-0.057597
149	R	18616.4	-0.024963	-0.057401
150	R	19323.9	-0.024573	-0.056504
151	R	19203.9	-0.024638	-0.056653
152	R	23972.0	-0.022321	-0.051326
153	R	24400.4	-0.022136	-0.050901
154	R	25031.0	-0.021870	-0.050289
155	R	26772.3	-0.021170	-0.048678
156	R	27680.0	-0.020823	-0.047880
157	R	28851.9	-0.020392	-0.046889
158	R	12611.4	-0.029045	-0.066786
159	R	10222.4	-0.031250	-0.071856
5	B	8474.8	-0.033219	-0.076384
8	B	7438.7	-0.034589	-0.079535
13	B	6339.7	-0.036269	-0.083398
20	B	3807.8	-0.041628	-0.095721
21	B	3608.4	-0.042194	-0.097021
24	B	8790.6	-0.032834	-0.075500
25	B	8290.7	-0.033450	-0.076915
28	B	5431.8	-0.037894	-0.087134
29	B	5133.3	-0.038488	-0.088500
33	B	4177.0	-0.040655	-0.093484
34	B	4263.9	-0.040439	-0.092986
40	B	3030.5	-0.044029	-0.101241
41	B	5665.3	-0.037451	-0.086116
47	B	2020.8	-0.048290	-0.111040
52	B	3514.6	-0.042471	-0.097658
55	B	6961.5	-0.035286	-0.081137
57	B	7488.2	-0.034519	-0.079374
58	B	9068.2	-0.032508	-0.074749
59	B	6146.2	-0.036595	-0.084147
61	B	9027.0	-0.032556	-0.074859
64	B	11239.7	-0.030253	-0.069565
65	B	11346.4	-0.030154	-0.069337
66	B	12990.3	-0.028734	-0.066072
67	B	14307.3	-0.027721	-0.063743
68	B	8878.5	-0.032730	-0.075260
69	B	9196.2	-0.032361	-0.074411
70	B	6637.6	-0.035786	-0.082288
71	B	6895.0	-0.035387	-0.081369

73	B	7123.1	-0.035045	-0.080582
77	B	14661.2	-0.027465	-0.063154
78	B	11806.1	-0.029737	-0.068379
88	B	15774.7	-0.026698	-0.061390
89	B	15175.5	-0.027104	-0.062323
90	B	13690.8	-0.028183	-0.064805
91	B	10098.7	-0.031377	-0.072150
98	B	10671.7	-0.030798	-0.070817
99	B	11551.1	-0.029967	-0.068906
100	B	8674.3	-0.032974	-0.075822
101	B	10228.9	-0.031243	-0.071840
103	B	10688.2	-0.030782	-0.070780
104	B	11334.0	-0.030166	-0.069364
105	B	11755.7	-0.029782	-0.068482
106	B	11895.3	-0.029658	-0.068197
107	B	12116.4	-0.029465	-0.067753
111	B	11509.6	-0.030004	-0.068993
112	B	12894.6	-0.028812	-0.066251
113	B	13932.9	-0.028000	-0.064383
125	B	13983.2	-0.027962	-0.064296
129	B	17897.0	-0.025376	-0.058350
138	B	14248.9	-0.027764	-0.063842
139	B	13485.3	-0.028342	-0.065170
140	B	14788.5	-0.027375	-0.062946
141	B	15010.2	-0.027219	-0.062587
142	B	13882.3	-0.028038	-0.064470