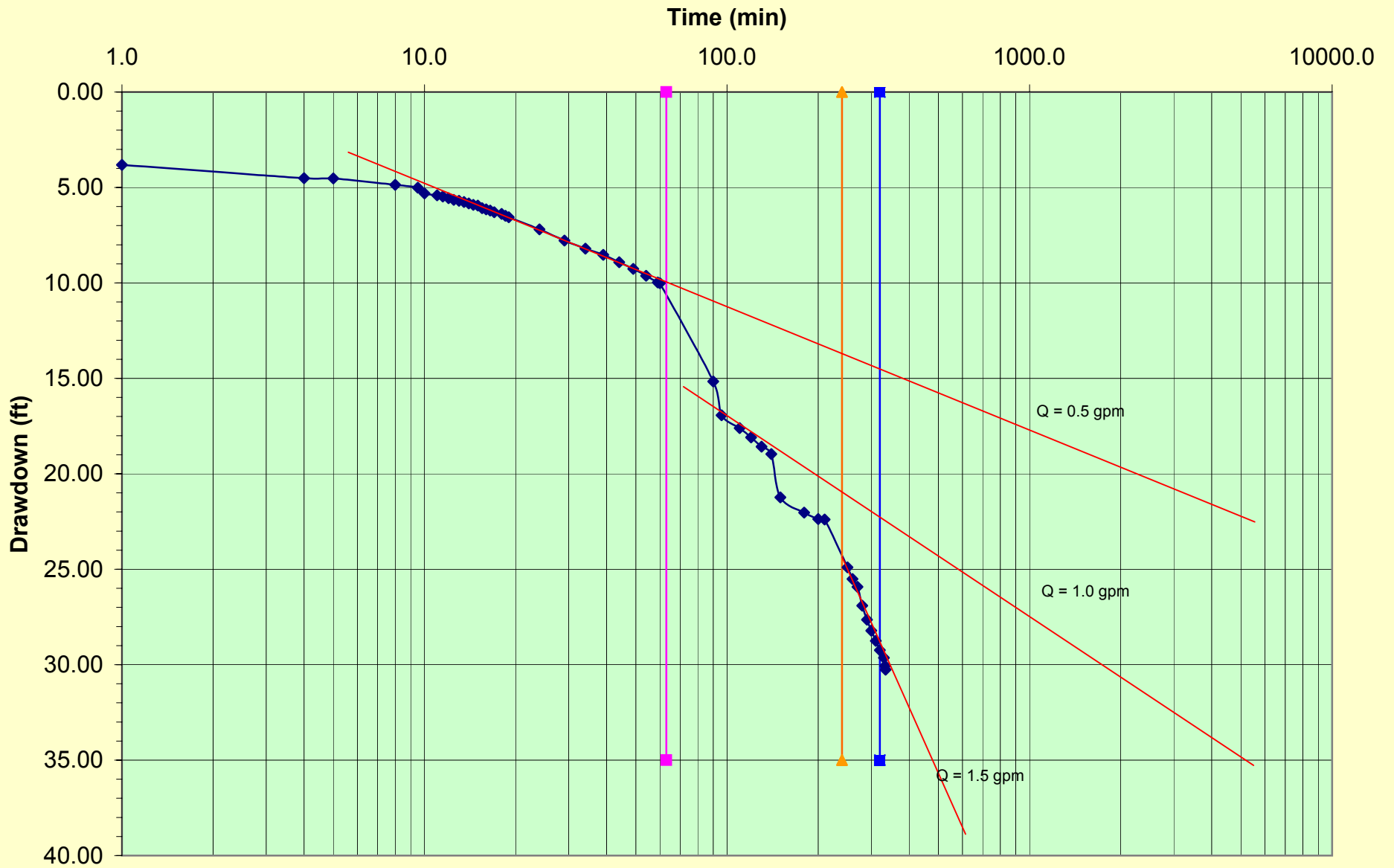


**Figure 3-1**  
HF-3 Step Drawdown  
Pre-Frac Pumping Test



UNC Church Rock Facility  
 Project Number 3410030048  
 Step Draw Down Test

Well: HF-3 Date 23-Jul-03

Static 124.04  
 Time 15:39

127.85

Flow (Q) gpm	Clock Time		Elapsed Time Minutes	Water Level Feet	Draw Down (s) Feet	Comments
0	15	58.0	0	124.04		
0.5	15	59.0	1.0	127.85	3.81	
0.5	16	2.0	4.0	128.55	4.51	
0.5	16	3.0	5.0	128.57	4.53	
0.5	16	6.0	8.0	128.9	4.86	
0.5	16	7.5	9.5	129.05	5.01	
0.5	16	8.0	10.0	129.35	5.31	
0.5	16	9.0	11.0	129.45	5.41	
0.5	16	9.5	11.5	129.51	5.47	
0.5	16	10.0	12.0	129.6	5.56	
0.5	16	10.5	12.5	129.69	5.65	
0.5	16	11.0	13.0	129.74	5.70	
0.5	16	11.5	13.5	129.8	5.76	
0.5	16	12.0	14.0	129.87	5.83	
0.5	16	12.5	14.5	129.95	5.91	
0.5	16	13.0	15.0	129.99	5.95	
0.5	16	13.5	15.5	130.12	6.08	
0.5	16	14.0	16.0	130.19	6.15	
0.5	16	14.5	16.5	130.25	6.21	
0.5	16	15.0	17.0	130.34	6.30	
0.5	16	16.0	18.0	130.43	6.39	
0.5	16	16.5	18.5	130.53	6.49	
0.5	16	17.0	19.0	130.6	6.56	
0.5	16	22.0	24.0	131.23	7.19	
0.5	16	27.0	29.0	131.82	7.78	
0.5	16	32.0	34.0	132.25	8.21	
0.5	16	37.0	39.0	132.57	8.53	
0.5	16	42.0	44.0	132.95	8.91	
0.5	16	47.0	49.0	133.3	9.26	
0.5	16	52.0	54.0	133.67	9.63	
0.5	16	57.0	59.0	134.02	9.98	
0.5	16	58.0	60.0	134.05	10.01	
1.0	17	28.0	90.0	139.2	15.16	63 0
1.0	17	34.0	96.0	140.97	16.93	63 35
1.0	17	48.0	110.0	141.64	17.60	
1.0	17	58.0	120.0	142.13	18.09	320 0
1.0	18	8.0	130.0	142.62	18.58	320 35
1.0	18	18.0	140.0	143	18.96	

1.0	18	28.0	150.0	145.28	21.24
1.0	18	58.0	180.0	146.07	22.03
1.0	19	18.0	200.0	146.41	22.37
1.0	19	28.0	210.0	146.43	22.39
1.5	20	8.0	250.0	148.94	24.90
1.5	20	18.0	260.0	149.55	25.51
1.5	20	28.0	270.0	149.96	25.92
1.5	20	38.0	280.0	150.95	26.91
1.5	20	48.0	290.0	151.68	27.64
1.5	20	58.0	300.0	152.26	28.22
1.5	21	8.0	310.0	152.79	28.75
2.0	21	18.0	320.0	153.28	29.24
2.0	21	28.0	330.0	153.68	29.64
2.0	21	31.0	333.0	154.1	30.06
2.0	21	32.0	334.0	154.3	30.26

240	0
240	35



UNC Church Rock Facility  
 Project Number 3410030048  
 Step Draw Down Test

Well: CHHF-2 Date 23-Jul-03

Static 92.15  
 Time 15:41

Flow (Q) gpm	Clock Time		Elapsed Time Minutes	Water Level Feet	Draw Down (s) Feet	Comments
	Hr	Min				
0	4	58	0	92.15		
0	5	1.0	3.0	92.18	0.03	
0.5	5	2.0	4.0	92.19	0.04	
0.5	5	3.0	5.0	92.19	0.04	
0.5	5	3.5	5.5	92.19	0.04	
0.5	5	4.0	6.0	92.19	0.04	
0.5	5	4.5	6.5	92.19	0.04	
0.5	5	5.0	7.0	92.19	0.04	
0.5	5	5.5	7.5	92.19	0.04	
0.5	5	6.0	8.0	92.19	0.04	
0.5	5	6.5	8.5	92.19	0.04	
0.5	5	7.0	9.0	92.19	0.04	
0.5	5	7.5	9.5	92.19	0.04	
0.5	5	8.0	10.0	92.19	0.04	
0.5	5	8.5	10.5	92.19	0.04	
0.5	5	9.0	11.0	92.19	0.04	
0.5	5	9.5	11.5	92.19	0.04	
0.5	5	10.0	12.0	92.2	0.05	
0.5	5	10.5	12.5	92.2	0.05	
0.5	5	11.0	13.0	92.2	0.05	
0.5	5	11.5	13.5	92.2	0.05	
0.5	5	12.0	14.0	92.2	0.05	
0.5	5	12.5	14.5	92.2	0.05	
0.5	5	13.0	15.0	92.2	0.05	
0.5	5	13.5	15.5	92.2	0.05	
0.5	5	14.0	16.0	92.2	0.05	
0.5	5	14.5	16.5	92.2	0.05	
0.5	5	15.0	17.0	92.2	0.05	
0.5	5	15.5	17.5	92.2	0.05	
0.5	5	16.0	18.0	92.21	0.06	
0.5	5	17.0	19.0	92.21	0.06	
0.5	5	22.0	24.0	92.22	0.07	
0.5	5	27.0	29.0	92.22	0.07	
0.5	5	33.0	35.0	92.23	0.08	
0.5	5	37.0	39.0	92.24	0.09	
0.5	5	42.0	44.0	92.25	0.10	
0.5	5	47.0	49.0	92.25	0.10	
0.5	5	52.0	54.0	92.25	0.10	

0.5	5	57.0	59.0	92.26	0.11
1	6	27.0	89.0	92.26	0.11
1	6	57.0	119.0	92.27	0.12
1	7	27.0	149.0	92.28	0.13
1	7	57.0	179.0	92.3	0.15
1	8	27.0	209.0	92.32	0.17
1.5	8	58.0	240.0	92.34	0.19
1.5	9	28.0	270.0	92.38	0.23
1.5	9	58.0	300.0	92.41	0.26
1.5	10	28.0	330.0	92.44	0.29
2	10	30.0	332.0	92.45	0.30