

STATE OF OREGON  
WATER RESOURCES DEPARTMENT

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**DATA FROM AQUIFER TESTS  
IN THE ONTARIO AREA,  
MALHEUR COUNTY, OREGON**

OPEN FILE REPORT NO. 90-01

By

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GROUND WATER AND HYDROLOGY SECTION

RESOURCE MANAGEMENT DIVISION

SALEM, OREGON  
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## DATA FROM AQUIFER TESTS IN THE ONTARIO AREA, MALHEUR COUNTY, OREGON

### INTRODUCTION

Five aquifer tests were conducted in the area of Ontario, Oregon as part of a hydrogeological assessment of an alluvial aquifer. Aquifer tests were conducted to provide information on the hydraulic characteristics of the aquifer and aquifer boundaries. Gannett (1990) provides interpretation of the aquifer tests but does not include the actual data.

The purpose of this report is to present the actual data from the tests so interested individuals may analyze the data and evaluate the tests themselves.

The shallow alluvial aquifer consists of 10 to 40 feet of unconsolidated sand and gravel. The aquifer is overlain by 10 to 50 feet of fluvial and eolian silt. The lower portion of the overlying silt is saturated. The aquifer is underlain by lacustrine siltstone which is also saturated. The lacustrine siltstone is generally not permeable enough to yield usable amounts of water to wells. There is some evidence of a slight upward gradient in the area and there may be a small amount of vertical leakage from the underlying siltstone. Gannett (1990) provides a thorough discussion on the hydrogeological setting of the area.

In the following sections, time/drawdown and recovery data are presented from each of the tests along with information on well construction, pumping rates, well spacing and methodology. Available water well reports are provided in an appendix for wells involved in these tests.

## PENNINGTON SHOP WELL TEST

This test involved pumping the unused 25 foot deep Pennington irrigation well (18/46-19bbb1) at 78 gallons per minute (gpm) for 240 minutes. The well was pumped using a portable centrifugal pump.

The discharge rate was measured using a totalizing flow meter. The discharge rate decreased from 80 gpm to 77 gpm during the test due to increasing pump lift. Average discharge was 78 gpm.

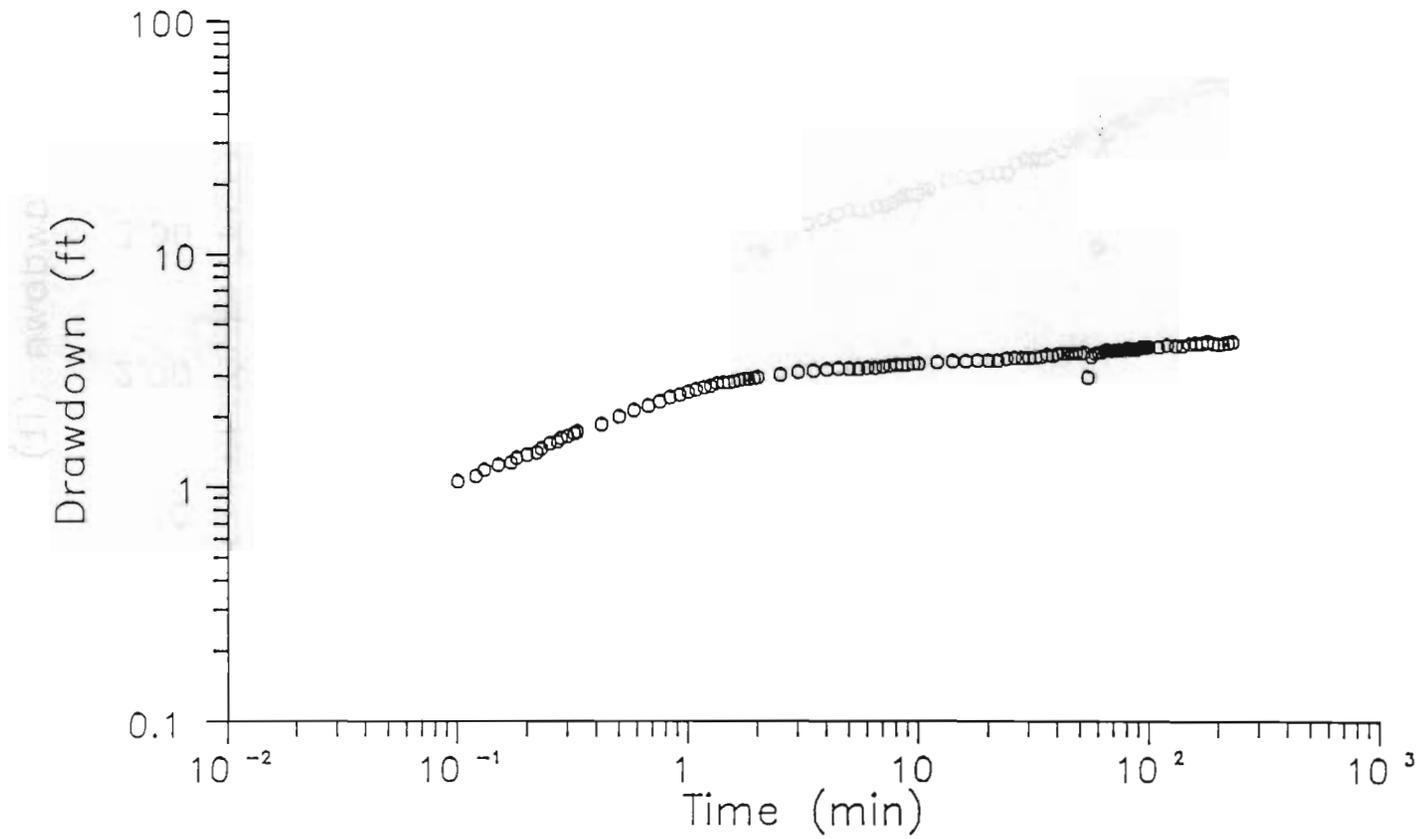
Water levels were monitored in the pumped well and the 27 foot deep Pennington domestic well (18/46-19bbb2) 62 feet from the pumped well. Measurements of the water level recovery were taken after pumping stopped for 76 minutes at the pumped well and 90 minutes at the observation well. Water levels were measured using an electric tape in the observation well and an electronic pressure transducer and data logger in the pumped well.

The pump shut off for about 30 seconds due to fuel problems, 50 minutes into the test.

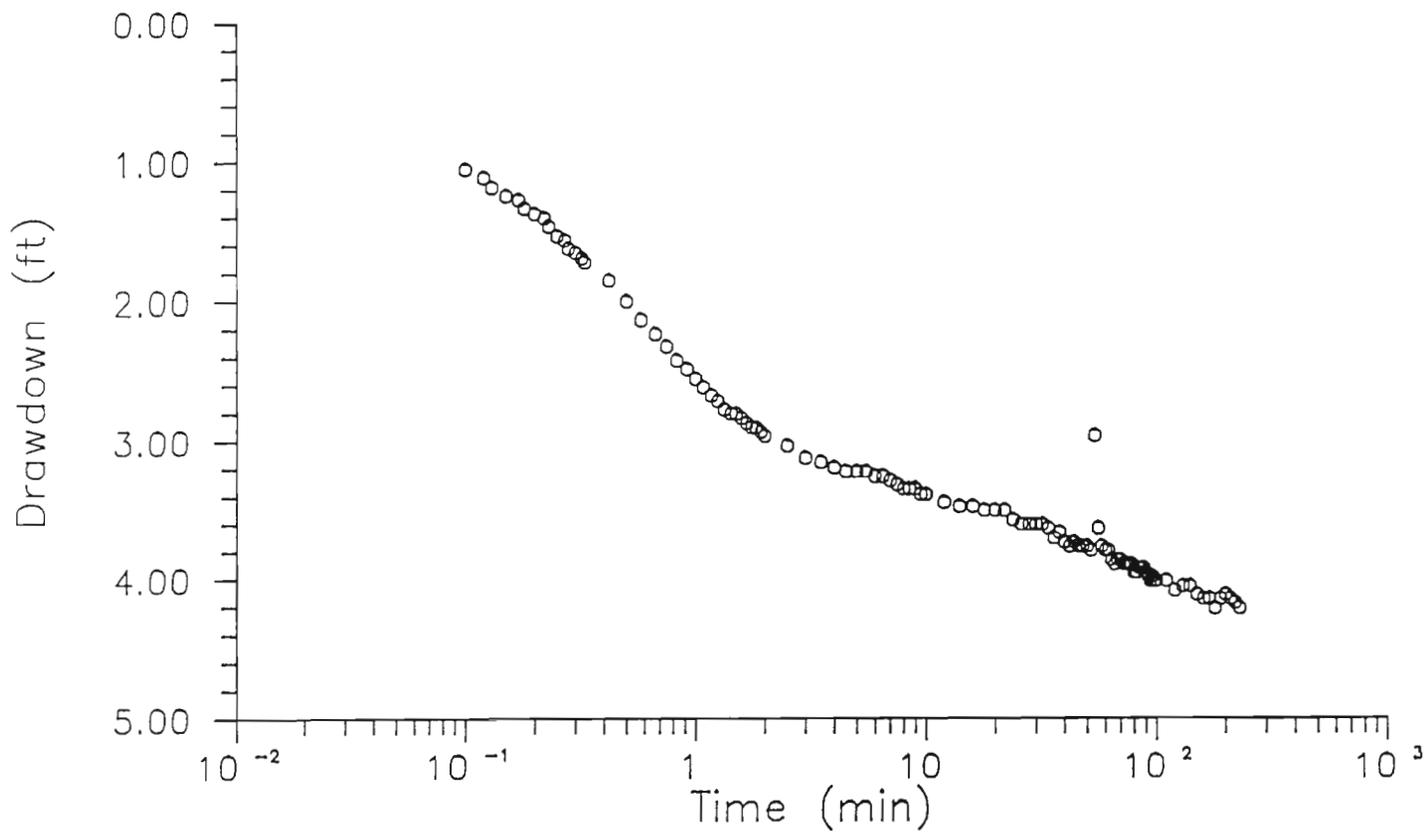
Test Name:	Pennington Shop	Pumping Time t (min)	Depth to Water DTW (feet)	Drawdown s (feet)
Well Name:	Pennington Irrigation	1.42	15.50	2.80
Well Location:	18/46-19bbb1	1.50	15.50	2.80
		1.58	15.53	2.83
Depth (feet):	25	1.67	15.57	2.87
		1.75	15.60	2.90
PPG or OBS well:	Pumping	1.83	15.60	2.90
		1.92	15.63	2.93
Drawdown or Recovery Data:	Drawdown	2.00	15.66	2.96
		2.50	15.73	3.03
Pumped well discharge (gpm):	78	3.00	15.82	3.12
		3.50	15.85	3.15
Distance from pumped well (ft):	0	4.00	15.89	3.19
		4.50	15.92	3.22
Static Water Level (feet):	12.70	5.00	15.92	3.22
		5.50	15.92	3.22
		6.00	15.95	3.25
		6.50	15.95	3.25
		7.00	15.98	3.28
		7.50	16.01	3.31
		8.00	16.04	3.34
		8.50	16.04	3.34
		9.00	16.04	3.34
		9.50	16.08	3.38
		10.00	16.08	3.38
		12.00	16.14	3.44
		14.00	16.17	3.47
		16.00	16.17	3.47
		18.00	16.20	3.50
		20.00	16.20	3.50
		22.00	16.20	3.50
		24.00	16.27	3.57
		26.00	16.30	3.60
		28.00	16.30	3.60
		30.00	16.30	3.60
		32.00	16.30	3.60
		34.00	16.33	3.63
		36.00	16.40	3.70
		38.00	16.36	3.66
		40.00	16.43	3.73
		42.00	16.46	3.76
		44.00	16.43	3.73
		46.00	16.46	3.76
		48.00	16.46	3.76
		50.00	16.46	3.76
		52.00	16.49	3.79
		54.00	15.66	2.96
		56.00	16.33	3.63

Pumping Time t (min)	Depth to Water DTW (feet)	Drawdown s (feet)
58.00	16.46	3.76
60.00	16.49	3.79
62.00	16.49	3.79
64.00	16.56	3.86
66.00	16.59	3.89
68.00	16.56	3.86
70.00	16.56	3.86
72.00	16.59	3.89
74.00	16.59	3.89
76.00	16.59	3.89
78.00	16.59	3.89
80.00	16.65	3.95
82.00	16.65	3.95
84.00	16.62	3.92
86.00	16.62	3.92
88.00	16.62	3.92
90.00	16.65	3.95
92.00	16.68	3.98
94.00	16.71	4.01
96.00	16.68	3.98
98.00	16.71	4.01
100.00	16.71	4.01
110.00	16.71	4.01
120.00	16.78	4.08
130.00	16.75	4.05
140.00	16.75	4.05
150.00	16.81	4.11
160.00	16.84	4.14
170.00	16.84	4.14
180.00	16.91	4.21
190.00	16.84	4.14
200.00	16.81	4.11
210.00	16.84	4.14
220.00	16.87	4.17
230.00	16.91	4.21

# Pennington Irrigation Well Drawdown



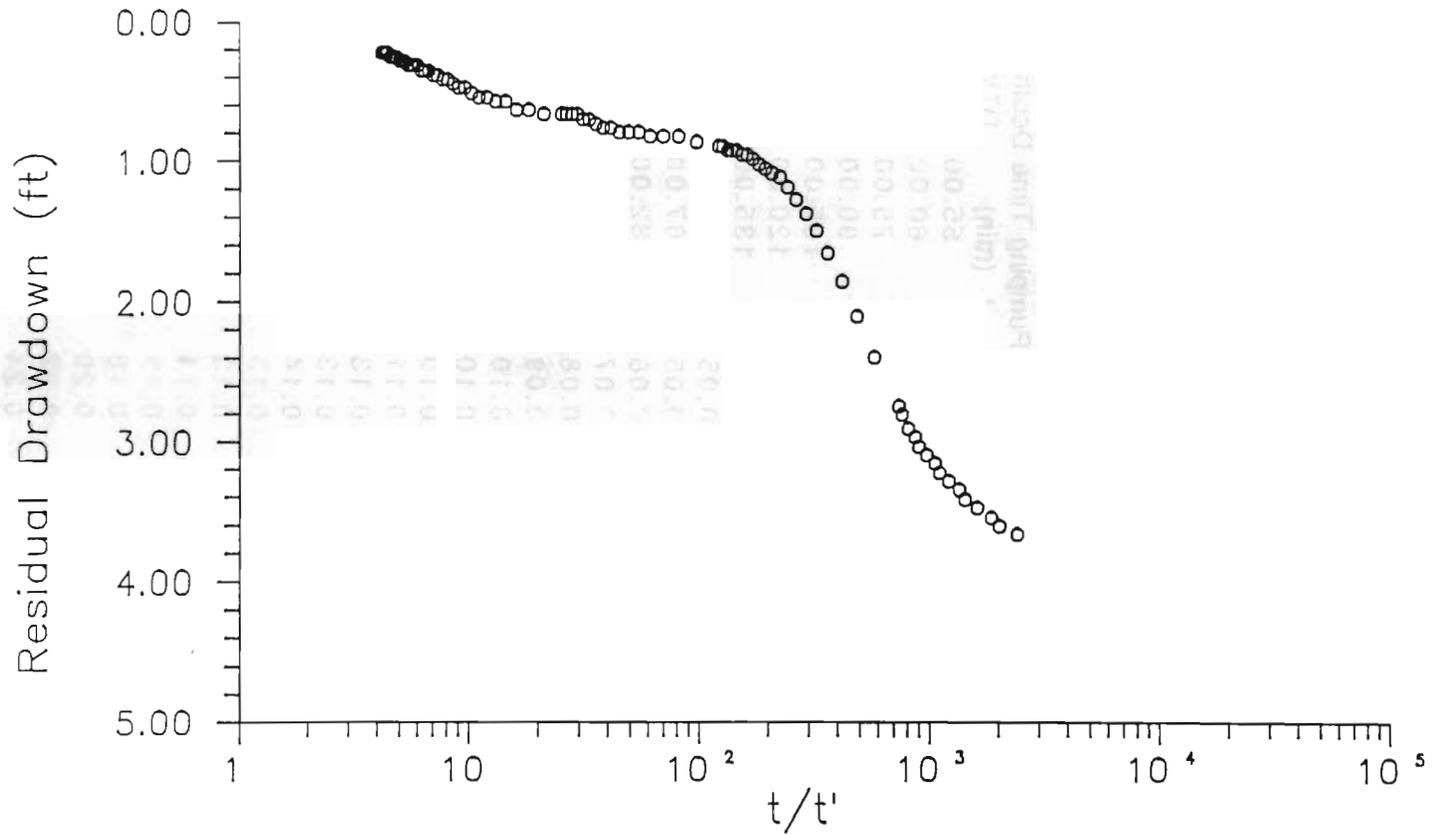
### Pennington Irrigation Well Drawdown



Test Name:	Pennington Shop		Recovery Time	Depth to Water	Residual
Well Name:	Pennington Irrigation		t' (min)	DTW (feet)	Drawdown s (feet)
Well Location:	18/46-19bbb1		1.58	13.65	0.95
Depth (feet):	25		1.67	13.62	0.92
			1.75	13.62	0.92
			1.83	13.62	0.92
PPG or OBS well:	Pumping		1.92	13.59	0.89
			2.00	13.59	0.89
Drawdown or Recovery Data:	Recovery		2.50	13.56	0.86
			3.00	13.52	0.82
Pumped well discharge (gpm):	78		3.50	13.52	0.82
			4.00	13.52	0.82
Distance from pumping well (ft):	0		4.50	13.49	0.79
			5.00	13.49	0.79
Static Water Level (feet):	12.70		5.50	13.49	0.79
			6.00	13.46	0.76
			6.50	13.46	0.76
			7.00	13.43	0.73
			7.50	13.40	0.70
			8.00	13.40	0.70
			8.50	13.36	0.66
			9.00	13.36	0.66
			9.50	13.36	0.66
			10.00	13.36	0.66
			12.00	13.36	0.66
			14.00	13.33	0.63
			16.00	13.33	0.63
			18.00	13.27	0.57
			20.00	13.27	0.57
			22.00	13.24	0.54
			24.00	13.24	0.54
			26.00	13.21	0.51
			28.00	13.17	0.47
			30.00	13.17	0.47
			32.00	13.14	0.44
			34.00	13.11	0.41
			36.00	13.11	0.41
			38.00	13.08	0.38
			40.00	13.08	0.38
			42.00	13.05	0.35
			44.00	13.05	0.35
			46.00	13.05	0.35
			48.00	13.01	0.31
			50.00	13.01	0.31
			52.00	13.01	0.31
			54.00	13.01	0.31
			56.00	12.98	0.28
			58.00	12.98	0.28

Recovery Time t' (min)	Depth to Water DTW (feet)	Residual Drawdowns s (feet)
60.00	12.98	0.28
62.00	12.95	0.25
64.00	12.95	0.25
66.00	12.95	0.25
68.00	12.95	0.25
70.00	12.92	0.22
72.00	12.92	0.22
74.00	12.92	0.22
76.00	12.92	0.22

# Pennington Irrigation Well Recovery



Test Name: Pennington Shop

Well Name: Pennington Domestic

WellLocation: 18/46-19bbb2

Depth (feet): 27

PPG or OBS well: Observation

Drawdown or Recovery Data: Drawdown

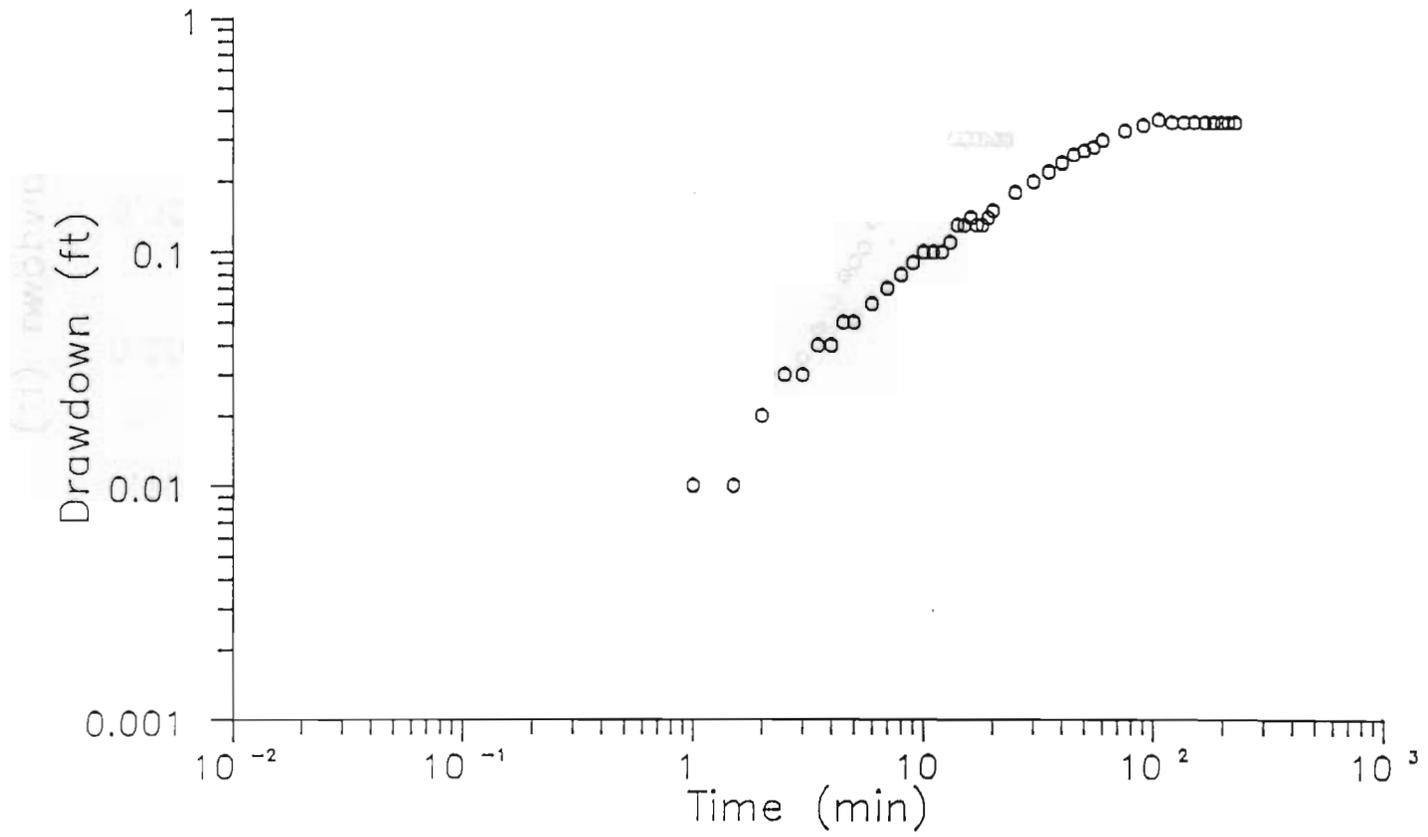
Pumped well discharge (gpm): 78

Distance from pumped well (ft): 62

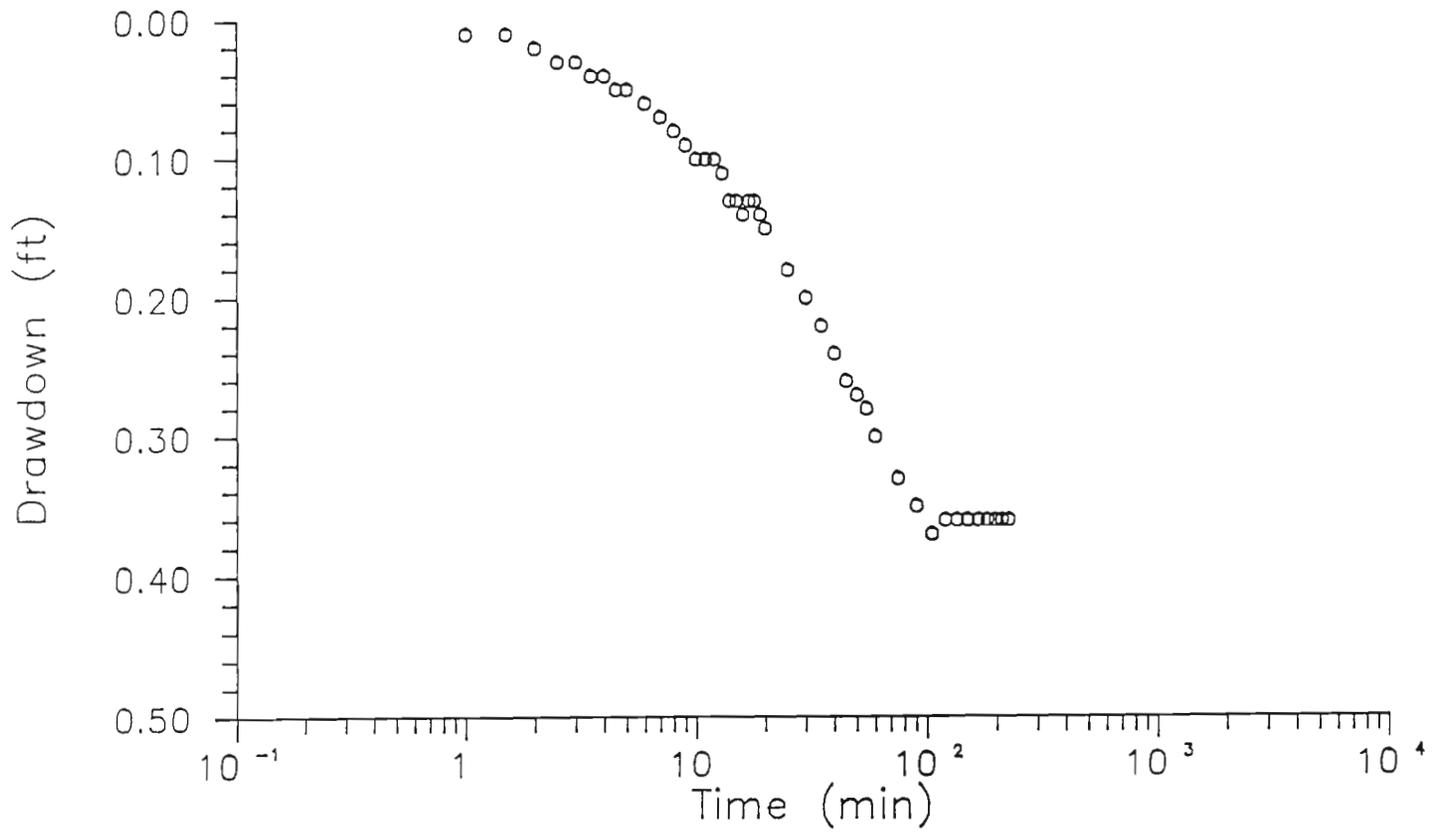
Static Water Level (feet): 11.84

Pumping Time t (min)	Depth to Water DTW (feet)	Drawdown s (feet)	Pumping Time t (min)	Depth to Water DTW (feet)	Drawdown s (feet)
1.00	11.85	0.01	55.00	12.12	0.28
1.50	11.85	0.01	60.00	12.14	0.30
2.00	11.86	0.02	75.00	12.17	0.33
2.50	11.87	0.03	90.00	12.19	0.35
3.00	11.87	0.03	105.00	12.21	0.37
3.50	11.88	0.04	120.00	12.20	0.36
4.00	11.88	0.04	135.00	12.20	0.36
4.50	11.89	0.05	150.00	12.20	0.36
5.00	11.89	0.05	167.00	12.20	0.36
6.00	11.90	0.06	182.00	12.20	0.36
7.00	11.91	0.07	197.00	12.20	0.36
8.00	11.92	0.08	210.00	12.20	0.36
9.00	11.93	0.09	225.00	12.20	0.36
10.00	11.94	0.10			
11.00	11.94	0.10			
12.00	11.94	0.10			
13.00	11.95	0.11			
14.00	11.97	0.13			
15.00	11.97	0.13			
16.00	11.98	0.14			
17.00	11.97	0.13			
18.00	11.97	0.13			
19.00	11.98	0.14			
20.00	11.99	0.15			
25.00	12.02	0.18			
30.00	12.04	0.20			
35.00	12.06	0.22			
40.00	12.08	0.24			
45.00	12.10	0.26			
50.00	12.11	0.27			

# Pennington Domestic Well Drawdown



### Pennington Domestic Well Drawdown



Test Name: Pennington Shop

Well Name: Pennington Domestic

Well Location: 18/46-19bbb2

Depth (feet): 27

PPG or OBS well: Observation

Drawdown or Recovery Data: Recovery

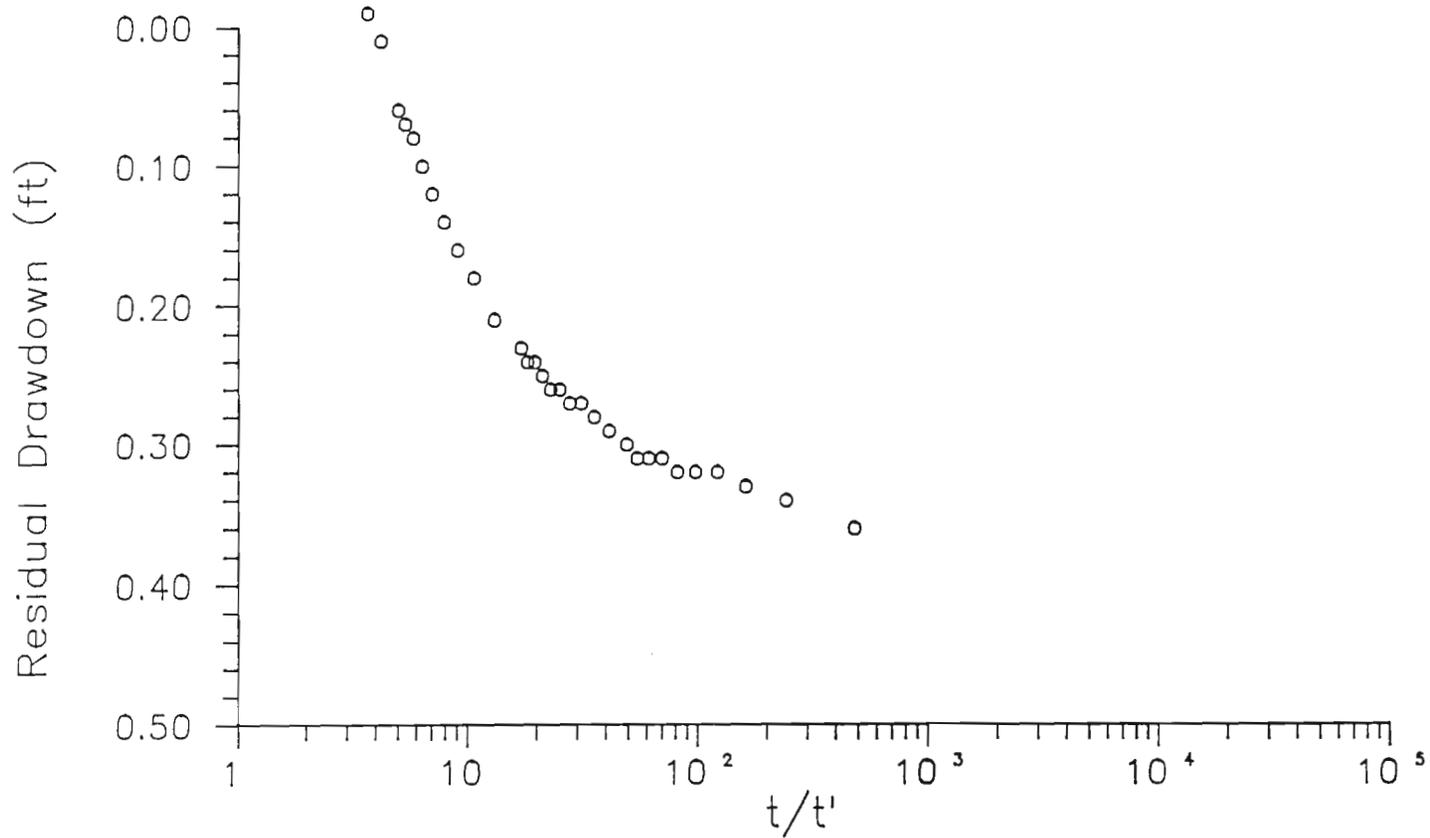
Pumped well discharge (gpm): 78

Distance from pumped well (ft): 62

Static Water Level (feet): 11.84

Recovery Time t' (min)	Depth to Water DTW (feet)	Residual Drawdown s (feet)	Recovery Time t' (min)	Depth to Water DTW (feet)	Residual Drawdown s (feet)
0.50	12.20	0.36	75.00	11.85	0.01
1.00	12.18	0.34	90.00	11.83	-0.01
1.50	12.17	0.33			
2.00	12.16	0.32			
2.50	12.16	0.32			
3.00	12.16	0.32			
3.50	12.15	0.31			
4.00	12.15	0.31			
4.50	12.15	0.31			
5.00	12.14	0.30			
6.00	12.13	0.29			
7.00	12.12	0.28			
8.00	12.11	0.27			
9.00	12.11	0.27			
10.00	12.10	0.26			
11.00	12.10	0.26			
12.00	12.09	0.25			
13.00	12.08	0.24			
14.00	12.08	0.24			
15.00	12.07	0.23			
20.00	12.05	0.21			
25.00	12.02	0.18			
30.00	12.00	0.16			
35.00	11.98	0.14			
40.00	11.96	0.12			
45.00	11.94	0.10			
50.00	11.92	0.08			
55.00	11.91	0.07			
60.00	11.90	0.06			

### Pennington Domestic Well Recovery



## OSU NORTH WELL TEST

This test involved pumping the unused 90 foot OSU North irrigation well (18/47-19bcc) at 77 gpm for 300 minutes. The well was pumped using a portable centrifugal pump.

The discharge rate was measured using a totalizing flow meter. The discharge rate decreased from 78 gpm to 76 gpm during the test due to increased pump lift. Average discharge was 77 gpm.

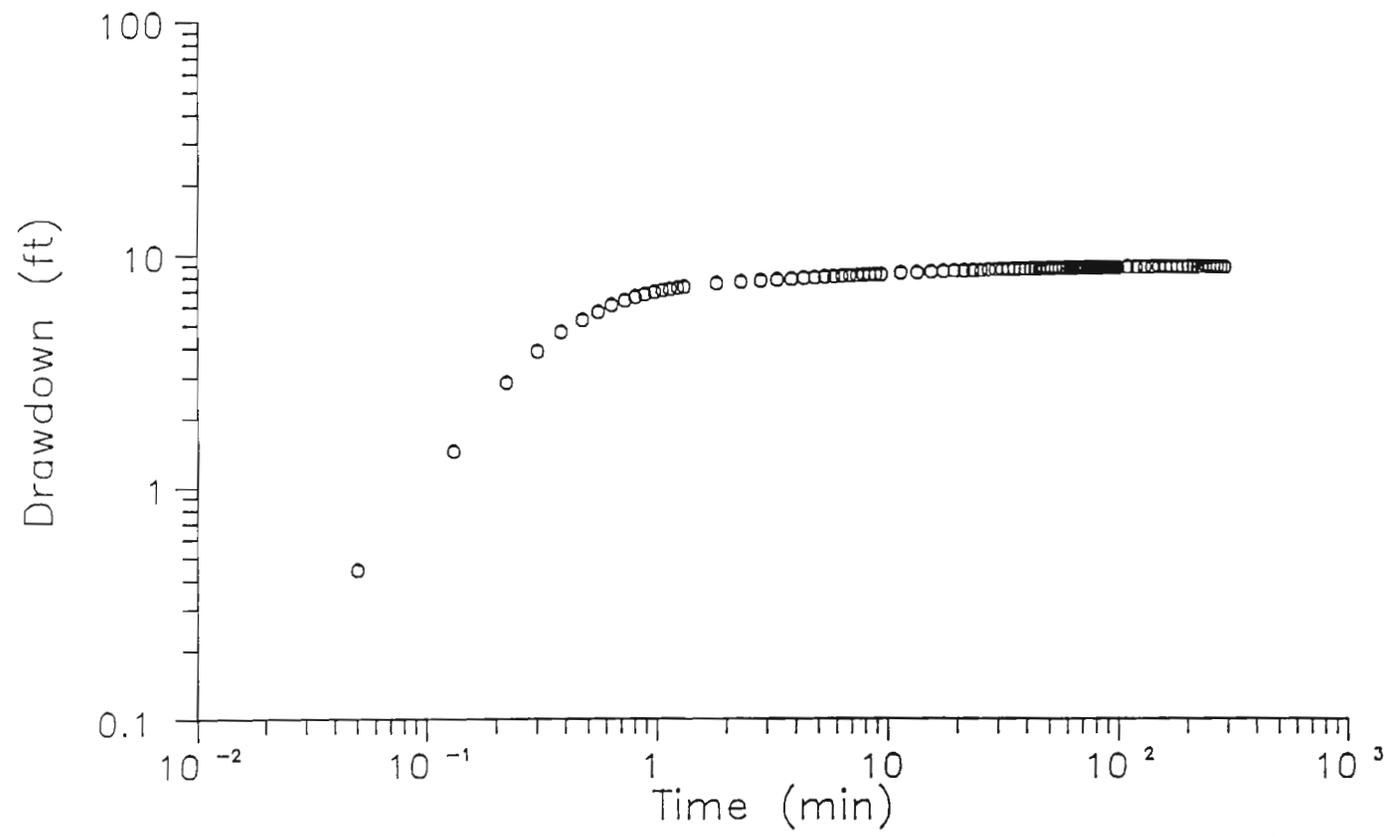
The water level was monitored in the pumped well using an electronic pressure transducer and data logger. Recovery water level measurements were taken for 92 minutes after pumping stopped.

Water levels were also monitored in the Okuda irrigation well (18/46-24dad) reported to be 40 feet deep 370 feet from the pumped well. Water levels in this well dropped about 0.05 feet during the test. This response was somewhat erratic and was not considered usable. The data is not included in this report.

Test Name:	OSU North	Pumping Time t (min)	Depth to Water DTW (feet)	Drawdown s (feet)
Well Name:	OSU North	8.80	16.00	8.19
Well Location:	18/47-19bcc	9.30	16.00	8.19
		11.30	16.13	8.32
Depth (feet):	90	13.30	16.16	8.35
		15.30	16.23	8.42
PPG or OBS well:	Pumping	17.30	16.26	8.45
		19.30	16.29	8.48
Drawdown or Recovery Data:	Drawdown	21.30	16.32	8.51
		23.30	16.35	8.54
Pumped well discharge (gpm):	77	25.30	16.35	8.54
		27.30	16.39	8.58
Distance from pumped well (ft):	0	29.30	16.42	8.61
		31.30	16.42	8.61
Static Water Level (feet):	7.81	33.30	16.45	8.64
		35.30	16.45	8.64
		37.30	16.45	8.64
		39.30	16.45	8.64
		41.30	16.48	8.67
		43.30	16.48	8.67
		45.30	16.48	8.67
		47.30	16.48	8.67
		49.30	16.48	8.67
		51.30	16.51	8.70
		53.30	16.51	8.70
		55.30	16.51	8.70
		57.30	16.51	8.70
		59.30	16.51	8.70
		61.30	16.55	8.74
		63.30	16.51	8.70
		65.30	16.55	8.74
		67.30	16.55	8.74
		69.30	16.55	8.74
		71.30	16.55	8.74
		73.30	16.58	8.77
		75.30	16.55	8.74
		77.30	16.58	8.77
		79.30	16.55	8.74
		81.30	16.58	8.77
		83.30	16.58	8.77
		85.30	16.55	8.74
		87.30	16.55	8.74
		89.30	16.58	8.77
		91.30	16.58	8.77
		93.30	16.58	8.77
		95.30	16.58	8.77
		97.30	16.58	8.77
		99.30	16.58	8.77

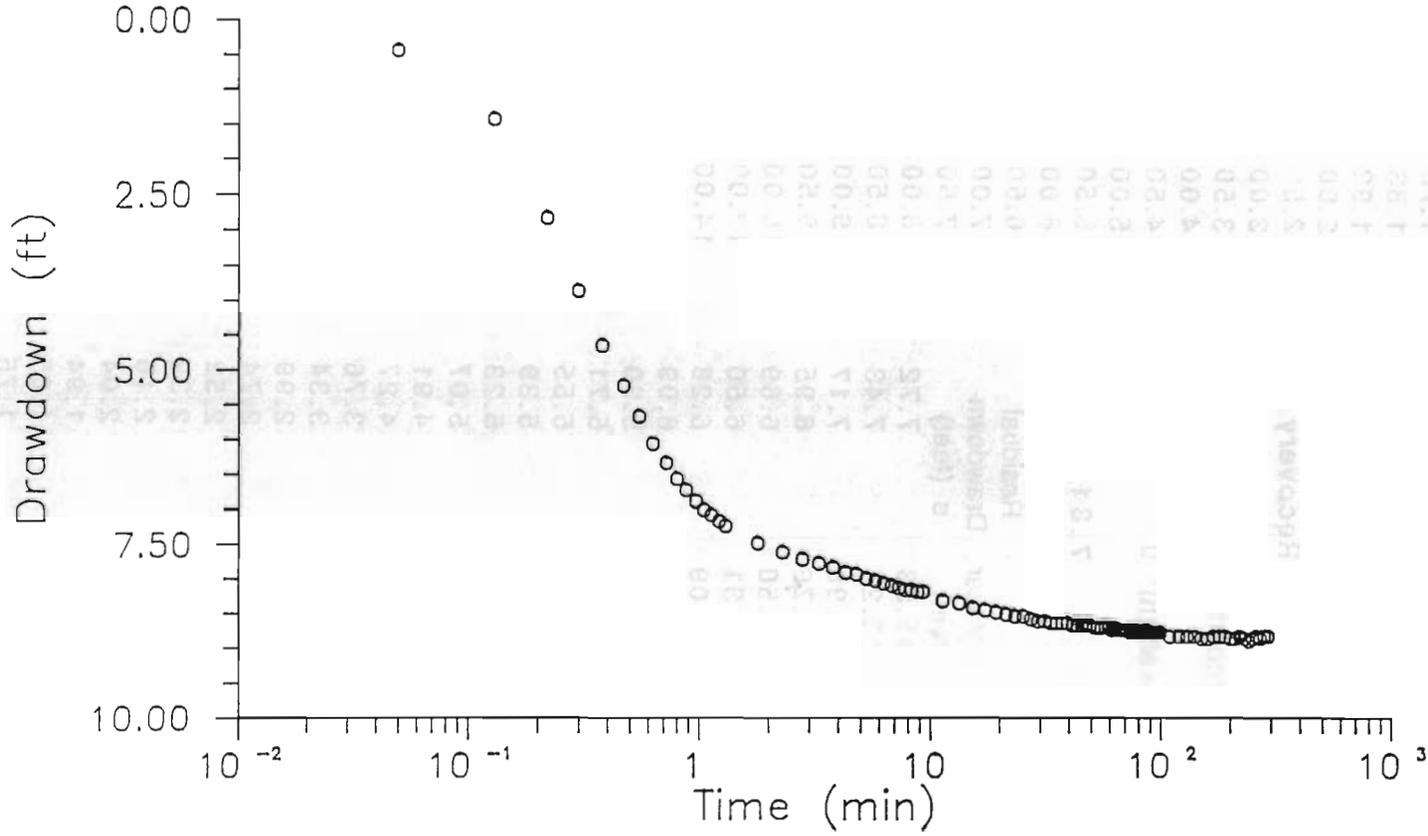
Pumping Time t (min)	Depth to Water DTW (feet)	Drawdown s (feet)
109.30	16.64	8.83
119.30	16.64	8.83
129.30	16.64	8.83
139.30	16.64	8.83
149.30	16.67	8.86
159.30	16.67	8.86
169.30	16.64	8.83
179.30	16.64	8.83
189.30	16.64	8.83
199.30	16.67	8.86
209.30	16.67	8.86
219.30	16.64	8.83
229.30	16.67	8.86
239.30	16.71	8.90
249.30	16.67	8.86
259.30	16.64	8.83
269.30	16.67	8.86
279.30	16.64	8.83
289.30	16.64	8.83

# OSU North Well Drawdown



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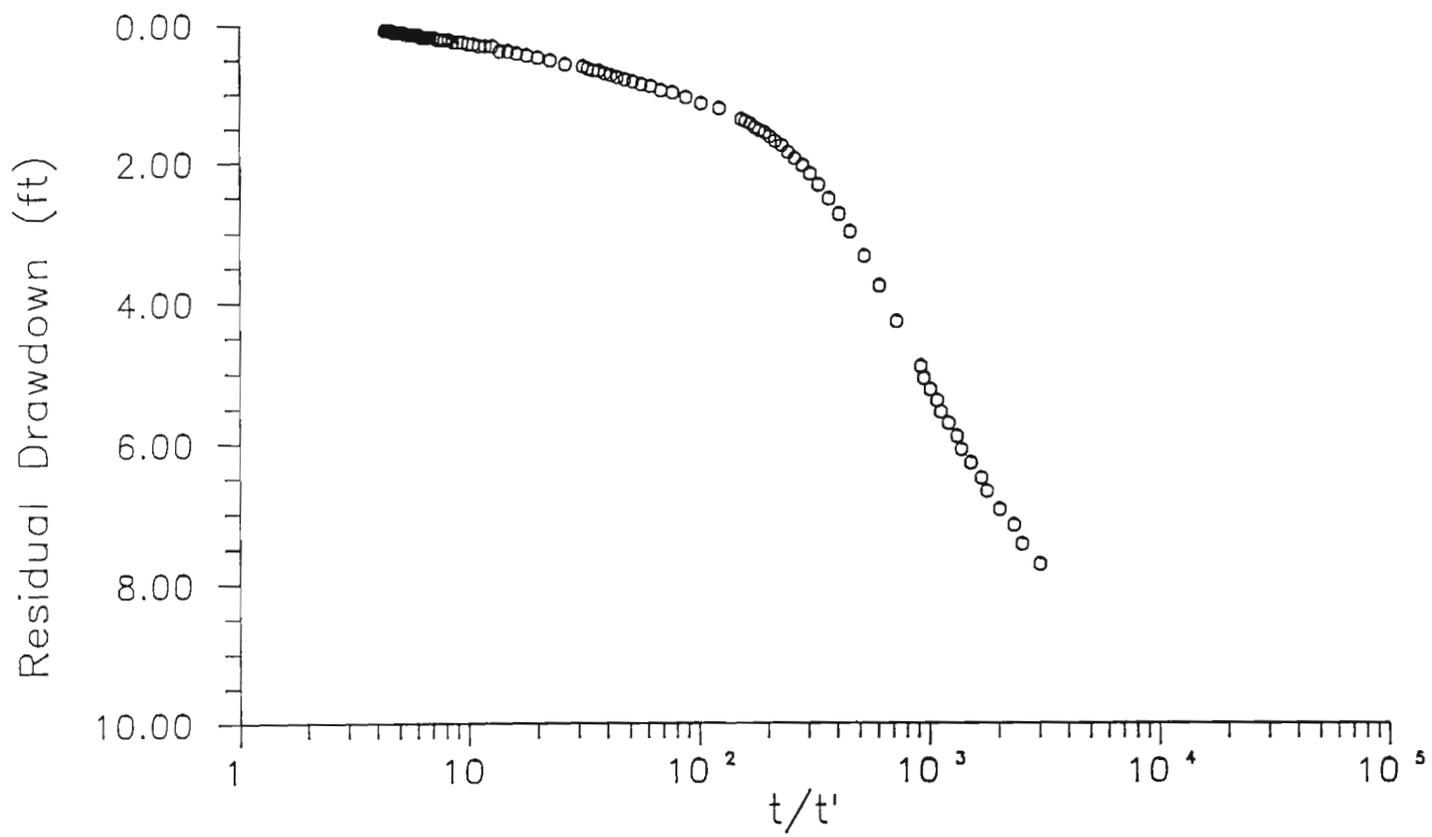
### OSU North Well Drawdown



Test Name:	OSU North	Recovery Time	Depth to Water	Residual
Well Name:	OSU North	t' (min)	DTW (feet)	Drawdown
Well Location:	18/47-19bcc			s (feet)
Depth (feet):	90	1.58	9.37	1.56
PPG or OBS well:	Pumping	1.67	9.34	1.53
Drawdown or Recovery Data:	Recovery	1.75	9.30	1.49
Pumped well discharge (gpm):	77	1.83	9.24	1.43
Distance from pumped well (ft):	0	1.92	9.21	1.40
Static Water Level (feet):	7.81	2.00	9.18	1.37
		2.50	9.02	1.21
		3.00	8.95	1.14
		3.50	8.86	1.05
		4.00	8.79	0.98
		4.50	8.76	0.95
		5.00	8.70	0.89
		5.50	8.67	0.86
		6.00	8.63	0.82
		6.50	8.60	0.79
		7.00	8.57	0.76
		7.50	8.54	0.73
		8.00	8.51	0.70
		8.50	8.47	0.66
		9.00	8.47	0.66
		9.50	8.44	0.63
		10.00	8.41	0.60
		12.00	8.38	0.57
		14.00	8.32	0.51
		16.00	8.28	0.47
		18.00	8.25	0.44
		20.00	8.22	0.41
		22.00	8.19	0.38
		24.00	8.19	0.38
		26.00	8.12	0.31
		28.00	8.12	0.31
		30.00	8.12	0.31
		32.00	8.09	0.28
		34.00	8.09	0.28
		36.00	8.06	0.25
		38.00	8.06	0.25
		40.00	8.06	0.25
		42.00	8.03	0.22
		44.00	8.03	0.22
		46.00	8.03	0.22
		48.00	8.03	0.22
		50.00	8.00	0.19
		52.00	8.00	0.19
		54.00	8.00	0.19
		56.00	8.00	0.19
		58.00	8.00	0.19

Recovery Time t' (min)	Depth to Water DTW (feet)	Residual Drawdowns (feet)
60.00	7.96	0.15
62.00	7.96	0.15
64.00	7.96	0.15
66.00	7.96	0.15
68.00	7.96	0.15
70.00	7.96	0.15
72.00	7.93	0.12
74.00	7.93	0.12
76.00	7.93	0.12
78.00	7.93	0.12
80.00	7.93	0.12
82.00	7.93	0.12
84.00	7.90	0.09
86.00	7.90	0.09
88.00	7.90	0.09
90.00	7.90	0.09
92.00	7.90	0.09

### OSU North Well Recovery



## OSU EAST WELL TEST

This test involved pumping the 90 foot deep OSU East irrigation well (18/47-30abc) at 405 gpm for 315 minutes. The submersible pump in the well was used for the test.

The discharge rate was measured using a V-notch weir. The discharge rate started out substantially higher than 405 gpm because there was very little head against the pump discharge. The pump rate steadily decreased during the first five minutes of pumping as the underground mainline which runs uphill from the pump to open discharge filled. After five minutes the discharge line was full and the pumping rate remained essentially constant at 405 gpm for the duration of the test.

The water level was monitored in the pumped well using an electric measuring tape. Recovery water level measurements were taken for 60 minutes after pumping stopped.

No observation wells were available for this test.

Test Name: OSU East

Well Name: OSU East

Well Location: 18/47-19abc

Depth (feet): 90

PPG or OBS well: Pumping

Drawdown or Recovery Data: Drawdown

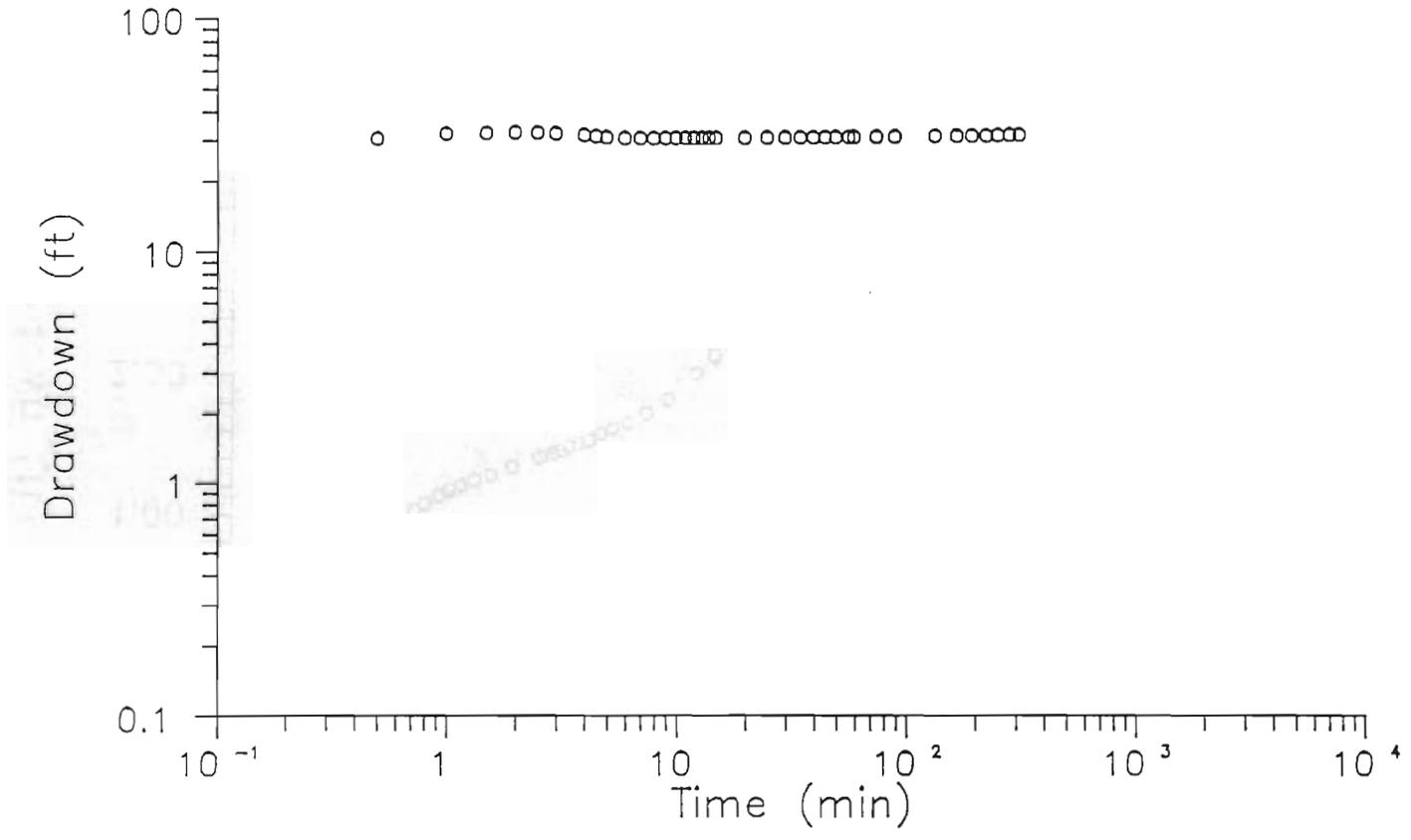
Pumped well discharge (gpm): 405

Distance from pumped well (ft): 0

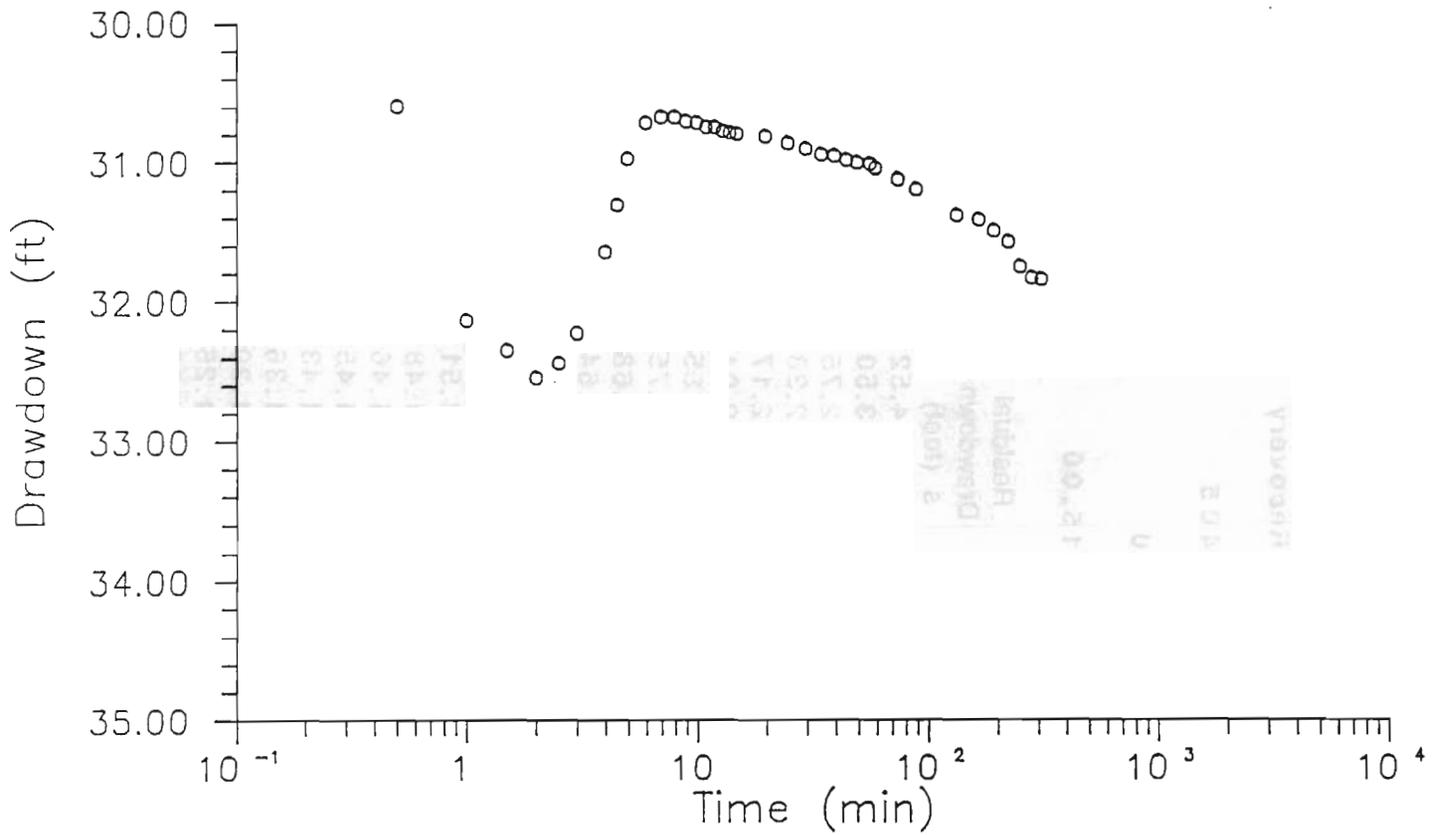
Static Water Level (feet): 15.00

Pumping Time t (min)	Depth to Water DTW (feet)	Drawdown s (feet)	Pumping Time t (min)	Depth to Water DTW (feet)	Drawdown s (feet)
0.50	45.59	30.59	135.00	46.38	31.38
1.00	47.13	32.13	168.00	46.41	31.41
1.50	47.34	32.34	195.00	46.49	31.49
2.00	47.54	32.54	225.00	46.57	31.57
2.50	47.43	32.43	253.00	46.75	31.75
3.00	47.22	32.22	285.00	46.83	31.83
4.00	46.64	31.64	314.00	46.89	31.84
4.50	46.30	31.30			
5.00	45.97	30.97			
6.00	45.71	30.71			
7.00	45.67	30.67			
8.00	45.67	30.67			
9.00	45.70	30.70			
10.00	45.71	30.71			
11.00	45.74	30.74			
12.00	45.74	30.74			
13.00	45.77	30.77			
14.00	45.78	30.78			
15.00	45.79	30.79			
20.00	45.81	30.81			
25.00	45.86	30.86			
30.00	45.90	30.90			
35.00	45.94	30.94			
40.00	45.95	30.95			
45.00	45.98	30.98			
50.00	46.00	31.00			
57.00	46.01	31.01			
60.00	46.04	31.04			
75.00	46.12	31.12			
90.00	46.19	31.19			

### OSU East Well Drawdown



### OSU East Well Drawdown



Test Name: OSU East

Well Name: OSU East

Well Location: 18/47-30abc

Depth (feet): 90

PPG or OBS well: Pumping

Drawdown or Recovery Data: Recovery

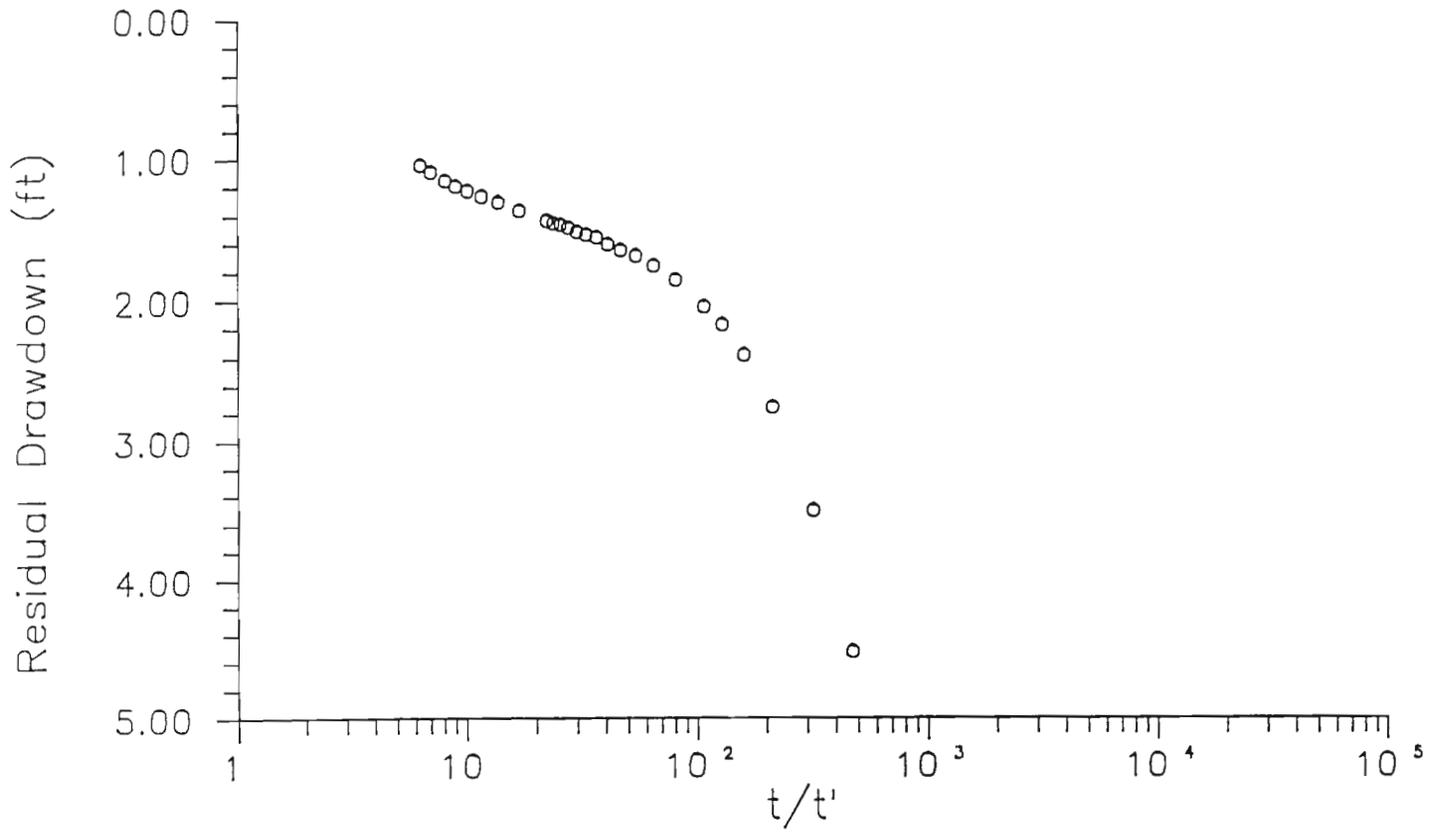
Pumped well discharge (gpm): 405

Distance from pumped well (ft): 0

Static Water Level (feet): 15.00

Recovery Time t' (min)	Depth to Water DTW (feet)	Residual Drawdown s (feet)
0.67	19.52	4.52
1.00	18.50	3.50
1.50	17.75	2.75
2.00	17.38	2.38
2.50	17.17	2.17
3.00	17.04	2.04
4.00	16.85	1.85
5.00	16.75	1.75
6.00	16.68	1.68
7.00	16.64	1.64
8.00	16.60	1.60
9.00	16.55	1.55
10.00	16.53	1.53
11.00	16.51	1.51
12.00	16.48	1.48
13.00	16.46	1.46
14.00	16.45	1.45
15.00	16.43	1.43
20.00	16.36	1.36
25.00	16.30	1.30
30.00	16.26	1.26
35.00	16.22	1.22
40.00	16.19	1.19
45.00	16.15	1.15
53.00	16.09	1.09
60.00	16.04	1.04

### OSU East Well Recovery



## OKUDA IRRIGATION WELL TEST

This test involved pumping the Okuda irrigation well (18/46-24dad) at 417 gpm for 709 minutes. No well log is available for the pumped well, however the owner reports the depth to be 40 feet. This means that the well only partially penetrates the gravel aquifer. The stratigraphy at the location of this well likely very similar to that in the OSU North irrigation well (18/47-19bcc). The vertical turbine pump in the well was used for the test.

The discharge was calculated from velocity measurements made in a concrete-lined ditch. Velocity was measured using a Price pygmy current meter as well as by timing floating objects. Discharge was constant during the test.

Water levels were monitored in the pumped well and in the unused OSU North irrigation well (18/47-19bcc) 370 feet away. Water levels were monitored using an electric tape in the pumped well and with an electronic pressure transducer and data logger in the observation well. Recovery water level measurements were taken in the observation well for 900 minutes after pumping stopped.

Test Name: Okuda  
 Well Name: Okuda Irrigation  
 Well Location: 18/46-24dad

Depth (feet): 40 (reported)

PPG or OBS well: Pumping

Drawdown or Recovery Data: Drawdown

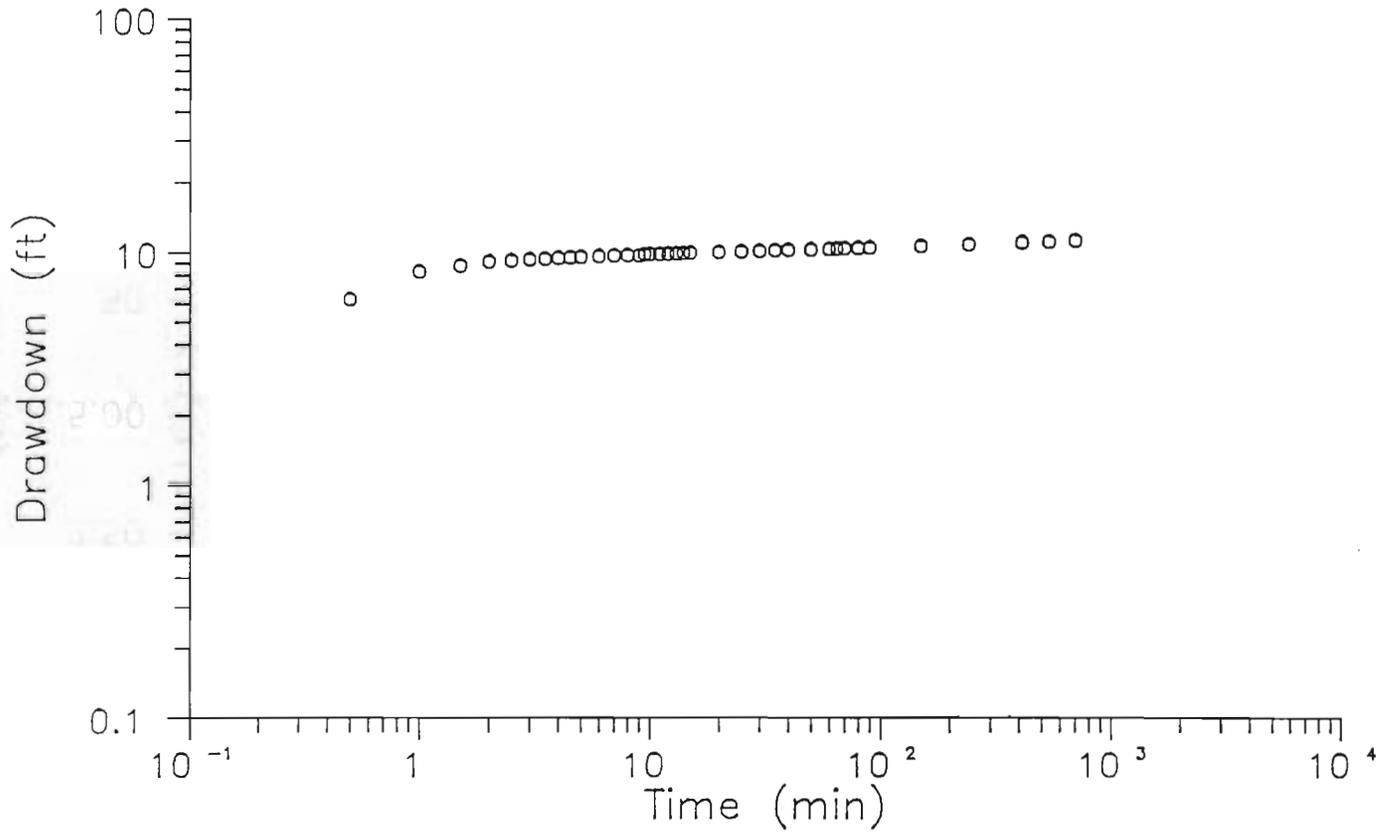
Pumped well discharge (gpm): 417

Distance from pumped well (ft): 0

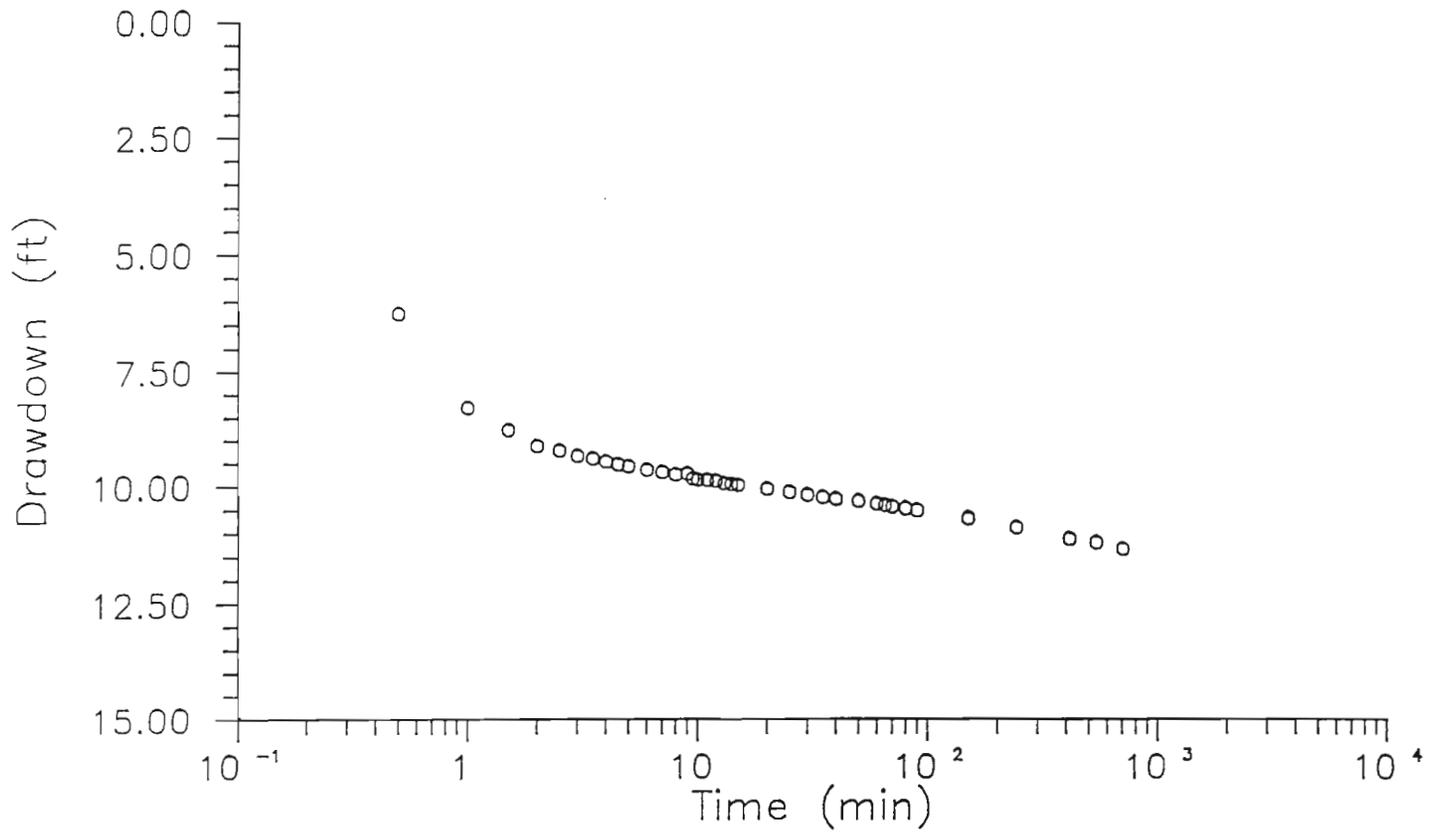
Static Water Level (feet): 7.80

Pumping Time t (min)	Depth to Water DTW (feet)	Drawdown s (feet)	Pumping Time t (min)	Depth to Water DTW (feet)	Drawdown s (feet)
0.50	14.06	6.26	80.00	18.26	10.46
1.00	16.07	8.27	90.00	18.30	10.50
1.50	16.56	8.76	150.00	18.47	10.67
2.00	16.91	9.11	243.00	18.66	10.86
2.50	17.01	9.21	414.00	18.90	11.10
3.00	17.12	9.32	541.00	18.98	11.18
3.50	17.18	9.38	705.00	19.12	11.32
4.00	17.25	9.45			
4.50	17.31	9.51			
5.00	17.35	9.55			
6.00	17.43	9.63			
7.00	17.48	9.68			
8.00	17.53	9.73			
9.00	17.51	9.71			
9.50	17.62	9.82			
10.00	17.64	9.84			
11.00	17.65	9.85			
12.00	17.67	9.87			
13.00	17.72	9.92			
14.00	17.74	9.94			
15.00	17.76	9.96			
20.00	17.84	10.04			
25.00	17.91	10.11			
30.00	17.97	10.17			
35.00	18.02	10.22			
40.00	18.06	10.26			
50.00	18.10	10.30			
60.00	18.16	10.36			
65.00	18.19	10.39			
70.00	18.22	10.42			

### Okuda Irrigation Well Drawdown



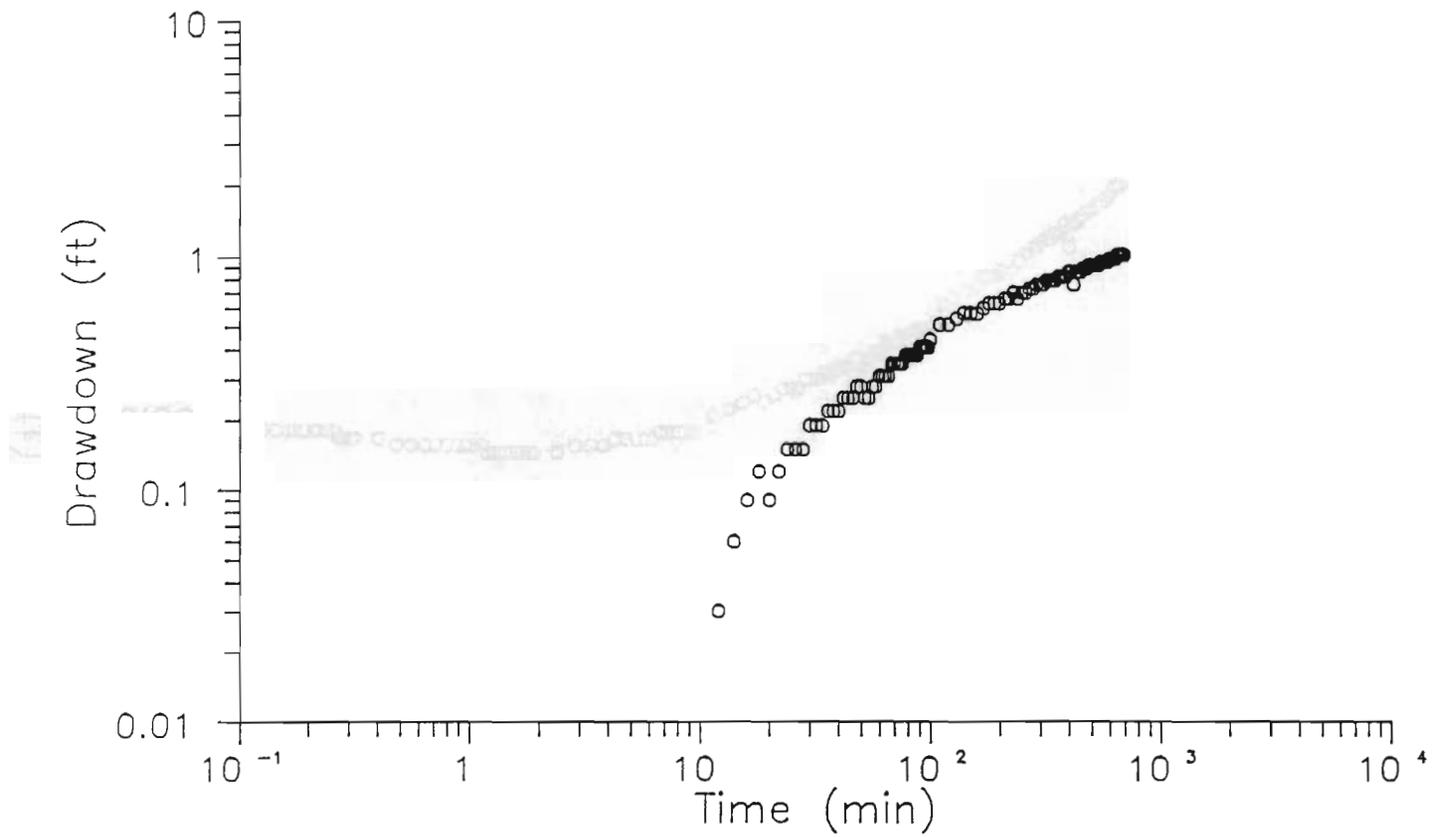
### Okuda Irrigation Well Drawdown

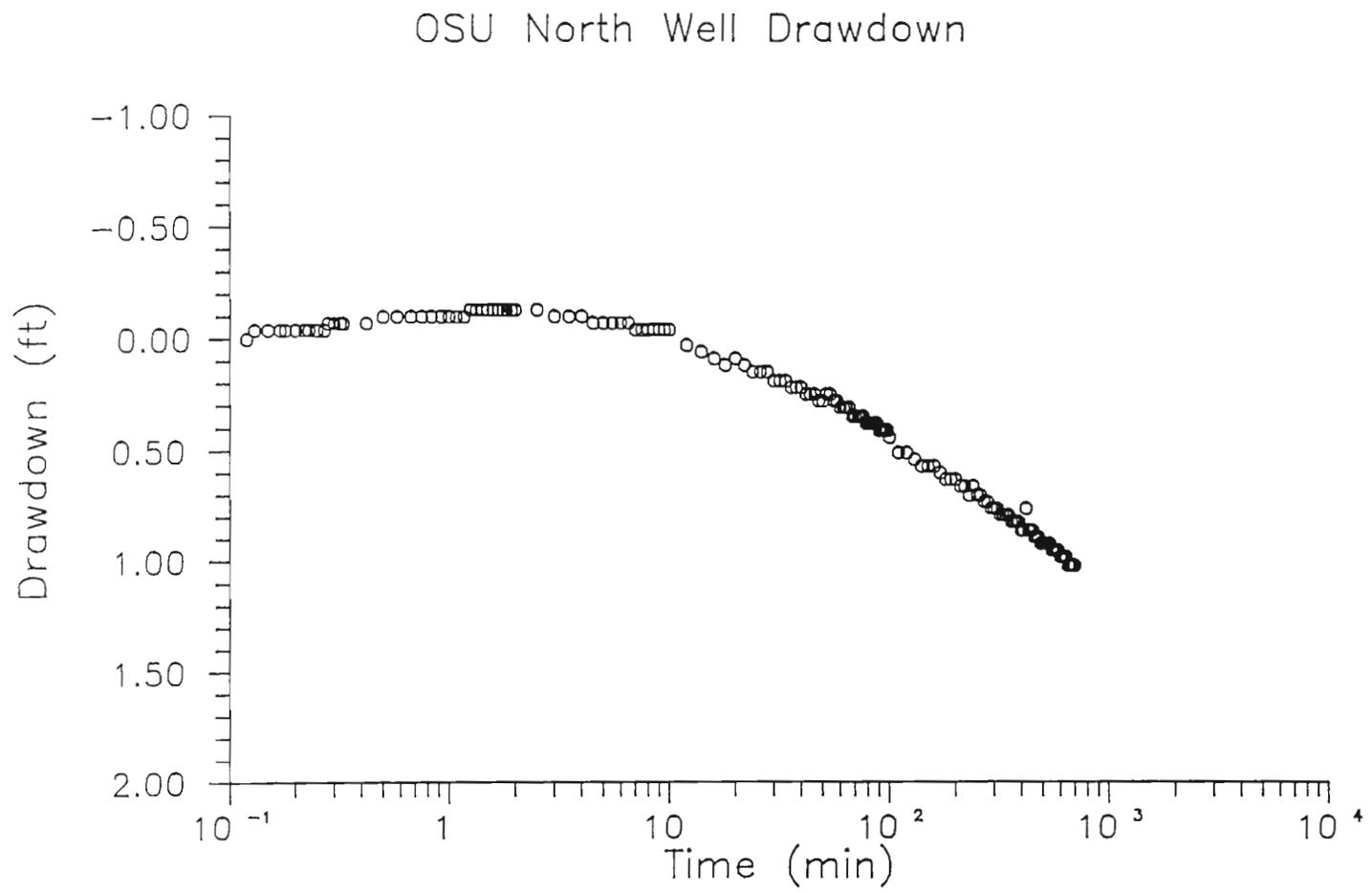


Test Name:	Okuda	Pumping Time t (min)	Depth to Water DTW (feet)	Drawdown s (feet)
Well Name:	OSU North	1.67	7.78	-0.13
Well Location:	18/47-19bcc	1.75	7.78	-0.13
		1.83	7.78	-0.13
Depth (feet):	90	1.92	7.78	-0.13
		2.00	7.78	-0.13
PPG or OBS well:	Observation	2.50	7.78	-0.13
		3.00	7.81	-0.10
Drawdown or Recovery Data:	Drawdown	3.50	7.81	-0.10
		4.00	7.81	-0.10
Pumped well discharge (gpm):	417	4.50	7.84	-0.07
		5.00	7.84	-0.07
Distance from pumped well (ft):	370	5.50	7.84	-0.07
		6.00	7.84	-0.07
Static Water Level (feet):	7.91	6.50	7.84	-0.07
		7.00	7.87	-0.04
		7.50	7.87	-0.04
		8.00	7.87	-0.04
		8.50	7.87	-0.04
		9.00	7.87	-0.04
		9.50	7.87	-0.04
		10.00	7.87	-0.04
		12.00	7.94	0.03
		14.00	7.97	0.06
		16.00	8.00	0.09
		18.00	8.03	0.12
		20.00	8.00	0.09
		22.00	8.03	0.12
		24.00	8.06	0.15
		26.00	8.06	0.15
		28.00	8.06	0.15
		30.00	8.10	0.19
		32.00	8.10	0.19
		34.00	8.10	0.19
		36.00	8.13	0.22
		38.00	8.13	0.22
		40.00	8.13	0.22
		42.00	8.16	0.25
		44.00	8.16	0.25
		46.00	8.16	0.25
		48.00	8.19	0.28
		50.00	8.19	0.28
		52.00	8.16	0.25
		54.00	8.16	0.25
		56.00	8.19	0.28
		58.00	8.19	0.28
		60.00	8.22	0.31
		62.00	8.22	0.31

Pumping Time t (min)	Depth to Water DTW (feet)	Drawdown s (feet)	Pumping Time t (min)	Depth to Water DTW (feet)	Drawdown s (feet)
64.00	8.22	0.31	390.00	8.73	0.82
66.00	8.22	0.31	400.00	8.77	0.86
68.00	8.26	0.35	410.00	8.77	0.86
70.00	8.26	0.35	420.00	8.67	0.76
72.00	8.26	0.35	430.00	8.77	0.86
74.00	8.26	0.35	440.00	8.77	0.86
76.00	8.26	0.35	450.00	8.77	0.86
78.00	8.29	0.38	460.00	8.80	0.89
80.00	8.29	0.38	470.00	8.80	0.89
82.00	8.29	0.38	480.00	8.80	0.89
84.00	8.29	0.38	490.00	8.83	0.92
86.00	8.29	0.38	500.00	8.83	0.92
88.00	8.29	0.38	510.00	8.83	0.92
90.00	8.32	0.41	520.00	8.83	0.92
92.00	8.32	0.41	530.00	8.83	0.92
94.00	8.32	0.41	540.00	8.83	0.92
96.00	8.32	0.41	550.00	8.86	0.95
98.00	8.32	0.41	560.00	8.86	0.95
100.00	8.35	0.44	570.00	8.86	0.95
110.00	8.42	0.51	580.00	8.86	0.95
120.00	8.42	0.51	590.00	8.86	0.95
130.00	8.45	0.54	600.00	8.89	0.98
140.00	8.48	0.57	610.00	8.89	0.98
150.00	8.48	0.57	620.00	8.89	0.98
160.00	8.48	0.57	630.00	8.89	0.98
170.00	8.51	0.60	640.00	8.89	0.98
180.00	8.54	0.63	650.00	8.93	1.02
190.00	8.54	0.63	660.00	8.93	1.02
200.00	8.54	0.63	670.00	8.93	1.02
210.00	8.57	0.66	680.00	8.93	1.02
220.00	8.57	0.66	690.00	8.93	1.02
230.00	8.61	0.70	700.00	8.93	1.02
240.00	8.57	0.66			
250.00	8.61	0.70			
260.00	8.61	0.70			
270.00	8.64	0.73			
280.00	8.64	0.73			
290.00	8.67	0.76			
300.00	8.67	0.76			
310.00	8.67	0.76			
320.00	8.70	0.79			
330.00	8.70	0.79			
340.00	8.70	0.79			
350.00	8.70	0.79			
360.00	8.73	0.82			
370.00	8.73	0.82			
380.00	8.73	0.82			

### OSU North Well Drawdown

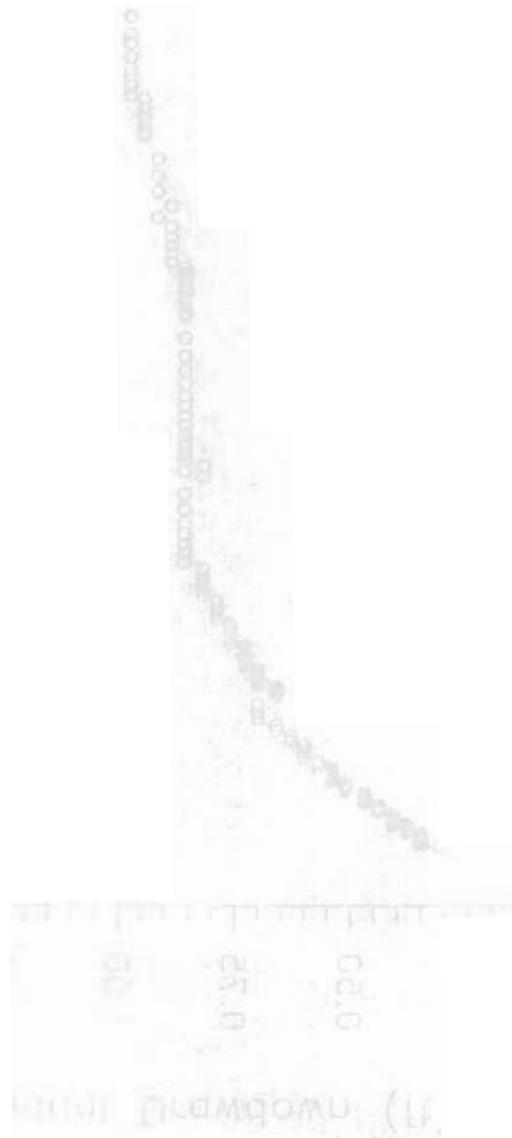




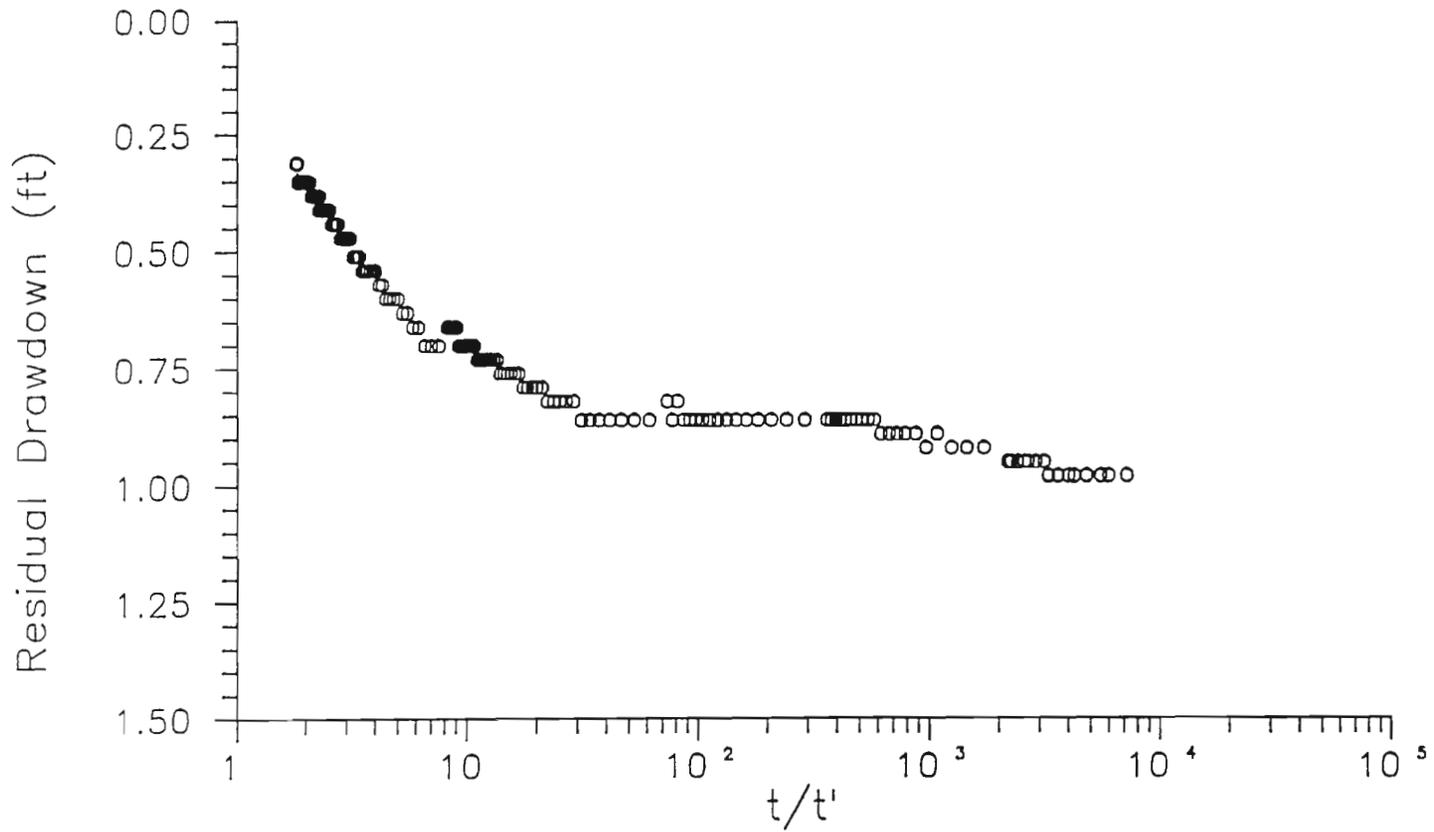
Test Name:	Okuda	Recovery Time t' (min)	Depth to Water DTW (feet)	Residual Drawdown s (feet)
Well Name:	OSU North			
Well Location:	18/47-19bcc	1.58	8.77	0.86
Depth (feet):	90	1.67	8.77	0.86
PPG or OBS well:	Observation	1.75	8.77	0.86
Drawdown or Recovery Data:	Recovery	1.83	8.77	0.86
Pumped well discharge (gpm):	417	1.92	8.77	0.86
Distance from pumped well (ft):	370	2.00	8.77	0.86
Static Water Level (feet):	7.91	2.50	8.77	0.86
		3.00	8.77	0.86
		3.50	8.77	0.86
		4.00	8.77	0.86
		4.50	8.77	0.86
		5.00	8.77	0.86
		5.50	8.77	0.86
		6.00	8.77	0.86
		6.50	8.77	0.86
		7.00	8.77	0.86
		7.50	8.77	0.86
		8.00	8.77	0.86
		8.50	8.77	0.86
		9.00	8.73	0.82
		9.50	8.77	0.86
		10.00	8.73	0.82
		12.00	8.77	0.86
		14.00	8.77	0.86
		16.00	8.77	0.86
		18.00	8.77	0.86
		20.00	8.77	0.86
		22.00	8.77	0.86
		24.00	8.77	0.86
		26.00	8.73	0.82
		28.00	8.73	0.82
		30.00	8.73	0.82
		32.00	8.73	0.82
		34.00	8.73	0.82
		36.00	8.70	0.79
		38.00	8.70	0.79
		40.00	8.70	0.79
		42.00	8.70	0.79
		44.00	8.70	0.79
		46.00	8.67	0.76
		48.00	8.67	0.76
		50.00	8.67	0.76
		52.00	8.67	0.76
		54.00	8.67	0.76
		56.00	8.67	0.76
		58.00	8.64	0.73

Recovery Time t' (min)	Depth to Water DTW (feet)	Residual Drawdown s (feet)	Recovery Time t' (min)	Depth to Water DTW (feet)	Residual Drawdown s (feet)
60.00	8.64	0.73	360.00	8.38	0.47
62.00	8.64	0.73	370.00	8.38	0.47
64.00	8.64	0.73	380.00	8.38	0.47
66.00	8.64	0.73	390.00	8.38	0.47
68.00	8.64	0.73	400.00	8.38	0.47
70.00	8.64	0.73	410.00	8.35	0.44
72.00	8.64	0.73	420.00	8.35	0.44
74.00	8.61	0.70	430.00	8.35	0.44
76.00	8.61	0.70	440.00	8.35	0.44
78.00	8.61	0.70	450.00	8.35	0.44
80.00	8.61	0.70	460.00	8.35	0.44
82.00	8.61	0.70	470.00	8.32	0.41
84.00	8.61	0.70	480.00	8.32	0.41
86.00	8.61	0.70	490.00	8.32	0.41
88.00	8.61	0.70	500.00	8.32	0.41
90.00	8.57	0.66	510.00	8.32	0.41
92.00	8.57	0.66	520.00	8.32	0.41
94.00	8.57	0.66	530.00	8.32	0.41
96.00	8.57	0.66	540.00	8.32	0.41
98.00	8.57	0.66	550.00	8.32	0.41
100.00	8.57	0.66	560.00	8.29	0.38
110.00	8.61	0.70	570.00	8.32	0.41
120.00	8.61	0.70	580.00	8.29	0.38
130.00	8.61	0.70	590.00	8.29	0.38
140.00	8.57	0.66	600.00	8.29	0.38
150.00	8.57	0.66	610.00	8.29	0.38
160.00	8.54	0.63	620.00	8.29	0.38
170.00	8.54	0.63	630.00	8.29	0.38
180.00	8.51	0.60	640.00	8.29	0.38
190.00	8.51	0.60	650.00	8.29	0.38
200.00	8.51	0.60	660.00	8.29	0.38
210.00	8.51	0.60	670.00	8.26	0.35
220.00	8.48	0.57	680.00	8.26	0.35
230.00	8.48	0.57	690.00	8.26	0.35
240.00	8.45	0.54	700.00	8.26	0.35
250.00	8.45	0.54	710.00	8.26	0.35
260.00	8.45	0.54	720.00	8.26	0.35
270.00	8.45	0.54	730.00	8.26	0.35
280.00	8.45	0.54	740.00	8.26	0.35
290.00	8.45	0.54	750.00	8.26	0.35
300.00	8.42	0.51	760.00	8.26	0.35
310.00	8.42	0.51	770.00	8.26	0.35
320.00	8.42	0.51	780.00	8.26	0.35
330.00	8.42	0.51	790.00	8.26	0.35
340.00	8.38	0.47	800.00	8.26	0.35
350.00	8.38	0.47	810.00	8.26	0.35

Recovery Time t' (min)	Depth to Water DTW (feet)	Residual Drawdown s (feet)
820.00	8.26	0.35
830.00	8.26	0.35
840.00	8.26	0.35
850.00	8.26	0.35
860.00	8.26	0.35
870.00	8.22	0.31
880.00	8.22	0.31
890.00	8.22	0.31
900.00	8.22	0.31



### OSU North Well Recovery



## LDS FARM WELL TEST

This test involved pumping the 65 foot deep LDS irrigation well (18/47-17bcc1) at 400 gpm for 1835 minutes. The submersible pump in the well was used for the test.

The discharge was calculated from velocity measurements made in a concrete-lined ditch. Velocities were measured using a Price pygmy current meter.

Water levels were monitored in the pumped well and two observation wells. The observation wells were the 65 foot deep LDS domestic well (18/47-17bcc2) 79 feet from the pumped well and the 65 foot deep Uchida irrigation well (18/47-17cbd) 1500 feet from the pumped well. No well log is available for the LDS domestic well, but the driller has indicated that the well is the same depth as the LDS irrigation well.

Recovery water level measurements were taken for 1120 minutes after pumping stopped. Water levels were measured with electric tapes in the pumped well and the Uchida well and with an electronic pressure transducer and data logger in the nearby LDS domestic well.

Drawdown measurements are not presented for the pumped well. Cascading water from the uppermost casing perforations precluded accurate water level measurements during pumping. Recovery water level measurements are presented for the pumped well.

Test Name: LDS Farm

Well Name: LDS Irrigation

Well Location: 18/47-17bcc1

Depth (feet): 65

PPG or OBS well: Pumping

Drawdown or Recovery Data: Recovery

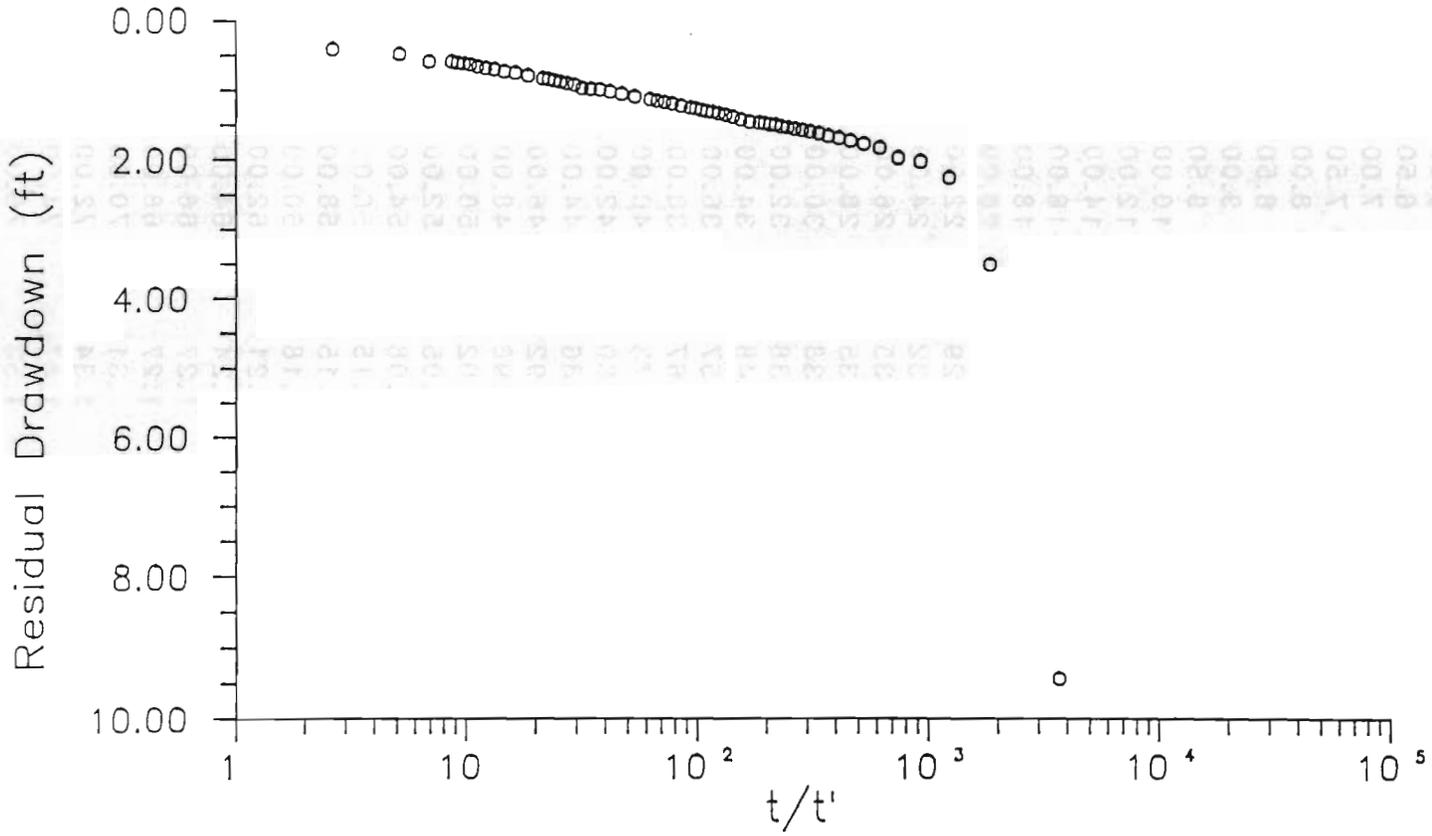
Pumped well discharge (gpm): 400

Distance from pumped well (ft): 0

Static Water Level (feet): 8.90

Recovery Time t' (min)	Depth to Water DTW (feet)	Residual Drawdown s (feet)	Recovery Time t' (min)	Depth to Water DTW (feet)	Residual Drawdown s (feet)
			20.00	10.15	1.25
			22.00	10.12	1.22
0.50	18.32	9.42	24.00	10.09	1.19
1.00	12.40	3.50	26.00	10.07	1.17
1.50	11.14	2.24	28.00	10.05	1.15
2.00	10.91	2.01	30.00	10.03	1.13
2.50	10.86	1.96	35.00	9.99	1.09
3.00	10.72	1.82	40.00	9.95	1.05
3.50	10.66	1.76	45.00	9.92	1.02
4.00	10.62	1.72	50.00	9.89	0.99
4.50	10.58	1.68	55.00	9.88	0.98
5.00	10.55	1.65	60.00	9.87	0.97
5.50	10.51	1.61	65.00	9.82	0.92
6.00	10.49	1.59	70.00	9.80	0.90
6.50	10.47	1.57	75.00	9.78	0.88
7.00	10.45	1.55	80.00	9.76	0.86
7.50	10.43	1.53	85.00	9.74	0.84
8.00	10.42	1.52	90.00	9.73	0.83
8.50	10.39	1.49	105.00	9.69	0.79
9.00	10.39	1.49	120.00	9.65	0.75
9.50	10.37	1.47	135.00	9.63	0.73
10.00	10.36	1.46	150.00	9.60	0.70
11.00	10.35	1.45	165.00	9.58	0.68
12.00	10.32	1.42	180.00	9.56	0.66
13.00	10.28	1.38	195.00	9.53	0.63
14.00	10.25	1.35	210.00	9.52	0.62
15.00	10.23	1.33	225.00	9.51	0.61
16.00	10.21	1.31	240.00	9.49	0.59
17.00	10.20	1.30	311.00	9.49	0.59
18.00	10.18	1.28	445.00	9.38	0.48
19.00	10.16	1.26	1125.00	9.31	0.41

### LDS Irrigation Well Recovery

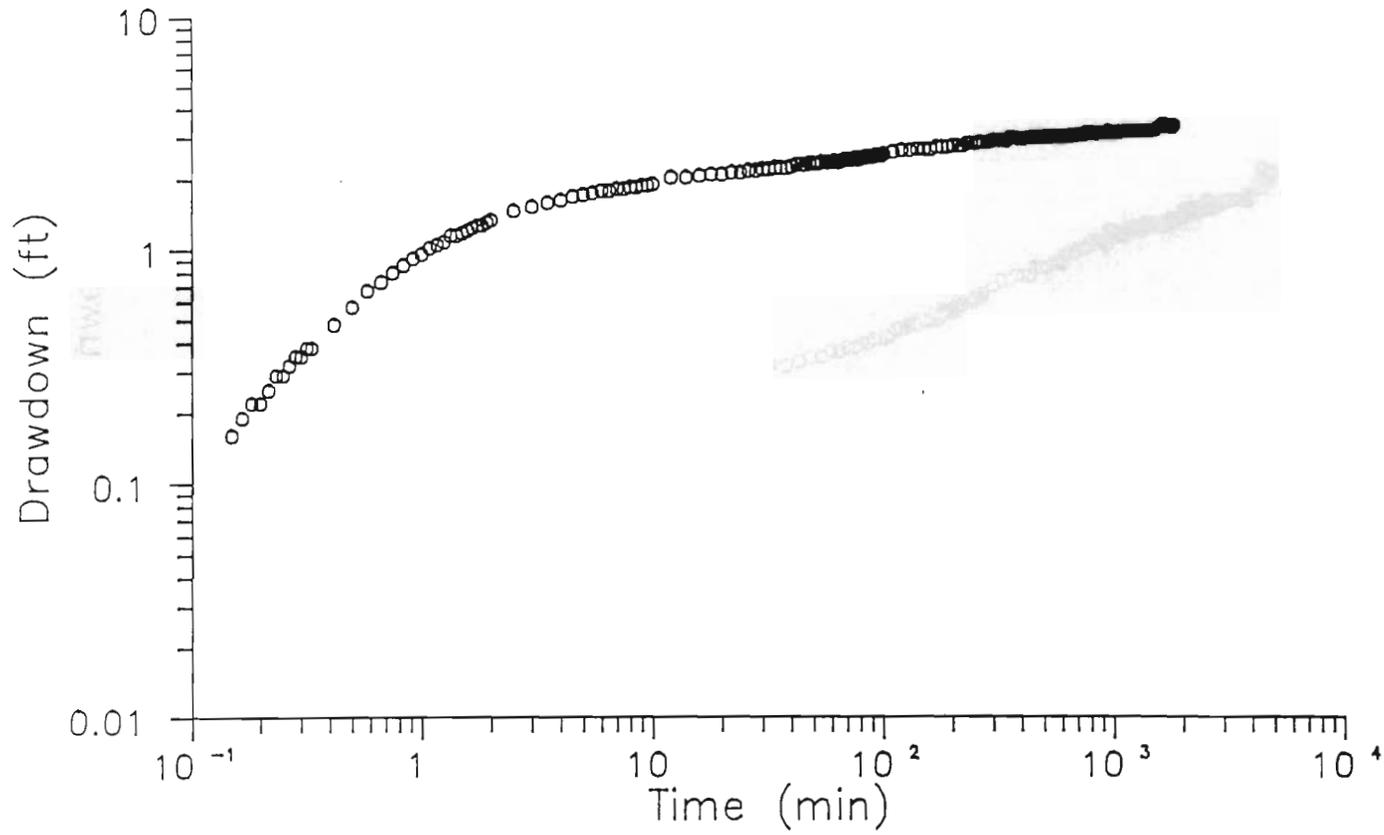


Test Name:	LDS Farm	Pumping Time t (min)	Depth to Water DTW (feet)	Drawdown s (feet)	
Well Name:	LDS Domestic	4.50	11.99	1.69	
Well Location:	18/47-17bcc2	5.00	12.02	1.72	
		5.50	12.05	1.75	
Depth (feet):	65	6.00	12.09	1.79	
		6.50	12.09	1.79	
PPG or OBS well:	Observation	7.00	12.12	1.82	
		7.50	12.12	1.82	
Drawdown or Recovery Data:	Drawdown	8.00	12.15	1.85	
		8.50	12.15	1.85	
Pumped well discharge (gpm):	400	9.00	12.18	1.88	
		9.50	12.18	1.88	
Distance from pumped well (ft):	79	10.00	12.21	1.91	
		12.00	12.34	2.04	
Static Water Level (feet):	10.30	14.00	12.34	2.04	
		16.00	12.37	2.07	
		18.00	12.40	2.10	
Pumping Time t (min)	Depth to Water DTW (feet)	Drawdown s (feet)			
0.25	10.59	0.29	22.00	12.44	2.14
0.27	10.62	0.32	24.00	12.44	2.14
0.28	10.65	0.35	26.00	12.47	2.17
0.30	10.65	0.35	28.00	12.47	2.17
0.32	10.68	0.38	30.00	12.50	2.20
0.33	10.68	0.38	32.00	12.50	2.20
0.42	10.78	0.48	34.00	12.53	2.23
0.50	10.87	0.57	36.00	12.53	2.23
0.58	10.97	0.67	38.00	12.53	2.23
0.67	11.03	0.73	40.00	12.56	2.26
0.75	11.10	0.80	42.00	12.60	2.30
0.83	11.16	0.86	44.00	12.60	2.30
0.92	11.22	0.92	46.00	12.60	2.30
1.00	11.26	0.96	48.00	12.63	2.33
1.08	11.32	1.02	50.00	12.63	2.33
1.17	11.35	1.05	52.00	12.63	2.33
1.25	11.38	1.08	54.00	12.66	2.36
1.33	11.45	1.15	56.00	12.66	2.36
1.42	11.45	1.15	58.00	12.66	2.36
1.50	11.48	1.18	60.00	12.66	2.36
1.58	11.51	1.21	62.00	12.69	2.39
1.67	11.54	1.24	64.00	12.66	2.36
1.75	11.57	1.27	66.00	12.69	2.39
1.83	11.57	1.27	68.00	12.72	2.42
1.92	11.61	1.31	70.00	12.72	2.42
2.00	11.64	1.34	72.00	12.72	2.42
2.50	11.77	1.47	74.00	12.72	2.42
3.00	11.83	1.53	76.00	12.76	2.46
3.50	11.89	1.59	78.00	12.72	2.42
4.00	11.93	1.63	80.00	12.76	2.46

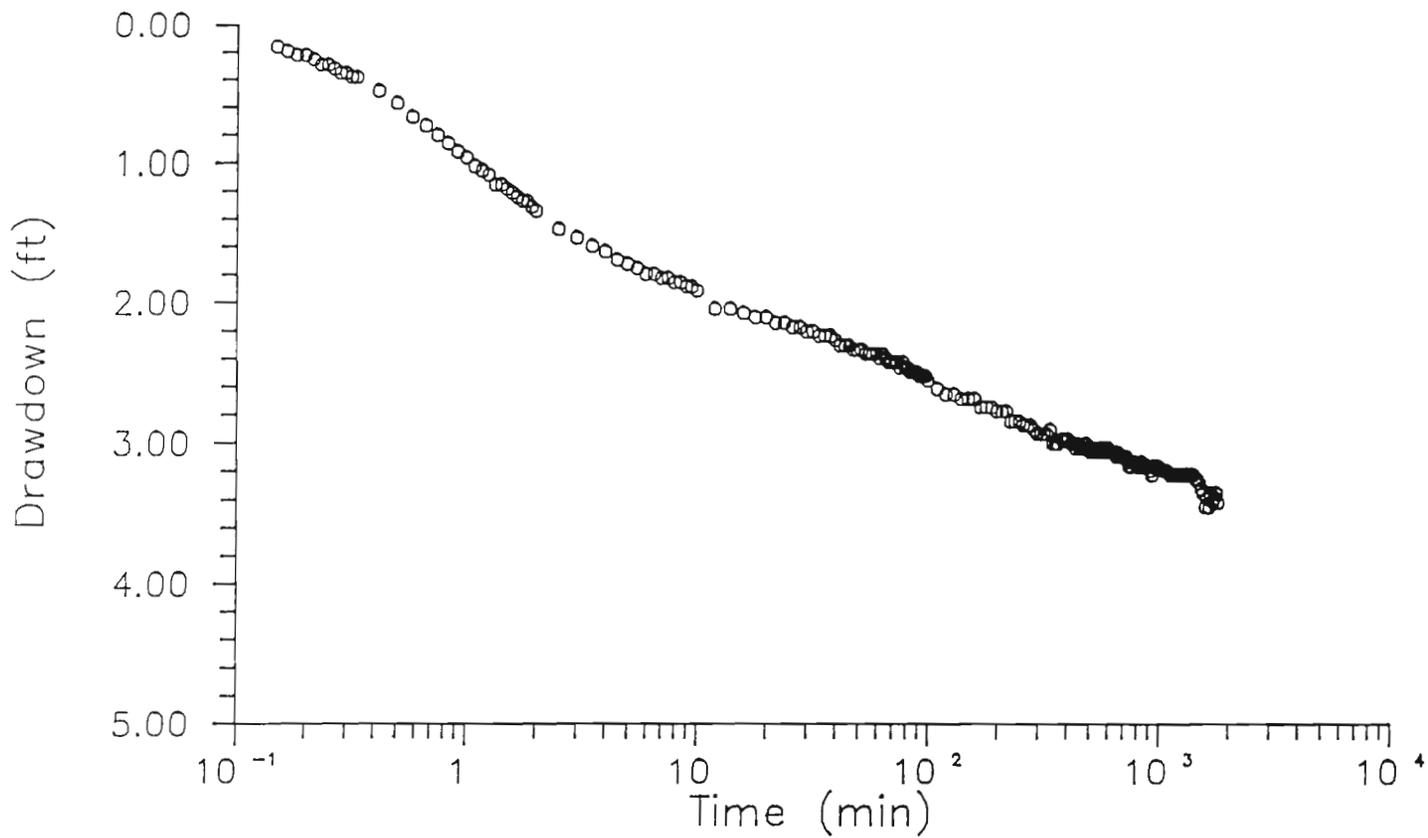
Pumping Time t (min)	Depth to Water DTW (feet)	Drawdown s (feet)	Pumping Time t (min)	Depth to Water DTW (feet)	Drawdown s (feet)
82.00	12.76	2.46	480.00	13.33	3.03
84.00	12.79	2.49	490.00	13.30	3.00
86.00	12.79	2.49	500.00	13.33	3.03
88.00	12.79	2.49	510.00	13.36	3.06
90.00	12.79	2.49	520.00	13.33	3.03
92.00	12.82	2.52	530.00	13.36	3.06
94.00	12.82	2.52	540.00	13.36	3.06
96.00	12.82	2.52	550.00	13.33	3.03
98.00	12.82	2.52	560.00	13.36	3.06
100.00	12.85	2.55	570.00	13.36	3.06
110.00	12.91	2.61	580.00	13.33	3.03
120.00	12.95	2.65	590.00	13.33	3.03
130.00	12.95	2.65	600.00	13.36	3.06
140.00	12.98	2.68	610.00	13.33	3.03
150.00	12.98	2.68	620.00	13.36	3.06
160.00	12.98	2.68	630.00	13.36	3.06
170.00	13.04	2.74	640.00	13.36	3.06
180.00	13.04	2.74	650.00	13.36	3.06
190.00	13.04	2.74	660.00	13.39	3.09
200.00	13.07	2.77	670.00	13.36	3.06
210.00	13.07	2.77	680.00	13.39	3.09
220.00	13.07	2.77	690.00	13.39	3.09
230.00	13.14	2.84	700.00	13.39	3.09
240.00	13.14	2.84	710.00	13.39	3.09
250.00	13.14	2.84	720.00	13.39	3.09
260.00	13.17	2.87	730.00	13.39	3.09
270.00	13.17	2.87	740.00	13.43	3.13
280.00	13.17	2.87	750.00	13.46	3.16
290.00	13.20	2.90	760.00	13.46	3.16
300.00	13.23	2.93	770.00	13.46	3.16
310.00	13.23	2.93	780.00	13.43	3.13
320.00	13.23	2.93	790.00	13.43	3.13
330.00	13.23	2.93	800.00	13.43	3.13
340.00	13.20	2.90	810.00	13.46	3.16
350.00	13.30	3.00	820.00	13.46	3.16
360.00	13.30	3.00	830.00	13.46	3.16
370.00	13.30	3.00	840.00	13.46	3.16
380.00	13.27	2.97	850.00	13.43	3.13
390.00	13.27	2.97	860.00	13.46	3.16
400.00	13.27	2.97	870.00	13.46	3.16
410.00	13.27	2.97	880.00	13.46	3.16
420.00	13.30	3.00	890.00	13.46	3.16
430.00	13.30	3.00	900.00	13.46	3.16
440.00	13.33	3.03	910.00	13.46	3.16
450.00	13.30	3.00	920.00	13.46	3.16
460.00	13.33	3.03	930.00	13.49	3.19
470.00	13.33	3.03	940.00	13.52	3.22

Pumping Time t (min)	Depth to Water DTW (feet)	Drawdown s (feet)
950.00	13.46	3.16
960.00	13.46	3.16
970.00	13.46	3.16
980.00	13.46	3.16
990.00	13.46	3.16
1000.00	13.46	3.16
1030.00	13.49	3.19
1060.00	13.49	3.19
1090.00	13.49	3.19
1120.00	13.52	3.22
1150.00	13.52	3.22
1180.00	13.52	3.22
1210.00	13.52	3.22
1240.00	13.52	3.22
1270.00	13.52	3.22
1300.00	13.52	3.22
1330.00	13.52	3.22
1360.00	13.52	3.22
1390.00	13.52	3.22
1420.00	13.52	3.22
1450.00	13.55	3.25
1480.00	13.55	3.25
1510.00	13.58	3.28
1540.00	13.62	3.32
1570.00	13.65	3.35
1600.00	13.74	3.44
1630.00	13.68	3.38
1660.00	13.74	3.44
1690.00	13.65	3.35
1720.00	13.71	3.41
1750.00	13.68	3.38
1780.00	13.65	3.35
1810.00	13.71	3.41

# LDS Domestic Well Drawdown



# LDS Domestic Well Drawdown

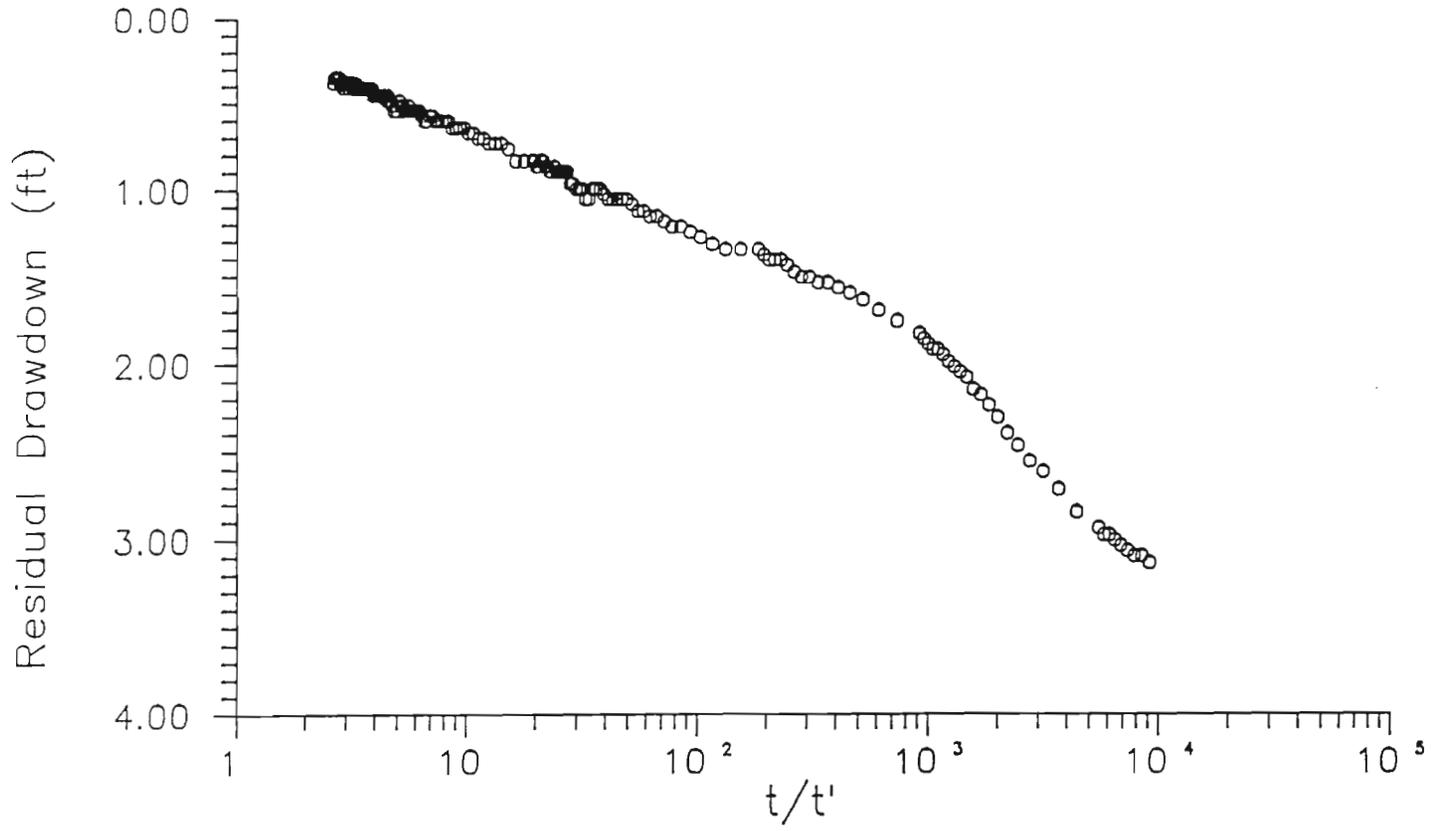


Test Name:	LDS Farm	Recovery Time	Depth to Water	Residual
Well Name:	LDS Domestic	t' (min)	DTW (feet)	Drawdown
Well Location:	18/47-17bcc2			s (feet)
Depth (feet):	65	1.33	12.34	2.04
PPG or OBS well:	Observation	1.42	12.31	2.01
Drawdown or Recovery Data:	Recovery	1.50	12.28	1.98
Pumped well discharge (gpm):	400	1.58	12.24	1.94
Distance from pumped well (ft):	79	1.67	12.21	1.91
Static Water Level (feet):	10.30	1.75	12.21	1.91
		1.83	12.18	1.88
		1.92	12.15	1.85
		2.00	12.12	1.82
		2.50	12.05	1.75
		3.00	11.99	1.69
		3.50	11.93	1.63
		4.00	11.89	1.59
		4.50	11.86	1.56
		5.00	11.83	1.53
		5.50	11.83	1.53
		6.00	11.80	1.50
		6.50	11.80	1.50
		7.00	11.77	1.47
		7.50	11.73	1.43
		8.00	11.70	1.40
		8.50	11.70	1.40
		9.00	11.70	1.40
		9.50	11.67	1.37
		10.00	11.64	1.34
		12.00	11.64	1.34
		14.00	11.64	1.34
		16.00	11.61	1.31
		18.00	11.57	1.27
		20.00	11.54	1.24
		22.00	11.51	1.21
		24.00	11.51	1.21
		26.00	11.48	1.18
		28.00	11.45	1.15
		30.00	11.45	1.15
		32.00	11.42	1.12
		34.00	11.42	1.12
		36.00	11.38	1.08
		38.00	11.35	1.05
		40.00	11.35	1.05
		42.00	11.35	1.05
		44.00	11.35	1.05
		46.00	11.35	1.05
		48.00	11.32	1.02
		50.00	11.29	0.99
		52.00	11.29	0.99

Recovery Time t' (min)	Depth to Water DTW (feet)	Residual Drawdown s (feet)	Recovery Time t' (min)	Depth to Water DTW (feet)	Residual Drawdown s (feet)
54.00	11.29	0.99	330.00	10.90	0.60
56.00	11.35	1.05	340.00	10.87	0.57
58.00	11.35	1.05	350.00	10.84	0.54
60.00	11.29	0.99	360.00	10.84	0.54
62.00	11.29	0.99	370.00	10.84	0.54
64.00	11.29	0.99	380.00	10.84	0.54
66.00	11.26	0.96	390.00	10.84	0.54
68.00	11.26	0.96	400.00	10.81	0.51
70.00	11.19	0.89	410.00	10.84	0.54
72.00	11.19	0.89	420.00	10.84	0.54
74.00	11.19	0.89	430.00	10.81	0.51
76.00	11.19	0.89	440.00	10.81	0.51
78.00	11.19	0.89	450.00	10.78	0.48
80.00	11.16	0.86	460.00	10.84	0.54
82.00	11.19	0.89	470.00	10.81	0.51
84.00	11.19	0.89	480.00	10.84	0.54
86.00	11.16	0.86	490.00	10.81	0.51
88.00	11.16	0.86	500.00	10.78	0.48
90.00	11.13	0.83	510.00	10.78	0.48
92.00	11.13	0.83	520.00	10.75	0.45
94.00	11.16	0.86	530.00	10.78	0.48
96.00	11.16	0.86	540.00	10.75	0.45
98.00	11.13	0.83	550.00	10.75	0.45
100.00	11.13	0.83	560.00	10.75	0.45
110.00	11.13	0.83	570.00	10.75	0.45
120.00	11.13	0.83	580.00	10.75	0.45
130.00	11.06	0.76	590.00	10.75	0.45
140.00	11.03	0.73	600.00	10.75	0.45
150.00	11.03	0.73	610.00	10.75	0.45
160.00	11.03	0.73	620.00	10.75	0.45
170.00	11.00	0.70	630.00	10.75	0.45
180.00	11.00	0.70	640.00	10.71	0.41
190.00	10.97	0.67	650.00	10.71	0.41
200.00	10.97	0.67	660.00	10.71	0.41
210.00	10.94	0.64	670.00	10.71	0.41
220.00	10.94	0.64	680.00	10.71	0.41
230.00	10.94	0.64	690.00	10.71	0.41
240.00	10.94	0.64	700.00	10.71	0.41
250.00	10.90	0.60	710.00	10.71	0.41
260.00	10.90	0.60	720.00	10.71	0.41
270.00	10.90	0.60	730.00	10.71	0.41
280.00	10.90	0.60	740.00	10.71	0.41
290.00	10.90	0.60	750.00	10.71	0.41
300.00	10.87	0.57	760.00	10.71	0.41
310.00	10.87	0.57	770.00	10.71	0.41
320.00	10.90	0.60	780.00	10.71	0.41

Recovery Time t' (min)	Depth to Water DTW (feet)	Residual Drawdowns (feet)
790.00	10.71	0.41
800.00	10.68	0.38
810.00	10.68	0.38
820.00	10.68	0.38
830.00	10.68	0.38
840.00	10.68	0.38
850.00	10.68	0.38
860.00	10.68	0.38
870.00	10.68	0.38
880.00	10.71	0.41
890.00	10.68	0.38
900.00	10.68	0.38
910.00	10.68	0.38
920.00	10.68	0.38
930.00	10.68	0.38
940.00	10.68	0.38
950.00	10.68	0.38
960.00	10.71	0.41
970.00	10.68	0.38
980.00	10.68	0.38
990.00	10.68	0.38
1000.00	10.68	0.38
1030.00	10.65	0.35
1060.00	10.65	0.35
1090.00	10.65	0.35
1120.00	10.68	0.38

### LDS Domestic Well Recovery



Test Name: LDS Farm

Well Name: Uchida Irrigation

Well Location: 18/47-17cbd

Depth (feet): 65

PPG or OBS well: Observation

Drawdown or Recovery Data: Drawdown

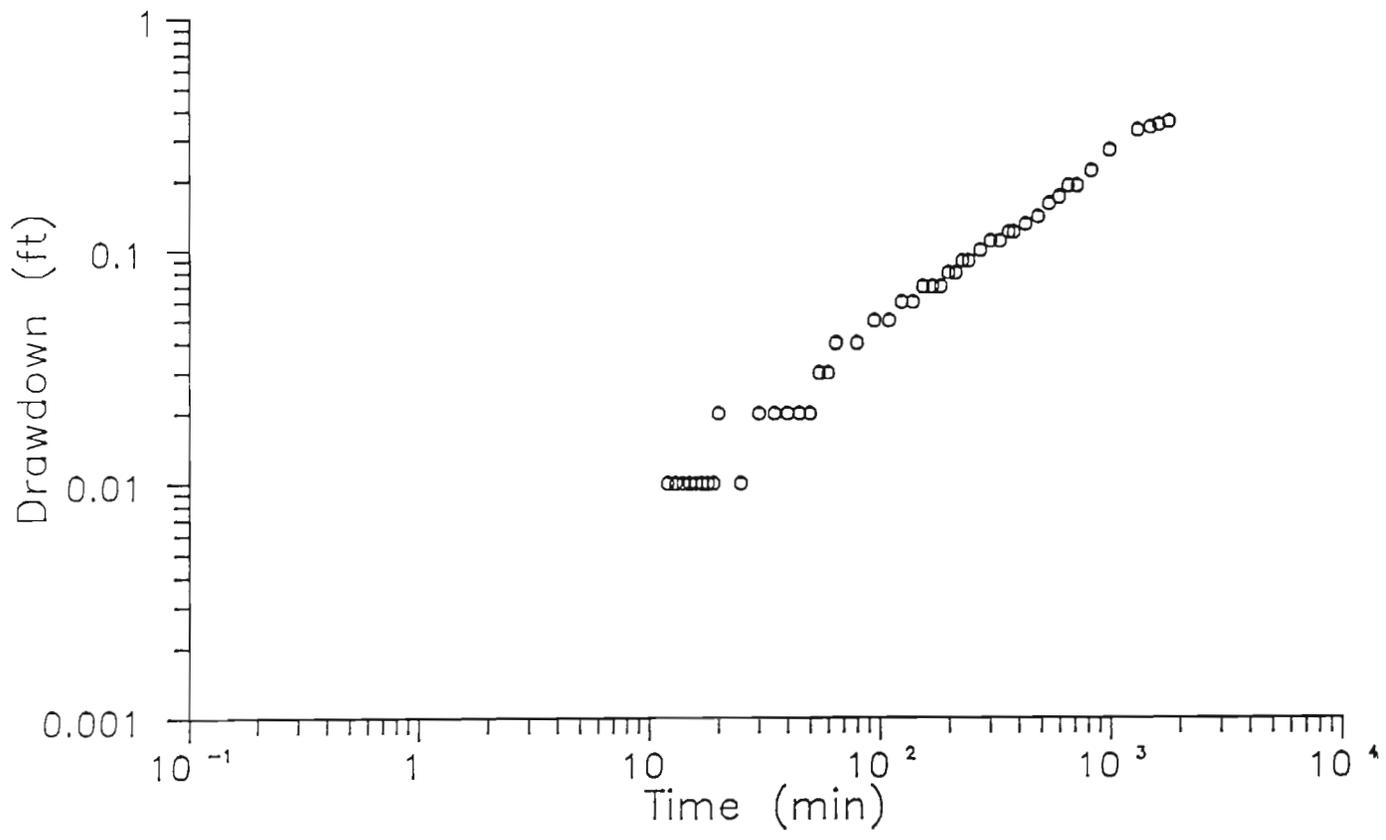
Pumped well discharge (gpm): 400

Distance from pumped well (ft): 1500

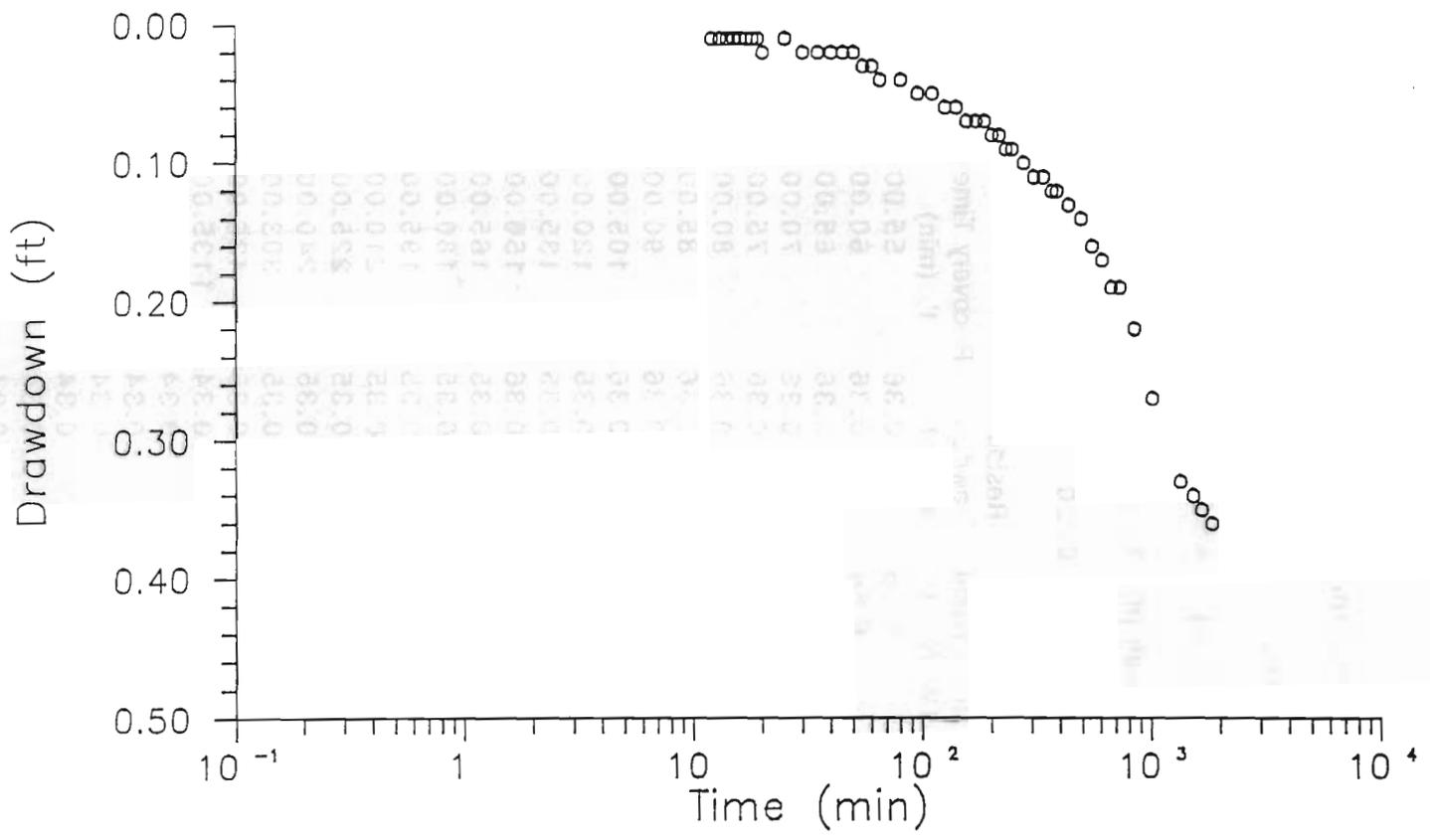
Static Water Level (feet): 6.50

Pumping Time t (min)	Depth to Water DTW (feet)	Drawdown s (feet)	Pumping Time t (min)	Depth to Water DTW (feet)	Drawdown s (feet)
1.00	6.50	0.00	95.00	6.55	0.05
2.00	6.51	0.01	110.00	6.55	0.05
3.00	6.50	0.00	125.00	6.56	0.06
4.00	6.50	0.00	140.00	6.56	0.06
5.00	6.50	0.00	155.00	6.57	0.07
6.00	6.50	0.00	170.00	6.57	0.07
7.00	6.51	0.01	185.00	6.57	0.07
8.00	6.50	0.00	200.00	6.58	0.08
9.00	6.50	0.00	215.00	6.58	0.08
10.00	6.50	0.00	230.00	6.59	0.09
11.00	6.50	0.00	245.00	6.59	0.09
12.00	6.51	0.01	275.00	6.60	0.10
13.00	6.51	0.01	305.00	6.61	0.11
14.00	6.51	0.01	335.00	6.61	0.11
15.00	6.51	0.01	365.00	6.62	0.12
16.00	6.51	0.01	384.00	6.62	0.12
17.00	6.51	0.01	432.00	6.63	0.13
18.00	6.51	0.01	490.00	6.64	0.14
19.00	6.51	0.01	547.00	6.66	0.16
20.00	6.52	0.02	605.00	6.67	0.17
25.00	6.51	0.01	664.00	6.69	0.19
30.00	6.52	0.02	726.00	6.69	0.19
35.00	6.52	0.02	838.00	6.72	0.22
40.00	6.52	0.02	1005.00	6.77	0.27
45.00	6.52	0.02	1335.00	6.83	0.33
50.00	6.52	0.02	1520.00	6.84	0.34
55.00	6.53	0.03	1655.00	6.85	0.35
60.00	6.53	0.03	1832.00	6.86	0.36
65.00	6.54	0.04			
80.00	6.54	0.04			

### Uchida Irrigation Well Drawdown



# Uchida Irrigation Well Drawdown



Test Name: LDS Farm  
 Well Name: Uchida Irrigation  
 Well Location: 18/47-17cbd

Depth (feet): 65

PPG or OBS well: Observation

Drawdown or Recovery Data: Recovery

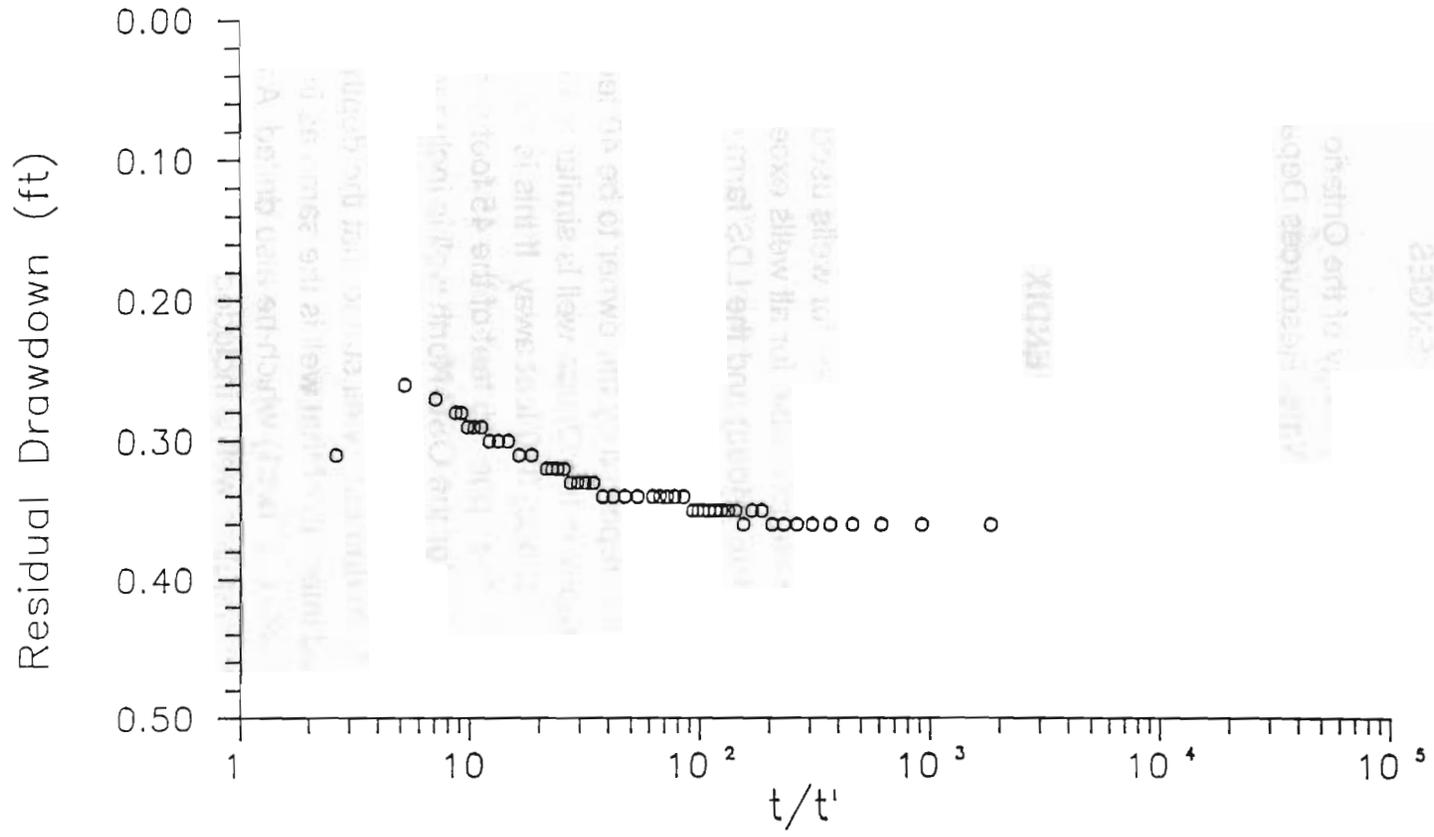
Pumped well discharge (gpm): 400

Distance from pumped well (ft): 1500

Static Water Level (feet): 6.50

Recovery Time t' (min)	Depth to Water DTW (feet)	Residual Drawdown s (feet)	Recovery Time t' (min)	Depth to Water DTW (feet)	Residual Drawdown s (feet)
1.00	6.86	0.36	55.00	6.83	0.33
2.00	6.86	0.36	60.00	6.83	0.33
3.00	6.86	0.36	65.00	6.83	0.33
4.00	6.86	0.36	70.00	6.83	0.33
5.00	6.86	0.36	75.00	6.82	0.32
6.00	6.86	0.36	80.00	6.82	0.32
7.00	6.86	0.36	85.00	6.82	0.32
8.00	6.86	0.36	90.00	6.82	0.32
9.00	6.86	0.36	105.00	6.81	0.31
10.00	6.85	0.35	120.00	6.81	0.31
11.00	6.85	0.35	135.00	6.80	0.30
12.00	6.86	0.36	150.00	6.80	0.30
13.00	6.85	0.35	165.00	6.80	0.30
14.00	6.85	0.35	180.00	6.79	0.29
15.00	6.85	0.35	195.00	6.79	0.29
16.00	6.85	0.35	210.00	6.79	0.29
17.00	6.85	0.35	225.00	6.78	0.28
18.00	6.85	0.35	240.00	6.78	0.28
19.00	6.85	0.35	303.00	6.77	0.27
20.00	6.85	0.35	436.00	6.76	0.26
22.00	6.84	0.34	1135.00	6.81	0.31
24.00	6.84	0.34			
26.00	6.84	0.34			
28.00	6.84	0.34			
30.00	6.84	0.34			
35.00	6.84	0.34			
40.00	6.84	0.34			
45.00	6.84	0.34			
50.00	6.84	0.34			

### Uchida Irrigation Well Recovery



## REFERENCES

Gannett, Marshall W., 1990, Hydrogeology of the Ontario area, Malheur County, Oregon: State of Oregon, Water Resources Department, Ground Water Report No. 34.

## APPENDIX

### Water Well Reports

All available water well reports are included for wells used in these aquifer tests. Well reports were available for all wells except two: the Okuda irrigation well (18S/46E-24dad) and the LDS farm domestic well (18S/47E-17bcc2).

The Okuda irrigation well is reported by the owner to be 40 feet deep. It is probable that the stratigraphy in the Okuda well is similar to that in the OSU North well (18S/47E-19bcc) 370 feet away. If this is the case, then the Okuda well penetrates the upper 15 feet of the 45 foot thick sand and gravel aquifer. A well report for the OSU North well is included.

The driller of the LDS farm domestic well stated that the depth and construction (perforated interval) of that well is the same as in the LDS farm irrigation well (18S/47E-17bcc1) which he also drilled. A well report for the LDS farm irrigation well is included.





STATE OF OREGON  
**WATER WELL REPORT**  
 (as required by ORS 537.765)

*Malheur*  
 1722

4 1E  
 185/17E - 30A  
 196cc

(START CARD) # \_\_\_\_\_

**(1) OWNER:** Well Number: \_\_\_\_\_  
 Name MALHEUR CO EXPERIMENTAL STATION  
 Address rt 1 box 620  
 City ontario State oregon Zip 97914

**(2) TYPE OF WORK:**  
 New Well  Deepen  Recondition  Abandon

**(3) DRILL METHOD**  
 Rotary Air  Rotary Mud  Cable  
 Other \_\_\_\_\_

**(4) PROPOSED USE:**  
 Domestic  Community  Industrial  Irrigation  
 Thermal  Injection  Other \_\_\_\_\_

**(5) BORE HOLE CONSTRUCTION:**  
 Special Construction approval Yes  No  Depth of Completed Well 90 ft.  
 Explosives used  Yes  No  Type \_\_\_\_\_ Amount \_\_\_\_\_

HOLE			SEAL			Amount sacks or pounds
Diameter	From	To	Material	From	To	
16	0	22	cement	0	22	2210 lbs
14	22	60				
12	60	90				

How was seal placed: Method  A  B  C  D  E  
 Other \_\_\_\_\_  
 Backfill placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Material \_\_\_\_\_  
 Gravel placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Size of gravel \_\_\_\_\_

**(6) CASING/LINER:**

Casing/Liner	Diameter	From	To	Gauge	Steel		Plastic		Welded		Threaded	
					XX				XX			
Casing:	10	2	60	.250	XX				XX			
Liner:												

Final location of shoe(s) 60

**(7) PERFORATIONS/SCREENS:**  
 Perforations Method torch and downhole  
 Screens Type \_\_\_\_\_ Material \_\_\_\_\_

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
35	46		2000	1/8x2		<input checked="" type="checkbox"/>	<input type="checkbox"/>
46	58		800	1/8x5		<input checked="" type="checkbox"/>	<input type="checkbox"/>

**(8) WELL TESTS: Minimum testing time is 1 hour**  
 Pump  Bailer  Air  Flowing Artesian  
 Yield gal/min 185 Drawdown 50 Drill stem at 5hr Time 11 hr  
 air 250 60 11 hr  
 Temperature of water 57 Depth Artesian Flow Found \_\_\_\_\_  
 Was a water analysis done?  Yes By whom \_\_\_\_\_  
 Did any strata contain water not suitable for intended use?  Too little  
 Salty  Muddy  Odor  Colored  Other \_\_\_\_\_  
 Depth of strata: \_\_\_\_\_

**(9) LOCATION OF WELL by legal description:**  
 County malheur Latitude \_\_\_\_\_ Longitude \_\_\_\_\_  
 Township 18 s N or S, Range 47 e E or W, WM.  
 Section 30 ne 1/4 nw 1/4  
 Tax Lot \_\_\_\_\_ Lot \_\_\_\_\_ Block \_\_\_\_\_ Subdivision \_\_\_\_\_  
 Street Address of Well (or nearest address) rt 1 box 620 ontario or

**(10) STATIC WATER LEVEL:**  
13 ft. below land surface. Date 7/29/88  
 Artesian pressure \_\_\_\_\_ lb. per square inch. Date \_\_\_\_\_

**(11) WATER BEARING ZONES:**

Depth at which water was first found \_\_\_\_\_

From	To	Estimated Flow Rate	SWL
30	58	300 -	13

**(12) WELL LOG:** Ground elevation \_\_\_\_\_

Material	From	To	SWL
brown clay	0	22	
sand	22	25	
sand & gravel	25	70	13
blue clay	70	90	

Date started 7/27/88 Completed 8/8/88

**(unbonded) Water Well Constructor Certification:**  
 I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to my best knowledge and belief.  
 WWC Number \_\_\_\_\_  
 Signed \_\_\_\_\_ Date \_\_\_\_\_

**(bonded) Water Well Constructor Certification:**  
 I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. all work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.  
 WWC Number 682  
 Signed John L. Smith Date \_\_\_\_\_





