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Appendix E - Water level change data and graphs for various observation wells during both TW-2 and TW-3 aquifer tests.

Appendix F - Miscellaneous barometric efficiency graphs and data.

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Lake Meredith Salinity Control Project,
TW-2 and TW-3 Aquifer Pumping Tests, and
Water Quality Sampling
April, 1994

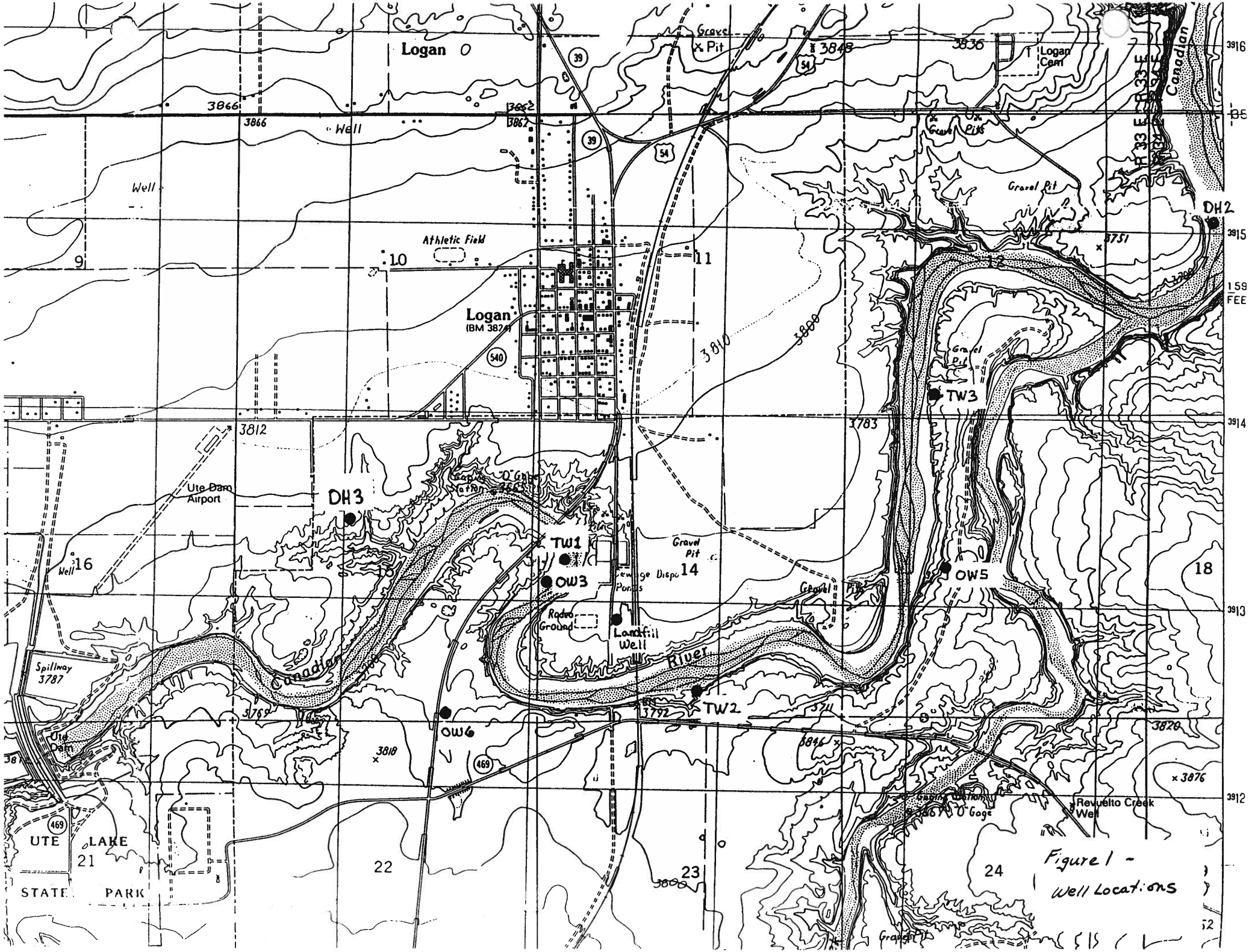
Bureau of Reclamation
Great Plains Regional Office
Billings, MT

During the period of March 30 to April 11, 1994, the Bureau of Reclamation (Reclamation), conducted aquifer tests on two test wells completed in the Tecovas Fm. adjacent to the Canadian River just south and east of the town of Logan, NM. The Tecovas Fm. has been identified as the source of highly saline water which has been seeping upward into the alluvium of the Canadian River. The Triassic Tecovas consists of light to moderately cemented sandstone with some lenticular shale beds. There is an upper shale unit of the Tecovas which is believed to be an aquitard for the formation. Thickness of this upper shale unit is approximately 20 to 30 feet in the vicinity of the aquifer tests. The Tecovas is a confined aquifer with a piezometric head that is above the Canadian River level. Underlying the Tecovas is the Permian Quartermaster Fm. Overlying the upper shale unit of the Tecovas is the Triassic Trujillo Fm. consisting of sandstone, conglomerate, and some shale. The Trujillo contains mainly fresh or slightly saline water and is used as a water supply in the local area. A pumping well field is being proposed as a method to depressurize the Tecovas aquifer to reduce the upward leakance of saline water.

A previous pumping test had been performed on well TW-1 during March, 1979. TW-1 was pumped at a rate of 475 gpm for a period of 97 hours, followed by 68 hours of recovery. Drawdown data were recorded at well OW-3 and OW-4. Aquifer parameters derived from that test were a hydraulic conductivity of 36 feet/day and a storage coefficient of 0.00015.

The two aquifer test wells used for the present test are identified as TW-2 and TW-3. The objectives of the tests were to obtain the transmissivity and possibly storativity for the Tecovas aquifer, to determine if any leakance was occurring from adjacent aquitards to the Tecovas, and to observe any effects on water levels in the Trujillo due to pumping in the Tecovas. The location of all wells involved in the two pump tests are shown in figure 1. Following are approximate radial distances from the observation wells to the pumped wells:

Pumped Well	Observation Well	Approximate Radial Distance (feet)
TW-2:	TW-1	3250


Logan
Gravel Pit
Logan Cem
Canadian
R 33 E
Well
Gravel Pit
DH2
Athletic Field
9
10
11
Logan
(BM 3824)
3751
3810
3800
TW3
3812
3783
Ute Dam
Airport
DH3
TW1
OW3
Gravel Pit
16
15
14
18
OW5
Sewage Disposal Ponds
Rodeo Ground
Landfill Well
Gravel Pit
Spillway
3787
Canadian River
TW2
3792
3769
OW6
3818
3846
3820
3876
Ute Dam
Revuelta Creek Well
UTE LAKE
STATE PARK
21
22
23
24
Figure 1 -
Well Locations

	TW-3	6650
	OW-3	3200
	OW-5A,B	4850
	OW-6A,B	4350
	DH-2	12100
	DH-3	6700
	Landfill Well	1900
TW-3:	TW-1	7000
	TW-2	6650
	OW-3	7500
	OW-5A,B	3000
	OW-6A,B	10200
	DH-2	5700
	DH-3	10350
	Landfill Well	6800

In addition to obtaining hydraulic parameters for the aquifer, water samples were obtained during the pump tests to determine the major anions and cations, trace metal content, and the presence of mercury. All water level depths referred to in this report are from ground surface unless stated otherwise. Climatic conditions during both tests consisted of afternoon temperatures ranging from 50 to 80 degrees, calm to windy, and no precipitation that was detected. Flows in the Canadian River were increased by an additional 4 cfs on May 28, 1994, two days prior to the start of the aquifer tests for the purpose of diluting the high saline discharge water from the pumped wells. Those increased flows were maintained throughout the tests. There were no other known wells pumping from the Tecovas in the vicinity of the pump tests.

TW-2 Pump Test

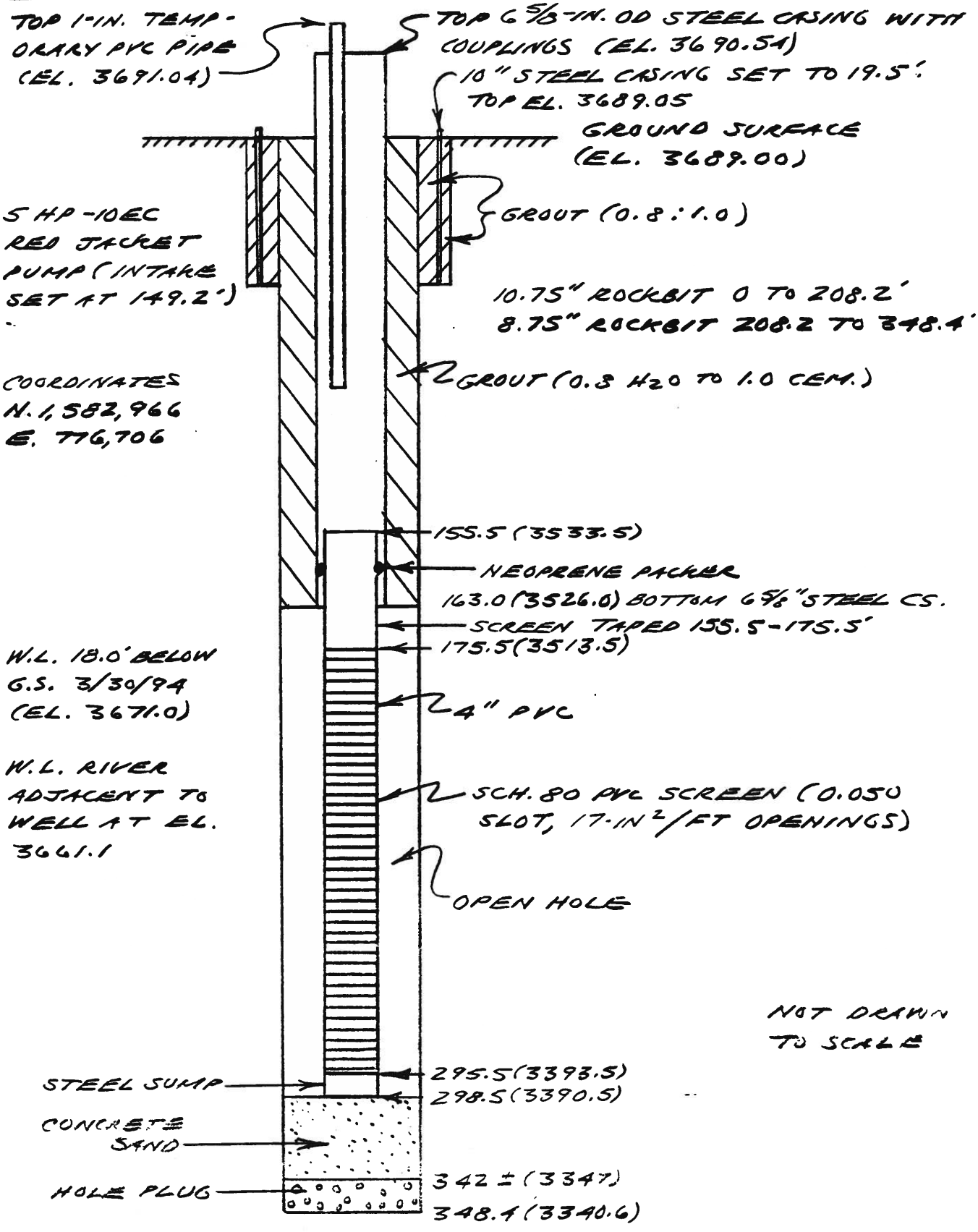
The screened interval for TW-2 was set at a depth of 175.5 feet to 295.5 feet. The screen consisted of 4" schedule 80 PVC with 0.050" slots. The intake for the 5 hp Red Jacket pump was set at a depth of 149.2 feet. See figure 2 for more details on the construction of TW-2. The screened interval was placed to fully penetrate the aquifer which has an estimated saturated thickness of 119 feet at this site (top of aquifer at 173 feet, aquifer bottom at 292 feet). Depth to static water level for TW-2 was 18.02 feet. It is estimated from very limited data that the static piezometric head of TW-2 is 5 to 10 feet higher than the head in the Trujillo aquifer at the time of the aquifer tests.

The pump test commenced at 11:44:30 on March 30, 1994. Data loggers were used to record the drawdowns within TW-2, OW-5A, and OW-5B. Water levels in all other wells were obtained manually by using electric water level indicators. A static water level depth of 18.02 feet was obtained prior to the test at 8:40 on March 30. Discharge from

7-1654 (1-89)
Bureau of Reclamation

COMPUTATION SHEET

BY TAUCHER	DATE 5/3/94	PROJECT LAKE MEREDITH SALINITY	SHEET 1 OF 1
CHKD BY	DATE	FEATURE TW 2 COMPLETION	
DETAILS Figure 2			



the well was monitored with a cumulative flow meter and verified with the rate of discharge into a 55 gallon drum. The flow meter was indicating a discharge rate of 91 gallons per minute (gpm) and timing the flow into the 55 gallon drum showed a rate of 88 gpm. Discharge from TW-2 was routed through approximately 50 feet of 2 inch polyethylene pipe and then through several hundred feet of 6 inch pipe where it was discharged to the Canadian River.

Figure 3 is a plot of the drawdown curve for TW-2 during the pumping phase. At 590 minutes into the test, the drawdown in the well reached a maximum of 43.3 feet, after which the water level abruptly rose 3.6 feet within a 10 minute period and continued to rise until the drawdown stabilized at 36.0 feet. The event occurred at approximately 9:45 pm and no one was present at the site at this time. It was noticed the following morning when personnel returned to the site that there appeared to be an increase in the discharge of fine sand from the well, however the sand production quickly disappeared. The cumulating flow meter had also became stuck. Discharge rate measurements before and after the event suggest that there was no change in the discharge rate from the well. The cause of the rapid rise in the water level is unknown; the rise could be caused by any situation which would increase aquifer yield. An increase in aquifer yield could have been due to a variety of reasons including the creation of cavities in the sandstone surrounding the screen, or possibly the removal of fines in a fracture intercepted by the well bore. With the flow meter disabled, all subsequent measurements of the rate of flow from the well were made by timing the discharge into a 55 gallon drum.

TW-2 was pumped at a constant rate of 87-88 gpm for a total time of 74.75 hours during which time the drawdown curve had become relatively flat. At the end of that time period, the pump was shut off and recovery data was collected. Recovery data were collected for 44.6 hours until the water levels in the well recovered to the static level. A barometric pressure probe was used during the test to obtain the barometric pressure changes, however, the probe did not function properly during the test. In addition, the probe used to measure water levels in OW-5A was later determined not to be functioning properly.

A semi-log time-drawdown plot (figure 4) of the recovery data for TW-2 shows an initial steeper slope for the first minute which could be showing the equalization of the water level within the well bore with the water level in the aquifer and possibly the effects of vertical leakance through adjacent aquitards. Most of the remainder of the curve forms a rather straight line which indicates Theis condition recovery for a confined aquifer. There is some flattening of the curve beginning to occur at 400 minutes into the recovery. The proprietary software AQTESOLV was used to calculate the aquifer transmissivity from the recovery data (figure 5). The solution method used was Theis recovery for a confined aquifer and resulted in a computed transmissivity value of 678 ft^2/day. Using a aquifer saturated thickness of 119 feet at TW-2, this would result in a hydraulic conductivity of 5.69 ft/day.

Figure 3

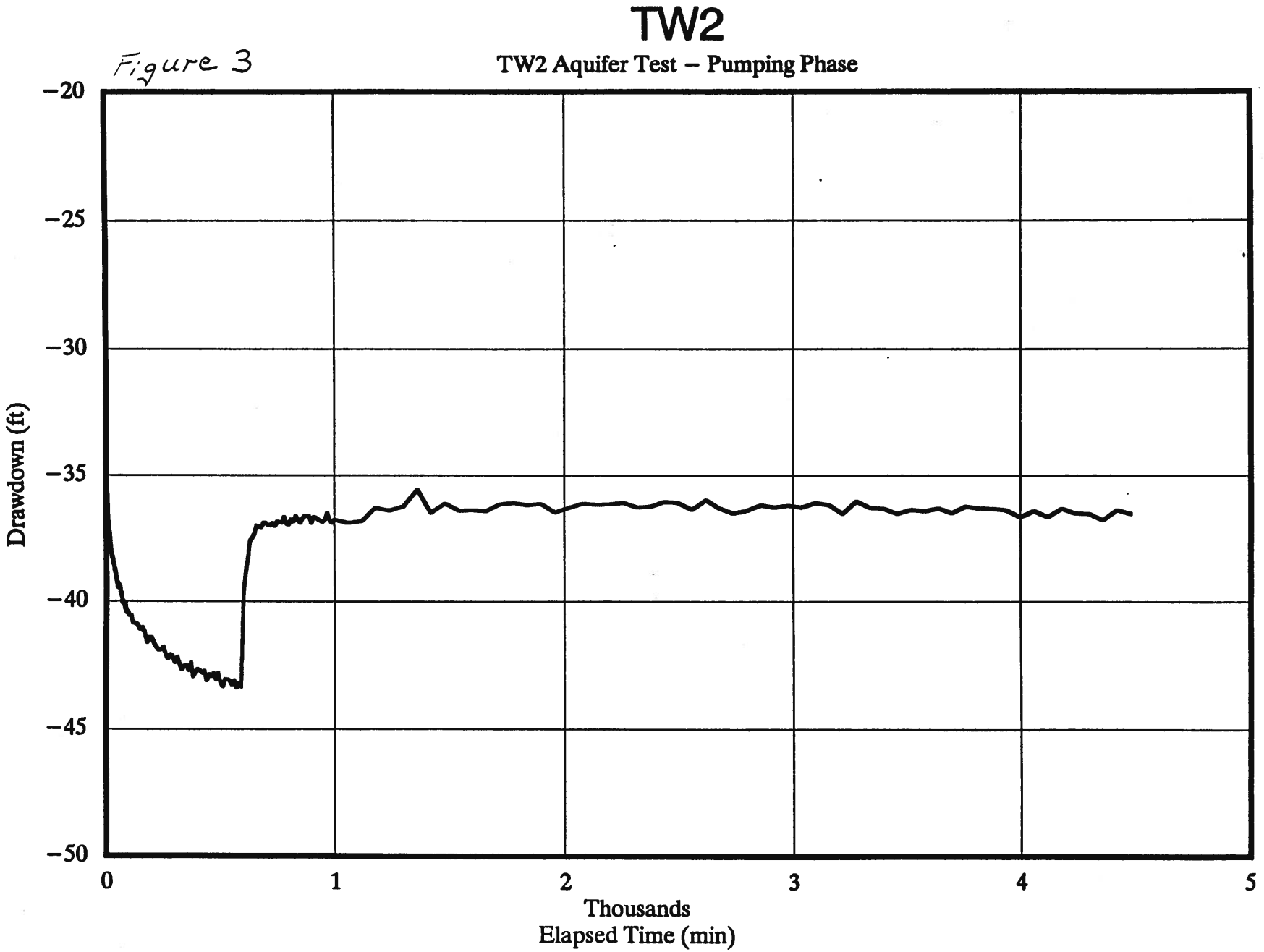
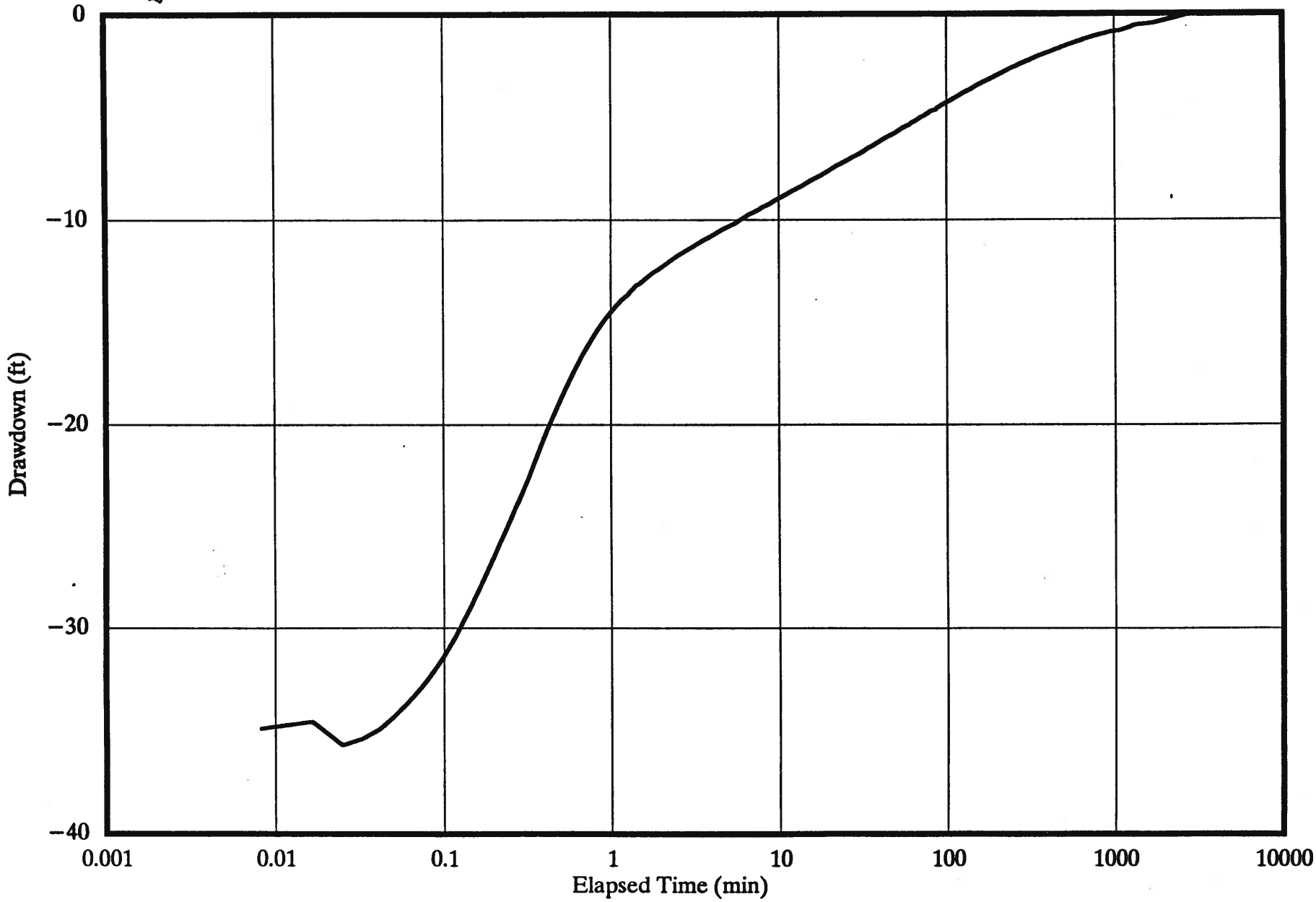

TW2
TW2 Aquifer Test – Pumping Phase
Drawdown (ft)
−20
−25
−30
−35
−40
−45
−50
0
1
2
3
4
5
Thousands
Elapsed Time (min)

Figure 4

TW-2

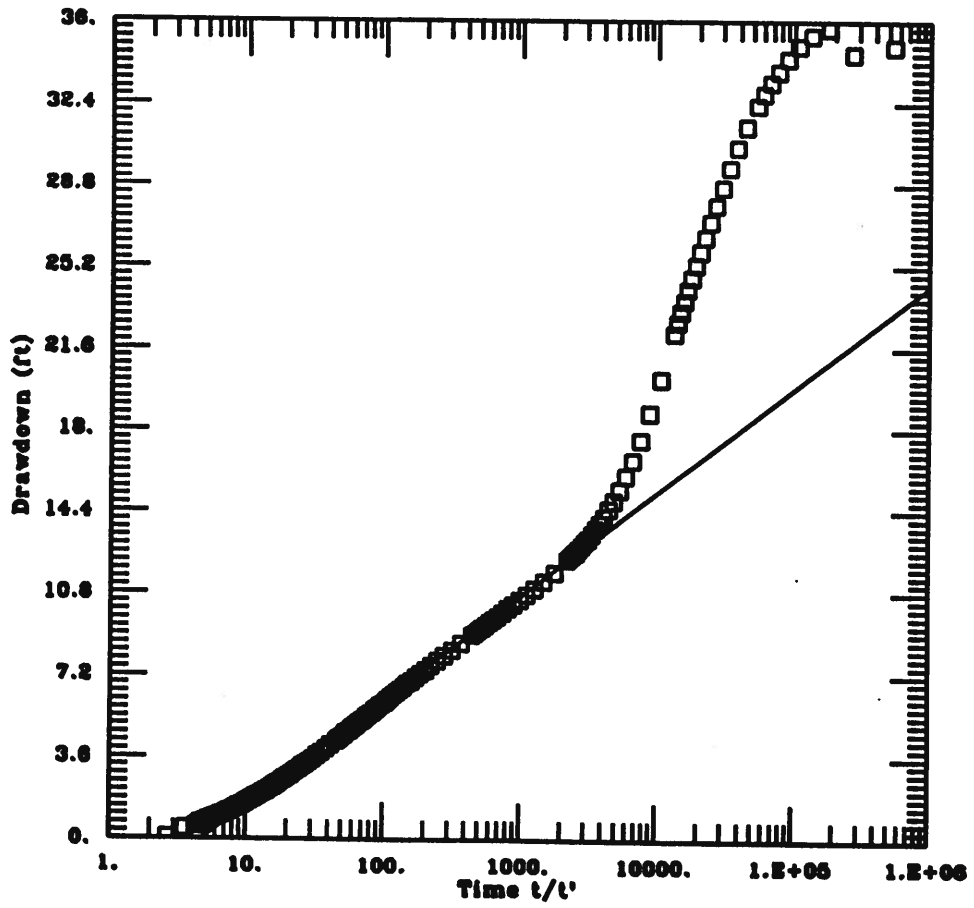
TW-2 Aquifer Test – Recovery Phase



Bureau of Reclamation	Client: **Canadian River Authority**
	Location: **Logan, NM**

Figure 5

TW-2 Recovery Test



DATA SET:
tw2rec.dat
05/11/94

AQUIFER TYPE:
Confined
SOLUTION METHOD:
Theis Recovery
TEST DATE:
March 30 - April 4, 1994
TEST WELL:
TW-2
OBS. WELL:
TW-2

ESTIMATED PARAMETERS:
$T = 0.4706\ ft^2/min = 678\ ft^2/day$
$S' = 4.86$

TEST DATA:
$Q = 11.76\ ft^3/min = 88\ gpm$
t pumping = 4485. min

with b = 119 ft {173' to 292'}

$K = \frac{0.4706\ ft^2/min}{119\ ft} = 5.69\ ft/day$

Using the Theis nonequilibrium equation, a transmissivity of 678 ft^2/day, a storage coefficient of 0.00015 (from TW-1 pump test), a pumping time of 4485 minutes, and a well radius of 0.35 feet, the projected theoretical drawdown at the end of the pumping phase for TW-2 should have been 38.6 feet. The drawdown within the well bore should be greater than this due to well inefficiencies. The actual drawdown within the well bore at the end of the pumping phase was 36.5 feet. This discrepancy could be due to several factors including: the storage coefficient calculated for TW-1 is not the same for the TW-2 site; there could be some leakance into the aquifer; or the differences could be caused by fluid density effects since the water in TW-2 is highly saline (63,000 mg/l TDS). If leakance across the aquitard is a significant factor, then it is further complicated by the conditions that leakance is occurring out of the Tecovas aquifer while the hydraulic head in the Tecovas is higher than the Trujillo's, no leakance when the heads are equal, and leakance into the Tecovas when the head in the Trujillo is higher.

The observation wells did not appear to exhibit any drawdown or recovery effects during the test. Water level fluctuations in the wells were less than 1 foot. Based on water level changes in the observation wells during the TW-3 test, when the barometric probe was functioning properly, the water level changes appear to have a high correlation with barometric pressure changes. OW-5B appeared to possibly be showing some earth-tide effects (see plot for OW-5B during TW-2 pumping phase). Attempts were made to define the barometric efficiency for OW-5B, OW-6A, and OW-6B using data from the TW-3 test (see appendix F). The water level changes in the observation wells were compared with the barometric pressure changes using linear regression to determine the barometric efficiency for each well. This information ultimately was not utilized in any analysis, since the resultant efficiencies could be 'tainted' by water level changes that could be produced by the aquifer tests. Storativity of the aquifer could not be determined without usable data from the observation wells.

TW-3 Pump Test

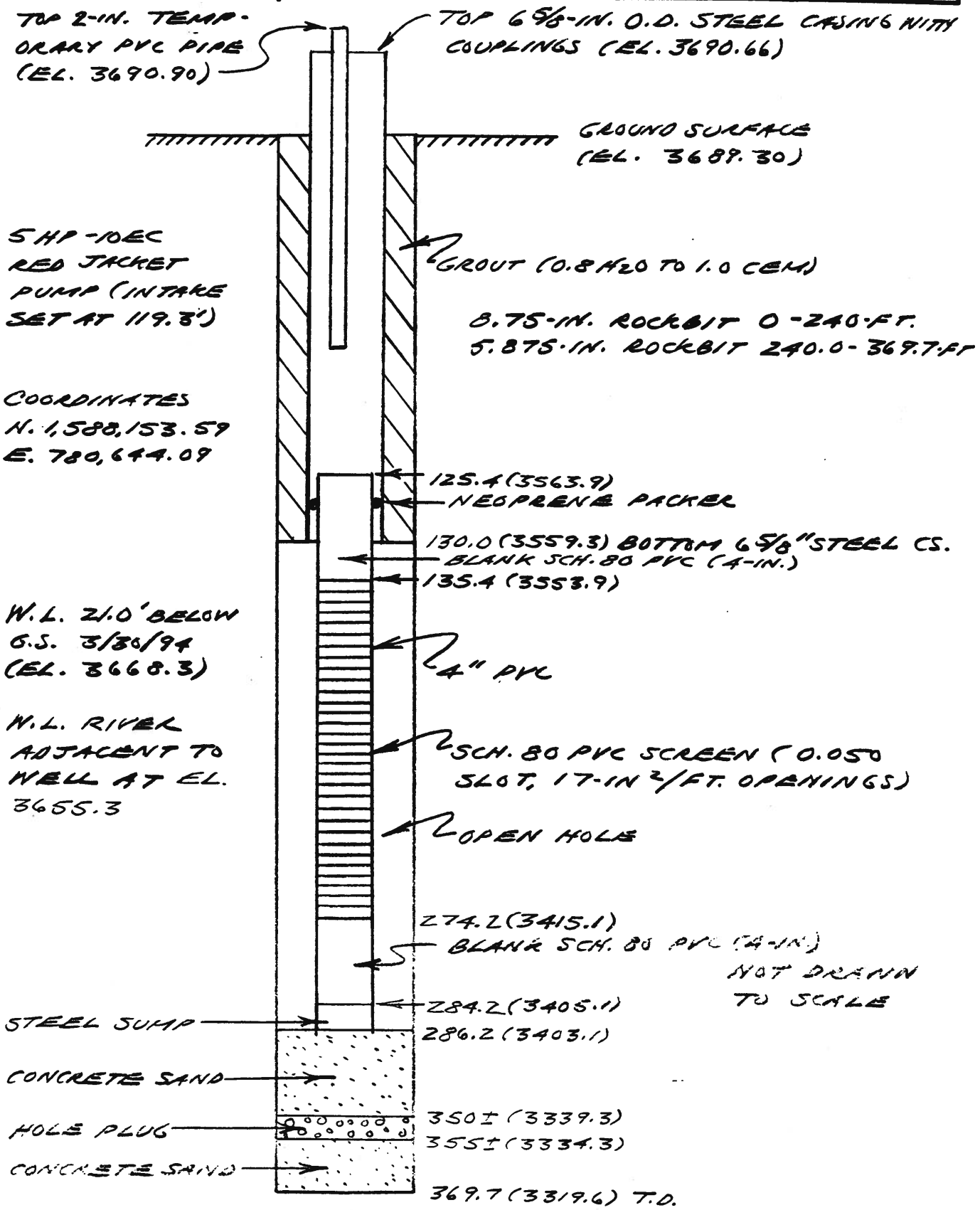
The screened interval for TW-3 was set at a depth of 135.4 feet to 274.2 feet. The screen consisted of 4" schedule 80 PVC with 0.050" slots. The intake for the 5 hp Red Jacket pump was set at a depth of 119.3 feet. See figure 6 for more details on the construction of TW-3. The screened interval was placed for full penetration of the aquifer which has an estimated saturated thickness of 138 feet (aquifer top at 127 feet, aquifer bottom at 265 feet).

The pumping phase for TW-3 began on April 4, 1994 at 9:15 am. Data loggers were used to record the water level changes within TW-3, DH-5A, and DH-5B. All other observation wells were manually measured. A barometric pressure probe was also used with a data logger to obtain barometric changes during the test. The well was pumped at a constant rate of 105 gpm throughout the pumping phase of the test. The discharge rate was measured by timing the flow into a 55 gallon drum. Discharge from TW-3 was routed through approximately 50 feet of 2 inch polyethylene pipe and then through

7-1654 (1-89)
Bureau of Reclamation

COMPUTATION SHEET

BY TAUCHER	DATE 5/3/94	PROJECT LAKE MEREDITH SALINITY	SHEET 1 OF 1
CHKD BY	DATE	FEATURE TW 3 COMPLETION	
DETAILS Figure 6			



several hundred feet of 6 inch plastic pipe where it was discharged to the Canadian River.

TW-3 was pumped at a constant rate of 105 gpm for a 74.75 hour time period during which time the drawdown curve had become relatively flat. At the end of that period, the pump was shut off and recovery data were collected for a period of 101.67 hours during which water levels recovered to static level (within 0.05 feet).

A semi-log plot of the drawdown data for TW-3 during the pumping phase (figure 7) shows a slower rate of drawdown during the first 10 minutes of pumping than later. There were no indications that the well discharge rate was varying during the test. This suggests that the yield from the aquifer was higher during the first 10 minutes of the test. It is not known at this time the cause of this effect, although it could be related to nearby fractures in the aquifer. It should be noted that the drillers reported a 100 percent loss of drilling fluid circulation at a depth of 245 feet. This could represent part of a void or fracture system that could impact the test.

The semi-log time-drawdown plot of the recovery data (figure 8) shows the same curve characteristics as the drawdown plot, only in reverse. The beginning of the recovery curve shows a slower rate of recovery until approximately 100 minutes into the recovery period. At that time the slope of the curve steepens and becomes a straight line. The curve then begins to flatten after 1000 minutes into recovery. The straight line portion of this curve was used to determine the aquifer transmissivity via the method of Theis recovery for a confined aquifer in AQTESOLV (figure 9). The calculations resulted in a transmissivity of 1308 ft^2/day. Using a aquifer saturated thickness of 138 feet, the hydraulic conductivity would be 9.47 ft/day.

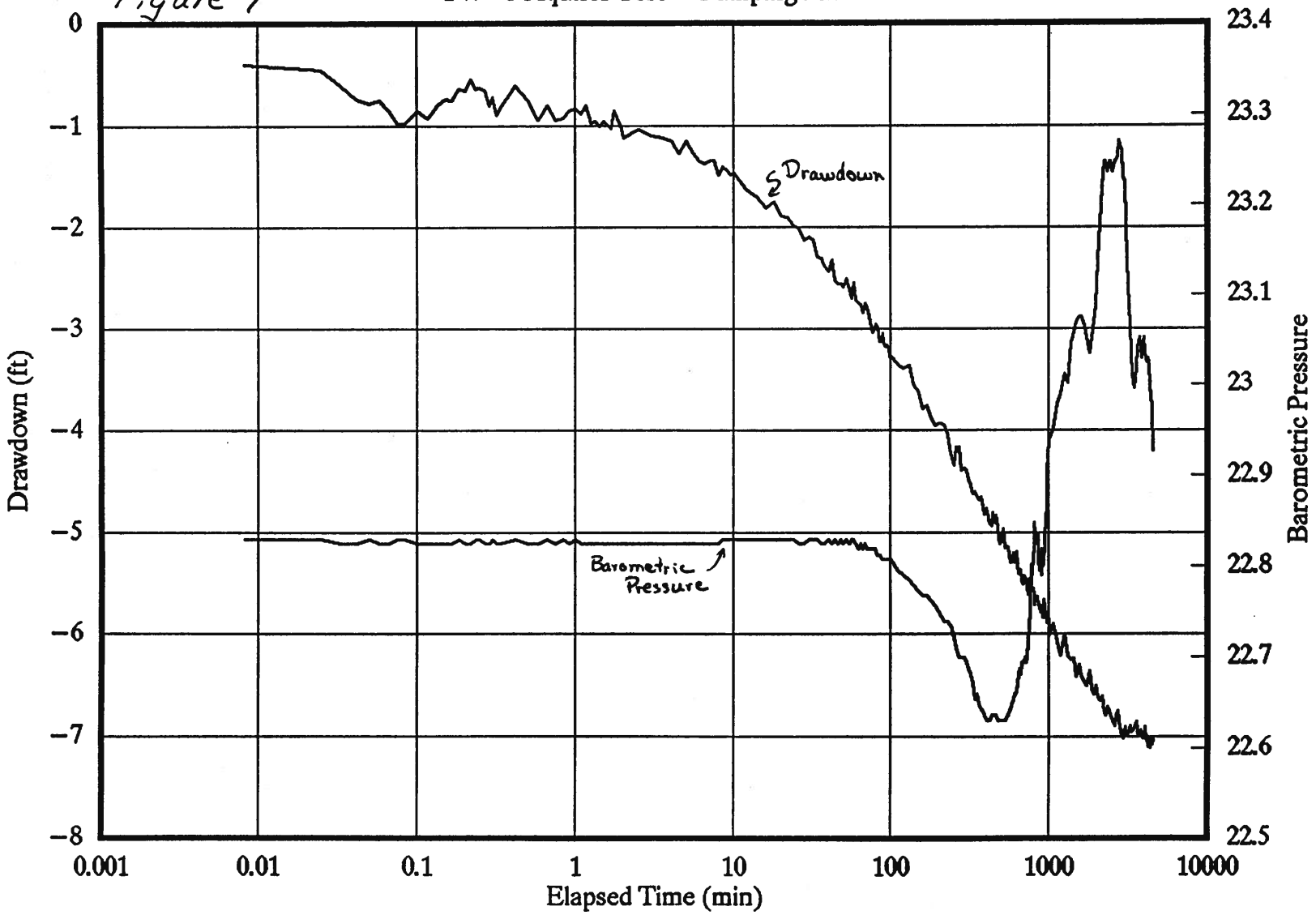
With the Theis nonequilibrium equation, a transmissivity of 1308 ft^2/day, a storage coefficient of 0.00015, a pumping time of 4485 minutes, and a well radius of 0.35 feet, the projected theoretical drawdown at the end of the pumping phase for TW-3 should have been 24.6 feet plus some additional drawdown within the well bore due to well inefficiencies. The actual drawdown within the well bore at the end of the pumping phase was 7 feet. The difference between the actual drawdown and the theoretical drawdown is could be due to a significant volume of vertical leakance occurring across the aquitard or the interception by the drawdown cone of some nearby highly transmissive zone.

As was noted during the TW-2 aquifer test, the observation wells did not appear to exhibit any drawdown or recovery effects during the TW-3 aquifer test. Water level fluctuations in the observation wells appear to reflect mainly barometric pressure changes and possibly some earth-tide effects.

Water Quality Sampling

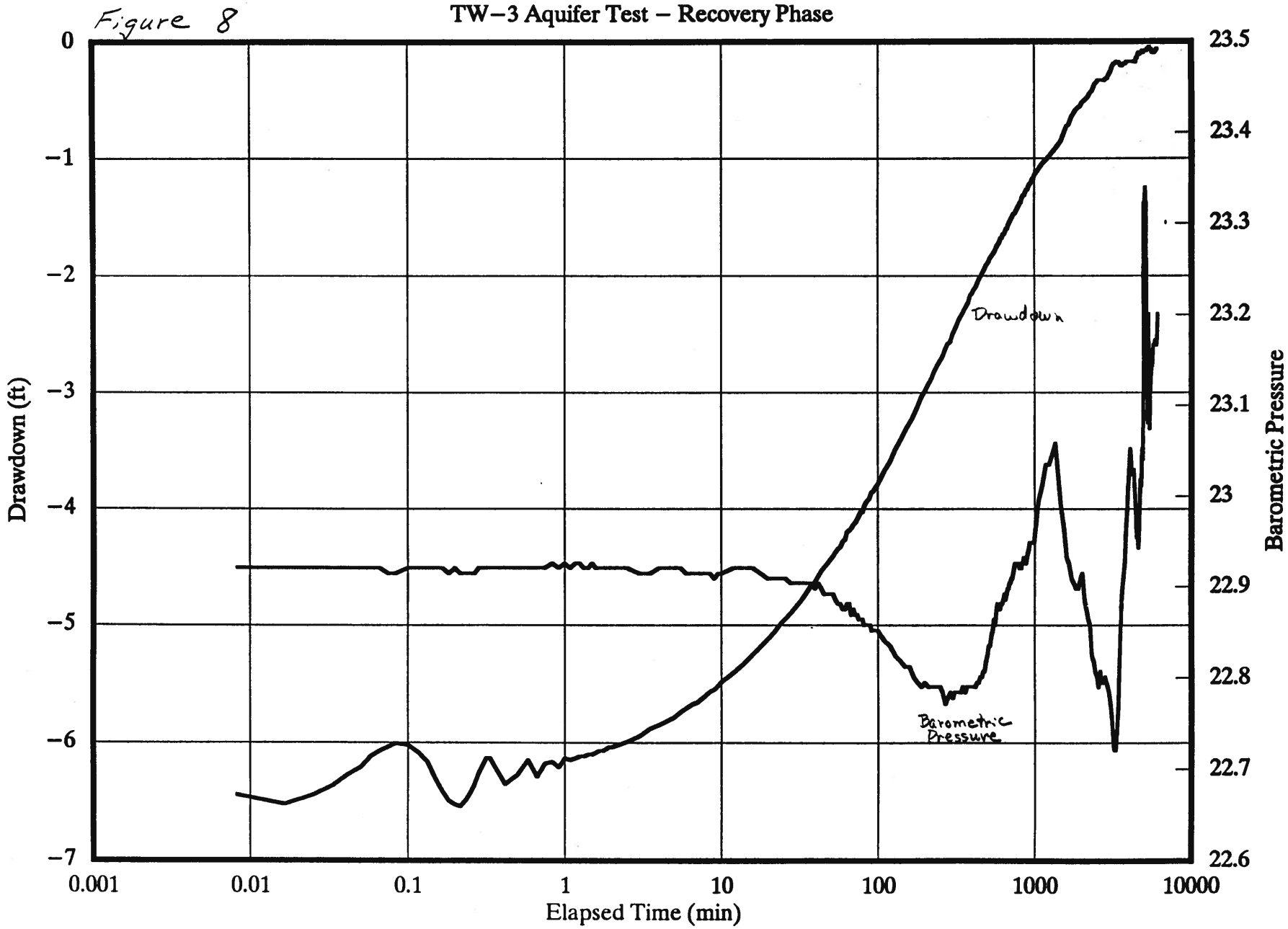
TW-3

Figure 7


TW-3 Aquifer Test – Pumping Phase
Drawdown
Barometric Pressure
Drawdown (ft)
Barometric Pressure
Elapsed Time (min)
0
-1
-2
-3
-4
-5
-6
-7
-8
23.4
23.3
23.2
23.1
23
22.9
22.8
22.7
22.6
22.5
0.001
0.01
0.1
1
10
100
1000
10000

TW-3

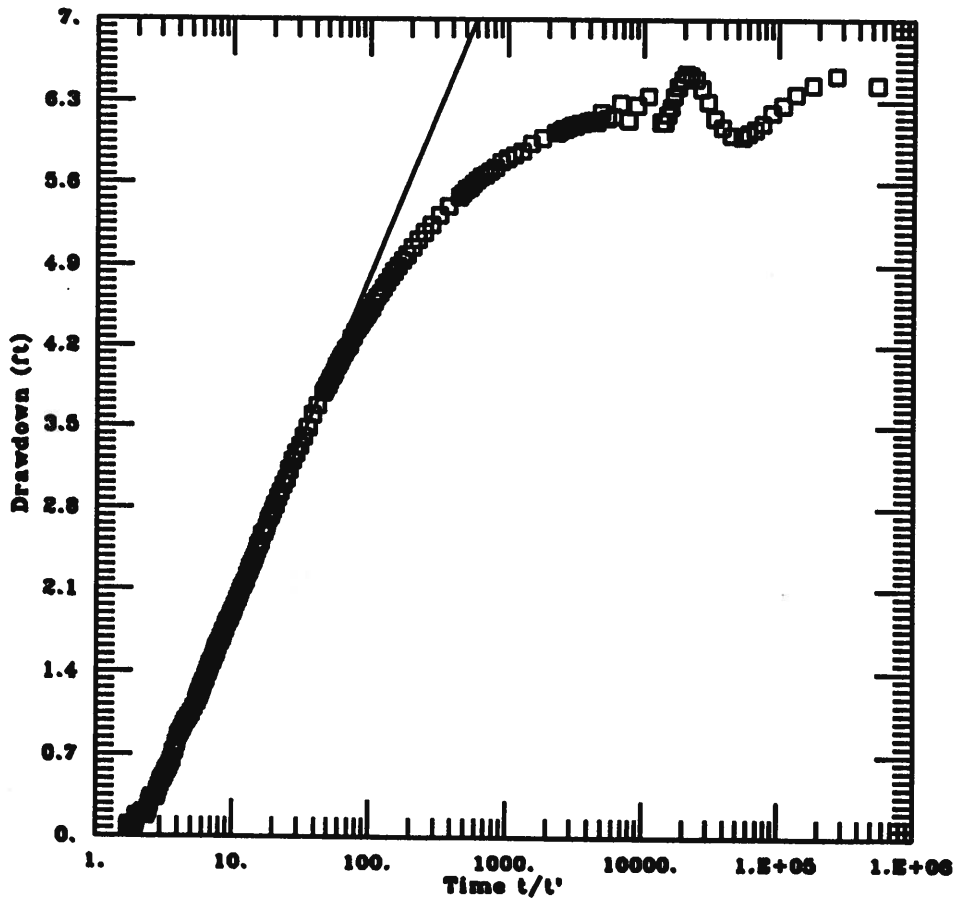
Figure 8


TW-3 Aquifer Test – Recovery Phase
Drawdown (ft)
0
-1
-2
-3
-4
-5
-6
-7
Barometric Pressure
23.5
23.4
23.3
23.2
23.1
23
22.9
22.8
22.7
22.6
0.001
0.01
0.1
1
10
100
1000
10000
Elapsed Time (min)
Drawdown
Barometric Pressure

Bureau of Reclamation	Client: **Canadian River Authority**
	Location: **Logan, NM**

Figure 9

TW-3 Recovery Test



DATA SET:
tw3rec.dat
05/11/94

AQUIFER TYPE:
Confined
SOLUTION METHOD:
Theis Recovery
TEST DATE:
April 4 - April 12, 1994
TEST WELL:
TW-3
OBS. WELL:
TW-3

ESTIMATED PARAMETERS:
T = 0.908 ft^2/min = 1308 ft^2/day
S' = 2.033

TEST DATA:
Q = 14.04 ft^3/min = 105 gpm
t pumping = 4485. min

b = 138 ft {265' to 127'}

$K = \frac{0.908\ ft^2/min}{138\ ft} = 9.47\ ft/day$

Three water quality sample sets were collected at each of the pumped wells (TW-2 and TW-3). One sample set was collected near the beginning of the pumping phase, one near the middle, and one near the end of the test. Each sample set involved the collection of three samples: one raw sample for the cation/anion analysis, the second sample for trace metals analysis, and the third sample for mercury analysis.

Samples were collected manually using a plastic container from the discharge end of a 2 inch polyethylene pipe approximately 60 feet from the well. The raw sample was transferred to a 500 ml plastic bottle with no preservative added. The trace-metals sample was stored in a 500 ml plastic bottle with 2 ml of nitric acid preservative. The sample for the mercury analysis was stored in a 200 ml clear glass bottle with the addition of 10 ml potassium dichromate and nitric acid.

Two quality assurance (QA) samples were prepared at TW-3. One QA sample consisted of a 500 ml plastic bottle filled with distilled water. The second QA sample consisted of a 500 ml plastic bottle filled with duplicated water collected from the well, with 2 ml nitric acid preservative added, and submitted for trace-metals analysis.

The sample field identification numbers and sample type are as follows:

Field ID#	Type	Sample Date	Sample Time
TW2-1	Raw	3/30/94	12:30pm
TW2-2	Metals	"	"
TW2-3	Mercury	"	"
TW2-4	Raw	3/31/94	3:20pm
TW2-5	Mercury	"	"
TW2-6	Metals	"	"
TW2-7	Raw	4/01/94	1:25pm
TW2-8	Metals	"	"
TW2-9	Mercury	"	"
TW3-1	Raw	4/04/94	9:30am
TW3-2	Metals	"	"
TW3-3	Mercury	"	"
TW3-4	Raw	4/05/94	2:15pm
TW3-5	Metals	"	"
TW3-6	Mercury	"	"
TW3-7	Raw	4/06/94	2:35pm
TW3-8	Metals	"	"
TW3-9	Mercury	"	"
TW3-10	Raw (QA: distilled H_2O)		
TW3-11	Metals (QA: split from TW3-8)		

The containers were labeled and placed in a ice cooler while in the field. Sample containers were transferred at the end of the work day to a refrigerator in the motel room. At the completion of both pumping tests, the sample containers were transferred to an ice cooler and packed with "blue-ice" for shipment to lab for analysis.

Periodic conductivity and temperature measurements were made of the discharge water from the pumped wells during the tests using a YSI 3000 T-L-C Meter. Measurements were taken with the 20 millimhos/cm setting and temperature corrected to 25° C. The samples collected from the discharge line were diluted with distilled water to either 1/4 or 1/8 of original concentration to avoid over-ranging of conductivity meter.

The following tabulates the conductivities obtained (conductivities corrected for above dilution factors):

	Date	Time	Conductivity (millimhos/cm @ 25°TC)	Temperature (°C)
TW-2:	3/30/94	12:30	78.48	12.6
	3/30/94	15:02	101.6	(not obtained)
	3/30/94	17:02	105.6	17.0
	3/31/94	10:00	107.68	15.9
	3/31/94	15:20	105.04	19.8
	4/01/94	9:45	103.52	18.1
	4/02/94	13:25	107.92	19.4
TW-3:	4/04/94	9:30	31.04	17.8
	4/04/94	11:23	28.56	18.4
	4/05/94	14:15	29.52	17.9
	4/06/94	14:35	27.92	17.3

Appendix G contains the laboratory reports of the sample analyses.

Appendix A ------- TW-2 pumping phase drawdown data and plots for TW-2, OW-5A, and OW-5B.

Appendix B ------- TW-2 recovery phase drawdown data and plots for TW-2, OW-5A, and OW-5B.

Appendix C ------- TW-3 pumping phase drawdown data and plots for TW-3, OW-5A, and OW-5B.

Appendix D ------- TW-3 recovery phase drawdown data and plots for TW-3, OW-5A, and OW-5B.

Appendix E ------- Water level data and plots for other observation wells during TW-2 and TW-3 pumping tests.

Appendix F ------- Barometric efficiency estimates for OW-5A, OW-5B, OW-6A, and OW-6B.

Appendix G ------- Laboratory analysis reports for water quality samples collected from TW-2 and TW-3 during pumping tests.

Appendix A

TW-2 Aquifer Test – Pumping Phase
Observation Well: TW-2
Start Date = March 30, 1994
Start Time = 11:44:30 am
Static WL= 20.06
MP Stick Up = 2.04
GS Elevation = 3689
Pumping Rate = 88 gpm

Note: Data logger was started approximately 30 seconds after pump started.

Logger Elapsed Time (min)	Test Elapsed Time (min)	Depth to Water (from MP)	Drawdown from Static WL	Depth to Water (from GS)	Water Level Elevation
0.0000	0.5000	46.023	−25.963	43.983	3645.02
0.0083	0.5083	46.008	−25.948	43.968	3645.03
0.0166	0.5166	46.087	−26.027	44.047	3644.95
0.0250	0.5250	46.229	−26.169	44.189	3644.81
0.0333	0.5333	46.356	−26.296	44.316	3644.68
0.0416	0.5416	46.467	−26.407	44.427	3644.57
0.0500	0.5500	46.514	−26.454	44.474	3644.53
0.0583	0.5583	46.403	−26.343	44.363	3644.64
0.0666	0.5666	46.578	−26.518	44.538	3644.46
0.0750	0.5750	46.673	−26.613	44.633	3644.37
0.0833	0.5833	47.005	−26.945	44.965	3644.04
0.1000	0.6000	46.926	−26.866	44.886	3644.11
0.1166	0.6166	46.942	−26.882	44.902	3644.10
0.1333	0.6333	47.005	−26.945	44.965	3644.04
0.1500	0.6500	47.195	−27.135	45.155	3643.85
0.1666	0.6666	47.433	−27.373	45.393	3643.61
0.1833	0.6833	47.797	−27.737	45.757	3643.24
0.2000	0.7000	47.559	−27.499	45.519	3643.48
0.2166	0.7166	47.971	−27.911	45.931	3643.07
0.2333	0.7333	47.844	−27.784	45.804	3643.20
0.2500	0.7500	47.987	−27.927	45.947	3643.05
0.2666	0.7666	48.335	−28.275	46.295	3642.71
0.2833	0.7833	48.335	−28.275	46.295	3642.71
0.3000	0.8000	48.398	−28.338	46.358	3642.64
0.3166	0.8166	48.652	−28.592	46.612	3642.39
0.3333	0.8333	48.620	−28.560	46.580	3642.42
0.4166	0.9166	49.222	−29.162	47.182	3641.82
0.5000	1.0000	49.665	−29.605	47.625	3641.38
0.5833	1.0833	50.029	−29.969	47.989	3641.01
0.6666	1.1666	50.298	−30.238	48.258	3640.74
0.7500	1.2500	50.631	−30.571	48.591	3640.41
0.8333	1.3333	50.821	−30.761	48.781	3640.22
0.9166	1.4166	51.074	−31.014	49.034	3639.97
1.0000	1.5000	51.216	−31.156	49.176	3639.82
1.0833	1.5833	51.565	−31.505	49.525	3639.48
1.1666	1.6666	51.786	−31.726	49.746	3639.25
1.2500	1.7500	52.135	−32.075	50.095	3638.91

1.3333	1.8333	52.309	−32.249	50.269	3638.73
1.4166	1.9166	52.515	−32.455	50.475	3638.53
1.5000	2.0000	52.546	−32.486	50.506	3638.49
1.5833	2.0833	52.641	−32.581	50.601	3638.40
1.6666	2.1666	52.847	−32.787	50.807	3638.19
1.7500	2.2500	52.831	−32.771	50.791	3638.21
1.8333	2.3333	52.942	−32.882	50.902	3638.10
1.9166	2.4166	52.974	−32.914	50.934	3638.07
2.0	2.5	53.148	−33.088	51.108	3637.89
2.5	3.0	53.654	−33.594	51.614	3637.39
3.0	3.5	54.050	−33.990	52.010	3636.99
3.5	4.0	54.462	−34.402	52.422	3636.58
4.0	4.5	54.525	−34.465	52.485	3636.52
4.5	5.0	54.810	−34.750	52.770	3636.23
5.0	5.5	55.095	−35.035	53.055	3635.95
5.5	6.0	55.190	−35.130	53.150	3635.85
6.0	6.5	55.364	−35.304	53.324	3635.68
6.5	7.0	55.585	−35.525	53.545	3635.46
7.0	7.5	55.649	−35.589	53.609	3635.39
7.5	8.0	55.965	−35.905	53.925	3635.08
8.0	8.5	55.791	−35.731	53.751	3635.25
8.5	9.0	55.981	−35.921	53.941	3635.06
9.0	9.5	55.981	−35.921	53.941	3635.06
9.5	10.0	56.345	−36.285	54.305	3634.70
10	10.5	56.488	−36.428	54.448	3634.55
12	12.5	56.883	−36.823	54.843	3634.16
14	14.5	57.121	−37.061	55.081	3633.92
16	16.5	57.263	−37.203	55.223	3633.78
18	18.5	57.406	−37.346	55.366	3633.63
20	20.5	57.785	−37.725	55.745	3633.26
22	22.5	57.896	−37.836	55.856	3633.14
24	24.5	58.244	−38.184	56.204	3632.80
26	26.5	58.197	−38.137	56.157	3632.84
28	28.5	58.339	−38.279	56.299	3632.70
30	30.5	58.324	−38.264	56.284	3632.72
32	32.5	58.529	−38.469	56.489	3632.51
34	34.5	58.561	−38.501	56.521	3632.48
36	36.5	58.593	−38.533	56.553	3632.45
38	38.5	58.877	−38.817	56.837	3632.16
40	40.5	58.783	−38.723	56.743	3632.26
42	42.5	58.957	−38.897	56.917	3632.08
44	44.5	59.036	−38.976	56.996	3632.00
46	46.5	59.226	−39.166	57.186	3631.81
48	48.5	59.257	−39.197	57.217	3631.78
50	50.5	59.479	−39.419	57.439	3631.56
52	52.5	59.321	−39.261	57.281	3631.72
54	54.5	59.511	−39.451	57.471	3631.53
56	56.5	59.368	−39.308	57.328	3631.67
58	58.5	59.495	−39.435	57.455	3631.55
60	60.5	59.447	−39.387	57.407	3631.59
62	62.5	59.558	−39.498	57.518	3631.48

64	64.5	59.716	−39.656	57.676	3631.32
66	66.5	59.780	−39.720	57.740	3631.26
68	68.5	59.732	−39.672	57.692	3631.31
70	70.5	60.001	−39.941	57.961	3631.04
72	72.5	60.112	−40.052	58.072	3630.93
74	74.5	60.001	−39.941	57.961	3631.04
76	76.5	60.175	−40.115	58.135	3630.87
78	78.5	60.064	−40.004	58.024	3630.98
80	80.5	60.159	−40.099	58.119	3630.88
82	82.5	60.286	−40.226	58.246	3630.75
84	84.5	60.349	−40.289	58.309	3630.69
86	86.5	60.144	−40.084	58.104	3630.90
88	88.5	60.476	−40.416	58.436	3630.56
90	90.5	60.381	−40.321	58.341	3630.66
92	92.5	60.476	−40.416	58.436	3630.56
94	94.5	60.523	−40.463	58.483	3630.52
96	96.5	60.508	−40.448	58.468	3630.53
98	98.5	60.476	−40.416	58.436	3630.56
100	100.5	60.602	−40.542	58.562	3630.44
110	110.5	60.602	−40.542	58.562	3630.44
120	120.5	60.887	−40.827	58.847	3630.15
130	130.5	60.919	−40.859	58.879	3630.12
140	140.5	60.966	−40.906	58.926	3630.07
150	150.5	61.141	−41.081	59.101	3629.90
160	160.5	61.077	−41.017	59.037	3629.96
170	170.5	61.251	−41.191	59.211	3629.79
180	180.5	61.663	−41.603	59.623	3629.38
190	190.5	61.457	−41.397	59.417	3629.58
200	200.5	61.473	−41.413	59.433	3629.57
210	210.5	61.694	−41.634	59.654	3629.35
220	220.5	61.837	−41.777	59.797	3629.20
230	230.5	61.963	−41.903	59.923	3629.08
240	240.5	61.948	−41.888	59.908	3629.09
250	250.5	61.837	−41.777	59.797	3629.20
260	260.5	62.106	−42.046	60.066	3628.93
270	270.5	62.312	−42.252	60.272	3628.73
280	280.5	62.122	−42.062	60.082	3628.92
290	290.5	62.201	−42.141	60.161	3628.84
300	300.5	62.454	−42.394	60.414	3628.59
310	310.5	62.232	−42.172	60.192	3628.81
320	320.5	62.501	−42.441	60.461	3628.54
330	330.5	62.723	−42.663	60.683	3628.32
340	340.5	62.581	−42.521	60.541	3628.46
350	350.5	62.565	−42.505	60.525	3628.48
360	360.5	62.770	−42.710	60.730	3628.27
370	370.5	62.454	−42.394	60.414	3628.59
380	380.5	62.992	−42.932	60.952	3628.05
390	390.5	62.850	−42.790	60.810	3628.19
400	400.5	62.707	−42.647	60.667	3628.33
410	410.5	62.755	−42.695	60.715	3628.29
420	420.5	62.881	−42.821	60.841	3628.16

430	430.5	62.786	−42.726	60.746	3628.25
440	440.5	63.150	−43.090	61.110	3627.89
450	450.5	62.913	−42.853	60.873	3628.13
460	460.5	62.992	−42.932	60.952	3628.05
470	470.5	62.881	−42.821	60.841	3628.16
480	480.5	63.134	−43.074	61.094	3627.91
490	490.5	62.865	−42.805	60.825	3628.18
500	500.5	63.229	−43.169	61.189	3627.81
510	510.5	63.372	−43.312	61.332	3627.67
520	520.5	63.103	−43.043	61.063	3627.94
530	530.5	63.103	−43.043	61.063	3627.94
540	540.5	63.166	−43.106	61.126	3627.87
550	550.5	63.324	−43.264	61.284	3627.72
560	560.5	63.150	−43.090	61.110	3627.89
570	570.5	63.435	−43.375	61.395	3627.61
580	580.5	63.245	−43.185	61.205	3627.80
590	590.5	63.403	−43.343	61.363	3627.64
600	600.5	59.764	−39.704	57.724	3631.28
610	610.5	58.893	−38.833	56.853	3632.15
620	620.5	58.371	−38.311	56.331	3632.67
630	630.5	57.675	−37.615	55.635	3633.37
640	640.5	57.548	−37.488	55.508	3633.49
650	650.5	57.374	−37.314	55.334	3633.67
660	660.5	57.026	−36.966	54.986	3634.01
670	670.5	57.089	−37.029	55.049	3633.95
680	680.5	57.105	−37.045	55.065	3633.94
690	690.5	56.931	−36.871	54.891	3634.11
700	700.5	56.915	−36.855	54.875	3634.13
710	710.5	57.010	−36.950	54.970	3634.03
720	720.5	57.026	−36.966	54.986	3634.01
730	730.5	56.915	−36.855	54.875	3634.13
740	740.5	57.042	−36.982	55.002	3634.00
750	750.5	56.867	−36.807	54.827	3634.17
760	760.5	56.915	−36.855	54.875	3634.13
770	770.5	56.931	−36.871	54.891	3634.11
780	780.5	56.693	−36.633	54.653	3634.35
790	790.5	56.962	−36.902	54.922	3634.08
800	800.5	56.994	−36.934	54.954	3634.05
810	810.5	56.772	−36.712	54.732	3634.27
820	820.5	56.883	−36.823	54.843	3634.16
830	830.5	56.646	−36.586	54.606	3634.39
840	840.5	56.804	−36.744	54.764	3634.24
850	850.5	56.931	−36.871	54.891	3634.11
860	860.5	56.725	−36.665	54.685	3634.32
870	870.5	56.630	−36.570	54.590	3634.41
880	880.5	56.662	−36.602	54.622	3634.38
890	890.5	56.646	−36.586	54.606	3634.39
900	900.5	56.915	−36.855	54.875	3634.13
910	910.5	56.693	−36.633	54.653	3634.35
920	920.5	56.725	−36.665	54.685	3634.32
930	930.5	56.788	−36.728	54.748	3634.25

940	940.5	56.836	−36.776	54.796	3634.20
950	950.5	56.883	−36.823	54.843	3634.16
960	960.5	56.804	−36.744	54.764	3634.24
970	970.5	56.519	−36.459	54.479	3634.52
980	980.5	56.804	−36.744	54.764	3634.24
990	990.5	56.915	−36.855	54.875	3634.13
1000	1000.5	56.804	−36.744	54.764	3634.24
1060	1060.5	56.915	−36.855	54.875	3634.13
1120	1120.5	56.852	−36.792	54.812	3634.19
1180	1180.5	56.329	−36.269	54.289	3634.71
1240	1240.5	56.424	−36.364	54.384	3634.62
1300	1300.5	56.266	−36.206	54.226	3634.77
1360	1360.5	55.597	−35.537	53.557	3635.44
1420	1420.5	56.519	−36.459	54.479	3634.52
1480	1480.5	56.139	−36.079	54.099	3634.90
1540	1540.5	56.440	−36.380	54.400	3634.60
1600	1600.5	56.408	−36.348	54.368	3634.63
1660	1660.5	56.456	−36.396	54.416	3634.58
1720	1720.5	56.187	−36.127	54.147	3634.85
1780	1780.5	56.124	−36.064	54.084	3634.92
1840	1840.5	56.219	−36.159	54.179	3634.82
1900	1900.5	56.155	−36.095	54.115	3634.89
1960	1960.5	56.503	−36.443	54.463	3634.54
2020	2020.5	56.329	−36.269	54.289	3634.71
2080	2080.5	56.155	−36.095	54.115	3634.89
2140	2140.5	56.203	−36.143	54.163	3634.84
2200	2200.5	56.171	−36.111	54.131	3634.87
2260	2260.5	56.124	−36.064	54.084	3634.92
2320	2320.5	56.298	−36.238	54.258	3634.74
2380	2380.5	56.266	−36.206	54.226	3634.77
2440	2440.5	56.092	−36.032	54.052	3634.95
2500	2500.5	56.124	−36.064	54.084	3634.92
2560	2560.5	56.393	−36.333	54.353	3634.65
2620	2620.5	56.013	−35.953	53.973	3635.03
2680	2680.5	56.345	−36.285	54.305	3634.70
2740	2740.5	56.535	−36.475	54.495	3634.51
2800	2800.5	56.424	−36.364	54.384	3634.62
2860	2860.5	56.219	−36.159	54.179	3634.82
2920	2920.5	56.298	−36.238	54.258	3634.74
2980	2980.5	56.234	−36.174	54.194	3634.81
3040	3040.5	56.313	−36.253	54.273	3634.73
3100	3100.5	56.124	−36.064	54.084	3634.92
3160	3160.5	56.219	−36.159	54.179	3634.82
3220	3220.5	56.567	−36.507	54.527	3634.47
3280	3280.5	56.076	−36.016	54.036	3634.96
3340	3340.5	56.329	−36.269	54.289	3634.71
3400	3400.5	56.361	−36.301	54.321	3634.68
3460	3460.5	56.567	−36.507	54.527	3634.47
3520	3520.5	56.393	−36.333	54.353	3634.65
3580	3580.5	56.456	−36.396	54.416	3634.58
3640	3640.5	56.345	−36.285	54.305	3634.70

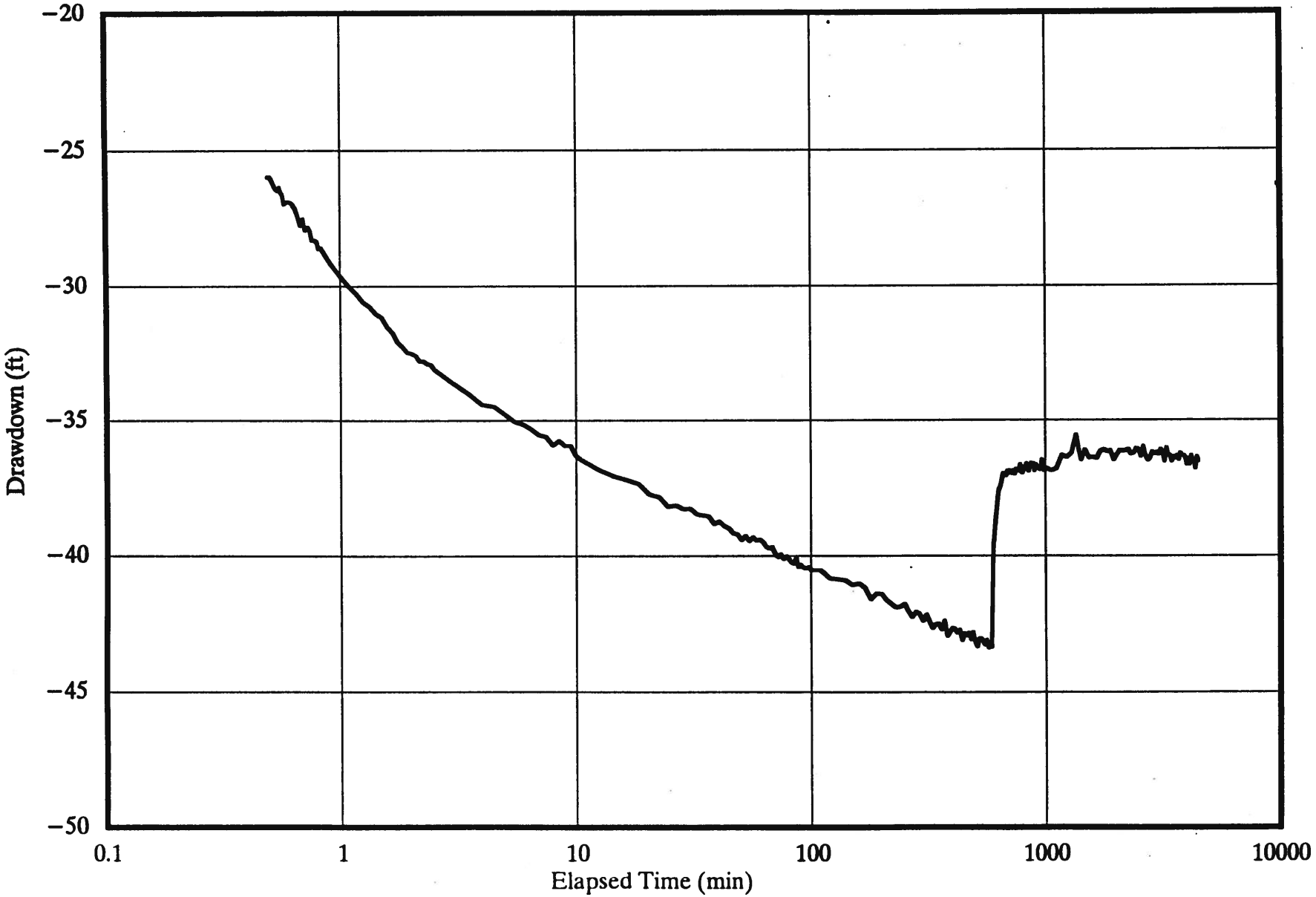
3700	3700.5	56.519	−36.459	54.479	3634.52
3760	3760.5	56.266	−36.206	54.226	3634.77
3820	3820.5	56.345	−36.285	54.305	3634.70
3880	3880.5	56.361	−36.301	54.321	3634.68
3940	3940.5	56.408	−36.348	54.368	3634.63
4000	4000.5	56.678	−36.618	54.638	3634.36
4060	4060.5	56.456	−36.396	54.416	3634.58
4120	4120.5	56.693	−36.633	54.653	3634.35
4180	4180.5	56.361	−36.301	54.321	3634.68
4240	4240.5	56.535	−36.475	54.495	3634.51
4300	4300.5	56.551	−36.491	54.511	3634.49
4360	4360.5	56.820	−36.760	54.780	3634.22
4420	4420.5	56.408	−36.348	54.368	3634.63
4480	4480.5	56.567	−36.507	54.527	3634.47

Discharge Measurements:

Date	Time	Rate	Method
30−Mar−94	13:09	92 gpm	Flow meter
30−Mar−94	14:45	91 gpm	Flow meter
30−Mar−94	14:45	88 gpm	55 gallon drum
30−Mar−94	16:58	91 gpm	Flow meter
31−Mar−94	9:40	88 gpm	55 gallon drum
31−Mar−94	14:00	88 gpm	55 gallon drum
01−Apr−94	8:15	87 gpm	55 gallon drum
01−Apr−94	13:25	87 gpm	55 gallon drum
02−Apr−94	7:35	87 gpm	55 gallon drum
02−Apr−94	10:24	87 gpm	55 gallon drum

TW2

TW2 Aquifer Test – Pumping Phase



TW−2 Aquifer Test − Pumping Phase
Observation Well: OW−5A
Start Date = March 30, 1994
Start Time = 11:44:30 am
Static WL= 152.2
MP Stick Up = 1.32
GS Elevation = 3816.4

Logger Elapsed Time	Depth to Water (from MP)	Drawdown from Static WL	Depth to Water (from GS)	Water Level Elevation
0.0000	152.200	0.000	150.880	3665.52
0.0033	152.200	0.000	150.880	3665.52
0.0066	152.200	0.000	150.880	3665.52
0.0099	152.200	0.000	150.880	3665.52
0.0133	152.210	−0.010	150.890	3665.51
0.0166	152.200	0.000	150.880	3665.52
0.0200	152.200	0.000	150.880	3665.52
0.0233	152.200	0.000	150.880	3665.52
0.0266	152.200	0.000	150.880	3665.52
0.0300	152.210	−0.010	150.890	3665.51
0.0333	152.200	0.000	150.880	3665.52
0.0500	152.200	0.000	150.880	3665.52
0.0666	152.200	0.000	150.880	3665.52
0.0833	152.200	0.000	150.880	3665.52
0.1000	152.210	−0.010	150.890	3665.51
0.1166	152.200	0.000	150.880	3665.52
0.1333	152.200	0.000	150.880	3665.52
0.1500	152.200	0.000	150.880	3665.52
0.1666	152.200	0.000	150.880	3665.52
0.1833	152.200	0.000	150.880	3665.52
0.2000	152.200	0.000	150.880	3665.52
0.2166	152.200	0.000	150.880	3665.52
0.2333	152.200	0.000	150.880	3665.52
0.2500	152.200	0.000	150.880	3665.52
0.2666	152.200	0.000	150.880	3665.52
0.2833	152.200	0.000	150.880	3665.52
0.3000	152.200	0.000	150.880	3665.52
0.3166	152.200	0.000	150.880	3665.52
0.3333	152.200	0.000	150.880	3665.52
0.4167	152.200	0.000	150.880	3665.52
0.5000	152.200	0.000	150.880	3665.52
0.5833	152.200	0.000	150.880	3665.52
0.6667	152.200	0.000	150.880	3665.52
0.7500	152.200	0.000	150.880	3665.52
0.8333	152.200	0.000	150.880	3665.52
0.9167	152.200	0.000	150.880	3665.52
1.0000	152.200	0.000	150.880	3665.52
1.0833	152.200	0.000	150.880	3665.52
1.1667	152.200	0.000	150.880	3665.52

1.2500	152.210	−0.010	150.890	3665.51
1.3333	152.210	−0.010	150.890	3665.51
1.4166	152.210	−0.010	150.890	3665.51
1.5000	152.210	−0.010	150.890	3665.51
1.5833	152.200	0.000	150.880	3665.52
1.6667	152.200	0.000	150.880	3665.52
1.7500	152.200	0.000	150.880	3665.52
1.8333	152.200	0.000	150.880	3665.52
1.9167	152.200	0.000	150.880	3665.52
2.0	152.200	0.000	150.880	3665.52
2.5	152.200	0.000	150.880	3665.52
3.0	152.200	0.000	150.880	3665.52
3.5	152.200	0.000	150.880	3665.52
4.0	152.200	0.000	150.880	3665.52
4.5	152.200	0.000	150.880	3665.52
5.0	152.200	0.000	150.880	3665.52
5.5	152.200	0.000	150.880	3665.52
6.0	152.200	0.000	150.880	3665.52
6.5	152.200	0.000	150.880	3665.52
7.0	152.200	0.000	150.880	3665.52
7.5	152.200	0.000	150.880	3665.52
8.0	152.200	0.000	150.880	3665.52
8.5	152.200	0.000	150.880	3665.52
9.0	152.200	0.000	150.880	3665.52
9.5	152.200	0.000	150.880	3665.52
10	152.200	0.000	150.880	3665.52
12	152.210	−0.010	150.890	3665.51
14	152.200	0.000	150.880	3665.52
16	152.200	0.000	150.880	3665.52
18	152.200	0.000	150.880	3665.52
20	152.200	0.000	150.880	3665.52
22	152.200	0.000	150.880	3665.52
24	152.200	0.000	150.880	3665.52
26	152.200	0.000	150.880	3665.52
28	152.200	0.000	150.880	3665.52
30	152.200	0.000	150.880	3665.52
32	152.200	0.000	150.880	3665.52
34	152.200	0.000	150.880	3665.52
36	152.200	0.000	150.880	3665.52
38	152.200	0.000	150.880	3665.52
40	152.200	0.000	150.880	3665.52
42	152.200	0.000	150.880	3665.52
44	152.200	0.000	150.880	3665.52
46	152.200	0.000	150.880	3665.52
48	152.200	0.000	150.880	3665.52
50	152.200	0.000	150.880	3665.52
52	152.190	0.010	150.870	3665.53
54	152.200	0.000	150.880	3665.52
56	152.190	0.010	150.870	3665.53
58	152.190	0.010	150.870	3665.53
60	152.200	0.000	150.880	3665.52

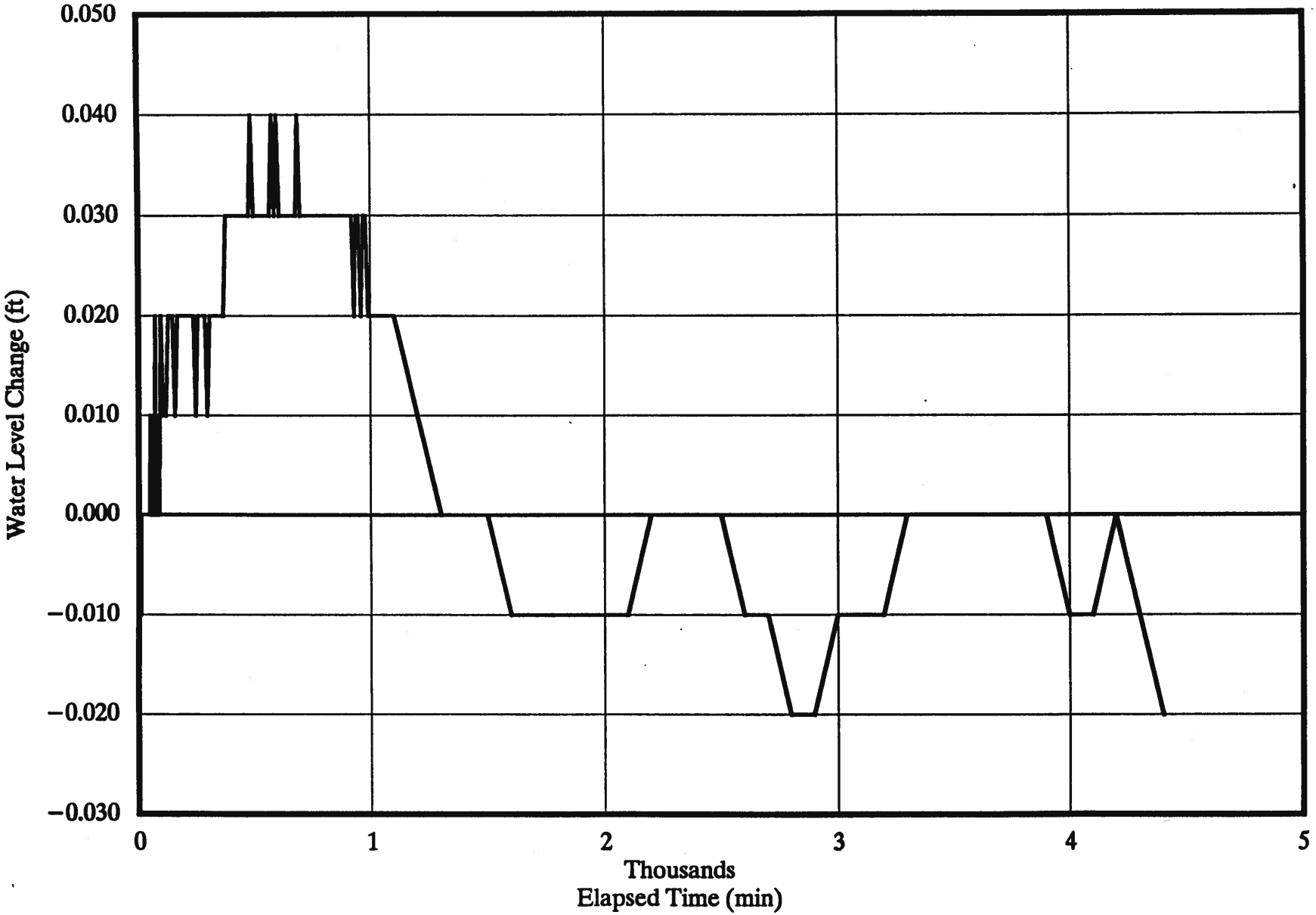
62	152.190	0.010	150.870	3665.53
64	152.200	0.000	150.880	3665.52
66	152.200	0.000	150.880	3665.52
68	152.200	0.000	150.880	3665.52
70	152.190	0.010	150.870	3665.53
72	152.190	0.010	150.870	3665.53
74	152.180	0.020	150.860	3665.54
76	152.190	0.010	150.870	3665.53
78	152.190	0.010	150.870	3665.53
80	152.200	0.000	150.880	3665.52
82	152.190	0.010	150.870	3665.53
84	152.190	0.010	150.870	3665.53
86	152.200	0.000	150.880	3665.52
88	152.200	0.000	150.880	3665.52
90	152.190	0.010	150.870	3665.53
92	152.200	0.000	150.880	3665.52
94	152.190	0.010	150.870	3665.53
96	152.190	0.010	150.870	3665.53
98	152.180	0.020	150.860	3665.54
100	152.180	0.020	150.860	3665.54
110	152.190	0.010	150.870	3665.53
120	152.190	0.010	150.870	3665.53
130	152.180	0.020	150.860	3665.54
140	152.180	0.020	150.860	3665.54
150	152.180	0.020	150.860	3665.54
160	152.190	0.010	150.870	3665.53
170	152.180	0.020	150.860	3665.54
180	152.180	0.020	150.860	3665.54
190	152.180	0.020	150.860	3665.54
200	152.180	0.020	150.860	3665.54
210	152.180	0.020	150.860	3665.54
220	152.180	0.020	150.860	3665.54
230	152.180	0.020	150.860	3665.54
240	152.180	0.020	150.860	3665.54
250	152.190	0.010	150.870	3665.53
260	152.180	0.020	150.860	3665.54
270	152.180	0.020	150.860	3665.54
280	152.180	0.020	150.860	3665.54
290	152.180	0.020	150.860	3665.54
300	152.190	0.010	150.870	3665.53
310	152.180	0.020	150.860	3665.54
320	152.180	0.020	150.860	3665.54
330	152.180	0.020	150.860	3665.54
340	152.180	0.020	150.860	3665.54
350	152.180	0.020	150.860	3665.54
360	152.180	0.020	150.860	3665.54
370	152.180	0.020	150.860	3665.54
380	152.170	0.030	150.850	3665.55
390	152.170	0.030	150.850	3665.55
400	152.170	0.030	150.850	3665.55
410	152.170	0.030	150.850	3665.55

420	152.170	0.030	150.850	3665.55
430	152.170	0.030	150.850	3665.55
440	152.170	0.030	150.850	3665.55
450	152.170	0.030	150.850	3665.55
460	152.170	0.030	150.850	3665.55
470	152.170	0.030	150.850	3665.55
480	152.170	0.030	150.850	3665.55
490	152.160	0.040	150.840	3665.56
500	152.170	0.030	150.850	3665.55
510	152.170	0.030	150.850	3665.55
520	152.170	0.030	150.850	3665.55
530	152.170	0.030	150.850	3665.55
540	152.170	0.030	150.850	3665.55
550	152.170	0.030	150.850	3665.55
560	152.170	0.030	150.850	3665.55
570	152.170	0.030	150.850	3665.55
580	152.160	0.040	150.840	3665.56
590	152.170	0.030	150.850	3665.55
600	152.160	0.040	150.840	3665.56
610	152.170	0.030	150.850	3665.55
620	152.170	0.030	150.850	3665.55
630	152.170	0.030	150.850	3665.55
640	152.170	0.030	150.850	3665.55
650	152.170	0.030	150.850	3665.55
660	152.170	0.030	150.850	3665.55
670	152.170	0.030	150.850	3665.55
680	152.170	0.030	150.850	3665.55
690	152.160	0.040	150.840	3665.56
700	152.170	0.030	150.850	3665.55
710	152.170	0.030	150.850	3665.55
720	152.170	0.030	150.850	3665.55
730	152.170	0.030	150.850	3665.55
740	152.170	0.030	150.850	3665.55
750	152.170	0.030	150.850	3665.55
760	152.170	0.030	150.850	3665.55
770	152.170	0.030	150.850	3665.55
780	152.170	0.030	150.850	3665.55
790	152.170	0.030	150.850	3665.55
800	152.170	0.030	150.850	3665.55
810	152.170	0.030	150.850	3665.55
820	152.170	0.030	150.850	3665.55
830	152.170	0.030	150.850	3665.55
840	152.170	0.030	150.850	3665.55
850	152.170	0.030	150.850	3665.55
860	152.170	0.030	150.850	3665.55
870	152.170	0.030	150.850	3665.55
880	152.170	0.030	150.850	3665.55
890	152.170	0.030	150.850	3665.55
900	152.170	0.030	150.850	3665.55
910	152.170	0.030	150.850	3665.55
920	152.170	0.030	150.850	3665.55

930	152.180	0.020	150.860	3665.54
940	152.170	0.030	150.850	3665.55
950	152.170	0.030	150.850	3665.55
960	152.180	0.020	150.860	3665.54
970	152.170	0.030	150.850	3665.55
980	152.170	0.030	150.850	3665.55
990	152.180	0.020	150.860	3665.54
1000	152.180	0.020	150.860	3665.54
1100	152.180	0.020	150.860	3665.54
1200	152.190	0.010	150.870	3665.53
1300	152.200	0.000	150.880	3665.52
1400	152.200	0.000	150.880	3665.52
1500	152.200	0.000	150.880	3665.52
1600	152.210	−0.010	150.890	3665.51
1700	152.210	−0.010	150.890	3665.51
1800	152.210	−0.010	150.890	3665.51
1900	152.210	−0.010	150.890	3665.51
2000	152.210	−0.010	150.890	3665.51
2100	152.210	−0.010	150.890	3665.51
2200	152.200	0.000	150.880	3665.52
2300	152.200	0.000	150.880	3665.52
2400	152.200	0.000	150.880	3665.52
2500	152.200	0.000	150.880	3665.52
2600	152.210	−0.010	150.890	3665.51
2700	152.210	−0.010	150.890	3665.51
2800	152.220	−0.020	150.900	3665.50
2900	152.220	−0.020	150.900	3665.50
3000	152.210	−0.010	150.890	3665.51
3100	152.210	−0.010	150.890	3665.51
3200	152.210	−0.010	150.890	3665.51
3300	152.200	0.000	150.880	3665.52
3400	152.200	0.000	150.880	3665.52
3500	152.200	0.000	150.880	3665.52
3600	152.200	0.000	150.880	3665.52
3700	152.200	0.000	150.880	3665.52
3800	152.200	0.000	150.880	3665.52
3900	152.200	0.000	150.880	3665.52
4000	152.210	−0.010	150.890	3665.51
4100	152.210	−0.010	150.890	3665.51
4200	152.200	0.000	150.880	3665.52
4300	152.210	−0.010	150.890	3665.51
4400	152.220	−0.020	150.900	3665.50

OW–5A

TW–2 Aquifer Test – Pumping Phase



TW-2 Aquifer Test – Pumping Phase
Observation Well: OW-5B
Start Date = March 30, 1994
Start Time = 11:44:30
Static WL= 160.07
MP Stick Up = 2.5
GS Elevation = 3817.2

Note: Data logger was started approximately 30 seconds after pump started.

Logger Elapsed Time	Test Elapsed Time	Depth to Water (from MP)	Drawdown from Static WL	Depth to Water (from GS)	Water Level Elevation	Barometric Pressure
0.0000	0.5000	160.07	0.000	157.57	3659.63	
0.0033	0.5033	160.07	0.000	157.57	3659.63	
0.0066	0.5066	160.07	0.000	157.57	3659.63	
0.0099	0.5099	160.07	0.000	157.57	3659.63	
0.0133	0.5133	160.07	0.000	157.57	3659.63	
0.0166	0.5166	160.07	0.000	157.57	3659.63	
0.0200	0.5200	160.07	0.000	157.57	3659.63	
0.0233	0.5233	160.07	0.000	157.57	3659.63	
0.0266	0.5266	160.07	0.000	157.57	3659.63	
0.0300	0.5300	160.07	0.000	157.57	3659.63	
0.0333	0.5333	160.07	0.000	157.57	3659.63	
0.0500	0.5500	160.07	0.000	157.57	3659.63	
0.0666	0.5666	160.07	0.000	157.57	3659.63	
0.0833	0.5833	160.07	0.000	157.57	3659.63	
0.1000	0.6000	160.07	0.000	157.57	3659.63	
0.1166	0.6166	160.07	0.000	157.57	3659.63	
0.1333	0.6333	160.07	0.000	157.57	3659.63	
0.1500	0.6500	160.07	0.000	157.57	3659.63	
0.1666	0.6666	160.07	0.000	157.57	3659.63	
0.1833	0.6833	160.07	0.000	157.57	3659.63	
0.2000	0.7000	160.07	0.000	157.57	3659.63	
0.2166	0.7166	160.07	0.000	157.57	3659.63	
0.2333	0.7333	160.07	0.000	157.57	3659.63	
0.2500	0.7500	160.07	0.000	157.57	3659.63	
0.2666	0.7666	160.07	0.000	157.57	3659.63	
0.2833	0.7833	160.07	0.000	157.57	3659.63	
0.3000	0.8000	160.07	0.000	157.57	3659.63	
0.3166	0.8166	160.07	0.000	157.57	3659.63	
0.3333	0.8333	160.07	0.000	157.57	3659.63	
0.4167	0.9167	160.07	0.000	157.57	3659.63	
0.5000	1.0000	160.07	0.000	157.57	3659.63	
0.5833	1.0833	160.07	0.000	157.57	3659.63	
0.6667	1.1667	160.07	0.000	157.57	3659.63	
0.7500	1.2500	160.07	0.000	157.57	3659.63	
0.8333	1.3333	160.07	0.000	157.57	3659.63	
0.9167	1.4167	160.07	0.000	157.57	3659.63	
1.0000	1.5000	160.07	0.000	157.57	3659.63	
1.0833	1.5833	160.07	0.000	157.57	3659.63	

1.1667	1.6667	160.07	0.000	157.57	3659.63
1.2500	1.7500	160.07	0.000	157.57	3659.63
1.3333	1.8333	160.07	0.000	157.57	3659.63
1.4166	1.9166	160.07	0.000	157.57	3659.63
1.5000	2.0000	160.07	0.000	157.57	3659.63
1.5833	2.0833	160.07	0.000	157.57	3659.63
1.6667	2.1667	160.07	0.000	157.57	3659.63
1.7500	2.2500	160.07	0.000	157.57	3659.63
1.8333	2.3333	160.07	0.000	157.57	3659.63
1.9167	2.4167	160.07	0.000	157.57	3659.63
2.0	2.5	160.07	0.000	157.57	3659.63
2.5	3.0	160.07	0.000	157.57	3659.63
3.0	3.5	160.07	0.000	157.57	3659.63
3.5	4.0	160.07	0.000	157.57	3659.63
4.0	4.5	160.07	0.000	157.57	3659.63
4.5	5.0	160.07	0.000	157.57	3659.63
5.0	5.5	160.07	0.000	157.57	3659.63
5.5	6.0	160.07	0.000	157.57	3659.63
6.0	6.5	160.07	0.000	157.57	3659.63
6.5	7.0	160.07	0.000	157.57	3659.63
7.0	7.5	160.07	0.000	157.57	3659.63
7.5	8.0	160.07	0.000	157.57	3659.63
8.0	8.5	160.07	0.000	157.57	3659.63
8.5	9.0	160.07	0.000	157.57	3659.63
9.0	9.5	160.07	0.000	157.57	3659.63
9.5	10.0	160.07	0.000	157.57	3659.63
10	10.5	160.07	0.000	157.57	3659.63
12	12.5	160.07	0.000	157.57	3659.63
14	14.5	160.07	0.000	157.57	3659.63
16	16.5	160.06	0.010	157.56	3659.64
18	18.5	160.07	0.000	157.57	3659.63
20	20.5	160.07	0.000	157.57	3659.63
22	22.5	160.07	0.000	157.57	3659.63
24	24.5	160.07	0.000	157.57	3659.63
26	26.5	160.07	0.000	157.57	3659.63
28	28.5	160.06	0.010	157.56	3659.64
30	30.5	160.07	0.000	157.57	3659.63
32	32.5	160.07	0.000	157.57	3659.63
34	34.5	160.06	0.010	157.56	3659.64
36	36.5	160.06	0.010	157.56	3659.64
38	38.5	160.06	0.010	157.56	3659.64
40	40.5	160.05	0.020	157.55	3659.65
42	42.5	160.05	0.020	157.55	3659.65
44	44.5	160.05	0.020	157.55	3659.65
46	46.5	160.05	0.020	157.55	3659.65
48	48.5	160.04	0.030	157.54	3659.66
50	50.5	160.05	0.020	157.55	3659.65
52	52.5	160.05	0.020	157.55	3659.65
54	54.5	160.05	0.020	157.55	3659.65
56	56.5	160.05	0.020	157.55	3659.65
58	58.5	160.04	0.030	157.54	3659.66

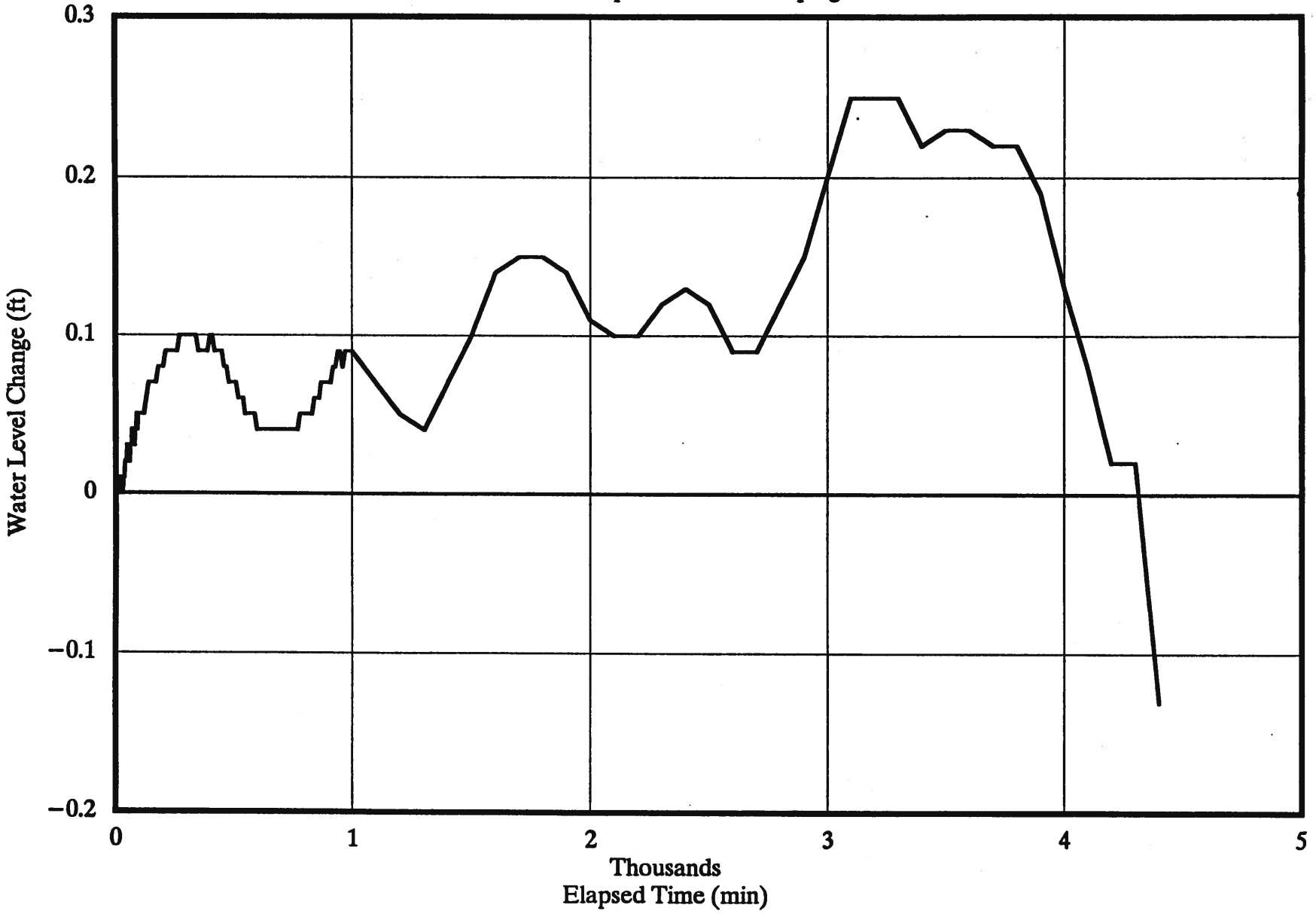
60	60.5	160.05	0.020	157.55	3659.65
62	62.5	160.04	0.030	157.54	3659.66
64	64.5	160.04	0.030	157.54	3659.66
66	66.5	160.04	0.030	157.54	3659.66
68	68.5	160.03	0.040	157.53	3659.67
70	70.5	160.04	0.030	157.54	3659.66
72	72.5	160.04	0.030	157.54	3659.66
74	74.5	160.04	0.030	157.54	3659.66
76	76.5	160.03	0.040	157.53	3659.67
78	78.5	160.03	0.040	157.53	3659.67
80	80.5	160.03	0.040	157.53	3659.67
82	82.5	160.04	0.030	157.54	3659.66
84	84.5	160.03	0.040	157.53	3659.67
86	86.5	160.03	0.040	157.53	3659.67
88	88.5	160.03	0.040	157.53	3659.67
90	90.5	160.02	0.050	157.52	3659.68
92	92.5	160.03	0.040	157.53	3659.67
94	94.5	160.03	0.040	157.53	3659.67
96	96.5	160.02	0.050	157.52	3659.68
98	98.5	160.02	0.050	157.52	3659.68
100	100.5	160.02	0.050	157.52	3659.68
110	110.5	160.02	0.050	157.52	3659.68
120	120.5	160.02	0.050	157.52	3659.68
130	130.5	160.01	0.060	157.51	3659.69
140	140.5	160.00	0.070	157.50	3659.70
150	150.5	160.00	0.070	157.50	3659.70
160	160.5	160.00	0.070	157.50	3659.70
170	170.5	160.00	0.070	157.50	3659.70
180	180.5	159.99	0.080	157.49	3659.71
190	190.5	159.99	0.080	157.49	3659.71
200	200.5	159.99	0.080	157.49	3659.71
210	210.5	159.98	0.090	157.48	3659.72
220	220.5	159.98	0.090	157.48	3659.72
230	230.5	159.98	0.090	157.48	3659.72
240	240.5	159.98	0.090	157.48	3659.72
250	250.5	159.98	0.090	157.48	3659.72
260	260.5	159.98	0.090	157.48	3659.72
270	270.5	159.97	0.100	157.47	3659.73
280	280.5	159.97	0.100	157.47	3659.73
290	290.5	159.97	0.100	157.47	3659.73
300	300.5	159.97	0.100	157.47	3659.73
310	310.5	159.97	0.100	157.47	3659.73
320	320.5	159.97	0.100	157.47	3659.73
330	330.5	159.97	0.100	157.47	3659.73
340	340.5	159.97	0.100	157.47	3659.73
350	350.5	159.98	0.090	157.48	3659.72
360	360.5	159.98	0.090	157.48	3659.72
370	370.5	159.98	0.090	157.48	3659.72
380	380.5	159.98	0.090	157.48	3659.72
390	390.5	159.98	0.090	157.48	3659.72
400	400.5	159.97	0.100	157.47	3659.73

410	410.5	159.97	0.100	157.47	3659.73
420	420.5	159.98	0.090	157.48	3659.72
430	430.5	159.98	0.090	157.48	3659.72
440	440.5	159.98	0.090	157.48	3659.72
450	450.5	159.98	0.090	157.48	3659.72
460	460.5	159.99	0.080	157.49	3659.71
470	470.5	159.99	0.080	157.49	3659.71
480	480.5	160.00	0.070	157.50	3659.70
490	490.5	160.00	0.070	157.50	3659.70
500	500.5	160.00	0.070	157.50	3659.70
510	510.5	160.00	0.070	157.50	3659.70
520	520.5	160.01	0.060	157.51	3659.69
530	530.5	160.01	0.060	157.51	3659.69
540	540.5	160.01	0.060	157.51	3659.69
550	550.5	160.02	0.050	157.52	3659.68
560	560.5	160.02	0.050	157.52	3659.68
570	570.5	160.02	0.050	157.52	3659.68
580	580.5	160.02	0.050	157.52	3659.68
590	590.5	160.02	0.050	157.52	3659.68
600	600.5	160.03	0.040	157.53	3659.67
610	610.5	160.03	0.040	157.53	3659.67
620	620.5	160.03	0.040	157.53	3659.67
630	630.5	160.03	0.040	157.53	3659.67
640	640.5	160.03	0.040	157.53	3659.67
650	650.5	160.03	0.040	157.53	3659.67
660	660.5	160.03	0.040	157.53	3659.67
670	670.5	160.03	0.040	157.53	3659.67
680	680.5	160.03	0.040	157.53	3659.67
690	690.5	160.03	0.040	157.53	3659.67
700	700.5	160.03	0.040	157.53	3659.67
710	710.5	160.03	0.040	157.53	3659.67
720	720.5	160.03	0.040	157.53	3659.67
730	730.5	160.03	0.040	157.53	3659.67
740	740.5	160.03	0.040	157.53	3659.67
750	750.5	160.03	0.040	157.53	3659.67
760	760.5	160.03	0.040	157.53	3659.67
770	770.5	160.03	0.040	157.53	3659.67
780	780.5	160.02	0.050	157.52	3659.68
790	790.5	160.02	0.050	157.52	3659.68
800	800.5	160.02	0.050	157.52	3659.68
810	810.5	160.02	0.050	157.52	3659.68
820	820.5	160.02	0.050	157.52	3659.68
830	830.5	160.02	0.050	157.52	3659.68
840	840.5	160.01	0.060	157.51	3659.69
850	850.5	160.01	0.060	157.51	3659.69
860	860.5	160.01	0.060	157.51	3659.69
870	870.5	160.00	0.070	157.50	3659.70
880	880.5	160.00	0.070	157.50	3659.70
890	890.5	160.00	0.070	157.50	3659.70
900	900.5	160.00	0.070	157.50	3659.70
910	910.5	160.00	0.070	157.50	3659.70

920	920.5	159.99	0.080	157.49	3659.71
930	930.5	159.99	0.080	157.49	3659.71
940	940.5	159.98	0.090	157.48	3659.72
950	950.5	159.98	0.090	157.48	3659.72
960	960.5	159.99	0.080	157.49	3659.71
970	970.5	159.98	0.090	157.48	3659.72
980	980.5	159.98	0.090	157.48	3659.72
990	990.5	159.98	0.090	157.48	3659.72
1000	1000.5	159.98	0.090	157.48	3659.72
1100	1100.5	160.00	0.070	157.50	3659.70
1200	1200.5	160.02	0.050	157.52	3659.68
1300	1300.5	160.03	0.040	157.53	3659.67
1400	1400.5	160.00	0.070	157.50	3659.70
1500	1500.5	159.97	0.100	157.47	3659.73
1600	1600.5	159.93	0.140	157.43	3659.77
1700	1700.5	159.92	0.150	157.42	3659.78
1800	1800.5	159.92	0.150	157.42	3659.78
1900	1900.5	159.93	0.140	157.43	3659.77
2000	2000.5	159.96	0.110	157.46	3659.74
2100	2100.5	159.97	0.100	157.47	3659.73
2200	2200.5	159.97	0.100	157.47	3659.73
2300	2300.5	159.95	0.120	157.45	3659.75
2400	2400.5	159.94	0.130	157.44	3659.76
2500	2500.5	159.95	0.120	157.45	3659.75
2600	2600.5	159.98	0.090	157.48	3659.72
2700	2700.5	159.98	0.090	157.48	3659.72
2800	2800.5	159.95	0.120	157.45	3659.75
2900	2900.5	159.92	0.150	157.42	3659.78
3000	3000.5	159.87	0.200	157.37	3659.83
3100	3100.5	159.82	0.250	157.32	3659.88
3200	3200.5	159.82	0.250	157.32	3659.88
3300	3300.5	159.82	0.250	157.32	3659.88
3400	3400.5	159.85	0.220	157.35	3659.85
3500	3500.5	159.84	0.230	157.34	3659.86
3600	3600.5	159.84	0.230	157.34	3659.86
3700	3700.5	159.85	0.220	157.35	3659.85
3800	3800.5	159.85	0.220	157.35	3659.85
3900	3900.5	159.88	0.190	157.38	3659.82
4000	4000.5	159.94	0.130	157.44	3659.76
4100	4100.5	159.99	0.080	157.49	3659.71
4200	4200.5	160.05	0.020	157.55	3659.65
4300	4300.5	160.05	0.020	157.55	3659.65
4400	4400.5	160.20	−0.130	157.70	3659.50

OW–5B

TW–2 Aquifer Test – Pumping Phase



Appendix B

TW−2 Aquifer Test − Recovery Phase
Observation Well: TW−2
Start Date = April 2, 1994
Start Time = 2:30 pm
Static WL= 20.06
MP Stick Up = 2.04
GS Elevation = 3689

Logger Elapsed Time (min)	Depth to Water (from MP)	Drawdown from Static WL	Depth to Water (from GS)	Water Level Elevation
0.0000	56.646	−36.586	54.606	3634.39
0.0083	54.968	−34.908	52.928	3636.07
0.0166	54.636	−34.576	52.596	3636.40
0.0250	55.760	−35.700	53.720	3635.28
0.0333	55.443	−35.383	53.403	3635.60
0.0416	54.984	−34.924	52.944	3636.06
0.0500	54.430	−34.370	52.390	3636.61
0.0583	53.876	−33.816	51.836	3637.16
0.0666	53.385	−33.325	51.345	3637.66
0.0750	52.894	−32.834	50.854	3638.15
0.0833	52.388	−32.328	50.348	3638.65
0.1000	51.438	−31.378	49.398	3639.60
0.1166	50.520	−30.460	48.480	3640.52
0.1333	49.617	−29.557	47.577	3641.42
0.1500	48.763	−28.703	46.723	3642.28
0.1666	47.971	−27.911	45.931	3643.07
0.1833	47.243	−27.183	45.203	3643.80
0.2000	46.562	−26.502	44.522	3644.48
0.2166	45.928	−25.868	43.888	3645.11
0.2333	45.343	−25.283	43.303	3645.70
0.2500	44.788	−24.728	42.748	3646.25
0.2666	44.250	−24.190	42.210	3646.79
0.2833	43.759	−23.699	41.719	3647.28
0.3000	43.268	−23.208	41.228	3647.77
0.3166	42.793	−22.733	40.753	3648.25
0.3333	42.318	−22.258	40.278	3648.72
0.4166	40.291	−20.231	38.251	3650.75
0.5000	38.802	−18.742	36.762	3652.24
0.5833	37.599	−17.539	35.559	3653.44
0.6666	36.696	−16.636	34.656	3654.34
0.7500	36.015	−15.955	33.975	3655.03
0.8333	35.397	−15.337	33.357	3655.64
0.9166	34.922	−14.862	32.882	3656.12
1.0000	34.557	−14.497	32.517	3656.48
1.0833	34.209	−14.149	32.169	3656.83
1.1666	33.924	−13.864	31.884	3657.12
1.2500	33.702	−13.642	31.662	3657.34
1.3333	33.464	−13.404	31.424	3657.58

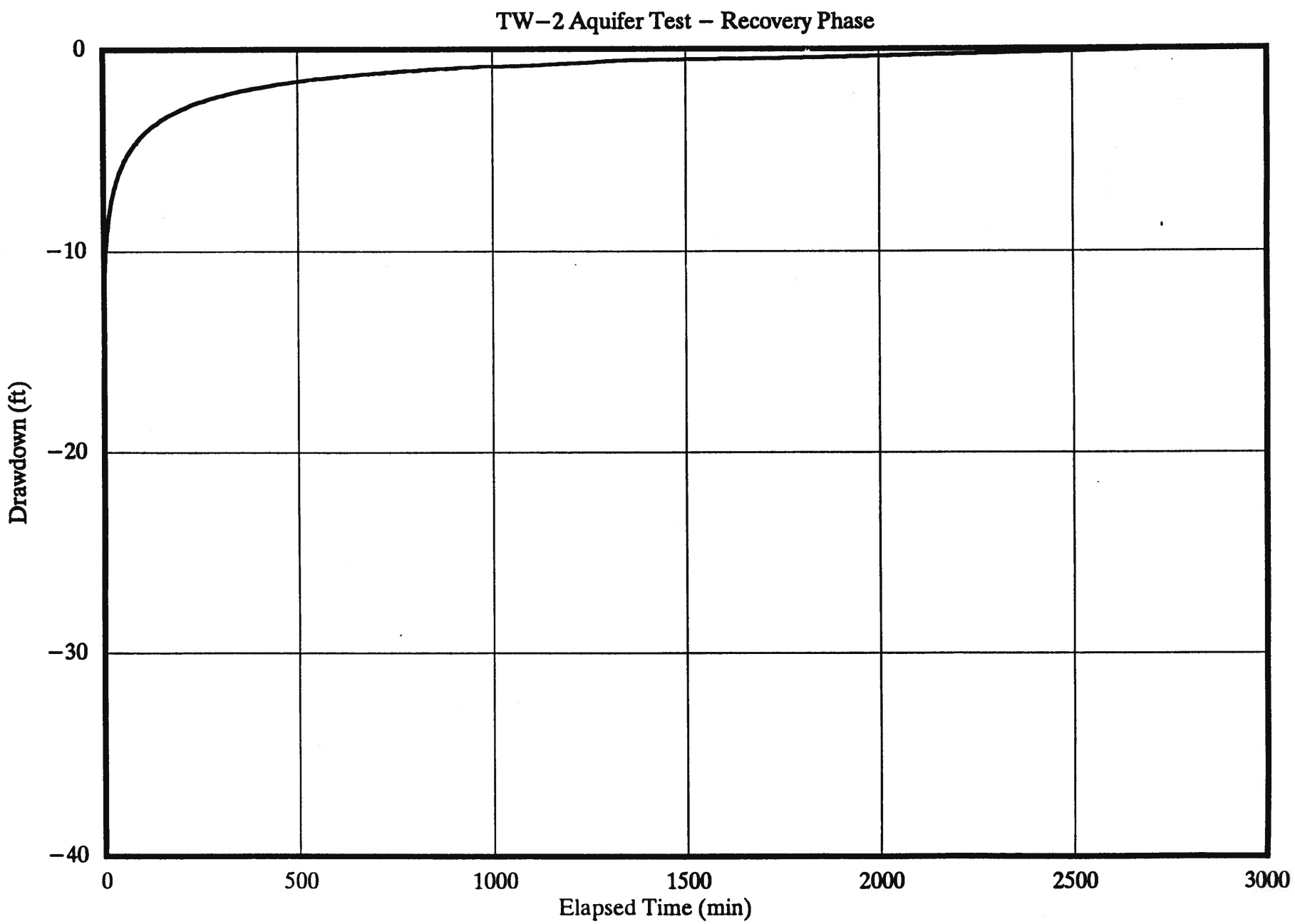
1.4166	33.243	−13.183	31.203	3657.80
1.5000	33.116	−13.056	31.076	3657.92
1.5833	32.942	−12.882	30.902	3658.10
1.6666	32.799	−12.739	30.759	3658.24
1.7500	32.656	−12.596	30.616	3658.38
1.8333	32.546	−12.486	30.506	3658.49
1.9166	32.435	−12.375	30.395	3658.61
2.0	32.324	−12.264	30.284	3658.72
2.5	31.769	−11.709	29.729	3659.27
3.0	31.373	−11.313	29.333	3659.67
3.5	31.056	−10.996	29.016	3659.98
4.0	30.787	−10.727	28.747	3660.25
4.5	30.549	−10.489	28.509	3660.49
5.0	30.359	−10.299	28.319	3660.68
5.5	30.201	−10.141	28.161	3660.84
6.0	29.995	−9.935	27.955	3661.05
6.5	29.836	−9.776	27.796	3661.20
7.0	29.694	−9.634	27.654	3661.35
7.5	29.567	−9.507	27.527	3661.47
8.0	29.425	−9.365	27.385	3661.62
8.5	29.330	−9.270	27.290	3661.71
9.0	29.219	−9.159	27.179	3661.82
9.5	29.108	−9.048	27.068	3661.93
10	29.013	−8.953	26.973	3662.03
12	28.648	−8.588	26.608	3662.39
14	28.347	−8.287	26.307	3662.69
16	28.094	−8.034	26.054	3662.95
18	27.872	−7.812	25.832	3663.17
20	27.666	−7.606	25.626	3663.37
22	27.460	−7.400	25.420	3663.58
24	27.301	−7.241	25.261	3663.74
26	27.143	−7.083	25.103	3663.90
28	26.985	−6.925	24.945	3664.06
30	26.874	−6.814	24.834	3664.17
32	26.731	−6.671	24.691	3664.31
34	26.588	−6.528	24.548	3664.45
36	26.478	−6.418	24.438	3664.56
38	26.367	−6.307	24.327	3664.67
40	26.256	−6.196	24.216	3664.78
42	26.145	−6.085	24.105	3664.90
44	26.050	−5.990	24.010	3664.99
46	25.955	−5.895	23.915	3665.09
48	25.891	−5.831	23.851	3665.15
50	25.796	−5.736	23.756	3665.24
52	25.717	−5.657	23.677	3665.32
54	25.622	−5.562	23.582	3665.42
56	25.559	−5.499	23.519	3665.48
58	25.479	−5.419	23.439	3665.56
60	25.432	−5.372	23.392	3665.61
62	25.337	−5.277	23.297	3665.70
64	25.273	−5.213	23.233	3665.77

66	25.226	−5.166	23.186	3665.81
68	25.162	−5.102	23.122	3665.88
70	25.083	−5.023	23.043	3665.96
72	25.036	−4.976	22.996	3666.00
74	24.988	−4.928	22.948	3666.05
76	24.925	−4.865	22.885	3666.12
78	24.877	−4.817	22.837	3666.16
80	24.798	−4.738	22.758	3666.24
82	24.766	−4.706	22.726	3666.27
84	24.719	−4.659	22.679	3666.32
86	24.719	−4.659	22.679	3666.32
88	24.624	−4.564	22.584	3666.42
90	24.576	−4.516	22.536	3666.46
92	24.529	−4.469	22.489	3666.51
94	24.481	−4.421	22.441	3666.56
96	24.449	−4.389	22.409	3666.59
98	24.402	−4.342	22.362	3666.64
100	24.354	−4.294	22.314	3666.69
110	24.180	−4.120	22.140	3666.86
120	24.006	−3.946	21.966	3667.03
130	23.847	−3.787	21.807	3667.19
140	23.720	−3.660	21.680	3667.32
150	23.562	−3.502	21.522	3667.48
160	23.451	−3.391	21.411	3667.59
170	23.340	−3.280	21.300	3667.70
180	23.245	−3.185	21.205	3667.80
190	23.150	−3.090	21.110	3667.89
200	23.055	−2.995	21.015	3667.99
210	22.976	−2.916	20.936	3668.06
220	22.880	−2.820	20.840	3668.16
230	22.801	−2.741	20.761	3668.24
240	22.738	−2.678	20.698	3668.30
250	22.674	−2.614	20.634	3668.37
260	22.611	−2.551	20.571	3668.43
270	22.548	−2.488	20.508	3668.49
280	22.484	−2.424	20.444	3668.56
290	22.437	−2.377	20.397	3668.60
300	22.373	−2.313	20.333	3668.67
310	22.342	−2.282	20.302	3668.70
320	22.278	−2.218	20.238	3668.76
330	22.231	−2.171	20.191	3668.81
340	22.183	−2.123	20.143	3668.86
350	22.151	−2.091	20.111	3668.89
360	22.104	−2.044	20.064	3668.94
370	22.072	−2.012	20.032	3668.97
380	22.025	−1.965	19.985	3669.02
390	21.993	−1.933	19.953	3669.05
400	21.961	−1.901	19.921	3669.08
410	21.930	−1.870	19.890	3669.11
420	21.898	−1.838	19.858	3669.14
430	21.866	−1.806	19.826	3669.17

440	21.819	−1.759	19.779	3669.22
450	21.787	−1.727	19.747	3669.25
460	21.771	−1.711	19.731	3669.27
470	21.739	−1.679	19.699	3669.30
480	21.708	−1.648	19.668	3669.33
490	21.676	−1.616	19.636	3669.36
500	21.644	−1.584	19.604	3669.40
510	21.628	−1.568	19.588	3669.41
520	21.597	−1.537	19.557	3669.44
530	21.565	−1.505	19.525	3669.48
540	21.549	−1.489	19.509	3669.49
550	21.518	−1.458	19.478	3669.52
560	21.502	−1.442	19.462	3669.54
570	21.486	−1.426	19.446	3669.55
580	21.470	−1.410	19.430	3669.57
590	21.438	−1.378	19.398	3669.60
600	21.422	−1.362	19.382	3669.62
610	21.407	−1.347	19.367	3669.63
620	21.391	−1.331	19.351	3669.65
630	21.359	−1.299	19.319	3669.68
640	21.343	−1.283	19.303	3669.70
650	21.327	−1.267	19.287	3669.71
660	21.312	−1.252	19.272	3669.73
670	21.296	−1.236	19.256	3669.74
680	21.280	−1.220	19.240	3669.76
690	21.264	−1.204	19.224	3669.78
700	21.248	−1.188	19.208	3669.79
710	21.232	−1.172	19.192	3669.81
720	21.216	−1.156	19.176	3669.82
730	21.201	−1.141	19.161	3669.84
740	21.185	−1.125	19.145	3669.86
750	21.169	−1.109	19.129	3669.87
760	21.153	−1.093	19.113	3669.89
770	21.153	−1.093	19.113	3669.89
780	21.137	−1.077	19.097	3669.90
790	21.121	−1.061	19.081	3669.92
800	21.121	−1.061	19.081	3669.92
810	21.106	−1.046	19.066	3669.93
820	21.090	−1.030	19.050	3669.95
830	21.074	−1.014	19.034	3669.97
840	21.058	−0.998	19.018	3669.98
850	21.058	−0.998	19.018	3669.98
860	21.042	−0.982	19.002	3670.00
870	21.026	−0.966	18.986	3670.01
880	21.026	−0.966	18.986	3670.01
890	21.010	−0.950	18.970	3670.03
900	21.010	−0.950	18.970	3670.03
910	20.995	−0.935	18.955	3670.05
920	20.979	−0.919	18.939	3670.06
930	20.979	−0.919	18.939	3670.06
940	20.963	−0.903	18.923	3670.08

950	20.963	−0.903	18.923	3670.08
960	20.947	−0.887	18.907	3670.09
970	20.931	−0.871	18.891	3670.11
980	20.931	−0.871	18.891	3670.11
990	20.931	−0.871	18.891	3670.11
1000	20.931	−0.871	18.891	3670.11
1060	20.899	−0.839	18.859	3670.14
1120	20.852	−0.792	18.812	3670.19
1180	20.789	−0.729	18.749	3670.25
1240	20.741	−0.681	18.701	3670.30
1300	20.662	−0.602	18.622	3670.38
1360	20.614	−0.554	18.574	3670.43
1722	20.520	−0.460	18.480	3670.52
2673	20.140	−0.080	18.100	3670.90

TW-2


TW-2 Aquifer Test – Recovery Phase
0
-10
-20
-30
-40
Drawdown (ft)
0
500
1000
1500
2000
2500
3000
Elapsed Time (min)

TW-2 Aquifer Test – Recovery Phase
Observation Well: OW-5A
Start Date = April 2, 1994
Start Time = 2:30 pm
Static WL= 152.2
MP Stick Up = 1.32
GS Elevation = 3816.4

Logger Elapsed Time	Depth to Water (from MP)	Drawdown from Static WL	Depth to Water (from GS)	Water Level Elevation
0.0000	152.220	−0.020	150.900	3665.50
0.0033	152.210	−0.010	150.890	3665.51
0.0066	152.210	−0.010	150.890	3665.51
0.0099	152.230	−0.030	150.910	3665.49
0.0133	152.220	−0.020	150.900	3665.50
0.0166	152.210	−0.010	150.890	3665.51
0.0200	152.220	−0.020	150.900	3665.50
0.0233	152.220	−0.020	150.900	3665.50
0.0266	152.220	−0.020	150.900	3665.50
0.0300	152.220	−0.020	150.900	3665.50
0.0333	152.210	−0.010	150.890	3665.51
0.0500	152.210	−0.010	150.890	3665.51
0.0666	152.210	−0.010	150.890	3665.51
0.0833	152.210	−0.010	150.890	3665.51
0.1000	152.210	−0.010	150.890	3665.51
0.1166	152.210	−0.010	150.890	3665.51
0.1333	152.210	−0.010	150.890	3665.51
0.1500	152.210	−0.010	150.890	3665.51
0.1666	152.220	−0.020	150.900	3665.50
0.1833	152.220	−0.020	150.900	3665.50
0.2000	152.230	−0.030	150.910	3665.49
0.2166	152.210	−0.010	150.890	3665.51
0.2333	152.210	−0.010	150.890	3665.51
0.2500	152.210	−0.010	150.890	3665.51
0.2666	152.220	−0.020	150.900	3665.50
0.2833	152.210	−0.010	150.890	3665.51
0.3000	152.210	−0.010	150.890	3665.51
0.3166	152.210	−0.010	150.890	3665.51
0.3333	152.210	−0.010	150.890	3665.51
0.4167	152.210	−0.010	150.890	3665.51
0.5000	152.210	−0.010	150.890	3665.51
0.5833	152.210	−0.010	150.890	3665.51
0.6667	152.210	−0.010	150.890	3665.51
0.7500	152.210	−0.010	150.890	3665.51
0.8333	152.210	−0.010	150.890	3665.51
0.9167	152.210	−0.010	150.890	3665.51
1.0000	152.210	−0.010	150.890	3665.51
1.0833	152.210	−0.010	150.890	3665.51
1.1667	152.210	−0.010	150.890	3665.51

1.2500	152.210	−0.010	150.890	3665.51
1.3333	152.210	−0.010	150.890	3665.51
1.4166	152.210	−0.010	150.890	3665.51
1.5000	152.210	−0.010	150.890	3665.51
1.5833	152.210	−0.010	150.890	3665.51
1.6667	152.210	−0.010	150.890	3665.51
1.7500	152.210	−0.010	150.890	3665.51
1.8333	152.210	−0.010	150.890	3665.51
1.9167	152.210	−0.010	150.890	3665.51
2.0	152.210	−0.010	150.890	3665.51
2.5	152.210	−0.010	150.890	3665.51
3.0	152.210	−0.010	150.890	3665.51
3.5	152.210	−0.010	150.890	3665.51
4.0	152.230	−0.030	150.910	3665.49
4.5	152.210	−0.010	150.890	3665.51
5.0	152.220	−0.020	150.900	3665.50
5.5	152.230	−0.030	150.910	3665.49
6.0	152.220	−0.020	150.900	3665.50
6.5	152.210	−0.010	150.890	3665.51
7.0	152.210	−0.010	150.890	3665.51
7.5	152.210	−0.010	150.890	3665.51
8.0	152.210	−0.010	150.890	3665.51
8.5	152.220	−0.020	150.900	3665.50
9.0	152.220	−0.020	150.900	3665.50
9.5	152.210	−0.010	150.890	3665.51
10	152.210	−0.010	150.890	3665.51
12	152.210	−0.010	150.890	3665.51
14	152.230	−0.030	150.910	3665.49
16	152.220	−0.020	150.900	3665.50
18	152.220	−0.020	150.900	3665.50
20	152.210	−0.010	150.890	3665.51
22	152.210	−0.010	150.890	3665.51
24	152.220	−0.020	150.900	3665.50
26	152.220	−0.020	150.900	3665.50
28	152.220	−0.020	150.900	3665.50
30	152.210	−0.010	150.890	3665.51
32	152.230	−0.030	150.910	3665.49
34	152.220	−0.020	150.900	3665.50
36	152.210	−0.010	150.890	3665.51
38	152.230	−0.030	150.910	3665.49
40	152.210	−0.010	150.890	3665.51
42	152.210	−0.010	150.890	3665.51
44	152.230	−0.030	150.910	3665.49
46	152.220	−0.020	150.900	3665.50
48	152.220	−0.020	150.900	3665.50
50	152.220	−0.020	150.900	3665.50
52	152.210	−0.010	150.890	3665.51
54	152.220	−0.020	150.900	3665.50
56	152.210	−0.010	150.890	3665.51
58	152.210	−0.010	150.890	3665.51
60	152.220	−0.020	150.900	3665.50

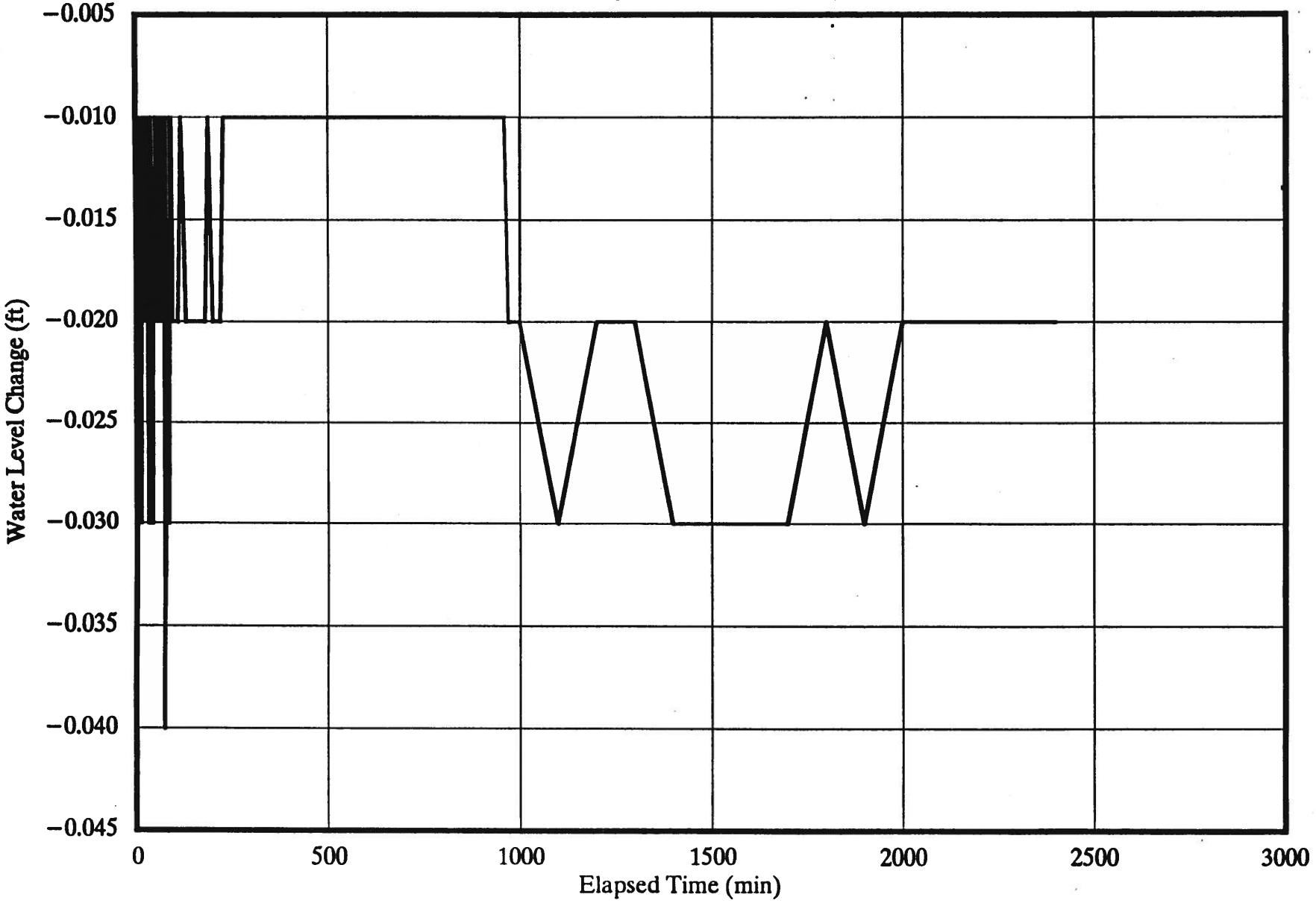
62	152.220	−0.020	150.900	3665.50
64	152.210	−0.010	150.890	3665.51
66	152.210	−0.010	150.890	3665.51
68	152.210	−0.010	150.890	3665.51
70	152.220	−0.020	150.900	3665.50
72	152.220	−0.020	150.900	3665.50
74	152.210	−0.010	150.890	3665.51
76	152.240	−0.040	150.920	3665.48
78	152.210	−0.010	150.890	3665.51
80	152.210	−0.010	150.890	3665.51
82	152.230	−0.030	150.910	3665.49
84	152.220	−0.020	150.900	3665.50
86	152.230	−0.030	150.910	3665.49
88	152.220	−0.020	150.900	3665.50
90	152.210	−0.010	150.890	3665.51
92	152.210	−0.010	150.890	3665.51
94	152.210	−0.010	150.890	3665.51
96	152.220	−0.020	150.900	3665.50
98	152.220	−0.020	150.900	3665.50
100	152.220	−0.020	150.900	3665.50
110	152.220	−0.020	150.900	3665.50
120	152.210	−0.010	150.890	3665.51
130	152.220	−0.020	150.900	3665.50
140	152.220	−0.020	150.900	3665.50
150	152.220	−0.020	150.900	3665.50
160	152.220	−0.020	150.900	3665.50
170	152.220	−0.020	150.900	3665.50
180	152.220	−0.020	150.900	3665.50
190	152.210	−0.010	150.890	3665.51
200	152.220	−0.020	150.900	3665.50
210	152.220	−0.020	150.900	3665.50
220	152.220	−0.020	150.900	3665.50
230	152.210	−0.010	150.890	3665.51
240	152.210	−0.010	150.890	3665.51
250	152.210	−0.010	150.890	3665.51
260	152.210	−0.010	150.890	3665.51
270	152.210	−0.010	150.890	3665.51
280	152.210	−0.010	150.890	3665.51
290	152.210	−0.010	150.890	3665.51
300	152.210	−0.010	150.890	3665.51
310	152.210	−0.010	150.890	3665.51
320	152.210	−0.010	150.890	3665.51
330	152.210	−0.010	150.890	3665.51
340	152.210	−0.010	150.890	3665.51
350	152.210	−0.010	150.890	3665.51
360	152.210	−0.010	150.890	3665.51
370	152.210	−0.010	150.890	3665.51
380	152.210	−0.010	150.890	3665.51
390	152.210	−0.010	150.890	3665.51
400	152.210	−0.010	150.890	3665.51
410	152.210	−0.010	150.890	3665.51

420	152.210	−0.010	150.890	3665.51
430	152.210	−0.010	150.890	3665.51
440	152.210	−0.010	150.890	3665.51
450	152.210	−0.010	150.890	3665.51
460	152.210	−0.010	150.890	3665.51
470	152.210	−0.010	150.890	3665.51
480	152.210	−0.010	150.890	3665.51
490	152.210	−0.010	150.890	3665.51
500	152.210	−0.010	150.890	3665.51
510	152.210	−0.010	150.890	3665.51
520	152.210	−0.010	150.890	3665.51
530	152.210	−0.010	150.890	3665.51
540	152.210	−0.010	150.890	3665.51
550	152.210	−0.010	150.890	3665.51
560	152.210	−0.010	150.890	3665.51
570	152.210	−0.010	150.890	3665.51
580	152.210	−0.010	150.890	3665.51
590	152.210	−0.010	150.890	3665.51
600	152.210	−0.010	150.890	3665.51
610	152.210	−0.010	150.890	3665.51
620	152.210	−0.010	150.890	3665.51
630	152.210	−0.010	150.890	3665.51
640	152.210	−0.010	150.890	3665.51
650	152.210	−0.010	150.890	3665.51
660	152.210	−0.010	150.890	3665.51
670	152.210	−0.010	150.890	3665.51
680	152.210	−0.010	150.890	3665.51
690	152.210	−0.010	150.890	3665.51
700	152.210	−0.010	150.890	3665.51
710	152.210	−0.010	150.890	3665.51
720	152.210	−0.010	150.890	3665.51
730	152.210	−0.010	150.890	3665.51
740	152.210	−0.010	150.890	3665.51
750	152.210	−0.010	150.890	3665.51
760	152.210	−0.010	150.890	3665.51
770	152.210	−0.010	150.890	3665.51
780	152.210	−0.010	150.890	3665.51
790	152.210	−0.010	150.890	3665.51
800	152.210	−0.010	150.890	3665.51
810	152.210	−0.010	150.890	3665.51
820	152.210	−0.010	150.890	3665.51
830	152.210	−0.010	150.890	3665.51
840	152.210	−0.010	150.890	3665.51
850	152.210	−0.010	150.890	3665.51
860	152.210	−0.010	150.890	3665.51
870	152.210	−0.010	150.890	3665.51
880	152.210	−0.010	150.890	3665.51
890	152.210	−0.010	150.890	3665.51
900	152.210	−0.010	150.890	3665.51
910	152.210	−0.010	150.890	3665.51
920	152.210	−0.010	150.890	3665.51

930	152.210	−0.010	150.890	3665.51
940	152.210	−0.010	150.890	3665.51
950	152.210	−0.010	150.890	3665.51
960	152.210	−0.010	150.890	3665.51
970	152.220	−0.020	150.900	3665.50
980	152.220	−0.020	150.900	3665.50
990	152.220	−0.020	150.900	3665.50
1000	152.220	−0.020	150.900	3665.50
1100	152.230	−0.030	150.910	3665.49
1200	152.220	−0.020	150.900	3665.50
1300	152.220	−0.020	150.900	3665.50
1400	152.230	−0.030	150.910	3665.49
1500	152.230	−0.030	150.910	3665.49
1600	152.230	−0.030	150.910	3665.49
1700	152.230	−0.030	150.910	3665.49
1800	152.220	−0.020	150.900	3665.50
1900	152.230	−0.030	150.910	3665.49
2000	152.220	−0.020	150.900	3665.50
2100	152.220	−0.020	150.900	3665.50
2200	152.220	−0.020	150.900	3665.50
2300	152.220	−0.020	150.900	3665.50
2400	152.220	−0.020	150.900	3665.50

OW–5A

TW–2 Aquifer Test – Recovery Phase



TW-2 Aquifer Test – Recovery Phase
Observation Well: OW-5B
Start Date = April 2, 1994
Start Time = 2:30 pm
Static WL= 160.07
MP Stick Up = 2.5
GS Elevation = 3817.2

Logger Elapsed Time	Depth to Water (from MP)	Drawdown from Static WL	Depth to Water (from GS)	Water Level Elevation	Barometric Pressure
0.0000	160.26	−0.190	157.76	3659.44	
0.0033	160.26	−0.190	157.76	3659.44	
0.0066	160.26	−0.190	157.76	3659.44	
0.0099	160.26	−0.190	157.76	3659.44	
0.0133	160.26	−0.190	157.76	3659.44	
0.0166	160.26	−0.190	157.76	3659.44	
0.0200	160.26	−0.190	157.76	3659.44	
0.0233	160.26	−0.190	157.76	3659.44	
0.0266	160.26	−0.190	157.76	3659.44	
0.0300	160.26	−0.190	157.76	3659.44	
0.0333	160.26	−0.190	157.76	3659.44	
0.0500	160.26	−0.190	157.76	3659.44	
0.0666	160.26	−0.190	157.76	3659.44	
0.0833	160.26	−0.190	157.76	3659.44	
0.1000	160.26	−0.190	157.76	3659.44	
0.1166	160.26	−0.190	157.76	3659.44	
0.1333	160.26	−0.190	157.76	3659.44	
0.1500	160.26	−0.190	157.76	3659.44	
0.1666	160.26	−0.190	157.76	3659.44	
0.1833	160.26	−0.190	157.76	3659.44	
0.2000	160.26	−0.190	157.76	3659.44	
0.2166	160.26	−0.190	157.76	3659.44	
0.2333	160.26	−0.190	157.76	3659.44	
0.2500	160.26	−0.190	157.76	3659.44	
0.2666	160.26	−0.190	157.76	3659.44	
0.2833	160.26	−0.190	157.76	3659.44	
0.3000	160.26	−0.190	157.76	3659.44	
0.3166	160.26	−0.190	157.76	3659.44	
0.3333	160.26	−0.190	157.76	3659.44	
0.4167	160.26	−0.190	157.76	3659.44	
0.5000	160.26	−0.190	157.76	3659.44	
0.5833	160.26	−0.190	157.76	3659.44	
0.6667	160.26	−0.190	157.76	3659.44	
0.7500	160.26	−0.190	157.76	3659.44	
0.8333	160.25	−0.180	157.75	3659.45	
0.9167	160.26	−0.190	157.76	3659.44	
1.0000	160.26	−0.190	157.76	3659.44	
1.0833	160.26	−0.190	157.76	3659.44	
1.1667	160.26	−0.190	157.76	3659.44	

1.2500	160.26	−0.190	157.76	3659.44
1.3333	160.26	−0.190	157.76	3659.44
1.4166	160.26	−0.190	157.76	3659.44
1.5000	160.26	−0.190	157.76	3659.44
1.5833	160.26	−0.190	157.76	3659.44
1.6667	160.26	−0.190	157.76	3659.44
1.7500	160.26	−0.190	157.76	3659.44
1.8333	160.26	−0.190	157.76	3659.44
1.9167	160.26	−0.190	157.76	3659.44
2.0	160.26	−0.190	157.76	3659.44
2.5	160.26	−0.190	157.76	3659.44
3.0	160.26	−0.190	157.76	3659.44
3.5	160.26	−0.190	157.76	3659.44
4.0	160.26	−0.190	157.76	3659.44
4.5	160.26	−0.190	157.76	3659.44
5.0	160.26	−0.190	157.76	3659.44
5.5	160.26	−0.190	157.76	3659.44
6.0	160.27	−0.200	157.77	3659.43
6.5	160.26	−0.190	157.76	3659.44
7.0	160.26	−0.190	157.76	3659.44
7.5	160.26	−0.190	157.76	3659.44
8.0	160.26	−0.190	157.76	3659.44
8.5	160.26	−0.190	157.76	3659.44
9.0	160.26	−0.190	157.76	3659.44
9.5	160.26	−0.190	157.76	3659.44
10	160.26	−0.190	157.76	3659.44
12	160.26	−0.190	157.76	3659.44
14	160.26	−0.190	157.76	3659.44
16	160.26	−0.190	157.76	3659.44
18	160.27	−0.200	157.77	3659.43
20	160.26	−0.190	157.76	3659.44
22	160.26	−0.190	157.76	3659.44
24	160.27	−0.200	157.77	3659.43
26	160.28	−0.210	157.78	3659.42
28	160.28	−0.210	157.78	3659.42
30	160.28	−0.210	157.78	3659.42
32	160.28	−0.210	157.78	3659.42
34	160.28	−0.210	157.78	3659.42
36	160.27	−0.200	157.77	3659.43
38	160.28	−0.210	157.78	3659.42
40	160.28	−0.210	157.78	3659.42
42	160.28	−0.210	157.78	3659.42
44	160.29	−0.220	157.79	3659.41
46	160.28	−0.210	157.78	3659.42
48	160.28	−0.210	157.78	3659.42
50	160.28	−0.210	157.78	3659.42
52	160.28	−0.210	157.78	3659.42
54	160.28	−0.210	157.78	3659.42
56	160.28	−0.210	157.78	3659.42
58	160.28	−0.210	157.78	3659.42
60	160.28	−0.210	157.78	3659.42

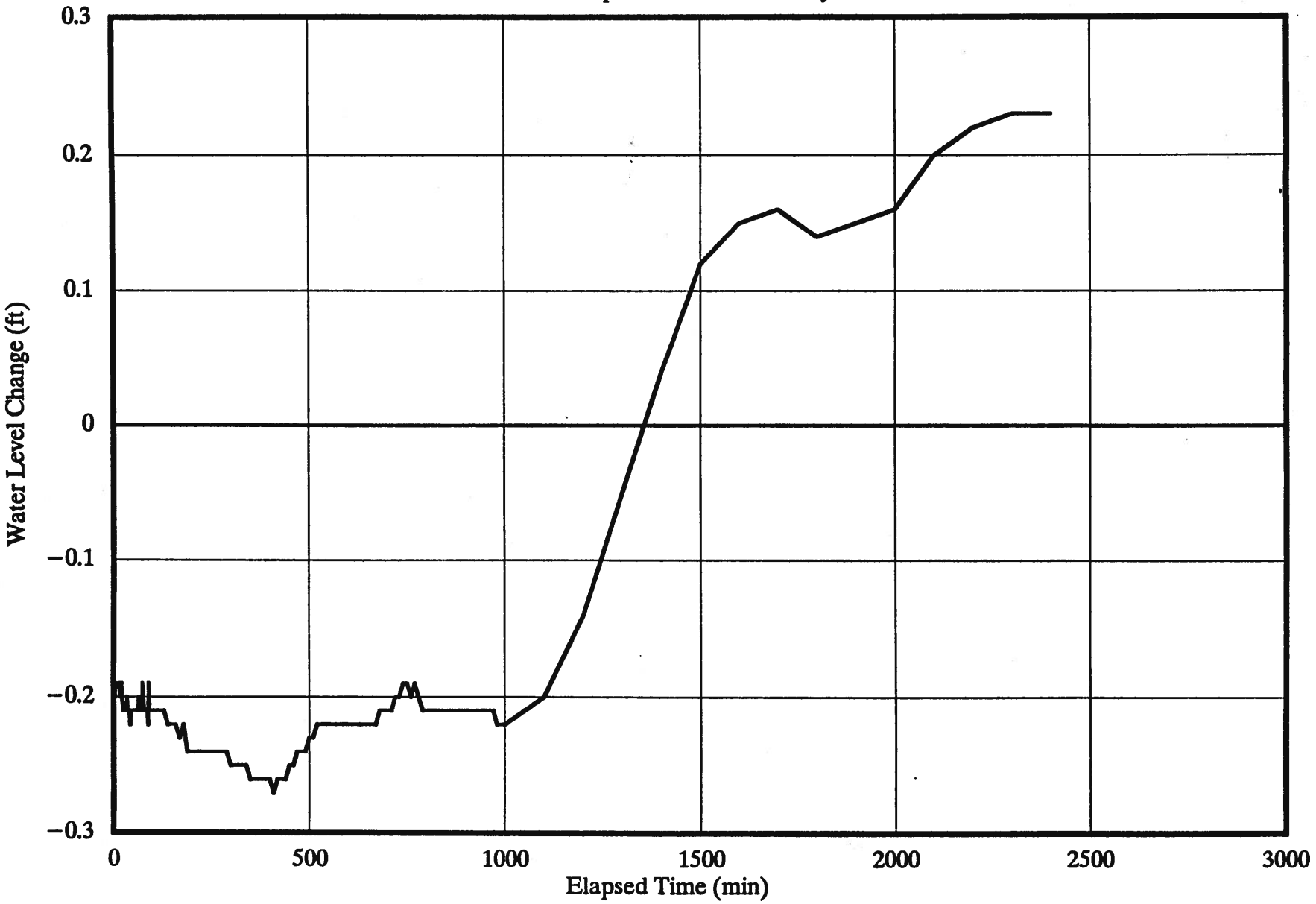
62	160.28	−0.210	157.78	3659.42
64	160.28	−0.210	157.78	3659.42
66	160.27	−0.200	157.77	3659.43
68	160.28	−0.210	157.78	3659.42
70	160.28	−0.210	157.78	3659.42
72	160.28	−0.210	157.78	3659.42
74	160.28	−0.210	157.78	3659.42
76	160.26	−0.190	157.76	3659.44
78	160.27	−0.200	157.77	3659.43
80	160.28	−0.210	157.78	3659.42
82	160.28	−0.210	157.78	3659.42
84	160.28	−0.210	157.78	3659.42
86	160.28	−0.210	157.78	3659.42
88	160.28	−0.210	157.78	3659.42
90	160.29	−0.220	157.79	3659.41
92	160.26	−0.190	157.76	3659.44
94	160.28	−0.210	157.78	3659.42
96	160.28	−0.210	157.78	3659.42
98	160.28	−0.210	157.78	3659.42
100	160.28	−0.210	157.78	3659.42
110	160.28	−0.210	157.78	3659.42
120	160.28	−0.210	157.78	3659.42
130	160.28	−0.210	157.78	3659.42
140	160.29	−0.220	157.79	3659.41
150	160.29	−0.220	157.79	3659.41
160	160.29	−0.220	157.79	3659.41
170	160.3	−0.230	157.8	3659.40
180	160.29	−0.220	157.79	3659.41
190	160.31	−0.240	157.81	3659.39
200	160.31	−0.240	157.81	3659.39
210	160.31	−0.240	157.81	3659.39
220	160.31	−0.240	157.81	3659.39
230	160.31	−0.240	157.81	3659.39
240	160.31	−0.240	157.81	3659.39
250	160.31	−0.240	157.81	3659.39
260	160.31	−0.240	157.81	3659.39
270	160.31	−0.240	157.81	3659.39
280	160.31	−0.240	157.81	3659.39
290	160.31	−0.240	157.81	3659.39
300	160.32	−0.250	157.82	3659.38
310	160.32	−0.250	157.82	3659.38
320	160.32	−0.250	157.82	3659.38
330	160.32	−0.250	157.82	3659.38
340	160.32	−0.250	157.82	3659.38
350	160.33	−0.260	157.83	3659.37
360	160.33	−0.260	157.83	3659.37
370	160.33	−0.260	157.83	3659.37
380	160.33	−0.260	157.83	3659.37
390	160.33	−0.260	157.83	3659.37
400	160.33	−0.260	157.83	3659.37
410	160.34	−0.270	157.84	3659.36

420	160.33	−0.260	157.83	3659.37
430	160.33	−0.260	157.83	3659.37
440	160.33	−0.260	157.83	3659.37
450	160.32	−0.250	157.82	3659.38
460	160.32	−0.250	157.82	3659.38
470	160.31	−0.240	157.81	3659.39
480	160.31	−0.240	157.81	3659.39
490	160.31	−0.240	157.81	3659.39
500	160.3	−0.230	157.8	3659.40
510	160.3	−0.230	157.8	3659.40
520	160.29	−0.220	157.79	3659.41
530	160.29	−0.220	157.79	3659.41
540	160.29	−0.220	157.79	3659.41
550	160.29	−0.220	157.79	3659.41
560	160.29	−0.220	157.79	3659.41
570	160.29	−0.220	157.79	3659.41
580	160.29	−0.220	157.79	3659.41
590	160.29	−0.220	157.79	3659.41
600	160.29	−0.220	157.79	3659.41
610	160.29	−0.220	157.79	3659.41
620	160.29	−0.220	157.79	3659.41
630	160.29	−0.220	157.79	3659.41
640	160.29	−0.220	157.79	3659.41
650	160.29	−0.220	157.79	3659.41
660	160.29	−0.220	157.79	3659.41
670	160.29	−0.220	157.79	3659.41
680	160.28	−0.210	157.78	3659.42
690	160.28	−0.210	157.78	3659.42
700	160.28	−0.210	157.78	3659.42
710	160.28	−0.210	157.78	3659.42
720	160.27	−0.200	157.77	3659.43
730	160.27	−0.200	157.77	3659.43
740	160.26	−0.190	157.76	3659.44
750	160.26	−0.190	157.76	3659.44
760	160.27	−0.200	157.77	3659.43
770	160.26	−0.190	157.76	3659.44
780	160.27	−0.200	157.77	3659.43
790	160.28	−0.210	157.78	3659.42
800	160.28	−0.210	157.78	3659.42
810	160.28	−0.210	157.78	3659.42
820	160.28	−0.210	157.78	3659.42
830	160.28	−0.210	157.78	3659.42
840	160.28	−0.210	157.78	3659.42
850	160.28	−0.210	157.78	3659.42
860	160.28	−0.210	157.78	3659.42
870	160.28	−0.210	157.78	3659.42
880	160.28	−0.210	157.78	3659.42
890	160.28	−0.210	157.78	3659.42
900	160.28	−0.210	157.78	3659.42
910	160.28	−0.210	157.78	3659.42
920	160.28	−0.210	157.78	3659.42

930	160.28	−0.210	157.78	3659.42
940	160.28	−0.210	157.78	3659.42
950	160.28	−0.210	157.78	3659.42
960	160.28	−0.210	157.78	3659.42
970	160.28	−0.210	157.78	3659.42
980	160.29	−0.220	157.79	3659.41
990	160.29	−0.220	157.79	3659.41
1000	160.29	−0.220	157.79	3659.41
1100	160.27	−0.200	157.77	3659.43
1200	160.21	−0.140	157.71	3659.49
1300	160.12	−0.050	157.62	3659.58
1400	160.03	0.040	157.53	3659.67
1500	159.95	0.120	157.45	3659.75
1600	159.92	0.150	157.42	3659.78
1700	159.91	0.160	157.41	3659.79
1800	159.93	0.140	157.43	3659.77
1900	159.92	0.150	157.42	3659.78
2000	159.91	0.160	157.41	3659.79
2100	159.87	0.200	157.37	3659.83
2200	159.85	0.220	157.35	3659.85
2300	159.84	0.230	157.34	3659.86
2400	159.84	0.230	157.34	3659.86

OW–5B

TW–2 Aquifer Test – Recovery Phase



Appendix C

TW-3 Aquifer Test – Pumping Phase
Observation Well: TW-3
Start Date = April 4, 1994
Start Time = 9:15 am
Static WL= 23.36
MP Stick Up = 1.9
GS Elevation = 3689.3
Pumping Rate = 105 gpm

Logger Elapsed Time (min)	Depth to Water (from MP)	Drawdown from Static WL	Depth to Water (from GS)	Water Level Elevation	Barometric Pressure
0.0000	23.708	−0.348	21.808	3667.49	22.829
0.0083	23.771	−0.411	21.871	3667.43	22.829
0.0166	23.803	−0.443	21.903	3667.40	22.829
0.0250	23.819	−0.459	21.919	3667.38	22.829
0.0333	23.977	−0.617	22.077	3667.22	22.824
0.0416	24.104	−0.744	22.204	3667.10	22.824
0.0500	24.151	−0.791	22.251	3667.05	22.829
0.0583	24.120	−0.760	22.220	3667.08	22.824
0.0666	24.215	−0.855	22.315	3666.99	22.824
0.0750	24.342	−0.982	22.442	3666.86	22.829
0.0833	24.342	−0.982	22.442	3666.86	22.829
0.1000	24.215	−0.855	22.315	3666.99	22.824
0.1166	24.294	−0.934	22.394	3666.91	22.824
0.1333	24.167	−0.807	22.267	3667.03	22.824
0.1500	24.104	−0.744	22.204	3667.10	22.824
0.1666	24.120	−0.760	22.220	3667.08	22.824
0.1833	24.009	−0.649	22.109	3667.19	22.829
0.2000	24.025	−0.665	22.125	3667.18	22.824
0.2166	23.914	−0.554	22.014	3667.29	22.824
0.2333	24.009	−0.649	22.109	3667.19	22.829
0.2500	23.993	−0.633	22.093	3667.21	22.829
0.2666	24.025	−0.665	22.125	3667.18	22.824
0.2833	24.167	−0.807	22.267	3667.03	22.824
0.3000	24.088	−0.728	22.188	3667.11	22.829
0.3166	24.262	−0.902	22.362	3666.94	22.824
0.3333	24.199	−0.839	22.299	3667.00	22.824
0.4166	23.977	−0.617	22.077	3667.22	22.829
0.5000	24.120	−0.760	22.220	3667.08	22.824
0.5833	24.310	−0.950	22.410	3666.89	22.824
0.6666	24.167	−0.807	22.267	3667.03	22.829
0.7500	24.310	−0.950	22.410	3666.89	22.824
0.8333	24.294	−0.934	22.394	3666.91	22.829
0.9166	24.215	−0.855	22.315	3666.99	22.824
1.0000	24.199	−0.839	22.299	3667.00	22.829
1.0833	24.246	−0.886	22.346	3666.95	22.824
1.1666	24.167	−0.807	22.267	3667.03	22.824
1.2500	24.342	−0.982	22.442	3666.86	22.824
1.3333	24.326	−0.966	22.426	3666.87	22.824
1.4166	24.373	−1.013	22.473	3666.83	22.824

1.5000	24.326	−0.966	22.426	3666.87	22.824
1.5833	24.357	−0.997	22.457	3666.84	22.824
1.6666	24.389	−1.029	22.489	3666.81	22.824
1.7500	24.215	−0.855	22.315	3666.99	22.824
1.8333	24.294	−0.934	22.394	3666.91	22.824
1.9166	24.357.	−0.997	22.457	3666.84	22.824
2.0	24.484	−1.124	22.584	3666.72	22.824
2.5	24.405	−1.045	22.505	3666.80	22.824
3.0	24.468	−1.108	22.568	3666.73	22.824
3.5	24.484	−1.124	22.584	3666.72	22.824
4.0	24.516	−1.156	22.616	3666.68	22.824
4.5	24.642	−1.282	22.742	3666.56	22.824
5.0	24.516	−1.156	22.616	3666.68	22.824
5.5	24.642	−1.282	22.742	3666.56	22.824
6.0	24.706	−1.346	22.806	3666.49	22.824
6.5	24.737	−1.377	22.837	3666.46	22.824
7.0	24.706	−1.346	22.806	3666.49	22.824
7.5	24.706	−1.346	22.806	3666.49	22.824
8.0	24.848	−1.488	22.948	3666.35	22.824
8.5	24.769	−1.409	22.869	3666.43	22.829
9.0	24.801	−1.441	22.901	3666.40	22.829
9.5	24.848	−1.488	22.948	3666.35	22.829
10	24.833	−1.473	22.933	3666.37	22.829
12	24.991	−1.631	23.091	3666.21	22.829
14	25.070	−1.710	23.170	3666.13	22.829
16	25.181	−1.821	23.281	3666.02	22.829
18	25.118	−1.758	23.218	3666.08	22.829
20	25.260	−1.900	23.360	3665.94	22.829
22	25.276	−1.916	23.376	3665.92	22.829
24	25.355	−1.995	23.455	3665.85	22.829
26	25.387	−2.027	23.487	3665.81	22.824
28	25.498	−2.138	23.598	3665.70	22.824
30	25.466	−2.106	23.566	3665.73	22.829
32	25.498	−2.138	23.598	3665.70	22.829
34	25.656	−2.296	23.756	3665.54	22.829
36	25.672	−2.312	23.772	3665.53	22.824
38	25.751	−2.391	23.851	3665.45	22.824
40	25.799	−2.439	23.899	3665.40	22.829
42	25.688	−2.328	23.788	3665.51	22.824
44	25.894	−2.534	23.994	3665.31	22.829
46	25.925	−2.565	24.025	3665.28	22.824
48	25.925	−2.565	24.025	3665.28	22.829
50	25.957	−2.597	24.057	3665.24	22.824
52	25.878	−2.518	23.978	3665.32	22.829
54	25.973	−2.613	24.073	3665.23	22.824
56	26.068	−2.708	24.168	3665.13	22.829
58	25.910	−2.550	24.010	3665.29	22.829
60	26.084	−2.724	24.184	3665.12	22.824
62	26.115	−2.755	24.215	3665.09	22.818
64	26.131	−2.771	24.231	3665.07	22.824
66	26.210	−2.850	24.310	3664.99	22.818

68	26.115	−2.755	24.215	3665.09	22.824
70	26.163	−2.803	24.263	3665.04	22.818
72	26.242	−2.882	24.342	3664.96	22.818
74	26.305	−2.945	24.405	3664.90	22.818
76	26.400	−3.040	24.500	3664.80	22.818
78	26.369.	−3.009	24.469	3664.83	22.818
80	26.321	−2.961	24.421	3664.88	22.818
82	26.353	−2.993	24.453	3664.85	22.812
84	26.495	−3.135	24.595	3664.71	22.812
86	26.495	−3.135	24.595	3664.71	22.812
88	26.416	−3.056	24.516	3664.78	22.807
90	26.511	−3.151	24.611	3664.69	22.807
92	26.543	−3.183	24.643	3664.66	22.807
94	26.527	−3.167	24.627	3664.67	22.807
96	26.559	−3.199	24.659	3664.64	22.807
98	26.654	−3.294	24.754	3664.55	22.807
100	26.638	−3.278	24.738	3664.56	22.807
110	26.717	−3.357	24.817	3664.48	22.795
120	26.765	−3.405	24.865	3664.44	22.790
130	26.733	−3.373	24.833	3664.47	22.784
140	26.923	−3.563	25.023	3664.28	22.778
150	27.002	−3.642	25.102	3664.20	22.772
160	27.161	−3.801	25.261	3664.04	22.767
170	27.129	−3.769	25.229	3664.07	22.767
180	27.256	−3.896	25.356	3663.94	22.761
190	27.319	−3.959	25.419	3663.88	22.755
200	27.303	−3.943	25.403	3663.90	22.750
210	27.303	−3.943	25.403	3663.90	22.744
220	27.319	−3.959	25.419	3663.88	22.738
230	27.414	−4.054	25.514	3663.79	22.738
240	27.604	−4.244	25.704	3663.60	22.733
250	27.715	−4.355	25.815	3663.49	22.721
260	27.541	−4.181	25.641	3663.66	22.710
270	27.541	−4.181	25.641	3663.66	22.699
280	27.762	−4.402	25.862	3663.44	22.699
290	27.747	−4.387	25.847	3663.45	22.699
300	27.762	−4.402	25.862	3663.44	22.693
310	27.857	−4.497	25.957	3663.34	22.687
320	27.905	−4.545	26.005	3663.30	22.681
330	27.984	−4.624	26.084	3663.22	22.670
340	27.968	−4.608	26.068	3663.23	22.653
350	28.016	−4.656	26.116	3663.18	22.659
360	28.048	−4.688	26.148	3663.15	22.647
370	28.016	−4.656	26.116	3663.18	22.642
380	28.063	−4.703	26.163	3663.14	22.642
390	28.190	−4.830	26.290	3663.01	22.636
400	28.127	−4.767	26.227	3663.07	22.630
410	28.174	−4.814	26.274	3663.03	22.630
420	28.285	−4.925	26.385	3662.92	22.630
430	28.301	−4.941	26.401	3662.90	22.636
440	28.174	−4.814	26.274	3663.03	22.636

450	28.269	−4.909	26.369	3662.93	22.636
460	28.206	−4.846	26.306	3662.99	22.636
470	28.317	−4.957	26.417	3662.88	22.630
480	28.428	−5.068	26.528	3662.77	22.630
490	28.475	−5.115	26.575	3662.73	22.630
500	28.412	−5.052	26.512	3662.79	22.630
510	28.333	−4.973	26.433	3662.87	22.630
520	28.428	−5.068	26.528	3662.77	22.630
530	28.523	−5.163	26.623	3662.68	22.630
540	28.507	−5.147	26.607	3662.69	22.636
550	28.523	−5.163	26.623	3662.68	22.636
560	28.586	−5.226	26.686	3662.61	22.642
570	28.665	−5.305	26.765	3662.54	22.642
580	28.665	−5.305	26.765	3662.54	22.647
590	28.570	−5.210	26.670	3662.63	22.653
600	28.665	−5.305	26.765	3662.54	22.659
610	28.649	−5.289	26.749	3662.55	22.659
620	28.554	−5.194	26.654	3662.65	22.664
630	28.681	−5.321	26.781	3662.52	22.670
640	28.776	−5.416	26.876	3662.42	22.681
650	28.728	−5.368	26.828	3662.47	22.687
660	28.744	−5.384	26.844	3662.46	22.681
670	28.839	−5.479	26.939	3662.36	22.693
680	28.871	−5.511	26.971	3662.33	22.693
690	28.792	−5.432	26.892	3662.41	22.693
700	28.808	−5.448	26.908	3662.39	22.699
710	28.839	−5.479	26.939	3662.36	22.693
720	28.903	−5.543	27.003	3662.30	22.699
730	28.982	−5.622	27.082	3662.22	22.716
740	28.824	−5.464	26.924	3662.38	22.733
750	28.839	−5.479	26.939	3662.36	22.733
760	28.966	−5.606	27.066	3662.23	22.750
770	28.919	−5.559	27.019	3662.28	22.801
780	28.934	−5.574	27.034	3662.27	22.790
790	28.919	−5.559	27.019	3662.28	22.812
800	28.982	−5.622	27.082	3662.22	22.818
810	29.077	−5.717	27.177	3662.12	22.847
820	28.998	−5.638	27.098	3662.20	22.835
830	29.029	−5.669	27.129	3662.17	22.829
840	28.998	−5.638	27.098	3662.20	22.824
850	29.077	−5.717	27.177	3662.12	22.835
860	29.061	−5.701	27.161	3662.14	22.807
870	29.093	−5.733	27.193	3662.11	22.795
880	29.156	−5.796	27.256	3662.04	22.812
890	29.109	−5.749	27.209	3662.09	22.818
900	29.093	−5.733	27.193	3662.11	22.790
910	29.204	−5.844	27.304	3662.00	22.807
920	29.029	−5.669	27.129	3662.17	22.801
930	29.093	−5.733	27.193	3662.11	22.829
940	29.204	−5.844	27.304	3662.00	22.835
950	29.156	−5.796	27.256	3662.04	22.847

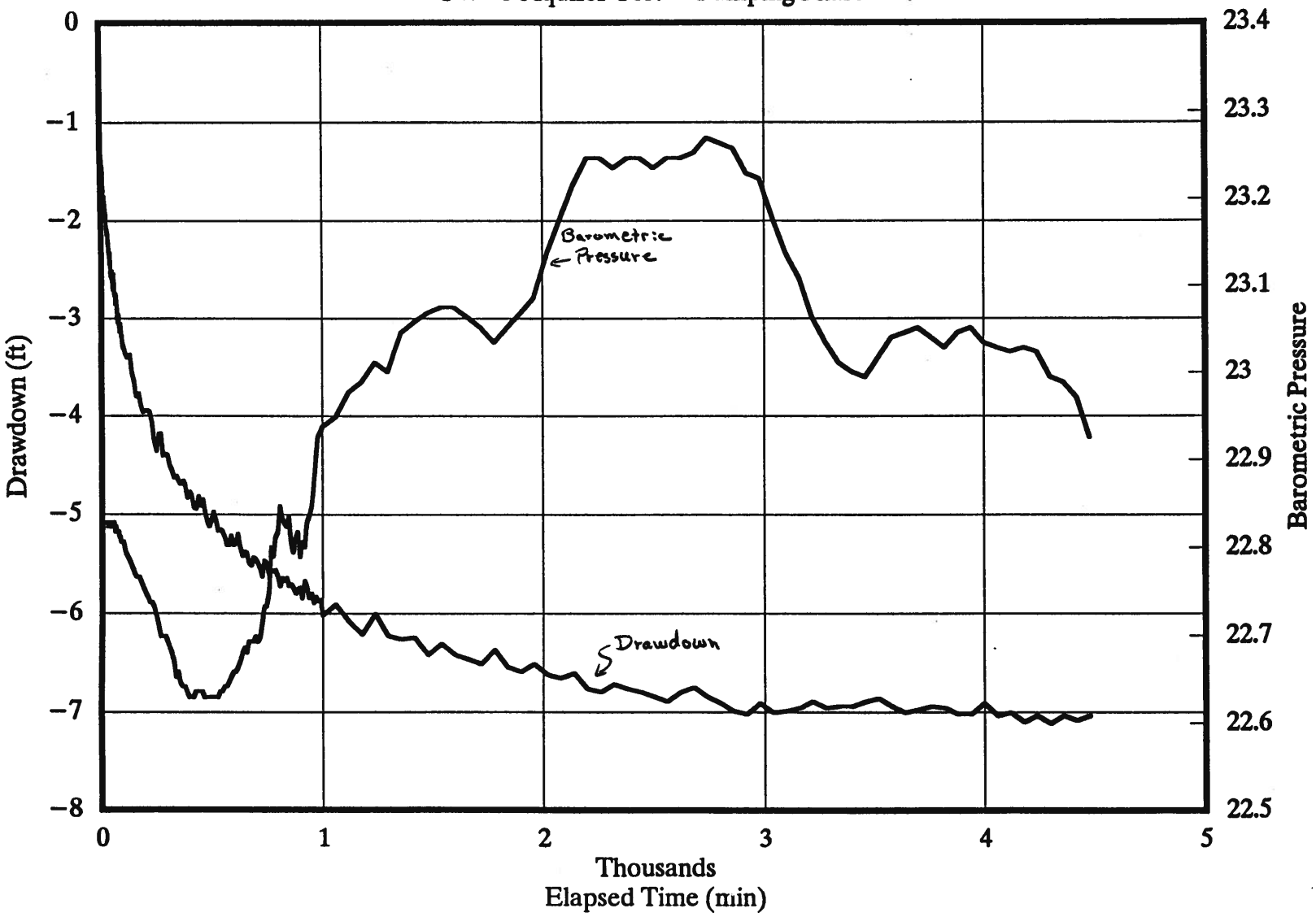
960	29.251	−5.891	27.351	3661.95	22.869
970	29.188	−5.828	27.288	3662.01	22.898
980	29.235	−5.875	27.335	3661.97	22.926
990	29.219	−5.859	27.319	3661.98	22.932
1000	29.378	−6.018	27.478	3661.82	22.938
1060	29.267	−5.907	27.367	3661.93	22.949
1120	29.441	−6.081	27.541	3661.76	22.978
1180	29.568	−6.208	27.668	3661.63	22.989
1240	29.362	−6.002	27.462	3661.84	23.012
1300	29.584	−6.224	27.684	3661.62	23.001
1360	29.615	−6.255	27.715	3661.59	23.046
1420	29.599	−6.239	27.699	3661.60	23.058
1480	29.774	−6.414	27.874	3661.43	23.069
1540	29.663	−6.303	27.763	3661.54	23.075
1600	29.774	−6.414	27.874	3661.43	23.075
1660	29.821	−6.461	27.921	3661.38	23.064
1720	29.869	−6.509	27.969	3661.33	23.052
1780	29.726	−6.366	27.826	3661.47	23.035
1840	29.900	−6.540	28.000	3661.30	23.052
1900	29.948	−6.588	28.048	3661.25	23.069
1960	29.869	−6.509	27.969	3661.33	23.086
2020	29.980	−6.620	28.080	3661.22	23.138
2080	30.011	−6.651	28.111	3661.19	23.178
2140	29.964	−6.604	28.064	3661.24	23.218
2200	30.122	−6.762	28.222	3661.08	23.247
2260	30.154	−6.794	28.254	3661.05	23.247
2320	30.075	−6.715	28.175	3661.13	23.236
2380	30.122	−6.762	28.222	3661.08	23.247
2440	30.154	−6.794	28.254	3661.05	23.247
2500	30.201	−6.841	28.301	3661.00	23.236
2560	30.249	−6.889	28.349	3660.95	23.247
2620	30.154	−6.794	28.254	3661.05	23.247
2680	30.106	−6.746	28.206	3661.09	23.253
2740	30.201	−6.841	28.301	3661.00	23.270
2800	30.265	−6.905	28.365	3660.94	23.264
2860	30.344	−6.984	28.444	3660.86	23.258
2920	30.375	−7.015	28.475	3660.83	23.230
2980	30.265	−6.905	28.365	3660.94	23.224
3040	30.360	−7.000	28.460	3660.84	23.178
3100	30.344	−6.984	28.444	3660.86	23.138
3160	30.312	−6.952	28.412	3660.89	23.109
3220	30.249	−6.889	28.349	3660.95	23.064
3280	30.312	−6.952	28.412	3660.89	23.035
3340	30.296	−6.936	28.396	3660.90	23.012
3400	30.296	−6.936	28.396	3660.90	23.001
3460	30.249	−6.889	28.349	3660.95	22.995
3520	30.217	−6.857	28.317	3660.98	23.018
3580	30.296	−6.936	28.396	3660.90	23.041
3640	30.360	−7.000	28.460	3660.84	23.046
3700	30.328	−6.968	28.428	3660.87	23.052
3760	30.296	−6.936	28.396	3660.90	23.041

3820	30.312	−6.952	28.412	3660.89	23.029
3880	30.375	−7.015	28.475	3660.83	23.046
3940	30.375	−7.015	28.475	3660.83	23.052
4000	30.265	−6.905	28.365	3660.94	23.035
4060	30.391	−7.031	28.491	3660.81	23.029
4120	30.360	−7.000	28.460	3660.84	23.024
4180	30.455	−7.095	28.555	3660.75	23.029
4240	30.391	−7.031	28.491	3660.81	23.024
4300	30.470	−7.110	28.570	3660.73	22.995
4360	30.391	−7.031	28.491	3660.81	22.989
4420	30.439	−7.079	28.539	3660.76	22.972
4480	30.391	−7.031	28.491	3660.81	22.926

Discharge Measurements:

Date	Time	Rate	Method
04−Apr−94	9:21	105 gpm	55 gallon drum
04−Apr−94	10:10	105 gpm	55 gallon drum
04−Apr−94	14:30	105 gpm	55 gallon drum
05−Apr−94	7:45	105 gpm	55 gallon drum
06−Apr−94	9:00	105 gpm	55 gallon drum
07−Apr−94	9:20	105 gpm	55 gallon drum

TW−3


TW−3 Aquifer Test – Pumping Phase
0
−1
−2
−3
−4
−5
−6
−7
−8
Drawdown (ft)
23.4
23.3
23.2
23.1
23
22.9
22.8
22.7
22.6
22.5
Barometric Pressure
Barometric Pressure
Drawdown
0
1
2
3
4
5
Thousands
Elapsed Time (min)

TW−3 Aquifer Test − Pumping Phase
Observation Well: OW−5A
Start Date = April 4, 1994
Start Time = 9:15 am
Static WL= 152.2
MP Stick Up = 1.32
GS Elevation = 3816.4

Logger Elapsed Time	Depth to Water (from MP)	Drawdown from Static WL	Depth to Water (from GS)	Water Level Elevation	Barometric Pressure
0.0000	152.210	−0.010	150.890	3665.51	
0.0033	152.210	−0.010	150.890	3665.51	
0.0066	152.210	−0.010	150.890	3665.51	
0.0099	152.210	−0.010	150.890	3665.51	
0.0133	152.210	−0.010	150.890	3665.51	
0.0166	152.210	−0.010	150.890	3665.51	
0.0200	152.210	−0.010	150.890	3665.51	
0.0233	152.210	−0.010	150.890	3665.51	
0.0266	152.210	−0.010	150.890	3665.51	
0.0300	152.210	−0.010	150.890	3665.51	
0.0333	152.210	−0.010	150.890	3665.51	
0.0500	152.210	−0.010	150.890	3665.51	
0.0666	152.210	−0.010	150.890	3665.51	
0.0833	152.210	−0.010	150.890	3665.51	
0.1000	152.210	−0.010	150.890	3665.51	
0.1166	152.200	0.000	150.880	3665.52	
0.1333	152.200	0.000	150.880	3665.52	
0.1500	152.200	0.000	150.880	3665.52	
0.1666	152.200	0.000	150.880	3665.52	
0.1833	152.210	−0.010	150.890	3665.51	
0.2000	152.200	0.000	150.880	3665.52	
0.2166	152.210	−0.010	150.890	3665.51	
0.2333	152.200	0.000	150.880	3665.52	
0.2500	152.200	0.000	150.880	3665.52	
0.2666	152.200	0.000	150.880	3665.52	
0.2833	152.200	0.000	150.880	3665.52	
0.3000	152.200	0.000	150.880	3665.52	
0.3166	152.200	0.000	150.880	3665.52	
0.3333	152.210	−0.010	150.890	3665.51	
0.4167	152.200	0.000	150.880	3665.52	
0.5000	152.200	0.000	150.880	3665.52	
0.5833	152.200	0.000	150.880	3665.52	
0.6667	152.200	0.000	150.880	3665.52	
0.7500	152.200	0.000	150.880	3665.52	
0.8333	152.200	0.000	150.880	3665.52	
0.9167	152.200	0.000	150.880	3665.52	
1.0000	152.200	0.000	150.880	3665.52	22.829
1.0833	152.200	0.000	150.880	3665.52	22.824
1.1667	152.200	0.000	150.880	3665.52	22.824

1.2500	152.200	0.000	150.880	3665.52	22.824
1.3333	152.200	0.000	150.880	3665.52	22.824
1.4166	152.200	0.000	150.880	3665.52	22.824
1.5000	152.200	0.000	150.880	3665.52	22.824
1.5833	152.200	0.000	150.880	3665.52	22.824
1.6667	152.200	0.000	150.880	3665.52	22.824
1.7500	152.200	0.000	150.880	3665.52	22.824
1.8333	152.200	0.000	150.880	3665.52	22.824
1.9167	152.200	0.000	150.880	3665.52	22.824
2.0	152.200	0.000	150.880	3665.52	22.824
2.5	152.200	0.000	150.880	3665.52	22.824
3.0	152.200	0.000	150.880	3665.52	22.824
3.5	152.200	0.000	150.880	3665.52	22.824
4.0	152.200	0.000	150.880	3665.52	22.824
4.5	152.200	0.000	150.880	3665.52	22.824
5.0	152.200	0.000	150.880	3665.52	22.824
5.5	152.200	0.000	150.880	3665.52	22.824
6.0	152.200	0.000	150.880	3665.52	22.824
6.5	152.200	0.000	150.880	3665.52	22.824
7.0	152.200	0.000	150.880	3665.52	22.824
7.5	152.200	0.000	150.880	3665.52	22.824
8.0	152.200	0.000	150.880	3665.52	22.824
8.5	152.200	0.000	150.880	3665.52	22.829
9.0	152.200	0.000	150.880	3665.52	22.829
9.5	152.200	0.000	150.880	3665.52	22.829
10	152.200	0.000	150.880	3665.52	22.829
12	152.200	0.000	150.880	3665.52	22.829
14	152.200	0.000	150.880	3665.52	22.829
16	152.200	0.000	150.880	3665.52	22.829
18	152.200	0.000	150.880	3665.52	22.829
20	152.200	0.000	150.880	3665.52	22.829
22	152.200	0.000	150.880	3665.52	22.829
24	152.200	0.000	150.880	3665.52	22.829
26	152.200	0.000	150.880	3665.52	22.824
28	152.200	0.000	150.880	3665.52	22.824
30	152.200	0.000	150.880	3665.52	22.829
32	152.210	−0.010	150.890	3665.51	22.829
34	152.200	0.000	150.880	3665.52	22.829
36	152.200	0.000	150.880	3665.52	22.824
38	152.210	−0.010	150.890	3665.51	22.824
40	152.200	0.000	150.880	3665.52	22.829
42	152.200	0.000	150.880	3665.52	22.824
44	152.200	0.000	150.880	3665.52	22.829
46	152.200	0.000	150.880	3665.52	22.824
48	152.200	0.000	150.880	3665.52	22.829
50	152.200	0.000	150.880	3665.52	22.824
52	152.200	0.000	150.880	3665.52	22.829
54	152.200	0.000	150.880	3665.52	22.824
56	152.200	0.000	150.880	3665.52	22.829
58	152.210	−0.010	150.890	3665.51	22.829
60	152.200	0.000	150.880	3665.52	22.824

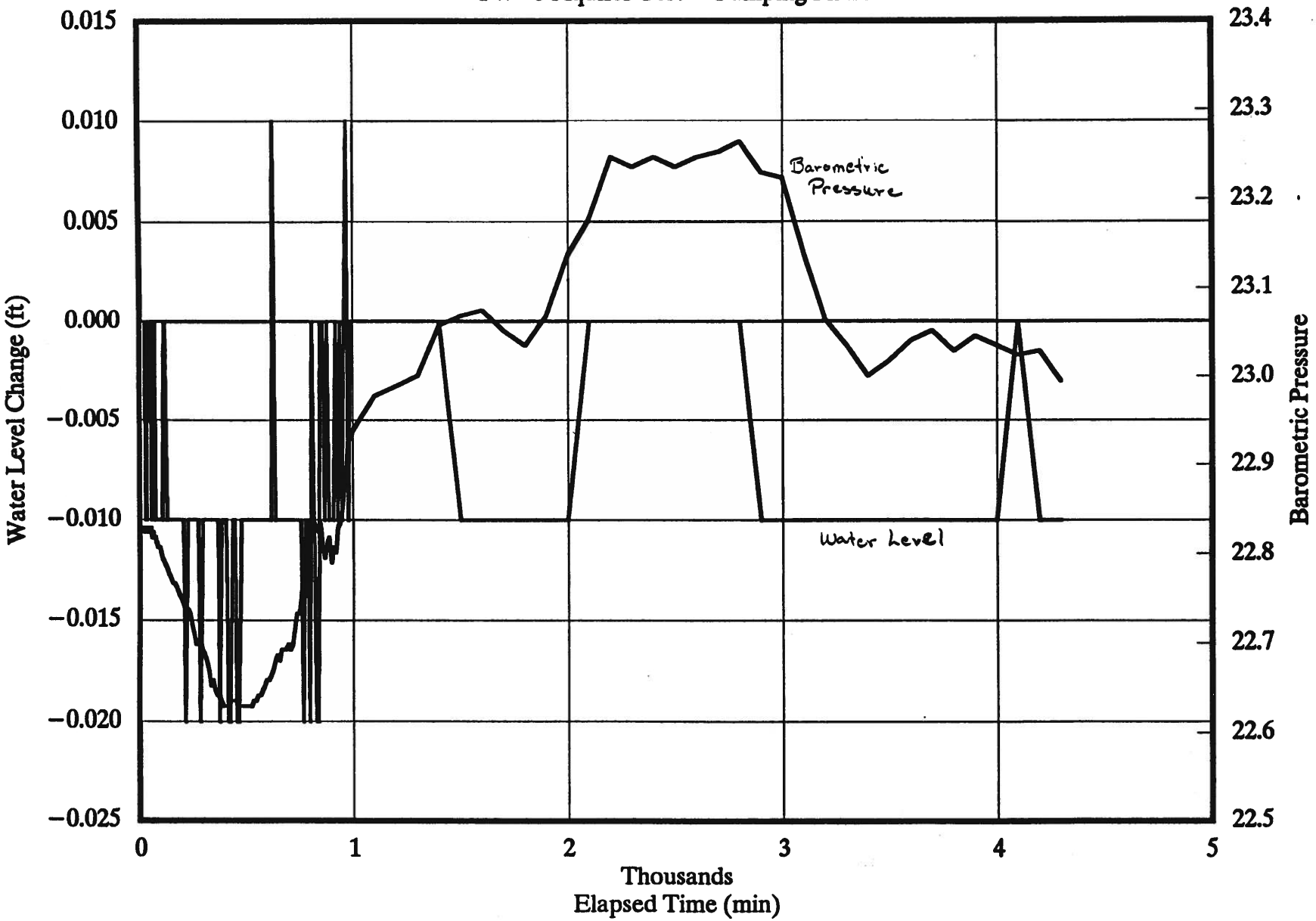
62	152.200	0.000	150.880	3665.52	22.818
64	152.210	−0.010	150.890	3665.51	22.824
66	152.200	0.000	150.880	3665.52	22.818
68	152.210	−0.010	150.890	3665.51	22.824
70	152.200	0.000	150.880	3665.52	22.818
72	152.200	0.000	150.880	3665.52	22.818
74	152.200	0.000	150.880	3665.52	22.818
76	152.200	0.000	150.880	3665.52	22.818
78	152.200	0.000	150.880	3665.52	22.818
80	152.210	−0.010	150.890	3665.51	22.818
82	152.210	−0.010	150.890	3665.51	22.812
84	152.210	−0.010	150.890	3665.51	22.812
86	152.210	−0.010	150.890	3665.51	22.812
88	152.210	−0.010	150.890	3665.51	22.807
90	152.210	−0.010	150.890	3665.51	22.807
92	152.210	−0.010	150.890	3665.51	22.807
94	152.210	−0.010	150.890	3665.51	22.807
96	152.210	−0.010	150.890	3665.51	22.807
98	152.210	−0.010	150.890	3665.51	22.807
100	152.210	−0.010	150.890	3665.51	22.807
110	152.210	−0.010	150.890	3665.51	22.795
120	152.200	0.000	150.880	3665.52	22.790
130	152.210	−0.010	150.890	3665.51	22.784
140	152.210	−0.010	150.890	3665.51	22.778
150	152.210	−0.010	150.890	3665.51	22.772
160	152.210	−0.010	150.890	3665.51	22.767
170	152.210	−0.010	150.890	3665.51	22.767
180	152.210	−0.010	150.890	3665.51	22.761
190	152.210	−0.010	150.890	3665.51	22.755
200	152.210	−0.010	150.890	3665.51	22.750
210	152.210	−0.010	150.890	3665.51	22.744
220	152.220	−0.020	150.900	3665.50	22.738
230	152.210	−0.010	150.890	3665.51	22.738
240	152.210	−0.010	150.890	3665.51	22.733
250	152.210	−0.010	150.890	3665.51	22.721
260	152.210	−0.010	150.890	3665.51	22.710
270	152.210	−0.010	150.890	3665.51	22.699
280	152.210	−0.010	150.890	3665.51	22.699
290	152.220	−0.020	150.900	3665.50	22.699
300	152.210	−0.010	150.890	3665.51	22.693
310	152.210	−0.010	150.890	3665.51	22.687
320	152.210	−0.010	150.890	3665.51	22.681
330	152.210	−0.010	150.890	3665.51	22.670
340	152.210	−0.010	150.890	3665.51	22.653
350	152.210	−0.010	150.890	3665.51	22.659
360	152.210	−0.010	150.890	3665.51	22.647
370	152.210	−0.010	150.890	3665.51	22.642
380	152.220	−0.020	150.900	3665.50	22.642
390	152.210	−0.010	150.890	3665.51	22.636
400	152.210	−0.010	150.890	3665.51	22.630
410	152.210	−0.010	150.890	3665.51	22.630

420	152.220	−0.020	150.900	3665.50	22.630
430	152.220	−0.020	150.900	3665.50	22.636
440	152.210	−0.010	150.890	3665.51	22.636
450	152.210	−0.010	150.890	3665.51	22.636
460	152.220	−0.020	150.900	3665.50	22.636
470	152.220	−0.020	150.900	3665.50	22.630
480	152.210	−0.010	150.890	3665.51	22.630
490	152.210	−0.010	150.890	3665.51	22.630
500	152.210	−0.010	150.890	3665.51	22.630
510	152.210	−0.010	150.890	3665.51	22.630
520	152.210	−0.010	150.890	3665.51	22.630
530	152.210	−0.010	150.890	3665.51	22.630
540	152.210	−0.010	150.890	3665.51	22.636
550	152.210	−0.010	150.890	3665.51	22.636
560	152.210	−0.010	150.890	3665.51	22.642
570	152.210	−0.010	150.890	3665.51	22.642
580	152.210	−0.010	150.890	3665.51	22.647
590	152.210	−0.010	150.890	3665.51	22.653
600	152.210	−0.010	150.890	3665.51	22.659
610	152.210	−0.010	150.890	3665.51	22.659
620	152.210	−0.010	150.890	3665.51	22.664
630	152.190	0.010	150.870	3665.53	22.670
640	152.210	−0.010	150.890	3665.51	22.681
650	152.210	−0.010	150.890	3665.51	22.687
660	152.210	−0.010	150.890	3665.51	22.681
670	152.210	−0.010	150.890	3665.51	22.693
680	152.210	−0.010	150.890	3665.51	22.693
690	152.210	−0.010	150.890	3665.51	22.693
700	152.210	−0.010	150.890	3665.51	22.699
710	152.210	−0.010	150.890	3665.51	22.693
720	152.210	−0.010	150.890	3665.51	22.699
730	152.210	−0.010	150.890	3665.51	22.716
740	152.210	−0.010	150.890	3665.51	22.733
750	152.210	−0.010	150.890	3665.51	22.733
760	152.210	−0.010	150.890	3665.51	22.750
770	152.220	−0.020	150.900	3665.50	22.801
780	152.210	−0.010	150.890	3665.51	22.790
790	152.210	−0.010	150.890	3665.51	22.812
800	152.220	−0.020	150.900	3665.50	22.818
810	152.200	0.000	150.880	3665.52	22.847
820	152.210	−0.010	150.890	3665.51	22.835
830	152.220	−0.020	150.900	3665.50	22.829
840	152.220	−0.020	150.900	3665.50	22.824
850	152.200	0.000	150.880	3665.52	22.835
860	152.200	0.000	150.880	3665.52	22.807
870	152.210	−0.010	150.890	3665.51	22.795
880	152.200	0.000	150.880	3665.52	22.812
890	152.210	−0.010	150.890	3665.51	22.818
900	152.210	−0.010	150.890	3665.51	22.790
910	152.210	−0.010	150.890	3665.51	22.807
920	152.200	0.000	150.880	3665.52	22.801

930	152.210	−0.010	150.890	3665.51	22.829
940	152.200	0.000	150.880	3665.52	22.835
950	152.210	−0.010	150.890	3665.51	22.847
960	152.200	0.000	150.880	3665.52	22.869
970	152.190	0.010	150.870	3665.53	22.898
980	152.210	−0.010	150.890	3665.51	22.926
990	152.200	0.000	150.880	3665.52	22.932
1000	152.200	0.000	150.880	3665.52	22.938
1100	152.200	0.000	150.880	3665.52	22.978
1200	152.200	0.000	150.880	3665.52	22.989
1300	152.200	0.000	150.880	3665.52	23.001
1400	152.200	0.000	150.880	3665.52	23.058
1500	152.210	−0.010	150.890	3665.51	23.069
1600	152.210	−0.010	150.890	3665.51	23.075
1700	152.210	−0.010	150.890	3665.51	23.052
1800	152.210	−0.010	150.890	3665.51	23.035
1900	152.210	−0.010	150.890	3665.51	23.069
2000	152.210	−0.010	150.890	3665.51	23.138
2100	152.200	0.000	150.880	3665.52	23.178
2200	152.200	0.000	150.880	3665.52	23.247
2300	152.200	0.000	150.880	3665.52	23.236
2400	152.200	0.000	150.880	3665.52	23.247
2500	152.200	0.000	150.880	3665.52	23.236
2600	152.200	0.000	150.880	3665.52	23.247
2700	152.200	0.000	150.880	3665.52	23.253
2800	152.200	0.000	150.880	3665.52	23.264
2900	152.210	−0.010	150.890	3665.51	23.230
3000	152.210	−0.010	150.890	3665.51	23.224
3100	152.210	−0.010	150.890	3665.51	23.138
3200	152.210	−0.010	150.890	3665.51	23.064
3300	152.210	−0.010	150.890	3665.51	23.035
3400	152.210	−0.010	150.890	3665.51	23.001
3500	152.210	−0.010	150.890	3665.51	23.018
3600	152.210	−0.010	150.890	3665.51	23.041
3700	152.210	−0.010	150.890	3665.51	23.052
3800	152.210	−0.010	150.890	3665.51	23.029
3900	152.210	−0.010	150.890	3665.51	23.046
4000	152.210	−0.010	150.890	3665.51	23.035
4100	152.200	0.000	150.880	3665.52	23.024
4200	152.210	−0.010	150.890	3665.51	23.029
4300	152.210	−0.010	150.890	3665.51	22.995

OW–5A

TW–3 Aquifer Test – Pumping Phase



TW-3 Aquifer Test – Pumping Phase
Observation Well: OW-5B
Start Date = April 4, 1994
Start Time = 9:15 am
Static WL= 160.07
MP Stick Up = 2.5
GS Elevation = 3817.2

Logger Elapsed Time	Depth to Water (from MP)	Drawdown from Static WL	B.E. Corr. Drawdown	Depth to Water (from GS)	Water Level Elevation	Barometric Pressure (H2O ft)
0.0000	160.060	0.010	0.010	157.560	3659.64	
0.0033	160.060	0.010	0.010	157.560	3659.64	
0.0066	160.060	0.010	0.010	157.560	3659.64	
0.0099	160.060	0.010	0.010	157.560	3659.64	
0.0133	160.060	0.010	0.010	157.560	3659.64	
0.0166	160.060	0.010	0.010	157.560	3659.64	
0.0200	160.060	0.010	0.010	157.560	3659.64	
0.0233	160.060	0.010	0.010	157.560	3659.64	
0.0266	160.060	0.010	0.010	157.560	3659.64	
0.0300	160.060	0.010	0.010	157.560	3659.64	
0.0333	160.060	0.010	0.010	157.560	3659.64	
0.0500	160.060	0.010	0.010	157.560	3659.64	
0.0666	160.060	0.010	0.010	157.560	3659.64	
0.0833	160.060	0.010	0.010	157.560	3659.64	
0.1000	160.060	0.010	0.010	157.560	3659.64	
0.1166	160.060	0.010	0.010	157.560	3659.64	
0.1333	160.060	0.010	0.010	157.560	3659.64	
0.1500	160.060	0.010	0.010	157.560	3659.64	
0.1666	160.060	0.010	0.010	157.560	3659.64	
0.1833	160.060	0.010	0.010	157.560	3659.64	
0.2000	160.060	0.010	0.010	157.560	3659.64	
0.2166	160.060	0.010	0.010	157.560	3659.64	
0.2333	160.060	0.010	0.010	157.560	3659.64	
0.2500	160.060	0.010	0.010	157.560	3659.64	
0.2666	160.060	0.010	0.010	157.560	3659.64	
0.2833	160.060	0.010	0.010	157.560	3659.64	
0.3000	160.060	0.010	0.010	157.560	3659.64	
0.3166	160.060	0.010	0.010	157.560	3659.64	
0.3333	160.060	0.010	0.010	157.560	3659.64	
0.4167	160.050	0.020	0.020	157.550	3659.65	
0.5000	160.060	0.010	0.010	157.560	3659.64	
0.5833	160.060	0.010	0.010	157.560	3659.64	
0.6667	160.050	0.020	0.020	157.550	3659.65	
0.7500	160.060	0.010	0.010	157.560	3659.64	
0.8333	160.060	0.010	0.010	157.560	3659.64	
0.9167	160.060	0.010	0.010	157.560	3659.64	
1.0000	160.060	0.010	0.010	157.560	3659.64	22.878
1.0833	160.060	0.010	0.010	157.560	3659.64	22.867
1.1667	160.060	0.010	0.007	157.560	3659.64	22.867

1.2500	160.050	0.020	0.017	157.550	3659.65	22.867
1.3333	160.050	0.020	0.017	157.550	3659.65	22.867
1.4166	160.050	0.020	0.017	157.550	3659.65	22.867
1.5000	160.060	0.010	0.007	157.560	3659.64	22.867
1.5833	160.050	0.020	0.017	157.550	3659.65	22.867
1.6667	160.050	0.020	0.017	157.550	3659.65	22.867
1.7500	160.050	0.020	0.017	157.550	3659.65	22.867
1.8333	160.050	0.020	0.017	157.550	3659.65	22.867
1.9167	160.050	0.020	0.017	157.550	3659.65	22.867
2.0	160.050	0.020	0.017	157.550	3659.65	22.867
2.5	160.050	0.020	0.017	157.550	3659.65	22.867
3.0	160.050	0.020	0.017	157.550	3659.65	22.867
3.5	160.050	0.020	0.017	157.550	3659.65	22.867
4.0	160.050	0.020	0.017	157.550	3659.65	22.867
4.5	160.050	0.020	0.017	157.550	3659.65	22.867
5.0	160.060	0.010	0.007	157.560	3659.64	22.867
5.5	160.050	0.020	0.017	157.550	3659.65	22.867
6.0	160.050	0.020	0.017	157.550	3659.65	22.867
6.5	160.050	0.020	0.017	157.550	3659.65	22.867
7.0	160.060	0.010	0.007	157.560	3659.64	22.867
7.5	160.050	0.020	0.017	157.550	3659.65	22.867
8.0	160.050	0.020	0.017	157.550	3659.65	22.867
8.5	160.050	0.020	0.017	157.550	3659.65	22.878
9.0	160.060	0.010	0.010	157.560	3659.64	22.878
9.5	160.060	0.010	0.010	157.560	3659.64	22.878
10	160.060	0.010	0.010	157.560	3659.64	22.878
12	160.060	0.010	0.010	157.560	3659.64	22.878
14	160.070	0.000	0.000	157.570	3659.63	22.878
16	160.060	0.010	0.010	157.560	3659.64	22.878
18	160.070	0.000	0.000	157.570	3659.63	22.878
20	160.060	0.010	0.010	157.560	3659.64	22.878
22	160.060	0.010	0.010	157.560	3659.64	22.878
24	160.060	0.010	0.010	157.560	3659.64	22.878
26	160.060	0.010	0.010	157.560	3659.64	22.867
28	160.060	0.010	0.007	157.560	3659.64	22.867
30	160.060	0.010	0.007	157.560	3659.64	22.878
32	160.060	0.010	0.010	157.560	3659.64	22.878
34	160.060	0.010	0.010	157.560	3659.64	22.878
36	160.060	0.010	0.010	157.560	3659.64	22.867
38	160.070	0.000	−0.003	157.570	3659.63	22.867
40	160.060	0.010	0.007	157.560	3659.64	22.878
42	160.060	0.010	0.010	157.560	3659.64	22.867
44	160.060	0.010	0.007	157.560	3659.64	22.878
46	160.070	0.000	0.000	157.570	3659.63	22.867
48	160.070	0.000	−0.003	157.570	3659.63	22.878
50	160.070	0.000	0.000	157.570	3659.63	22.867
52	160.070	0.000	−0.003	157.570	3659.63	22.878
54	160.070	0.000	0.000	157.570	3659.63	22.867
56	160.070	0.000	−0.003	157.570	3659.63	22.878
58	160.070	0.000	0.000	157.570	3659.63	22.878
60	160.070	0.000	0.000	157.570	3659.63	22.867

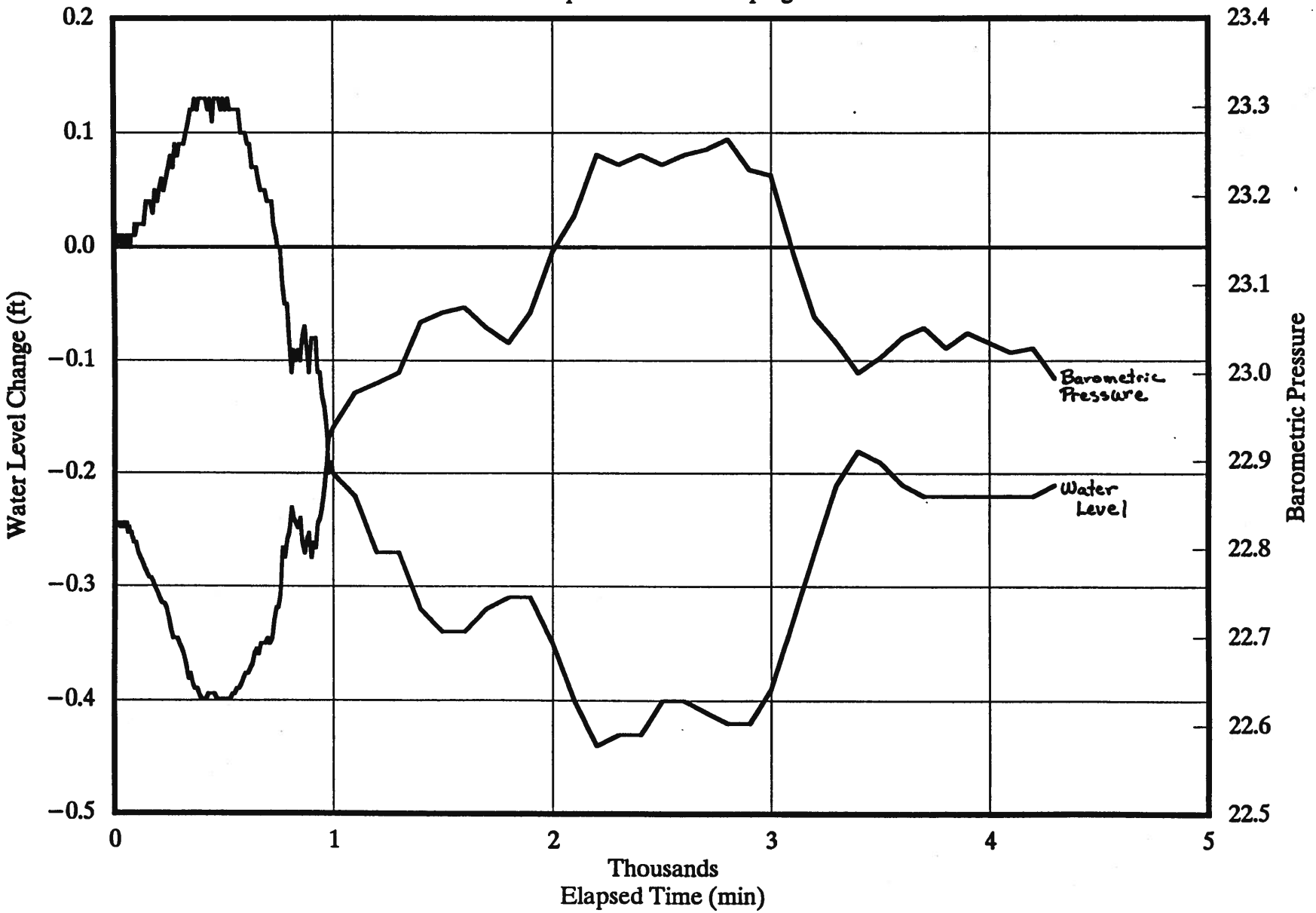
62	160.060	0.010	0.007	157.560	3659.64	22.853
64	160.070	0.000	−0.007	157.570	3659.63	22.867
66	160.060	0.010	0.007	157.560	3659.64	22.853
68	160.070	0.000	−0.007	157.570	3659.63	22.867
70	160.070	0.000	−0.003	157.570	3659.63	22.853
72	160.070	0.000	−0.007	157.570	3659.63	22.853
74	160.070	0.000	−0.007	157.570	3659.63	22.853
76	160.070	0.000	−0.007	157.570	3659.63	22.853
78	160.070	0.000	−0.007	157.570	3659.63	22.853
80	160.070	0.000	−0.007	157.570	3659.63	22.853
82	160.060	0.010	0.003	157.560	3659.64	22.839
84	160.060	0.010	−0.001	157.560	3659.64	22.839
86	160.060	0.010	−0.001	157.560	3659.64	22.839
88	160.060	0.010	−0.001	157.560	3659.64	22.827
90	160.060	0.010	−0.004	157.560	3659.64	22.827
92	160.060	0.010	−0.004	157.560	3659.64	22.827
94	160.060	0.010	−0.004	157.560	3659.64	22.827
96	160.060	0.010	−0.004	157.560	3659.64	22.827
98	160.050	0.020	0.006	157.550	3659.65	22.827
100	160.060	0.010	−0.004	157.560	3659.64	22.827
110	160.050	0.020	0.006	157.550	3659.65	22.800
120	160.050	0.020	−0.002	157.550	3659.65	22.788
130	160.050	0.020	−0.005	157.550	3659.65	22.774
140	160.050	0.020	−0.009	157.550	3659.65	22.760
150	160.030	0.040	0.007	157.530	3659.67	22.747
160	160.030	0.040	0.003	157.530	3659.67	22.735
170	160.030	0.040	−0.000	157.530	3659.67	22.735
180	160.040	0.030	−0.010	157.540	3659.66	22.721
190	160.020	0.050	0.006	157.520	3659.68	22.707
200	160.030	0.040	−0.008	157.530	3659.67	22.696
210	160.020	0.050	−0.001	157.520	3659.68	22.682
220	160.010	0.060	0.005	157.510	3659.69	22.668
230	160.020	0.050	−0.009	157.520	3659.68	22.668
240	160.010	0.060	0.001	157.510	3659.69	22.656
250	160.000	0.070	0.008	157.500	3659.70	22.629
260	159.990	0.080	0.010	157.490	3659.71	22.603
270	160.000	0.070	−0.007	157.500	3659.70	22.578
280	159.980	0.090	0.006	157.480	3659.72	22.578
290	159.990	0.080	−0.004	157.490	3659.71	22.578
300	159.980	0.090	0.006	157.480	3659.72	22.564
310	159.980	0.090	0.002	157.480	3659.72	22.550
320	159.980	0.090	−0.002	157.480	3659.72	22.536
330	159.970	0.100	0.004	157.470	3659.73	22.511
340	159.960	0.110	0.007	157.460	3659.74	22.472
350	159.950	0.120	0.006	157.450	3659.75	22.486
360	159.950	0.120	0.010	157.450	3659.75	22.458
370	159.940	0.130	0.012	157.440	3659.76	22.446
380	159.950	0.120	−0.001	157.450	3659.75	22.446
390	159.940	0.130	0.009	157.440	3659.76	22.433
400	159.940	0.130	0.005	157.440	3659.76	22.419
410	159.940	0.130	0.001	157.440	3659.76	22.419

420	159.940	0.130	0.001	157.440	3659.76	22.419
430	159.950	0.120	−0.009	157.450	3659.75	22.433
440	159.940	0.130	0.005	157.440	3659.76	22.433
450	159.960	0.110	−0.015	157.460	3659.74	22.433
460	159.940	0.130	0.005	157.440	3659.76	22.433
470	159.940	0.130	0.005	157.440	3659.76	22.419
480	159.940	0.130	0.001	157.440	3659.76	22.419
490	159.950	0.120	−0.009	157.450	3659.75	22.419
500	159.940	0.130	0.001	157.440	3659.76	22.419
510	159.950	0.120	−0.009	157.450	3659.75	22.419
520	159.940	0.130	0.001	157.440	3659.76	22.419
530	159.950	0.120	−0.009	157.450	3659.75	22.419
540	159.950	0.120	−0.009	157.450	3659.75	22.433
550	159.950	0.120	−0.005	157.450	3659.75	22.433
560	159.950	0.120	−0.005	157.450	3659.75	22.446
570	159.950	0.120	−0.001	157.450	3659.75	22.446
580	159.970	0.100	−0.021	157.470	3659.73	22.458
590	159.970	0.100	−0.018	157.470	3659.73	22.472
600	159.970	0.100	−0.014	157.470	3659.73	22.486
610	159.980	0.090	−0.020	157.480	3659.72	22.486
620	159.980	0.090	−0.020	157.480	3659.72	22.497
630	160.000	0.070	−0.037	157.500	3659.70	22.511
640	160.000	0.070	−0.033	157.500	3659.70	22.536
650	160.000	0.070	−0.026	157.500	3659.70	22.550
660	160.010	0.060	−0.032	157.510	3659.69	22.536
670	160.020	0.050	−0.046	157.520	3659.68	22.564
680	160.020	0.050	−0.038	157.520	3659.68	22.564
690	160.020	0.050	−0.038	157.520	3659.68	22.564
700	160.030	0.040	−0.048	157.530	3659.67	22.578
710	160.030	0.040	−0.044	157.530	3659.67	22.564
720	160.030	0.040	−0.048	157.530	3659.67	22.578
730	160.050	0.020	−0.064	157.550	3659.65	22.617
740	160.060	0.010	−0.063	157.560	3659.64	22.656
750	160.070	0.000	−0.062	157.570	3659.63	22.656
760	160.070	0.000	−0.062	157.570	3659.63	22.696
770	160.100	−0.030	−0.081	157.600	3659.60	22.813
780	160.120	−0.050	−0.068	157.620	3659.58	22.788
790	160.120	−0.050	−0.075	157.620	3659.58	22.839
800	160.150	−0.080	−0.091	157.650	3659.55	22.853
810	160.180	−0.110	−0.117	157.680	3659.52	22.920
820	160.160	−0.090	−0.078	157.660	3659.54	22.892
830	160.170	−0.100	−0.096	157.670	3659.53	22.878
840	160.160	−0.090	−0.090	157.660	3659.54	22.867
850	160.170	−0.100	−0.103	157.670	3659.53	22.892
860	160.150	−0.080	−0.076	157.650	3659.55	22.827
870	160.140	−0.070	−0.084	157.640	3659.56	22.800
880	160.160	−0.090	−0.112	157.660	3659.54	22.839
890	160.180	−0.110	−0.121	157.680	3659.52	22.853
900	160.150	−0.080	−0.087	157.650	3659.55	22.788
910	160.150	−0.080	−0.105	157.650	3659.55	22.827
920	160.150	−0.080	−0.094	157.650	3659.55	22.813

930	160.180	−0.110	−0.128	157.680	3659.52	22.878
940	160.180	−0.110	−0.110	157.680	3659.52	22.892
950	160.200	−0.130	−0.126	157.700	3659.50	22.920
960	160.210	−0.140	−0.128	157.710	3659.49	22.970
970	160.230	−0.160	−0.134	157.730	3659.47	23.037
980	160.270	−0.200	−0.155	157.770	3659.43	23.102
990	160.260	−0.190	−0.127	157.760	3659.44	23.116
1000	160.270	−0.200	−0.133	157.770	3659.43	23.130
1100	160.290	−0.220	−0.150	157.790	3659.41	23.222
1200	160.340	−0.270	−0.174	157.840	3659.36	23.248
1300	160.340	−0.270	−0.167	157.840	3659.36	23.275
1400	160.390	−0.320	−0.209	157.890	3659.31	23.407
1500	160.410	−0.340	−0.192	157.910	3659.29	23.432
1600	160.410	−0.340	−0.185	157.910	3659.29	23.446
1700	160.390	−0.320	−0.161	157.890	3659.31	23.393
1800	160.380	−0.310	−0.166	157.880	3659.32	23.354
1900	160.380	−0.310	−0.177	157.880	3659.32	23.432
2000	160.420	−0.350	−0.195	157.920	3659.28	23.592
2100	160.470	−0.400	−0.200	157.970	3659.23	23.684
2200	160.510	−0.440	−0.214	158.010	3659.19	23.843
2300	160.500	−0.430	−0.160	158.000	3659.20	23.818
2400	160.500	−0.430	−0.167	158.000	3659.20	23.843
2500	160.470	−0.400	−0.130	157.970	3659.23	23.818
2600	160.470	−0.400	−0.137	157.970	3659.23	23.843
2700	160.480	−0.410	−0.140	157.980	3659.22	23.857
2800	160.490	−0.420	−0.146	157.990	3659.21	23.882
2900	160.490	−0.420	−0.139	157.990	3659.21	23.804
3000	160.460	−0.390	−0.131	157.960	3659.24	23.790
3100	160.400	−0.330	−0.075	157.900	3659.30	23.592
3200	160.340	−0.270	−0.070	157.840	3659.36	23.421
3300	160.280	−0.210	−0.058	157.780	3659.42	23.354
3400	160.250	−0.180	−0.047	157.750	3659.45	23.275
3500	160.260	−0.190	−0.079	157.760	3659.44	23.315
3600	160.280	−0.210	−0.088	157.780	3659.42	23.368
3700	160.290	−0.220	−0.083	157.790	3659.41	23.393
3800	160.290	−0.220	−0.076	157.790	3659.41	23.340
3900	160.290	−0.220	−0.091	157.790	3659.41	23.379
4000	160.290	−0.220	−0.080	157.790	3659.41	23.354
4100	160.290	−0.220	−0.087	157.790	3659.41	23.328
4200	160.290	−0.220	−0.094	157.790	3659.41	23.340
4300	160.280	−0.210	−0.081	157.780	3659.42	23.261

OW–5B

TW–3 Aquifer Test – Pumping Phase



Appendix D

TW−3 Aquifer Test − Recovery Phase
Observation Well: TW−3
Start Date = April 7, 1994
Start Time = 12:00 pm
Static WL= 23.36
MP Stick Up = 1.9
GS Elevation = 3689:3

Logger Elapsed Time (min)	Depth to Water (from MP)	Drawdown from Static WL	Barometric Pressure	Depth to Water (from GS)	Water Level Elevation
0.0000	29.758	−6.398	22.921	27.858	3661.44
0.0083	29.805	−6.445	22.921	27.905	3661.40
0.0166	29.884	−6.524	22.921	27.984	3661.32
0.0250	29.805	−6.445	22.921	27.905	3661.40
0.0333	29.726	−6.366	22.921	27.826	3661.47
0.0416	29.631	−6.271	22.921	27.731	3661.57
0.0500	29.568	−6.208	22.921	27.668	3661.63
0.0583	29.473	−6.113	22.921	27.573	3661.73
0.0666	29.425	−6.065	22.921	27.525	3661.78
0.0750	29.394	−6.034	22.915	27.494	3661.81
0.0833	29.362	−6.002	22.915	27.462	3661.84
0.1000	29.378	−6.018	22.921	27.478	3661.82
0.1166	29.441	−6.081	22.921	27.541	3661.76
0.1333	29.520	−6.160	22.921	27.620	3661.68
0.1500	29.663	−6.303	22.921	27.763	3661.54
0.1666	29.774	−6.414	22.921	27.874	3661.43
0.1833	29.853	−6.493	22.915	27.953	3661.35
0.2000	29.884	−6.524	22.921	27.984	3661.32
0.2166	29.900	−6.540	22.915	28.000	3661.30
0.2333	29.853	−6.493	22.915	27.953	3661.35
0.2500	29.789	−6.429	22.915	27.889	3661.41
0.2666	29.710	−6.350	22.915	27.810	3661.49
0.2833	29.615	−6.255	22.921	27.715	3661.59
0.3000	29.552	−6.192	22.921	27.652	3661.65
0.3166	29.489	−6.129	22.921	27.589	3661.71
0.3333	29.489	−6.129	22.921	27.589	3661.71
0.4166	29.710	−6.350	22.921	27.810	3661.49
0.5000	29.631	−6.271	22.921	27.731	3661.57
0.5833	29.504	−6.144	22.921	27.604	3661.70
0.6666	29.647	−6.287	22.921	27.747	3661.55
0.7500	29.536	−6.176	22.921	27.636	3661.66
0.8333	29.520	−6.160	22.926	27.620	3661.68
0.9166	29.568	−6.208	22.921	27.668	3661.63
1.0000	29.489	−6.129	22.926	27.589	3661.71
1.0833	29.504	−6.144	22.921	27.604	3661.70
1.1666	29.489	−6.129	22.926	27.589	3661.71
1.2500	29.473	−6.113	22.926	27.573	3661.73
1.3333	29.473	−6.113	22.921	27.573	3661.73

1.4166	29.457	−6.097	22.921	27.557	3661.74
1.5000	29.457	−6.097	22.926	27.557	3661.74
1.5833	29.441	−6.081	22.921	27.541	3661.76
1.6666	29.425	−6.065	22.921	27.525	3661.78
1.7500	29.425	−6.065	22.921	27.525	3661.78
1.8333	29.409	−6.049	22.921	27.509	3661.79
1.9166	29.394	−6.034	22.921	27.494	3661.81
2.0	29.394	−6.034	22.921	27.494	3661.81
2.5	29.346	−5.986	22.921	27.446	3661.85
3.0	29.299	−5.939	22.915	27.399	3661.90
3.5	29.235	−5.875	22.915	27.335	3661.97
4.0	29.204	−5.844	22.921	27.304	3662.00
4.5	29.172	−5.812	22.921	27.272	3662.03
5.0	29.140	−5.780	22.921	27.240	3662.06
5.5	29.093	−5.733	22.921	27.193	3662.11
6.0	29.061	−5.701	22.915	27.161	3662.14
6.5	29.029	−5.669	22.915	27.129	3662.17
7.0	29.014	−5.654	22.915	27.114	3662.19
7.5	28.982	−5.622	22.915	27.082	3662.22
8.0	28.950	−5.590	22.915	27.050	3662.25
8.5	28.919	−5.559	22.915	27.019	3662.28
9.0	28.903	−5.543	22.909	27.003	3662.30
9.5	28.871	−5.511	22.915	26.971	3662.33
10	28.839	−5.479	22.915	26.939	3662.36
12	28.760	−5.400	22.921	26.860	3662.44
14	28.681	−5.321	22.921	26.781	3662.52
16	28.602	−5.242	22.921	26.702	3662.60
18	28.538	−5.178	22.915	26.638	3662.66
20	28.475	−5.115	22.909	26.575	3662.73
22	28.412	−5.052	22.909	26.512	3662.79
24	28.348	−4.988	22.909	26.448	3662.85
26	28.301	−4.941	22.909	26.401	3662.90
28	28.253	−4.893	22.904	26.353	3662.95
30	28.206	−4.846	22.904	26.306	3662.99
32	28.158	−4.798	22.904	26.258	3663.04
34	28.111	−4.751	22.904	26.211	3663.09
36	28.063	−4.703	22.904	26.163	3663.14
38	28.016	−4.656	22.904	26.116	3663.18
40	27.984	−4.624	22.898	26.084	3663.22
42	27.937	−4.577	22.904	26.037	3663.26
44	27.889	−4.529	22.898	25.989	3663.31
46	27.857	−4.497	22.892	25.957	3663.34
48	27.826	−4.466	22.892	25.926	3663.37
50	27.794	−4.434	22.892	25.894	3663.41
52	27.762	−4.402	22.892	25.862	3663.44
54	27.731	−4.371	22.886	25.831	3663.47
56	27.699	−4.339	22.881	25.799	3663.50
58	27.683	−4.323	22.881	25.783	3663.52
60	27.636	−4.276	22.875	25.736	3663.56
62	27.620	−4.260	22.875	25.720	3663.58
64	27.557	−4.197	22.881	25.657	3663.64

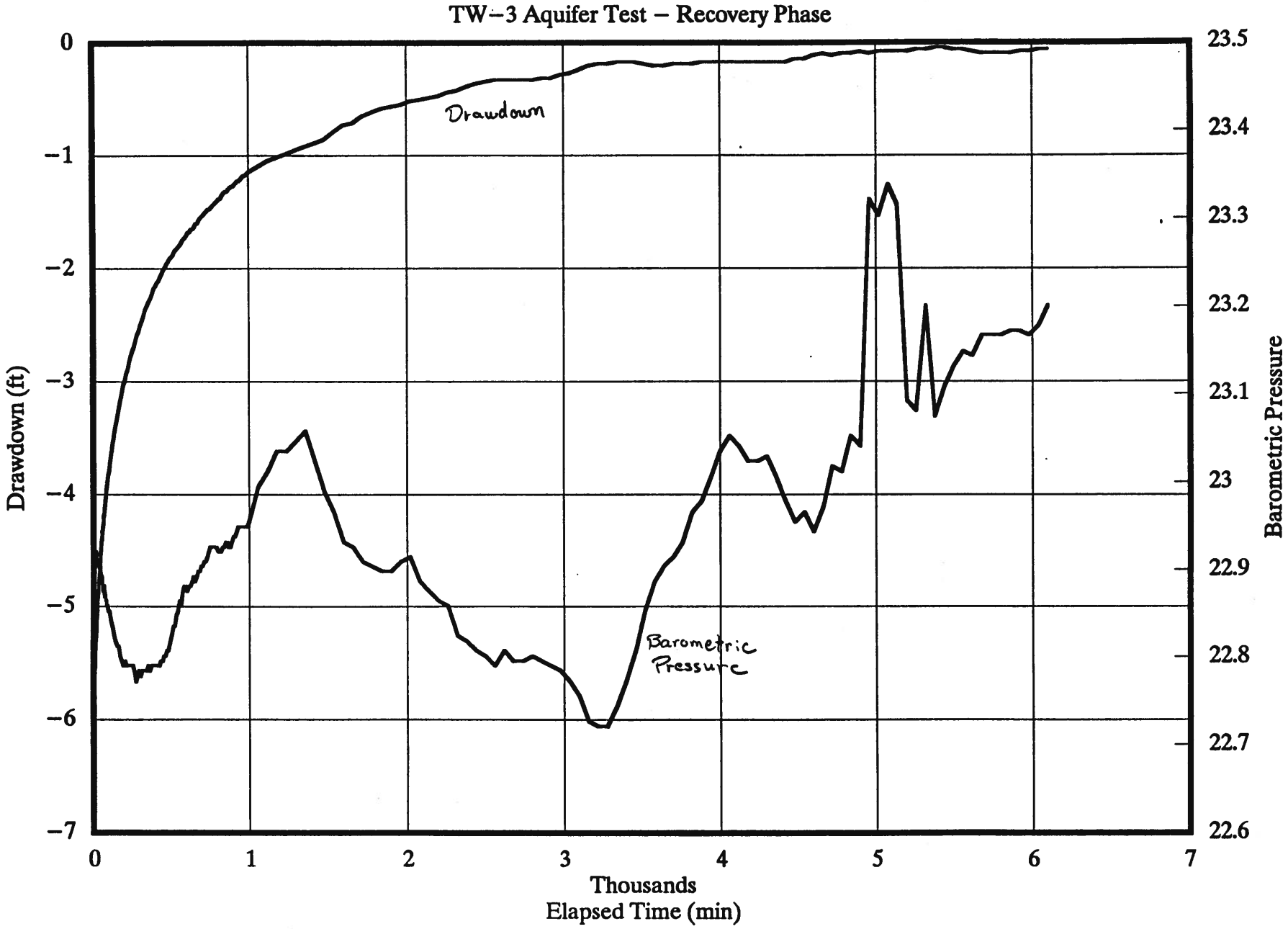
66	27.541	−4.181	22.881	25.641	3663.66
68	27.525	−4.165	22.869	25.625	3663.68
70	27.493	−4.133	22.875	25.593	3663.71
72	27.477	−4.117	22.869	25.577	3663.72
74	27.446	−4.086	22.869	25.546	3663.75
76	27.414	−4.054	22.864	25.514	3663.79
78	27.382	−4.022	22.864	25.482	3663.82
80	27.382	−4.022	22.864	25.482	3663.82
82	27.335	−3.975	22.858	25.435	3663.87
84	27.303	−3.943	22.858	25.403	3663.90
86	27.287	−3.927	22.858	25.387	3663.91
88	27.272	−3.912	22.858	25.372	3663.93
90	27.240	−3.880	22.858	25.340	3663.96
92	27.208	−3.848	22.852	25.308	3663.99
94	27.208	−3.848	22.852	25.308	3663.99
96	27.176	−3.816	22.852	25.276	3664.02
98	27.161	−3.801	22.852	25.261	3664.04
100	27.145	−3.785	22.852	25.245	3664.06
110	27.034	−3.674	22.841	25.134	3664.17
120	26.955	−3.595	22.835	25.055	3664.25
130	26.844	−3.484	22.824	24.944	3664.36
140	26.765	−3.405	22.818	24.865	3664.44
150	26.686	−3.326	22.812	24.786	3664.51
160	26.622	−3.262	22.812	24.722	3664.58
170	26.559	−3.199	22.801	24.659	3664.64
180	26.480	−3.120	22.795	24.580	3664.72
190	26.400	−3.040	22.790	24.500	3664.80
200	26.353	−2.993	22.795	24.453	3664.85
210	26.290	−2.930	22.790	24.390	3664.91
220	26.242	−2.882	22.790	24.342	3664.96
230	26.179	−2.819	22.790	24.279	3665.02
240	26.131	−2.771	22.790	24.231	3665.07
250	26.084	−2.724	22.790	24.184	3665.12
260	26.052	−2.692	22.784	24.152	3665.15
270	25.989	−2.629	22.772	24.089	3665.21
280	25.941	−2.581	22.778	24.041	3665.26
290	25.925	−2.565	22.784	24.025	3665.28
300	25.862	−2.502	22.778	23.962	3665.34
310	25.830	−2.470	22.784	23.930	3665.37
320	25.783	−2.423	22.784	23.883	3665.42
330	25.735	−2.375	22.784	23.835	3665.47
340	25.704	−2.344	22.784	23.804	3665.50
350	25.672	−2.312	22.790	23.772	3665.53
360	25.640	−2.280	22.784	23.740	3665.56
370	25.609	−2.249	22.790	23.709	3665.59
380	25.577	−2.217	22.790	23.677	3665.62
390	25.529	−2.169	22.790	23.629	3665.67
400	25.514	−2.154	22.790	23.614	3665.69
410	25.482	−2.122	22.790	23.582	3665.72
420	25.466	−2.106	22.790	23.566	3665.73
430	25.434	−2.074	22.795	23.534	3665.77

440	25.403	−2.043	22.795	23.503	3665.80
450	25.371	−2.011	22.801	23.471	3665.83
460	25.355	−1.995	22.801	23.455	3665.85
470	25.324	−1.964	22.807	23.424	3665.88
480	25.308	−1.948	22.807	23.408	3665.89
490	25.276	−1.916	22.818	23.376	3665.92
500	25.260	−1.900	22.824	23.360	3665.94
510	25.244	−1.884	22.835	23.344	3665.96
520	25.213	−1.853	22.835	23.313	3665.99
530	25.197	−1.837	22.847	23.297	3666.00
540	25.181	−1.821	22.852	23.281	3666.02
550	25.165	−1.805	22.864	23.265	3666.04
560	25.149	−1.789	22.858	23.249	3666.05
570	25.118	−1.758	22.875	23.218	3666.08
580	25.102	−1.742	22.881	23.202	3666.10
590	25.086	−1.726	22.881	23.186	3666.11
600	25.070	−1.710	22.875	23.170	3666.13
610	25.038	−1.678	22.881	23.138	3666.16
620	25.038	−1.678	22.881	23.138	3666.16
630	25.007	−1.647	22.886	23.107	3666.19
640	25.007	−1.647	22.892	23.107	3666.19
650	24.991	−1.631	22.886	23.091	3666.21
660	24.959	−1.599	22.892	23.059	3666.24
670	24.959	−1.599	22.898	23.059	3666.24
680	24.928	−1.568	22.898	23.028	3666.27
690	24.912	−1.552	22.904	23.012	3666.29
700	24.896	−1.536	22.904	22.996	3666.30
710	24.880	−1.520	22.909	22.980	3666.32
720	24.864	−1.504	22.909	22.964	3666.34
730	24.848	−1.488	22.915	22.948	3666.35
740	24.833	−1.473	22.921	22.933	3666.37
750	24.833	−1.473	22.926	22.933	3666.37
760	24.817	−1.457	22.926	22.917	3666.38
770	24.801	−1.441	22.926	22.901	3666.40
780	24.785	−1.425	22.926	22.885	3666.42
790	24.769	−1.409	22.926	22.869	3666.43
800	24.753	−1.393	22.921	22.853	3666.45
810	24.737	−1.377	22.921	22.837	3666.46
820	24.737	−1.377	22.921	22.837	3666.46
830	24.706	−1.346	22.926	22.806	3666.49
840	24.690	−1.330	22.926	22.790	3666.51
850	24.674	−1.314	22.932	22.774	3666.53
860	24.674	−1.314	22.932	22.774	3666.53
870	24.658	−1.298	22.926	22.758	3666.54
880	24.642	−1.282	22.926	22.742	3666.56
890	24.627	−1.267	22.932	22.727	3666.57
900	24.627	−1.267	22.938	22.727	3666.57
910	24.611	−1.251	22.938	22.711	3666.59
920	24.595	−1.235	22.944	22.695	3666.61
930	24.579	−1.219	22.949	22.679	3666.62
940	24.579	−1.219	22.949	22.679	3666.62

950	24.563	−1.203	22.949	22.663	3666.64
960	24.547	−1.187	22.949	22.647	3666.65
970	24.532	−1.172	22.949	22.632	3666.67
980	24.532	−1.172	22.949	22.632	3666.67
990	24.516	−1.156	22.949	22.616	3666.68
1000	24.500	−1.140	22.955	22.600	3666.70
1060	24.452	−1.092	22.995	22.552	3666.75
1120	24.405	−1.045	23.012	22.505	3666.80
1180	24.373	−1.013	23.035	22.473	3666.83
1240	24.342	−0.982	23.035	22.442	3666.86
1300	24.310	−0.950	23.046	22.410	3666.89
1360	24.278	−0.918	23.058	22.378	3666.92
1420	24.246	−0.886	23.024	22.346	3666.95
1480	24.215	−0.855	22.989	22.315	3666.99
1540	24.151	−0.791	22.966	22.251	3667.05
1600	24.088	−0.728	22.932	22.188	3667.11
1660	24.072	−0.712	22.926	22.172	3667.13
1720	24.009	−0.649	22.909	22.109	3667.19
1780	23.977	−0.617	22.904	22.077	3667.22
1840	23.946	−0.586	22.898	22.046	3667.25
1900	23.930	−0.570	22.898	22.030	3667.27
1960	23.914	−0.554	22.909	22.014	3667.29
2020	23.882	−0.522	22.915	21.982	3667.32
2080	23.866	−0.506	22.886	21.966	3667.33
2140	23.851	−0.491	22.875	21.951	3667.35
2200	23.835	−0.475	22.864	21.935	3667.37
2260	23.803	−0.443	22.858	21.903	3667.40
2320	23.787	−0.427	22.824	21.887	3667.41
2380	23.755	−0.395	22.818	21.855	3667.45
2440	23.724	−0.364	22.807	21.824	3667.48
2500	23.708	−0.348	22.801	21.808	3667.49
2560	23.692	−0.332	22.79	21.792	3667.51
2620	23.692	−0.332	22.807	21.792	3667.51
2680	23.692	−0.332	22.795	21.792	3667.51
2740	23.692	−0.332	22.795	21.792	3667.51
2800	23.692	−0.332	22.801	21.792	3667.51
2860	23.676	−0.316	22.795	21.776	3667.52
2920	23.676	−0.316	22.79	21.776	3667.52
2980	23.645	−0.285	22.784	21.745	3667.56
3040	23,629	−0.269	22.772	21.729	3667.57
3100	23.597	−0.237	22.755	21.697	3667.60
3160	23.565	−0.205	22.727	21.665	3667.64
3220	23.550	−0.190	22.721	21.650	3667.65
3280	23.550	−0.190	22.721	21.650	3667.65
3340	23.534	−0.174	22.744	21.634	3667.67
3400	23.534	−0.174	22.772	21.634	3667.67
3460	23.534	−0.174	22.807	21.634	3667.67
3520	23.550	−0.190	22.852	21.650	3667.65
3580	23.565	−0.205	22.886	21.665	3667.64
3640	23.565	−0.205	22.904	21.665	3667.64
3700	23.550	−0.190	22.915	21.650	3667.65

3760	23.550	−0.190	22.932	21.650	3667.65
3820	23.550	−0.190	22.966	21.650	3667.65
3880	23.534	−0.174	22.978	21.634	3667.67
3940	23.534	−0.174	23.006	21.634	3667.67
4000	23.534	−0.174	23.035	21.634	3667.67
4060	23.534	−0.174	23.052	21.634	3667.67
4120	23.534	−0.174	23.041	21.634	3667.67
4180	23.534	−0.174	23.024	21.634	3667.67
4240	23.534	−0.174	23.024	21.634	3667.67
4300	23.534	−0.174	23.029	21.634	3667.67
4360	23.534	−0.174	23.006	21.634	3667.67
4420	23.534	−0.174	22.978	21.634	3667.67
4480	23.502	−0.142	22.955	21.602	3667.70
4540	23.502	−0.142	22.966	21.602	3667.70
4600	23.470	−0.110	22.944	21.570	3667.73
4660	23.455	−0.095	22.972	21.555	3667.75
4720	23.470	−0.110	23.018	21.570	3667.73
4780	23.455	−0.095	23.012	21.555	3667.75
4840	23.455	−0.095	23.052	21.555	3667.75
4900	23.439	−0.079	23.041	21.539	3667.76
4960	23.455	−0.095	23.322	21.555	3667.75
5020	23.439	−0.079	23.304	21.539	3667.76
5080	23.439	−0.079	23.339	21.539	3667.76
5140	23.439	−0.079	23.316	21.539	3667.76
5200	23.439	−0.079	23.092	21.539	3667.76
5260	23.423	−0.063	23.081	21.523	3667.78
5320	23.423	−0.063	23.201	21.523	3667.78
5380	23.407	−0.047	23.075	21.507	3667.79
5440	23.407	−0.047	23.109	21.507	3667.79
5500	23.423	−0.063	23.132	21.523	3667.78
5560	23.423	−0.063	23.149	21.523	3667.78
5620	23.439	−0.079	23.144	21.539	3667.76
5680	23.455	−0.095	23.167	21.555	3667.75
5740	23.455	−0.095	23.167	21.555	3667.75
5800	23.455	−0.095	23.167	21.555	3667.75
5860	23.455	−0.095	23.172	21.555	3667.75
5920	23.439	−0.079	23.172	21.539	3667.76
5980	23.439	−0.079	23.167	21.539	3667.76
6040	23.423	−0.063	23.178	21.523	3667.78
6100	23.423	−0.063	23.201	21.523	3667.78

TW-3


TW-3 Aquifer Test – Recovery Phase
Drawdown (ft)
0
-1
-2
-3
-4
-5
-6
-7
Barometric Pressure
23.5
23.4
23.3
23.2
23.1
23
22.9
22.8
22.7
22.6
Drawdown
Barometric Pressure
0
1
2
3
4
5
6
7
Thousands
Elapsed Time (min)

TW-3 Aquifer Test – Recovery Phase
Observation Well: OW-5A
Start Date = April 7, 1994
Start Time = 12:00pm
Static WL= 153.73
MP Stick Up = 1.32
GS Elevation = 3816.4

Logger Elapsed Time	Depth to Water (from MP)	Drawdown from Static WL	Depth to Water (from GS)	Water Level Elevation	Barometric Pressure
0.0000	153.700	0.030	152.380	3664.02	
0.0033	153.700	0.030	152.380	3664.02	
0.0066	153.700	0.030	152.380	3664.02	
0.0099	153.700	0.030	152.380	3664.02	
0.0133	153.710	0.020	152.390	3664.01	
0.0166	153.700	0.030	152.380	3664.02	
0.0200	153.710	0.020	152.390	3664.01	
0.0233	153.710	0.020	152.390	3664.01	
0.0266	153.710	0.020	152.390	3664.01	
0.0300	153.710	0.020	152.390	3664.01	
0.0333	153.700	0.030	152.380	3664.02	
0.0500	153.710	0.020	152.390	3664.01	
0.0666	153.710	0.020	152.390	3664.01	
0.0833	153.710	0.020	152.390	3664.01	
0.1000	153.710	0.020	152.390	3664.01	
0.1166	153.710	0.020	152.390	3664.01	
0.1333	153.700	0.030	152.380	3664.02	
0.1500	153.700	0.030	152.380	3664.02	
0.1666	153.710	0.020	152.390	3664.01	
0.1833	153.710	0.020	152.390	3664.01	
0.2000	153.710	0.020	152.390	3664.01	
0.2166	153.700	0.030	152.380	3664.02	
0.2333	153.710	0.020	152.390	3664.01	
0.2500	153.700	0.030	152.380	3664.02	
0.2666	153.700	0.030	152.380	3664.02	
0.2833	153.700	0.030	152.380	3664.02	
0.3000	153.710	0.020	152.390	3664.01	
0.3166	153.710	0.020	152.390	3664.01	
0.3333	153.710	0.020	152.390	3664.01	
0.4167	153.700	0.030	152.380	3664.02	
0.5000	153.710	0.020	152.390	3664.01	
0.5833	153.710	0.020	152.390	3664.01	
0.6667	153.710	0.020	152.390	3664.01	
0.7500	153.710	0.020	152.390	3664.01	
0.8333	153.710	0.020	152.390	3664.01	
0.9167	153.710	0.020	152.390	3664.01	
1.0000	153.720	0.010	152.400	3664.00	22.926
1.0833	153.700	0.030	152.380	3664.02	22.921
1.1667	153.710	0.020	152.390	3664.01	22.926

1.2500	153.710	0.020
1.3333	153.700	0.030
1.4166	153.710	0.020
1.5000	153.700	0.030
1.5833	153.700	0.030
1.6667	153.710	0.020
1.7500	153.700	0.030
1.8333	153.710	0.020
1.9167	153.700	0.030
2.0	153.710	0.020
2.5	153.700	0.030
3.0	153.710	0.020
3.5	153.710	0.020
4.0	153.710	0.020
4.5	153.710	0.020
5.0	153.700	0.030
5.5	153.710	0.020
6.0	153.710	0.020
6.5	153.710	0.020
7.0	153.710	0.020
7.5	153.700	0.030
8.0	153.710	0.020
8.5	153.710	0.020
9.0	153.710	0.020
9.5	153.710	0.020
10	153.700	0.030
12	153.720	0.010
14	153.700	0.030
16	153.700	0.030
18	153.690	0.040
20	153.690	0.040
22	153.700	0.030
24	153.700	0.030
26	153.690	0.040
28	153.700	0.030
30	153.690	0.040
32	153.700	0.030
34	153.700	0.030
36	153.690	0.040
38	153.700	0.030
40	153.700	0.030
42	153.700	0.030
44	153.700	0.030
46	153.700	0.030
48	153.690	0.040
50	153.690	0.040
52	153.700	0.030
54	153.690	0.040
56	153.700	0.030
58	153.700	0.030
60	153.690	0.040

152.390	3664.01	22.926
152.380	3664.02	22.921
152.390	3664.01	22.921
152.380	3664.02	22.926
152.380	3664.02	22.921
152.390	3664.01	22.921
152.380	3664.02	22.921
152.390	3664.01	22.921
152.380	3664.02	22.921
152.390	3664.01	22.921
152.380	3664.02	22.921
152.390	3664.01	22.915
152.390	3664.01	22.915
152.390	3664.01	22.921
152.390	3664.01	22.921
152.380	3664.02	22.921
152.390	3664.01	22.921
152.390	3664.01	22.915
152.390	3664.01	22.915
152.390	3664.01	22.915
152.380	3664.02	22.915
152.390	3664.01	22.915
152.390	3664.01	22.915
152.390	3664.01	22.909
152.390	3664.01	22.915
152.380	3664.02	22.915
152.400	3664.00	22.921
152.380	3664.02	22.921
152.380	3664.02	22.921
152.370	3664.03	22.915
152.370	3664.03	22.909
152.380	3664.02	22.909
152.380	3664.02	22.909
152.370	3664.03	22.909
152.380	3664.02	22.904
152.370	3664.03	22.904
152.380	3664.02	22.904
152.380	3664.02	22.904
152.370	3664.03	22.904
152.380	3664.02	22.904
152.380	3664.02	22.898
152.380	3664.02	22.904
152.380	3664.02	22.898
152.380	3664.02	22.892
152.370	3664.03	22.892
152.370	3664.03	22.892
152.380	3664.02	22.892
152.370	3664.03	22.886
152.380	3664.02	22.881
152.380	3664.02	22.881
152.370	3664.03	22.875

62	153.690	0.040	152.370	3664.03	22.875
64	153.700	0.030	152.380	3664.02	22.881
66	153.690	0.040	152.370	3664.03	22.881
68	153.690	0.040	152.370	3664.03	22.869
70	153.690	0.040	152.370	3664.03	22.875
72	153.690	0.040	152.370	3664.03	22.869
74	153.690	0.040	152.370	3664.03	22.869
76	153.690	0.040	152.370	3664.03	22.864
78	153.690	0.040	152.370	3664.03	22.864
80	153.680	0.050	152.360	3664.04	22.864
82	153.690	0.040	152.370	3664.03	22.858
84	153.680	0.050	152.360	3664.04	22.858
86	153.690	0.040	152.370	3664.03	22.858
88	153.690	0.040	152.370	3664.03	22.858
90	153.680	0.050	152.360	3664.04	22.858
92	153.690	0.040	152.370	3664.03	22.852
94	153.680	0.050	152.360	3664.04	22.852
96	153.690	0.040	152.370	3664.03	22.852
98	153.680	0.050	152.360	3664.04	22.852
100	153.690	0.040	152.370	3664.03	22.852
110	153.680	0.050	152.360	3664.04	22.841
120	153.670	0.060	152.350	3664.05	22.835
130	153.660	0.070	152.340	3664.06	22.824
140	153.650	0.080	152.330	3664.07	22.818
150	153.660	0.070	152.340	3664.06	22.812
160	153.660	0.070	152.340	3664.06	22.812
170	153.650	0.080	152.330	3664.07	22.801
180	153.650	0.080	152.330	3664.07	22.795
190	153.650	0.080	152.330	3664.07	22.790
200	153.630	0.100	152.310	3664.09	22.795
210	153.630	0.100	152.310	3664.09	22.790
220	153.630	0.100	152.310	3664.09	22.790
230	153.620	0.110	152.300	3664.10	22.790
240	153.620	0.110	152.300	3664.10	22.790
250	153.610	0.120	152.290	3664.11	22.790
260	153.620	0.110	152.300	3664.10	22.784
270	153.600	0.130	152.280	3664.12	22.772
280	153.610	0.120	152.290	3664.11	22.778
290	153.590	0.140	152.270	3664.13	22.784
300	153.600	0.130	152.280	3664.12	22.778
310	153.600	0.130	152.280	3664.12	22.784
320	153.590	0.140	152.270	3664.13	22.784
330	153.590	0.140	152.270	3664.13	22.784
340	153.590	0.140	152.270	3664.13	22.784
350	153.570	0.160	152.250	3664.15	22.790
360	153.580	0.150	152.260	3664.14	22.784
370	153.580	0.150	152.260	3664.14	22.790
380	153.580	0.150	152.260	3664.14	22.790
390	153.580	0.150	152.260	3664.14	22.790
400	153.580	0.150	152.260	3664.14	22.790
410	153.580	0.150	152.260	3664.14	22.790

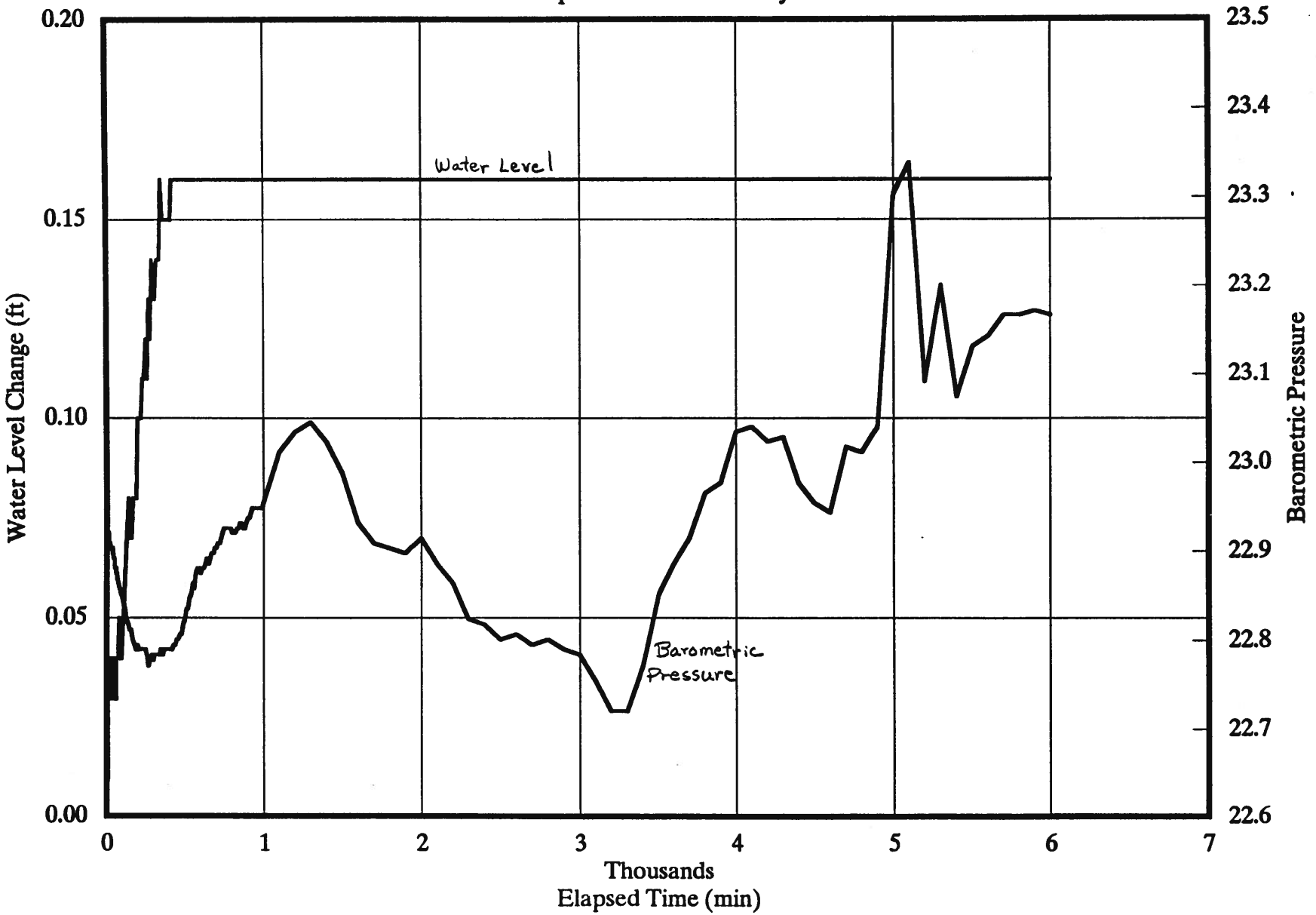
420	153.570	0.160	152.250	3664.15	22.790
430	153.570	0.160	152.250	3664.15	22.795
440	153.570	0.160	152.250	3664.15	22.795
450	153.570	0.160	152.250	3664.15	22.801
460	153.570	0.160	152.250	3664.15	22.801
470	153.570	0.160	152.250	3664.15	22.807
480	153.570	0.160	152.250	3664.15	22.807
490	153.570	0.160	152.250	3664.15	22.818
500	153.570	0.160	152.250	3664.15	22.824
510	153.570	0.160	152.250	3664.15	22.835
520	153.570	0.160	152.250	3664.15	22.835
530	153.570	0.160	152.250	3664.15	22.847
540	153.570	0.160	152.250	3664.15	22.852
550	153.570	0.160	152.250	3664.15	22.864
560	153.570	0.160	152.250	3664.15	22.858
570	153.570	0.160	152.250	3664.15	22.875
580	153.570	0.160	152.250	3664.15	22.881
590	153.570	0.160	152.250	3664.15	22.881
600	153.570	0.160	152.250	3664.15	22.875
610	153.570	0.160	152.250	3664.15	22.881
620	153.570	0.160	152.250	3664.15	22.881
630	153.570	0.160	152.250	3664.15	22.886
640	153.570	0.160	152.250	3664.15	22.892
650	153.570	0.160	152.250	3664.15	22.886
660	153.570	0.160	152.250	3664.15	22.892
670	153.570	0.160	152.250	3664.15	22.898
680	153.570	0.160	152.250	3664.15	22.898
690	153.570	0.160	152.250	3664.15	22.904
700	153.570	0.160	152.250	3664.15	22.904
710	153.570	0.160	152.250	3664.15	22.909
720	153.570	0.160	152.250	3664.15	22.909
730	153.570	0.160	152.250	3664.15	22.915
740	153.570	0.160	152.250	3664.15	22.921
750	153.570	0.160	152.250	3664.15	22.926
760	153.570	0.160	152.250	3664.15	22.926
770	153.570	0.160	152.250	3664.15	22.926
780	153.570	0.160	152.250	3664.15	22.926
790	153.570	0.160	152.250	3664.15	22.926
800	153.570	0.160	152.250	3664.15	22.921
810	153.570	0.160	152.250	3664.15	22.921
820	153.570	0.160	152.250	3664.15	22.921
830	153.570	0.160	152.250	3664.15	22.926
840	153.570	0.160	152.250	3664.15	22.926
850	153.570	0.160	152.250	3664.15	22.932
860	153.570	0.160	152.250	3664.15	22.932
870	153.570	0.160	152.250	3664.15	22.926
880	153.570	0.160	152.250	3664.15	22.926
890	153.570	0.160	152.250	3664.15	22.932
900	153.570	0.160	152.250	3664.15	22.938
910	153.570	0.160	152.250	3664.15	22.938
920	153.570	0.160	152.250	3664.15	22.944

930	153.570	0.160	152.250	3664.15	22.949
940	153.570	0.160	152.250	3664.15	22.949
950	153.570	0.160	152.250	3664.15	22.949
960	153.570	0.160	152.250	3664.15	22.949
970	153.570	0.160	152.250	3664.15	22.949
980	153.570	0.160	152.250	3664.15	22.949
990	153.570	0.160	152.250	3664.15	22.949
1000	153.570	0.160	152.250	3664.15	22.955
1100	153.570	0.160	152.250	3664.15	23.012
1200	153.570	0.160	152.250	3664.15	23.035
1300	153.570	0.160	152.250	3664.15	23.046
1400	153.570	0.160	152.250	3664.15	23.024
1500	153.570	0.160	152.250	3664.15	22.989
1600	153.570	0.160	152.250	3664.15	22.932
1700	153.570	0.160	152.250	3664.15	22.909
1800	153.570	0.160	152.250	3664.15	22.904
1900	153.570	0.160	152.250	3664.15	22.898
2000	153.570	0.160	152.250	3664.15	22.915
2100	153.570	0.160	152.250	3664.15	22.886
2200	153.570	0.160	152.250	3664.15	22.864
2300	153.570	0.160	152.250	3664.15	22.824
2400	153.570	0.160	152.250	3664.15	22.818
2500	153.570	0.160	152.250	3664.15	22.801
2600	153.570	0.160	152.250	3664.15	22.807
2700	153.570	0.160	152.250	3664.15	22.795
2800	153.570	0.160	152.250	3664.15	22.801
2900	153.570	0.160	152.250	3664.15	22.79
3000	153.570	0.160	152.250	3664.15	22.784
3100	153.570	0.160	152.250	3664.15	22.755
3200	153.570	0.160	152.250	3664.15	22.721
3300	153.570	0.160	152.250	3664.15	22.721
3400	153.570	0.160	152.250	3664.15	22.772
3500	153.570	0.160	152.250	3664.15	22.852
3600	153.570	0.160	152.250	3664.15	22.886
3700	153.570	0.160	152.250	3664.15	22.915
3800	153.570	0.160	152.250	3664.15	22.966
3900	153.570	0.160	152.250	3664.15	22.978
4000	153.570	0.160	152.250	3664.15	23.035
4100	153.570	0.160	152.250	3664.15	23.041
4200	153.570	0.160	152.250	3664.15	23.024
4300	153.570	0.160	152.250	3664.15	23.029
4400	153.570	0.160	152.250	3664.15	22.978
4500	153.570	0.160	152.250	3664.15	22.955
4600	153.570	0.160	152.250	3664.15	22.944
4700	153.570	0.160	152.250	3664.15	23.018
4800	153.570	0.160	152.250	3664.15	23.012
4900	153.570	0.160	152.250	3664.15	23.041
5000	153.570	0.160	152.250	3664.15	23.304
5100	153.570	0.160	152.250	3664.15	23.339
5200	153.570	0.160	152.250	3664.15	23.092
5300	153.570	0.160	152.250	3664.15	23.201

5400	153.570	0.160	152.250	3664.15	23.075
5500	153.570	0.160	152.250	3664.15	23.132
5600	153.570	0.160	152.250	3664.15	23.144
5700	153.570	0.160	152.250	3664.15	23.167
5800	153.570	0.160	152.250	3664.15	23.167
5900	153.570	0.160	152.250	3664.15	23.172
6000	153.570	0.160	152.250	3664.15	23.167

OW–5A

TW–3 Aquifer Test – Recovery Phase



TW−3 Aquifer Test − Recovery Phase
Observation Well: OW−5B
Start Date = April 7, 1994
Start Time = 12:00 pm
Static WL= 160.07
MP Stick Up = 2.5
GS Elevation = 3817.2

Logger Elapsed Time	Depth to Water (from MP)	Drawdown from Static WL		Depth to Water (from GS)	Water Level Elevation	Barometric Pressure (H2O ft)
0.0000	160.240	−0.170		157.740	3659.46	
0.0033	160.240	−0.170		157.740	3659.46	
0.0066	160.240	−0.170		157.740	3659.46	
0.0099	160.240	−0.170		157.740	3659.46	
0.0133	160.240	−0.170		157.740	3659.46	
0.0166	160.240	−0.170		157.740	3659.46	
0.0200	160.240	−0.170		157.740	3659.46	
0.0233	160.240	−0.170		157.740	3659.46	
0.0266	160.240	−0.170		157.740	3659.46	
0.0300	160.240	−0.170		157.740	3659.46	
0.0333	160.230	−0.160		157.730	3659.47	
0.0500	160.240	−0.170		157.740	3659.46	
0.0666	160.230	−0.160		157.730	3659.47	
0.0833	160.230	−0.160		157.730	3659.47	
0.1000	160.230	−0.160		157.730	3659.47	
0.1166	160.230	−0.160		157.730	3659.47	
0.1333	160.230	−0.160		157.730	3659.47	
0.1500	160.230	−0.160		157.730	3659.47	
0.1666	160.230	−0.160		157.730	3659.47	
0.1833	160.230	−0.160		157.730	3659.47	
0.2000	160.230	−0.160		157.730	3659.47	
0.2166	160.230	−0.160		157.730	3659.47	
0.2333	160.230	−0.160		157.730	3659.47	
0.2500	160.230	−0.160		157.730	3659.47	
0.2666	160.240	−0.170		157.740	3659.46	
0.2833	160.230	−0.160		157.730	3659.47	
0.3000	160.230	−0.160		157.730	3659.47	
0.3166	160.230	−0.160		157.730	3659.47	
0.3333	160.230	−0.160		157.730	3659.47	
0.4167	160.230	−0.160		157.730	3659.47	
0.5000	160.240	−0.170		157.740	3659.46	
0.5833	160.230	−0.160		157.730	3659.47	
0.6667	160.230	−0.160		157.730	3659.47	
0.7500	160.230	−0.160		157.730	3659.47	
0.8333	160.240	−0.170		157.740	3659.46	
0.9167	160.240	−0.170		157.740	3659.46	
1.0000	160.240	−0.170	−0.170	157.740	3659.46	23.102093
1.0833	160.230	−0.160	−0.166	157.730	3659.47	23.090549
1.1667	160.230	−0.160	−0.160	157.730	3659.47	23.102093

1.2500	160.230	−0.160	−0.160	157.730	3659.47	23.102093
1.3333	160.230	−0.160	−0.166	157.730	3659.47	23.090549
1.4166	160.230	−0.160	−0.166	157.730	3659.47	23.090549
1.5000	160.240	−0.170	−0.170	157.740	3659.46	23.102093
1.5833	160.250	−0.180	−0.186	157.750	3659.45	23.090549
1.6667	160.240	−0.170	−0.176	157.740	3659.46	23.090549
1.7500	160.240	−0.170	−0.176	157.740	3659.46	23.090549
1.8333	160.230	−0.160	−0.166	157.730	3659.47	23.090549
1.9167	160.230	−0.160	−0.166	157.730	3659.47	23.090549
2.0	160.240	−0.170	−0.176	157.740	3659.46	23.090549
2.5	160.230	−0.160	−0.166	157.730	3659.47	23.090549
3.0	160.230	−0.160	−0.172	157.730	3659.47	23.076696
3.5	160.230	−0.160	−0.172	157.730	3659.47	23.076696
4.0	160.230	−0.160	−0.166	157.730	3659.47	23.090549
4.5	160.240	−0.170	−0.176	157.740	3659.46	23.090549
5.0	160.230	−0.160	−0.166	157.730	3659.47	23.090549
5.5	160.230	−0.160	−0.166	157.730	3659.47	23.090549
6.0	160.230	−0.160	−0.172	157.730	3659.47	23.076696
6.5	160.230	−0.160	−0.172	157.730	3659.47	23.076696
7.0	160.230	−0.160	−0.172	157.730	3659.47	23.076696
7.5	160.230	−0.160	−0.172	157.730	3659.47	23.076696
8.0	160.230	−0.160	−0.172	157.730	3659.47	23.076696
8.5	160.230	−0.160	−0.172	157.730	3659.47	23.076696
9.0	160.230	−0.160	−0.179	157.730	3659.47	23.062843
9.5	160.230	−0.160	−0.172	157.730	3659.47	23.076696
10	160.240	−0.170	−0.182	157.740	3659.46	23.076696
12	160.230	−0.160	−0.166	157.730	3659.47	23.090549
14	160.230	−0.160	−0.166	157.730	3659.47	23.090549
16	160.220	−0.150	−0.156	157.720	3659.48	23.090549
18	160.230	−0.160	−0.172	157.730	3659.47	23.076696
20	160.230	−0.160	−0.179	157.730	3659.47	23.062843
22	160.230	−0.160	−0.179	157.730	3659.47	23.062843
24	160.220	−0.150	−0.169	157.720	3659.48	23.062843
26	160.210	−0.140	−0.159	157.710	3659.49	23.062843
28	160.220	−0.150	−0.174	157.720	3659.48	23.051299
30	160.220	−0.150	−0.174	157.720	3659.48	23.051299
32	160.210	−0.140	−0.164	157.710	3659.49	23.051299
34	160.220	−0.150	−0.174	157.720	3659.48	23.051299
36	160.230	−0.160	−0.184	157.730	3659.47	23.051299
38	160.210	−0.140	−0.164	157.710	3659.49	23.051299
40	160.210	−0.140	−0.171	157.710	3659.49	23.037446
42	160.220	−0.150	−0.174	157.720	3659.48	23.051299
44	160.210	−0.140	−0.171	157.710	3659.49	23.037446
46	160.210	−0.140	−0.178	157.710	3659.49	23.023593
48	160.200	−0.130	−0.168	157.700	3659.50	23.023593
50	160.220	−0.150	−0.188	157.720	3659.48	23.023593
52	160.200	−0.130	−0.168	157.700	3659.50	23.023593
54	160.200	−0.130	−0.174	157.700	3659.50	23.009740
56	160.210	−0.140	−0.190	157.710	3659.49	22.998196
58	160.210	−0.140	−0.190	157.710	3659.49	22.998196
60	160.200	−0.130	−0.187	157.700	3659.50	22.984343

62	160.210	−0.140	−0.197	157.710	3659.49	22.984343
64	160.200	−0.130	−0.180	157.700	3659.50	22.998196
66	160.190	−0.120	−0.170	157.690	3659.51	22.998196
68	160.200	−0.130	−0.193	157.700	3659.50	22.970490
70	160.190	−0.120	−0.177	157.690	3659.51	22.984343
72	160.190	−0.120	−0.183	157.690	3659.51	22.970490
74	160.190	−0.120	−0.183	157.690	3659.51	22.970490
76	160.180	−0.110	−0.179	157.680	3659.52	22.958946
78	160.190	−0.120	−0.189	157.690	3659.51	22.958946
80	160.180	−0.110	−0.179	157.680	3659.52	22.958946
82	160.200	−0.130	−0.205	157.700	3659.50	22.945093
84	160.180	−0.110	−0.185	157.680	3659.52	22.945093
86	160.180	−0.110	−0.185	157.680	3659.52	22.945093
88	160.180	−0.110	−0.185	157.680	3659.52	22.945093
90	160.180	−0.110	−0.185	157.680	3659.52	22.945093
92	160.180	−0.110	−0.192	157.680	3659.52	22.931240
94	160.180	−0.110	−0.192	157.680	3659.52	22.931240
96	160.170	−0.100	−0.182	157.670	3659.53	22.931240
98	160.180	−0.110	−0.192	157.680	3659.52	22.931240
100	160.180	−0.110	−0.192	157.680	3659.52	22.931240
110	160.160	−0.090	−0.184	157.660	3659.54	22.905843
120	160.160	−0.090	−0.191	157.660	3659.54	22.891990
130	160.150	−0.080	−0.193	157.650	3659.55	22.866593
140	160.150	−0.080	−0.200	157.650	3659.55	22.852740
150	160.140	−0.070	−0.196	157.640	3659.56	22.838887
160	160.140	−0.070	−0.196	157.640	3659.56	22.838887
170	160.130	−0.060	−0.199	157.630	3659.57	22.813490
180	160.130	−0.060	−0.205	157.630	3659.57	22.799637
190	160.120	−0.050	−0.201	157.620	3659.58	22.788093
200	160.110	−0.040	−0.185	157.610	3659.59	22.799637
210	160.120	−0.050	−0.201	157.620	3659.58	22.788093
220	160.110	−0.040	−0.191	157.610	3659.59	22.788093
230	160.120	−0.050	−0.201	157.620	3659.58	22.788093
240	160.100	−0.030	−0.181	157.600	3659.60	22.788093
250	160.100	−0.030	−0.181	157.600	3659.60	22.788093
260	160.100	−0.030	−0.187	157.600	3659.60	22.774240
270	160.100	−0.030	−0.201	157.600	3659.60	22.746534
280	160.110	−0.040	−0.204	157.610	3659.59	22.760387
290	160.100	−0.030	−0.187	157.600	3659.60	22.774240
300	160.110	−0.040	−0.204	157.610	3659.59	22.760387
310	160.100	−0.030	−0.187	157.600	3659.60	22.774240
320	160.100	−0.030	−0.187	157.600	3659.60	22.774240
330	160.100	−0.030	−0.187	157.600	3659.60	22.774240
340	160.100	−0.030	−0.187	157.600	3659.60	22.774240
350	160.120	−0.050	−0.201	157.620	3659.58	22.788093
360	160.120	−0.050	−0.207	157.620	3659.58	22.774240
370	160.120	−0.050	−0.201	157.620	3659.58	22.788093
380	160.120	−0.050	−0.201	157.620	3659.58	22.788093
390	160.110	−0.040	−0.191	157.610	3659.59	22.788093
400	160.120	−0.050	−0.201	157.620	3659.58	22.788093
410	160.120	−0.050	−0.201	157.620	3659.58	22.788093

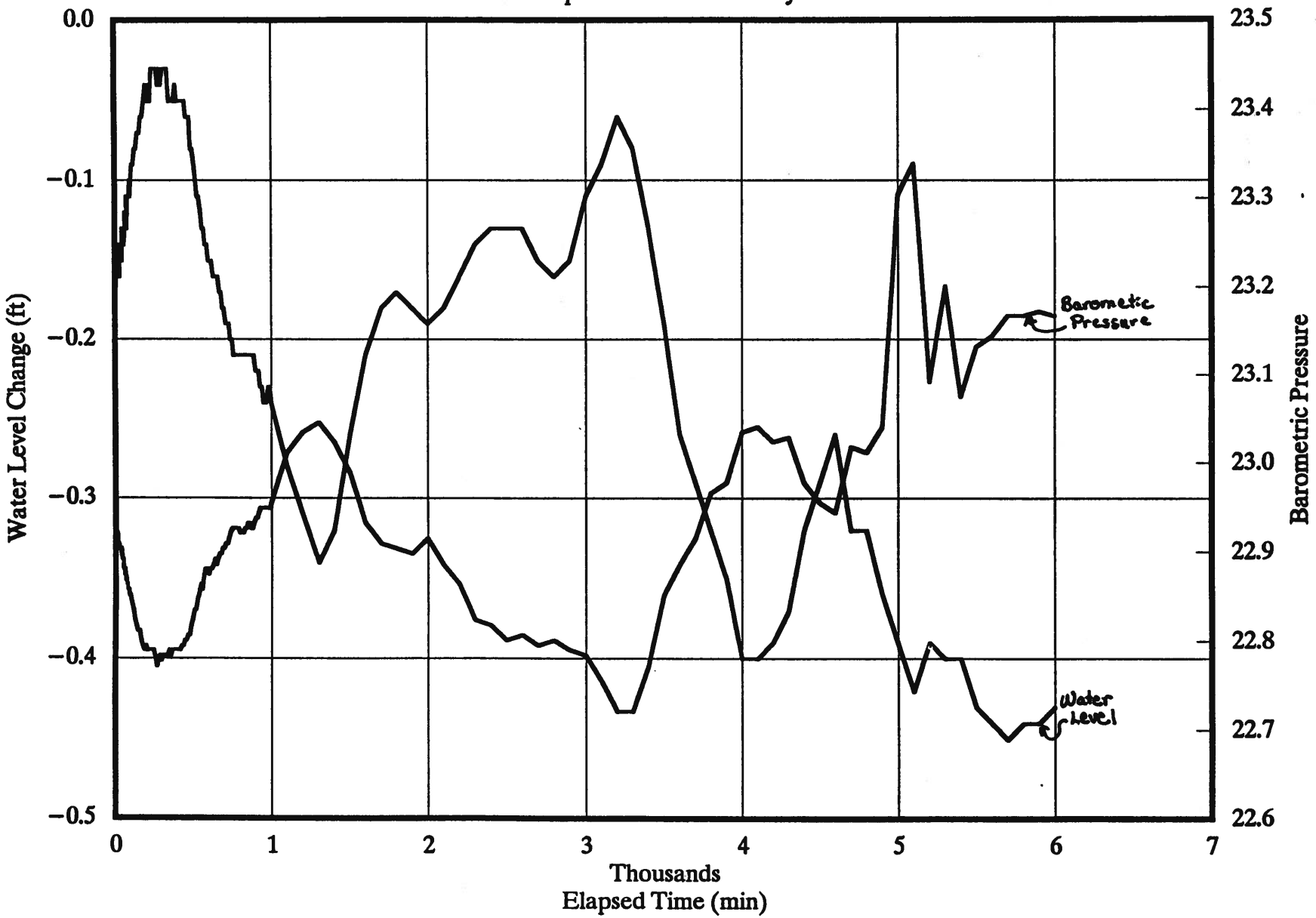
420	160.120	−0.050	−0.201	157.620	3659.58	22.788093
430	160.120	−0.050	−0.195	157.620	3659.58	22.799637
440	160.120	−0.050	−0.195	157.620	3659.58	22.799637
450	160.120	−0.050	−0.189	157.620	3659.58	22.813490
460	160.130	−0.060	−0.199	157.630	3659.57	22.813490
470	160.130	−0.060	−0.192	157.630	3659.57	22.827343
480	160.130	−0.060	−0.192	157.630	3659.57	22.827343
490	160.150	−0.080	−0.200	157.650	3659.55	22.852740
500	160.150	−0.080	−0.193	157.650	3659.55	22.866593
510	160.160	−0.090	−0.191	157.660	3659.54	22.891990
520	160.170	−0.100	−0.201	157.670	3659.53	22.891990
530	160.180	−0.110	−0.198	157.680	3659.52	22.919696
540	160.180	−0.110	−0.192	157.680	3659.52	22.931240
550	160.190	−0.120	−0.189	157.690	3659.51	22.958946
560	160.200	−0.130	−0.205	157.700	3659.50	22.945093
570	160.200	−0.130	−0.187	157.700	3659.50	22.984343
580	160.210	−0.140	−0.190	157.710	3659.49	22.998196
590	160.210	−0.140	−0.190	157.710	3659.49	22.998196
600	160.220	−0.150	−0.207	157.720	3659.48	22.984343
610	160.220	−0.150	−0.200	157.720	3659.48	22.998196
620	160.220	−0.150	−0.200	157.720	3659.48	22.998196
630	160.230	−0.160	−0.204	157.730	3659.47	23.009740
640	160.230	−0.160	−0.198	157.730	3659.47	23.023593
650	160.230	−0.160	−0.204	157.730	3659.47	23.009740
660	160.230	−0.160	−0.198	157.730	3659.47	23.023593
670	160.240	−0.170	−0.201	157.740	3659.46	23.037446
680	160.240	−0.170	−0.201	157.740	3659.46	23.037446
690	160.250	−0.180	−0.204	157.750	3659.45	23.051299
700	160.250	−0.180	−0.204	157.750	3659.45	23.051299
710	160.260	−0.190	−0.209	157.760	3659.44	23.062843
720	160.260	−0.190	−0.209	157.760	3659.44	23.062843
730	160.260	−0.190	−0.202	157.760	3659.44	23.076696
740	160.270	−0.200	−0.206	157.770	3659.43	23.090549
750	160.270	−0.200	−0.200	157.770	3659.43	23.102093
760	160.280	−0.210	−0.210	157.780	3659.42	23.102093
770	160.280	−0.210	−0.210	157.780	3659.42	23.102093
780	160.280	−0.210	−0.210	157.780	3659.42	23.102093
790	160.280	−0.210	−0.210	157.780	3659.42	23.102093
800	160.280	−0.210	−0.216	157.780	3659.42	23.090549
810	160.280	−0.210	−0.216	157.780	3659.42	23.090549
820	160.280	−0.210	−0.216	157.780	3659.42	23.090549
830	160.280	−0.210	−0.210	157.780	3659.42	23.102093
840	160.280	−0.210	−0.210	157.780	3659.42	23.102093
850	160.280	−0.210	−0.203	157.780	3659.42	23.115946
860	160.280	−0.210	−0.203	157.780	3659.42	23.115946
870	160.280	−0.210	−0.210	157.780	3659.42	23.102093
880	160.280	−0.210	−0.210	157.780	3659.42	23.102093
890	160.280	−0.210	−0.203	157.780	3659.42	23.115946
900	160.290	−0.220	−0.207	157.790	3659.41	23.129799
910	160.290	−0.220	−0.207	157.790	3659.41	23.129799
920	160.290	−0.220	−0.200	157.790	3659.41	23.143652

930	160.300	−0.230	−0.205	157.800	3659.40	23.155196
940	160.300	−0.230	−0.205	157.800	3659.40	23.155196
950	160.310	−0.240	−0.215	157.810	3659.39	23.155196
960	160.310	−0.240	−0.215	157.810	3659.39	23.155196
970	160.310	−0.240	−0.215	157.810	3659.39	23.155196
980	160.300	−0.230	−0.205	157.800	3659.40	23.155196
990	160.300	−0.230	−0.205	157.800	3659.40	23.155196
1000	160.310	−0.240	−0.208	157.810	3659.39	23.169049
1100	160.350	−0.280	−0.185	157.850	3659.35	23.300652
1200	160.380	−0.310	−0.189	157.880	3659.32	23.353755
1300	160.410	−0.340	−0.207	157.910	3659.29	23.379152
1400	160.390	−0.320	−0.211	157.890	3659.31	23.328358
1500	160.330	−0.260	−0.190	157.830	3659.37	23.247549
1600	160.280	−0.210	−0.203	157.780	3659.42	23.115946
1700	160.250	−0.180	−0.199	157.750	3659.45	23.062843
1800	160.240	−0.170	−0.194	157.740	3659.46	23.051299
1900	160.250	−0.180	−0.211	157.750	3659.45	23.037446
2000	160.260	−0.190	−0.202	157.760	3659.44	23.076696
2100	160.250	−0.180	−0.224	157.750	3659.45	23.009740
2200	160.230	−0.160	−0.229	157.730	3659.47	22.958946
2300	160.210	−0.140	−0.253	157.710	3659.49	22.866593
2400	160.200	−0.130	−0.250	157.700	3659.50	22.852740
2500	160.200	−0.130	−0.269	157.700	3659.50	22.813490
2600	160.200	−0.130	−0.262	157.700	3659.50	22.827343
2700	160.220	−0.150	−0.295	157.720	3659.48	22.799637
2800	160.230	−0.160	−0.299	157.730	3659.47	22.813490
2900	160.220	−0.150	−0.301	157.720	3659.48	22.788093
3000	160.180	−0.110	−0.267	157.680	3659.52	22.774240
3100	160.160	−0.090	−0.280	157.660	3659.54	22.707284
3200	160.130	−0.060	−0.287	157.630	3659.57	22.628784
3300	160.150	−0.080	−0.307	157.650	3659.55	22.628784
3400	160.200	−0.130	−0.301	157.700	3659.50	22.746534
3500	160.260	−0.190	−0.272	157.760	3659.44	22.931240
3600	160.330	−0.260	−0.304	157.830	3659.37	23.009740
3700	160.360	−0.290	−0.302	157.860	3659.34	23.076696
3800	160.390	−0.320	−0.276	157.890	3659.31	23.194446
3900	160.420	−0.350	−0.292	157.920	3659.28	23.222152
4000	160.470	−0.400	−0.279	157.970	3659.23	23.353755
4100	160.470	−0.400	−0.273	157.970	3659.23	23.367608
4200	160.460	−0.390	−0.281	157.960	3659.24	23.328358
4300	160.440	−0.370	−0.256	157.940	3659.26	23.339902
4400	160.390	−0.320	−0.262	157.890	3659.31	23.222152
4500	160.360	−0.290	−0.258	157.860	3659.34	23.169049
4600	160.330	−0.260	−0.240	157.830	3659.37	23.143652
4700	160.390	−0.320	−0.218	157.890	3659.31	23.314505
4800	160.390	−0.320	−0.225	157.890	3659.31	23.300652
4900	160.430	−0.360	−0.233	157.930	3659.27	23.367608
5000	160.460	−0.390	0.029	157.960	3659.24	23.974828
5100	160.490	−0.420	0.038	157.990	3659.21	24.055637
5200	160.460	−0.390	−0.206	157.960	3659.24	23.485358
5300	160.470	−0.400	−0.095	157.970	3659.23	23.737020

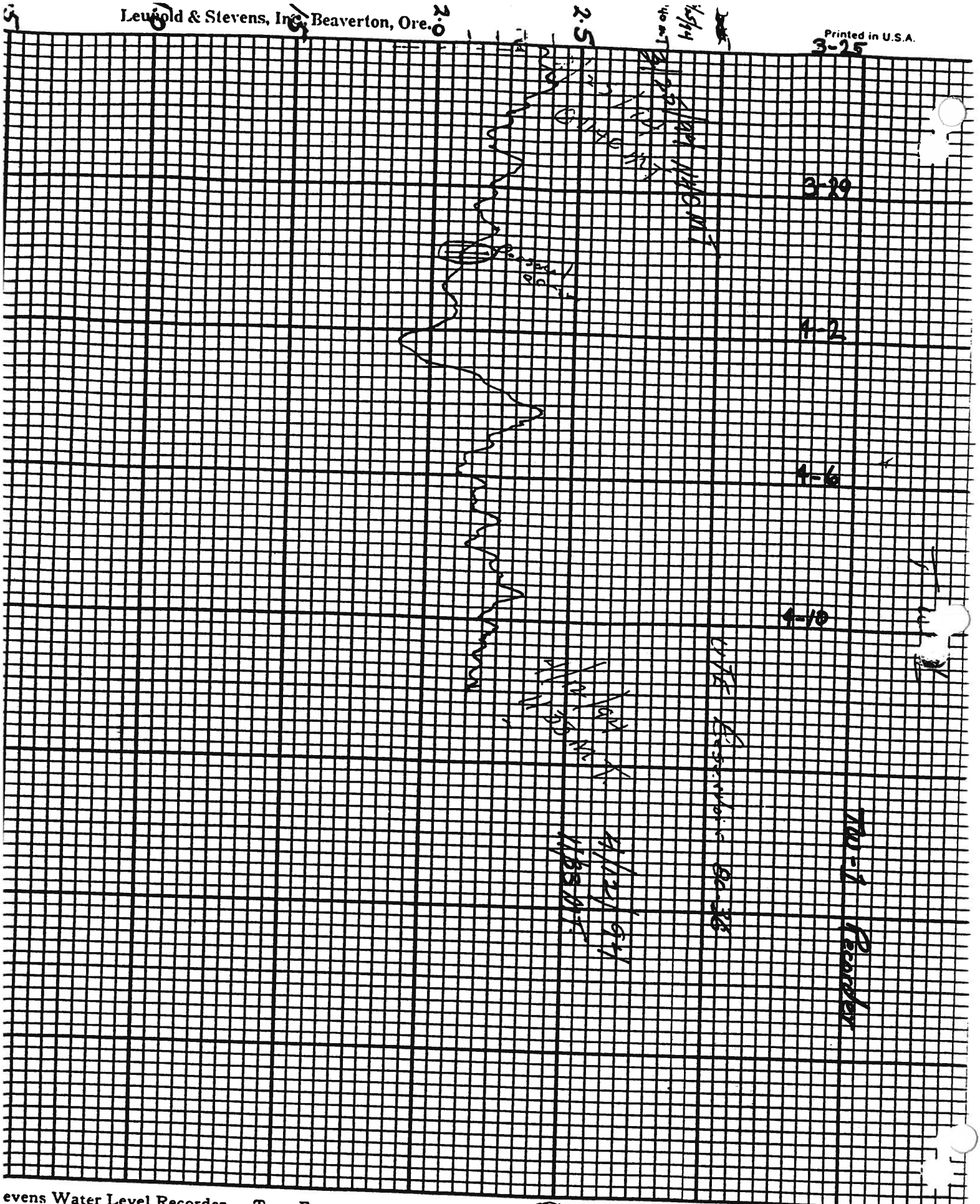
5400	160.470	−0.400	−0.235	157.970	3659.23	23.446108
5500	160.500	−0.430	−0.202	158.000	3659.20	23.577711
5600	160.510	−0.440	−0.198	158.010	3659.19	23.605417
5700	160.520	−0.450	−0.183	158.020	3659.18	23.658520
5800	160.510	−0.440	−0.173	158.010	3659.19	23.658520
5900	160.510	−0.440	−0.167	158.010	3659.19	23.670064
6000	160.500	−0.430	−0.163	158.000	3659.20	23.658520

OW–5B

TW–3 Aquifer Test – Recovery Phase



Appendix E



evens Water Level Recorder — Type F

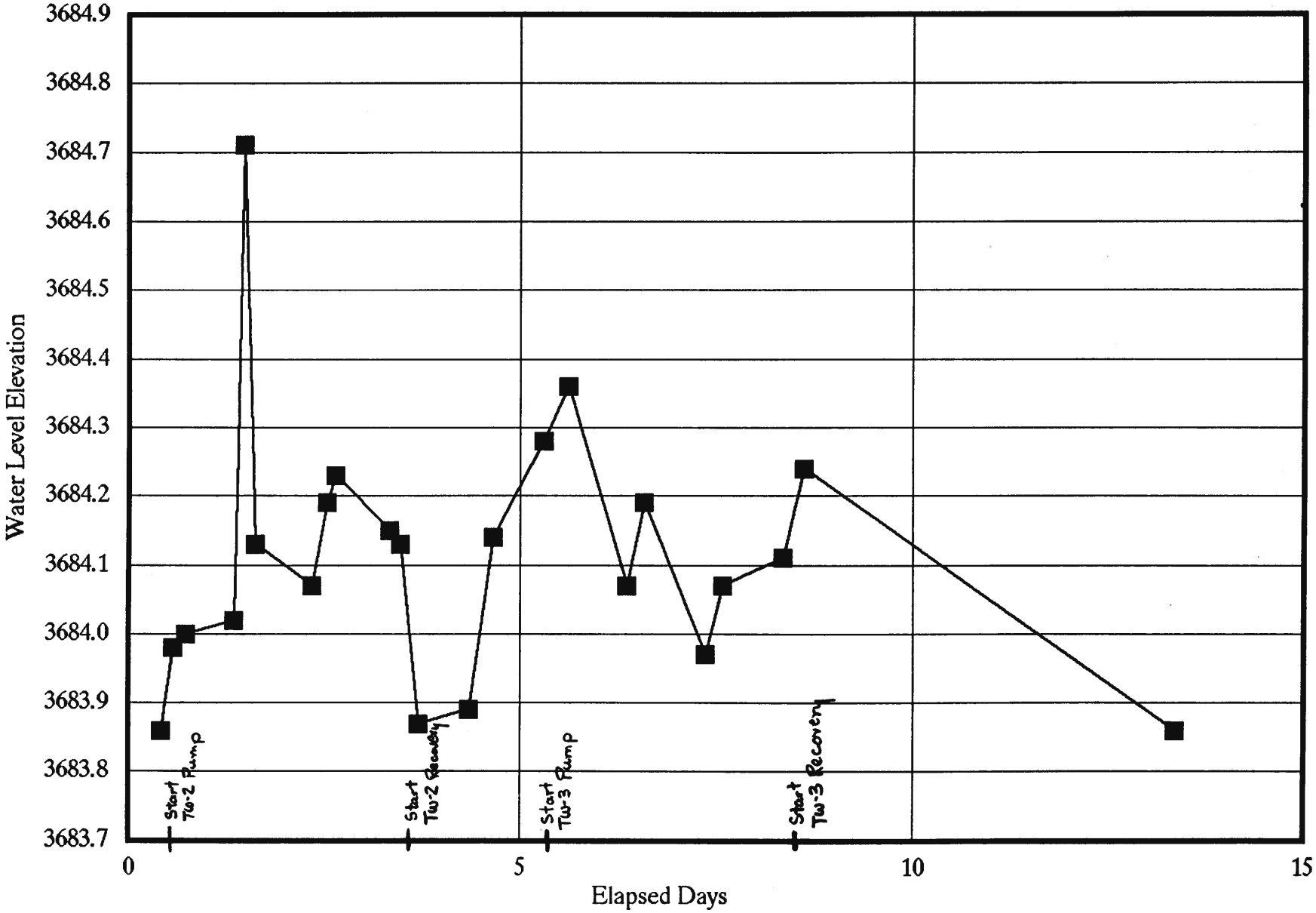
Chart F-1

TW−2 & TW−3 Aquifer Tests
Observation Well: OW−6A
Start Date= March 30, 1994
Static WL= 91.25
Stick Up = 1.91
G.S. Elev. = 3773.2

Date	Elapsed Days	Local Time	Fractional Time	(from MP) Depth to Water	Drawdown	Water Level Elevation
30−Mar	0	10:16	0.428	91.25	0.000	3683.86
30−Mar	0	13:46	0.574	91.13	0.120	3683.98
30−Mar	0	17:40	0.736	91.11	0.140	3684.00
31−Mar	1	8:18	1.346	91.09	0.160	3684.02
31−Mar	1	11:30	1.479	90.40	0.850	3684.71
31−Mar	1	14:41	1.612	90.98	0.270	3684.13
01−Apr	2	8:06	2.338	91.04	0.210	3684.07
01−Apr	2	12:47	2.533	90.92	0.330	3684.19
01−Apr	2	15:41	2.653	90.88	0.370	3684.23
02−Apr	3	8:11	3.341	90.96	0.290	3684.15
02−Apr	3	11:23	3.474	90.98	0.270	3684.13
02−Apr	3	17:04	3.711	91.24	0.010	3683.87
03−Apr	4	8:22	4.349	91.22	0.030	3683.89
03−Apr	4	15:38	4.651	90.97	0.280	3684.14
04−Apr	5	7:10	5.299	90.83	0.420	3684.28
04−Apr	5	14:20	5.597	90.75	0.500	3684.36
05−Apr	6	8:15	6.344	91.04	0.210	3684.07
05−Apr	6	13:30	6.563	90.92	0.330	3684.19
06−Apr	7	8:15	7.344	91.14	0.110	3683.97
06−Apr	7	13:43	7.572	91.04	0.210	3684.07
07−Apr	8	8:13	8.342	91.00	0.250	3684.11
07−Apr	8	14:45	8.615	90.87	0.380	3684.24
12−Apr	13	8:30	13.354	91.25	0.000	3683.86

OW-6A

TW-2 & TW-3 Aquifer Tests

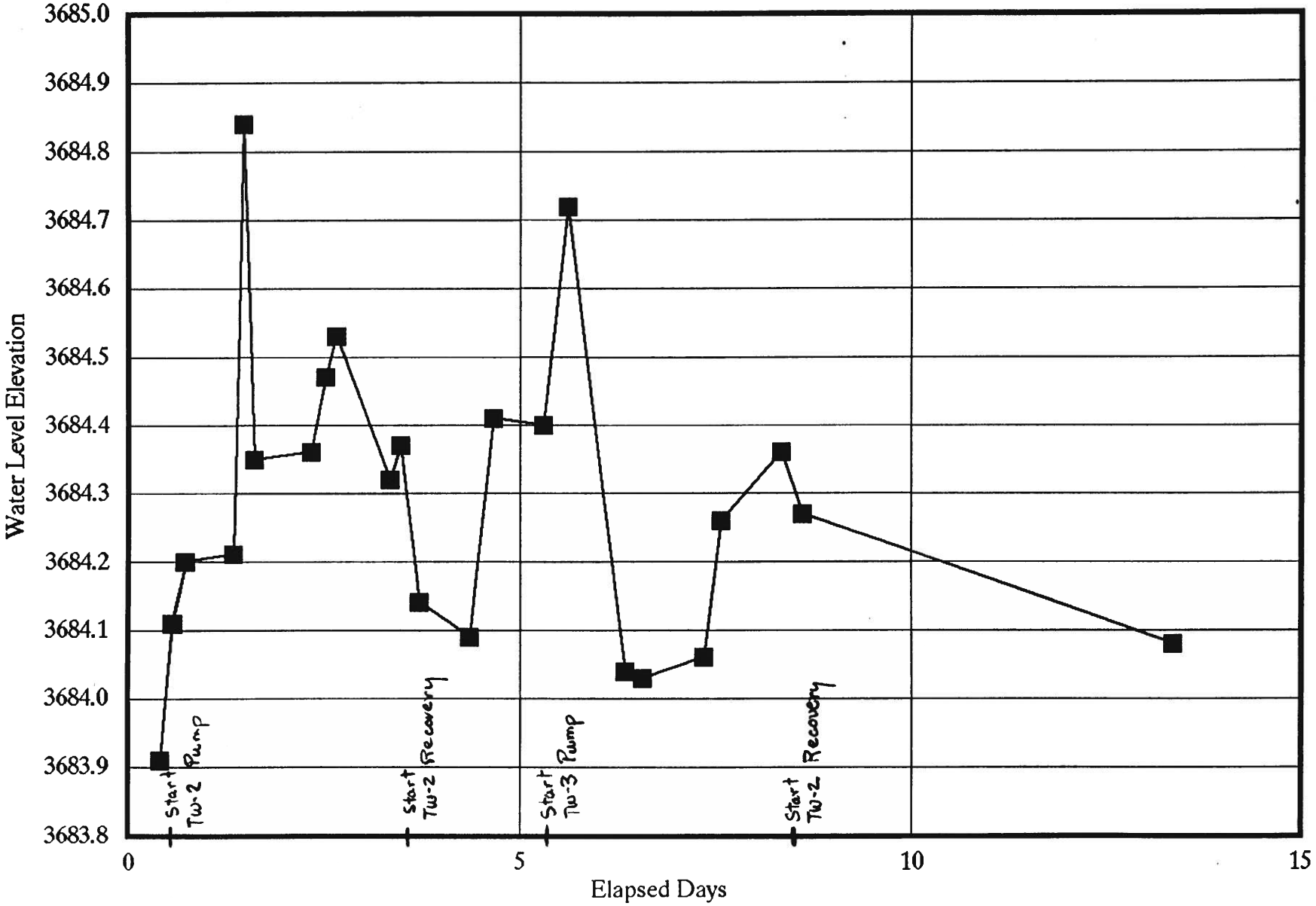


TW−2 & TW−3 Aquifer Tests
Observation Well: OW−6B
Start Date =March 30, 1994
Static WL= 91.95
Stick Up = 2.06
G.S. Elev.= 3773.8

Date	Elapsed Days	Local Time	Fractional Day	(from MP) Depth to Water	Drawdown	Water Level Elevation
30−Mar	0	10:08	0.4222	91.95	0.000	3683.91
30−Mar	0	13:44	0.5722	91.75	0.200	3684.11
30−Mar	0	17:36	0.7333	91.66	0.290	3684.20
31−Mar	1	8:13	1.3424	91.65	0.300	3684.21
31−Mar	1	11:28	1.4778	91.02	0.930	3684.84
31−Mar	1	14:40	1.6111	91.51	0.440	3684.35
01−Apr	2	8:09	2.3396	91.50	0.450	3684.36
01−Apr	2	12:43	2.5299	91.39	0.560	3684.47
01−Apr	2	15:48	2.6583	91.33	0.620	3684.53
02−Apr	3	8:09	3.3396	91.54	0.410	3684.32
02−Apr	3	11:20	3.4722	91.49	0.460	3684.37
02−Apr	3	17:01	3.7090	91.72	0.230	3684.14
03−Apr	4	8:20	4.3472	91.77	0.180	3684.09
03−Apr	4	15:38	4.6514	91.45	0.500	3684.41
04−Apr	5	7:10	5.2986	91.46	0.490	3684.40
04−Apr	5	14:20	5.5972	91.14	0.810	3684.72
05−Apr	6	8:15	6.3438	91.82	0.130	3684.04
05−Apr	6	13:30	6.5625	91.83	0.120	3684.03
06−Apr	7	8:15	7.3438	91.80	0.150	3684.06
06−Apr	7	13:45	7.5729	91.60	0.350	3684.26
07−Apr	8	8:13	8.3424	91.50	0.450	3684.36
07−Apr	8	14:45	8.6146	91.59	0.360	3684.27
12−Apr	13	8:30	13.3542	91.78	0.170	3684.08

OW-6B

TW-2 & TW-3 Aquifer Tests



TW−2 & TW−3 Aquifer Tests
OW−3
Start Date= March 30, 1994
Static WL= 0
Stick Up = 0.9
G.S. Elev. = 3672.81

Date	Elapsed Days	Local Time	Fractional Time	(from MP) Depth to Water	Drawdown	Water Level Elevation
30−Mar	0	16:24	0.7	0.00	0.000	3673.71
31−Mar	1	8:46	1.4	0.00	0.000	3673.71
01−Apr	2	15:50	2.7	0.00	0.000	3673.71
02−Apr	3	8:42	3.4	0.00	0.000	3673.71
04−Apr	5	14:00	5.6	0.00	0.000	3673.71
05−Apr	6	10:10	6.4	0.00	0.000	3673.71
06−Apr	7	11:35	7.5	0.00	0.000	3673.71
07−Apr	8	14:30	8.6	0.00	0.000	3673.71
12−Apr	13	8:50	13.4	0.00	0.000	3673.71

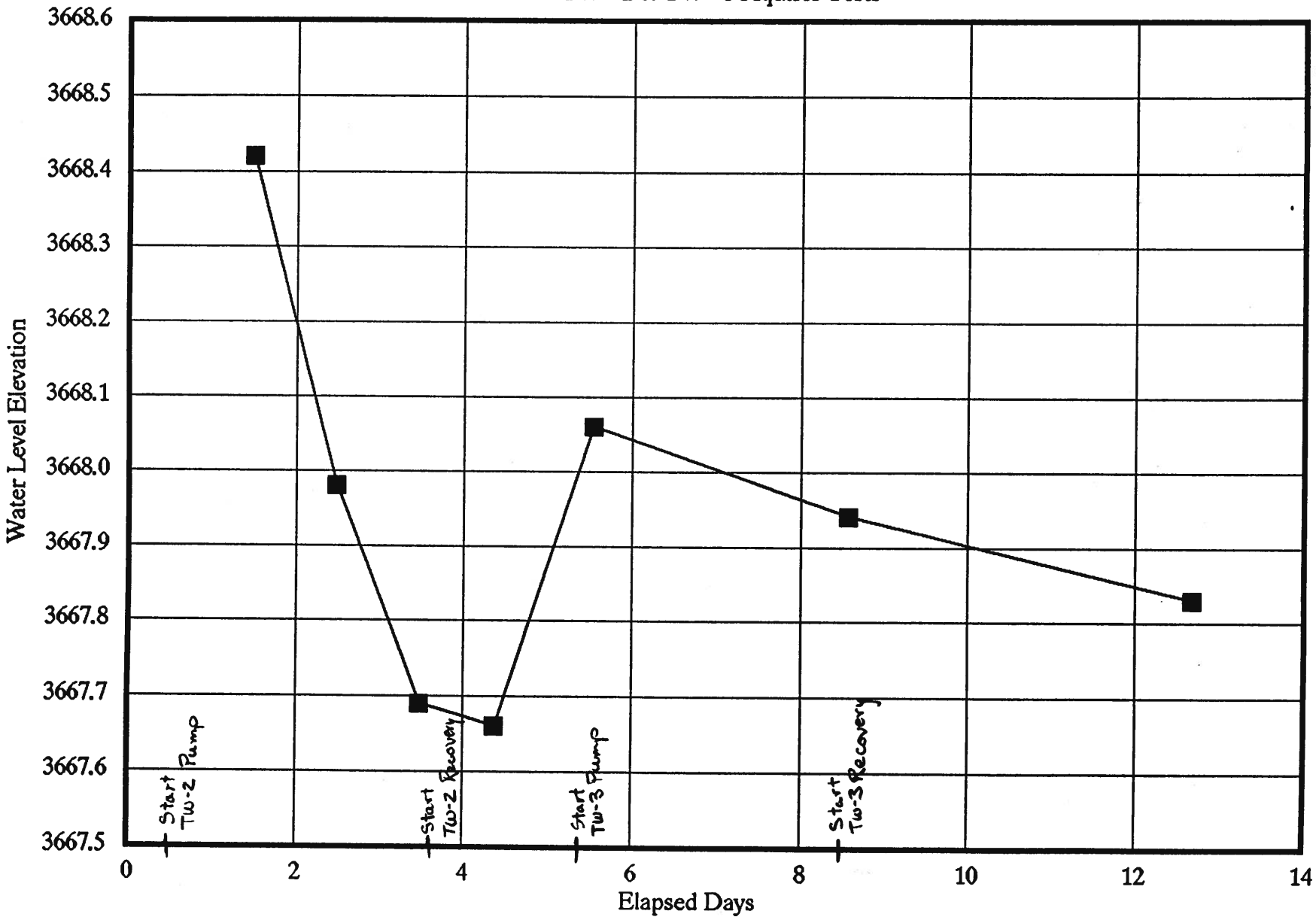
TW−2 & TW−3 Aquifer Tests
Logan Landfill Well
Start Date= March 30, 1994
Static WL = 94.12
Stick Up = 0.9
G.S. Elev. = 3761.01

Date	Elapsed Days	Local Time	Fractional Time	(from MP) Depth to Water	Drawdown	Water Level Elevation
31−Mar	1	11:41	1.5	93.49	0.630	3668.42
01−Apr	2	11:30	2.5	93.93	0.190	3667.98
02−Apr	3	11:36	3.5	94.22	−0.100	3667.69
03−Apr	4	8:50	4.4	94.25	−0.130	3667.66
04−Apr	5	12:59	5.5	93.85	0.270	3668.06
07−Apr	8	13:43	8.6	93.97	0.150	3667.94
11−Apr	12	16:15	12.7	94.08	0.040	3667.83

Note: Landfill was closed on Tuesday and Wednesday and couldn't read well.

Logan Landfill Well

TW–2 & TW–3 Aquifer Tests

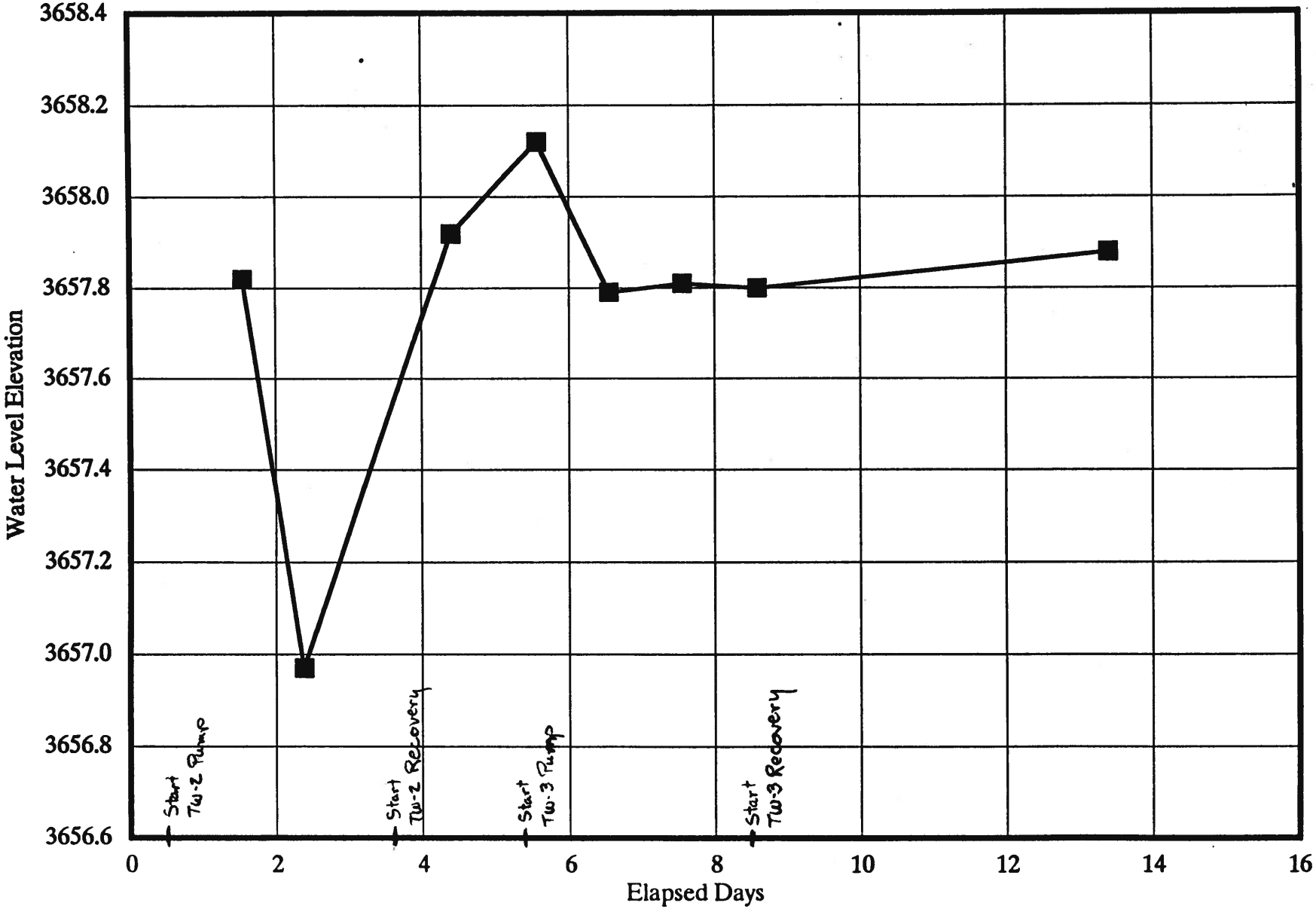


TW−2 & TW−3 Aquifer Tests
Observation Well: DH−2
Start Day = March 30, 1994
Static WL = 3.2
Stick Up = 5.2
G.S. Elev. = 3655.72

Date	Elapsed Days	Local Time	Fractional Time	(from MP) Depth to Water	Drawdown	Water Level Elevation
31−Mar	1	13:12	1.6	3.10	0.100	3657.82
01−Apr	2	9:07	2.4	3.95	−0.750	3656.97
03−Apr	4	9:38	4.4	3.00	0.200	3657.92
04−Apr	5	13:35	5.6	2.80	0.400	3658.12
05−Apr	6	13:08	6.5	3.13	0.070	3657.79
06−Apr	7	13:20	7.6	3.11	0.090	3657.81
07−Apr	8	14:00	8.6	3.12	0.080	3657.80
12−Apr	13	9:45	13.4	3.04	0.160	3657.88

DH-2

TW-2 & TW-3 Aquifer Tests



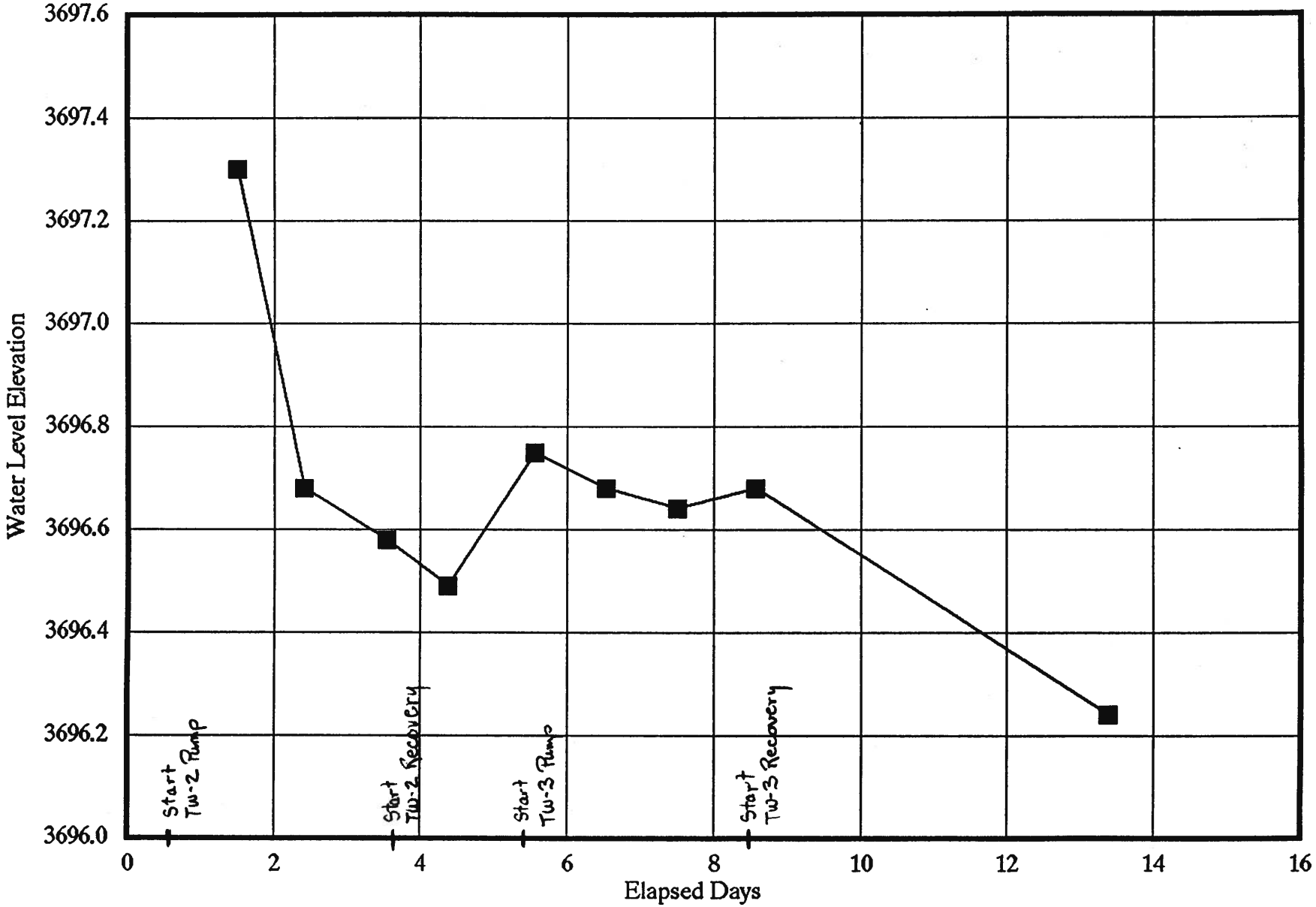
TW−2 & TW−3 Aquifer Tests
DH−3
Start Date= March 30, 1994
Static WL = 85.92
Stick Up = 1.8
G.S. Elev. = 3781

Date	Elapsed Days	Local Time	Fractional Time	(from MP) Depth to Water	Drawdown	Water Level Elevation
31−Mar	1	11:55	1.5	85.50	0.420	3697.30
01−Apr	2	9:35	2.4	86.12	−0.200	3696.68
02−Apr	3	12:43	3.5	86.22	−0.300	3696.58
03−Apr	4	9:02	4.4	86.31	−0.390	3696.49
04−Apr	5	13:10	5.5	86.05	−0.130	3696.75
05−Apr	6	12:45	6.5	86.12	−0.200	3696.68
06−Apr	7	11:54	7.5	86.16	−0.240	3696.64
07−Apr	8	13:26	8.6	86.12	−0.200	3696.68
12−Apr	13	9:15	13.4	86.56	−0.640	3696.24

Note: Field WL depth reading on April 12 was 98.56.
I considered it as a transposition error and used 86.56.

DH-3

TW-2 & TW-3 Aquifer Tests



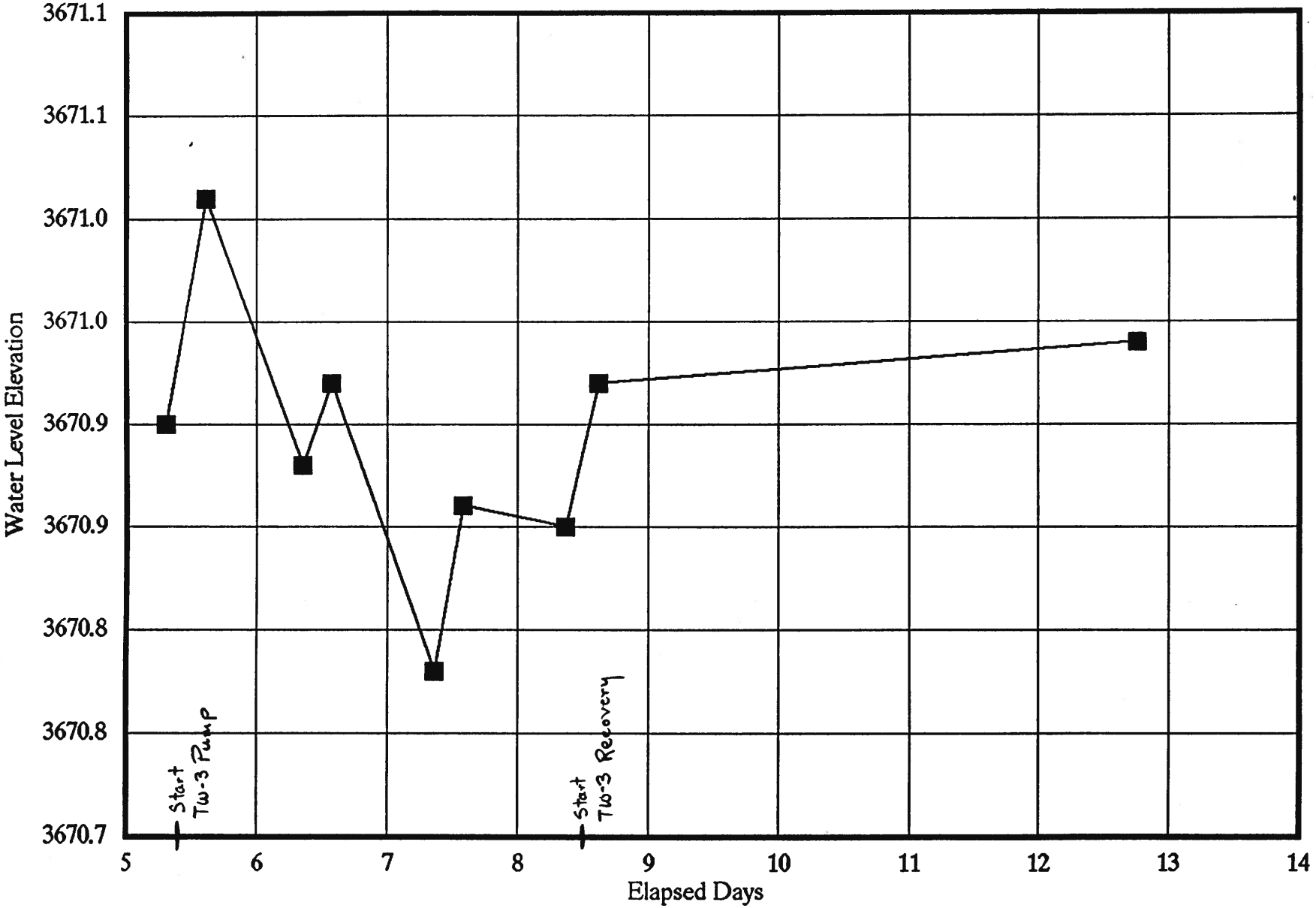
TW−3 Aquifer Test

Observation Well:	TW−2
Start Date=	March 30, 1994
Static WL=	20.06
Stick Up =	2.04
G.S. Elev. =	3689

Date	Elapsed Days	Local Time	Fractional Time	(from MP) Depth to Water	Drawdown	Water Level Elevation
04−Apr	5	7:19	5.3	20.14	−0.080	3670.90
04−Apr	5	14:34	5.6	20.03	0.030	3671.01
05−Apr	6	8:30	6.4	20.16	−0.100	3670.88
05−Apr	6	13:45	6.6	20.12	−0.060	3670.92
06−Apr	7	8:29	7.4	20.26	−0.200	3670.78
06−Apr	7	13:57	7.6	20.18	−0.120	3670.86
07−Apr	8	8:47	8.4	20.19	−0.130	3670.85
07−Apr	8	14:55	8.6	20.12	−0.060	3670.92
11−Apr	12	18:07	12.8	20.10	−0.040	3670.94

TW-2

TW-3 Aquifer Test

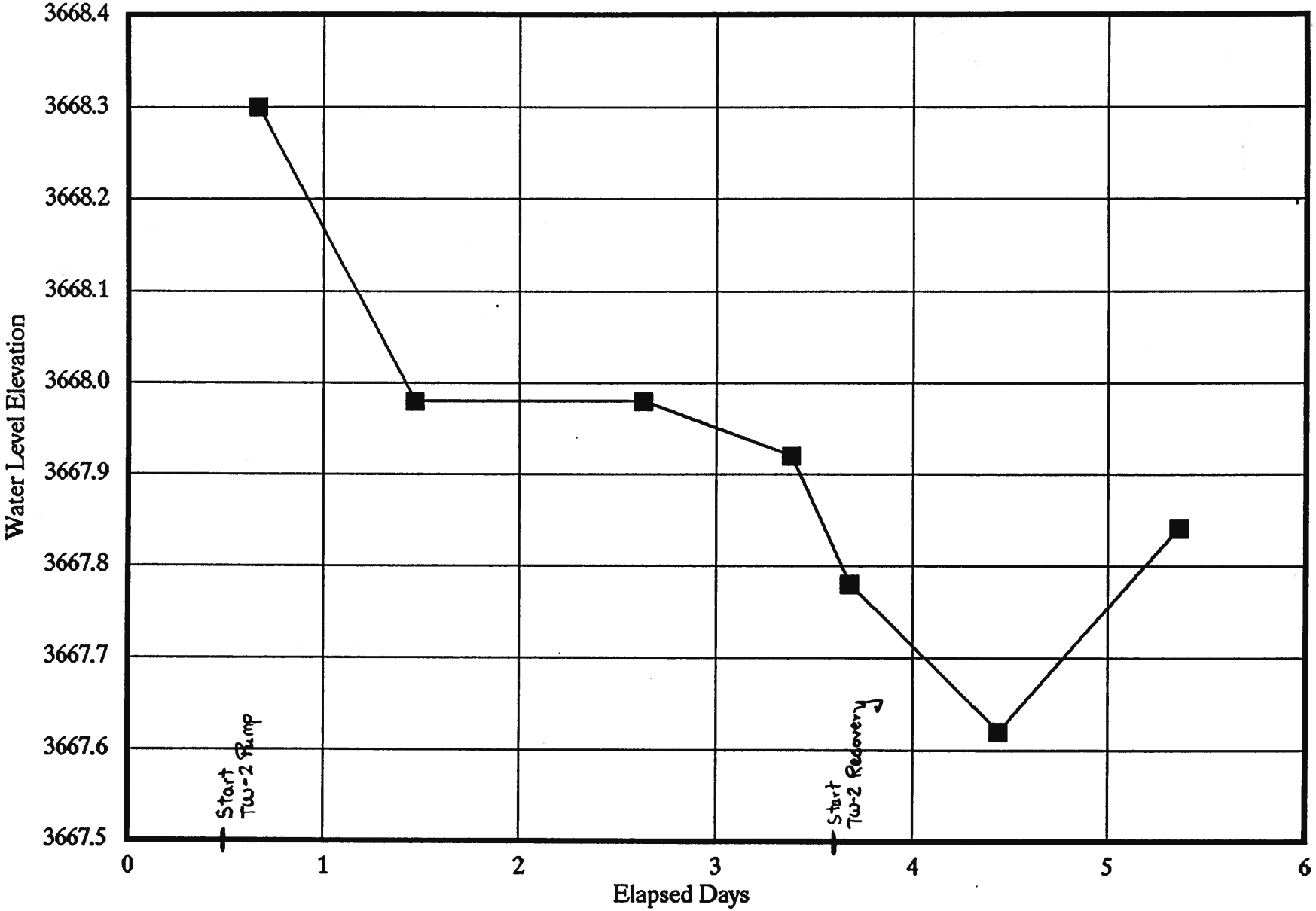


TW−2 Aquifer Test
Observation Well: TW−3
Start Date= March 30, 1994
Static WL= 22.66
Stick Up = 1.6
G.S. Elev. = 3689.3

Date	Elapsed Days	Local Time	Fractional Time	(from MP) Depth to Water	Drawdown	Water Level Elevation
30−Mar	0	15:57	0.7	22.60	0.060	3668.30
31−Mar	1	11:15	1.5	22.92	−0.260	3667.98
01−Apr	2	15:00	2.6	22.92	−0.260	3667.98
02−Apr	3	9:08	3.4	22.98	−0.320	3667.92
02−Apr	3	16:16	3.7	23.12	−0.460	3667.78
03−Apr	4	10:29	4.4	23.28	−0.620	3667.62
04−Apr	5	8:36	5.4	23.06	−0.400	3667.84

TW-3

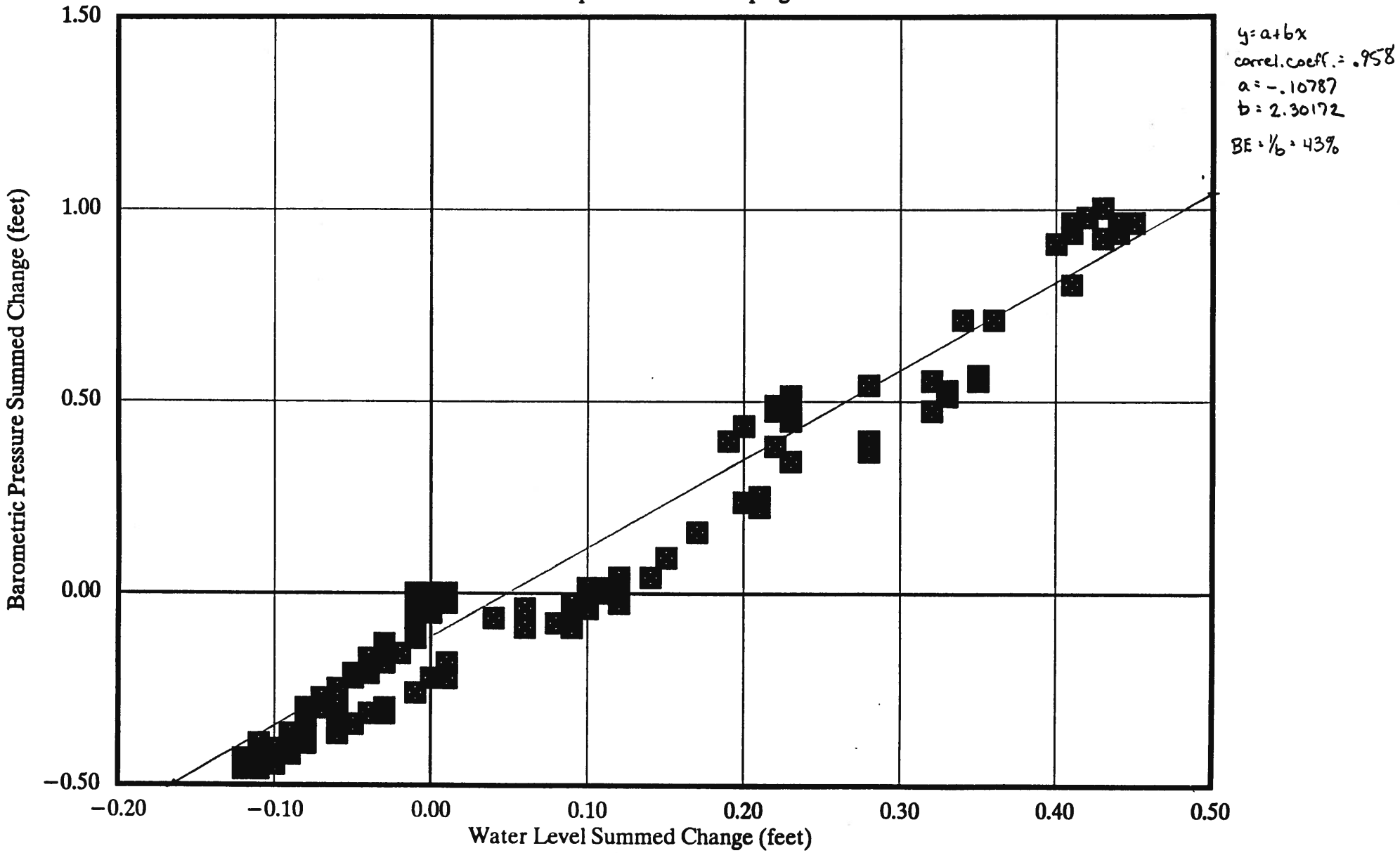
TW-2 Aquifer Test



Appendix F

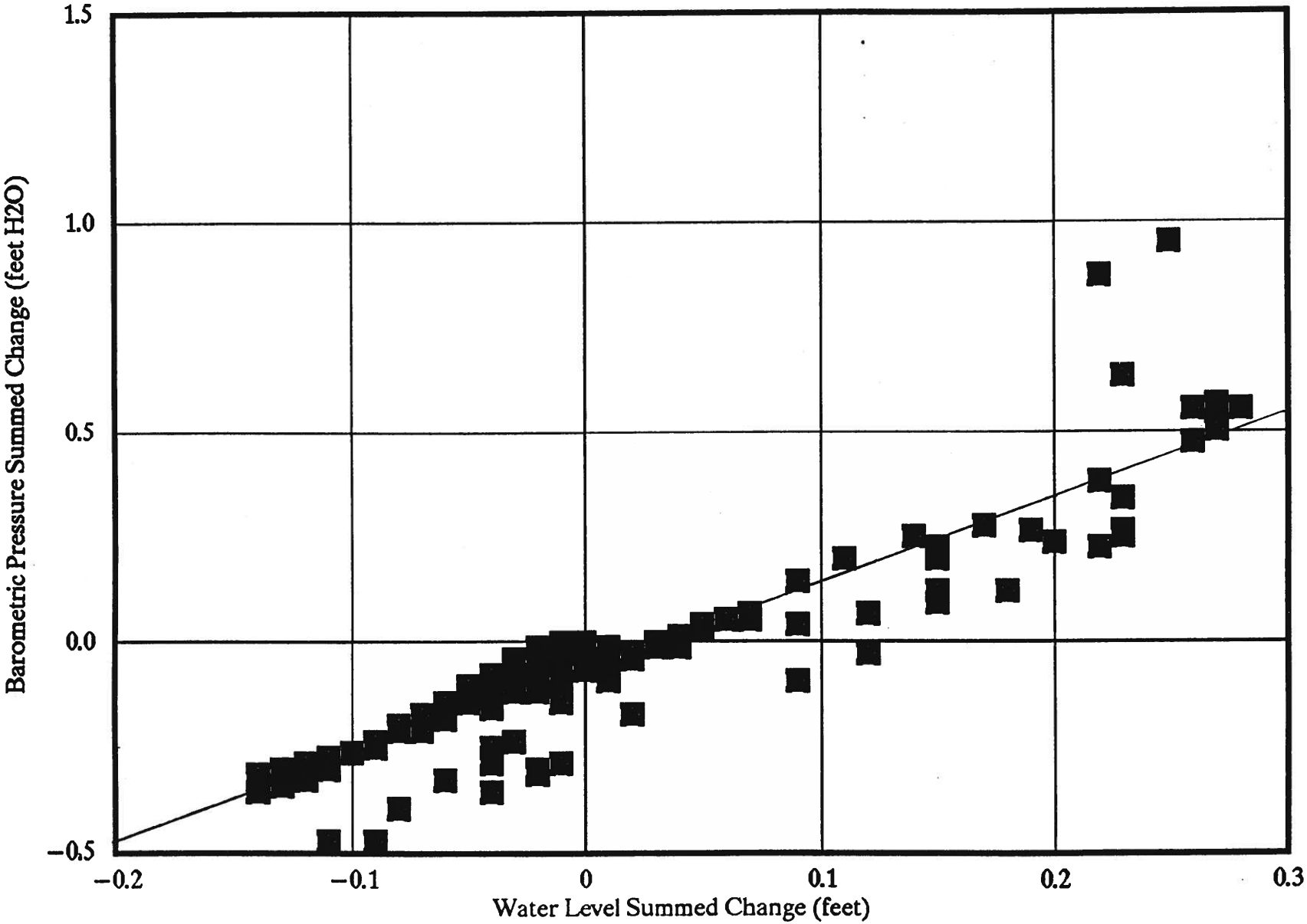
OW–5B – Barometric Efficiency

TW–3 Aquifer Test – Pumping Phase



OW–5B – Barometric Efficiency

TW–3 Aquifer Test – Recovery Phase



$y = a + bx$

corr. coeff. = .9225

$a = -5.8217 \times 10^{-2}$

$b = 2.061994$

B.E. = 1/b = 48%

7-1654 (1-89)
Bureau of Reclamation

COMPUTATION SHEET

BY	DATE	PROJECT	SHEET ____ OF ____
MJP	5/23/96		
CHKD BY	DATE	FEATURE	
		OW6A	
DETAILS			
Barometric Efficiency - Baro. Pressure Data from TW3 Aquifer Test			

OW-6A :

Fractional Time	Depth to WL (feet)	Barometric Pressure (ft H_2O)	WL Change	BP Change	Summed WL Change	Summed BP Change
5.597	90.75	19.898	0	0	0	0
6.344	91.04	20.617	0.29	0.719	0.29	0.719
6.563	90.92	20.629	-0.12	0.012	0.17	0.731
7.344	91.14	21.060	0.22	0.431	0.39	1.162
7.572	91.04	20.745	-0.10	-0.315	0.29	0.847
8.342	91.00	20.572	-0.04	-0.173	0.25	0.674
8.615	90.87	20.140	-0.13	-0.432	0.12	0.242

$r = .951$ B.E. = $1/b = 35\%$
$a = .01167$
$b = 2.843$

7-1654 (1-89)
Bureau of Reclamation

COMPUTATION SHEET

BY	DATE	PROJECT	SHEET ____ OF ____
MP	5/23/96		
CHKD BY	DATE	FEATURE	
		OW-6B	
DETAILS			
Barometric Efficiency - Baro. Pressure Data from TW-3 Aquifer Test			

OW-6B:

Fractional Time	Depth to WL (feet)	Barometric Pressure (ft H_2O)	WL Change	B.P. Change	Summed WL Change	Summed B.P. Change
5.597	91.14	19.898	0	0	0	0
6.344	91.82	20.617	0.68	0.719	0.68	0.719
6.563	91.83	20.629	0.01	0.012	0.69	0.731
7.344	91.80	21.060	-0.03	0.431	0.66	1.162
7.573	91.60	20.745	-0.20	-0.315	0.46	0.847
8.342	91.50	20.572	-0.10	-0.173	0.36	0.674
8.615	91.59	20.140	0.09	-0.432	0.45	0.242

r = .77 B.E. = 1/b = 83%
a = .054
b = 1.212

Appendix G

United States Department of the Interior

BUREAU OF RECLAMATION
Dakotas Area Office
P.O. Box 1017
Bismarck, North Dakota 58502

IN REPLY REFER TO:
DK-175
RES-3

JUN 0 9 1994

MEMORANDUM

To: Regional Director, Billings, Montana
Attention: GP-156

From: Dennis Breitzman
Area Planning Officer

Subject: Lake Meredith Salinity Samples

As requested, attached are results of analyses performed on Lake Meredith Salinity Study samples. Samples were collected March 30 through April 7, 1994, by Mark Phillips, GP-245, and received in our laboratory April 11, 1994. Analyses were performed by EPA approved methodologies.

If you have any questions please call Patti Ivey, Supervisory Chemist, at 701-250-4547.

Attachment

05/16/94

Approved: 05/16/94

Report of Water Analysis
Missouri-Souris Projects Office
Soil and Water Laboratory
U. S. Bureau of Reclamation
Bismarck, ND 58501

Study Area:	Lake Meredith
Description:	Salinity Study
Laboratory Number	9401328
Site ID	TW2-1
Date Collected	03/30/94
Time Collected	

Field Data:

Field EC @25C	(mmhos/cm)	78.50

Major Cations:

Calcium	(mg/l)	972
Magnesium	(mg/l)	310
Potassium	(mg/l)	69.5
Sodium	(mg/l)	22300

Major Anions:

Alkalinity	(as CaCO3 mg/l)	534.7
Chloride	(mg/l)	34820
Sulfate	(mg/l)	3180.0

Calculated Values:

Total Dissolved Solids(mg/l)	61972
SAR	159.50
Hardness as mg CaCO3/l	3702.4

05/16/94

Approved: [signature] 05-16-94

Report of Water Analysis
Missouri-Souris Projects Office
Soil and Water Laboratory
U. S. Bureau of Reclamation
Bismarck, ND 58501

Study Area: Lake Meredith
Description: Salinity Study

Laboratory Number	9401331
Site ID	TW2-4
Date Collected	03/31/94
Time Collected	

Field Data:

Field EC @25C	(mmhos/cm)	105.00

Major Cations:

Calcium	(mg/l)	1038
Magnesium	(mg/l)	327
Potassium	(mg/l)	68.9
Sodium	(mg/l)	22400

Major Anions:

Alkalinity	(as CaCO3 mg/l)	524.7
Chloride	(mg/l)	35470
Sulfate	(mg/l)	3170.0

Calculated Values:

Total Dissolved Solids	(mg/l)	62789
SAR		155.31
Hardness as mg CaCO3/l		3939.5

05/16/94

Approved: Date | Eng. 05-16-94

Report of Water Analysis
Missouri-Souris Projects Office
Soil and Water Laboratory
U. S. Bureau of Reclamation
Bismarck, ND 58501

Study Area: Lake Meredith
Description: Salinity Study

Laboratory Number		9401334
Site ID		TW2-7
Date Collected		04/02/94
Time Collected		

Field Data:

Field EC @25C	(mmhos/cm)	107.90

Major Cations:

Calcium	(mg/l)	1040
Magnesium	(mg/l)	325
Potassium	(mg/l)	70.0
Sodium	(mg/l)	22100

Major Anions:

Alkalinity (as CaCO3	mg/l)	531.7
Chloride	(mg/l)	36410
Sulfate	(mg/l)	3170.0

Calculated Values:

Total Dissolved Solids	(mg/l)	63434
SAR		153.29
Hardness as mg CaCO3/l		3936.6

05/16/94

Report of Water Analysis
Missouri-Souris Projects Office
Soil and Water Laboratory
U. S. Bureau of Reclamation
Bismarck, ND 58501

Approved: [signature] 05-16-94

tudy Area: Lake Meredith
scription: Salinity Study

boratory Number 9401338
te ID TW3-1

te Collected 04/04/94
me Collected

eld Data:

ield EC @25C (mmhos/cm) 31.00

jor Cations:

alcium	(mg/l)	403
agnesium	(mg/l)	133
otassium	(mg/l)	35.4
odium	(mg/l)	6413

jor Anions:

lkalinity	(as CaCO3 mg/l)	820.1
hloride	(mg/l)	10450
ulfate	(mg/l)	1590.0

lculated Values:

otal Dissolved Solids(mg/l)	19517
AR	70.78
ardness as mg CaCO3/l	1554.9

05/16/94

Approved: 05-16-94

Report of Water Analysis
Missouri-Souris Projects Office
Soil and Water Laboratory
U. S. Bureau of Reclamation
Bismarck, ND 58501

Study Area: Lake Meredith
Description: Salinity Study

Laboratory Number		9401341
Site ID		TW3-4
Date Collected		04/05/94
Time Collected		
Field Data:		
Field EC @25C	(mmhos/cm)	29.50
Major Cations:		
Calcium	(mg/l)	397
Magnesium	(mg/l)	130
Potassium	(mg/l)	34.9
Sodium	(mg/l)	6744
Major Anions:		
Alkalinity (as CaCO3	mg/l)	813.9
Chloride	(mg/l)	10470
Sulfate	(mg/l)	1580.0

Calculated Values:		
Total Dissolved Solids	(mg/l)	19844
SAR		75.17
Hardness as mg CaCO3/l		1524.6

05/16/94

Approved: 05 16 94

Report of Water Analysis
Missouri-Souris Projects Office
Soil and Water Laboratory
U. S. Bureau of Reclamation
Bismarck, ND 58501

Study Area: Lake Meredith
escription: Salinity Study

aboratory Number 9401344
ite ID TW3-7

ate Collected 04/06/94
ime Collected

ield Data:

Field EC @25C (mmhos/cm) 27.90

ajor Cations:

Calcium	(mg/l)	419
Magnesium	(mg/l)	135
Potassium	(mg/l)	34.9
Sodium	(mg/l)	6664

ajor Anions:

Alkalinity (as CaCO3	mg/l)	807.3
Chloride	(mg/l)	11730
Sulfate	(mg/l)	1611.0

alculated Values:

Total Dissolved Solids(mg/l)	21078
SAR	72.49
Hardness as mg CaCO3/l	1600.8

05/16/94

Approved: [signature] 05-16-94

Report of Water Analysis
Missouri-Souris Projects Office
Soil and Water Laboratory
U. S. Bureau of Reclamation
Bismarck, ND 58501

Study Area:	Lake Meredith
Description:	Salinity Study
Laboratory Number	9401337
Site ID	TW3-10
Date Collected	04/07/94
Time Collected	

Field Data:

Field EC @25C	(mmhos/cm)	26.50

Major Cations:

Calcium	(mg/l)	<2
Magnesium	(mg/l)	<2
Potassium	(mg/l)	<0.2
Sodium	(mg/l)	<2

Major Anions:

Alkalinity	(as CaCO3 mg/l)	<10.0
Chloride	(mg/l)	23.6
Sulfate	(mg/l)	2.9

Calculated Values:

Total Dissolved Solids(mg/l)	28.9
SAR	0.11
Hardness as mg CaCO3/l	<10.0

******

05/16/94

Report of Trace Element Water Analysis

Approved: [signature] 05-16-94

Soil and Water Laboratory
U. S. Bureau of Reclamation
Bismarck, ND 58501

Study Area: Lake Meredith
Description: Salinity Study

Laboratory Number		9401346	
Site ID		TW3-9	Date Analyzed
Date Collected		04/06/94	
Mercury	(ug/l)	<0.2	04/20/94

05/16/94

Report of Trace Element Water Analysis

Approved: [signature] 05-16-94

Soil and Water Laboratory
U. S. Bureau of Reclamation
Bismarck, ND 58501

Study Area: Lake Meredith
escription: Salinity Study

aboratory Number		9401343	
ite ID		TW3-6	Date
ate Collected		04/05/94	Analyzed
ercury	(ug/l)	<0.2	04/20/94

05/16/94

Report of Trace Element Water Analysis

Approved: [signature] 05/16/94

Soil and Water Laboratory
U. S. Bureau of Reclamation
Bismarck, ND 58501

Study Area: Lake Meredith
escription: Salinity Study

aboratory Number		9401340	
ite ID		TW3-3	Date
ate Collected		04/04/94	Analyzed
ercury	(ug/l)	<0.2	04/20/94

05/16/94

Report of Trace Element Water Analysis

Approved: [signature], 05-16-94

Soil and Water Laboratory
U. S. Bureau of Reclamation
Bismarck, ND 58501

Study Area: Lake Meredith
Description: Salinity Study

Laboratory Number		9401336	
Site ID		TW2-9	Date Analyzed
Date Collected		04/02/94	
Mercury	(ug/l)	<0.2	04/20/94

05/16/94

Report of Trace Element Water Analysis

Approved: Dan Q, 05-16-94

Soil and Water Laboratory
U. S. Bureau of Reclamation
Bismarck, ND 58501

Study Area: Lake Meredith
Description: Salinity Study

Laboratory Number		9401332	
Site ID		TW2-5	Date
Date Collected		03/31/94	Analyzed
Mercury	(ug/l)	<0.2	04/20/94

05/16/94

Report of Trace Element Water Analysis

Approved: [signature] 05-16-94

Soil and Water Laboratory
U. S. Bureau of Reclamation
Bismarck, ND 58501

Study Area: Lake Meredith
Description: Salinity Study

Laboratory Number		9401330	
Site ID		TW2-3	Date
Date Collected		03/30/94	Analyzed
Mercury	(ug/l)	<0.2	04/20/94

United States Department of the Interior

BUREAU OF RECLAMATION
DENVER OFFICE
PO Box 25007
Building 67, Denver Federal Center
Denver, Colorado 80225-0007

JUN 17 '94

IN REPLY REFER TO:
D-3743A
RES-3.20

JUN 15 1994

150

MEMORANDUM

To: Regional Director, Billings MT
Attention: GP-150 (Lucero)

From: Margaret Lake
Acting Supervisor, Chemistry and Petrography Laboratory

Subject: Report of Chemical Analyses for Lake Meredith Water Samples - Salinity Control Project, Texas (Water Samples)

Enclosed are the results of metals analyses performed on Lake Meredith water samples received in our laboratory on April 19, 1994. Your request for an ICP scan included the major cations: sodium, calcium, magnesium, and potassium. A separate filtered sample needs to be submitted for the analysis of these ions. The unfiltered samples submitted were received in good condition. Preliminary ICP metals data were faxed to Patty Ivy in Bismarck, North Dakota, on May 13, 1994, and low-level arsenic and selenium data faxed on June 1, 1994.

As requested by Patty Ivy, stiff diagrams are also provided using data faxed to our laboratory June 1, 1994. Please note there were no data provided for pH and total suspended solids (TSS), and a zero was entered instead.

There was a low bias on the contract data for selenium. All other data quality standards were met. All holding times were met. The delay in reporting data officially is due to the re-analysis of selenium and arsenic by the contract laboratory.

If you have any questions, please call (303) 236-6203 and contact your project representative, Barb Frost, on extension 260; our Quality Control Officer, Doug Craft, extension 255; or Margaret Lake, extension 256.

Margaret A. Lake

NOTICE:
IF YOU DETACH ENCLOSURES, PLEASE
INSERT YOUR CODE NUMBER_____

Enclosure

cc: Project Manager, Missouri-Souris Projects Office, Bismarck ND
Attention: DK-175 (Ivy)
(w/encl)

SAMPLE LOG-IN SUMMARY
USBR CHEMISTRY LABORATORY
DENVER, COLORADO

BATCH NUMBER..... 90
DATA disk file name....GPS258

Type of samples.....water
Submitted by.....MARK PHILLIPS, BISMARCK ND
Number of samples.....7
Chem lab numbers.....H- 5258 to 5264
Sampling date.....04/07/1994
Requested analyses.....TM *
  Elements.....ICP SCAN
Region of origin.....GP
Project.....MEREDITH LAKE SALAINITY STUDY
Feature.....NITRIC ACID ACIDIFIED

Recall number.....GP093
DUE DATE.....05/19/1994
PRIORITY.....Medium

SAMPLE IDENTIFIERS

SAMPLE 1 H-5258 TW2-2
SAMPLE 2 H-5259 TW2-6
SAMPLE 3 H-5260 TW2-8
SAMPLE 4 H-5261 TW3-2
SAMPLE 5 H-5262 TW3-5
SAMPLE 6 H-5263 TW3-8
SAMPLE 7 H-5264 TW3-11

* Need to send separate filtered sample and request "major cations." 5/13/94 MAL

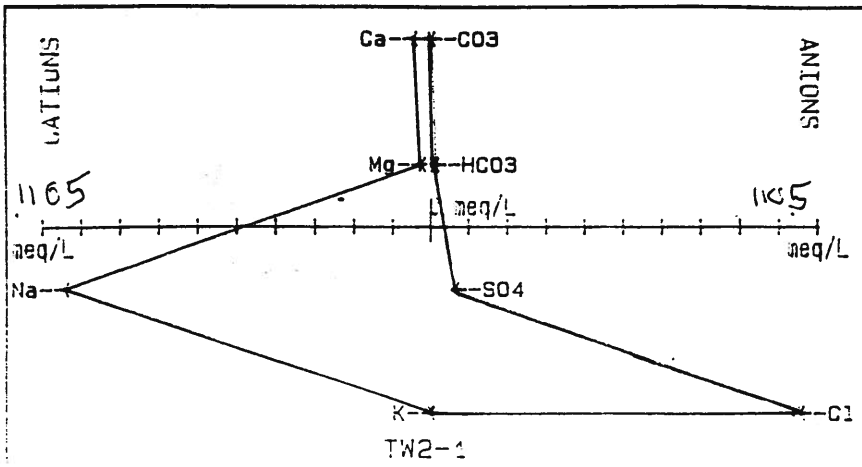
LAKE MEREDITH

ELEMENT	mg/L							DET LIM	
	H-5258	H-5259	H-5260	H-5261	H-5262	H-5263	H-5264		
	TW2-2	TW2-6	TW2-8	TW3-2	TW3-5	TW3-8	TW3-11		
AL	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	.447	<0.150	
B	1.799	1.836	1.820	1.654	1.770	1.664	1.620	<0.050	
BE	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	
CD	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
CR	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
CO	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
CU	0.054	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
FE	5.40	5.56	5.49	4.51	4.66	4.35	4.35	<0.020	
MN	.281	.259	.253	.735	.774	.729	.711	<0.020	
NI	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
PB	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
AG	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
V	.034	.035	.035	.021	.022	.021	.021	<0.010	
ZN	.620	.195	.215	1.24	.498	.511	.496	<0.004	
AS	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	
SE	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
SR	15.76	16.12	16.01	6.62	7.21	6.77	6.61	<0.050	

LAKE MEREDITH METALS

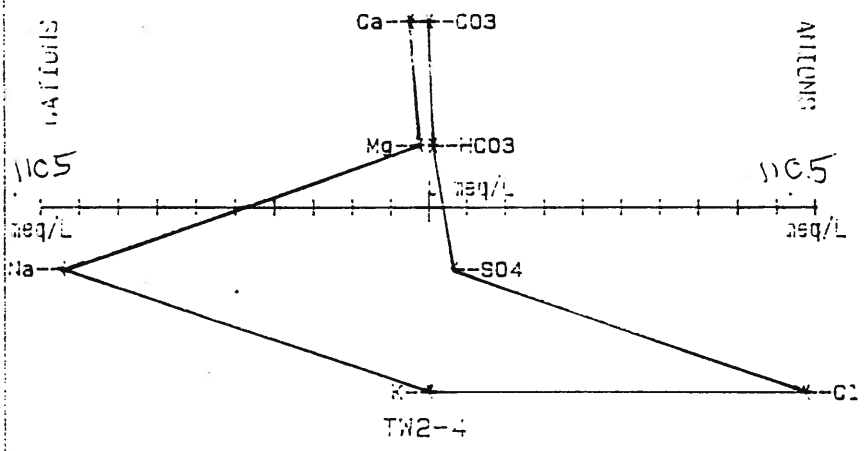
Chemistry Lab. No.	µg/L As	Se
H-5258	9	<1
H-5259	8	<1
H-5260	8	<1
H-5261	5	<1
H-5262	3	<1
H-5263	4	<1
H-5264	3	<1

As Analysis Method 206.2
Se Analysis Method 270.3



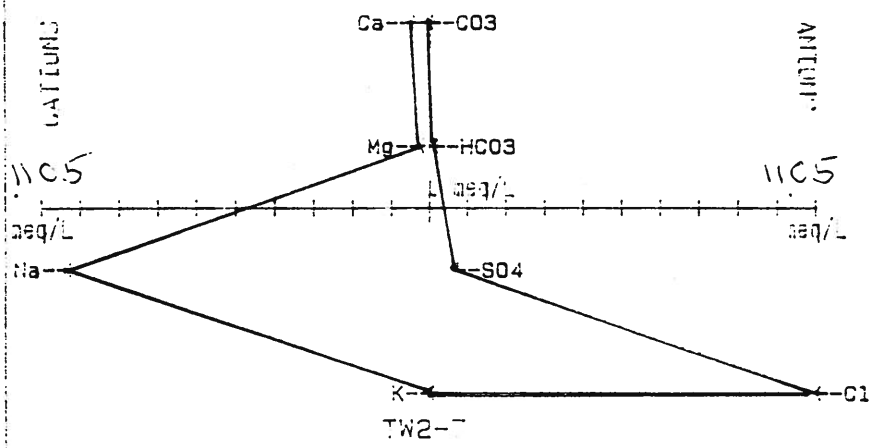
S-1
03/30/94

EC (uS/cm)	79
pH	0.00
TDS (mg/L)	61972
TSS (mg/L)	0
Sum (mg/L)	62304



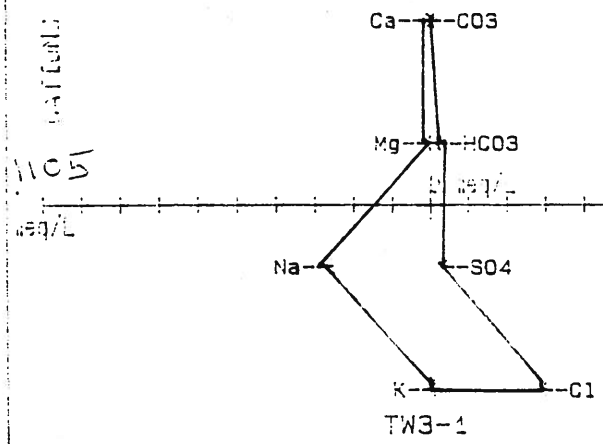
S-2
03/31/94

EC (uS/cm)	105
pH	0.00
TDS (mg/L)	62789
TSS (mg/L)	0
Sum (mg/L)	63114



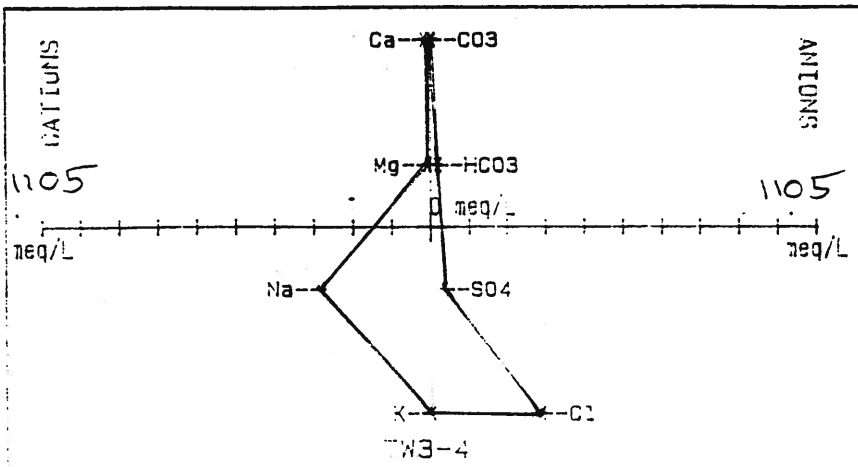
S-3
04/02/94

EC (uS/cm)	108
pH	0.00
TDS (mg/L)	63434
TSS (mg/L)	0
Sum (mg/L)	63764



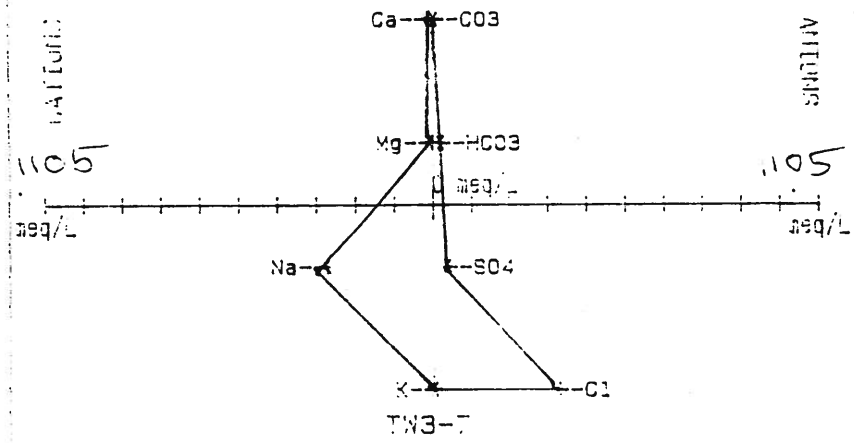
S-4
04/04/94

EC (uS/cm)	31
pH	0.00
TDS (mg/L)	19517
TSS (mg/L)	0
Sum (mg/L)	20025



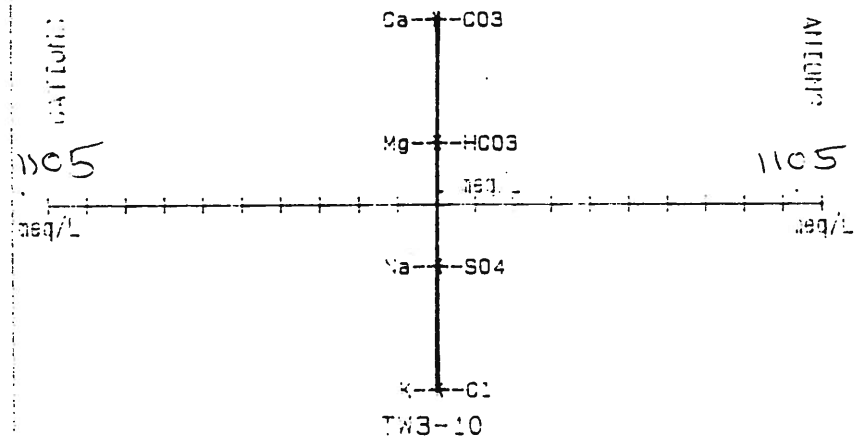
S-5
04/05/94

EC (uS/cm)	30
pH.....	0.00
TDS (mg/L)	19844
TSS (mg/L)	0
Sum (mg/L)	20349



S-6
04/06/94

EC (uS/cm)	28
pH.....	0.00
TDS (mg/L)	21078
TSS (mg/L)	0
Sum (mg/L)	21579



S-7
04/07/94

EC (uS/cm)	27
pH.....	0.00
TDS (mg/L)	29
TSS (mg/L)	0
Sum (mg/L)	27

05/16/94

Report of Water Analysis
Missouri-Souris Projects Office
Soil and Water Laboratory
U. S. Bureau of Reclamation
Bismarck, ND 58501

Approved: 05-16-94 0920

tudy Area: Lake Meredith
scription: Salinity Study

oratory Number 9401328 (S-1)
e ID TW2-1

e Collected 03/30/94
e Collected

eld Data:

eld EC @25C (mmhos/cm) 78.50

or Cations:
lcium (mg/l) 972
gnesium (mg/l) 310
tassium (mg/l) 69.5
dium (mg/l) 22300

or Anions:
kalinity (as CaCO3 mg/l) 534.7 as HCO_3 = 652.3
loride (mg/l) 34820
lfate (mg/l) 3180.0

um mg/L 62304

culated Values:
tal Dissolved Solids (mg/l) 61972
AR 159.50
rdness as mg CaCO3/l 3702.4

OPTIONAL FORM 99 (7-90)
FAX TRANSMITTAL
To Bob Frost
Dept./Agency Chem. Lab
Fax # 303-236-8542
NSN 7540-01-317-7368 5099-101
# of pages ▸ 7
From P. Ivey DF-175
Phone #
Fax #
GENERAL SERVICES ADMINISTRATION

USBR BISMARCK TEL:701-250-4326 Jun 01'94 13:33 No.003 P.01

05/16/94

Approved: 05-16-94

Report of Water Analysis
Missouri-Souris Projects Office
Soil and Water Laboratory
U. S. Bureau of Reclamation
Bismarck, ND 58501

Study Area: Lake Meredith
escription: Salinity Study

aboratory Number 9401331
ite ID TW2-4 (S2)

ate Collected 03/31/94
ime Collected

ield Data:

Field EC @25C (mmhos/cm) 105.00

ajor Cations:

Calcium	(mg/l)	1038
Magnesium	(mg/l)	327
Potassium	(mg/l)	68.9
Sodium	(mg/l)	22400

ajor Anions:

Alkalinity (as CaCO3	mg/l)	524.7
Chloride	(mg/l)	35470
Sulfate	(mg/l)	3170.0

as HCO_3 = 640.1

Sum mg/L 63114

alculated Values:

Total Dissolved Solids(mg/l)	62789
SAR	155.31
Hardness as mg CaCO3/l	3939.5

05/16/94

Approved: [signature] 05-16-94

Report of Water Analysis
Missouri-Souris Projects Office
Soil and Water Laboratory
U. S. Bureau of Reclamation
Bismarck, ND 58501

Study Area: Lake Meredith
escription: Salinity Study

aboratory Number 9401334 (53)
ite ID TW2-7

ate Collected 04/02/94
ime Collected

ield Data:

Field EC @25C (mmhos/cm) 107.90

ajor Cations:

Calcium	(mg/l)	1040
Magnesium	(mg/l)	325
Potassium	(mg/l)	70.0
Sodium	(mg/l)	22100

ajor Anions:

Alkalinity (as CaCO3	mg/l)	531.7
Chloride	(mg/l)	36410
Sulfate	(mg/l)	3170.0

as HCO_3 = 648.7

Sum mg/L 63764

alculated Values:

Total Dissolved Solids	(mg/l)	63434
SAR		153.29
Hardness as mg CaCO3/l		3936.6

USBR BISMARCK TEL:701-250-4326 Jun 01 '94 13:39 No.008 P.03

05/16/94

Approved: Peter Ley 05-16-94

Report of Water Analysis
Missouri-Souris Projects Office
Soil and Water Laboratory
U. S. Bureau of Reclamation
Bismarck, ND 58501

udy Area: Lake Meredith
cription: Salinity Study

oratory Number 9401338 (S-4)
e ID TW3-1

e Collected 04/04/94
e Collected

ld Data:

eld EC @25C (umhos/cm) 31.00

or Cations:

lcium	(mg/l)	403
gnesium	(mg/l)	133
tassium	(mg/l)	35.4
dium	(mg/l)	6413

or Anions:

kalinity (as CaCO3	mg/l)	820.1
loride	(mg/l)	10450
lfate	(mg/l)	1590.0

as HCO_3 = 1000.5

Sum mg/L 20025

culated Values:

tal Dissolved Solids	(mg/l)	19517
R		70.78
rdness as mg CaCO3/l		1554.9

05/16/94

Approved: 05-16-94

Report of Water Analysis
Missouri-Souris Projects Office
Soil and Water Laboratory
U. S. Bureau of Reclamation
Bismarck, ND 58501

tudy Area: Lake Meredith
scription: Salinity Study

oratory Number 9401341 (S-5)
e ID TW3-4

e Collected 04/05/94
ne Collected

eld Data:

ield EC @25C (mmhos/cm) 29.50

jor Cations:

alcium	(mg/l)	397
agnesium	(mg/l)	130
otassium	(mg/l)	34.9
odium	(mg/l)	6744

jor Anions:

lkalinity	(as CaCO3 mg/l)	813.9
hloride	(mg/l)	10470
ulfate	(mg/l)	1580.0

as HCO_3 = 993.0

Sum 7mg/L 20349

lculated Values:

otal Dissolved Solids(mg/l)	19844
AR	75.17
ardness as mg CaCO3/l	1524.6

05/16/94

Approved: [signature], 05-16-94

Report of Water Analysis
Missouri-Souris Projects Office
Soil and Water Laboratory
U. S. Bureau of Reclamation
Bismarck, ND 58501

udy Area:	Lake Meredith		
cription:	Salinity Study		
oratory Number		9401344	(S-6)
e ID		TW3-7	
e Collected		04/06/94	
e Collected			

ld Data:

eld EC @25C	(mmhos/cm)	27.90	
or Cations:			
lcium	(mg/l)	419	
gnesium	(mg/l)	135	
tassium	(mg/l)	34.9	
dium	(mg/l)	6664	
jor Anions:			
kalinity	(as CaCO3 mg/l)	807.3	as HCO_3 = 984.9
loride	(mg/l)	11730	
lfate	(mg/l)	1611.0	
Sum	mg/L	21579	

lculated Values:

tal Dissolved Solids(mg/l)	21078
AR	72.49
rdness as mg CaCO3/l	1600.8

05/ 94

Approved: 05-16-94

Report of Water Analysis
Missouri-Souris Projects Office
Soil and Water Laboratory
U. S. Bureau of Reclamation
Bismarck, ND 58501

Study Area: Lake Meredith
Description: Salinity Study

Laboratory Number		9401337 (S-7)
Site ID		TW3-10
Date Collected		04/07/94
Time Collected		

Field Data:

Field EC @25C	(mmhos/cm)	26.50

Major Cations:

Calcium	(mg/l)	<2
Magnesium	(mg/l)	<2
Potassium	(mg/l)	<0.2
Sodium	(mg/l)	<2

Major Anions:

Alkalinity (as CaCO3	mg/l)	<10.0 as HCO_3 = ∅
Chloride	(mg/l)	23.6
Sulfate	(mg/l)	2.9

Sum mg/L 26.5

Calculated Values:

Total Dissolved Solids(mg/l)	28.9
SAR	0.11
Hardness as mg CaCO3/l	<10.0

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