

The solutions were derived for cases of **bounded aquifers** and **aquifers of infinite extent**. The authors presented their solution in tabulated and graphical forms as reproduced here in Figures 4.8 to 4.11 and Tables 4.2 and 4.3.

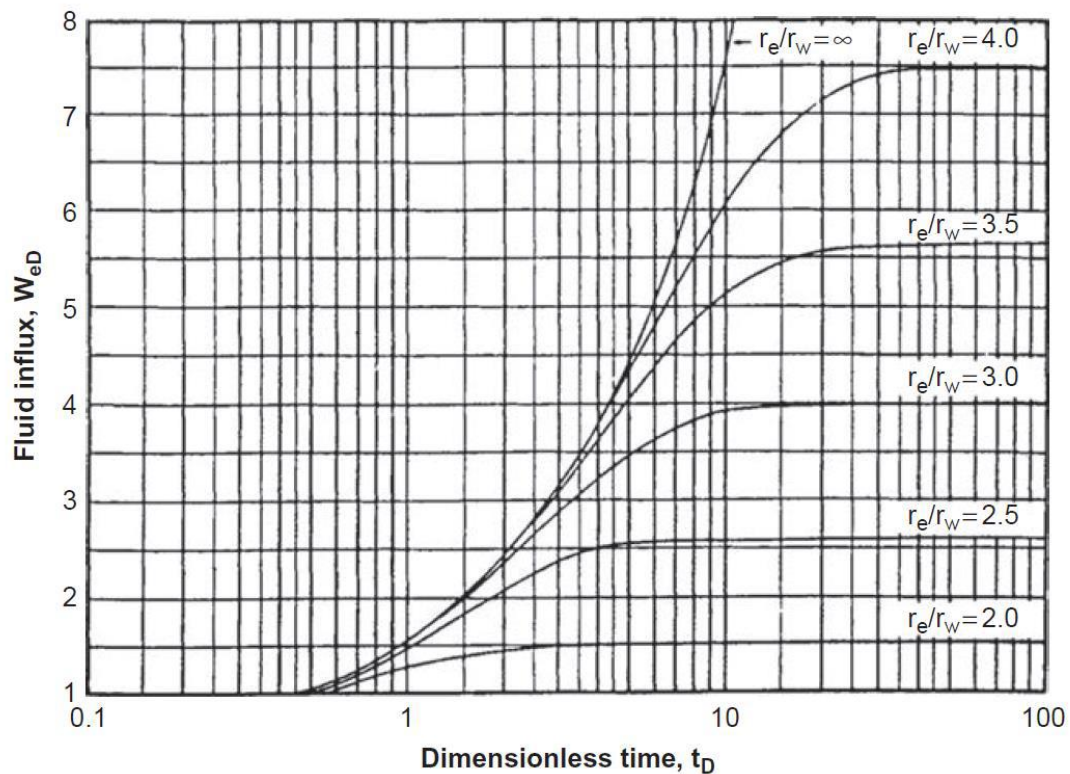


Figure (4.8) Dimensionless water influx  $We_D$  for several values of  $r_e/r_R$ , Consider a circular reservoir of radius  $r_R$  i.e.  $ra/re$ . (Van Everdingen and Hurst  $We_D$ . Permission to publish by the SPE).

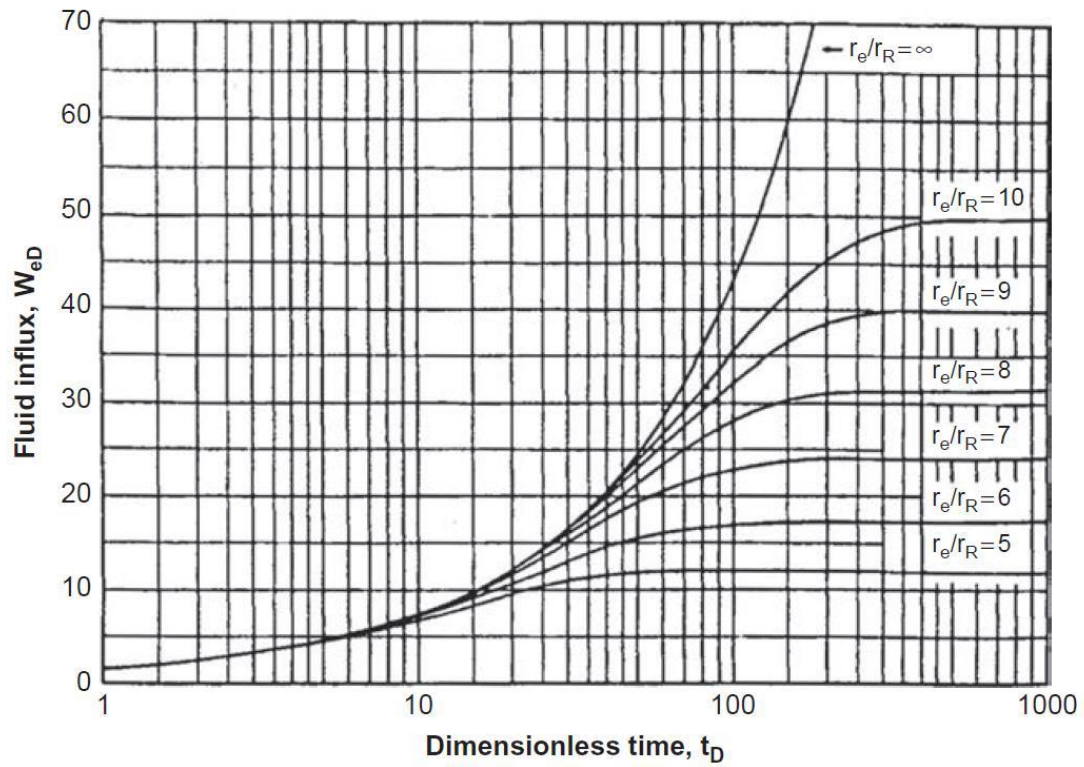


Figure (4.9) Dimensionless water influx  $W_{eD}$  for several values of  $r_e/r_R$ , i.e.  $r_a/r_e$ . (Van Everdingen and Hurst  $W_{eD}$ . Permission to publish by the SPE).

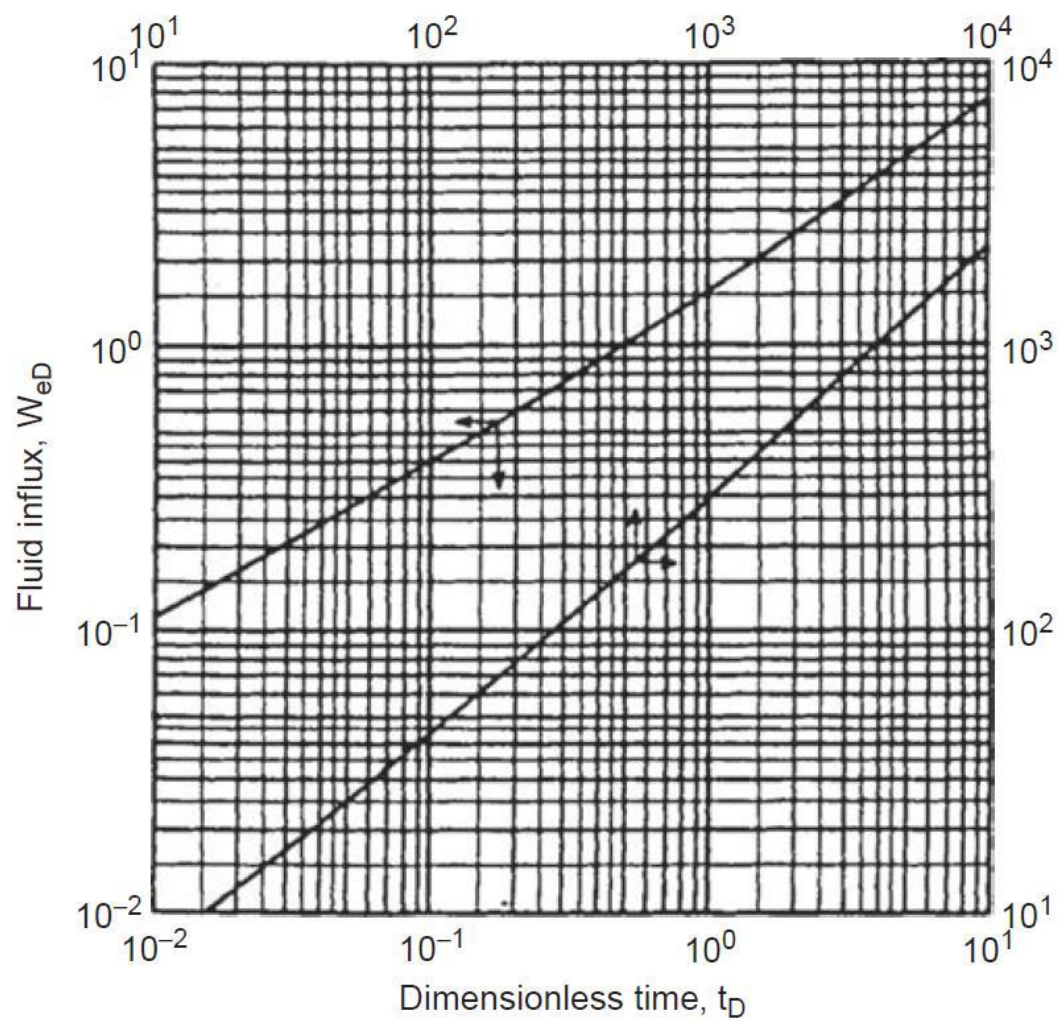


Figure (4.10) Dimensionless water influx  $W_{eD}$  for infinite aquifer. (Van Everdingen and Hurst  $W_{eD}$ . Permission to publish by the SPE).

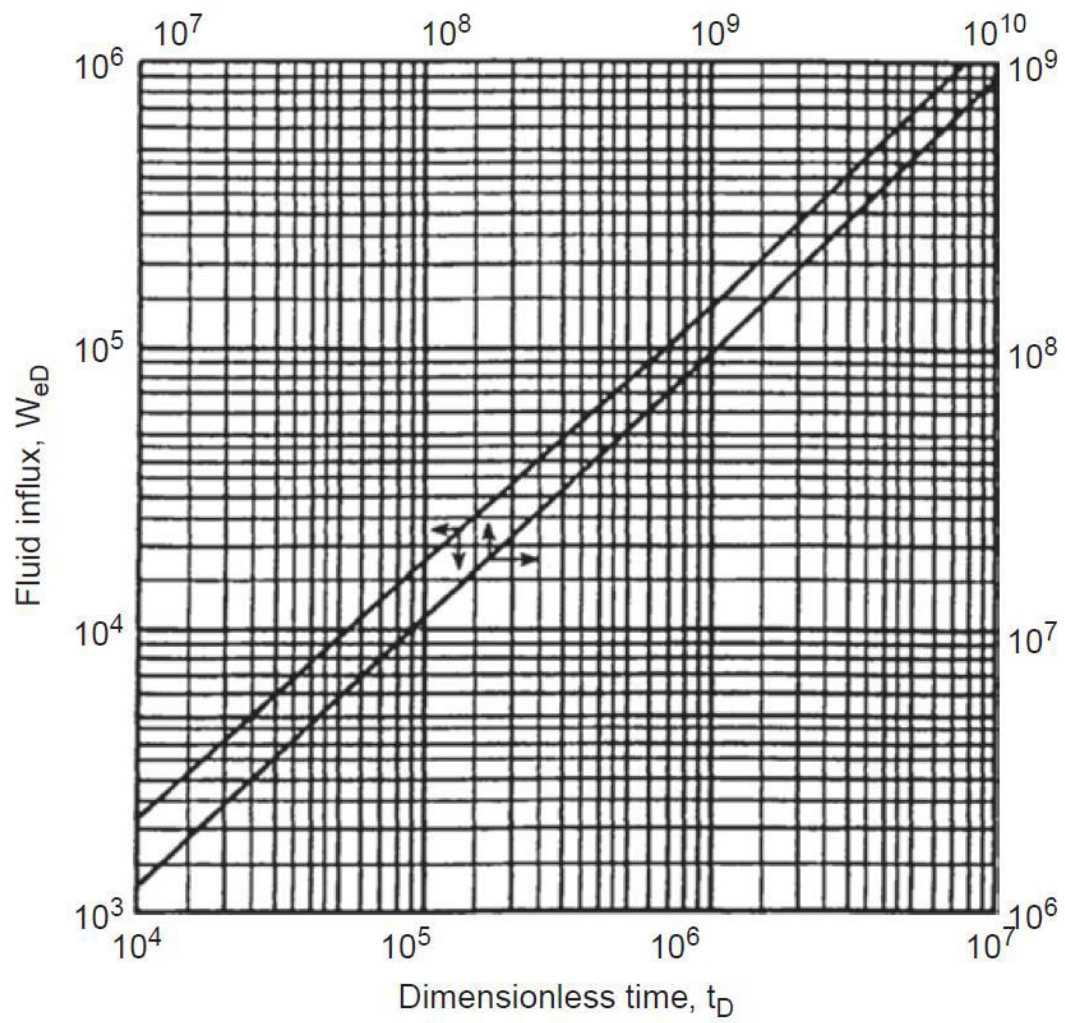


Figure (4.11) Dimensionless water influx  $W_{eD}$  for infinite aquifer. (Van Everdingen and Hurst  $W_{eD}$ . Permission to publish by the SPE).



**Table 4.2** Dimensionless Water Influx  $W_{eD}$  for Infinite Aquifer

Dimensionless time $t_D$	Fluid influx $W_{eD}$	Dimensionless time $t_D$	Fluid influx $W_{eD}$	Dimensionless time $t_D$	Fluid influx $W_{eD}$	Dimensionless time $t_D$	Fluid influx $W_{eD}$	Dimensionless time $t_D$	Fluid influx $W_{eD}$	Dimensionless time $t_D$	Fluid influx $W_{eD}$
0.00	0.000	79	35.697	455	150.249	1190	340.843	3250	816.090	35.000	6780.247
0.01	0.112	80	36.058	460	151.640	1200	343.308	3300	827.088	40.000	7650.096
0.05	0.278	81	36.418	465	153.029	1210	345.770	3350	838.067	50.000	9363.099
0.10	0.404	82	36.777	470	154.416	1220	348.230	3400	849.028	60.000	11,047.299
0.15	0.520	83	37.136	475	155.801	1225	349.460	3450	859.974	70.000	12,708.358
0.20	0.606	84	37.494	480	157.184	1230	350.688	3500	870.903	75.000	13,531.457
0.25	0.689	85	37.851	485	158.565	1240	353.144	3550	881.816	80.000	14,350.121
0.30	0.758	86	38.207	490	159.945	1250	355.597	3600	892.712	90.000	15,975.389
0.40	0.898	87	38.563	495	161.322	1260	358.048	3650	903.594	100.000	17,586.284
0.50	1.020	88	38.919	500	162.698	1270	360.496	3700	914.459	125.000	21,560.732
0.60	1.140	89	39.272	510	165.444	1275	361.720	3750	925.309	$1.5(10)^5$	$2.538(10)^4$
0.70	1.251	90	39.626	520	168.183	1280	362.942	3800	936.144	$2.0''$	$3.308''$
0.80	1.359	91	39.979	525	169.549	1290	365.386	3850	946.966	$2.5''$	$4.066''$
0.90	1.469	92	40.331	530	170.914	1300	367.828	3900	957.773	$3.0''$	$4.817''$
1	1.569	93	40.684	540	173.639	1310	370.267	3950	968.566	$4.0''$	$6.267''$
2	2.447	94	41.034	550	176.357	1320	372.704	4000	979.344	$5.0''$	$7.699''$
3	3.202	95	41.385	560	179.069	1325	373.922	4050	990.108	$6.0''$	$9.113''$
4	3.893	96	41.735	570	181.774	1330	375.139	4100	1000.858	$7.0''$	$1.051(10)^5$

**Table 4.2** Dimensionless Water Influx  $W_{eD}$  for Infinite Aquifer

Dimen- sionless time $t_D$	Fluid influx $W_{eD}$	Dimen- sionless time $t_D$	Fluid influx $W_{eD}$	Dimen- sionless time $t_D$	Fluid influx $W_{eD}$	Dimen- sionless time $t_D$	Fluid influx $W_{eD}$	Dimen- sionless time $t_D$	Fluid influx $W_{eD}$	Dimen- sionless time $t_D$	Fluid influx $W_{eD}$
5	4.539	97	42.084	575	183.124	1340	377.572	4150	1011.595	8.0''	1.189''
6	5.153	98	42.433	580	184.473	1350	380.003	4200	1022.318	9.0''	1.326''
7	5.743	99	42.781	590	187.166	1360	382.432	4250	1033.028	1.0(10) <sup>6</sup>	1.462''
8	6.314	100	43.129	600	189.852	1370	384.859	4300	1043.724	1.5''	2.126''
9	6.869	105	44.858	610	192.533	1375	386.070	4350	1054.409	2.0''	2.781''
10	7.411	110	46.574	620	195.208	1380	387.283	4400	1065.082	2.5''	3.427''
11	7.940	115	48.277	625	196.544	1390	389.705	4450	1075.743	3.0''	4.064''
12	8.457	120	49.968	630	197.878	1400	392.125	4500	1086.390	4.0''	5.313''
13	8.964	125	51.648	640	200.542	1410	394.543	4550	1097.024	5.0''	6.544''
14	9.461	130	53.317	650	203.201	1420	396.959	4600	1107.646	6.0''	7.761''
15	9.949	135	54.976	660	205.854	1425	398.167	4650	1118.257	7.0''	8.965''
16	10.434	140	56.625	670	208.502	1430	399.373	4700	1128.854	8.0''	1.016(10) <sup>6</sup>
17	10.913	145	58.265	675	209.825	1440	401.786	4750	1139.439	9.0''	1.134''
18	11.386	150	59.895	680	211.145	1450	404.197	4800	1150.012	1.0(10) <sup>7</sup>	1.252''
19	11.855	155	61.517	690	213.784	1460	406.606	4850	1160.574	1.5''	1.828''
20	12.319	160	63.131	700	216.417	1470	409.013	4900	1171.125	2.0''	2.398''
21	12.778	165	64.737	710	219.046	1475	410.214	4950	1181.666	2.5''	2.961''
22	13.233	170	66.336	720	221.670	1480	411.418	5000	1192.198	3.0''	3.517''

**Table 4.2** Dimensionless Water Influx  $W_{eD}$  for Infinite Aquifer

Dimensionless time $t_D$	Fluid influx $W_{eD}$	Dimensionless time $t_D$	Fluid influx $W_{eD}$	Dimensionless time $t_D$	Fluid influx $W_{eD}$	Dimensionless time $t_D$	Fluid influx $W_{eD}$	Dimensionless time $t_D$	Fluid influx $W_{eD}$	Dimensionless time $t_D$	Fluid influx $W_{eD}$
23	13.684	175	67.928	725	222.980	1490	413.820	5100	1213.222	4.0''	4.610''
24	14.131	180	69.512	730	224.289	1500	416.220	5200	1234.203	5.0''	5.689''
25	14.573	185	71.090	740	226.904	1525	422.214	5300	1255.141	6.0''	6.758''
26	15.013	190	72.661	750	229.514	1550	428.196	5400	1276.037	7.0''	7.816''
27	15.450	195	74.226	760	232.120	1575	434.168	5500	1296.893	8.0''	8.866''
28	15.883	200	75.785	770	234.721	1600	440.128	5600	1317.709	9.0''	9.911''
29	16.313	205	77.338	775	236.020	1625	446.077	5700	1338.486	1.0(10) <sup>8</sup>	1.095(10) <sup>7</sup>
30	16.742	210	78.886	780	237.318	1650	452.016	5800	1359.225	1.5''	1.604''
31	17.167	215	80.428	790	239.912	1675	457.945	5900	1379.927	2.0''	2.108''
32	17.590	220	81.965	800	242.501	1700	463.863	6000	1400.593	2.5''	2.607''
33	18.011	225	83.497	810	245.086	1725	469.771	6100	1421.224	3.0''	3.100''
34	18.429	230	85.023	820	247.668	1750	475.669	6200	1441.820	4.0''	4.071''
35	18.845	235	86.545	825	248.957	1775	481.558	6300	1462.383	5.0''	5.032''
36	19.259	240	88.062	830	250.245	1800	487.437	6400	1482.912	6.0''	5.984''
37	19.671	245	89.575	840	252.819	1825	493.307	6500	1503.408	7.0''	6.928''
38	20.080	250	91.084	850	255.388	1850	499.167	6600	1523.872	8.0''	7.865''
39	20.488	255	92.589	860	257.953	1875	505.019	6700	1544.305	9.0''	8.797''
40	20.894	260	94.090	870	260.515	1900	510.861	6800	1564.706	1.0(10) <sup>9</sup>	9.725''
41	21.298	265	95.588	875	261.795	1925	516.695	6900	1585.077	1.5''	1.429(10) <sup>8</sup>
42	21.701	270	97.081	880	263.073	1950	522.520	7000	1605.418	2.0''	1.880''
43	22.101	275	98.571	890	265.629	1975	528.337	7100	1625.729	2.5''	2.328''



**Table 4.2** Dimensionless Water Influx  $W_{eD}$  for Infinite Aquifer

Dimensionless time $t_D$	Fluid influx $W_{eD}$	Dimensionless time $t_D$	Fluid influx $W_{eD}$	Dimensionless time $t_D$	Fluid influx $W_{eD}$	Dimensionless time $t_D$	Fluid influx $W_{eD}$	Dimensionless time $t_D$	Fluid influx $W_{eD}$	Dimensionless time $t_D$	Fluid influx $W_{eD}$
44	22.500	280	100.057	900	268.181	2000	534.145	7200	1646.011	3.0"	2.771"
45	22.897	285	101.540	910	270.729	2025	539.945	7300	1666.265	4.0"	3.645"
46	23.291	290	103.019	920	273.274	2050	545.737	7400	1686.490	5.0"	4.510"
47	23.684	295	104.495	925	274.545	2075	551.522	7500	1706.688	6.0"	5.368"
48	24.076	300	105.968	930	275.815	2100	557.299	7600	1726.859	7.0"	6.220"
49	24.466	305	107.437	940	278.353	2125	563.068	7700	1747.002	8.0"	7.066"
50	24.855	310	108.904	950	280.888	2150	568.830	7800	1767.120	9.0"	7.909"
51	25.244	315	110.367	960	283.420	2175	574.585	7900	1787.212	1.0(10) <sup>10</sup>	8.747"
52	25.633	320	111.827	970	285.948	2200	580.332	8000	1807.278	1.5"	1.288"(10) <sup>9</sup>
53	26.020	325	113.284	975	287.211	2225	586.072	8100	1827.319	2.0"	1.697"
54	26.406	330	114.738	980	288.473	2250	591.806	8200	1847.336	2.5"	2.103"
55	26.791	335	116.189	990	290.995	2275	597.532	8300	1867.329	3.0"	2.505"
56	27.174	340	117.638	1000	293.514	2300	603.252	8400	1887.298	4.0"	3.299"
57	27.555	345	119.083	1010	296.030	2325	608.965	8500	1907.243	5.0"	4.087"
58	27.935	350	120.526	1020	298.543	2350	614.672	8600	1927.166	6.0"	4.868"
59	28.314	355	121.966	1025	299.799	2375	620.372	8700	1947.065	7.0"	5.643"
60	28.691	360	123.403	1030	301.053	2400	626.066	8800	1966.942	8.0"	6.414"
61	29.068	365	124.838	1040	303.560	2425	631.755	8900	1986.796	9.0"	7.183"
62	29.443	370	126.720	1050	306.065	2450	637.437	9000	2006.628	1.0(10) <sup>11</sup>	7.948"



**Table 4.2** Dimensionless Water Influx  $W_{eD}$  for Infinite Aquifer

Dimen- sionless time $t_D$	Fluid influx $W_{eD}$	Dimen- sionless time $t_D$	Fluid influx $W_{eD}$	Dimen- sionless time $t_D$	Fluid influx $W_{eD}$	Dimen- sionless time $t_D$	Fluid influx $W_{eD}$	Dimen- sionless time $t_D$	Fluid influx $W_{eD}$	Dimen- sionless time $t_D$	Fluid influx $W_{eD}$
63	29.818	375	127.699	1060	308.567	2475	643.113	9100	2026.438	1.5''	1.17(10) <sup>10</sup>
64	30.192	380	129.126	1070	311.066	2500	648.781	9200	2046.227	2.0''	1.55''
65	30.565	385	130.550	1075	312.314	2550	660.093	9300	2065.996	2.5''	1.92''
66	30.937	390	131.972	1080	313.562	2600	671.379	9400	2085.744	3.0''	2.29''
67	31.308	395	133.391	1090	316.055	2650	682.640	9500	2105.473	4.0''	3.02''
68	31.679	400	134.808	1100	318.545	2700	693.877	9600	2125.184	5.0''	3.75''
69	32.048	405	136.223	1110	321.032	2750	705.090	9700	2144.878	6.0''	4.47''
70	32.417	410	137.635	1120	323.517	2800	716.280	9800	2164.555	7.0''	5.19''
71	32.785	415	139.045	1125	324.760	2850	727.449	9900	2184.216	8.0''	5.89''
72	33.151	420	140.453	1130	326.000	2900	738.598	10,000	2203.861	9.0''	6.58''
73	33.517	425	141.859	1140	328.480	2950	749.725	12,500	2688.967	1.0(10) <sup>12</sup>	7.28''
74	33.883	430	143.262	1150	330.958	3000	760.833	15,000	3164.780	1.5''	1.08(10) <sup>11</sup>
75	34.247	435	144.664	1160	333.433	3050	771.922	17,500	3633.368	2.0''	1.42''
76	34.611	440	146.064	1170	335.906	3100	782.992	20,000	4095.800		
77	34.974	445	147.461	1175	337.142	3150	794.042	25,000	5005.726		
78	35.336	450	148.856	1180	338.376	3200	805.075	30,000	5899.508		

Van Everdingen and Hurst  $W_{eD}$ . Permission to publish by the SPE.

**Table 4.3** Dimensionless Water Influx  $W_{eD}$  for Several Values of  $r_e/r_R$  i.e.  $r_a/r_e$ 

$r_e/r_R = 1.5$		$r_e/r_R = 2.0$		$r_e/r_R = 2.5$		$r_e/r_R = 3.0$		$r_e/r_R = 3.5$		$r_e/r_R = 4.0$		$r_e/r_R = 4.5$	
<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>	<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>	<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>	<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>	<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>	<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>	<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>
$5.0(10)^{-2}$	0.276	$5.0(10)^{-2}$	0.278	$1.0(10)^{-1}$	0.408	$3.0(10)^{-1}$	0.755	1.00	1.571	2.00	2.442	2.5	2.835
6.0"	0.304	7.5"	0.345	1.5"	0.509	4.0"	0.895	1.20	1.761	2.20	2.598	3.0	3.196
7.0"	0.330	$1.0(10)^{-1}$	0.404	2.0"	0.599	5.0"	1.023	1.40	1.940	2.40	2.748	3.5	3.537
8.0"	0.354	1.25"	0.458	2.5"	0.681	6.0"	1.143	1.60	2.111	2.60	2.893	4.0	3.859
9.0"	0.375	1.50"	0.507	3.0"	0.758	7.0"	1.256	1.80	2.273	2.80	3.034	4.5	4.165
$1.0(10)^{-1}$	0.395	1.75"	0.553	3.5"	0.829	8.0"	1.363	2.00	2.427	3.00	3.170	5.0	4.454
1.1"	0.414	2.00"	0.597	4.0"	0.897	9.0"	1.465	2.20	2.574	3.25	3.334	5.5	4.727
1.2"	0.431	2.25"	0.638	4.5"	0.962	1.00	1.563	2.40	2.715	3.50	3.493	6.0	4.986
1.3"	0.446	2.50"	0.678	5.0"	1.024	1.25	1.791	2.60	2.849	3.75	3.645	6.5	5.231
1.4"	0.461	2.75"	0.715	5.5"	1.083	1.50	1.997	2.80	2.976	4.00	3.792	7.0	5.464
1.5"	0.474	3.00"	0.751	6.0"	1.140	1.75	2.184	3.00	3.098	4.25	3.932	7.5	5.684
1.6"	0.486	3.25"	0.785	6.5"	1.195	2.00	2.353	3.25	3.242	4.50	4.068	8.0	5.892
1.7"	0.497	3.50"	0.817	7.0"	1.248	2.25	2.507	3.50	3.379	4.75	4.198	8.5	6.089
1.8"	0.507	3.75"	0.848	7.5"	1.299	2.50	2.646	3.75	3.507	5.00	4.323	9.0	6.276
1.9"	0.517	4.00"	0.877	8.0"	1.348	2.75	2.772	4.00	3.628	5.50	4.560	9.5	6.453
2.0"	0.525	4.25"	0.905	8.5"	1.395	3.00	2.886	4.25	3.742	6.00	4.779	10	6.621
2.1"	0.533	4.50"	0.932	9.0"	1.440	3.25	2.990	4.50	3.850	6.50	4.982	11	6.930
2.2"	0.541	4.75"	0.958	9.5"	1.484	3.50	3.084	4.75	3.951	7.00	5.169	12	7.208
2.3"	0.548	5.00"	0.993	1.0	1.526	3.75	3.170	5.00	4.047	7.50	5.343	13	7.457

**Table 4.3** Dimensionless Water Influx  $W_{eD}$  for Several Values of  $r_e/r_R$ , i.e.  $r_a/r_e$ 

$r_e/r_R = 1.5$		$r_e/r_R = 2.0$		$r_e/r_R = 2.5$		$r_e/r_R = 3.0$		$r_e/r_R = 3.5$		$r_e/r_R = 4.0$		$r_e/r_R = 4.5$	
Dimensionless time $t_D$	Fluid influx $W_{eD}$	Dimensionless time $t_D$	Fluid influx $W_{eD}$	Dimensionless time $t_D$	Fluid influx $W_{eD}$	Dimensionless time $t_D$	Fluid influx $W_{eD}$	Dimensionless time $t_D$	Fluid influx $W_{eD}$	Dimensionless time $t_D$	Fluid influx $W_{eD}$	Dimensionless time $t_D$	Fluid influx $W_{eD}$
2.4"	0.554	5.50"	1.028	1.1	1.605	4.00	3.247	5.50	4.222	8.00	5.504	14	7.680
2.5"	0.559	6.00"	1.070	1.2	1.679	4.25	3.317	6.00	4.378	8.50	5.653	15	7.880
2.6"	0.565	6.50"	1.108	1.3	1.747	4.50	3.381	6.50	4.516	9.00	5.790	16	8.060
2.8"	0.574	7.00"	1.143	1.4	1.811	4.75	3.439	7.00	4.639	9.50	5.917	18	8.365
3.0"	0.582	7.50"	1.174	1.5	1.870	5.00	3.491	7.50	4.749	10	6.035	20	8.611
3.2"	0.588	8.00"	1.203	1.6	1.924	5.50	3.581	8.00	4.846	11	6.246	22	8.809
3.4"	0.594	9.00"	1.253	1.7	1.975	6.00	3.656	8.50	4.932	12	6.425	24	8.968
3.6"	0.599	1.00"	1.295	1.8	2.022	6.50	3.717	9.00	5.009	13	6.580	26	9.097
3.8"	0.603	1.1	1.330	2.0	2.106	7.00	3.767	9.50	5.078	14	6.712	28	9.200
4.0"	0.606	1.2	1.358	2.2	2.178	7.50	3.809	10.00	5.138	15	6.825	30	9.283
4.5"	0.613	1.3	1.382	2.4	2.241	8.00	3.843	11	5.241	16	6.922	34	9.404
5.0"	0.617	1.4	1.402	2.6	2.294	9.00	3.894	12	5.321	17	7.004	38	9.481
6.0"	0.621	1.6	1.432	2.8	2.340	10.00	3.928	13	5.385	18	7.076	42	9.532
7.0"	0.623	1.7	1.444	3.0	2.380	11.00	3.951	14	5.435	20	7.189	46	9.565
8.0"	0.624	1.8	1.453	3.4	2.444	12.00	3.967	15	5.476	22	7.272	50	9.586
		2.0	1.468	3.8	2.491	14.00	3.985	16	5.506	24	7.332	60	9.612
		2.5	1.487	4.2	2.525	16.00	3.993	17	5.531	26	7.377	70	9.621
		3.0	1.495	4.6	2.551	18.00	3.997	18	5.551	30	7.434	80	9.623
		4.0	1.499	5.0	2.570	20.00	3.999	20	5.579	34	7.464	90	9.624
		5.0	1.500	6.0	2.599	22.00	3.999	25	5.611	38	7.481	100	9.625
				7.0	2.613	24.00	4.000	30	5.621	42	7.490		
				8.0	2.619			35	5.624	46	7.494		
				9.0	2.622			40	5.625	50	7.499		
				10.0	2.624								

**Table 4.3** Dimensionless Water Influx  $W_{eD}$  for Several Values of  $r_e/r_R$  i.e.  $r_a/r_e$ 

$r_e/r_R = 5.0$		$r_e/r_R = 6.0$		$r_e/r_R = 7.0$		$r_e/r_R = 8.0$		$r_e/r_R = 9.0$		$r_e/r_R = 10.0$	
<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>	<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>	<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>	<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>	<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>	<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>
3.0	3.195	6.0	5.148	9.00	6.861	9	6.861	10	7.417	15	9.965
3.5	3.542	6.5	5.440	9.50	7.127	10	7.398	15	9.945	20	12.32
4.0	3.875	7.0	5.724	10	7.389	11	7.920	20	12.26	22	13.22
4.5	4.193	7.5	6.002	11	7.902	12	8.431	22	13.13	24	14.95
5.0	4.499	8.0	6.273	12	8.397	13	8.930	24	13.98	26	14.95
5.5	4.792	8.5	6.537	13	8.876	14	9.418	26	14.79	28	15.78
6.0	5.074	9.0	6.795	14	9.341	15	9.895	26	15.59	30	16.59
6.5	5.345	9.5	7.047	15	9.791	16	10.361	30	16.35	32	17.38
7.0	5.605	10.0	7.293	16	10.23	17	10.82	32	17.10	34	18.16
7.5	5.854	10.5	7.533	17	10.65	18	11.26	34	17.82	36	18.91
8.0	6.094	11	7.767	18	11.06	19	11.70	36	18.52	38	19.65
8.5	6.325	12	8.220	19	11.46	20	12.13	38	19.19	40	20.37
9.0	6.547	13	8.651	20	11.85	22	12.95	40	19.85	42	21.07
9.5	6.760	14	9.063	22	12.58	24	13.74	42	20.48	44	21.76
10	6.965	15	9.456	24	13.27	26	14.50	44	21.09	46	22.42
11	7.350	16	9.829	26	13.92	28	15.23	46	21.69	48	23.07



**Table 4.3** Dimensionless Water Influx  $W_{eD}$  for Several Values of  $r_e/r_R$ , i.e.  $r_a/r_e$ 

$r_e/r_R = 5.0$		$r_e/r_R = 6.0$		$r_e/r_R = 7.0$		$r_e/r_R = 8.0$		$r_e/r_R = 9.0$		$r_e/r_R = 10.0$	
<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>	<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>	<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>	<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>	<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>	<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>
12	7.706	17	10.19	28	14.53	30	15.92	48	22.26	50	23.71
13	8.035	18	10.53	30	15.11	34	17.22	50	22.82	52	24.33
14	8.339	19	10.85	35	16.39	38	18.41	52	23.36	54	24.94
15	8.620	20	11.16	40	17.49	40	18.97	54	23.89	56	25.53
16	8.879	22	11.74	45	18.43	45	20.26	56	24.39	58	26.11
18	9.338	24	12.26	50	19.24	50	21.42	58	24.88	60	26.67
20	9.731	25	12.50	60	20.51	55	22.46	60	25.36	65	28.02
22	10.07	31	13.74	70	21.45	60	23.40	65	26.48	70	29.29
24	10.35	35	14.40	80	22.13	70	24.98	70	27.52	75	30.49
26	10.59	39	14.93	90	22.63	80	26.26	75	28.48	80	31.61
28	10.80	51	16.05	100	23.00	90	27.28	80	29.36	85	32.67
30	10.98	60	16.56	120	23.47	100	28.11	85	30.18	90	33.66
34	11.26	70	16.91	140	23.71	120	29.31	90	30.93	95	34.60
38	11.46	80	17.14	160	23.85	140	30.08	95	31.63	100	35.48
42	11.61	90	17.27	180	23.92	160	30.58	100	32.27	120	38.51
46	11.71	100	17.36	200	23.96	180	30.91	120	34.39	140	40.89
50	11.79	110	17.41	500	24.00	200	31.12	140	35.92	160	42.75
60	11.91	120	17.45			240	31.34	160	37.04	180	44.21
70	11.96	130	17.46			280	31.43	180	37.85	200	45.36
80	11.98	140	17.48			320	31.47	200	38.44	240	46.95

**Table 4.3** Dimensionless Water Influx  $W_{eD}$  for Several Values of  $r_e/r_R$  i.e.  $r_a/r_e$ 

$r_e/r_R = 5.0$		$r_e/r_R = 6.0$		$r_e/r_R = 7.0$		$r_e/r_R = 8.0$		$r_e/r_R = 9.0$		$r_e/r_R = 10.0$	
<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>	<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>	<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>	<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>	<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>	<i>Dimensionless time <math>t_D</math></i>	<i>Fluid influx <math>W_{eD}</math></i>
90	11.99	150	17.49			360	31.49	240	39.17	280	47.94
100	12.00	160	17.49			400	31.50	280	39.56	320	48.54
120	12.00	180	17.50			500	31.50	320	39.77	360	48.91
		200	17.50					360	39.88	400	49.14
		220	17.50					400	39.94	440	49.28
								440	39.97	480	49.36
								480	39.98		

Van Everdingen and Hurst  $W_{eD}$ . Permission to publish by the SPE.