APPENDIX B

Table B-1
WELL CONSTRUCTION SUMMARY

Well No.	GL Elev. (ft MSL)	MP[a] Elev. (ft MSL)	Total Depth Drilled (ft)	Steel Surface Casing Depth (ft BGL)[b]	Well Casing					Open Interval					Dedicated[h] Sampling Equipment
					Diam. (in)	Type[c]	Depth (ft BGL)	SC/OH[d]	Diam. (in)	Type[c]	Screen Interval (ft)	Slot Size (in)	Sand Pack Interval (ft)	Static[c] Water Level (ft BGL)	
MW-1	2558	2559.57	235	138	4	PVC	214	SC	4	PVC	174-194	.010	154-216	180	SP
MW-2	2558	2559.97	300	158	3	PVC	231	SC	3	PVC	191-211	.010	166-291	193	PB
MW-3	2548	2549.95	240	118	4	PVC	219	SC	4	PVC	179-199	.010	154-232	185	SP
MW-4	2559	2560.02	280	139	3	PVC	235	SC	3	PVC	195-215	.010	167-255	200	PB
MW-5	2568	2569.56	250	118	4	PVC	232	SC	4	PVC	200-220	.010	176-237	205	SP
MW-6	2597	2598.10	280	119	3	PVC	230	SC	3	PVC	190-210	.010	160-256	196	PB
MW-7	2560	2562.70	260	137	8	-	-	OH	-	-	-	-	Sloughed		
MW-8	2565	2566.59	260	158	8	ST	218	OH	6	-	-	-	Sloughed		
MW-8A	2563	2566.59	165	117	8	-	-	OH	-	-	-	-	Sloughed		
MW-9	2565	2565.27	260	139	4	PVC	250	SC	4	PVC	190-230	.010	174-250	196	
MW-10	2539	2541.51	250	117	4	PVC	225	SC	4	PVC	175-215	.010	160-230	175	SP
MW-11	2555	2556.85	265	118	4	PVC	240	SC	4	PVC	190-230	.010	178-247	192	SP
MW-12	2563	2565.30	265	118	4	PVC	250	SC	4	PVC	200-240	.010	189-250	202	
MW-13	2632	2633.72	300	158	4	PVC	265	SC	4	PVC	215-255	.010	193-265	189	SP
MW-14	2606	2606.92	290	159	4	PVC	235	SC	4	PVC	210-230	.010	205-235	187	
MW-15	2545	2547.24	270	158	4	PVC	220	SC	4	PVC	170-210	.010	160-250	157	SP
MW-16	2566	2568.62	200	118	4	PVC	195	SC	4	PVC	180-190	.010	178-196	183	SP
MW-21	2552	2555.34	300	118	4	PVC	265	SC	4	PVC	255-265	.010	245-262	192	SP
MW-24	2557	2559.76	280	118	4	PVC	274	SC	4	PVC	245-255	.010	236-274	198	SP
MW-25	2542	2544.00	290	117	4	PVC	278	SC	4	PVC	263-273	.010	255-283	185	SP
MW-26	2567	2570.01	290	157	4	PVC	277	SC	4	PVC	262-272	.010	255-280	199	SP
D-3s[f]	2603	2605.54	407	98	3/4	PVC	225	SC	3/4	PVC	195-215	.010	176-230	209	
D-3d[f]	2603	2605.52	407	98	3/4	PVC	315	SC	3/4	PVC	285-305	.010	273-308	213	

Table B-1 (continued)
WELL CONSTRUCTION SUMMARY

Well No.	GL Elev. (ft MSL)	MP[a] Elev. (ft MSL)	Total Depth Drilled (ft)	Steel Surface Casing Depth (ft BGL)[b]	Well Casing Diam. (in)	Well Casing Type[c]	Well Casing Depth (ft BGL)	Well Casing SC/OH[d]	Open Interval Diam. (in)	Open Interval Type[c]	Open Interval Screen Interval (ft)	Open Interval Slot Size (in)	Open Interval Sand Pack Interval (ft)	Open Interval Static[c] Water Level (ft BGL)	Dedicated[h] Sampling Equipment
D-4s[f]	2528	2530.09	400	118	3/4	PVC	215	SC	3/4	PVC	185-205	.010	175-215	140	
D-4d[f]	2528	2530.06	400	118	3/4	PVC	300	SC	3/4	PVC	270-290	.010	260-300	143	
D-8s[f]	2566	2568.66	400	138	3/4	PVC	240	SC	3/4	PVC	210-230	.010	200.5-240	191	
D-8d[f]	2566	2568.65	400	138	3/4	PVC	320	SC	3/4	PVC	290-310	.010	280-315	190	
D-9s[f]	2559	2561.18	401.5	118	3/4	PVC	230	SC	3/4	PVC	185-205	.010	189-231	197	
D-9d[f]	2559	2561.22	401.5	118	3/4	PVC	320	SC	3/4	PVC	290-310	.010	280-321	198	
D-10s[f]	2556	2558.34	401.5	138	3/4	PVC	230	SC	3/4	PVC	200-220	.010	190-230	191	
D-10d[f]	2556	2558.34	401.5	138	3/4	PVC	310	SC	3/4	PVC	280-300	.010	270-310	196	
D-16	2561	-	300	100	-	-	-	-	-	-	Plugged	-	-	-	
D-16A	2561	2562.95	260	118	-	-	-	-	-	-	Plugged	-	-	-	
D-17	2585	2586.84	300	118	4	PVC	250	SC	4	PVC	190-230	.010	180-290	209	
D-18	2563	2564.61	260	138	4	PVC	215	SC	4	PVC	165-205	.010	160-260	175	
D-19	2558	2560.30	250	118	4	PVC	240	SC	4	PVC	190-230	.010	180-250	192	
D-20	2558	2560.64	390	137	4	PVC	360	SC	4	PVC	310-350	.010	293-360	196	
D-21s[g]	2552	2555.34	300	118	3/4	PVC	220	SC	3/4	PVC	205-215	.010	189-220	192	
D-22	2563	-	300	-	-	-	-	-	-	-	Plugged	-	-	-	
D-23	2552	2553.26	315	4	3/4	PVC	177	SC	3/4	PVC	167-177	.010	165-177	165	
D-24s[g]	2557	2559.76	280	118	3/4	PVC	192	SC	3/4	PVC	175-185	.010	163-192	Dry	
D-27	2613	2614.07	300	99	4	PVC	237	SC	4	PVC	222-232	.010	218-247	205	
D-28	2603	2605.07	300	98	4	PVC	239	SC	4	PVC	224-234	.010	219-249	221	
D-29	2579	2580.82	300	97	4	PVC	227	SC	4	PVC	212-222	.010	207-238	210	
D-30	2613	2615.40	300	98	4	PVC	223	SC	4	PVC	208-218	.010	203-233	194	
D-31	2594	2596.87	253	98	4	PVC	248	SC	4	PVC	233-243	.010	228-253	210	
D-32	2596	-	299	-	-	-	-	-	-	-	Plugged	-	-	-	

Table B-1 (continued)
WELL CONSTRUCTION SUMMARY

Well No.	GL Elev. (ft MSL)	MP[a] Elev. (ft MSL)	Total Depth Drilled (ft)	Steel Surface Casing Depth (ft BGL)[b]	Well Casing					Open Interval					Dedicated[h] Sampling Equipment
					Diam. (in)	Type[c]	Depth (ft BGL)	SC/OH[d]	Diam. (in)	Type[c]	Screen Interval (ft)	Slot Size (in)	Sand Pack Interval (ft)	Static[e] Water Level (ft BGL)	
WW-1	2605	2606.92	800	460	-	-	-	-	-	-	Plugged	-	-	-	
SW-1	2571	2573.19	220	8	4	ST	220	SC	4	SST	187.5-197.5	.020	-	191	SP
SW-2	2566	2567.66	204	20	4	ST	200	SC	4	SST	185-195	.010	180-204	185	SP
SW-3	2564	2566.29	202.5	20	4	ST	202.5	SC	4	SST	187-197	.010	182-202.5	187	SP
PCB-1	2568	2570.02	197	138	4	PVC	191	SC	4	PVC	181-191	.010	179-191	187	PB
PCB-2	2566	2568.09	200.5	138	4	PVC	194	SC	4	PVC	184-194	.010	181-197	186	PB
PCB-3	2561	2562.93	195	138	4	PVC	190	SC	4	PVC	175-185	.010	173-187	176	SP

[a]MP - Measure Point Elevation.

[b]Feet below ground level.

[c]ST = steel, PVC = polyvinyl chloride, SST = stainless steel.

[d]SC = screen, OH = open hole.

[e]Typical water levels.

[f]High/low piezometers set in the same borehole.

[g]3/4-inch PVC piezometer installed in same borehole as 4-inch PVC.

[h]SP = Stainless steel pump, PB = PVC bailer.

All pumps are set at the bottom of the well screen.

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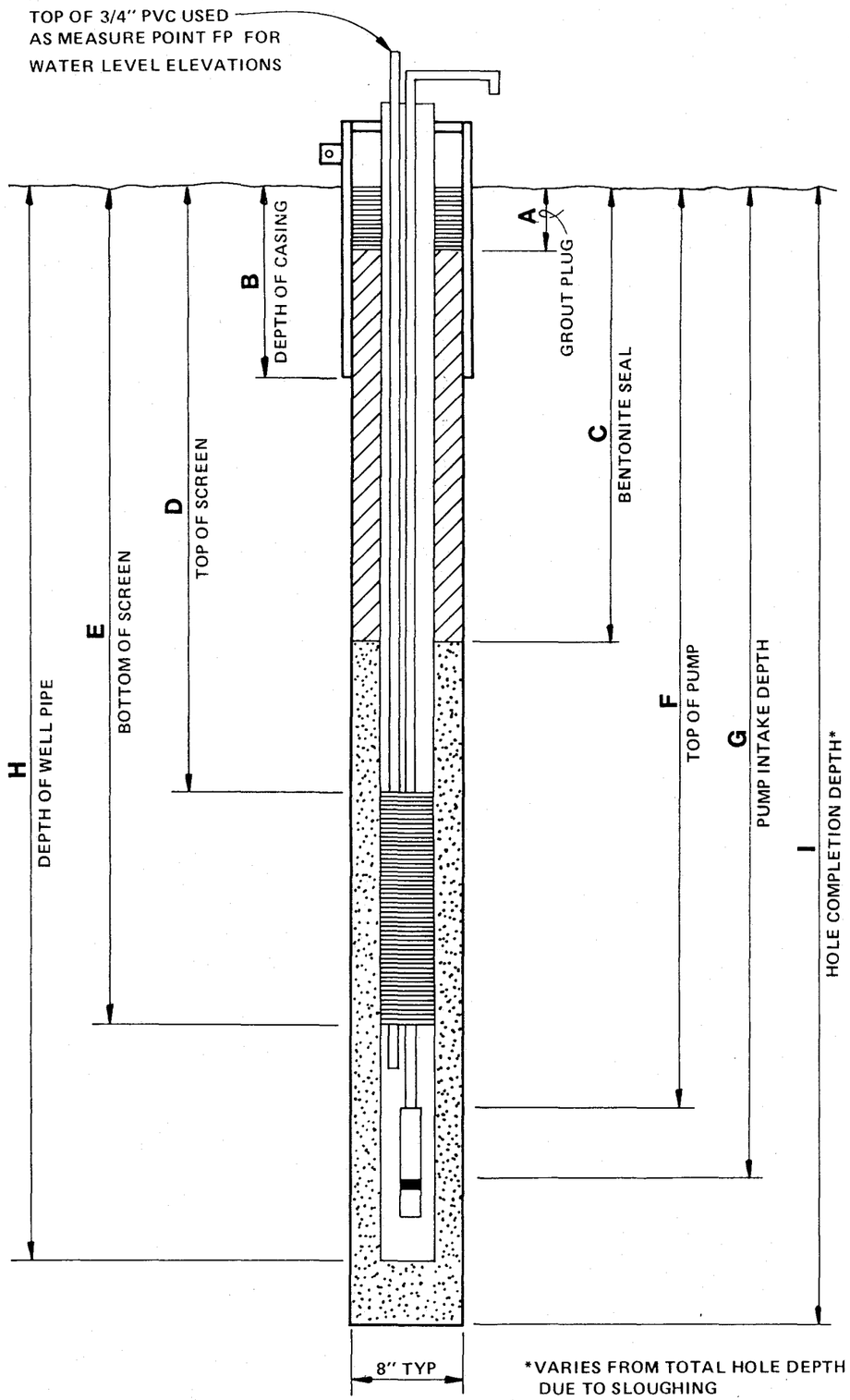

*VARIES FROM TOTAL HOLE DEPTH DUE TO SLOUGHING

	MW-1	MW-3	MW-5	MW-10	MW-11	MW-13	D-15	MW-16	PCB-3
GROUND ELEVATION	2558.27	2548.35	2567.56	2539.39	2555.39	2632.0	2544.91	2566.41	2560.90
TOP OF CASING [a]	2559.02	2549.50	2569.04	2541.39	2556.76	2633.72 [b]	2546.91	2568.15	2562.93
TOP OF 3/4" PVC	2559.57	2549.95	2569.56	2541.51	2556.85	NONE	2547.24	2568.62	2563.38
TOP CENTRALIZER	170'	175'	200'	175'	190'	215'	170'	175'	170'
MID CENTRALIZER	195'	200'	220'	195'	210'	235'	190'	NONE	NONE
BOTT CENTRALIZER	210'	235'	235'	215'	230'	255'	210'	191'	187'
A	7'	9'	8.5'	10'	10'	10'	10'	10'	10'
B	138'	118'	118	117'	118'	158'	158'	118'	140'
C	154'	154'	176'	160'	178'	189'	160'	178'	173'
D	174'	179'	200''	175'	190'	215'	170'	180'	175'
E	194'	199'	220'	215'	230'	255'	210'	190'	185'
F	207'	213'	232'	215'	230'	255'	210.5'	190'	185'
G	208.5'	214.5'	233.5'	216.5'	231.5'	256.5'	212'	191.5'	186.5'
H	214'	219'	232'	225'	240'	265'	220'	195'	190'
I	216'	232'	237'	230'	247'	265'	~~250'~~ 210	196'	187'

a. PERMANENT SURVEYED DATUM POINT
b. TOP OF WELL PIPE USED AS MEASURE POINT FOR WATER LEVEL ELEVATIONS.

FIGURE B-1
WELL CONSTRUCTION

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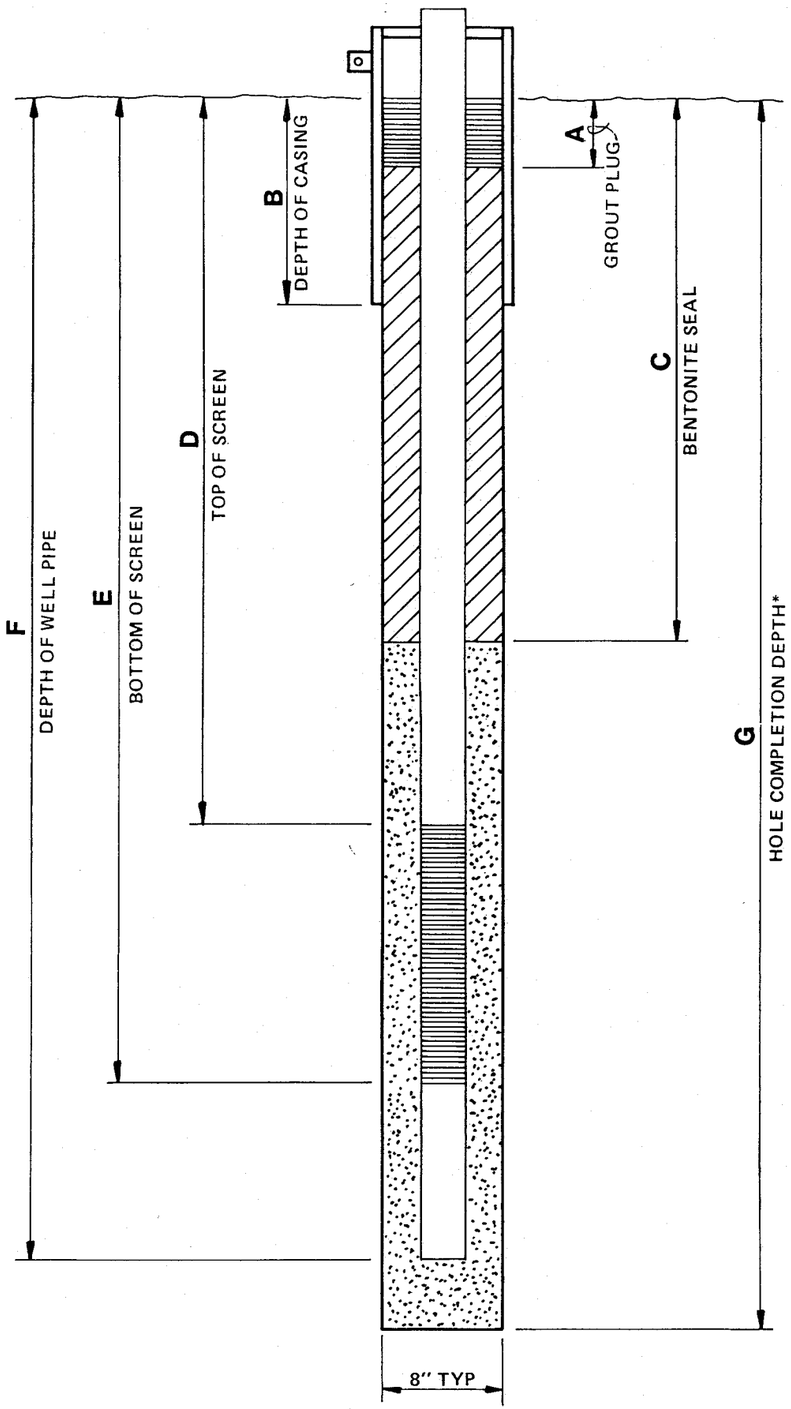

	MW-2	MW-4	MW-6	MW-10	MW-11	MW-12	D-17	D-18
GROUND ELEVATION	2558.47	2558.72	2596.69	2539.39	2555.39	2563.36	2585.17	2562.97
TOP OF CASING [a]	2560.50	2560.19	2598.31	2541.39	2556.76	2565.16	2586.74	2564.47
TOP OF 4" PVC PIPE [b]	2559.97	2560.02	2598.10	2541.51	2556.85	2565.30	2586.84	2564.61
TOP CENTRALIZER				175′	190′	200′	190′	165′
MID CENTRALIZER				195′	210′	220′	210′	185′
BOTT CENTRALIZER				215′	230′	240′	230′	205′
A	10′	7′	8′	10′	10′	10′	10′	10′
B	158′	139′	119′	117′	118′	118′	118′	138′
C	166′	167′	160′	160′	178′	189′	180′	160′
D	191′	195′	190′	175′	190′	200′	190′	165′
E	211′	215′	210′	215′	230′	240′	230′	205′
F	231′	235′	230′	225′	240′	250′	250′	215′
G	291′	255′	256′	230′	247′	250′	290′	260′

NOTE: 6" STEEL CASING USED ON MW-2, MW-4 AND MW-6.

*VARIES FROM TOTAL HOLE DEPTH DUE TO SLOUGHING

a. PERMANENT SURVEYED DATUM POINT
b. MEASURE POINT ELEVATION

FIGURE B-2
WELL CONSTRUCTION

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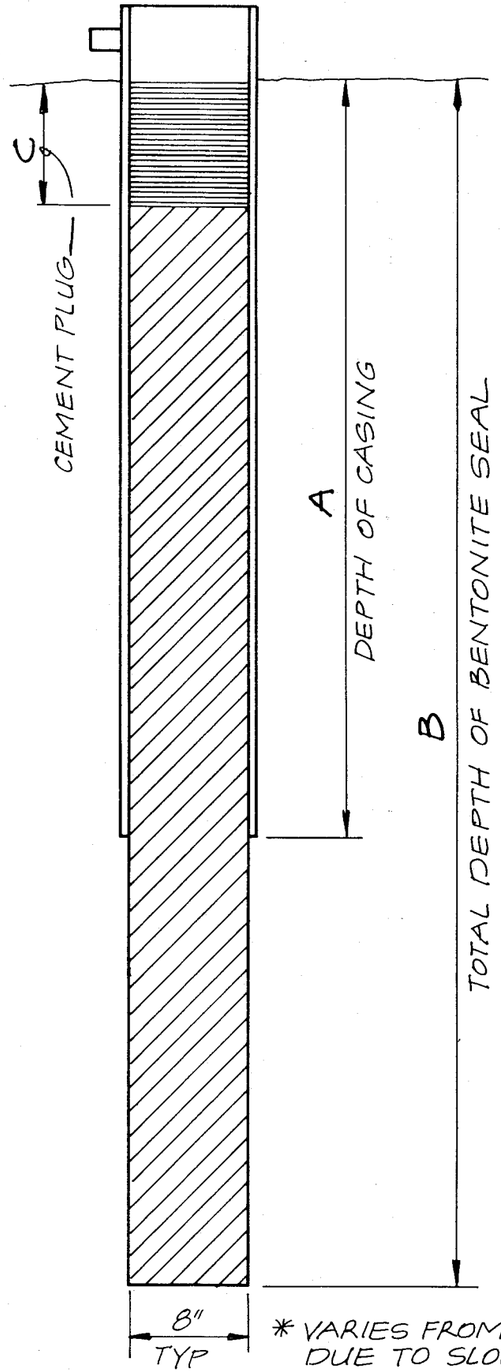

* VARIES FROM TOTAL HOLE DEPTH DUE TO SLOUGHING

WELL ABANDONMENT DETAILS

	WW-1	D-16	D-16A	D-22	D-32
GROUND EL	2604.92	2560	2561	2563	2596
TOP OF CASING	2606.92	2561.74	2562.95	NONE	NONE
A	460'	118'	118'		
B	NONE	300'		NONE	NONE
C	800'	10'	230'[a]	300'	299

a. D-16A PLUGGED WITH ALTERNATING SEQUENCE OF CEMENT AND BENTONITE; 0-5 CEMENT
5-130 BENTONITE
130-145 CEMENT
145-173 BENTONITE
173-180 CEMENT
180-183 BENTONITE
183-209 CEMENT
209-212 BENTONITE
212-226 CEMENT
226-230 BENTONITE

FIGURE B-3
WELL CONSTRUCTION

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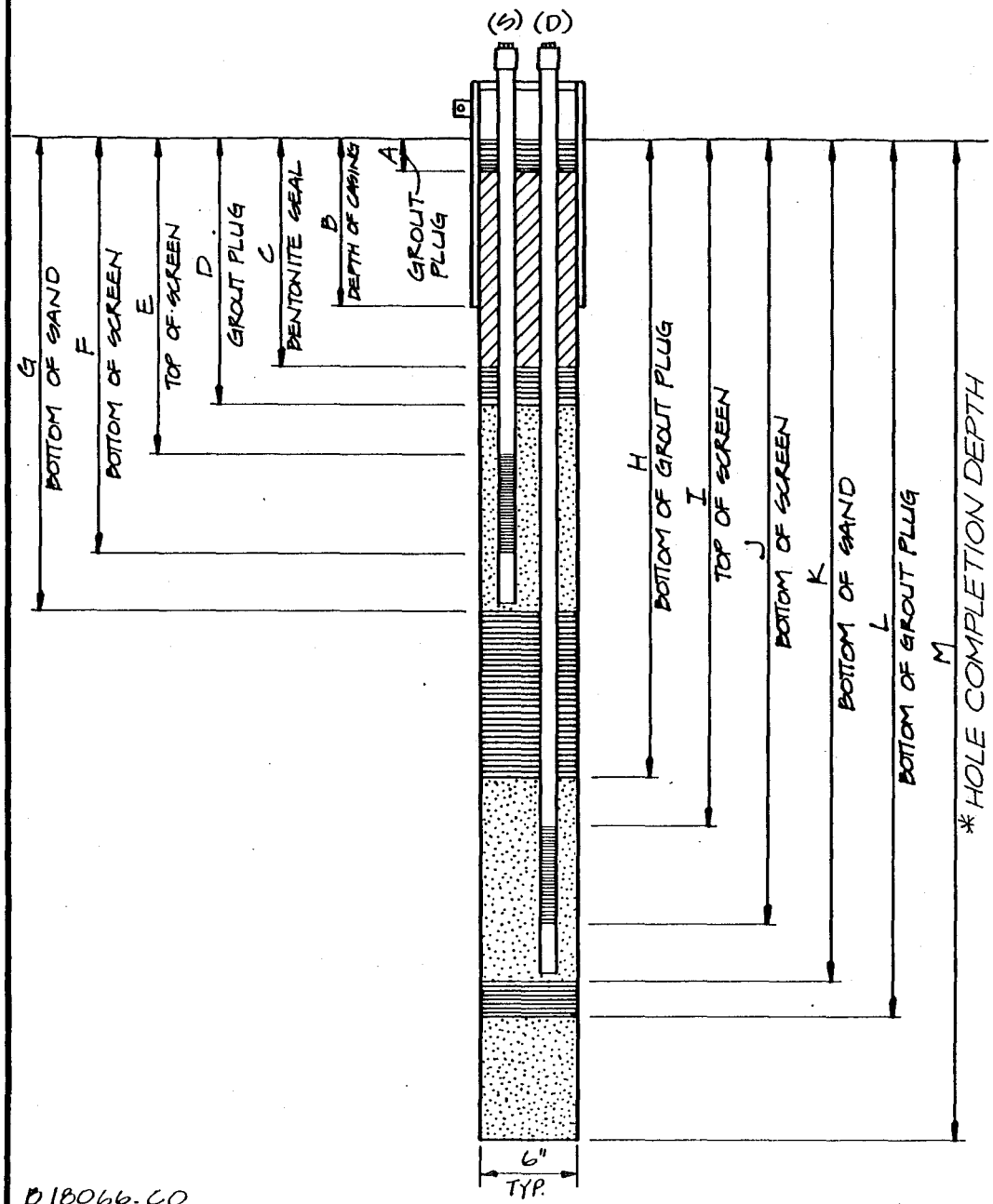

PIEZOMETER CONSTRUCTION DETAILS

	D-3	D-4	D-8	D-9	D-10
GRND. ELEV.	2603.38	2528.11	2566.42	2559.01	2556.47
TOP OF CASING[a]	2605.38	2529.81	2568.37	2561.01	2558.07
TOP OF PVC (S)	2605.54	2530.09	2568.66	2561.18	2558.34
TOP OF PVC (D)[b]	2605.52	2530.06	2568.65	2561.22	2558.34
A	10'	10'	9'	10'	10'
B	98'	118'	138'	118'	138'
C	171'	165'	190'	180'	180'
D	176'	175'	200.5'	189'	190'
E	195'	185'	210'	185'	200'
F	215'	205'	230'	205'	220'
G	230'	215'	240'	231'	230'
H	273'	260'	280'	280'	270'
I	285'	270'	290'	290'	280'
J	305'	290'	310'	310'	300'
K	308'	300'	315'	321'	310'
L	313'	310'	322'	330.5'	320'
M	406'	347'	322'	370'	335'

a. PERMANENT SURVEYED DATUM POINT

b. MEASURE POINT ELEVATION

*VARIES FROM TOTAL HOLE DEPTH DUE TO SLOUGHING.

FIGURE B-4

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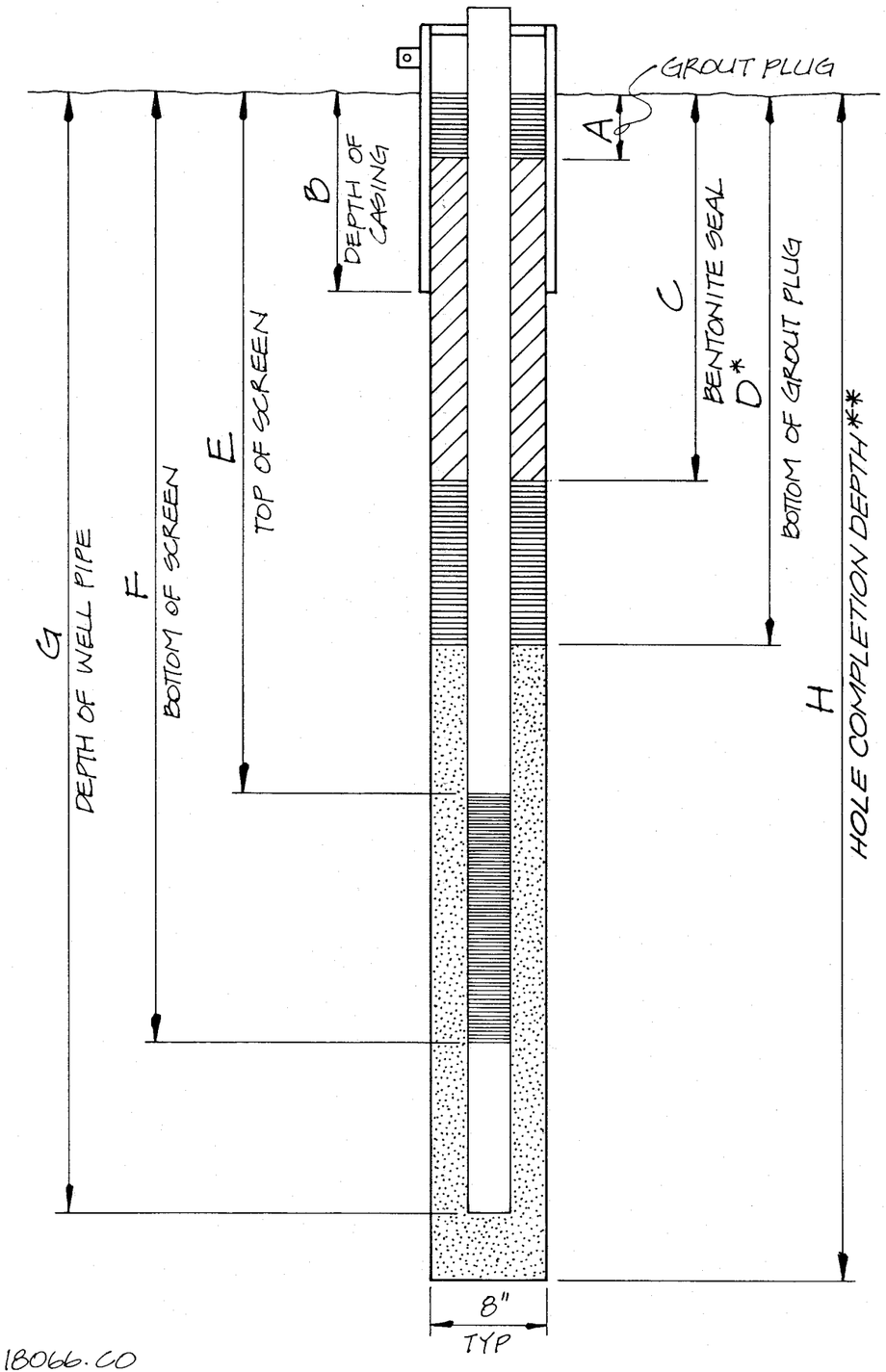

WELL CONSTRUCTION DETAILS

	MW-9	D-19	D-20
GROUND ELEV.	2565.0	2558.10	2558.00
TOP OF CASING[a]	2566.15	2560.14	2560.53
TOP OF 4" PVC[b]	2565.27	2560.30	2560.64
TOP CENTRALIZER	190'	190'	310'
MID CENTRALIZER	210'	210'	330'
BOTT. CENTRALIZER	230'	230'	350'
A	10'	10'	10'
B	139'	118'	137'
C	175'	180'	132'
D*	—	—	290'
E	190'	190'	310'
F	230'	230'	350'
G	250'	240'	360'
H	260'	250'	390'

* NOTE:
GROUT PLUG EXISTS IN D-20 ONLY.

** VARIES FROM TOTAL HOLE DEPTH DUE TO SLOUGHING.

a. PERMANENT SURVEYED DATUM POINT
b. MEASURE POINT ELEVATION

FIGURE B-5
WELL CONSTRUCTION

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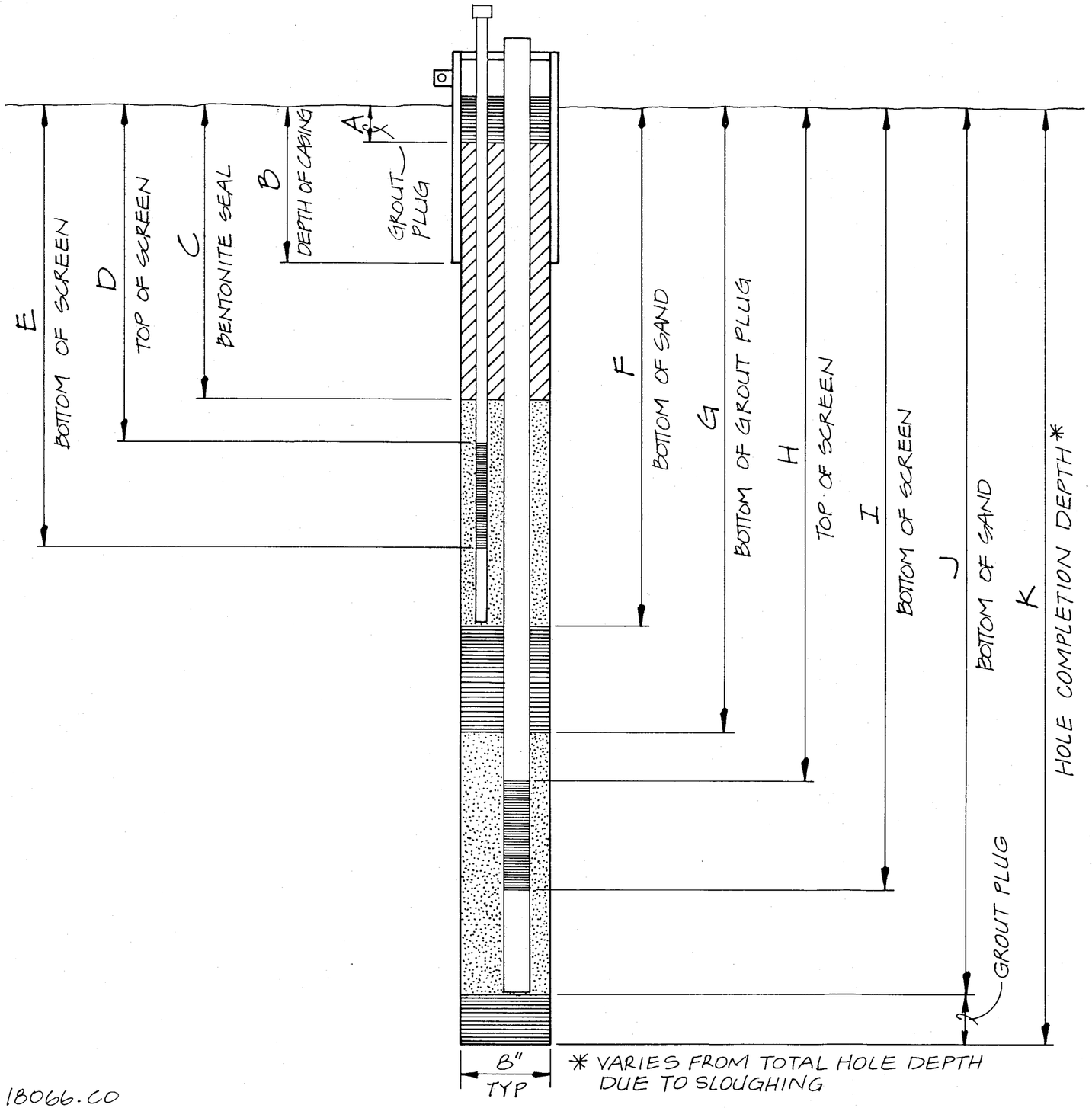

WELL CONSTRUCTION DETAILS

	D-21	D-24
GROUND ELEV.	2552.30	2557.40
TOP OF CASING[a]	2555.17	2559.52
TOP OF 4" PVC[b]	2555.34	2559.76
TOP OF 3/4" PVC[b]	2555.54[c]	2559.96[c]
TOP CENTRALIZER	255'	245'
MID CENTRALIZER	260'	250'
BOTT. CENTRALIZER	265'	255'
A	10'	10'
B	118'	118'
C	189'	163'
D	205'	175'
E	215'	185'
F	220'	192'
G	245'	236'
H	255'	245'
I	265'	255'
J	262'	274'
K	300'	290'

a. PERMANENT SURVEYED DATUM POINT
b. MEASURE POINT ELEVATION
c. ESTIMATED

FIGURE B-6
WELL CONSTRUCTION

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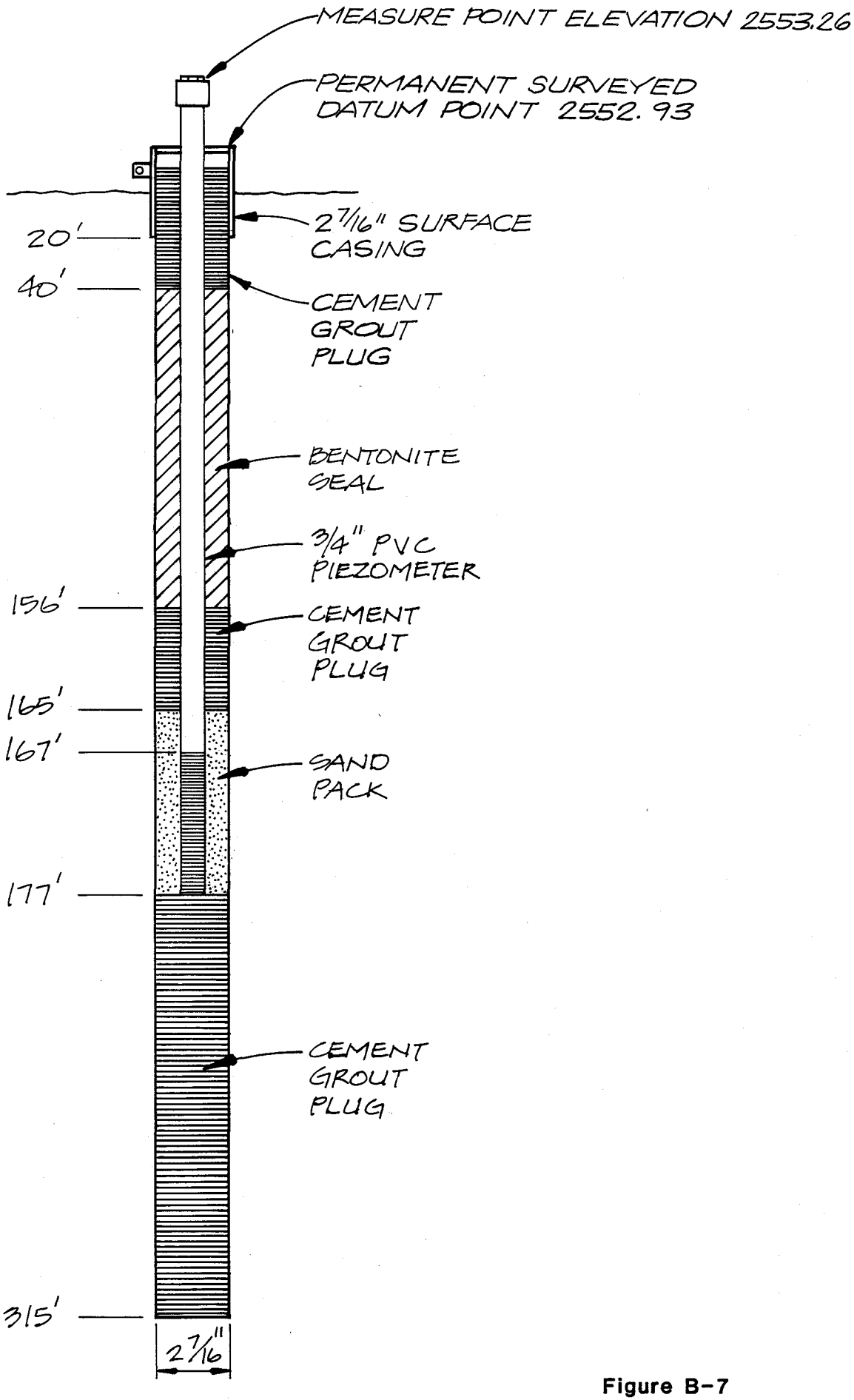

Figure B-7
WELL CONSTRUCTION FOR D-23

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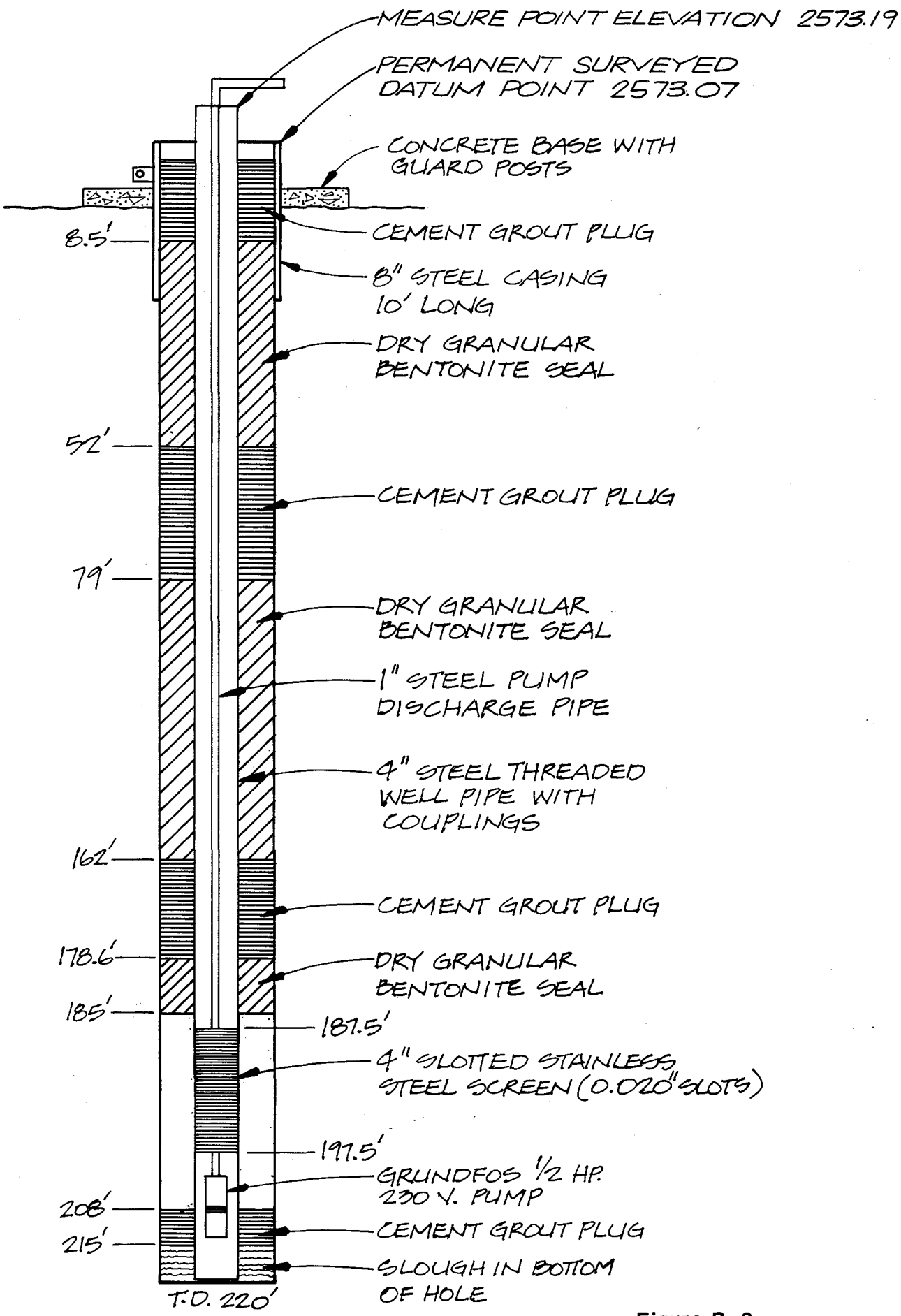

Figure B-8

WELL CONSTRUCTION SILO WELL NO. 1

B18066.B0

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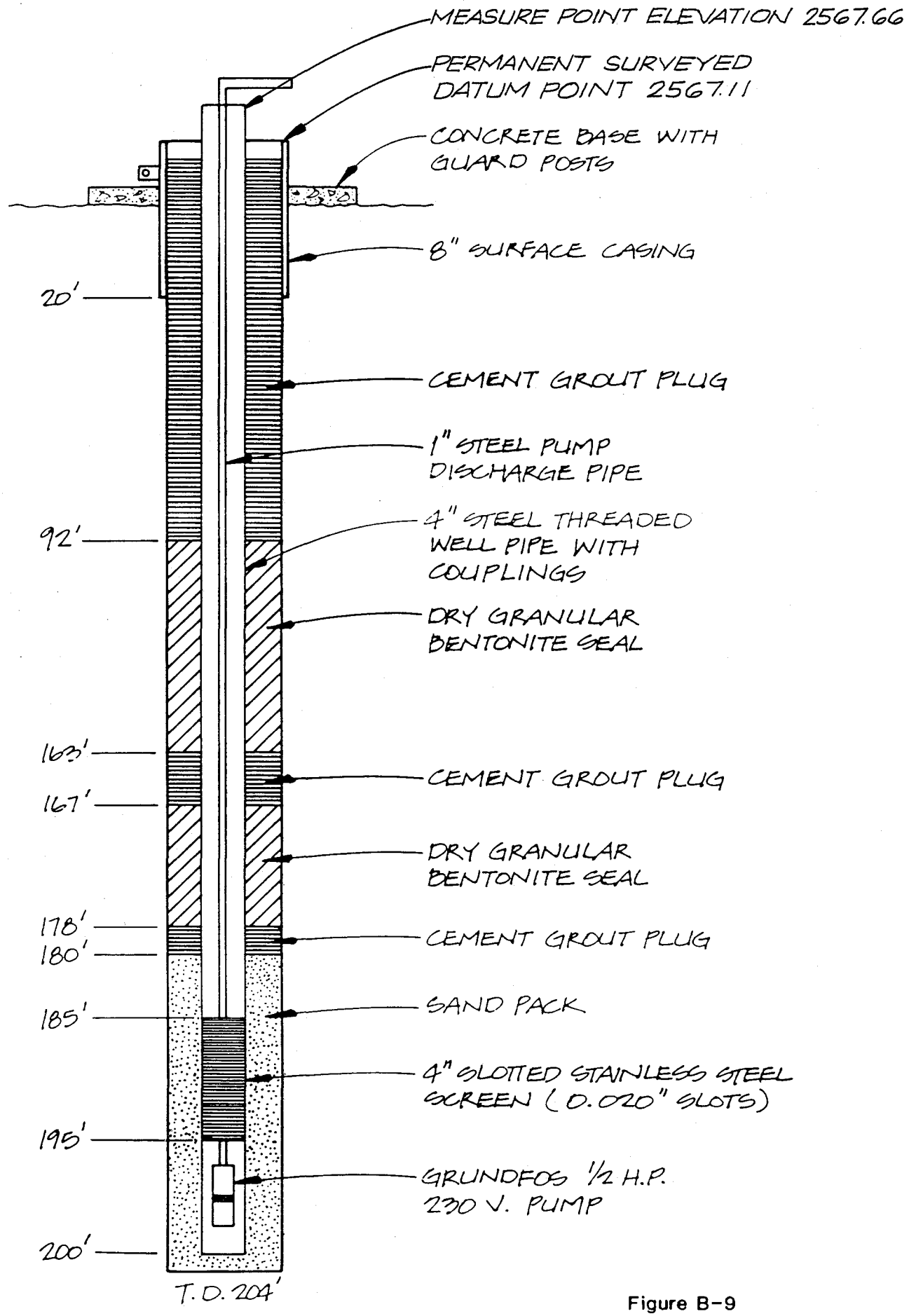

Figure B-9
WELL CONSTRUCTION SILO WELL NO. 2

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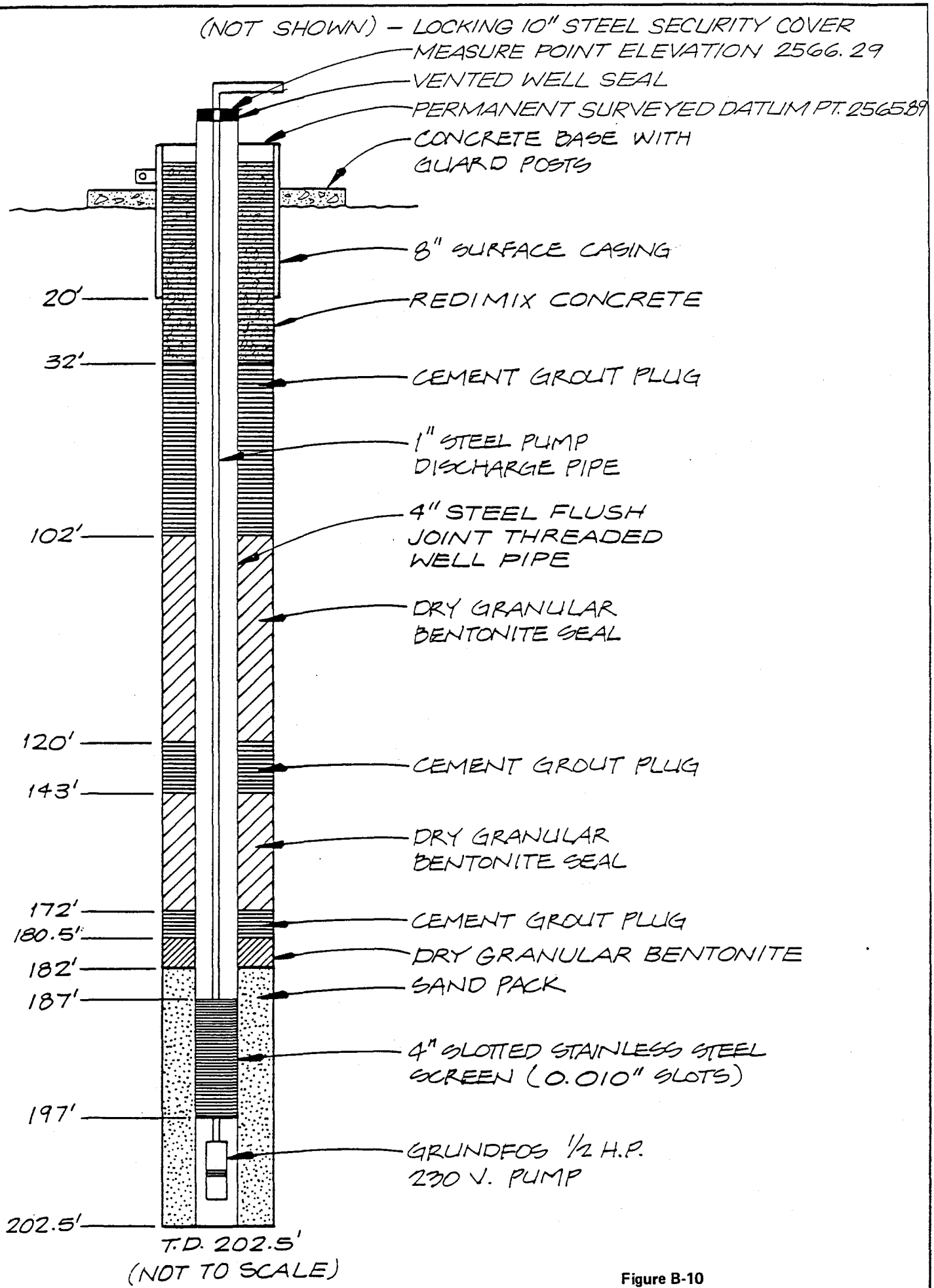
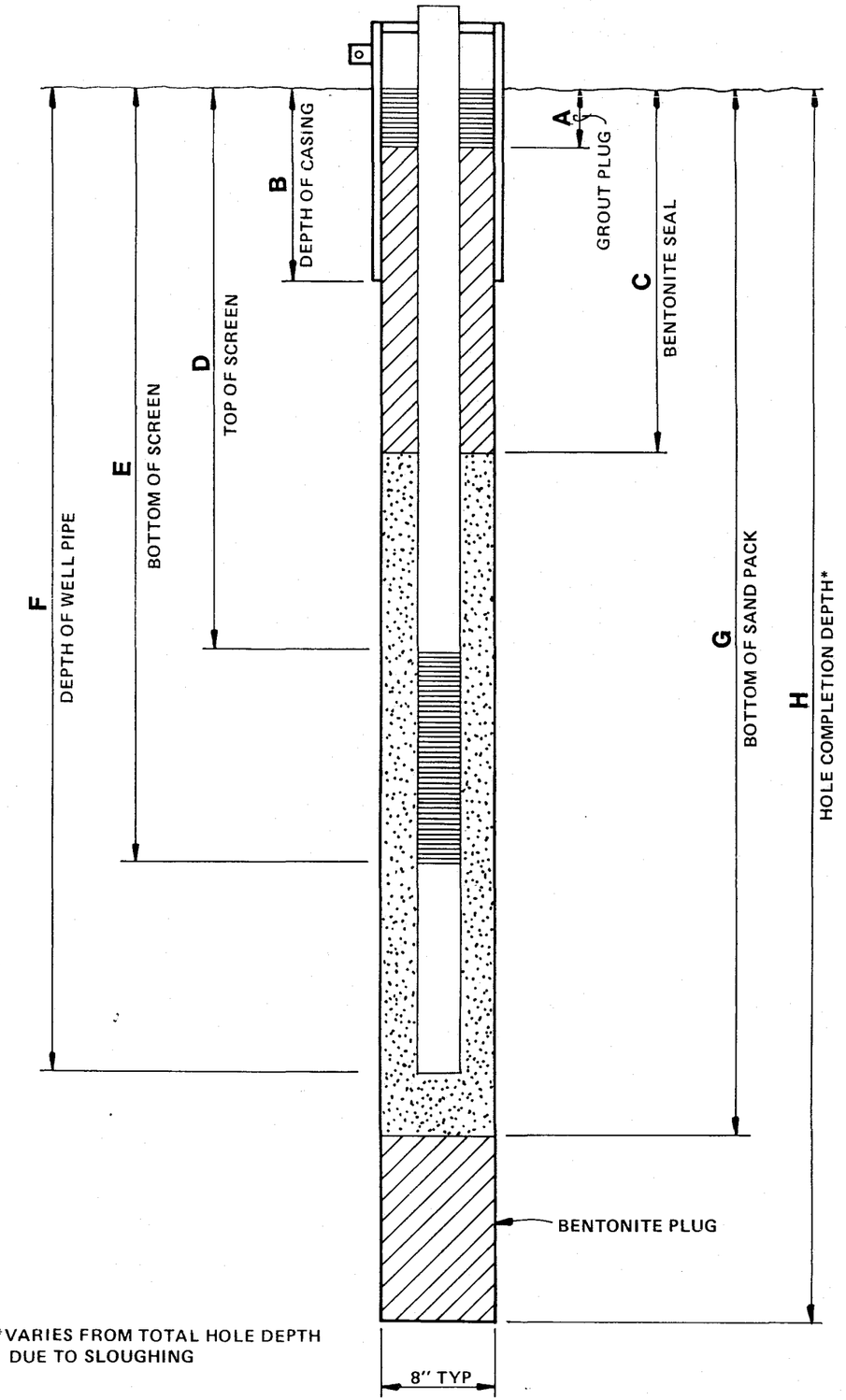


Figure B-10
WELL CONSTRUCTION SILO WELL NO. 3

B18066.B0



*VARIES FROM TOTAL HOLE DEPTH DUE TO SLOUGHING

	D-27	D-28	D-29	D-30	D-31	PCB-1	PCB-2	MW-14
GROUND ELEVATION	2613	2603	2579	2613	2594	2568	2566	2606
TOP OF CASING [a]	2614.27	2604.76	2580.51	2615.07	2596.38	2569.56	2567.69	2606.92[c]
TOP OF 4" PVC [b]	2614.54	2605.07	2580.82	2615.40	2596.87	2570.02	2568.09	
TOP CENTRALIZER	220′	222′	210′	205′	230′	180′	183′	203′
MID CENTRALIZER	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
BOTT CENTRALIZER	234′	232′	220′	215′	240′	191′	194′	233′
A	10′	10′	10′	10′	10′	10′	10′	10′
B	99′	98′	97′	98′	98′	138′	138′	159′
C	218′	219′	207′	203′	228′	179′	181′	205′
D	222′	224′	212′	208′	233′	181′	184′	210′
E	232′	234′	222′	218′	243′	191′	194′	230′
F	237′	239′	227′	223′	248′	191′	194′	235′
G	247′	249′	238′	233′	253′	191′	197′	235′
H	276′	276′	272′	287′	253′	197′	200.5′	270′

a. PERMANENT SURVEYED DATUM POINT
b. MEASURE POINT ELEVATION
c. TOP OF CASING USED AS MEASURING POINT

FIGURE B-11
WELL CONSTRUCTION

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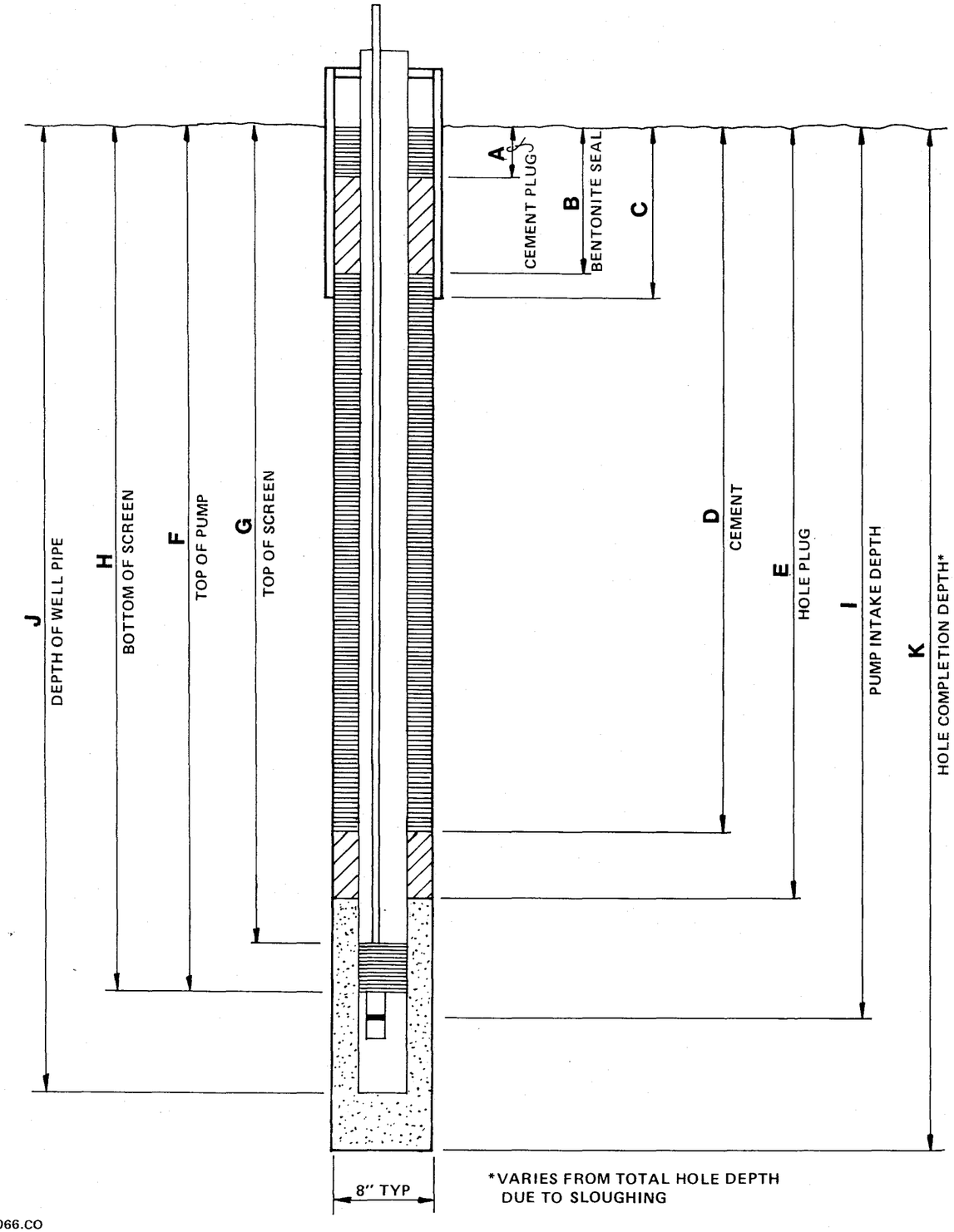

*VARIES FROM TOTAL HOLE DEPTH DUE TO SLOUGHING

	MW-25	MW-26
GROUND ELEVATION	2542	2567
TOP OF CASING [a]	2543.56	2569.49
TOP OF 4" PVC [b]	2544.0	2570.01
TOP CENTRALIZER	260'	250'
MID CENTRALIZER	NONE	NONE
BOTT CENTRALIZER	275'	274'
A	10'	8'
B	25'	157'
C	117'	157'
D	250'	251'
E	255'	255'
F	273'	272'
G	263'	262'
H	273'	272'
I	274.5'	273.5'
J	278'	277'
K	283'	280'

a. PERMANENT SURVEYED DATUM POINT
b. MEASURE POINT ELEVATION

FIGURE B-12
WELL CONSTRUCTION

B18066.CO

REVISED FEB. 1986

APPENDIX C

APPENDIX D

Table D-1
PACKER TEST SUMMARY
ESII GRANDVIEW

Well No.	Date	Test Interval (ft. below ground level)	K (cm/sec)	Inflow Pressure (psi)	Comments
D-2	09/28/83	306-326	7.0×10^{-7}	15.5	
			1.0×10^{-6}	30.0	
			1.1×10^{-6}	50.0	
D-2	09/29/83	326-357	2.0×10^{-7}	15.0	
			2.7×10^{-7}	30.0	
			4.6×10^{-7}	50.0	
D-2	09/30/83	357-392	8.0×10^{-8}	15.0	
			3.5×10^{-7}	30.0	
			3.5×10^{-7}	50.0	
D-2	10/03/83	391-430	1.1×10^{-7}	15.0	
			1.6×10^{-7}	30.0	
			1.9×10^{-7}	50.0	
D-2	10/03/83	303-430	1.8×10^{-6}	15.0	
			2.1×10^{-6}	30.0	
			2.5×10^{-6}	45.0	
D-3	04/18/84	345-368	1.1×10^{-5}	14.0	
			1.5×10^{-5}	30.0	
			1.9×10^{-5}	45.0	
D-3	04/19/84	375-407	1.5×10^{-7}	16.0	
			7.0×10^{-8}	30.0	
			1.7×10^{-7}	50.0	
D-4	05/10/84	263-292	6.3×10^{-7}	12.5	
			4.1×10^{-7}	30.0	
			6.8×10^{-7}	47.0	
D-4	05/11/84	300-334	2.2×10^{-7}	11.0	
			3.4×10^{-7}	30.0	
			7.1×10^{-7}	48.5	
D-4	05/12/84	332.5-372.5	3.8×10^{-7}	11.5	
			2.3×10^{-7}	30.0	
			1.3×10^{-7}	49.5	
D-4	05/15/84	384.5-400.5	4.1×10^{-7}	10.0	
			6.3×10^{-7}	30.0	
			5.2×10^{-7}	48.0	
D-8	05/18/84	210-245	2.4×10^{-7}	10.5	
			2.2×10^{-7}	31.0	
			2.2×10^{-7}	49.5	

Table D-1

PACKER TEST SUMMARY (Continued)

ESII GRANDVIEW

Well No.	Date	Test Interval (ft. below ground level)	K (cm/sec)	Inflow Pressure (psi)	Comments
D-8	05/18/84	265-300	8.4×10^{-7}	10.0	
			8.8×10^{-7}	31.0	
			9.0×10^{-7}	46.5	
D-8	05/19/84	304.5-347	6.5×10^{-7}	9.0	
			7.1×10^{-7}	30.0	
			7.1×10^{-7}	48.0	
D-8	05/21/84	365-400	4.3×10^{-7}	9.0	
			3.5×10^{-7}	30.0	
			4.7×10^{-7}	48.5	
D-9	05/23/84	205-237	--	11.0	No Take
			--	30.0	No Take
			1.2×10^{-7}	49.0	
D-9	05/24/84	265-288.5	2.2×10^{-7}	11.0	
			5.4×10^{-7}	30.0	
			4.7×10^{-7}	49.0	
D-9	05/24/84	310-340	--	10.0	No Take
			1.5×10^{-7}	30.0	
			1.3×10^{-7}	48.0	
D-9	05/29/84	370-401.5	--	12.0	No Take
			--	30.0	No Take
			--	44.0	No Take
D-10	05/31/84	195-243	--	10.5	No Take
			3.1×10^{-6}	30.0	
			2.9×10^{-6}	48.0	
D-10	06/01/84	265-304.0	--	10.0	No Take
			1.5×10^{-6}	30.0	
			1.4×10^{-6}	48.0	
D-10	06/02/84	310-345	--	--	Erratic Inflow Pressure
			6.9×10^{-8}	30	
			2.9×10^{-7}	48	
D-10	06/02/84	365-401.5	3.1×10^{-7}	10.5	
			1.3×10^{-7}	30.0	
			1.7×10^{-7}	47.0	

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CALIBRATION OF PRESSURE TEST EQUIPMENT
(for BOREHOLE PACKER setup)

PROJECT	PROJECT NUMBER	TEST EQUIPMENT I.D.
ESII	B18066.40	Pressure gauge WIKA Rockwell Hammer 20083072

BOREHOLE SIZE	ROD SIZE	PACKER SET UP	TEST BY
NQ	NQ	SINGLE/DOUBLE HYDRAULIC/INFLATABLE	KUENELI DATE 4/18/84
GAUGE HEIGHT ABOVE PACKER		FEET (GRAVITY HEAD)	SHEET OF

Rod Length (L_R) _____ feet
Stabilized inflow pressure 8 psi x 2.31 = 18.48 feet
Total applied head = gravity head + pressure head = 19.98 feet

TIME, MIN.	0	1	2	3	4	5	Q AVERAGE FLOW	
METER READING GALLONS OR CU. FT.	62.5	63.40	64.25	65.13	66.00	66.88	67.75 GPM	CFM
TAKE PER MIN.	9.0	8.5	8.8	8.7	8.8	8.7	CFM x 7.48 = GPM	

Rod Length (L_R) _____ feet
Stabilized inflow pressure 15 psi x 2.31 = _____ feet
Total applied head = gravity head + pressure head = _____ feet

TIME, MIN.	0	1	2	3	4	5	Q AVERAGE FLOW	
METER READING GALLONS OR CU. FT.	73.00	74.25	75.47	76.67	77.90	79.15	GPM	CFM
TAKE PER MIN.	12.5	12.2	12.0	12.3	12.5		CFM x 7.48 = GPM	

Rod Length (L_R) _____ feet
Stabilized inflow pressure 20 psi x 2.31 = 46.20 feet
Total applied head = gravity head + pressure head = 47.70 feet

TIME, MIN.	0	1	2	3	4	5	Q AVERAGE FLOW	
METER READING GALLONS OR CU. FT.	87.00	8.49	90.92	91.41	92.88	94.32	GPM	CFM
TAKE PER MIN.	14.9	14.3	14.9	14.7	14.4		CFM x 7.48 = GPM	

Rod Length (L_R) _____ feet
Stabilized inflow pressure _____ psi x 2.31 = _____ feet
Total applied head = gravity head + pressure head = _____ feet

TIME, MIN.	0	1	2	3	4	5	Q AVERAGE FLOW	
METER READING GALLONS OR CU. FT.							GPM	CFM
TAKE PER MIN.							CFM x 7.48 = CPM	

BOTTOM HOLE AT 368.
PACKER SET AT 345.00
PACKER PRESSURE 350 psi

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PRESSURE TEST RESULTS (FIELD)

(for BOREHOLE PACKER setup)

PROJECT	PROJECT NUMBER	TEST SECTION	BORE HOLE
ESII	B18066.A0	345 TO 368	D-3

TEST EQUIPMENT IDENTIFICATION	BORE HOLE ORIENTATION	BORE HOLE SIZE	TEST BY / DATE
	VERT	NQ	TEST BY: KUENZLI DATE: 4/18/84

PACKERS ON CASING SINGLE/DOUBLE HYDRAULIC/INFLATABLE	GROUND WATER DEPTH	GAUGE HEIGHT ABOVE GROUND	GRAVITY HEAD
	218.0 FT.	1.0 FT.	219.0 FT.

TEST 1

Inflow pressure (Hp) 14 psi x 2.31 = 32.34 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	97.75	97.87	97.98	98.08	98.20	98.31	98.42	/	98.64	98.73	98.84	1.1 GPM CFM
TAKE PER MIN.	1.2	1.1	1.0	1.2	1.1	1.1		1.1	0.9	1.1		CFM x 7.48 - GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (Hp) − Head Losses (H_L)

251.3 FT. = 219.0 FT. + 32.34 FT. − Ø FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{1.1}{251.3 \times 23} \times .011 \ln \frac{23}{.125} = K, CM/SEC\ 1.1 \times 10^{-5}$$

TEST 2

Inflow pressure (Hp) 30 psi x 2.31 = 69.3 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	98.70	98.88	99.06	99.24	99.42	99.60	99.77	99.93	00.11	00.27	.45	1.8 GPM CFM
TAKE PER MIN.	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.8	1.6	1.8		

H_T 288.3 FT. = H_G 219 FT. + H_P 69.3 FT. − H_L Ø FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{1.8}{288.3 \times 23} \times .011 \ln \frac{23}{.125} = K, CM/SEC\ 1.5 \times 10^{-5}$$

TEST 3

Inflow pressure (H_P) 45 psi x 2.31 = 104 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	01.30	1.54	1.76	1.99	2.22	2.48	2.72	/	3.19	3.43	3.67	2.4 GPM CFM
TAKE PER MIN.	2.4	2.2	2.3	2.3	2.6	2.4	2.3	2.4	2.4	2.4		

H_T 322 FT. = H_G 218 FT. + H_P 104 FT. − H_L Ø FT.

$$K = \frac{Q}{\ } \times .011 \ln \frac{L}{\ } = \frac{2.4}{\ } \times .011 \ln \frac{23}{\ } = K, CM/SEC\ \ ^{-5}$$

A163

PRESSURE TEST RESULTS (FIELD)

PROJECT	JOB NUMBER	TEST SECTION	BORE HOLE
[illegible]	[illegible]	L = 32 TO [illegible]	

TEST EQUIPMENT IDENTIFICATION	BORE HOLE		TEST BY
[illegible]	ORIENTATION: VERT	SIZE: NA	DATE: [illegible]

PACKERS ON CASING SINGLE/DOUBLE HYDRAULIC/INFLATABLE	GROUND WATER DEPTH	GAUGE HEIGHT ABOVE GROUND	GRAVITY HEAD
	218 FT.	1 FT.	219 FT.

TEST 1

Inflow pressure (HP) 16 psi x 2.31 = 36.9 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	07.03					07.09					07.10	.27 gal / 10 min = .03 GPM
												CFM
TAKE PER MIN.												CFM x 7.48 - GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) − Head Losses (H_L)

256 FT. = 219 FT. + 37 FT. − Ø FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{.02}{256 \times 32} \times .011 \ln \frac{32}{.125} = K, CM/SEC\ 1.5 \times 10^{-7}$$

TEST 2

Inflow pressure (Hp) 32 psi x 2.31 = 69.3 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	07.12					07.12					07.13	.01 gal / 10 min = .01 GPM
												CFM
TAKE PER MIN.												

H− 288 FT. = H_G 219 FT. + H_P 69 FT. − H_L Ø FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{.01}{288 \times 32} \times .011 \ln \frac{32}{.125} = K, CM/SEC\ 7 \times 10^{-8}$$

TEST 3

Inflow pressure (H_P) 50 psi x 2.31 = 115 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	07.15					07.17					07.18	.3 gal / 10 min = .03 GPM
												CFM
TAKE PER MIN.												

H_T 334 FT. = H_G 219 FT. + H_P 115 FT. − H_L Ø FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{.03}{334 \times 32} \times .011 \ln \frac{32}{.125} = K, CM/SEC\ 1.7 \times 10^{-7}$$

PRESSURE TEST RESULTS (FIELD)

packer setting pressure = 32

PROJECT	JOB NUMBER	TEST SECTION	BORE HOLE
ESI	B 18066. A0	28.5' [illegible] TO 291.5'	D-4

TEST EQUIPMENT IDENTIFICATION	BORE HOLE		TEST BY
Longyear NQ wireline packer Rockwell 5/8" water meter WIKA 100 PSI pressure guage	ORIENTATION: vertical	SIZE: NQ	J. Kuenzli M. Christian DATE: 5-16-84

PACKERS	GROUND WATER DEPTH	GAUGE HEIGHT ABOVE GROUND	GRAVITY HEAD
ON CASING: no SINGLE/DOUBLE HYDRAULIC/INFLATABLE	135 FT.	1.5 FT.	136.5 FT.

TEST 1

Inflow pressure (Hp) 12.5 psi x 2.31 = 28.9 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	350900	0.7	0.7	0.8	0.8	0.8	0.9	0.9	91.0	91.0	91.1	0.05 GPM
												CFM
TAKE PER MIN.	0.1	0	0.1	0	0	0.1	0	0.1	0	0.1		CFM x 7.48 - GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (Hp) − Head Losses (H_L)

165.4 FT. = 136.5 FT. + 28.9 FT. − 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{0.05}{165.4 \times 28.5} \times .011 \ln \frac{28.5}{.125} = K,\ CM/SEC\ [illegible]$$

TEST 2

Inflow pressure (Hp) 30.0 psi x 2.31 = 69.3 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	91.8	91.9	91.9	92.0	92.0	92.0	92.0	92.1	92.1	92.1	92.2	0.04 GPM
												CFM
TAKE PER MIN.	0.1	0	0.1	0	0	0	0.1	0	0	0.1		

H_T 205.8 FT. = H_G 136.5 FT. + H_P 69.3 FT. − H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.04}{205.8 \times 28.5} \times .011 \ln \frac{28.5}{.125} = K,\ CM/SEC\ 4.07 \times 10^{-7}$$

TEST 3

Inflow pressure (H_P) 47.0 psi x 2.31 = 108.6 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	95.6	95.7	95.8	95.9	96.0	96.1	96.1	96.2	96.3	96.3	96.4	0.08 GPM
												CFM
TAKE PER MIN.	0.1	0.1	0.1	0.1	0.1	0	0.1	0.1	0	0.1		

H_T 245.10 FT. = H_G 136.5 FT. + H_P 108.6 FT. − H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.08}{245.1 \times 28.5} \times .011 \ln \frac{28.5}{.125} = K,\ CM/SEC\ [illegible]$$

time of test

PRESSURE TEST RESULTS (FIELD)

packer seated @ 350 psi

PROJECT	JOB NUMBER	TEST SECTION	BORE HOLE
ESII - Grandview	B 18066.A0	300.0' TO 334.0'	D-4

TEST EQUIPMENT IDENTIFICATION	BORE HOLE		TEST BY
Longyear NQ wireline packer Rockwell 5/8" water meter WIKA 100 psi pressure guage	ORIENTATION: Vertical	SIZE: NQ	M. Christian DATE: 5-11-84

PACKERS ON CASING: No SINGLE/DOUBLE HYDRAULIC/INFLATABLE	GROUND WATER DEPTH	GAUGE HEIGHT ABOVE GROUND	GRAVITY HEAD
	135' FT.	1.5' FT.	136.5 FT.

TEST 1

Inflow pressure (Hp) 11.0 psi x 2.31 = 25.4 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	3510 9.8	9.8	9.9	9.9	9.9	9.9	10.0	10.0	10.0	10.0	10.1	0.02 GPM CFM
TAKE PER MIN.	0	0.1	0	0	0	0.1	0	0	0	0		CFM x 7.48 - GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (Hp) − Head Losses (H_L)

161.9 FT. = 136.5 FT. + 25.4 FT. − 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{0.02}{161.9 \times 34.0} \times .011 \ln \frac{34.0}{.146} = K, CM/SEC\ 2.12 \times 10^{-7}$$

TEST 2

Inflow pressure (Hp) 30.0 psi x 2.31 = 69.3 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	10.8	10.9	10.9	11.0	11.0	11.0	11.1	11.1	11.1	11.2	11.2	0.04 GPM CFM
TAKE PER MIN.	0.1	0	0.1	0	0	0.1	0	0	0.1	0		

H_T 205.8 FT. = H_G 136.5 FT. + H_P 69.3 FT. − H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.04}{205.8 \times 34.0} \times .011 \ln \frac{34.0}{.146} = K, CM/SEC\ 7.43 \times 10^{-7}$$

TEST 3

Inflow pressure (H_P) 48.5 psi x 2.31 = 112.0 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	11.7	11.8	11.9	2.0	2.1	2.2	2.4	2.4	2.5	2.6	2.7	0.1 GPM CFM
TAKE PER MIN.	0.1	0.1	0.1	0.1	0.1	0.2	0	0.1	0.1	0.1		

H_T 248.5 FT. = H_G 136.5 FT. + H_P 112.0 FT. − H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.1}{248.5 \times 34.0} \times .011 \ln \frac{34.0}{.146} = K, CM/SEC\ 7.16 \times 10^{-7}$$

3)

3" casing @ 325'
Hole ϕ = 3.5" to 340'
= 3.0" 340' to 371.5'
used 3.25" for calcs.

packer seated @ 350; with this low of flow rate could see pressure losses through rods/joints

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PRESSURE TEST RESULTS (FIELD)

(for BOREHOLE PACKER setup)

PROJECT	PROJECT NUMBER	TEST SECTION (40.0')	BORE HOLE
ESII	B 18066. A0	332.5 TO 372.5	D-4

TEST EQUIPMENT IDENTIFICATION	BORE HOLE		TEST BY
Longyear NQ wireline packer Rockwell 5/8" water meter WIKA 100 psi pressure guage	ORIENTATION: vertical	SIZE: NQ	M. christian DATE: 5-12-84

PACKERS	GROUND WATER DEPTH	GAUGE HEIGHT ABOVE GROUND	GRAVITY HEAD
ON CASING No (SINGLE)/DOUBLE HYDRAULIC/(INFLATABLE)	135 FT.	1.5 FT.	136.5 FT.

TEST 1

Inflow pressure (HP) 11.5 psi x 2.31 = 26.6 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	35113.6	13.7	13.7	13.7	13.8	13.8	13.9	13.9	13.9	13.9	14.0	0.04 GPM CFM
TAKE PER MIN.	0.1	0	0	0.1	0	0.1	0	0	0	0.1		CFM x 7.48 - GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (Hp) − Head Losses (H_L)

163.1 FT. = 136.5 FT. + 26.6 FT. − 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{0.04}{163.1 \times 40.0} \times .011 \ln \frac{40.0}{.135} = K, CM/SEC\ 3.84 \times 10^{-7}$$

TEST 2

Inflow pressure (Hp) 30.0 psi x 2.31 = 69.3 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	14.9	14.9	15.0	15.0	15.0	15.1	15.1	15.2	15.2	15.2	15.2	0.03 GPM CFM
TAKE PER MIN.	0	0.1	0	0.1	0	0	0.1	0	0	0		

H_T 205.8 FT. = H_G 136.5 FT. + H_P 69.3 FT. − H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.03}{205.8 \times 40.0} \times .011 \ln \frac{40.0}{.135} = K, CM/SEC\ 2.28 \times 10^{-7}$$

TEST 3

Inflow pressure (H_P) 49.5 psi x 2.31 = 114.4 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	15.8	15.8	15.8	15.9	15.9	15.9	16.0	16.0	16.0	16.1	16.1	0.02 GPM CFM
TAKE PER MIN.	0	0	0.1	0	0	0	0	0	0.1	0		

H_T 250.9 FT. = H_G 136.5 FT. + H_P 114.4 FT. − H_L 0 FT.

$$K = \frac{Q}{\ } \times .011 \ln \frac{L}{\ } = \frac{0.02}{\ } \times \frac{40.0}{\ } = K, CM/SEC$$

1163

4)

1. packer seated @ 360 ps
2. hole dia. = 3.5"
3. Guage not zeroed. -1.5 psi from readings

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PRESSURE TEST RESULTS (FIELD)

(for BOREHOLE PACKER setup)

PROJECT	PROJECT NUMBER	TEST SECTION (16.0')	BORE HOLE
ESII	B 18066. A0	384.5' TO 400.5'	D-4

TEST EQUIPMENT IDENTIFICATION	BORE HOLE		TEST BY
Longyear NQ. wireline packer Rockwell 5/8" water meter WIKA 100 psi pressure guage	ORIENTATION: Vertical	SIZE: NQ	M. Christian DATE: 5-15-84

PACKERS ON CASING	GROUND WATER DEPTH	GAUGE HEIGHT ABOVE GROUND	GRAVITY HEAD
No SINGLE/DOUBLE HYDRAULIC/INFLATABLE	135.0' FT.	1.5' FT.	136.5' FT.

TEST 1

Inflow pressure (HP) 10.0 (11.5 guage) psi x 2.31 = 23.1 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	35:40.6	40.6	40.6	40.7	40.7	40.7	40.8	40.8	40.8	40.8	40.8	0.02 GPM CFM
TAKE PER MIN.	0	0	0.1	0	0	0.1	0	0	0	0		CFM x 7.48 - GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (Hp) − Head Losses (H_L)

159.6 FT. = 136.5 FT. + 23.1 FT. − 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{0.02}{159.6 \times 16.0} \times .011 \ln \frac{16.0}{.146} = K, CM/SEC\ 4.05 \times 10^{-7}$$

TEST 2

Inflow pressure (Hp) 30.0 (31.5 guage reading) psi x 2.31 = 69.3 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	41.0	41.1	41.2	41.2	41.2	41.2	41.3	41.3	41.4	41.4	41.4	0.04 GPM CFM
TAKE PER MIN.	0.1	0.1	0	0	0	0.1	0	0.1	0	0		

H_T 205.8 FT. = H_G 136.5 FT. + H_P 69.3 FT. − H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.04}{205.8 \times 16.0} \times .011 \ln \frac{16.0}{.146} = K, CM/SEC\ 6.28 \times 10^{-7}$$

TEST 3

Inflow pressure (H_P) 48.0 (49.5 guage reading) psi x 2.31 = 110.9 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	41.7	41.7	41.8	41.8	41.8	41.9	41.9	42.0	42.0	42.0	42.1	0.04 GPM CFM
TAKE PER MIN.	0	0.1	0	0	0.1	0	0.1	0	0	0.1		

H_T 247.4 FT. = H_G 136.5 FT. + H_P 110.9 FT. − H_L 0 FT.

$$K = \frac{Q}{\ } \times .011 \ln \frac{L}{\ } = \frac{0.04}{\ } \times \frac{\ }{16.0} = K, CM/SEC$$

1163

(1)

1. 3" casing @ 210.0'
2. packer seated @ 350
3. pressure guage not zeroed. -0.5 from rea
4. hole ϕ = 3.0"

CH2M HILL

PRESSURE TEST RESULTS (FIELD)

(for BOREHOLE PACKER setup)

PROJECT	PROJECT NUMBER	TEST SECTION	BORE HOLE
ESII	B 18066.A0	210.0' TO 245.0' (35.0)	D-8

TEST EQUIPMENT IDENTIFICATION	BORE HOLE		TEST BY
Longyear NQ Wireline packer Rockwell 5/8" water meter WIKA 100 psi pressure guage	ORIENTATION: vertical	SIZE: NQ	M. Christian DATE: 5-18-84

PACKERS ON CASING (NO) SINGLE/DOUBLE HYDRAULIC/INFLATABLE	GROUND WATER DEPTH	GAUGE HEIGHT ABOVE GROUND	GRAVITY HEAD
	186.1 FT.	1.5 FT.	187.6 FT.

TEST 1

Inflow pressure (Hp) 10.5 (11.0 guage reading) psi x 2.31 = 24.3 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	35166.1	66.4	66.6	66.9	67.3	67.5	67.8	68.1	68.4	68.7	69.0	0.29 GPM CFM
TAKE PER MIN.	0.3	0.2	0.3	0.4	0.2	0.3	0.3	0.3	0.3	0.3		CFM x 7.48 - GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (Hp) − Head Losses (H_L)

211.9 FT. = 187.6 FT. + 24.3 FT. − 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{0.29}{211.9 \times 35.0} \times .011 \ln \frac{35.0'}{.125} = K, CM/SEC\ 2.42 \times 10^{-7}$$

TEST 2

Inflow pressure (Hp) 31.0 (31.5 guage reading) psi x 2.31 = 71.6 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	72.2	72.5	72.9	73.2	73.5	73.8	74.1	74.5	74.8	75.1	75.4	0.32 GPM CFM
TAKE PER MIN.	0.3	0.4	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3		

H_T 259.2 FT. = H_G 187.6 FT. + H_P 71.6 FT. − H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.32}{259.2 \times 35.0} \times .011 \ln \frac{35.0}{.125} = K, CM/SEC\ 2.19 \times 10^{-6}$$

TEST 3

Inflow pressure (H_P) 49.5 (50.0 guage reading) psi x 2.31 = 114.4 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	77.7	78.0	78.4	78.8	79.2	79.5	79.9	80.3	80.6	81.0	81.4	0.37 GPM CFM
TAKE PER MIN.	0.3	0.4	0.4	0.4	0.3	0.4	0.4	0.3	0.4	0.4		

H_T 302.0 FT. = H_G 187.6 FT. + H_P 114.4 FT. − H_L 0 FT.

$K = \frac{Q}{\ } \times .011 \ln \frac{L}{\ } =$ 0.37 × 35.0 = K, CM/SEC

163

(2)

1. casing @ 210.0'
2. packer seated @ 350 psi.
3. guage zeroed.
4 hole ϕ = 3.0"

CH2M HILL

PRESSURE TEST RESULTS (FIELD)

(for BOREHOLE PACKER setup)

PROJECT	PROJECT NUMBER	TEST SECTION	BORE HOLE
ESII	B 18066.A0	265.0' TO 300.0' (35.0)	D-8

TEST EQUIPMENT IDENTIFICATION	BORE HOLE		TEST BY
Longyear NQ wireline packer Rockwell 5/8" water meter WIKA 100 psi pressure guage	ORIENTATION: vertical	SIZE: NQ	M. Christian DATE: 5-18-84

PACKERS	GROUND WATER DEPTH	GAUGE HEIGHT ABOVE GROUND	GRAVITY HEAD
ON CASING NO SINGLE/DOUBLE HYDRAULIC/INFLATABLE	186.1 FT.	1.5 FT.	187.6 FT.

TEST 1

Inflow pressure (HP) 10.0 psi x 2.31 = 23.1 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	35 / 83.4	83.5	83.6	83.6	83.7	83.8	83.9	84.0	84.1	84.3	84.4	0.1 GPM CFM
TAKE PER MIN.	0.1	0.1	0	0.1	0.1	0.1	0.1	0.1	0.2	0.1		CFM x 7.48 - GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (Hp) − Head Losses (H_L)

210.7 FT. = 187.6 FT. + 23.1 FT. − 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{0.1}{210.7 \times 35.0} \times .011 \ln \frac{35.0'}{.125} = K, CM/SEC\ 8.41 \times 10^{-7}$$

TEST 2

Inflow pressure (Hp) 31.0 psi x 2.31 = 71.6 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	86.1	86.3	86.4	86.5	86.7	86.8	86.9	87.0	87.1	87.3	87.4	0.13 GPM CFM
TAKE PER MIN.	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1		

H_T 259.2 FT. = H_G 187.6 FT. + H_P 71.6 FT. − H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.13}{259.2 \times 35.0} \times .011 \ln \frac{35.0}{.125} = K, CM/SEC\ 8.88 \times 10^{-7}$$

TEST 3

Inflow pressure (H_P) 46.5 psi x 2.31 = 107.4 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	88.5	88.6	88.8	89.0	89.1	89.3	89.4	89.6	89.8	89.9	90.0	0.15 GPM CFM
TAKE PER MIN.	0.1	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.1		

H_T 295.0 FT. = H_G 187.6 FT. + H_P 107.4 FT. − H_L 0 FT.

$$K = \frac{Q}{\ } \times .011 \ln \frac{L}{\ } = \frac{0.15}{\ } \times \frac{35.0}{\ } = K, CM/SEC$$

163

3

1. 3" casing @ 210.0'
2. packer seated @ 350 psi
3. pressure guage zeroed
4. Hole ϕ = 3.0"

CH2M HILL

PRESSURE TEST RESULTS (FIELD)

(for BOREHOLE PACKER setup)

PROJECT	PROJECT NUMBER	TEST SECTION	BORE HOLE
ESII	B18066.A0	304.5' TO 347.0' (42.5')	D-8

TEST EQUIPMENT IDENTIFICATION	BORE HOLE		TEST BY
Longyear NQ wireline packer Rockwell 5/8" water meter WIKA 100 psi pressure guage	ORIENTATION: vertical	SIZE: NQ	M. Christian DATE: 5-19-84

PACKERS ON CASING	GROUND WATER DEPTH	GAUGE HEIGHT ABOVE GROUND	GRAVITY HEAD
NO SINGLE/DOUBLE HYDRAULIC/INFLATABLE	186.1 FT.	1.5 FT.	187.6 FT.

TEST 1

Inflow pressure (HP) 9.0 psi x 2.31 = 20.8 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	351 93.4	93.4	93.5	93.7	93.8	93.8	93.9	94.0	94.1	94.2	94.3	$\frac{.9}{10}$ = .09 GPM CFM
TAKE PER MIN.	0	0.1	0.2	0.1	0	0.1	0.1	0.1	0.1	0.1		CFM x 7.48 - GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (Hp) − Head Losses (H_L)

208.4 FT. = 187.6 FT. + 20.8 FT. − 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{.09}{208.4 \times 42.5} \times .011 \ln \frac{42.5}{.125} = K, CM/SEC\ 6.5 \times 10^{-7}$$

TEST 2

Inflow pressure (Hp) 30.0 psi x 2.31 = 69.3 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	96.4	96.5	96.7	96.8	96.9	97.0	97.1	97.2	97.3	97.5	97.6	.12 GPM CFM
TAKE PER MIN.	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1		

H_T 256.9 FT. = H_G 187.6 FT. + H_P 69.3 FT. − H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{.12}{256.9 \times 42.5} \times .011 \ln \frac{42.5}{.125} = K, CM/SEC\ 7.1 \times 10^{-7}$$

TEST 3

Inflow pressure (H_P) 48.0 psi x 2.31 = 110.9 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	98.5	98.6	98.8	99.0	99.1	99.2	99.3	99.5	99.6	99.7	99.9	.14 GPM CFM
TAKE PER MIN.	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.2		

H_T 298.5 FT. = H_G 187.6 FT. + H_P 110.9 FT. − H_L 0 FT.

$K = \frac{Q}{\ } \times .011 \ln \frac{L}{\ } = \frac{.14}{\ } \times \frac{42.5}{\ } =$ K, CM/SEC

1163

(4)

2. packer seated @ 350 psi
3. guage zeroed.
4. hole ϕ = 3.0"

CH2M HILL

PRESSURE TEST RESULTS (FIELD)

(for BOREHOLE PACKER setup)

PROJECT	PROJECT NUMBER	TEST SECTION	BORE HOLE
ESII	B 18066.A0	365.0' TO 400.0' (35.0')	D-8

TEST EQUIPMENT IDENTIFICATION	BORE HOLE ORIENTATION	BORE HOLE SIZE	TEST BY
Longyear NQ wireline packer Rockwell 5/8" water meter WIKA 100 psi pressure guage	vertical	NQ	M. Christian DATE: 5-21-84

PACKERS ON CASING	GROUND WATER DEPTH	GAUGE HEIGHT ABOVE GROUND	GRAVITY HEAD
NO SINGLE/DOUBLE HYDRAULIC/INFLATABLE	186.1 FT.	1.5 FT.	187.6 FT.

TEST 1

Inflow pressure (Hp) 9.0 psi x 2.31 = 20.8 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	35203.0	03.1	03.1	03.2	03.3	03.3	03.4	03.4	03.5	03.5	03.5	0.05 GPM CFM
TAKE PER MIN.	0.1	0	0.1	0.1	0	0.1	0	0.1	0	0		CFM x 7.48 - GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (Hp) − Head Losses (H_L)

208.4 FT. = 187.6 FT. + 20.8 FT. − 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{0.05}{208.4 \times 35.0'} \times .011 \ln \frac{35.0}{.125} = K, CM/SEC\ 4.25 \times 10^{-7}$$

TEST 2

Inflow pressure (Hp) 30 psi x 2.31 = 69.3 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	05.4	05.4	05.4	05.5	05.5	05.6	05.7	05.7	05.8	05.8	05.9	0.05 GPM CFM
TAKE PER MIN.	0	0	0.1	0	0.1	0.1	0	0.1	0	0.1		

H_T 256.9 FT. = H_G 187.6 FT. + H_P 69.3 FT. − H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.05}{256.9 \times 35.0} \times .011 \ln \frac{35.0}{.125} = K, CM/SEC\ 3.45 \times 10^{-7}$$

TEST 3

Inflow pressure (H_P) 48.5 psi x 2.31 = 112.0 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	06.6	06.7	06.8	06.9	06.9	07.0	07.1	07.2	07.2	07.3	07.4	0.08 GPM CFM
TAKE PER MIN.	0.1	0.1	0.1	0	0.1	0.1	0.1	0	0.1	0.1		

H_T 299.6 FT. = H_G 187.6 FT. + H_P 112.0 FT. − H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.08}{\ldots} \times .011 \ln \frac{35.0}{\ldots} = K, CM/SEC\ \ldots^{-7}$$

M 163

(1)

2. packer seated @ 350 psi
3. guage zeroed
4. hole ϕ = 3.0"

CH2M HILL

PRESSURE TEST RESULTS (FIELD)

(for BOREHOLE PACKER setup)

PROJECT	PROJECT NUMBER	TEST SECTION	BORE HOLE
ESII	B 18066.A0	205.0' TO 237.0' (32.0')	D-9

TEST EQUIPMENT IDENTIFICATION	BORE HOLE		TEST BY
Longyear NQ Wireline Core Rockwell 5/8" water meter WIKA 100 psi pressure guage	ORIENTATION: vertical	SIZE: NQ	M. Christian DATE: 5-23-84

PACKERS	GROUND WATER DEPTH	GAUGE HEIGHT ABOVE GROUND	GRAVITY HEAD
ON CASING: no SINGLE/DOUBLE HYDRAULIC/INFLATABLE	200' FT.	1.0' FT.	201' FT.

TEST 1

Inflow pressure (Hp) 11.0 - 9.0 (10.0) psi x 2.31 = 23.1 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	35205.5	05.5	05.5	✓	✓	05.5	✓	✓	05.5	✓	05.5	GPM CFM
TAKE PER MIN.	0	0	0	0	0	0	0	0				CFM x 7.48 - GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (Hp) − Head Losses (H_L)

[ ] FT. = [ ] FT. + [ ] FT. − [0] FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{\quad}{\times} \times \quad = \text{K, CM/SEC: No take}$$

TEST 2

Inflow pressure (Hp) 30.0 psi x 2.31 = 69.3 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	06.5	✓	✓	06.5	✓	✓	✓	06.5	✓	✓	06.5	GPM CFM
TAKE PER MIN.	0						0			0		

H_T [ ] FT. = H_G [ ] FT. + H_P [ ] FT. − H_L [0] FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{\quad}{\times} \times \quad = \text{K, CM/SEC: No take}$$

TEST 3

Inflow pressure (H_P) 49.0 psi x 2.31 = 113.2 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	7.1	✓	✓	✓	✓	7.2	✓	✓	✓	✓	7.3	0.02 GPM CFM
TAKE PER MIN.						0.1					0.1	

H_T 314.2' FT. = H_G 201 FT. + H_P 113.2 FT. − H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.02}{\times} \times .011 \ln \frac{32.0}{\quad} = \text{K, CM/SEC: } \quad -7$$

3M 163

(2)

.2. packer seated @ 350 psi
3. guage zeroed
4. hole ϕ = 3.0"

CH2M HILL

PRESSURE TEST RESULTS (FIELD)
(for BOREHOLE PACKER setup)

PROJECT	PROJECT NUMBER	TEST SECTION	BORE HOLE
ESII	B 18066. A0	265.0' TO 288.5' (23.5')	D-9

TEST EQUIPMENT IDENTIFICATION	BORE HOLE		TEST BY
Longyear NQ wireline packer Rockwell 5/8" water meter WIKA 100 psi pressure guage	ORIENTATION: vertical	SIZE: NQ	M. Christian DATE: 5-24-84

PACKERS	GROUND WATER DEPTH	GAUGE HEIGHT ABOVE GROUND	GRAVITY HEAD
ON CASING No SINGLE/DOUBLE HYDRAULIC/INFLATABLE	200' FT.	1.0 FT.	201' FT.

TEST 1

Inflow pressure (HP) 11.0 psi x 2.31 = 25.4 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	35224.0	4.0	4.0	4.0	4.1	4.1	4.1	4.1	4.2	4.2	4.2	0.02 GPM CFM
TAKE PER MIN.	0	0	0	0.1	0	0	0	0.1	0	0		CFM x 7.48 - GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (Hp) − Head Losses (H_L)

226.4 FT. = 201 FT. + 25.4 FT. − 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{0.02}{226.4 \times 23.5} \times .011 \ln \frac{23.5}{.125} = K, CM/SEC\ 2.17 \times 10^{-7}$$

TEST 2

Inflow pressure (Hp) 30.0 psi x 2.31 = 69.3 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	28.6 8:42:00	28.7	28.7	28.8	28.8	29.0 8:47	29.0	29.0 8:49	29.1	29.2	29.2 8:52	0.06 GPM CFM
TAKE PER MIN.	0.1	0	0.1	0	0.1	0	0	0.1	0.1	0		

H_T 270.3 FT. = H_G 201 FT. + H_P 69.3 FT. − H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.06}{270.3 \times 23.5} \times .011 \ln \frac{23.5}{.125} = K, CM/SEC\ 5.44 \times 10^{-7}$$

TEST 3

Inflow pressure (H_P) 49.0 psi x 2.31 = 113.2 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	30.9	31.0	31.1	31.1	31.2	31.2	31.3	31.3	31.4	31.4	31.5	0.06 GPM CFM
TAKE PER MIN.	0.1	0.1	0	0.1	0	0.1	0	0.1	0	0.1		

H_T 314.2 FT. = H_G 201 FT. + H_P 113.2 FT. − H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.06}{[illegible]} \times .011 \ln \frac{23.5}{[illegible]} = K, CM/SEC$$

3M 163

3

2. packer seated @ [illegible]
3. guage [illegible]
4. hole dia = 3.0"

PRESSURE TEST RESULTS (FIELD)

PROJECT	JOB NUMBER	TEST SECTION	BORE HOLE
ESII	B 18666.A0	310.0' TO 340.0' (30.0')	5-9

TEST EQUIPMENT IDENTIFICATION	BORE HOLE		TEST BY
Longyear NQ wireline packer Rockwell 5/8" water meter WIKA 160 psi pressure guage	ORIENTATION: vertical	SIZE: NQ	M. Christian DATE: 5-24-80

PACKERS	GROUND WATER DEPTH	GAUGE HEIGHT ABOVE GROUND	GRAVITY HEAD
ON CASING No SINGLE/DOUBLE HYDRAULIC/INFLATABLE	200' FT.	1.0 FT.	201 FT.

TEST 1

Inflow pressure (Hp) 10.0 psi x 2.31 = 23.1 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	35,274.4 Questionable	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	GPM
												CFM
TAKE PER MIN.	0.1	0	0	0	0	0	0	[illegible]	0	0		CFM x 7.48 - GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (H_P) − Head Losses (H_L)

224.1 FT. = 201 FT. + 23.1 FT. − 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{\quad}{224.1 \times 30.0} \times .011 \ln \frac{30.0}{.125} = \text{K, CM/SEC}$$

No flow

TEST 2

Inflow pressure (Hp) 30.0 psi x 2.31 = 69.3 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	75.9	75.9	75.9	75.9	75.9	76.0	76.0	76.0	[illegible]	76.1	[illegible]	0.02 GPM
												CFM
TAKE PER MIN.	0	0	0	0	0.1	0	0	0	[illegible]	0		

H_T 270.3 FT. = H_G 201 FT. + H_P 69.3 FT. − H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.02}{270.3 \times 30.0} \times .011 \ln \frac{30.0}{.125} = \text{K, CM/SEC}$$

1.41×10^{-7}

TEST 3

Inflow pressure (H_P) 48.0 psi x 2.31 = 110.9 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	76.7	76.7	76.7	76.7	76.7	76.8	76.8	76.8	76.8	76.9	[illegible]	0.02 GPM
												CFM
TAKE PER MIN.	0	0	0	0	0.1	0	0	[illegible]	[illegible]	0		

H_T 311.9 FT. = H_G 201 FT. + H_P 110.9 FT. − H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.02}{311.9 \times 30.0} \times .011 \ln \frac{30.0}{.125} = \text{K, CM/SEC}$$

1.27×10^{-7}

(4)

CH2M HILL

Had trouble with pump running smooth

PRESSURE TEST RESULTS (FIELD)

(for BOREHOLE PACKER setup)

1. 5" casing @ [illegible]
2. packer seated @ 350 psi
3. guage ~~seated~~ zeroed.
4. hole dia = 3.0"

PROJECT	PROJECT NUMBER	TEST SECTION	BORE HOLE
ESII	B 18066.A0	370.0' TO 401.5'	D-9

TEST EQUIPMENT IDENTIFICATION	BORE HOLE ORIENTATION	BORE HOLE SIZE	TEST BY
Longyear NQ Wireline packer Rockwell 5/8" water meter WIKA 100 psi pressure guage	vertical	NQ	M. Christian DATE: 5-29-84

PACKERS	GROUND WATER DEPTH	GAUGE HEIGHT ABOVE GROUND	GRAVITY HEAD
ON CASING NO SINGLE/DOUBLE HYDRAULIC/INFLATABLE	~~0~~ 200' FT.	1.0' FT.	201' FT.

TEST 1

Inflow pressure (Hp) 12.0' psi x 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	35278.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	GPM / CFM
TAKE PER MIN.		0	0	0	0	0	0	0	0	0	0	CFM x 7.48 - GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (Hp) − Head Losses (H_L)

FT. = FT. + FT. − FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{\quad}{\times} \times \quad = \text{K, CM/SEC}$$

No take

TEST 2

Inflow pressure (Hp) 30.0 psi x 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	79.8	79.8	79.8	79.8	79.8	79.8	79.8	79.8	79.8	79.8	79.8	GPM / CFM
TAKE PER MIN.		0	0	0	0	0	0	0	0	0	0	

H_T FT. = H_G FT. + H_P FT. − H_L FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{\quad}{\times} \times \quad = \text{K, CM/SEC}$$

No take

TEST 3

Inflow pressure (H_P) 44.0 psi x 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	~~79.5~~ 79.6	~~79.5~~ 79.6	79.6	79.6	79.6	79.6	79.6	79.6	79.6	79.6	79.6	GPM / CFM
TAKE PER MIN.		0	0	0	0	0	0	0	0	0	0	

H_T FT. = H_G FT. + H_P FT. − H_L FT.

$$K = \frac{Q}{\quad} \times .011 \ln \frac{L}{\quad} = \frac{\quad}{\times} \times \quad = \text{K, CM/SEC}$$

IM 163

2. packer seated @ 350'
3. guage zeroed
4. hole dia = 3.0"

CH2M HILL

PRESSURE TEST RESULTS (FIELD)

(for BOREHOLE PACKER setup)

PROJECT	PROJECT NUMBER	TEST SECTION	BORE HOLE
ESII	B 18066.A0	195.0' TO 243.0' (48.0')	D-10

TEST EQUIPMENT IDENTIFICATION	BORE HOLE ORIENTATION	BORE HOLE SIZE	TEST BY
Longyear NQ wireline packer Rockwell 5/8" water meter WIKA 100 psi pressure guage	vertical	NQ	M. Christian DATE: 5-31-84

PACKERS ON CASING	GROUND WATER DEPTH	GAUGE HEIGHT ABOVE GROUND	GRAVITY HEAD
No SINGLE/DOUBLE HYDRAULIC/INFLATABLE	(195.5' - 2.6') = 192.9 FT.	1.0 FT.	193.9 FT.

TEST 1

Inflow pressure (Hp) 10.5 psi x 2.31 = 24.3 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	35290.1	90.1	90.1	90.1	90.1	90.1	90.1	90.1	90.1	90.1	90.1	GPM CFM
TAKE PER MIN.	0	0	0	0	0	0	0	0	0	0		CFM x 7.48 - GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (Hp) − Head Losses (H_L)

218.2 FT. = 193.9 FT. + 24.3 FT. − 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{\quad}{\times} \times \quad = \text{K, CM/SEC}$$

No Take

TEST 2

Inflow pressure (Hp) 30.0 psi x 2.31 = 69.3 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	95.0	95.6	96.2	96.8	97.4	98.1	98.7	99.2	99.8	300.4	01.0	0.60 GPM CFM
TAKE PER MIN.	0.6	0.6	0.6	0.6	0.7	0.6	0.5	0.6	0.6	0.6		

H_T 263.2 FT. = H_G 193.9 FT. + H_P 69.3 FT. − H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.60}{263.2 \times 48.0} \times .011 \ln \frac{48.0}{.125} = \text{K, CM/SEC}$$

3.11×10^{-6}

TEST 3

Inflow pressure (H_P) 48.0 psi x 2.31 = _____ feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	04.0	04.6	05.3	06.0	06.7	07.3	08.0	08.6	09.3	10.0	10.6	0.66 GPM CFM
TAKE PER MIN.	0.6	0.7	0.7	0.7	0.6	0.7	0.6	0.7	0.7	0.6		

H_T 304.8 FT. = H_G 193.9 FT. + H_P 110.9 FT. − H_L FT.

$$K = \frac{Q}{\quad} \times .011 \ln \frac{L}{\quad} = \frac{0.66}{\quad} \times .011 \ln \frac{48.0}{\quad} = \text{K, CM/SEC}$$

M 163

(2)

2. packer seated @ 350 psi
3. hole dia = 3.0"
4. Guage zeroed

CH2M HILL

PRESSURE TEST RESULTS (FIELD)

(for BOREHOLE PACKER setup)

PROJECT	PROJECT NUMBER	TEST SECTION	BORE HOLE
ESI I	B 18066.A0	265.0' TO 304.0 (39.0')	D-10

TEST EQUIPMENT IDENTIFICATION	BORE HOLE		TEST BY
Longyear NQ wireline packer Rockwell 5/8" water meter WIKA 100 psi pressure guage	ORIENTATION: vertical	SIZE: NQ	M. Christian DATE: 6-1-84

PACKERS	GROUND WATER DEPTH	GAUGE HEIGHT ABOVE GROUND	GRAVITY HEAD
ON CASING NO SINGLE/DOUBLE HYDRAULIC/INFLATABLE	192.9 FT.	1.0 FT.	193.9 FT.

TEST 1

Inflow pressure (Hp) 10.0 psi x 2.31 = 23.1 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	353 14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	0 GPM CFM
TAKE PER MIN.	0	0	0	0	0	0	0	0	0	0		CFM x 7.48 - GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (Hp) − Head Losses (H_L)

217.0 FT. = 193.9 FT. + 23.1 FT. − 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{0}{217.0 \times 39.0} \times .011 \ln \frac{39.0'}{.125} = \text{K, CM/SEC: No Take}$$

TEST 2

Inflow pressure (Hp) 30.0 psi x 2.31 = 69.3 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	17.5	17.8'	18.0	18.2	18.5	18.7	19.0	19.2	19.4	19.6	19.9	0.24 GPM CFM
TAKE PER MIN.	0.3	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.3		

H_T 263.2 FT. = H_G 193.9 FT. + H_P 69.3 FT. − H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.24}{263.2 \times 39.0} \times .011 \ln \frac{39.0'}{.125} = \text{K, CM/SEC: } 1.48 \times 10^{-6}$$

TEST 3

Inflow pressure (H_P) 48.0 psi x 2.31 = 110.9 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	21.8	22.0	22.3	22.6	22.8	23.1	23.3	23.6	23.8	24.1	24.4	0.26 GPM CFM
TAKE PER MIN.	0.2	0.3	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.3		

H_T 304.8 FT. = H_G 193.9 FT. + H_P 110.9 FT. − H_L 0 FT.

$$K = \frac{Q}{\ } \times .011 \ln \frac{L}{\ } = \frac{0.26}{\ } \times \frac{\ }{39.0} = \text{K, CM/SEC}$$

VI 163

(3)

CH2M HILL

PRESSURE TEST RESULTS (FIELD)

(for BOREHOLE PACKER setup)

2. packer seated @ 350 psi
3. guage zeroed
4. hole dia. = 3.0"

PROJECT	PROJECT NUMBER	TEST SECTION	BORE HOLE
ESI I	B 18066.A0	310.0' TO 345.0' (35.0')	D-10

TEST EQUIPMENT IDENTIFICATION	BORE HOLE		TEST BY
Longyear HQ wireline packer Rockwell 5/8" water meter WIKA 100 psi pressure guage	ORIENTATION: vertical	SIZE: NQ	M. Christian DATE: 6-2-84

PACKERS	GROUND WATER DEPTH	GAUGE HEIGHT ABOVE GROUND	GRAVITY HEAD
ON CASING: NO SINGLE/DOUBLE HYDRAULIC/INFLATABLE	192.9 FT.	1.0 FT.	193.9 FT.

TEST 1

Inflow pressure (Hp) ~~9.0~~ 10.4 12.0 psi x 2.31 = ~~20.8~~ 23.1 27.7 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	~~3.4~~ ~~3.8~~ 3.9	~~2.8~~ 3.9	~~2.3~~ 3.9	4.0	4.1	4.2	4.3	4.5	4.5	4.5	4.6	GPM CFM
TAKE PER MIN.	0	0	0.1	0.1	0.1	0.1	0.2	0	0	0.1		CFM x 7.48 - GPM

ivvatio test, pressure fluxuation

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (Hp) − Head Losses (H_L)

214.7 FT. = 193.9 FT. + 20.8 FT. − 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{\quad}{214.7 \times 35.0} \times .011 \ln \frac{35.0}{.125} = \text{K, CM/SEC}$$

TEST 2

Inflow pressure (Hp) 30.0 psi x 2.31 = 69.3 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	48.8 49.2	48.8 49.2	48.8	48.8	48.8	48.8	48.8	49	49.2	49.2	49.2	0.01 GPM CFM
TAKE PER MIN.	0	0	0	0	0	0	0	0.1	0	0	0	

pump problem

H_T 257.8 FT. = H_G 193.9 FT. + H_P 69.3 FT. − H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.01}{257.8 \times 35.0} \times .011 \ln \frac{35.0}{.125} = \text{K, CM/SEC}\ 6.87 \times 10^{-8}$$

TEST 3

Inflow pressure (H_P) 48.0 psi x 2.31 = 110.9 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	50.8	50.9	50.9	51.0	51.0	51.1	51.1	51.1	51.2	51.2	51.3	0.05 GPM CFM
TAKE PER MIN.	0.1	0	0.1	0	0.1	0	0	0.1	0	0.1		

H_T 304.8 FT. = H_G 193.9 FT. + H_P 110.9 FT. − H_L 0 FT.

$$K = \frac{Q}{\quad} \times .011 \ln \frac{L}{\quad} = \frac{0.05}{\quad} \times \frac{35.0}{\quad} = \text{K, CM/SEC}$$

1. 3 casing @ 170.0
2. packer seated @ 350 p
3. hole dia = 3.0"
4. guage zeroed

CH2M HILL

PRESSURE TEST RESULTS (FIELD)

(for BOREHOLE PACKER setup)

PROJECT	PROJECT NUMBER	TEST SECTION	BORE HOLE
ESII	B 18066.A0	365.0' TO 401.5' (36.5')	D-10

TEST EQUIPMENT IDENTIFICATION	BORE-HOLE ORIENTATION	BORE-HOLE SIZE	TEST BY
Longyear NQ Wireline packer Rockwell 5/8" water meter WIKA 100 psi pressure guage	vertical	NQ	M. Christian DATE: 6-2-84

PACKERS ON CASING	GROUND WATER DEPTH	GAUGE HEIGHT ABOVE GROUND	GRAVITY HEAD
NO SINGLE/DOUBLE HYDRAULIC/INFLATABLE	192.9 FT.	1.0 FT.	193.9 FT.

TEST 1

Inflow pressure (Hp) 10.5 psi x 2.31 = 24.3 feet

Had to adjust pressure couple of times

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	35354.9	55.0	55.0	55.0	55.0	55.1	55.2	55.2	55.2	55.2	55.3	0.04 GPM CFM
TAKE PER MIN.	0.1	0	0	0	0.1	0.1	0	0	0	0.1		CFM x 7.48 - GPM

Total Head (H_T) = Gravity Head (H_G) + Pressure Head (Hp) − Head Losses (H_L)

218.2 FT. = 193.9 FT. + 24.3 FT. − 0 FT.

$$K = \frac{Q\ (gpm)}{H_T\ (ft) \times L\ (ft)} \times .011 \ln \frac{L\ (ft)}{r\ (ft)} = \frac{0.04}{218.2 \times 36.5} \times .011 \ln \frac{36.5}{.125} = K, CM/SEC\ 3.14 \times 10^{-7}$$

TEST 2

Inflow pressure (Hp) 30.0 psi x 2.31 = 69.3 feet

Good test

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	57.7	57.7	57.7	✓	✓	57.8	✓	✓	57.9	✓	57.9	0.02 GPM CFM
TAKE PER MIN.	0	0	0	0	0.1	0	0	0.1	0	0		

H_T 263.2 FT. = H_G 193.9 FT. + H_P 69.3 FT. − H_L 0 FT.

$$K = \frac{Q}{H_T \times L} \times .011 \ln \frac{L}{r} = \frac{0.02}{263.2 \times 36.5} \times .011 \ln \frac{36.5}{.125} = K, CM/SEC\ 1.30 \times 10^{-7}$$

TEST 3

Inflow pressure (H_P) 47.0 psi x 2.31 = 108.6 feet

TIME, MIN.	0	1	2	3	4	5	6	7	8	9	10	Q AVERAGE FLOW
METER READING GALLONS OR CU.FT.	58.7	✓	✓	58.8	✓	✓	58.9	✓	✓	59.0	59.0	0.03 GPM CFM
TAKE PER MIN.	0	0	0.1	0	0	0.1	0	0	0.1	0		

H_T 302.5 FT. = H_G 193.9 FT. + H_P 108.6 FT. − H_L 0 FT.

$$K = \frac{Q}{\ } \times .011 \ln \frac{L}{\ } = \frac{0.03}{\ } \times \frac{36.5}{\ } = K, CM/SEC$$

APPENDIX D

AQUIFER TEST DATA AND PLOTS

CH2M HILL
PUMPING TEST REPORT

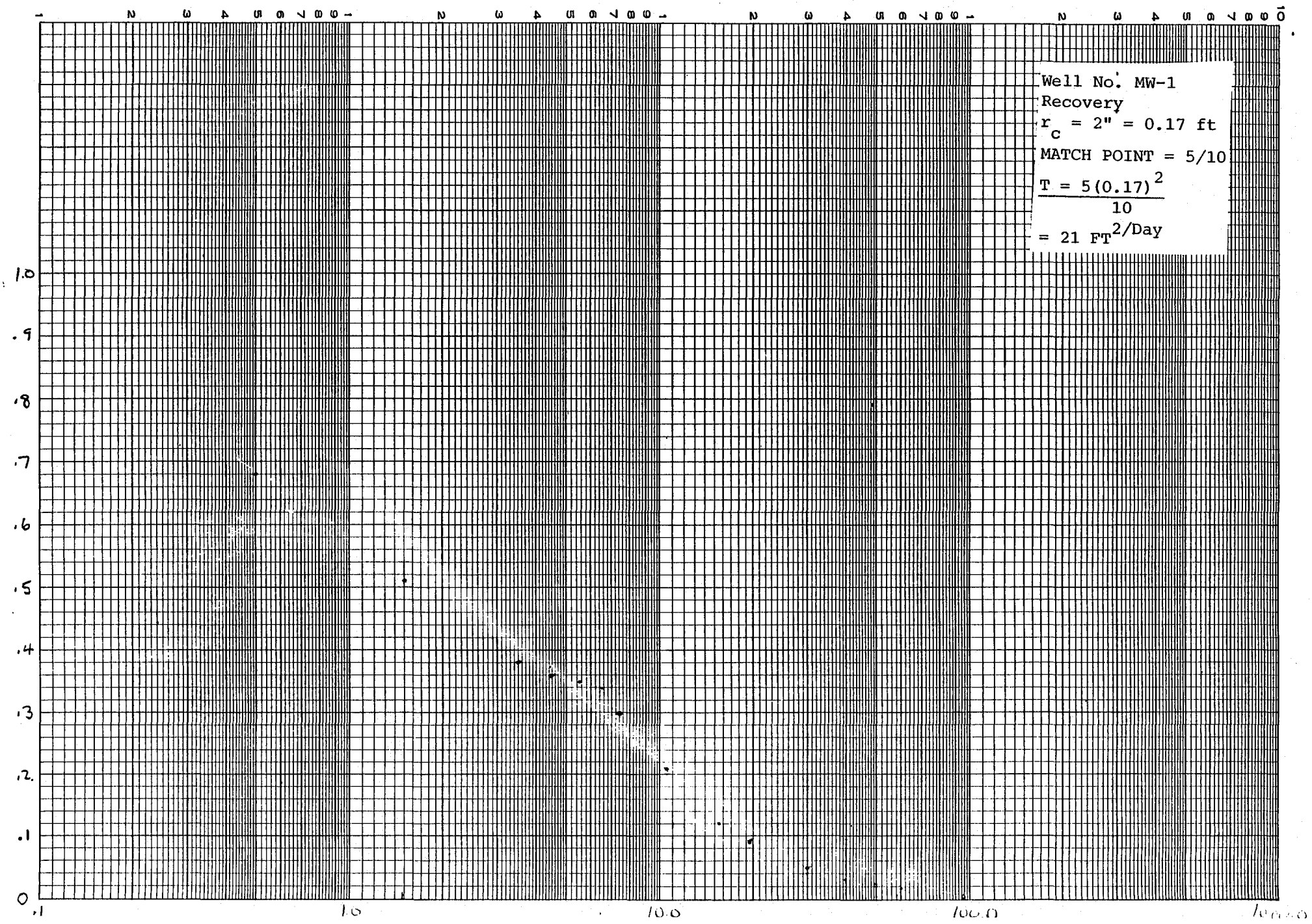
WELL: MW-1
TYPE OF DATA: SLUG TEST
PUMPED WELL NO: MW-1 RADIUS: 2"
PUMPING RATES: 12.6gpm
HOW Q MEASURED: BUCKET AND WATCH
HOW WL's MEASURED: WELL SOUNDER
DISTANCE FROM PUMPED WELL: --

M.P. FOR WL's: TOP OF PVC PIPE
PUMP ON: DATE: 8/10/84 TIME: 3:30 p.m.
PUMP OFF: DATE: 8/10/84 TIME: 3:33 p.m.
COMMENTS: 2.58min TO DEWATER
TOTAL Q= 32.5gals

TIME (min.)	t/t'	REFERENCE (ft.)	MEASURE (ft.)	DTW (ft.)	ADJ. DTW (ft.)	DRAWDOWN (ft.)	REMARKS
0		--	--	183.65			POWER'S WELL SOUNDER
0		--	--	181.33	-2.32		OLYMPIC WELL SOUNDER
.50	6.20	200	+2.00	202.00		20.67	OLYMPIC UNTIL 35min
1.00	3.60	--	--	195.45		14.12	
2.00	2.30	190	+1.80	191.80		10.47	
3.00	1.87	190	+0.30	190.30		8.97	
4.00	1.65	190	-0.80	189.20		7.87	
5.00	1.52	190	-1.30	188.70		7.37	
6.00	1.43	190	-1.50	188.50		7.17	
7.00	1.37	185	+3.30	188.30		6.97	
8.00	1.33	185	+2.60	187.60		6.27	
9.00	1.29	185	+1.95	186.95		5.62	
10.00	1.26	185	+1.30	186.30		4.97	
11.00	1.24	185	+0.70	185.70		4.37	
12.00	1.22	185	+0.15	185.15		3.82	
14.00	1.19	185	-0.55	184.45		3.12	
16.00	1.16	180	+3.80	183.80		2.47	
18.00	1.14	180	+3.45	183.45		2.12	
20.00	1.13	180	+3.10	183.10		1.77	
22.00	1.12	180	+2.85	182.85		1.52	
24.00	1.11	180	+2.70	182.70		1.37	
27.00	1.10	180	+2.45	182.45		1.12	
30.00	1.09	180	+2.30	182.30		.97	
35.00	1.07	180	+2.10	182.10		.77	
40.00	1.07	180	+2.00	182.00		.67	
45.00	1.06	180	+1.92	181.92		.59	
50.00	1.05	180	+1.85	181.85		.52	
60.00	1.04	180	+1.77	181.77		.44	
95.00	1.03	185	-1.10	183.90	181.58	.25	POWER'S

NO. 340-L410 DIETZGEN GRAPH PAPER
SEMI-LOGARITHMIC
4 CYCLES X 10 DIVISIONS PER INCH

DIETZGEN CORPORATION
MADE IN U.S.A.



CH2M HILL
PUMPING TEST REPORT

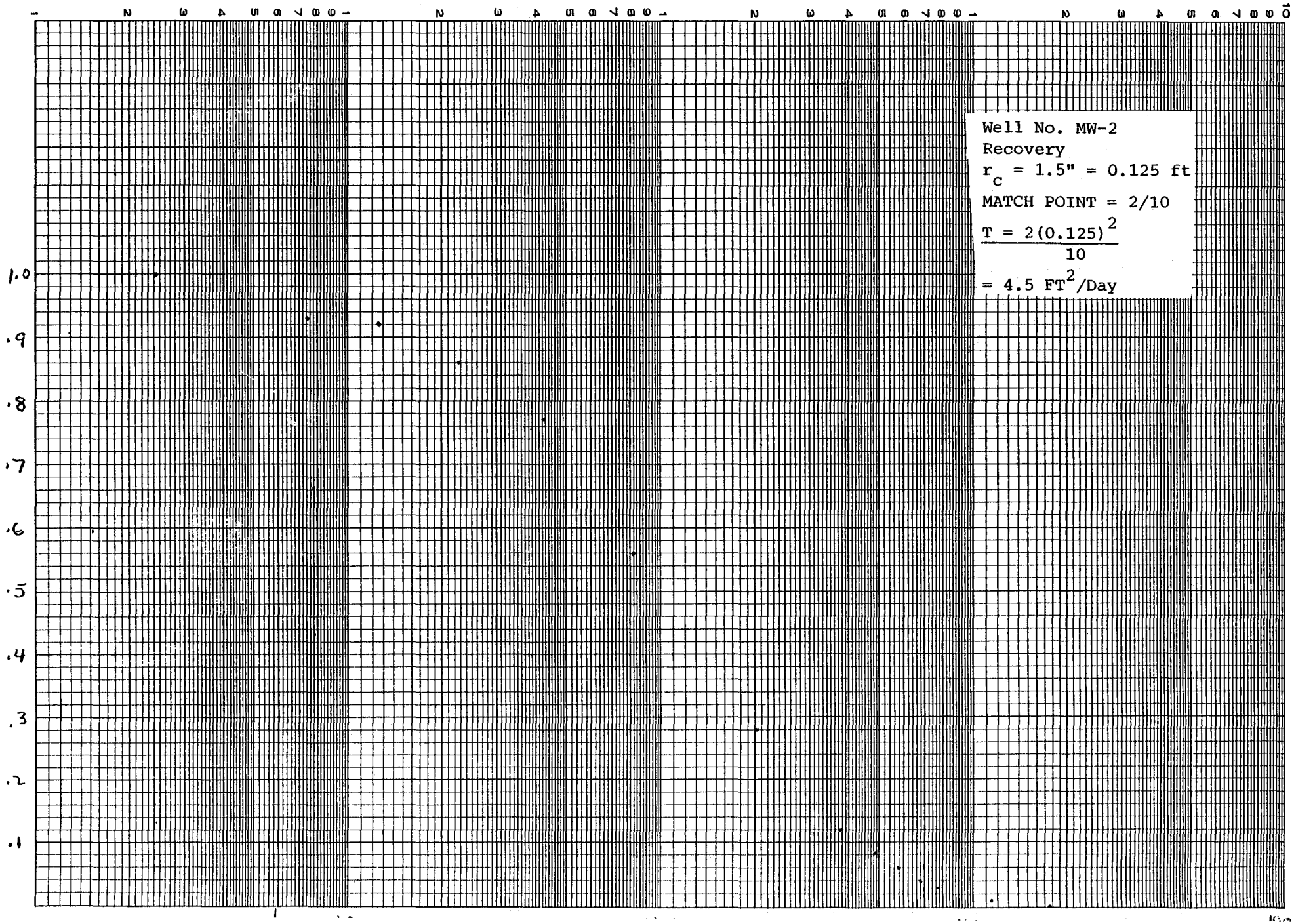
WELL: MW-2
TYPE OF DATA: SLUG TEST
BAILED WELL NO: MW-2 RADIUS: 1.5"
BAILING RATES: 2.7gpm
HOW Q MEASURED: BAILER AND WATCH
HOW WL's MEASURED: WELL SOUNDER
DISTANCE FROM PUMPED WELL: --

M.P. FOR WL's: TOP OF STEEL CASING
PUMP ON: DATE: 8/10/84 TIME: 13:40
PUMP OFF: DATE: 8/10/84 TIME: 13:46
COMMENTS: 6min TO DEWATER
TOTAL Q= 16.2gals
BAILER @ 3.4gals

TIME (min.)	t/t'	REFERENCE (ft.)	MEASURE (ft.)	DTW (ft.)	ADJ. DTW (ft.)	DRAWDOWN (ft.)	REMARKS
0		200	-2.50	197.50			OLYMPIC WELL SOUNDER UNTIL 117min
1.75	4.43	220	+1.60	221.60		24.10	
2.00	4.00	220	+1.50	221.50		24.00	
2.50	3.40	220	--	220.00		22.50	
3.00	3.00	220	-0.20	219.80		22.30	
4.00	2.50	220	-1.70	218.30		20.80	
5.00	2.20	220	-3.00	217.00		19.50	
6.00	2.00	215	-1.00	216.00		18.50	
7.00	1.86	215	-0.55	214.45		16.95	
8.00	1.75	210	+3.25	213.25		15.75	
9.00	1.67	210	+1.85	211.85		14.35	
10.00	1.60	210	+1.05	211.05		13.55	
12.00	1.50	210	-0.50	209.50		12.00	
14.00	1.43	210	-1.90	208.10		10.60	
16.00	1.38	205	+1.95	206.95		9.45	
18.00	1.33	205	+0.85	205.88		8.38	
20.00	1.30	205	+0.10	205.10		7.60	
22.00	1.27	205	-0.70	204.30		6.80	
24.00	1.25	205	-1.30	203.70		6.20	
26.00	1.23	200	+4.10	204.10		6.60	
28.00	1.21	200	+3.40	203.40		5.90	
30.00	1.20	200	+2.10	202.10		4.60	
32.00	1.19	200	+1.70	201.70		4.20	
35.00	1.17	200	+1.20	201.20		3.70	
40.00	1.15	200	+0.50	200.50		3.00	
45.00	1.13	200	-0.05	199.95		2.45	
50.00	1.12	200	-0.55	199.45		1.95	
60.00	1.10	200	-1.08	198.92		1.42	
70.00	1.09	200	-1.60	198.40		.90	
80.00	1.08	200	-1.70	198.30		.80	
117.00	1.05	200	-2.25	197.75	195.43	.25	POWER'S UNTIL END
177.00	1.03	200	-2.40	197.60	195.28	.10	
232.00	1.03	200	-2.50	197.50	195.18	.00	
287.00	1.02	195	+2.45	197.45	195.13	-.05	

NO. 340-L410 DIETZGEN GRAPH PAPER
SEMI-LOGARITHMIC
4 CYCLES X 10 DIVISIONS PER INCH

DIETZGEN CORPORATION
MADE IN U.S.A.



Well No. MW-2
Recovery
r_c = 1.5" = 0.125 ft
MATCH POINT = 2/10

$$T = \frac{2(0.125)^2}{10}$$

= 4.5 FT^2/Day

CH2M HILL
PUMPING TEST REPORT

WELL: MW-3
TYPE OF DATA: SLUG TEST
PUMPED WELL NO: MW-3 RADIUS: 2"
PUMPING RATES: 13.5gpm
HOW Q MEASURED: BUCKET AND WATCH
HOW WL's MEASURED: WELL SOUNDER
DISTANCE FROM PUMPED WELL: --

M.P. FOR WL's: TOP OF PVC PIPE
PUMP ON: DATE: 8/10/84 TIME: 14:45
PUMP OFF: DATE: 8/10/84 TIME: 14:46.55
COMMENTS: 1.55min TO DEWATER
TOTAL Q= 20.9gals
BUCKET @ 9.7gals

TIME (min.)	t/t'	REFERENCE (ft.)	MEASURE (ft.)	DTW (ft.)	ADJ. DTW (ft.)	DRAWDOWN (ft.)	REMARKS
0				186.70			OLYMPIC WELL SOUNDER UNTIL 76min
.50	4.20			209.25		22.55	
1.00	2.60			204.90		18.20	
1.50	2.07			203.25		16.55	
3.00	1.53			200.75		14.05	
4.00	1.40			199.05		12.35	
5.00	1.32			198.20		11.50	
6.00	1.27			197.20		10.50	
7.50	1.21			196.15		9.45	
9.00	1.18			195.35		8.65	
10.00	1.16			194.88		8.18	
12.00	1.13			194.00		7.30	
13.00	1.12			193.55		6.85	
14.00	1.11			193.25		6.55	
15.00	1.11			192.94		6.24	
16.00	1.10			192.64		5.94	
17.00	1.09			192.35		5.65	
18.00	1.09			192.15		5.45	
19.00	1.08			191.95		5.25	
20.00	1.08			191.72		5.02	
22.00	1.07			191.30		4.60	
24.00	1.07			190.87		4.17	
26.50	1.06			190.47		3.77	
30.00	1.05			190.00		3.30	
32.00	1.05			189.65		2.95	
35.00	1.05			189.57		2.87	
40.00	1.04			189.10		2.40	
45.00	1.04			188.75		2.05	
50.00	1.03			188.45		1.75	
55.00	1.03			188.20		1.50	
60.00	1.03			188.00		1.30	
70.00	1.02			187.68		.98	
76.00	1.02			189.55	187.23	.53	POWER'S UNTIL END
111.00	1.01			190.00	187.68	.98	
131.00	1.01			189.10	186.78	.08	
166.00	1.01			188.63	186.31	-.39	

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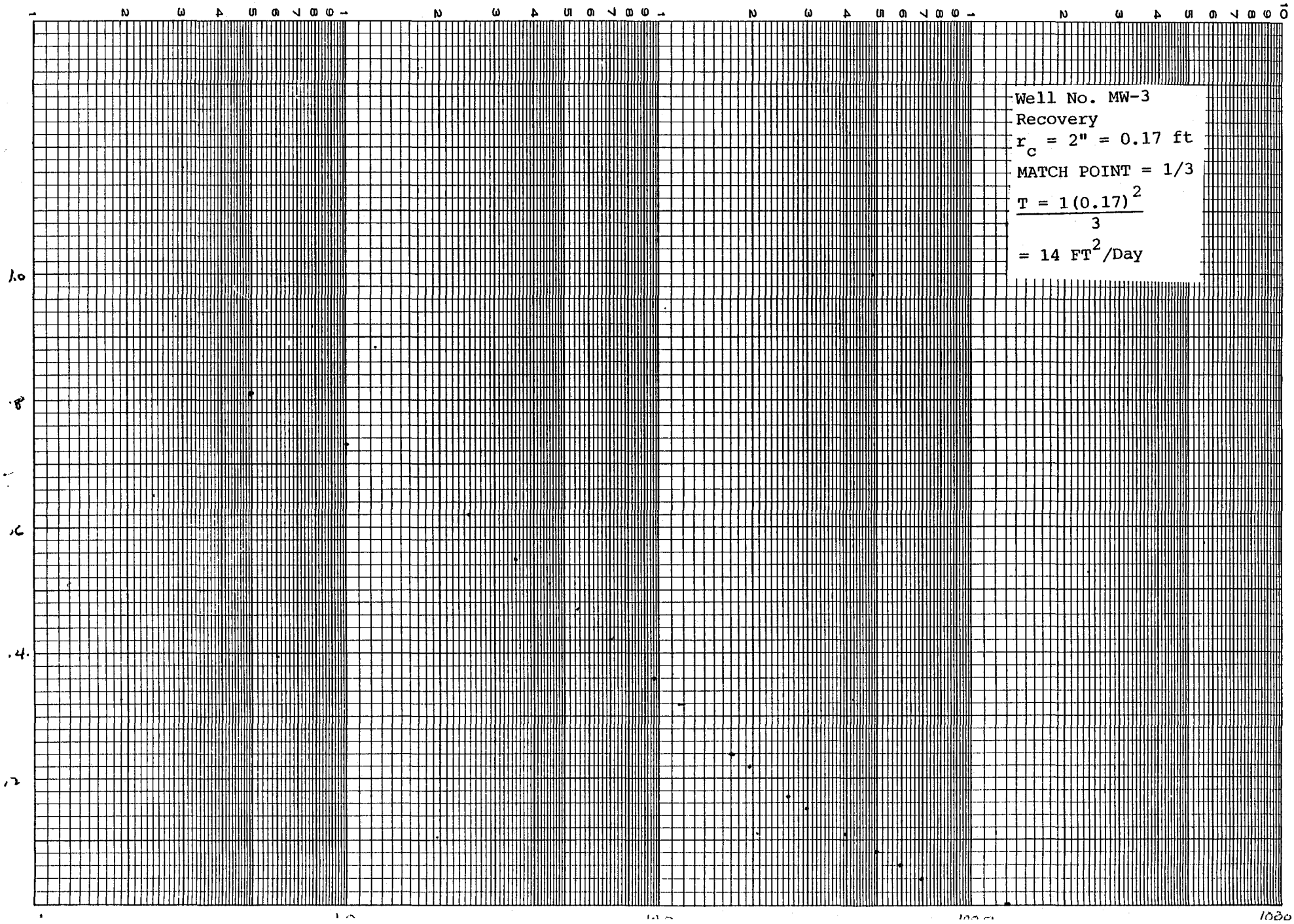

CH2M HILL
PUMPING TEST REPORT

WELL: MW-4
TYPE OF DATA: SLUG TEST
BAILED WELL NO: MW-4 RADIUS: 1.5"
BAILING RATES: 2.6gpm
HOW Q MEASURED: BAILER AND WATCH
HOW WL's MEASURED: WELL SOUNDER
DISTANCE FROM PUMPED WELL: —

M.P. FOR WL's: TOP OF PVC
PUMP ON: DATE: 8/10/84 TIME: 11:43
PUMP OFF: DATE: 8/10/84 TIME: 13:50
COMMENTS: 7min TO DEWATER
TOTAL Q= 17.9gals
BAILER @ 3.4gals

TIME (min.)	t/t'	REFERENCE (ft.)	MEASURE (ft.)	DTW (ft.)	ADJ. DTW (ft.)	DRAWDOWN (ft.)	REMARKS
0				201.40			DRILLER'S WELL SOUNDER
0				200.60			OLYMPIC WELL SOUNDER UNTIL 63min
3.00	3.33	200	-2.20	197.80		—	PROBE HUNG IN HOLE
4.00	2.75	200	-2.30	197.70		—	PROBE HUNG IN HOLE
8.00	1.88	220	+3.60	220.00		19.40	
9.00	1.78	220	+3.35	223.35		22.75	
10.00	1.70	220	+3.00	223.00		22.40	
11.00	1.64	220	+2.55	222.55		21.95	
13.00	1.54	220	+1.95	221.95		21.35	
15.00	1.47	220	+1.35	221.35		20.75	
17.00	1.41	220	+0.63	220.63		20.03	
19.00	1.37	220	+0.08	220.08		19.48	
20.00	1.35	220	-0.23	219.77		19.17	
22.00	1.32	220	-0.68	219.32		18.72	
24.00	1.29	220	-1.20	218.80		18.20	
27.00	1.26	220	-2.05	217.95		17.35	
30.00	1.23	220	-2.78	217.22		16.62	
35.00	1.20	215	+1.02	216.02		15.42	
40.00	1.18	215	+0.20	215.20		14.60	
45.00	1.16	215	-0.32	214.68		14.08	
50.00	1.14	215	-0.70	214.30		13.70	
63.00	1.11	215	-2.15	212.85	210.53	9.93	POWER'S UNTIL 175min
80.00	1.09	210	+0.23	210.23	207.91	7.31	
95.00	1.07	210	+0.20	210.20	207.88	7.28	
125.00	1.06	210	+1.95	211.95	209.63	9.03	
175.00	1.04	200	+6.70	206.70		6.10	OLYMPIC
240.00	1.03	200	+6.45	206.45	204.13	3.53	POWER'S UNTIL END
270.00	1.03	205	+0.80	205.80	203.48	2.88	
340.00	1.02	205	-0.95	204.05	201.73	1.13	
450.00	1.02	—	—	203.60	201.28	.68	

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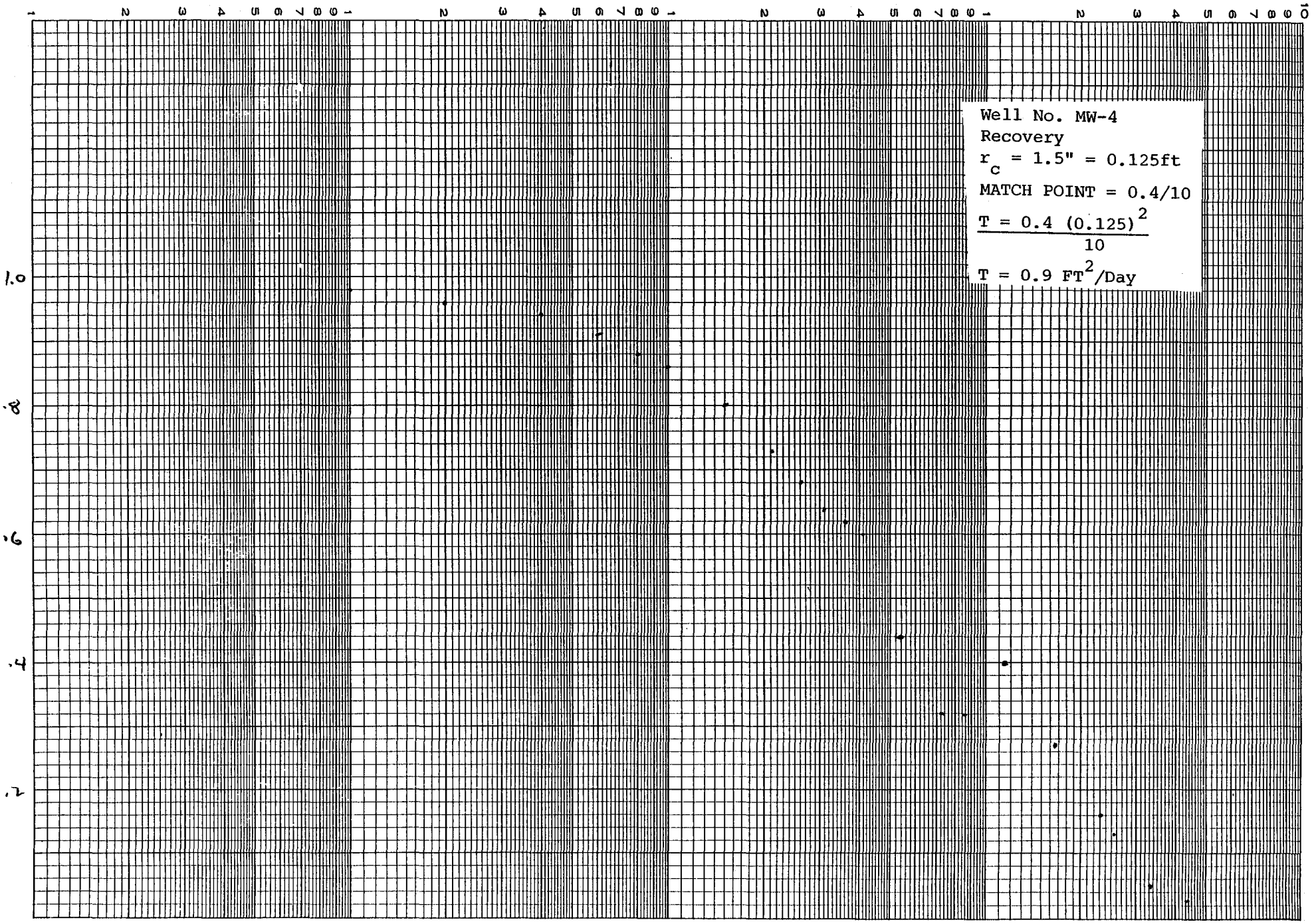

CH2M HILL
PUMPING TEST REPORT

WELL: MW-5
TYPE OF DATA: SLUG TEST
PUMPED WELL NO: MW-5 RADIUS: 2"
PUMPING RATES: 11.7gpm
HOW Q MEASURED: BUCKET AND WATCH
HOW WL's MEASURED: WELL SOUNDER
DISTANCE FROM PUMPED WELL: —

M.P. FOR WL's: TOP OF PVC PIPE(3/4")
PUMP ON: DATE: 8/10/84 TIME: 18:15
PUMP OFF: DATE: 8/10/84 TIME: 18:16.73
COMMENTS: 1.73min TO DEWATER
TOTAL Q= 20.2gals
BUCKET @ 9.7gals

TIME (min.)	t/t'	REFERENCE (ft.)	MEASURE (ft.)	DTW (ft.)	ADJ. DTW (ft.)	DRAWDOWN (ft.)	REMARKS
0				206.45			OLYMPIC WELL SOUNDER UNTIL END
.50	4.40			228.50		22.05	
1.00	2.70			225.17		18.72	
2.00	1.85			223.80		17.35	
3.00	1.57			222.65		16.20	
4.00	1.43			221.35		14.90	
6.00	1.28			220.20		13.75	
7.00	1.24			219.85		13.40	
8.00	1.21			219.42		12.97	
10.00	1.17			219.10		12.65	
12.00	1.14			218.80		12.35	
14.00	1.12			218.55		12.10	
16.00	1.11			218.35		11.90	
18.00	1.09			218.15		11.70	
20.00	1.09			217.93		11.48	
22.00	1.08			217.80		11.35	
24.00	1.07			217.70		11.25	
26.00	1.07			217.52		11.07	
30.00	1.06			217.30		10.85	
31.00	1.05			217.25		10.80	
35.00	1.05			217.03		10.58	
40.00	1.04			216.80		10.35	
45.00	1.04			216.57		10.12	
50.00	1.03			216.40		9.95	
60.00	1.03			215.93		9.48	
70.00	1.02			215.60		9.15	
80.00	1.02			215.22		8.77	
100.00	1.02			214.65		8.20	
120.00	1.01			214.05		7.60	
157.00	1.01			213.00		6.55	

CH2M HILL
PUMPING TEST REPORT

WELL: MW-6
TYPE OF DATA: SLUG TEST
BAILED WELL NO: MW-6 RADIUS: 1.5"
BAILING RATES: 1.6gpm
HOW Q MEASURED: BAILER AND WATCH
HOW WL's MEASURED: WELL SOUNDER
DISTANCE FROM PUMPED WELL: --

M.P. FOR WL's: TOP OF PVC
PUMP ON: DATE: 8/10/84 TIME: 10:34
PUMP OFF: DATE: 8/10/84 TIME: 10:42
COMMENTS: 8min TO DEWATER
TOTAL Q= 12.8gals
BAILER @ 3.4gals

TIME (min.)	t/t'	REFERENCE (ft.)	MEASURE (ft.)	DTW (ft.)	ADJ. DTW (ft.)	DRAWDOWN (ft.)	REMARKS
0				205.00			POWER'S WELL SOUNDER ON
1.27	7.30			229.50		24.50	ALL EXCEPT 220min
1.83	5.37			229.35		24.35	
2.33	4.43			229.20		24.20	
2.67	4.00			229.15		24.15	
3.32	3.41			229.00		24.00	
4.33	2.85			228.80		23.80	
4.92	2.63			228.75		23.75	
5.33	2.50			228.65		23.65	
6.00	2.33			228.55		23.55	
6.50	2.23			228.55		23.55	
7.00	2.14			228.45		23.45	
7.50	2.07			228.40		23.40	
8.00	2.00			228.30		23.30	
8.50	1.94			228.25		23.25	
9.00	1.89			228.20		23.20	
10.00	1.80			228.05		23.05	
11.00	1.73			227.95		22.95	
12.00	1.67			227.80		22.80	
13.00	1.62			227.65		22.65	
14.00	1.57			227.50		22.50	
15.00	1.53			227.35		22.35	
17.00	1.47			227.10		22.10	
18.00	1.44			227.00		22.00	
19.00	1.42			226.85		21.85	
20.00	1.40			226.70		21.70	
22.00	1.36			226.50		21.50	
24.00	1.33			226.35		21.35	
26.00	1.31			226.15		21.15	
28.00	1.29			225.80		20.80	
30.00	1.27			225.70		20.70	
35.00	1.23			225.21		20.21	
40.00	1.20			224.80		19.80	
45.00	1.18			224.33		19.33	
50.00	1.16			224.00		19.00	
55.00	1.15			223.65		18.65	
60.00	1.13			223.40		18.40	
70.00	1.11			222.70		17.70	
80.00	1.10			222.20		17.20	
90.00	1.09			221.70		16.70	
100.00	1.08			220.80		15.80	
120.00	1.07			219.90		14.90	
220.00	1.04			217.20	219.52	14.52	OLYMPIC
265.00	1.03			218.05		13.05	POWER'S
380.00	1.02			217.20		12.20	POWER'S

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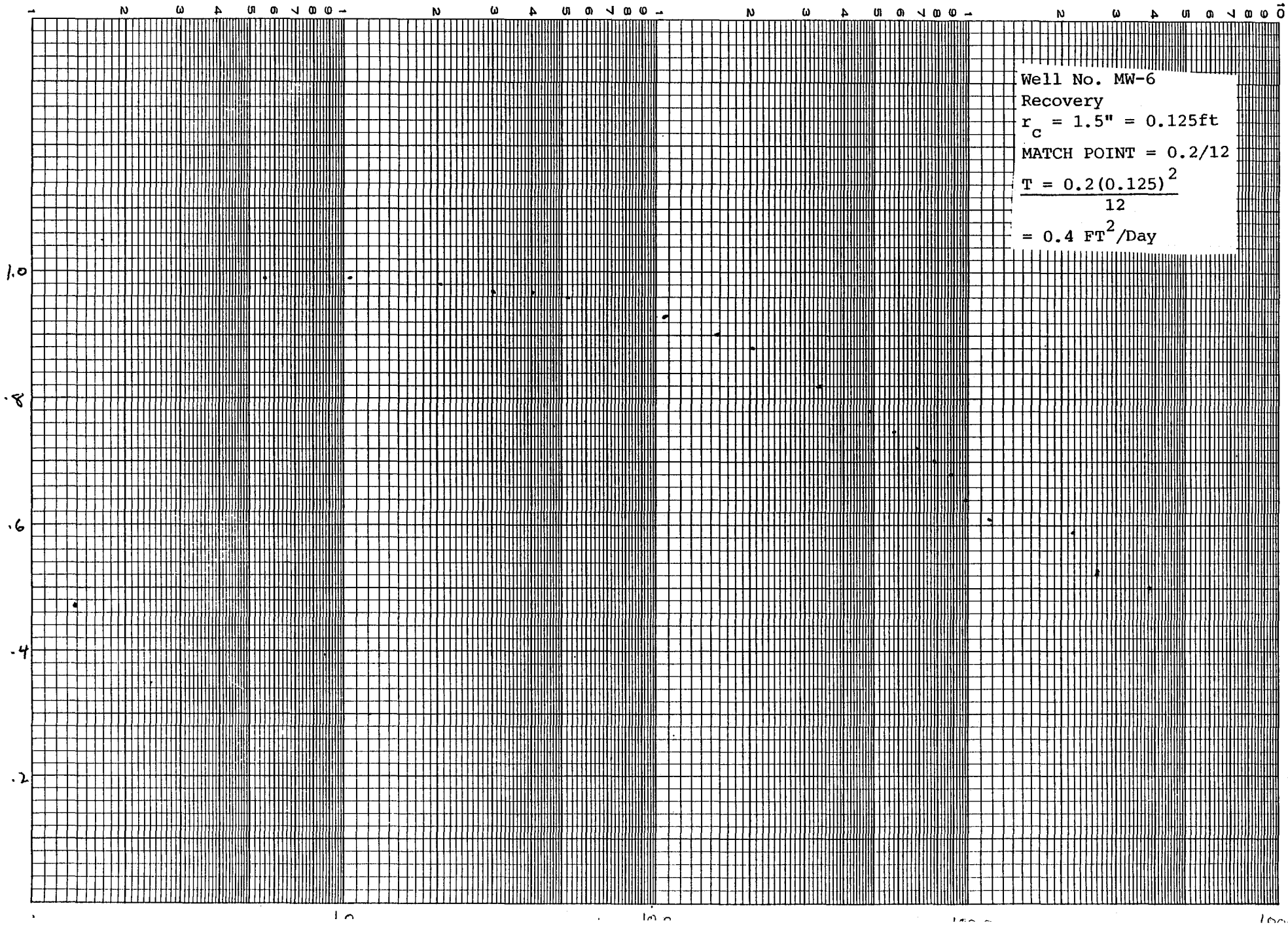

WELL # MW-10 PUMPING WELL
DRAWDOWN DATA
STATIC WATER LEVEL (ft): 177.20
RADIUS FROM PUMPED WELL (ft) 0
DISCHARGE (gpm): 1.5
PUMP ON: date: 11-16-84 time: 14.45
PUMP OFF: date: 11-16-84 time: 16.35
M.P. FOR WL'S:

DAY	TIME OF DAY	ELAPSED TIME (t) (minutes)	DEPTH TO WATER (feet)	DRAWDOWN (s) (feet)	LOG t	LOG s
1		0.00	177.20	0.00		
1		0.50	178.70	1.50	-0.301	0.176
1		0.67	179.20	2.00	-0.174	0.301
1		0.87	179.70	2.50	-0.060	0.398
1		1.05	180.20	3.00	0.021	0.477
1		1.28	180.50	3.30	0.107	0.519
1		1.47	180.80	3.60	0.167	0.556
1		1.67	180.80	3.60	0.223	0.556
1		1.85	180.90	3.70	0.267	0.568
1		2.02	180.90	3.70	0.305	0.568
1		2.33	180.90	3.70	0.367	0.568
1		2.78	181.00	3.80	0.444	0.580
1		3.27	181.00	3.80	0.515	0.580
1		3.67	181.00	3.80	0.565	0.580
1		4.97	181.00	3.80	0.696	0.580
1		5.97	181.10	3.90	0.776	0.591
1		6.50	181.10	3.90	0.813	0.591
1		7.25	181.20	4.00	0.860	0.602
1		8.00	181.30	4.10	0.903	0.613
1		9.00	181.30	4.10	0.954	0.613
1		10.00	181.40	4.20	1.000	0.623
1		11.00	181.50	4.30	1.041	0.633
1		12.00	181.60	4.40	1.079	0.643
1		13.00	181.80	4.60	1.114	0.663
1		14.00	181.90	4.70	1.146	0.672
1		15.00	182.00	4.80	1.176	0.681
1		16.00	182.00	4.80	1.204	0.681
1		17.00	182.00	4.80	1.230	0.681
1		18.00	182.10	4.90	1.255	0.690
1		19.00	182.20	5.00	1.279	0.699
1		20.00	182.30	5.10	1.301	0.708
1		22.00	182.40	5.20	1.342	0.716
1		24.00	182.50	5.30	1.380	0.724
1		26.00	182.50	5.30	1.415	0.724
1		28.00	182.60	5.40	1.447	0.732
1		30.00	182.70	5.50	1.477	0.740
1		35.00	182.90	5.70	1.544	0.756
1		40.00	183.00	5.80	1.602	0.763
1		45.00	183.30	6.10	1.653	0.785
1		50.00	183.35	6.15	1.699	0.789
1		55.00	183.50	6.30	1.740	0.799
1		60.00	183.50	6.30	1.778	0.799
1		65.00	183.90	6.70	1.813	0.826

WELL # MW-10 PUMPING WELL
DRAWDOWN DATA
STATIC WATER LEVEL (ft): 177.20
RADIUS FROM PUMPED WELL (ft) 0
DISCHARGE (gpm):
PUMP ON: date: 11-16-84 time: 14.45
PUMP OFF: date: 11-16-84 time: 16.35
M.P. FOR WL'S:

DAY	TIME OF DAY	ELAPSED TIME (t) (minutes)	DEPTH TO WATER (feet)	DRAWDOWN (s) (feet)	LOG t	LOG s
1		70.00	183.80	6.60	1.845	0.820
1		75.00	183.80	6.60	1.875	0.820
1		76.00	186.50	9.30	1.881	0.968
1		77.00	188.00	10.80	1.886	1.033
1		78.00	189.50	12.30	1.892	1.090
1		79.00	190.90	13.70	1.898	1.137
1		80.00	192.00	14.80	1.903	1.170
1		81.00	193.00	15.80	1.908	1.199
1		82.00	193.80	16.60	1.914	1.220
1		83.00	194.80	17.60	1.919	1.246
1		84.00	195.50	18.30	1.924	1.262
1		85.00	196.10	18.90	1.929	1.276
1		87.00	197.50	20.30	1.940	1.307
1		89.00	198.40	21.20	1.949	1.326
1		91.00	199.30	22.10	1.959	1.344
1		93.00	199.80	22.60	1.968	1.354
1		95.00	200.10	22.90	1.978	1.360
1		100.00	200.35	23.15	2.000	1.365
1		105.00	200.20	23.00	2.021	1.362
1		110.00	200.30	23.10	2.041	1.364

WELL MW10 PUMPING WELL B18066.C0
RECOVERY DATA 23-Nov-84
STATIC WATER LEVEL (ft): 177.20
RADIUS FROM PUMPED WELL (ft): 0
DISCHARGE (gpm):
PUMP ON date: 11-16-84 time: 14.45 ELAPSED TIME PUMP ON: 110.00
PUMP OFF date: 11-16-84 time: 16.35
M.P. FOR WL'S:

DAY	TIME OF DAY	ELAPSED TIME (t) (min)	RECOVERY TIME (t') (min)	t/t'	DEPTH TO WATER (ft) (in)	DEPTH TO WATER (feet)	RESIDUAL DRAWDOWN (s') (ft)	LOG t/t'
1		110.30	0.30	367.67		200.00	22.80	2.565454
1		110.48	0.48	230.17		199.00	21.80	2.362042
1		110.73	0.73	151.68		198.00	20.80	2.180942
1		110.95	0.95	116.79		198.10	20.90	2.067403
1		111.17	1.17	95.02		197.00	19.80	1.977801
1		111.27	1.27	87.61		197.70	20.50	1.942574
1		111.42	1.42	78.46		197.15	19.95	1.894674
1		111.50	1.50	74.33		196.80	19.60	1.871183
1		111.75	1.75	63.86		196.35	19.15	1.805209
1		111.83	1.83	61.11		196.10	18.90	1.786107
1		112.08	2.08	53.88		195.80	18.60	1.731464
1		112.22	2.22	50.55		195.50	18.30	1.703717
1		112.33	2.33	48.21		195.25	18.05	1.683139
1		112.48	2.48	45.35		195.00	17.80	1.656623
1		112.67	2.67	42.20		194.85	17.65	1.625297
1		112.82	2.82	40.01		194.55	17.35	1.602136
1		112.95	2.95	38.29		194.25	17.05	1.583064
1		113.12	3.12	36.26		194.00	16.80	1.559384
1		113.25	3.25	34.85		193.80	16.60	1.542154
1		113.40	3.40	33.35		193.55	16.35	1.523134
1		113.58	3.58	31.73		193.30	16.10	1.501418
1		113.73	3.73	30.49		193.00	15.80	1.484166
1		113.90	3.90	29.21		192.80	15.60	1.465459
1		114.08	4.08	27.96		192.55	15.35	1.446549
1		114.22	4.22	27.07		192.30	15.10	1.432429
1		114.37	4.37	26.17		192.15	14.95	1.417830
1		115.00	5.00	23.00		191.40	14.20	1.361727
1		116.00	6.00	19.33		190.20	13.00	1.286306
1		117.00	7.00	16.71		189.10	11.90	1.223087
1		118.00	8.00	14.75		188.20	11.00	1.168792
1		119.00	9.00	13.22		187.50	10.30	1.121304
1		120.00	10.00	12.00		186.80	9.60	1.079181
1		122.00	12.00	10.17		185.60	8.40	1.007178
1		124.00	14.00	8.86		184.50	7.30	0.947293
1		126.00	16.00	7.88		183.80	6.60	0.896250
1		128.00	18.00	7.11		183.10	5.90	0.851937
1		130.00	20.00	6.50		182.60	5.40	0.812913
1		135.00	25.00	5.40		181.50	4.30	0.732393
1		140.00	30.00	4.67		181.10	3.90	0.669006
1		156.50	46.50	3.37		180.60	3.40	0.527061
1		157.75	47.75	3.30		180.50	3.30	0.518995
1		159.00	49.00	3.24		180.40	3.20	0.511201
1		160.00	50.00	3.20		180.30	3.10	0.505149

WELL MW10 PUMPING WELL B18066.C0
RECOVERY DATA 23-Nov-84
STATIC WATER LEVEL (ft): 177.20
RADIUS FROM PUMPED WELL (ft): 0
DISCHARGE (gpm):
PUMP ON date: 11-16-84 time: 14.45 ELAPSED TIME PUMP ON: 110.00
PUMP OFF date: 11-16-84 time: 16.35
M.P. FOR WL'S:

DAY	TIME OF DAY	ELAPSED TIME (t) (min)	RECOVERY TIME (t') (min)	t/t'	DEPTH TO WATER (ft) (in)	DEPTH TO WATER (feet)	RESIDUAL DRAWDOWN (s') (ft)	LOG t/t'
1		162.00	52.00	3.12		180.20	3.00	0.493511
1		164.00	54.00	3.04		180.10	2.90	0.482450
1		166.00	56.00	2.96		180.00	2.80	0.471920
1		168.00	58.00	2.90		179.90	2.70	0.461881
1		170.00	60.00	2.83		179.80	2.60	0.452297
1		175.00	65.00	2.69		179.60	2.40	0.430124
1		180.00	70.00	2.57		179.40	2.20	0.410174
1		185.00	75.00	2.47		179.20	2.00	0.392110
1		190.00	80.00	2.38		179.10	1.90	0.375663
1		9~~0~~5.00	850.00	1.13		177.80	0.60	0.052852

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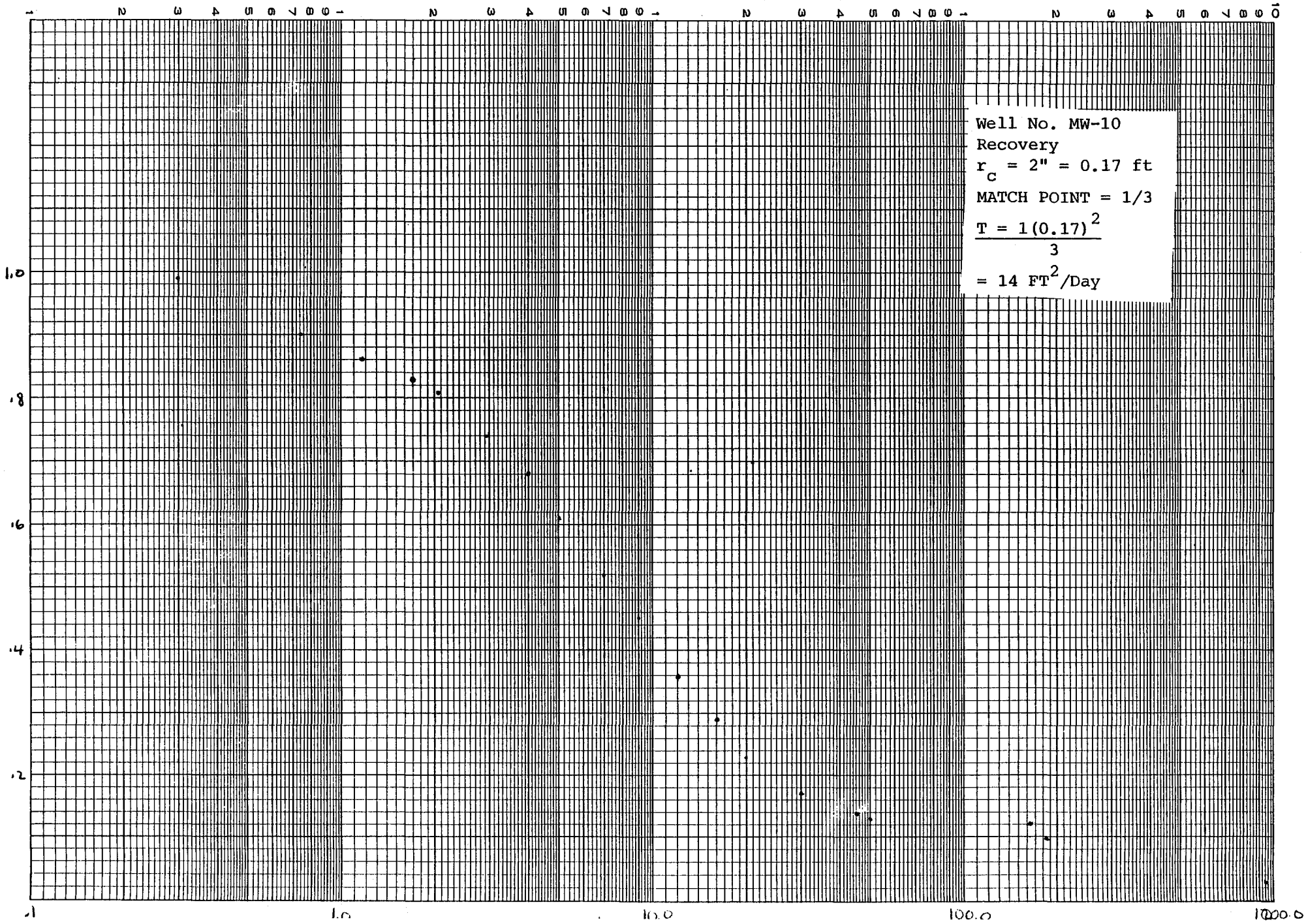

WELL MW11 PUMPING WELL B18066.C0
DRAWDOWN DATA 23-Nov-84
STATIC WATER LEVEL (ft): 193.30
RADIUS FROM PUMPED WELL (ft): 0
DISCHARGE (gpm): 5
PUMP ON: date: 11-16-84 time: 10.03
PUMP OFF:date: time:
M.P. FOR WL'S:

DAY	TIME OF DAY	ELAPSED TIME (t) (minutes)	DEPTH TO WATER (FT) (IN)	DEPTH TO WATER (feet)	DRAWDOWN (s) (feet)	LOG t	LOG s
1	10.1400	11.00		193.40	0.10	1.041392	-1
1	10.1536	12.60		198.50	5.20	1.100370	0.7160033
1	10.1546	12.77		199.90	6.60	1.106077	0.8195439
1	10.1558	12.97		201.50	8.20	1.112828	0.9138138
1	10.1615	13.25		202.60	9.30	1.122215	0.9684829
1	10.1640	13.67		205.10	11.80	1.135662	1.0718820
1	10.1746	14.77		204.10	10.80	1.169282	1.0334237
1	10.1842	15.70		204.00	10.70	1.195899	1.0293837
1	10.1915	16.25		204.00	10.70	1.210853	1.0293837
1	10.1935	16.58		204.00	10.70	1.219671	1.0293837
1	10.1956	16.93		204.10	10.80	1.228742	1.0334237
1	10.2020	17.33		204.10	10.80	1.238882	1.0334237
1	10.2030	17.50		204.20	10.90	1.243038	1.0374264
1	10.2100	18.00		204.40	11.10	1.255272	1.0453229
1	10.2130	18.50		204.60	11.30	1.267171	1.0530784
1	10.2200	19.00		204.90	11.60	1.278753	1.0644579
1	10.2230	19.50		205.20	11.90	1.290034	1.0755469
1	10.2300	20.00		205.40	12.10	1.301029	1.0827853
1	10.2330	20.50		205.50	12.20	1.311753	1.0863598
1	10.2400	21.00		205.80	12.50	1.322219	1.0969100
1	10.2430	21.50		206.00	12.70	1.332438	1.1038037
1	10.2500	22.00		206.20	12.90	1.342422	1.1105897
1	10.2600	23.00		206.70	13.40	1.361727	1.1271047
1	10.2700	24.00		207.00	13.70	1.380211	1.1367205
1	10.2800	25.00		207.50	14.20	1.397940	1.1522883
1	10.2900	26.00		208.00	14.70	1.414973	1.1673173
1	10.3000	27.00		208.40	15.10	1.431363	1.1789769
1	10.3100	28.00		208.70	15.40	1.447158	1.1875207
1	10.3200	29.00		209.60	16.30	1.462397	1.2121876
1	10.3300	30.00		210.20	16.90	1.477121	1.2278867
1	10.3400	31.00		211.60	18.30	1.491361	1.2624510
1	10.3500	32.00		212.50	19.20	1.505149	1.2833012
1	10.3700	34.00		214.30	21.00	1.531478	1.3222192
1	10.3900	36.00		215.90	22.60	1.556302	1.3541084
1	10.4130	38.50		217.80	24.50	1.585460	1.3891660
1	10.4300	40.00		218.70	25.40	1.602059	1.4048337
1	10.4500	42.00		220.00	26.70	1.623249	1.4265112
1	10.5000	47.00		223.40	30.10	1.672097	1.4785664
1	10.5400	51.00		225.90	32.60	1.707570	1.5132176
1	10.5500	52.00		226.60	33.30	1.716003	1.5224442
1	11.0000	57.00		229.90	36.60	1.755874	1.5634810
1	11.0200	59.00		230.80	37.50	1.770852	1.5740312
1	11.0300	60.00		230.90	37.60	1.778151	1.5751878

WELL MW11 PUMPING WELL B18066.C0
RECOVERY DATA 24-Nov-84
STATIC WATER LEVEL (ft): 193.30
RADIUS FROM PUMPED WELL (ft): 0
DISCHARGE (gpm):
PUMP ON date: 11-16-84 time: 10.03 ELAPSED TIME PUMP ON: 60.5
PUMP OFF date: 11-16-84 time: 11.04
M.P. FOR WL'S:

DAY	TIME OF DAY	ELAPSED TIME (t) (min)	RECOVERY TIME (t')(min)	t/t'	DEPTH TO WATER (ft) (in)	DEPTH TO WATER (feet)	LOG t/t'	RESIDUAL DRAWDOWN (s')(ft)
1	11.0345	60.75	0.25	243		230.80	2.3856062	37.50
1	11.0352	60.87	0.37	166		230.80	2.2201080	37.50
1	11.0403	61.05	0.55	111		230.80	2.0453229	37.50
1	11.0414	61.23	0.73	83.5		230.80	1.9216864	37.50
1	11.0438	61.63	1.13	54.38235		230.80	1.7354579	37.50
1	11.0515	62.25	1.75	35.57142		230.80	1.5511013	37.50
1	11.0527	62.45	1.95	32.02564		230.70	1.5054978	37.40
1	11.0540	62.67	2.17	28.92307		230.60	1.4612444	37.30
1	11.0600	63.00	2.50	25.2		230.50	1.4014005	37.20
1	11.0623	63.38	2.88	21.98265		230.30	1.3420802	37.00
1	11.0643	63.72	3.22	19.80829		230.10	1.2968469	36.80
1	11.0716	64.27	3.77	17.06194		229.90	1.2320285	36.60
1	11.0730	64.50	4.00	16.125		229.80	1.2074997	36.50
1	11.0830	65.50	5.00	13.1		229.30	1.1172712	36.00
1	11.0930	66.50	6.00	11.08333		228.70	1.0446703	35.40
1	11.1030	67.50	7.00	9.642857		228.20	0.9842057	34.90
1	11.1130	68.50	8.00	8.5625		227.70	0.9326005	34.40
1	11.1230	69.50	9.00	7.722222		227.30	0.8877422	34.00
1	11.1330	70.50	10.00	7.05		226.80	0.8481891	33.50
1	11.1530	72.50	12.00	6.041666		226.00	0.7811567	32.70
1	11.1730	74.50	14.00	5.321428		225.20	0.7260282	31.90
1	11.1930	76.50	16.00	4.78125		224.30	0.6795414	31.00
1	11.2130	78.50	18.00	4.361111		223.60	0.6395971	30.30
1	11.2330	80.50	20.00	4.025		222.90	0.6047658	29.60
1	12.1800	135.00	74.50	1.812080		208.50	0.2581774	15.20
1	12.2038	137.63	77.13	1.784356		208.00	0.2514815	14.70
1	12.2330	140.50	80.00	1.75625		207.20	0.2445863	13.90
1	12.2830	145.50	85.00	1.711764		206.40	0.2334440	13.10
1	12.3330	150.50	90.00	1.672222		205.60	0.2232939	12.30
1	12.3830	155.50	95.00	1.636842		204.90	0.2140067	11.60
1	12.4330	160.50	100.00	1.605		204.30	0.2054750	11.00
1	12.4830	165.50	105.00	1.576190		203.60	0.1976086	10.30
1	12.5330	170.50	110.00	1.55		203.10	0.1903316	9.80
1	12.5830	175.50	115.00	1.526086		202.50	0.1835792	9.20
1	13.0330	180.50	120.00	1.504166		202.00	0.1772959	8.70
1	13.0830	185.50	125.00	1.484		201.60	0.1714339	8.30
1	13.1330	190.50	130.00	1.465384		201.20	0.1659516	7.90
1	13.1830	195.50	135.00	1.448148		200.80	0.1608129	7.50
1	13.2330	200.50	140.00	1.432142		200.30	0.1559863	7.00
1	13.2830	205.50	145.00	1.417241		200.00	0.1514438	6.70
1	13.3330	210.50	150.00	1.403333		199.70	0.1471608	6.40
1	13.3830	215.50	155.00	1.390322		199.40	0.1431155	6.10
1	13.4330	220.50	160.00	1.378125		199.20	0.1392886	5.90

WELL MW11 PUMPING WELL B18066.C0
RECOVERY DATA 24-Nov-84
STATIC WATER LEVEL (ft): 193.30
RADIUS FROM PUMPED WELL (ft): 0
DISCHARGE (gpm):
PUMP ON date: 11-16-84 time: 10.03 ELAPSED TIME PUMP ON: 60.5
PUMP OFF date: 11-16-84 time: 11.04
M.P. FOR WL'S:

DAY	TIME OF DAY	ELAPSED TIME (t) (min)	RECOVERY TIME (t')(min)	t/t'	DEPTH TO WATER (ft) (in)	DEPTH TO WATER (feet)	LOG t/t'	RESIDUAL DRAWDOWN (s')(ft)
1	14.3545	272.75	212.25	1.285041		197.10	0.1089170	3.80
1	15.4700	344.00	283.50	1.213403		195.60	0.0840053	2.30
1	16.3600	393.00	332.50	1.181954		195.30	0.0726009	2.00
1	18.0200	479.00	418.50	1.144563		194.80	0.0586400	1.50
2	8.1900	1336.00	1275.50	1.047432		194.10	0.0201259	0.80

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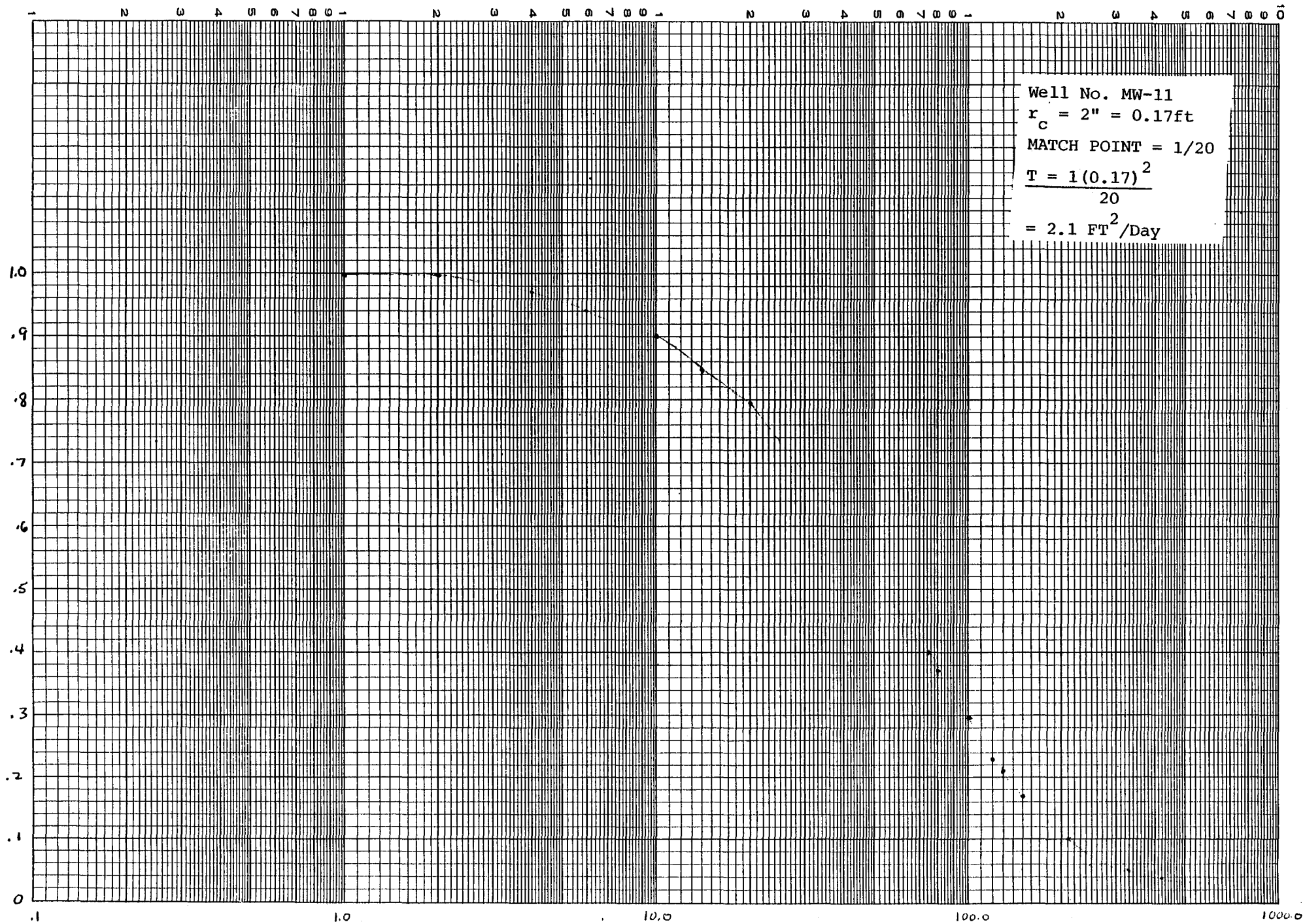

WELL MW12 PUMPING WELL B18066.C0
RECOVERY DATA 24-Nov-84
STATIC WATER LEVEL (ft): 202.13
RADIUS FROM PUMPED WELL (ft): 0
DISCHARGE (gpm):
PUMP ON date: time: 12.43 ELAPSED TIME PUMP ON: 7.08
PUMP OFF date: time: 12.50
M.P. FOR WL'S:

DAY	TIME OF DAY	ELAPSED TIME (t) (min)	RECOVERY TIME (t') (min)	t/t'	DEPTH TO WATER (ft)	(in)	DEPTH TO WATER (feet)	LOG t/t'	RESIDUAL DRAWDOWN (s') (ft)
1	12.5025	7.42	0.34	22.02970	239	5	239.42	1.3430086	37.29
1	12.5045	7.75	0.67	11.56716	239		239.00	1.0632268	36.88
1	12.5100	8.00	0.92	8.695652	238	6	238.50	0.9393021	36.38
1	12.5115	8.25	1.17	7.051282	238		238.00	0.8482680	35.88
1	12.5125	8.42	1.34	6.296758	237	6	237.50	0.7991170	35.38
1	12.5140	8.67	1.59	5.462184	237		237.00	0.7373663	34.88
1	12.5150	8.83	1.75	5.038022	236	10	236.83	0.7022601	34.71
1	12.5200	9.00	1.92	4.6875	236	6	236.50	0.6709412	34.38
1	12.5220	9.33	2.25	4.142011	236		236.00	0.6172113	33.88
1	12.5230	9.50	2.42	3.925619	235	6	235.50	0.5939082	33.38
1	12.5245	9.75	2.67	3.651685	235	5	235.42	0.5624933	33.29
1	12.5305	10.08	3.00	3.357380	235		235.00	0.5260005	32.88
1	12.5320	10.33	3.25	3.176229	234	6	234.50	0.5019118	32.38
1	12.5325	10.42	3.34	3.121878	234	10	234.83	0.4944159	32.71
1	12.5345	10.75	3.67	2.929155	234		234.00	0.4667424	31.88
1	12.5350	10.83	3.75	2.886323	234	10	234.83	0.4603449	32.71
1	12.5400	11.00	3.92	2.806122	234	8	234.67	0.4481066	32.54
1	12.5500	12.00	4.92	2.439024	232	9	232.75	0.3872161	30.63
1	12.5600	13.00	5.92	2.195945	232	2	232.17	0.3416216	30.04
1	12.5700	14.00	6.92	2.023121	231	1	231.08	0.3060219	28.96
1	12.5800	15.00	7.92	1.893939	230	6	230.50	0.2773660	28.38
1	12.5900	16.00	8.92	1.793721	230		230.00	0.2537551	27.88
1	13.0000	17.00	9.92	1.713709	229	9	229.75	0.2339372	27.63
1	13.0100	18.00	10.92	1.648351	229	5	229.42	0.2170498	27.29
1	13.0200	19.00	11.92	1.593959	229	0	229.00	0.2024773	26.88
1	13.0300	20.00	12.92	1.547987	228	6	228.50	0.1897674	26.38
1	13.0400	21.00	13.92	1.508620	227	12	227.96	0.1785800	25.83
1	13.0500	22.00	14.92	1.474530	227	10	227.83	0.1686538	25.71
1	13.0600	23.00	15.92	1.444723	227	5	227.42	0.1597847	25.29
1	13.0700	24.00	16.92	1.418439	227	2	227.17	0.1518108	25.04
1	13.0800	25.00	17.92	1.395089	226	11	226.92	0.1446020	24.79
1	13.0900	26.00	18.92	1.374207	226	7	226.58	0.1380522	24.46
1	13.1000	27.00	19.92	1.355421	226	5	226.38	0.1320744	24.25
1	13.1200	29.00	21.92	1.322992	225	10	225.83	0.1215574	23.71
1	13.1400	31.00	23.92	1.295986	224	11	224.92	0.1126005	22.79
1	13.1600	33.00	25.92	1.273148	224	4	224.33	0.1048789	22.21
1	13.1700	34.00	26.92	1.263001	224	3	224.21	0.1014038	22.08
1	13.1800	35.00	27.92	1.253581	224	1	224.08	0.0981526	21.96
1	13.2000	37.00	29.92	1.236631	223	10	223.79	0.0922401	21.67
1	13.2500	42.00	34.92	1.202749	223	2	223.13	0.0801750	21.00
1	13.3000	47.00	39.92	1.177354	222	5	222.42	0.0709073	20.29
1	13.3500	52.00	44.92	1.157613	222	2	222.17	0.0635635	20.04
1	13.5500	72.00	64.92	1.109057	222	0	222.00	0.0449539	19.88

WELL MW12 PUMPING WELL B18066.C0
RECOVERY DATA 24-Nov-84
STATIC WATER LEVEL (ft): 202.13
RADIUS FROM PUMPED WELL (ft): 0
DISCHARGE (gpm):
PUMP ON date: time: 12.43 ELAPSED TIME PUMP ON: 7.08
PUMP OFF date: time: 12.50
M.P. FOR WL'S:

DAY	TIME OF DAY	ELAPSED TIME (t) (min)	RECOVERY TIME (t')(min)	t/t'	DEPTH TO WATER (ft) (in)	DEPTH TO WATER (feet)	LOG t/t'	RESIDUAL DRAWDOWN (s')(ft)
1	14.0000	77.00	69.92	1.101258		221.50	0.0418893	19.38
1	14.0500	82.00	74.92	1.094500		221.20	0.0392160	19.07
1	14.1000	87.00	79.92	1.088588		220.80	0.0368637	18.68
1	14.1500	92.00	84.92	1.083372		220.40	0.0347778	18.28
1	14.2000	97.00	89.92	1.078736		220.20	0.0329154	18.07
1	14.2500	102.00	94.92	1.074589		219.80	0.0312424	17.68
1	14.3000	107.00	99.92	1.070856		219.60	0.0297313	17.47
1	15.3340	170.67	163.59	1.043279		216.60	0.0184008	14.47
1	16.2840	225.67	218.59	1.032389		214.60	0.0138437	12.47
1	18.0800	325.00	317.92	1.022269		212.20	0.0095655	10.07
2	8.1500	1172.00	1164.92	1.006077		205.60	0.0026315	3.47

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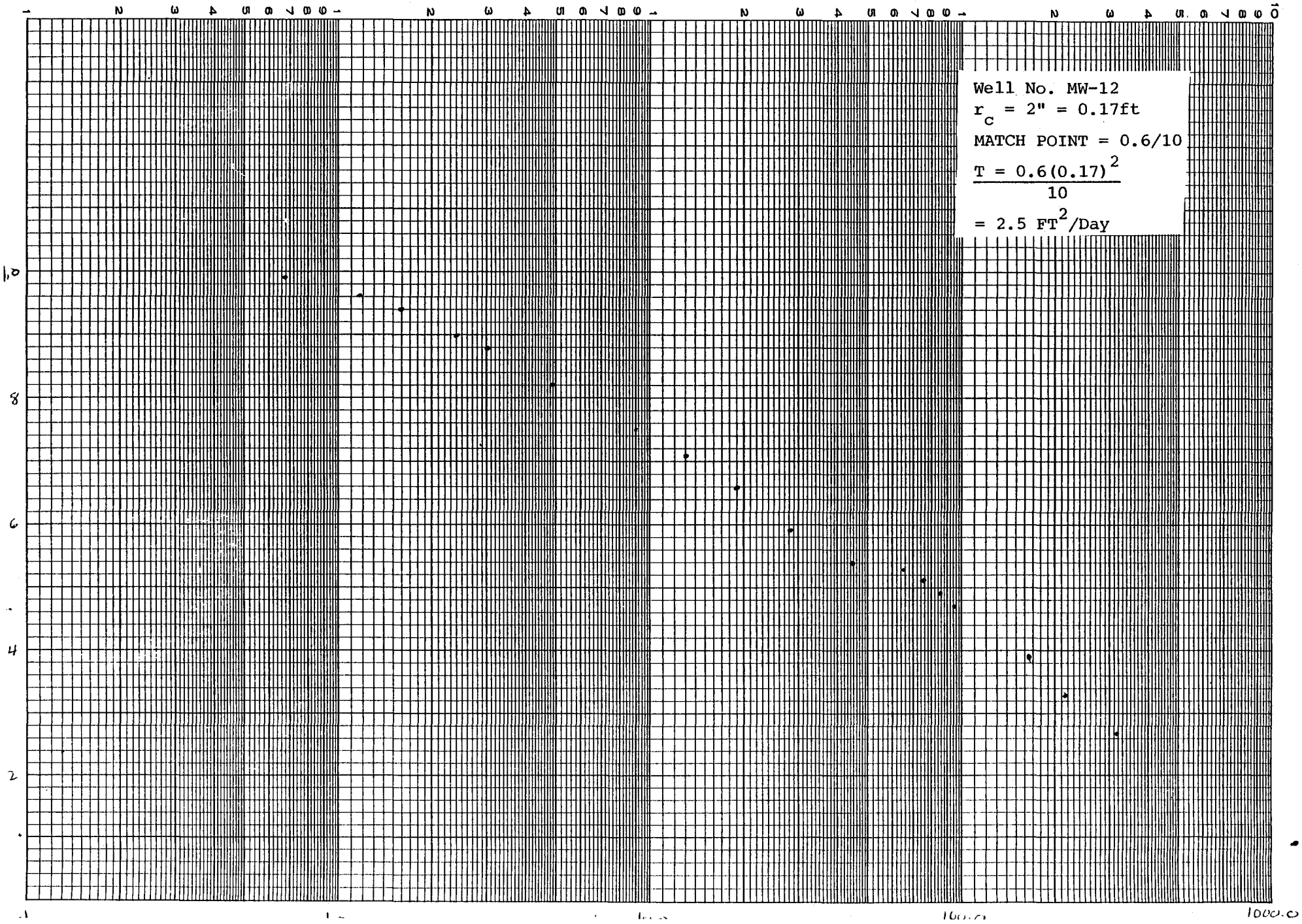

WELL # D2 PUMPING WELL
DRAWDOWN DATA
STATIC WATER LEVEL (ft): 183.00
RADIUS FROM PUMPED WELL (ft) 0
DISCHARGE (gpm): 2.7
PUMP ON: date: 10/6/83 time: 13.16
PUMP OFF: date: 10/6/83 time: 17.15
M.P. FOR WL'S:

DAY	TIME OF DAY	ELAPSED TIME (t) (minutes)	DEPTH TO WATER (FT) (IN)	DEPTH TO WATER (feet)	DRAWDOWN (s) (feet)	LOG t	LOG s
1		1.00		183.75	0.75	0	-0.12493
1		2.00		183.89	0.89	0.301029	-0.05060
1		3.00		184.33	1.33	0.477121	0.123851
1		4.00		184.46	1.46	0.602059	0.164352
1		5.00		184.50	1.50	0.698970	0.176091
1		6.00		184.90	1.90	0.778151	0.278753
1		7.00		185.78	2.78	0.845098	0.444044
1		8.00		186.66	3.66	0.903089	0.563481
1		9.00		186.94	3.94	0.954242	0.595496
1		10.00		187.74	4.74	1	0.675778
1		12.00		188.45	5.45	1.079181	0.736396
1		14.00		188.67	5.67	1.146128	0.753583
1		16.00		188.86	5.86	1.204119	0.767897
1		18.00		188.99	5.99	1.255272	0.777426
1		20.00		189.95	6.95	1.301029	0.841984
1		22.00		190.44	7.44	1.342422	0.871572
1		24.00		190.48	7.48	1.380211	0.873901
1		26.00		190.58	7.58	1.414973	0.879669
1		28.00		190.67	7.67	1.447158	0.884795
1		30.00		190.74	7.74	1.477121	0.888740
1		35.00		191.06	8.06	1.544068	0.906335
1		40.00		192.38	9.38	1.602059	0.972202
1		45.00		195.60	12.60	1.653212	1.100370
1		50.00		196.29	13.29	1.698970	1.123524
1		60.00		196.79	13.79	1.778151	1.139564
1		70.00		197.22	14.22	1.845098	1.152899
1		80.00		198.55	15.55	1.903089	1.191730
1		90.00		203.69	20.69	1.954242	1.315760
1		100.00		207.70	24.70	2	1.392696
1		120.00		211.97	28.97	2.079181	1.461948
1		140.00		214.35	31.35	2.146128	1.496237
1		160.00		215.41	32.41	2.204119	1.510679
1		180.00		215.86	32.86	2.255272	1.516667
1		200.00		216.27	33.27	2.301029	1.522052
1		220.00		216.37	33.37	2.342422	1.523356
1		240.00		217.01	34.01	2.380211	1.531606

WELL D2 PUMPING WELL B18066.C0
RECOVERY DATA 24-Nov-84
STATIC WATER LEVEL (ft): 183.00
RADIUS FROM PUMPED WELL (ft): 0
DISCHARGE (gpm):
PUMP ON date: 10-6-83 time: 13.16 ELAPSED TIME PUMP ON: 239
PUMP OFF date: 10-6-83 time: 17.15
M.P. FOR WL'S:

DAY	TIME OF DAY	ELAPSED TIME (t) (min)	RECOVERY TIME (t') (min)	t/t'	DEPTH TO WATER (ft) (in)	DEPTH TO WATER (feet)	LOG t/t'	RESIDUAL DRAWDOWN (s') (ft)
1	17.1600	240.00	1.00	240		214.22	2.3802112	31.22
1	17.1700	241.00	2.00	120.5		212.98	2.0809870	29.98
1	17.1800	242.00	3.00	80.66666		210.05	1.9066941	27.05
1	17.1900	243.00	4.00	60.75		208.13	1.7835462	25.13
1	17.2000	244.00	5.00	48.8		206.24	1.6884198	23.24
1	17.2100	245.00	6.00	40.83333		204.26	1.6110148	21.26
1	17.2200	246.00	7.00	35.14285		202.76	1.5458370	19.76
1	17.2300	247.00	8.00	30.875		201.30	1.4896069	18.30
1	17.2400	248.00	9.00	27.55555		200.19	1.4402091	17.19
1	17.2500	249.00	10.00	24.9		197.83	1.3961993	14.83
1	17.2700	251.00	12.00	20.91666		197.96	1.3204924	14.96
1	17.2900	253.00	14.00	18.07142		197.54	1.2569924	14.54
1	17.3100	255.00	16.00	15.9375		197.27	1.2024201	14.27
1	17.3300	257.00	18.00	14.27777		197.10	1.1546606	14.10
1	17.3500	259.00	20.00	12.95		197.02	1.1122697	14.02
1	17.3700	261.00	22.00	11.86363		196.99	1.0742178	13.99
1	17.3900	263.00	24.00	10.95833		196.98	1.0397445	13.98
1	17.4100	265.00	26.00	10.19230		196.98	1.0082725	13.98
1	17.4300	267.00	28.00	9.535714		196.64	0.9793532	13.64
1	17.4500	269.00	30.00	8.966666		196.45	0.9526310	13.45
1	17.5000	274.00	35.00	7.828571		194.11	0.8936825	11.11
1	17.5500	279.00	40.00	6.975		191.63	0.8435442	8.63
1	18.0000	284.00	45.00	6.311111		191.04	0.8001058	8.04
1	18.0500	289.00	50.00	5.78		190.80	0.7619278	7.80
1	18.1500	299.00	60.00	4.983333		190.50	0.6975199	7.50
1	18.2500	309.00	70.00	4.414285		189.70	0.6448604	6.70
1	18.3500	319.00	80.00	3.9875		188.79	0.6007006	5.79
1	18.4500	329.00	90.00	3.655555		188.33	0.5629533	5.33
1	18.5500	339.00	100.00	3.39		187.00	0.5301996	4.00
1	19.1500	359.00	120.00	2.991666		185.77	0.4759132	2.77
1	19.3500	379.00	140.00	2.707142		185.06	0.4325111	2.06

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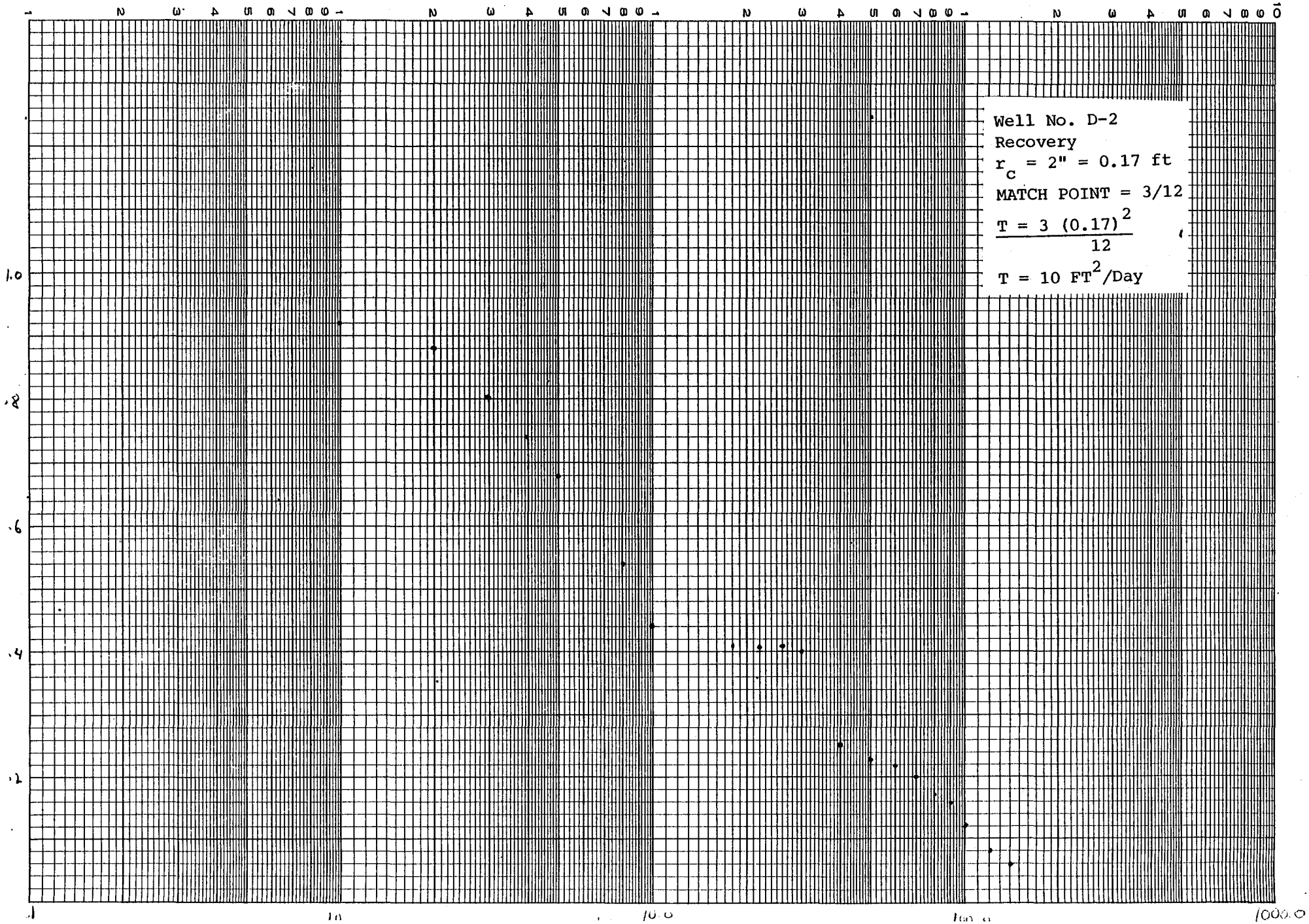

WELL # D15 (MW-15) PUMPING WELL
DRAWDOWN DATA
STATIC WATER LEVEL (ft): 159.08
RADIUS FROM PUMPED WELL (ft) 0
DISCHARGE (gpm): 5
PUMP ON: date: 11/19/1 time: 2.55 pm
PUMP OFF: date: 11/17/1 time: 4.35 pm
M.P. FOR WL'S:

DAY	TIME OF DAY	ELAPSED TIME (t) (minutes)	DEPTH TO WATER (FT)	(IN)	DEPTH TO WATER (feet)	DRAWDOWN (s) (feet)	LOG t	LOG s
1	2.5514	0.23	160		160.00	0.92	-0.63202	-0.03621
1	2.5525	0.42	162		162.00	2.92	-0.38021	0.465382
1	2.5529	0.48	162	6	162.50	3.42	-0.31575	0.534026
1	2.5533	0.55	163		163.00	3.92	-0.25963	0.593286
1	2.5541	0.68	163	6	163.50	4.42	-0.16536	0.645422
1	2.5549	0.82	164		164.00	4.92	-0.08795	0.691965
1	2.5552	0.87	164	6	164.50	5.42	-0.06214	0.733999
1	2.5558	0.97	165		165.00	5.92	-0.01472	0.772321
1	2.5608	1.13	165	6	165.50	6.42	0.054357	0.807535
1	2.5620	1.33	166		166.00	6.92	0.124938	0.840106
1	2.5636	1.60	166	6	166.50	7.42	0.204119	0.870403
1	2.5646	1.77	167		167.00	7.92	0.247154	0.898725
1	2.5700	2.00	167	6	167.50	8.42	0.301029	0.925312
1	2.5710	2.17	168		168.00	8.92	0.335792	0.950364
1	2.5730	2.50	168	6	168.50	9.42	0.397940	0.974050
1	2.5744	2.73	169		169.00	9.92	0.436692	0.996511
1	2.5800	3.00	169	6	169.50	10.42	0.477121	1.017867
1	2.5825	3.42	170		170.00	10.92	0.533602	1.038222
1	2.5842	3.70	170	6	170.50	11.42	0.568201	1.057666
1	2.5910	4.17	171		171.00	11.92	0.619788	1.076276
1	2.5934	4.57	171	6	171.50	12.42	0.659599	1.094121
1	3.0005	5.08	172		172.00	12.92	0.706148	1.111262
1	3.0030	5.50	172	6	172.50	13.42	0.740362	1.127752
1	3.0110	6.17	173		173.00	13.92	0.790050	1.143639
1	3.0141	6.68	173	6	173.50	14.42	0.824993	1.158965
1	3.0217	7.28	174		174.00	14.92	0.862330	1.173768
1	3.0304	8.07	174	6	174.50	15.42	0.906694	1.188084
1	3.0400	9.00	175		175.00	15.92	0.954242	1.201943
1	3.0500	10.00	175		175.00	15.92	1	1.201943
1	3.0600	11.00	175		175.00	15.92	1.041392	1.201943
1	3.0700	12.00	175		175.00	15.92	1.079181	1.201943
1	3.0800	13.00	175	1	175.08	16.00	1.113943	1.204210
1	3.0900	14.00	175	1	175.08	16.00	1.146128	1.204210
1	3.1000	15.00	175	1	175.08	16.00	1.176091	1.204210
1	3.1200	17.00	175	1	175.08	16.00	1.230448	1.204210
1	3.1400	19.00	175	1	175.08	16.00	1.278753	1.204210
1	3.1600	21.00	174	4	174.33	15.25	1.322219	1.183364
1	3.1730	22.50	175	6	175.50	16.42	1.352182	1.215373
1	3.1800	23.00	175	6	175.50	16.42	1.361727	1.215373
1	3.1900	24.00	175	8	175.67	16.59	1.380211	1.219759
1	3.1920	24.33	175	10	175.83	16.75	1.386201	1.224101
1	3.2000	25.00	175	10	175.83	16.75	1.397940	1.224101
1	3.2500	30.00	176		176.00	16.92	1.477121	1.228400

WELL # D15 (MW-15) PUMPING WELL
DRAWDOWN DATA
STATIC WATER LEVEL (ft): 159.08
RADIUS FROM PUMPED WELL (ft) 0
DISCHARGE (gpm): 5
PUMP ON: date: time: 2.55
PUMP OFF: date: time:
M.P. FOR WL'S:

DAY	TIME OF DAY	ELAPSED TIME (t) (minutes)	DEPTH TO WATER (FT)	(IN)	DEPTH TO WATER (feet)	DRAWDOWN (s) (feet)	LOG t	LOG s
1	3.3000	35.00	176	2	176.17	17.09	1.544068	1.232657
1	3.3500	40.00	176	7	176.58	17.50	1.602059	1.243120
1	3.4000	45.00	176	10	176.83	17.75	1.653212	1.249279
1	3.4500	50.00	177	2	177.17	18.09	1.698970	1.257358
1	3.5000	55.00	177	9	177.75	18.67	1.740362	1.271144
1	3.5500	60.00	178	8	178.67	19.59	1.778151	1.291960
1	4.0000	65.00	179	6	179.50	20.42	1.812913	1.310055
1	4.0500	70.00	179	8	179.67	20.59	1.845098	1.313586
1	4.1000	75.00	180		180.00	20.92	1.875061	1.320561
1	4.1500	80.00	180	1	180.08	21.00	1.903089	1.322288
1	4.2000	85.00	180	1	180.08	21.00	1.929418	1.322288
1	4.2500	90.00	180	1	180.08	21.00	1.954242	1.322288
1	4.3000	95.00	180	1	180.08	21.00	1.977723	1.322288
1	4.3500	100.00	180	1	180.08	21.00	2	1.322288

WELL D15 PUMPING WELL B18066.C0
RECOVERY DATA 23-Nov-84
STATIC WATER LEVEL (ft): 159.08
RADIUS FROM PUMPED WELL (ft): 0
DISCHARGE (gpm): 5 gal/min
PUMP ON date: [illegible] time: 2.55 ELAPSED TIME PUMP ON: 100
PUMP OFF date: [illegible] time: 4.35
M.P. FOR WL'S: [illegible]

DAY	TIME OF DAY	ELAPSED TIME (t) (min)	RECOVERY TIME (t')(min)	t/t'	DEPTH TO WATER (ft)	(in)	DEPTH TO WATER (feet)	LOG t/t'	RESIDUAL DRAWDOWN (s')(ft)	FT	IN
1	4.3538	100.63	0.63	158.89	178	11	178.92	2.2011095	19.83		
1	4.3550	100.83	0.83	121.00	180	2	180.17	2.0827853	21.08		
1	4.3600	101.00	1.00	101.00	179	7	179.58	2.0043213	20.50		
1	4.3620	101.33	1.33	76.00	180	0	180.00	1.8808135	20.92		
1	4.3635	101.58	1.58	64.16	179	11	179.92	1.8072501	20.83		
1	4.3645	101.75	1.75	58.14	179	11	179.92	1.7644963	20.83		
1	4.3730	102.50	2.50	41.00	178	10	178.83	1.6127838	19.75		
1	4.3740	102.67	2.67	38.50	179	10	179.83	1.5854607	20.75		
1	4.3820	103.33	3.33	31.00	178	10	178.83	1.4913616	19.75		
1	4.4050	105.83	5.83	18.14	178	7	178.58	1.2587056	19.50		
1	4.4120	106.33	6.33	16.79	179	1	179.08	1.2250370	20.00		
1	4.4150	106.83	6.83	15.63	178	10	178.83	1.1940741	19.75		
1	4.4300	108.00	8.00	13.50	179	8	179.67	1.1303337	20.58	FT	IN
1	4.4700	112.00	12.00	9.33			177.25	0.9700367	18.17	2.0	9.0
1	4.4720	112.33	12.33	9.11			177.08	0.9594281	18.00	2.0	11.0
1	4.4730	112.50	12.50	9.00			177.00	0.9542425	17.92	3.0	0.0
1	4.4745	112.75	12.75	8.84			177.00	0.9466063	17.92	3.0	0.0
1	4.4800	113.00	13.00	8.69			176.83	0.9391350	17.75	3.0	2.0
1	4.4810	113.17	13.17	8.59			176.83	0.9342426	17.75	3.0	2.0
1	4.4830	113.50	13.50	8.41			176.83	0.9246620	17.75	3.0	2.0
1	4.4900	114.00	14.00	8.14			176.75	0.9107768	17.67	3.0	3.0
1	4.5000	115.00	15.00	7.67			176.67	0.8846065	17.58	3.0	4.0
1	4.5100	116.00	16.00	7.25			176.58	0.8603380	17.50	3.0	5.0
1	4.5200	117.00	17.00	6.88			176.50	0.8377369	17.42	3.0	6.0
1	4.5300	118.67	18.67	6.36			176.33	0.8032619	17.25	3.0	8.0
1	4.5400	119.00	19.00	6.26			176.25	0.7967933	17.17	3.0	9.0
1	4.5500	120.00	20.00	6.00			176.17	0.7781512	17.08	3.0	10.0
1	4.5600	121.00	21.00	5.76			176.08	0.7605660	17.00	3.0	11.0
1	4.5830	123.50	23.50	5.26			175.92	0.7205990	16.83	4.0	1.0
1	5.0030	125.50	25.50	4.92			175.75	0.6921035	16.67	4.0	3.0
1	5.0230	127.50	27.50	4.64			175.50	0.6661774	16.42	4.0	6.0
1	5.0430	129.50	29.50	4.39			175.33	0.6424477	16.25	4.0	8.0
1	5.0630	131.50	31.50	4.17			175.08	0.6206151	16.00	4.0	11.0
1	5.0900	134.00	34.00	3.94			174.71	0.5956258	15.63	5.0	3.5
1	5.1050	135.83	35.83	3.79			174.33	0.5787191	15.25	5.0	8.0
1	5.1230	137.50	37.50	3.67			173.67	0.5642714	14.58	6.0	4.0
1	5.1530	140.50	40.50	3.47			171.67	0.5402213	12.58	8.0	4.0
1	5.2820	153.33	53.33	2.87			166.50	0.4586378	7.42	3.0	6.0
1	5.2910	154.17	54.17	2.85			165.92	0.4542583	6.83	4.0	1.0
1	5.2930	154.50	54.50	2.83			165.83	0.4525319	6.75	4.0	2.0
1	5.3000	155.00	55.00	2.82			165.67	0.4499690	6.58	4.0	4.0
1	5.3100	156.00	56.00	2.79			165.58	0.4449365	6.50	4.0	5.0
1	5.3130	156.50	56.50	2.77			165.42	0.4424658	6.33	4.0	7.0

WELL D15 PUMPING WELL B18066.C0
RECOVERY DATA 23-Nov-84
STATIC WATER LEVEL (ft): 159.08
RADIUS FROM PUMPED WELL (ft): 0
DISCHARGE (gpm):
PUMP ON date: time: 2.55 ELAPSED TIME PUMP ON: 100
PUMP OFF date: time: 4.35
M.P. FOR WL'S:

DAY	TIME OF DAY	ELAPSED TIME (t) (min)	RECOVERY TIME (t') (min)	t/t'	DEPTH TO WATER (ft) (in)	DEPTH TO WATER (feet)	LOG t/t'	RESIDUAL DRAWDOWN (s') (ft)		
1	5.3200	157.00	57.00	2.75		165.25	0.4400247	6.17	4.0	9.0
1	5.3240	157.67	57.67	2.73		165.17	0.4368150	6.08	4.0	10.0
1	5.3330	158.50	58.50	2.71		165.08	0.4328734	6.00	4.0	11.0
1	5.3530	160.50	60.50	2.65		164.67	0.4237196	5.58	5.0	4.0
1	5.3730	162.50	62.50	2.60		164.25	0.4149733	5.17	5.0	9.0
1	5.3930	164.50	64.50	2.55		164.04	0.4066061	4.96	5.0	11.5
1	5.4230	167.50	67.50	2.48		163.75	0.3947110	4.67	6.0	3.0
1	5.4530	170.50	70.50	2.42		163.58	0.3835352	4.50	6.0	5.0
1	5.5030	175.50	75.50	2.32		163.17	0.3663301	4.08	6.0	10.0
1	5.5530	180.50	80.50	2.24		162.79	0.3506813	3.71	7.0	2.5
1	5.6030	185.50	85.50	2.17		162.46	0.3363777	3.38	7.0	6.5

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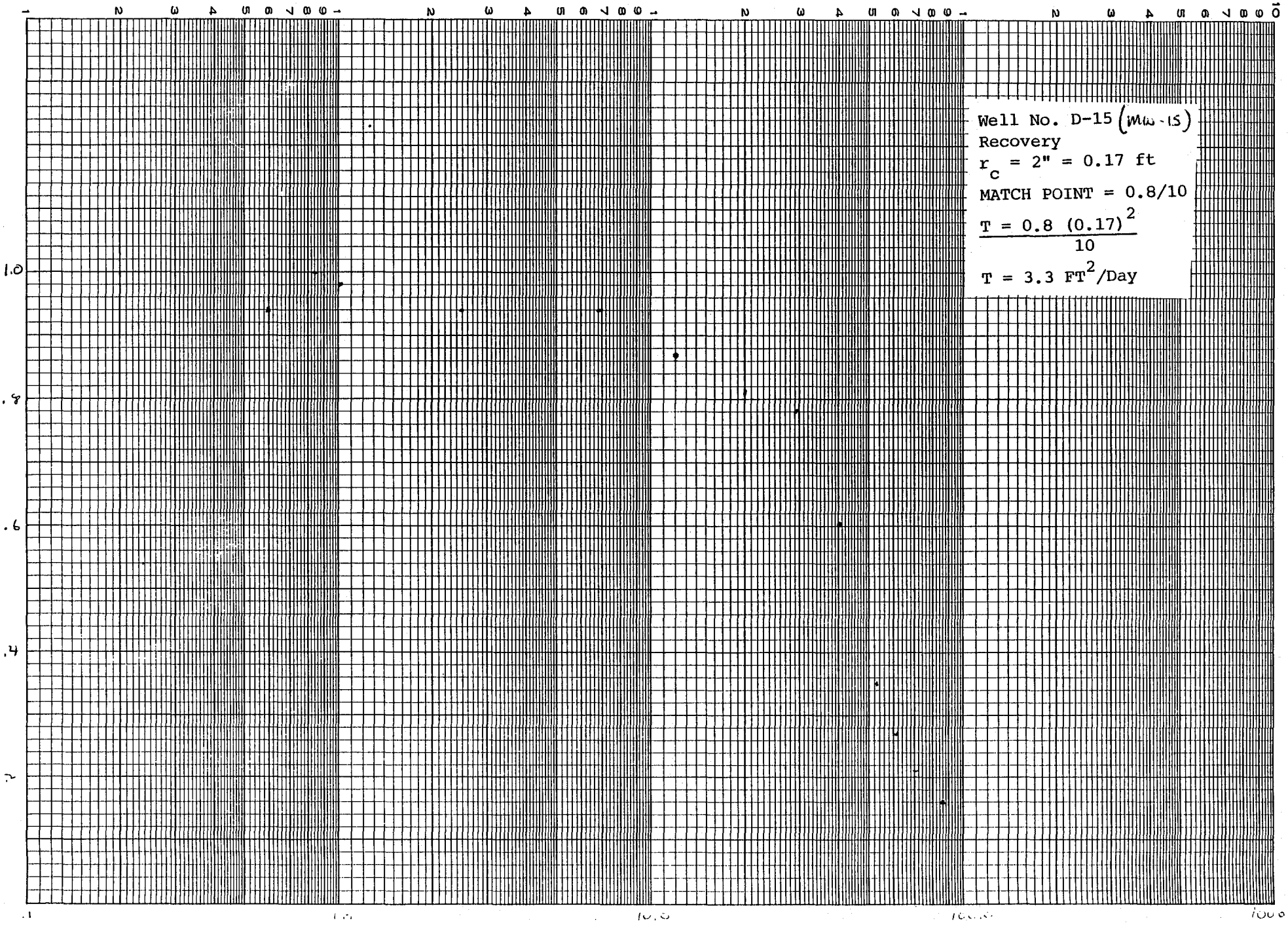


Well No. D-15 (MW-15)
Recovery
r_c = 2" = 0.17 ft
MATCH POINT = 0.8/10

$$T = \frac{0.8\ (0.17)^2}{10}$$

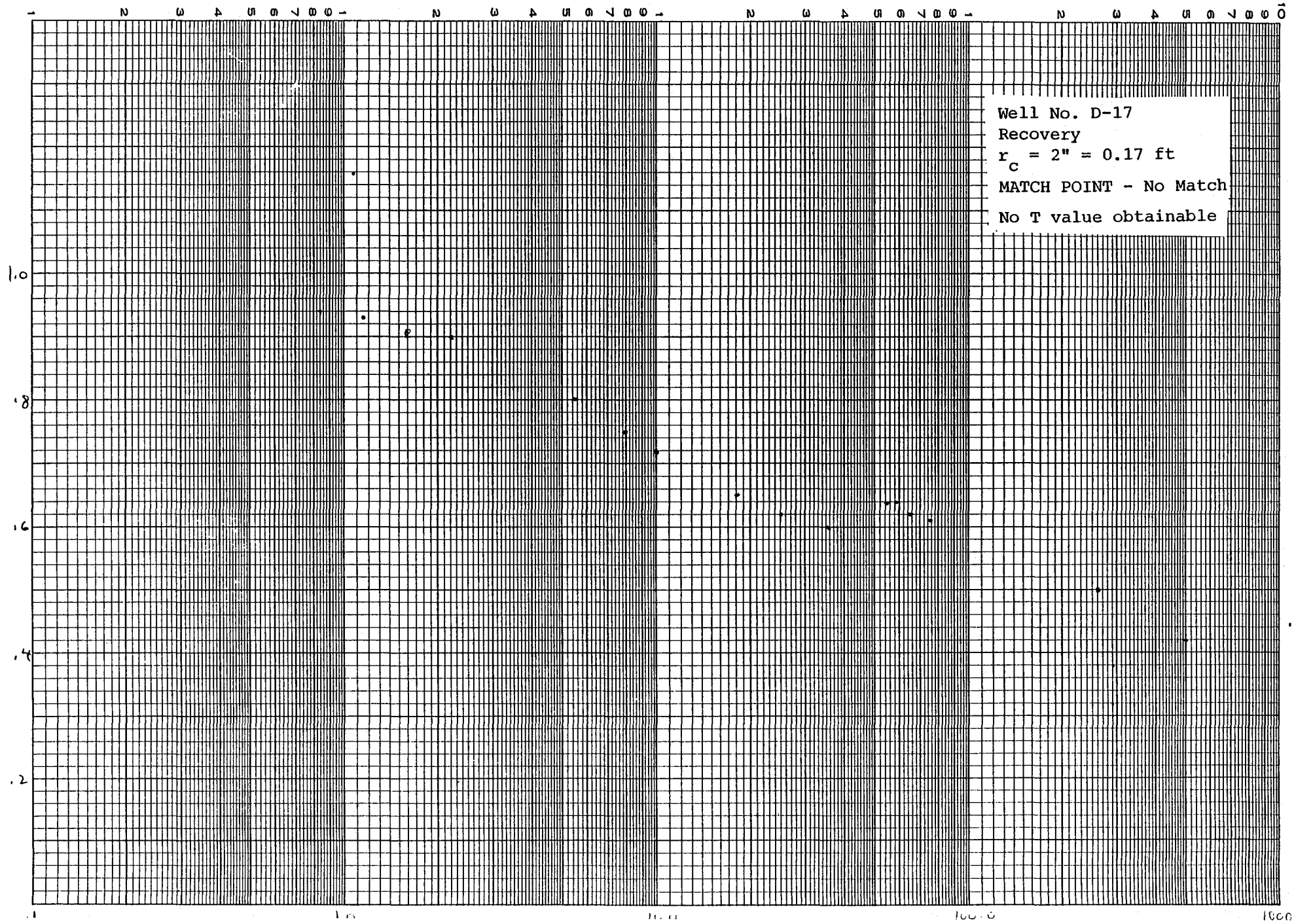
T = 3.3 FT^2/Day

WELL D17 PUMPING WELL B18066.C0
RECOVERY DATA 24-Nov-84
STATIC WATER LEVEL (ft): 209.90
RADIUS FROM PUMPED WELL (ft): 0
DISCHARGE (gpm): 4 gpm
PUMP ON date: 11/17/84 time: 9.58 ELAPSED TIME PUMP ON: 3
PUMP OFF date: 11/17/84 time: 10.01
M.P. FOR WL'S:

DAY	TIME OF DAY	ELAPSED TIME (t) (min)	RECOVERY TIME (t')(min)	t/t'	DEPTH TO WATER (ft)	(in)	DEPTH TO WATER (feet)	LOG t/t'	RESIDUAL DRAWDOWN (s')(ft)
1	10.0115	3.25	0.25	13	232	6	232.50	1.1139433	22.60
1	10.0150	3.83	0.83	4.6	231	3	231.25	0.6627578	21.35
1	10.0210	4.17	1.17	3.571428	230	11	230.92	0.5528419	21.02
1	10.0227	4.45	1.45	3.068965	230	9	230.75	0.4869920	20.85
1	10.0235	4.58	1.58	2.894736	230	5	230.42	0.4616090	20.52
1	10.0250	4.83	1.83	2.636363	230	4	230.33	0.4210053	20.43
1	10.0314	5.23	2.23	2.343283	230	2	230.17	0.3698248	20.27
1	10.0600	8.00	5.00	1.6	228	8	228.67	0.2041199	18.77
1	10.0630	8.50	5.50	1.545454	228		228.00	0.1890562	18.10
1	10.0645	8.75	5.75	1.521739	227	11	227.92	0.1823402	18.02
1	10.0655	8.92	5.92	1.507042	227	10	227.83	0.1781254	17.93
1	10.0710	9.17	6.17	1.486486	227	7	227.58	0.1721609	17.68
1	10.0725	9.42	6.42	1.467532	227	6	227.50	0.1665877	17.60
1	10.0737	9.62	6.62	1.453400	227	5	227.42	0.1623853	17.52
1	10.0747	9.78	6.78	1.442260	227	3	227.25	0.1590436	17.35
1	10.0800	10.00	7.00	1.428571	227	1	227.08	0.1549019	17.18
1	10.0900	11.00	8.00	1.375	226	10	226.83	0.1383026	16.93
1	10.1000	12.00	9.00	1.333333	226	4	226.33	0.1249387	16.43
1	10.1100	13.00	10.00	1.3	226	1	226.08	0.1139433	16.18
1	10.1300	15.00	12.00	1.25	225	8	225.67	0.0969100	15.77
1	10.1500	17.00	14.00	1.214285	225	1	225.08	0.0843208	15.18
1	10.1700	19.00	16.00	1.1875	224	12	224.96	0.0746336	15.06
1	10.1900	21.00	18.00	1.166666	224	8	224.67	0.0669467	14.77
1	10.2100	23.00	20.00	1.15	224	6	224.50	0.0606978	14.60
1	10.2600	28.00	25.00	1.12	224	0	224.00	0.0492180	14.10
1	10.3100	33.00	30.00	1.1	223	8	223.67	0.0413926	13.77
1	10.3600	38.00	35.00	1.085714	223	5	223.42	0.0357155	13.52
1	10.5400	56.00	53.00	1.056603	224	6	224.50	0.0239121	14.60
1	10.5600	58.00	55.00	1.054545	224	4	224.33	0.0230653	14.43
1	10.5700	59.00	56.00	1.053571	224	4	224.33	0.0226639	14.43
1	10.5900	61.00	58.00	1.051724	224	4	224.33	0.0219018	14.43
1	11.0100	63.00	60.00	1.05	224	3	224.25	0.0211892	14.35
1	11.0600	68.00	65.00	1.046153	224	0	224.00	0.0195955	14.10
1	11.1100	73.00	70.00	1.042857	223	11	223.92	0.0182248	14.02
1	11.1600	78.00	75.00	1.04	223	10	223.79	0.0170333	13.89
1	14.2300	265.00	262.00	1.011450	221	2	221.17	0.0049445	11.27
1	18.2500	507.00	504.00	1.005952	219	4	219.33	0.0025774	9.43

NO. 340-L410 DIETZGEN GRAPH PAPER
SEMI-LOGARITHMIC
4 CYCLES X 10 DIVISIONS PER INCH

DIETZGEN CORPORATION
MADE IN U.S.A.



WELL # D18 PUMPING WELL
DRAWDOWN DATA
STATIC WATER LEVEL (ft): 177.00
RADIUS FROM PUMPED WELL (ft) 0
DISCHARGE (gpm):
PUMP ON: date: 11-17-84 time: 11.50
PUMP OFF: date: 11-17-84 time:
M.P. FOR WL'S:

DAY	TIME OF DAY	ELAPSED TIME (t) (minutes)	DEPTH TO WATER (FT)	(IN)	DEPTH TO WATER (feet)	DRAWDOWN (s) (feet)	LOG t	LOG s
1	11.5014	0.23			177.50	0.50	-0.63202	-0.30102
1	11.5024	0.40			178.00	1.00	-0.39794	0
1	11.5033	0.55			178.40	1.40	-0.25963	0.146128
1	11.5050	0.83			178.40	1.40	-0.07918	0.146128
1	11.5103	1.05			178.60	1.60	0.021189	0.204119
1	11.5120	1.33			178.60	1.60	0.124938	0.204119
1	11.5139	1.65			178.60	1.60	0.217483	0.204119
1	11.5153	1.88			178.60	1.60	0.274927	0.204119
1	11.5210	2.17			178.60	1.60	0.335792	0.204119
1	11.5230	2.50			178.60	1.60	0.397940	0.204119
1	11.5255	2.92			178.60	1.60	0.464886	0.204119
1	11.5310	3.17			178.40	1.40	0.500602	0.146128
1	11.5320	3.33			178.00	1.00	0.522878	0
1	11.5345	3.75			179.60	2.60	0.574031	0.414973
1	11.5353	3.88			179.00	2.00	0.589204	0.301029
1	11.5400	4.00			180.60	3.60	0.602059	0.556302
1	11.5430	4.50			180.60	3.60	0.653212	0.556302
1	11.5500	5.00			180.00	3.00	0.698970	0.477121
1	11.5530	5.50			180.00	3.00	0.740362	0.477121
1	11.5600	6.00			180.00	3.00	0.778151	0.477121
1	11.5700	7.00			179.60	2.60	0.845098	0.414973
1	11.5800	8.00			180.60	3.60	0.903089	0.556302
1	11.5900	9.00			180.60	3.60	0.954242	0.556302
1	12.0000	10.00			180.60	3.60	1	0.556302
1	12.0100	11.00			180.60	3.60	1.041392	0.556302
1	12.0200	12.00			180.60	3.60	1.079181	0.556302
1	12.0300	13.00			180.60	3.60	1.113943	0.556302
1	12.0400	14.00			180.60	3.60	1.146128	0.556302
1	12.0600	16.00			180.60	3.60	1.204119	0.556302
1	12.0800	18.00			180.60	3.60	1.255272	0.556302
1	12.1000	20.00			180.60	3.60	1.301029	0.556302
1	12.1500	25.00			179.00	2.00	1.397940	0.301029
1	12.2000	30.00			179.00	2.00	1.477121	0.301029
1	12.2130	31.50			179.40	2.40	1.498310	0.380211
1	12.2200	32.00	178	10	178.83	1.83	1.505149	0.263241
1	12.2300	33.00	179	0	179.00	2.00	1.518513	0.301029
1	12.2400	34.00	178	10	178.83	1.83	1.531478	0.263241
1	12.2500	35.00	179	0	179.00	2.00	1.544068	0.301029
1	12.2600	36.00	179	1	179.08	2.08	1.556302	0.318758
1	12.2700	37.00	178	11	178.92	1.92	1.568201	0.282546
1	12.2800	38.00	178	11	178.92	1.92	1.579783	0.282546
1	12.2900	39.00	179	4	179.33	2.33	1.591064	0.367976
1	12.3000	40.00	179	2	179.17	2.17	1.602059	0.335792

WELL # D18 PUMPING WELL
DRAWDOWN DATA
STATIC WATER LEVEL (ft): 177.00
RADIUS FROM PUMPED WELL (ft) 0
DISCHARGE (gpm):
PUMP ON: date: 11-17-84 time: 11.50
PUMP OFF: date: 11-17-84 time:
M.P. FOR WL'S:

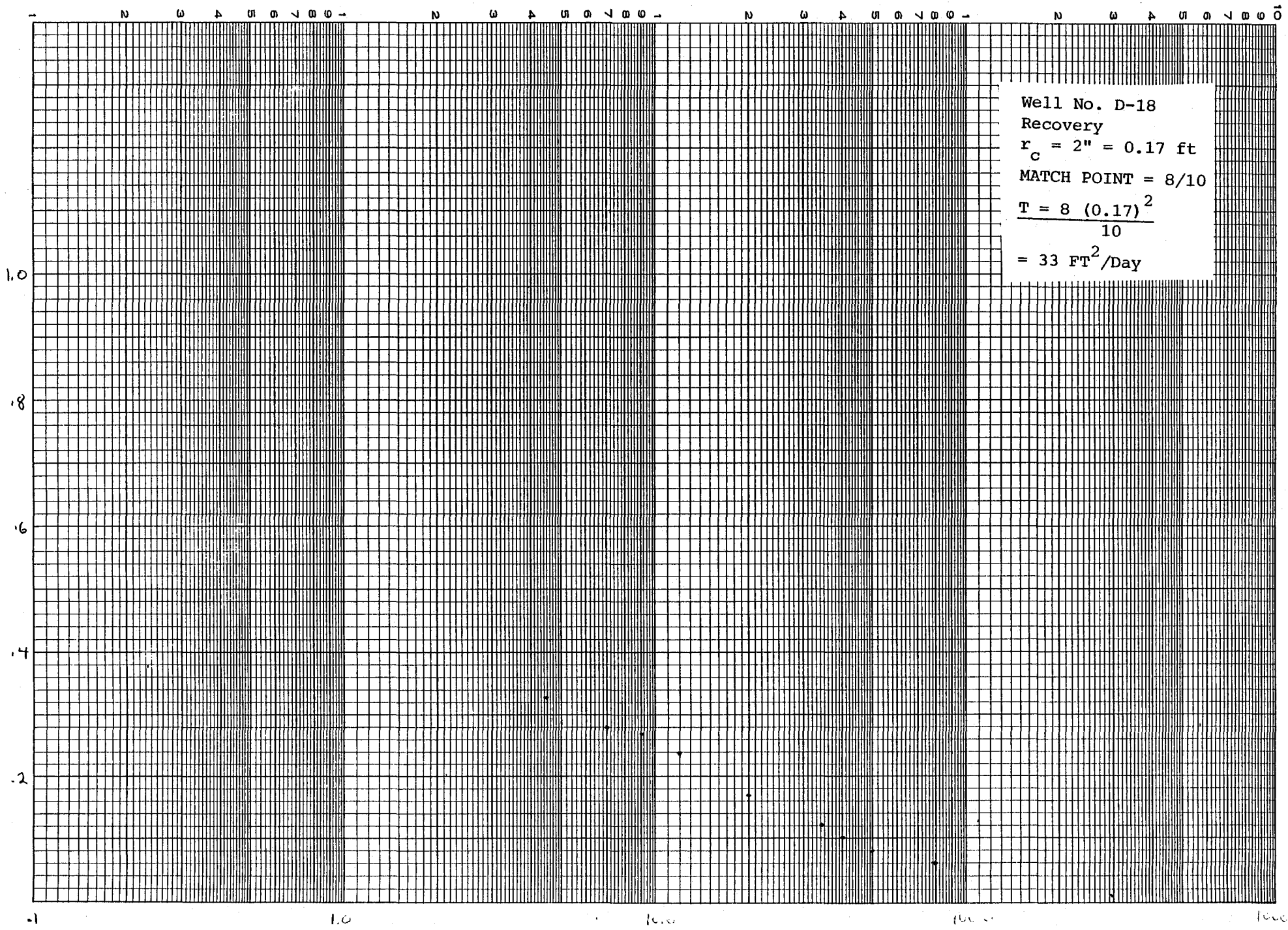
DAY	TIME OF DAY	ELAPSED TIME (t) (minutes)	DEPTH TO WATER (FT)	(IN)	DEPTH TO WATER (feet)	DRAWDOWN (s) (feet)	LOG t	LOG s
1	12.3100	41.00	179	2	179.17	2.17	1.612783	0.335792
1	12.3200	42.00	179	0	179.00	2.00	1.623249	0.301029
1	12.3400	44.00	179	0	179.00	2.00	1.643452	0.301029
1	12.3600	46.00	179	2	179.17	2.17	1.662757	0.335792
1	12.3800	48.00	179	2	179.17	2.17	1.681241	0.335792
1	12.4000	50.00	179	2	179.17	2.17	1.698970	0.335792
1	12.5540	65.67	183	6	183.50	6.50	1.817344	0.812913
1	12.5630	66.50	183	3	183.25	6.25	1.822821	0.795880
1	12.5700	67.00	183	5	183.42	6.42	1.826074	0.807309
1	12.5900	69.00	182	9	182.75	5.75	1.838849	0.759667
1	13.0000	70.00	185	5	185.42	8.42	1.845098	0.925140

WELL D18 PUMPING WELL B18066.C0
RECOVERY DATA 24-Nov-84
STATIC WATER LEVEL (ft): 177.00
RADIUS FROM PUMPED WELL (ft): 0
DISCHARGE (gpm):
PUMP ON date: 11-17-84 time: 11.50 ELAPSED TIME PUMP ON: 87
PUMP OFF date: 11-17-84 time: 13.17
M.P. FOR WL'S:

DAY	TIME OF DAY	ELAPSED TIME (t) (min)	RECOVERY TIME (t')(min)	t/t'	DEPTH TO WATER (ft)	(in)	DEPTH TO WATER (feet)	LOG t/t'	RESIDUAL DRAWDOWN (s')(ft)
1	13.2130	91.50	4.50	20.33333			179.80	1.3082085	2.80
1	13.2400	94.00	7.00	13.42857	179	5	179.38	1.1280298	2.38
1	13.2445	94.75	7.75	12.22580	179	5	179.42	1.0872775	2.42
1	13.2600	96.00	9.00	10.66666	179	4	179.29	1.0280287	2.29
1	13.2710	97.17	10.17	9.557377	179	6	179.50	0.9803387	2.50
1	13.2915	99.25	12.25	8.102040	179	0	179.00	0.9085944	2.00
1	13.3200	102.00	15.00	6.8	178	8	178.63	0.8325089	1.63
1	13.3700	107.00	20.00	5.35	178	5	178.42	0.7283537	1.42
1	13.5100	121.00	34.00	3.558823	178	0	178.00	0.5513064	1.00
1	13.5200	122.00	35.00	3.485714	177	11	177.92	0.5422917	0.92
1	13.5700	127.00	40.00	3.175	177	10	177.83	0.5017437	0.83
1	14.0200	132.00	45.00	2.933333	177	9	177.75	0.4673614	0.75
1	14.0700	137.00	50.00	2.74	177	8	177.67	0.4377505	0.67
1	14.3700	167.00	80.00	2.0875	177	6	177.50	0.3196264	0.50
1	18.1400	384.00	297.00	1.292929	177	1	177.08	0.1115747	0.08

NO. 340-L410 DIETZGEN GRAPH PAPER
SEMI-LOGARITHMIC
4 CYCLES X 10 DIVISIONS PER INCH

DIETZGEN CORPORATION
MADE IN U.S.A.



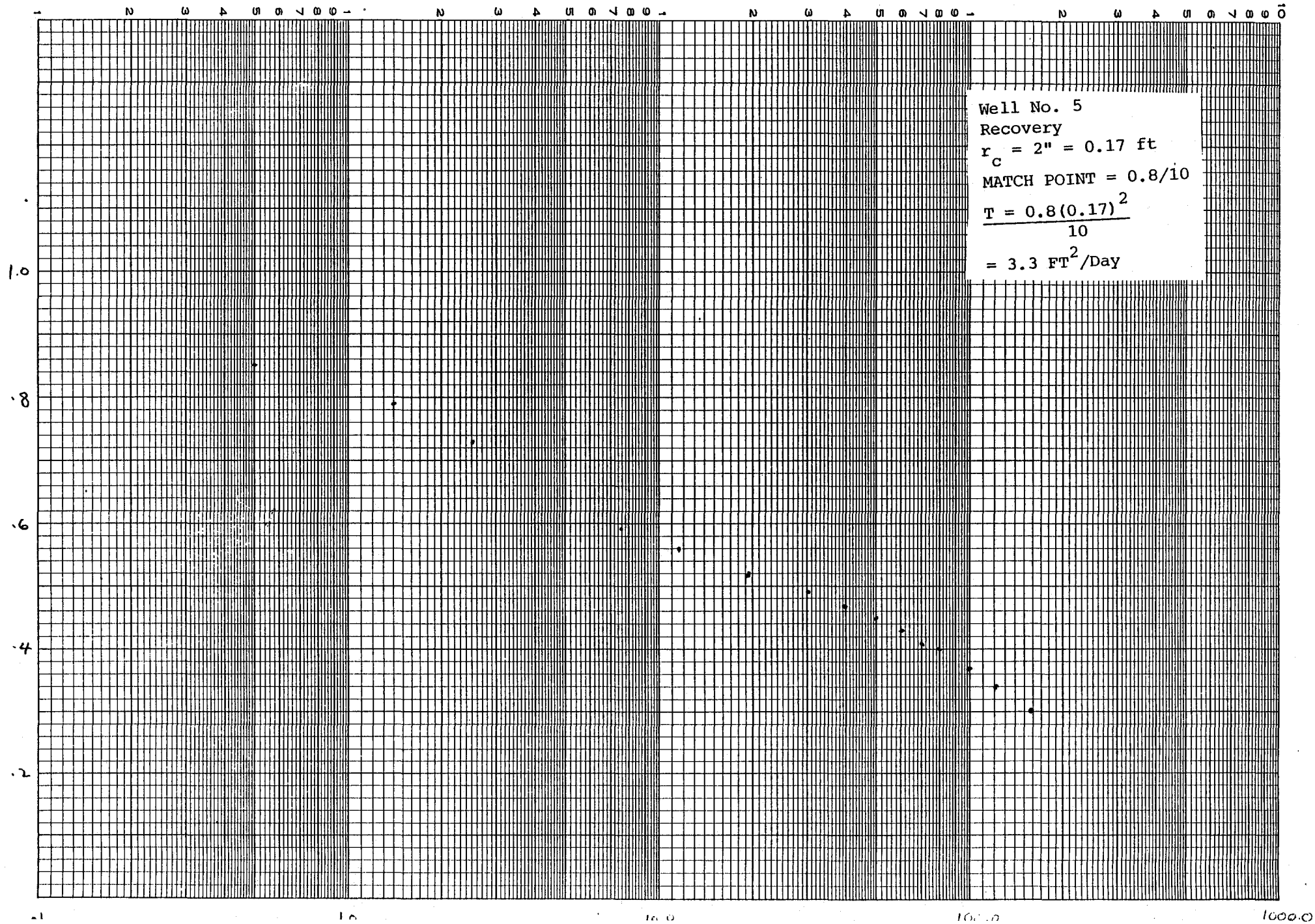
Well No. D-18
Recovery
$r_c = 2" = 0.17$ ft
MATCH POINT = 8/10

$$T = \frac{8\ (0.17)^2}{10}$$

$= 33\ FT^2/Day$

NO. 340-L410 DIETZGEN GRAPH PAPER
SEMI-LOGARITHMIC
4 CYCLES X 10 DIVISIONS PER INCH

DIETZGEN CORPORATION
MADE IN U.S.A.



CH2M HILL

SLUG TEST REPORT

PROJECT NO. B18066.TO

WELL D-27 PUMPING/OBSERVATION WELL

TYPE OF DATA DRAWDOWN/RECOVERY

PUMPED WELL NO. _____ RADIUS 2" PVC

PUMPING RATES _____

HOW Q MEASURED _____

HOW WL's MEASURED ELECTRIC WELL SOUNDER

DISTANCE FROM PUMPED WELL _____

M.P. FOR WL's TOP OF PLUG EL 2408.3

PUMP ON: DATE 11/20/85 TIME 11:51

PUMP OFF: DATE _____ TIME _____

COMMENTS RISING HEAD SLUG TEST W/ INSITU MONITOR & 10' x 1 5/8" BOMB

SE10000
Environmental Logger
11/22 12:08

Unit# 00027 Test# 0

INPUT 1: Level (F)

Reference	0.00
Scale factor	50.12
Offset	0.00

Step# 0 11/20 11:51

Elapsed Time	Value
0.0000	0.00
0.0033	- 0.01
0.0066	- 0.03
0.0099	- 0.41
0.0133	- 0.87
0.0166	- 0.71
0.0200	- 0.01
0.0233	0.55
0.0266	0.52
0.0300	0.07
0.0333	- 0.36
0.0500	0.28
0.0666	- 0.28
0.0833	- 0.15
0.1000	- 0.68
0.1166	- 1.37
0.1333	- 1.86
0.1500	- 1.80
0.1666	- 1.69
0.1833	- 1.59
0.2000	- 1.53
0.2166	- 1.51
0.2333	- 1.53
0.2500	- 1.55
0.2666	- 1.56
0.2833	- 1.56
0.3000	- 1.56
0.3166	- 1.56
0.3333	- 1.55
0.4167	- 1.55
0.5000	- 1.53
0.5833	- 1.53
0.6667	- 1.53
0.7500	- 1.53
0.8333	- 1.51
0.9167	- 1.51
1.0000	- 1.53
1.0833	- 1.53
1.1667	- 1.53
1.2500	- 1.55
1.3333	- 1.53
1.4166	- 1.53
1.5000	- 1.53
1.5833	- 1.53
1.6667	- 1.53
1.7500	- 1.53
1.8333	- 1.53
1.9167	- 1.53
2.0000	- 1.53
2.5000	- 1.55
3.0000	- 1.55
3.5000	- 1.55
4.0000	- 1.55
4.5000	- 1.56
5.0000	- 1.56
5.5000	- 1.56
6.0000	- 1.56
6.5000	- 1.56
7.0000	- 1.56
7.5000	- 1.58
8.0000	- 1.58
8.5000	- 1.58
9.0000	- 1.58
9.5000	- 1.58
10.0000	- 1.58
12.0000	- 1.58
14.0000	- 1.58
16.0000	- 1.58
18.0000	- 1.58
20.0000	- 1.58
22.0000	- 1.58
24.0000	- 1.55
26.0000	- 1.55
28.0000	- 1.53
30.0000	- 1.51
32.0000	- 1.50
34.0000	- 1.48
36.0000	- 1.47
38.0000	- 1.44
40.0000	- 1.40
42.0000	- 1.39
44.0000	- 1.36
46.0000	- 1.32
48.0000	- 1.31
50.0000	- 1.34
52.0000	- 1.26
54.0000	- 1.21
56.0000	- 1.17
58.0000	- 1.15
60.0000	- 1.12
62.0000	- 1.09
64.0000	- 1.06
66.0000	- 1.04
68.0000	- 1.01
70.0000	- 0.99
72.0000	- 0.98
74.0000	- 0.98
76.0000	- 0.96
78.0000	- 0.96
80.0000	- 0.94

CH2M HILL

SLUG TEST REPORT

PROJECT NO. B1B066.TD

WELL D-27 PUMPING/OBSERVATION WELL

TYPE OF DATA DRAWDOWN/RECOVERY

PUMPED WELL NO. _____ RADIUS _____ M.P. FOR WL's _____ EL _____

PUMPING RATES _____ PUMP ON: DATE _____ TIME _____

HOW Q MEASURED _____ PUMP OFF: DATE _____ TIME _____

HOW WL's MEASURED _____ COMMENTS _____

DISTANCE FROM PUMPED WELL _____

82.0000	-	0.94
84.0000	-	0.94
86.0000	-	0.94
88.0000	-	0.93
90.0000	-	0.94
92.0000	-	0.93
94.0000	-	0.93
96.0000	-	0.93
98.0000	-	0.93
100.000	-	0.93
110.000	-	0.88
120.000	-	0.87
130.000	-	0.83
140.000	-	0.83
150.000	-	0.82
160.000	-	0.82
170.000	-	0.82
180.000	-	0.82
190.000	-	0.83
200.000	-	0.83
210.000	-	0.79
220.000	-	0.75
230.000	-	0.75
240.000	-	0.77
250.000	-	0.82
260.000	-	0.85
270.000	-	0.87
280.000	-	0.85
290.000	-	0.83
300.000	-	0.85
310.000	-	0.85
320.000	-	0.87
330.000	-	0.87
340.000	-	0.87
350.000	-	0.87
360.000	-	0.85
370.000	-	0.83
380.000	-	0.83
390.000	-	0.80
400.000	-	0.79
410.000	-	0.79
420.000	-	0.79
430.000	-	0.75
440.000	-	0.75
450.000	-	0.75
460.000	-	0.77
470.000	-	0.75
480.000	-	0.75
490.000	-	0.75
500.000	-	0.74
510.000	-	0.72
520.000	-	0.71
530.000	-	0.72
540.000	-	0.72
550.000	-	0.75
560.000	-	0.77
570.000	-	0.79
580.000	-	0.77
590.000	-	0.79
600.000	-	0.80
610.000	-	0.80
620.000	-	0.82
630.000	-	0.80
640.000	-	0.80
650.000	-	0.80
660.000	-	0.79
670.000	-	0.79
680.000	-	0.77
690.000	-	0.77
700.000	-	0.75
710.000	-	0.77
720.000	-	0.77
730.000	-	0.77
740.000	-	0.77
750.000	-	0.75
760.000	-	0.77
770.000	-	0.79
780.000	-	0.79
790.000	-	0.79
800.000	-	0.79
810.000	-	0.77
820.000	-	0.79
830.000	-	0.79
840.000	-	0.80
850.000	-	0.79
860.000	-	0.79
870.000	-	0.77
880.000	-	0.77
890.000	-	0.77
900.000	-	0.75
910.000	-	0.74
920.000	-	0.74
930.000	-	0.72
940.000	-	0.72
950.000	-	0.72
960.000	-	0.72
970.000	-	0.71
980.000	-	0.69
990.000	-	0.68
1000.00	-	0.68
1100.00	-	0.69
1200.00	-	0.68
1300.00	-	0.45
1400.00	-	0.33
1500.00	-	0.42
1600.00	-	0.37
1700.00	-	0.36
1800.00	-	0.34
1900.00	-	0.36
2000.00	-	0.37
2100.00	-	0.37
2200.00	-	0.33
2300.00	-	0.30
2400.00	-	0.20
2500.00	-	0.17
2600.00	-	0.12
2700.00	-	0.12
2800.00	-	0.15

END

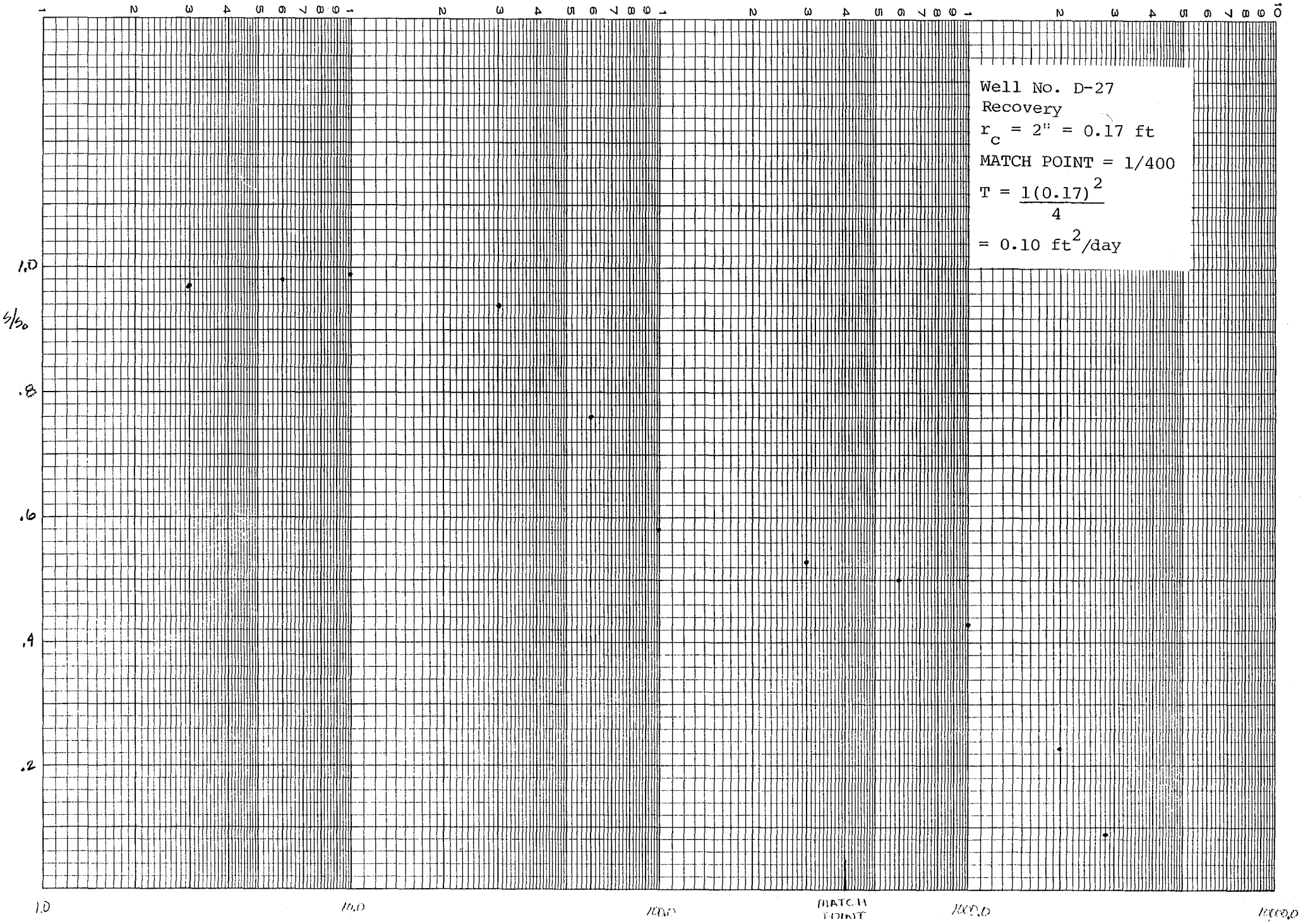
SLUG TEST

SLUG OUT

WELL D-27: TRENCH 14

$$Ho = \frac{V}{3.14 \times r \times r} = 1.41\text{: Use } 1.60$$

t (min)	H (feet)	H/Ho
.3	1.56	.98
.58	1.53	.96
1.0	1.53	.96
3.0	1.55	.97
6.0	1.56	.98
10.0	1.58	.99
30.0	1.51	.94
60.0	1.21	.76
100.0	0.93	.58
300.0	.85	.53
600.0	.80	.50
1000.0	.68	.43
2000.0	.37	.23
2800.0	.15	.09

NO. 340-L410 DIETZGEN GRAPH PAPER
SEMI-LOGARITHMIC
4 CYCLES X 10 DIVISIONS PER INCH

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