



WELL 10 PUMPING/RECOVERY TEST

Data Set: P:\...\well10 pump-recovery wrt 9 this visual.aqt

Date: 09/06/01

Time: 14:26:26

PROJECT INFORMATION

Company: Parsons ES

Client: Camp Stanley Storage Activity

Project: 728487.03

Test Location: Boerne, Texas

Test Well: Well 10

Test Date: 7/30/01 - 8/2/01

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
well 10	613.2	1007

Observation Wells

Well Name	X (ft)	Y (ft)
□ well 9	244.3	415.4

SOLUTION

Aquifer Model: Confined

Solution Method: Theis

T = 2443.4 gal/day/ft

S = 0.0004807

Kz/Kr = 1.

b = 197.8 ft

Data Set: P:\DOCUMENT\728487 cssa\pump test\well 10 pump test\well10 pump-recovery wrt 9 theis visual.aq
 Title: Well 10 Pumping/Recovery Test
 Date: 09/06/01
 Time: 14:26:34

PROJECT INFORMATION

Company: Parsons ES
 Client: Camp Stanley Storage Activity
 Project: 728487.03
 Location: Boerne, Texas
 Test Date: 7/30/01 - 8/2/01
 Test Well: Well 10

AQUIFER DATA

Saturated Thickness: 197.8 ft
 Anisotropy Ratio (Kz/Kr): 1.

PUMPING WELL DATA

Number of pumping wells: 1

Pumping Well No. 1: well 10

X Location: 613.2 ft
 Y Location: 1006.9 ft

Partially Penetrating Well
 Depth To Top Of Screen: 97.76 ft
 Depth To Bottom Of Screen: 183.8 ft

No. of pumping periods: 2

Pumping Period Data			
Time (min)	Rate (gal/min)	Time (min)	Rate (gal/min)
0.	80.	4327.	0.

OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: well 9

X Location: 244.3 ft
 Y Location: 415.4 ft

Partially Penetrating Well
 Depth To Top Of Screen: 0. ft
 Depth To Bottom Of Screen: 162.8 ft

No. of observations: 679

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
9.	0.	4509.	9.592

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
29.	0.0047	4529.	9.531
44.	0.0282	4534.	9.515
49.	0.0377	4549.	9.465
69.	0.0817	4569.	9.403
79.	0.1107	4579.	9.372
89.	0.1357	4589.	9.342
109.	0.1947	4609.	9.276
114.	0.2062	4619.	9.24
129.	0.2587	4629.	9.207
139.	0.2917	4649.	9.139
149.	0.3327	4659.	9.104
164.	0.3832	4669.	9.068
169.	0.4007	4689.	8.995
189.	0.4817	4699.	8.963
194.	0.5012	4709.	8.931
209.	0.5647	4729.	8.865
214.	0.5882	4739.	8.832
229.	0.6537	4749.	8.802
234.	0.6772	4769.	8.738
249.	0.7507	4784.	8.687
254.	0.7762	4789.	8.669
269.	0.8547	4809.	8.599
274.	0.8782	4824.	8.55
289.	0.9517	4829.	8.536
294.	0.9752	4849.	8.464
309.	1.045	4859.	8.425
314.	1.068	4869.	8.391
329.	1.134	4889.	8.326
334.	1.155	4899.	8.292
349.	1.217	4909.	8.258
359.	1.264	4929.	8.191
369.	1.305	4939.	8.159
384.	1.368	4949.	8.131
389.	1.386	4969.	8.075
409.	1.468	4989.	8.017
414.	1.486	4994.	8.003
429.	1.543	5009.	7.965
439.	1.582	5029.	7.914
449.	1.617	5049.	7.856
464.	1.669	5054.	7.839
469.	1.687	5069.	7.795
489.	1.745	5089.	7.739
494.	1.757	5104.	7.695
509.	1.804	5109.	7.681
519.	1.841	5129.	7.623
529.	1.881	5149.	7.563
544.	1.937	5154.	7.546
549.	1.957	5169.	7.499
569.	2.035	5189.	7.441
574.	2.054	5199.	7.412
589.	2.112	5209.	7.378
599.	2.153	5229.	7.316
609.	2.19	5244.	7.269
624.	2.251	5249.	7.252
629.	2.275	5269.	7.187

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
644.	2.342	5284.	7.13
649.	2.368	5289.	7.114
664.	2.433	5309.	7.046
669.	2.459	5324.	6.993
684.	2.532	5329.	6.977
689.	2.556	5349.	6.907
704.	2.629	5364.	6.856
709.	2.654	5369.	6.842
724.	2.725	5389.	6.774
729.	2.753	5404.	6.727
744.	2.824	5409.	6.713
749.	2.852	5429.	6.651
764.	2.923	5449.	6.589
769.	2.947	5454.	6.572
784.	3.017	5469.	6.529
789.	3.041	5489.	6.471
804.	3.11	5504.	6.428
809.	3.136	5509.	6.415
824.	3.201	5529.	6.369
829.	3.225	5549.	6.311
844.	3.292	5559.	6.281
849.	3.314	5569.	6.251
864.	3.381	5589.	6.197
869.	3.397	5609.	6.141
889.	3.483	5614.	6.126
894.	3.502	5629.	6.085
909.	3.562	5649.	6.027
919.	3.605	5664.	5.989
929.	3.644	5669.	5.977
944.	3.698	5689.	5.928
949.	3.717	5709.	5.882
969.	3.789	5724.	5.842
974.	3.808	5729.	5.832
989.	3.854	5749.	5.781
1004.	3.902	5769.	5.727
1009.	3.92	5779.	5.701
1029.	3.98	5789.	5.673
1034.	3.995	5809.	5.627
1049.	4.041	5829.	5.594
1064.	4.087	5849.	5.572
1069.	4.103	5869.	5.554
1089.	4.16	5889.	5.542
1094.	4.175	5909.	5.538
1109.	4.214	5929.	5.537
1124.	4.259	5949.	5.546
1129.	4.273	5969.	5.561
1149.	4.331	5989.	5.575
1154.	4.345	6009.	5.597
1169.	4.39	6029.	5.625
1184.	4.434	6034.	5.629
1189.	4.452	6049.	5.65
1209.	4.515	6069.	5.681
1214.	4.532	6084.	5.699
1229.	4.583	6089.	5.706
1239.	4.62	6109.	5.717

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
1249.	4.651	6129.	5.722
1264.	4.705	6149.	5.715
1269.	4.721	6169.	5.701
1289.	4.795	6189.	5.68
1294.	4.808	6209.	5.654
1309.	4.859	6229.	5.627
1319.	4.892	6249.	5.588
1329.	4.919	6269.	5.549
1349.	4.984	6289.	5.51
1354.	5.001	6309.	5.464
1369.	5.052	6329.	5.423
1384.	5.1	6334.	5.41
1389.	5.114	6349.	5.377
1409.	5.174	6369.	5.336
1414.	5.191	6389.	5.297
1429.	5.237	6409.	5.264
1444.	5.275	6419.	5.246
1449.	5.29	6429.	5.231
1469.	5.346	6449.	5.198
1474.	5.361	6469.	5.163
1489.	5.405	6489.	5.13
1504.	5.443	6509.	5.093
1509.	5.46	6519.	5.074
1529.	5.51	6529.	5.058
1539.	5.534	6549.	5.013
1549.	5.563	6569.	4.972
1569.	5.616	6589.	4.922
1574.	5.627	6594.	4.912
1589.	5.673	6609.	4.874
1604.	5.709	6629.	4.827
1609.	5.724	6649.	4.781
1629.	5.769	6654.	4.769
1639.	5.79	6669.	4.733
1649.	5.814	6689.	4.68
1669.	5.861	6709.	4.622
1674.	5.872	6714.	4.607
1689.	5.904	6729.	4.561
1709.	5.948	6749.	4.499
1714.	5.955	6759.	4.469
1729.	5.983	6769.	4.435
1749.	6.025	6789.	4.368
1754.	6.032	6799.	4.334
1769.	6.064	6809.	4.3
1789.	6.104	6829.	4.233
1794.	6.109	6839.	4.199
1809.	6.139	6849.	4.164
1829.	6.184	6869.	4.102
1834.	6.194	6879.	4.068
1849.	6.23	6889.	4.034
1869.	6.269	6909.	3.971
1874.	6.278	6919.	3.939
1889.	6.31	6929.	3.909
1909.	6.358	6949.	3.853
1914.	6.369	6969.	3.805
1929.	6.403	6974.	3.793

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
1949.	6.454	6989.	3.754
1954.	6.465	7009.	3.71
1969.	6.499	7029.	3.658
1989.	6.538	7034.	3.646
1994.	6.548	7049.	3.607
2009.	6.587	7069.	3.559
2029.	6.631	7089.	3.514
2034.	6.642	7099.	3.492
2049.	6.678	7109.	3.474
2069.	6.723	7129.	3.437
2074.	6.734	7149.	3.4
2089.	6.772	7169.	3.361
2109.	6.821	7184.	3.327
2114.	6.83	7189.	3.316
2129.	6.87	7209.	3.274
2144.	6.912	7229.	3.237
2149.	6.927	7249.	3.202
2169.	6.981	7269.	3.163
2174.	6.994	7274.	3.151
2189.	7.038	7289.	3.118
2204.	7.078	7309.	3.078
2209.	7.091	7329.	3.035
2229.	7.142	7349.	2.992
2239.	7.169	7354.	2.983
2249.	7.196	7369.	2.95
2269.	7.247	7389.	2.911
2274.	7.261	7409.	2.876
2289.	7.296	7429.	2.837
2309.	7.338	7439.	2.817
2314.	7.347	7449.	2.798
2329.	7.377	7469.	2.763
2349.	7.407	7489.	2.723
2359.	7.421	7509.	2.686
2369.	7.437	7524.	2.654
2389.	7.467	7529.	2.643
2409.	7.497	7549.	2.595
2414.	7.504	7569.	2.552
2429.	7.525	7589.	2.508
2449.	7.551	7594.	2.496
2469.	7.577	7609.	2.463
2474.	7.581	7629.	2.413
2489.	7.597	7649.	2.366
2509.	7.62	7659.	2.342
2529.	7.642	7669.	2.318
2534.	7.648	7689.	2.273
2549.	7.67	7709.	2.227
2569.	7.702	7724.	2.195
2584.	7.718	7729.	2.184
2589.	7.724	7749.	2.14
2609.	7.754	7769.	2.101
2629.	7.786	7789.	2.062
2634.	7.793	7804.	2.034
2649.	7.818	7809.	2.025
2669.	7.861	7829.	1.983
2674.	7.87	7849.	1.946

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
2689.	7.9	7869.	1.907
2709.	7.942	7884.	1.877
2714.	7.947	7889.	1.866
2729.	7.981	7909.	1.827
2749.	8.023	7929.	1.79
2754.	8.032	7949.	1.753
2769.	8.064	7969.	1.722
2789.	8.111	7979.	1.704
2794.	8.122	7989.	1.689
2809.	8.156	8009.	1.66
2829.	8.2	8029.	1.631
2834.	8.207	8049.	1.594
2849.	8.243	8069.	1.559
2869.	8.282	8084.	1.525
2874.	8.292	8089.	1.516
2889.	8.32	8109.	1.475
2909.	8.354	8129.	1.433
2919.	8.372	8149.	1.392
2929.	8.391	8164.	1.362
2949.	8.425	8169.	1.353
2964.	8.446	8189.	1.312
2969.	8.455	8209.	1.274
2989.	8.485	8229.	1.24
3009.	8.515	8249.	1.205
3014.	8.522	8254.	1.198
3029.	8.537	8269.	1.174
3049.	8.565	8289.	1.145
3069.	8.585	8309.	1.112
3074.	8.589	8329.	1.085
3089.	8.602	8349.	1.05
3109.	8.619	8369.	1.013
3129.	8.637	8374.	1.005
3139.	8.649	8389.	0.9827
3149.	8.656	8409.	0.9537
3169.	8.678	8429.	0.9227
3189.	8.696	8449.	0.8987
3204.	8.704	8469.	0.8777
3209.	8.711	8489.	0.8537
3229.	8.726	8509.	0.8337
3249.	8.74	8529.	0.8147
3269.	8.749	8549.	0.7867
3279.	8.756	8564.	0.7692
3289.	8.76	8569.	0.7657
3309.	8.771	8589.	0.7357
3329.	8.782	8609.	0.7067
3349.	8.787	8629.	0.6817
3369.	8.792	8649.	0.6537
3374.	8.794	8669.	0.6307
3389.	8.805	8689.	0.6047
3409.	8.817	8709.	0.5837
3429.	8.83	8729.	0.5617
3449.	8.845	8749.	0.5357
3454.	8.846	8754.	0.5322
3469.	8.861	8769.	0.5147
3489.	8.889	8789.	0.4947

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
3504.	8.915	8809.	0.4787
3509.	8.925	8829.	0.4607
3529.	8.961	8849.	0.4437
3549.	8.998	8869.	0.4177
3554.	9.009	8889.	0.3927
3569.	9.038	8909.	0.3647
3589.	9.077	8929.	0.3317
3594.	9.088	8949.	0.3007
3609.	9.115	8959.	0.2857
3629.	9.146	8969.	0.2717
3639.	9.162	8989.	0.2417
3649.	9.182	9009.	0.2127
3669.	9.218	9029.	0.1817
3684.	9.243	9049.	0.1487
3689.	9.25	9069.	0.1267
3709.	9.278	9089.	0.1077
3729.	9.31	9109.	0.0937
3734.	9.317	9129.	0.0757
3749.	9.336	9149.	0.0577
3769.	9.356	9159.	0.0447
3789.	9.382	9169.	0.0357
3794.	9.388	9189.	0.0167
3809.	9.404	9209.	0.0007
3829.	9.423	9229.	-0.0113
3849.	9.443	9249.	-0.0253
3854.	9.447	9269.	-0.0393
3869.	9.456	9289.	-0.0523
3889.	9.473	9309.	-0.0623
3909.	9.483	9329.	-0.0723
3929.	9.496	9349.	-0.0763
3934.	9.496	9369.	-0.0773
3949.	9.503	9389.	-0.0783
3969.	9.51	9409.	-0.0923
3989.	9.515	9429.	-0.1093
4009.	9.522	9449.	-0.1293
4029.	9.527	9469.	-0.1553
4034.	9.529	9489.	-0.1763
4049.	9.534	9509.	-0.1983
4069.	9.545	9529.	-0.2183
4089.	9.562	9549.	-0.2373
4109.	9.582	9569.	-0.2553
4114.	9.588	9589.	-0.2793
4129.	9.606	9609.	-0.2983
4149.	9.627	9629.	-0.3123
4169.	9.651	9649.	-0.3243
4174.	9.658	9669.	-0.3423
4189.	9.675	9689.	-0.3663
4209.	9.696	9709.	-0.3873
4229.	9.712	9729.	-0.4093
4239.	9.722	9749.	-0.4293
4249.	9.734	9769.	-0.4483
4269.	9.749	9789.	-0.4683
4289.	9.762	9809.	-0.4903
4304.	9.779	9829.	-0.5043
4309.	9.782	9849.	-0.5183

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
4329.	9.801	9869.	-0.5303
4349.	9.811	9889.	-0.5403
4369.	9.807	9909.	-0.5493
4389.	9.803	9929.	-0.5553
4409.	9.79	9949.	-0.5753
4429.	9.771	9969.	-0.5893
4449.	9.738	9989.	-0.6013
4469.	9.697	1.001E+04	-0.6133
4489.	9.647		

SOLUTION

Aquifer Model: Confined
 Solution Method: Theis

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
T	2443.4	gal/day/ft
S	0.0004807	
Kz/Kr	1.	
b	197.8	ft

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	
T	2443.4	33.67	gal/day/ft
S	0.0004807	9.774E-06	
Kz/Kr	1.	not estimated	
b	197.8	not estimated	ft

Parameter Correlations

	T	S
T	1.00	-0.70
S	-0.70	1.00

Residual Statistics

for weighted residuals

Sum of Squares	744.5 ft ²
Variance	1.1 ft ²
Std. Deviation	1.049 ft
Mean	-0.2753 ft
No. of Residuals	679.
No. of Estimates	2