

1506-00014

WELL CONSTRUCTION AND TESTING

WILSON COMMONS PARK

By

WASHOE COUNTY UTILITY DIVISION

January 1995

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## SUMMARY AND RECOMMENDATIONS

The 8-inch diameter well drilled at Wilson Commons Park could be equipped to pump 250 gallons per minute. At 250 gallons per minute the pump intake should be set at 80 feet below land surface. The maximum expected pumping level would be about 65 feet below land surface. At 25 gallons per minute (current demand) the pumping level in the well will be less than 15 feet below land surface.

The water produced from the well exceeds standards for iron and manganese (see water quality analyses).

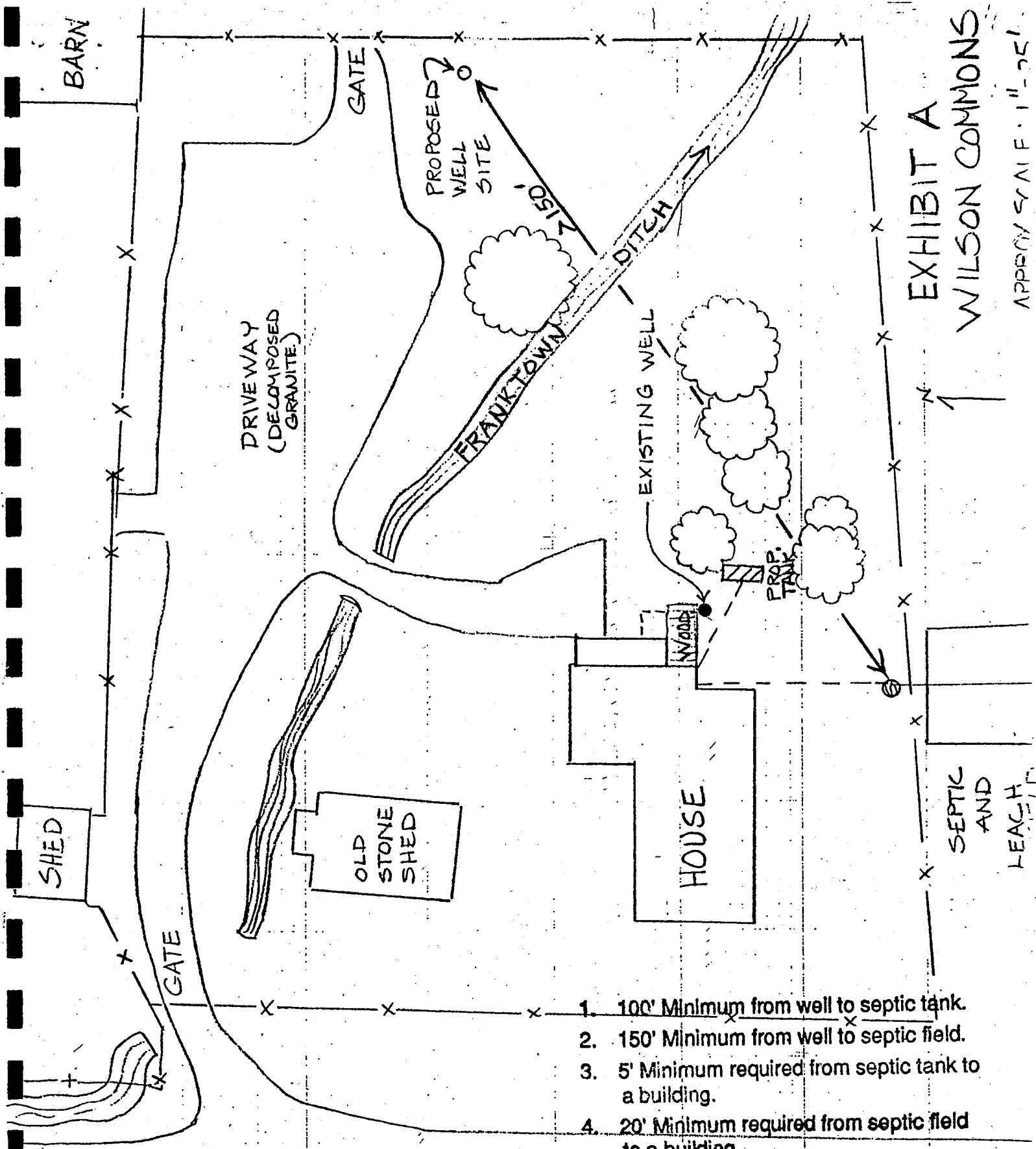


EXHIBIT A  
 WILSON COMMONS  
 APPX SCALE 1" = 25'

1. 100' Minimum from well to septic tank.
2. 150' Minimum from well to septic field.
3. 5' Minimum required from septic tank to a building.
4. 20' Minimum required from septic field to a building.

SUSAN LEE CIRCLE

WASHOE VALLEY  
 NEAR INTERSECTION OF:

WHITE—DIVISION OF WATER RESOURCES  
 CANARY—CLIENT'S COPY  
 PINK—WELL DRILLER'S COPY

STATE OF NEVADA  
 DIVISION OF WATER RESOURCES

OFFICE USE ONLY

Log No. ....  
 Permit No. ....  
 Basin. ....

PRINT OR TYPE ONLY  
 DO NOT WRITE ON BACK

WELL DRILLER'S REPORT

Please complete this form in its entirety in accordance with NRS 534.170 and NAC 534.340

NOTICE OF INTENT NO. ....

1. OWNER Washoe County  
 MAILING ADDRESS P.O. Box 11130  
Reno, NV 89520  
 ADDRESS AT WELL LOCATION Wilson Commons Park in Washoe Valley

2. LOCATION SW  $\frac{1}{4}$  NE  $\frac{1}{4}$  Sec. 10 T. 16 N/S R. 19 F. Washoe County

PERMIT NO. \_\_\_\_\_ Issued By Water Resources Parcel No. \_\_\_\_\_ Subdivision Name \_\_\_\_\_

3. WORK PERFORMED  
 New Well  Replace  Recondition  
 Deepen  Abandon  Other \_\_\_\_\_  
 4. PROPOSED USE  
 Domestic  Irrigation  Test  
 Municipal/Industrial  Monitor  Stock  
 5. WELL TYPE  
 Cable  Rotary  RVC  
 Air  Other \_\_\_\_\_

6. LITHOLOGIC LOG

Material	Water Strata	From	To	Thickness
D.G. Sand		0	5	5
Dark brown & blue clay		5	7	2
Sand w/grey clay		7	20	13
Clay w/sand		20	25	5
Coarse sand w/blue clay		25	30	5
Blue clay w/some sand		30	38	8
Dark blue clay		38	41	3
Sand w/small gravel 10% clay		41	53	12
Sand w/20% clay		53	65	12
Sand w/20% dk brwn clay		65	67	2
Sand		67	70	3
Sand w/20% clay		70	86	16
Medium sand w/some blue clay		86	104	18
Blue sticky clay 40% sand		104	108	4
Sand w/10% clay		108	123	15
Coarse sand w/clay		123	125	2
Blue clay w/5-25% coarse sand		125	132	7
Coarse sand w/small gravel lenses.		132	150	18

8. WELL CONSTRUCTION  
 Depth Drilled 155 Feet Depth Cased 150 Feet  
 HOLE DIAMETER (BIT SIZE):  
 From 15 Inches To 0 Feet 155 Feet  
 \_\_\_\_\_ Inches \_\_\_\_\_ Feet \_\_\_\_\_ Feet  
 \_\_\_\_\_ Inches \_\_\_\_\_ Feet \_\_\_\_\_ Feet  
 CASING SCHEDULE:  

Size O.D. (Inches)	Weight/Ft. (Pounds)	Wall Thickness (Inches)	From (Feet)	To (Feet)
8 5/8	22.36	.250	0	50

 Perforations:  
 Type perforation wire wrap screen  
 Size perforation .050  
 From 50 feet to 150 feet  
 From \_\_\_\_\_ feet to \_\_\_\_\_ feet  
 From \_\_\_\_\_ feet to \_\_\_\_\_ feet  
 From \_\_\_\_\_ feet to \_\_\_\_\_ feet  
 From \_\_\_\_\_ feet to \_\_\_\_\_ feet  
 Surface Seal:  Yes  No Seal Type: \_\_\_\_\_  
 Depth of Seal 50'  
 Cement  Concrete Grout  
 Placement Method:  Pumped  Poured  
 Gravel Packed:  Yes  No  
 From 50 feet to 150 feet

9. WATER LEVEL  
 Static water level 10 feet below land surface  
 Artesian flow \_\_\_\_\_ G.P.M. \_\_\_\_\_ P.S.I.  
 Water temperature NORMAL Quality good

10. DRILLER'S CERTIFICATION  
 This well was drilled under my supervision and the report is true to the best of my knowledge.

Name Humboldt Drilling & Pump Co., Inc.  
 Address P.O. Box 590  
Winnemucca, NV 89446  
 Nevada contractor's license number issued by the State Contractor's Board 015234  
 Nevada driller's license number issued by the Division of Water Resources, the on site driller 1562  
 Signed [Signature]  
 by driller performing actual drilling on site or contractor  
 Date 1-26-95

Date started December 10, 1994  
 Date completed December 17, 1994

7. WELL TEST DATA

TEST METHOD:	G.P.M.	Draw Down (Feet Below Static)	Time (Hours)
<input type="checkbox"/> Bailer <input type="checkbox"/> Pump <input type="checkbox"/> Air Lift	<u>125</u>	<u>19</u>	<u>24</u>



Laboratory  
Analysis Report



Sierra  
Environmental  
Monitoring, Inc.

Date : 1/24/95  
Client : WAS-314  
Taken by: CLIENT-ED EVANS  
Report : 12079  
PO# : 145860

WASHOE COUNTY UTILITY DIV.  
DAN DRAGAN  
P.O. BOX 11130  
RENO NV 89520

Page: 1

Sample	Collected Date / Time	ALKALINITY MG/L CaCO3	COLOR C.U.	PH S.U.	TURBIDITY NTU	TOTAL DISSOL. SOLIDS MG/L	NITRATE-N MG/L
WILSON COMMONS PARK	1/04/95 8:00	868	20	7.52	0.5	158	<0.1N
Sample	Collected Date / Time	ARSENIC AA HYDRIDE MG/L	BARIUM ICP MG/L	CALCIUM MG/L	COPPER MG/L	IRON MG/L	MAGNESIUM MG/L
WILSON COMMONS PARK	1/04/95 8:00	<0.005	0.03	5.1	<0.02	1.1	1.4
Sample	Collected Date / Time	MANGANESE MG/L	POTASSIUM MG/L	SODIUM MG/L	ZINC ICP MG/L	CHLORIDE MG/L	FLUORIDE MG/L
WILSON COMMONS PARK	1/04/95 8:00	0.13	0.95	32	<0.02	1.4	1.8
Sample	Collected Date / Time	HARDNESS, AS CaCO3 MG/LCaCO3	SULFATE MG/L	MBAS MG/L	GROSS ALPHA/ BETA		
WILSON COMMONS PARK	1/04/95 8:00	18.5	0.3	<0.05	YES		

Approved By: 

This report is applicable only to the sample received by the laboratory. The liability of the laboratory is limited to the amount paid for this report. This report is for the exclusive use of the client to whom it is addressed and upon the condition that the client assumes all liability for the further distribution of the report or its contents.

William F. Pillsbury  
President

1135 Financial Blvd.  
Reno, NV 89502  
Phone (702) 857-2400  
FAX (702) 857-2404

John C. Seher  
Manager

20-Jan-95

Page: R-1  
Job: 951032E  
Status: Final

SIERRA ENVIRONMENTAL MONITORING, INC.

Sample Id: (9501-043) Wilson Commons Park  
Lab Id: 951032-1  
Date Sampled: 4-Jan-95  
Project:  
Matrix: Water

Analyte	Fraction	Conc. $\pm$ 2 $\sigma$	
Gross Alpha	Total	2.4 $\pm$ 1.7	pCi/l
Gross Beta	Total	1.5 $\pm$ 1.7	pCi/l

LLD	Date Analyzed
2	01/16-01/18
4	01/16-01/18



DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES  
DIVISION OF WATER RESOURCES

Capitol Complex  
123 W. Nye Lane  
Carson City, Nevada 89710  
(702) 687-4380  
November 23, 1994

R-238

Charlie Eppler  
HUMBOLDT DRILLING  
P.O. Box 590  
Winnemucca, NV 89446

RE: Letter received November 16, 1994, requesting to waive the regulations requiring that the domestic replacement well have a 100 foot sanitary seal when near a body of water (Stream, ditch, pond, lake, etc.). Well to be located at the NEW WASHOE COUNTY PARK on Susan Lee Circle in Washoe Valley, Washoe County, NV. Local No.: 089 N16 E19 10AC.

Dear Mr. Eppler:

As provided in Section 534.450 of the Regulation for Water Well and Related Drilling as adopted under Chapter 534 of the Nevada Administrative Code, and for good cause shown, authorization is herewith granted to complete the subject well as described below:

This office waives only NAC Section 534.390 paragraph 1. The well driller report must bear the waiver number R-238 and the application/permit number.

Full compliance with the remainder of the statute and regulation is required. Please include as accurate a description as possible of the location of each well on the completion reports. It is expressly understood this authorization does not relieve the operator of the permitting requirements of other state, federal and local agencies.

If any questions arise please contact this office at 702-687-4380.

Sincerely yours,

Handwritten signature of George G. Jackson in cursive.

George G. Jackson, P.E.  
Hydraulic Engineer II

GGJ/jjs

*Fax to Dan Dragon  
856-7310*



WILSON COMMONS PARK WELL

JANUARY 1995

AS-CONSTRUCTED DIAGRAM

DEPTH  
(ft)

20

40

60

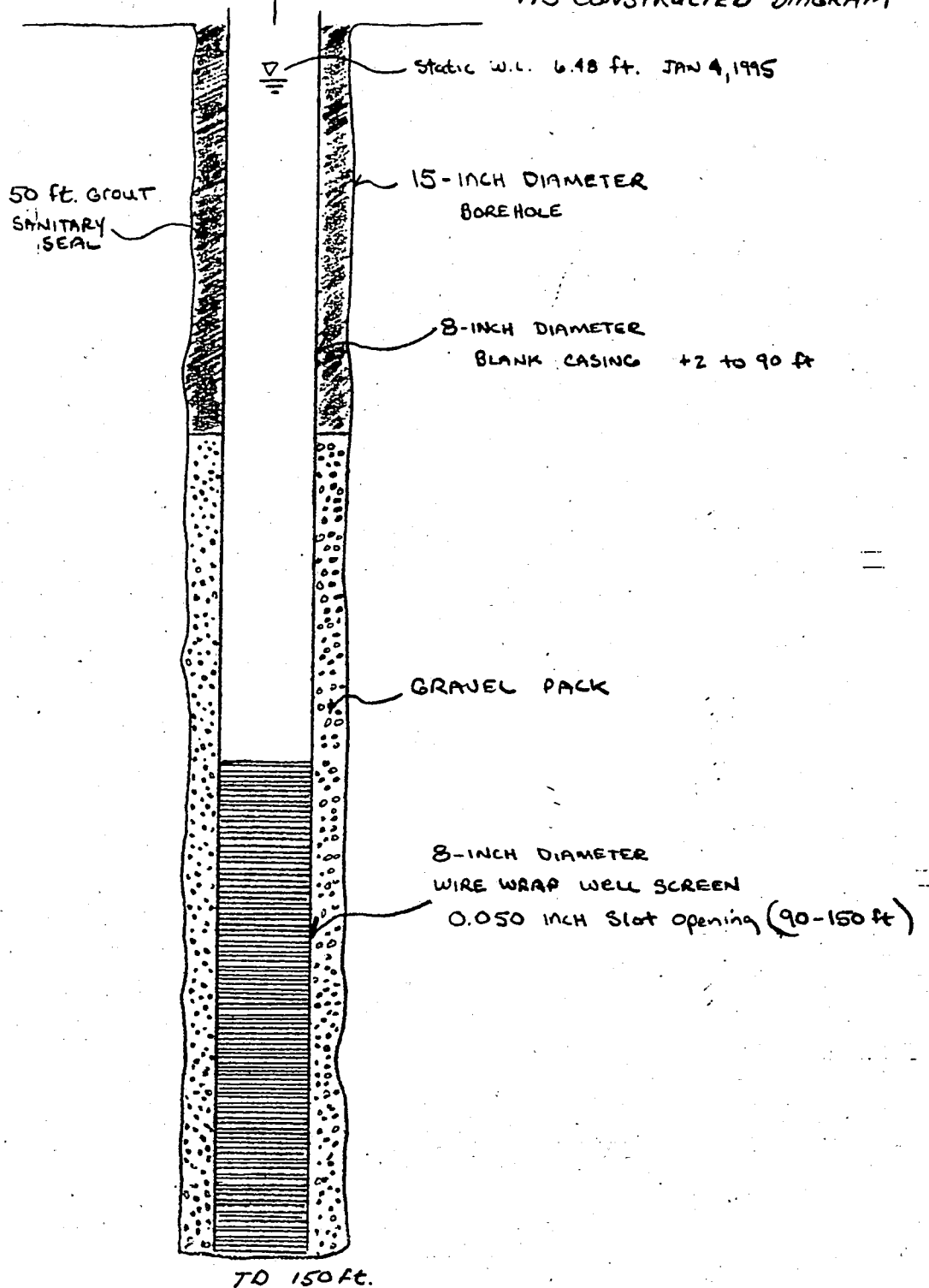
80

100

120

140

160





# WASHOE COUNTY

DEPARTMENT OF PUBLIC WORKS  
UTILITY DIVISION

## PUMPING TEST DATA

WELL WILSON COMMONS  
PUMPING/OBSERVATION WELL  
PUMPING/RECOVERY DATA  
PAGE 1 OF 1

TYPE of PUMPING TEST STEP DRAWDOWN TEST

HOW Q MEASURED FLOWMETER

M.P. for WL's TOP 1/4 STEEL TUBE elev. \_\_\_\_\_

HOW WL's MEASURED SOLINST SOUNDER

DEPTH of PUMP/AIRLINE 105' wrt \_\_\_\_\_

PUMPED WELL NO. \_\_\_\_\_

% SUBMERGENCE: initial \_\_\_\_\_; pumping \_\_\_\_\_

RADIUS of PUMPED WELL \_\_\_\_\_

PUMP ON: date 12/30/94 time 0825

DISTANCE from PUMPED WELL \_\_\_\_\_

PUMP OFF: date 12/30/94 time 1235

TIME				WATER LEVEL DATA					WATER PRODUCT.		COMMENTS
CLOCK TIME	ELAPSED TIME			t/t'	READING	CONVERSIONS or CORRECTIONS	WATER LEVEL	Sors'	Q/s	Q (cfs)	(NOTE ANY CHANGES IN OBSERVERS)
	mins	hrs	t'								
0825			0							25	12/29/94 TOTALIZER: 807100
0832			7		8.84			2.36			GEN HRS 12/29: 2269.4
0835			10		8.74			2.26			GEN HRS 12/30: 2276.9
0845			20		8.76			2.28			QT
0855			30		8.92			2.44			GEN HRS 12/30: 2281.5
0905			40		9.21			2.73			
0915			50		9.26			2.78	8.99		
						STEP II				50	
0920			55	5	11.22			4.74			
0925			60	10	11.50			5.02			
0935			70	20	11.82			5.34			
0945			80	30	12.02			5.54			
0955			90	40	12.31			5.83			
1005			100	50	12.40			5.92	8.44		
						STEP III				75	
1010			105	5	14.69			8.21			
1015			110	10	14.95			8.47			
1025			120	20	15.23			8.75			
1035			130	30	15.46			8.98			
1045			140	40	15.66			9.18			
1055			150	50	15.81			9.33	8.04		
						STEP IV				100	
1100			155	5	17.35			10.87			
1105			160	10	17.63			11.15			
1115			170	20	18.28			11.80			
1125	3		180	30	18.61			12.13			
1135			190	40	18.83			12.35			
1145			200	50	19.60			12.52	7.99		
						STEP V				125	
1150			205	5	20.15			13.67			
1155			210	10	20.86			14.38			
1205			220	20	21.54			15.06			
1215			230	30	21.85			15.37			
1225			240	40	22.06			15.58			
1235			250	50	22.24			15.76	7.93		

DRAWDOWN (FE)

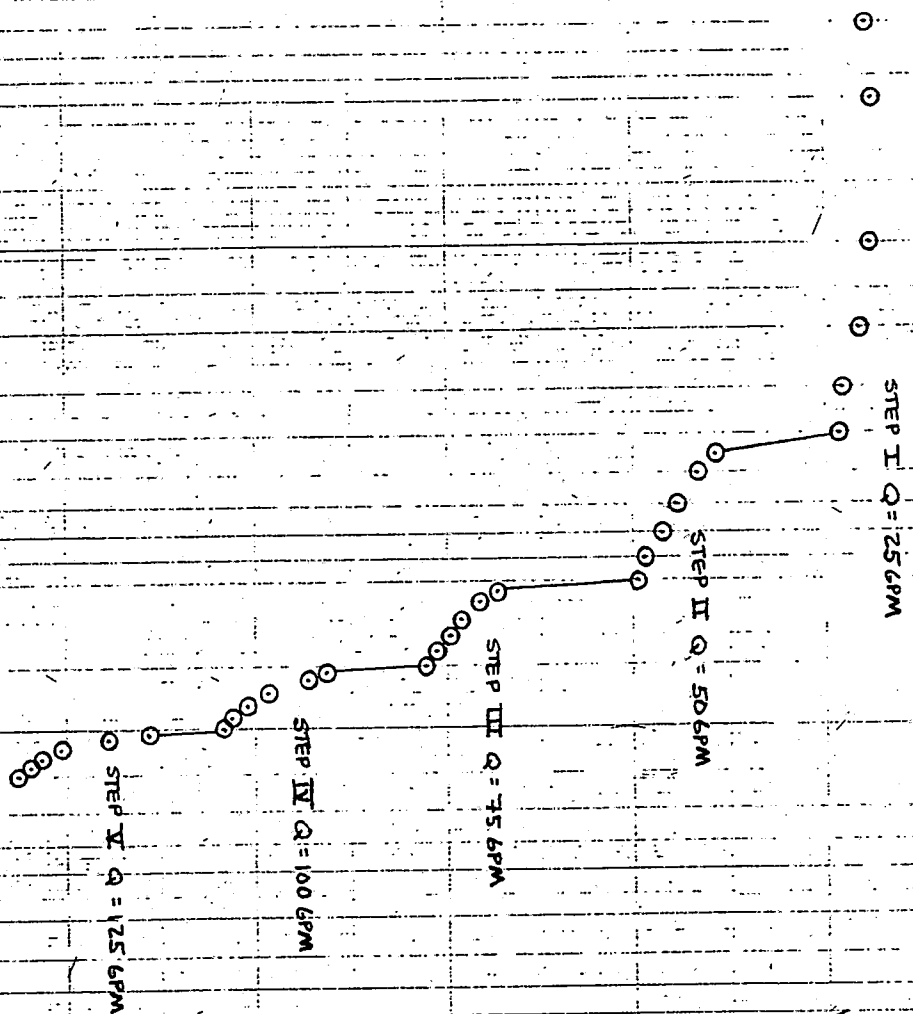
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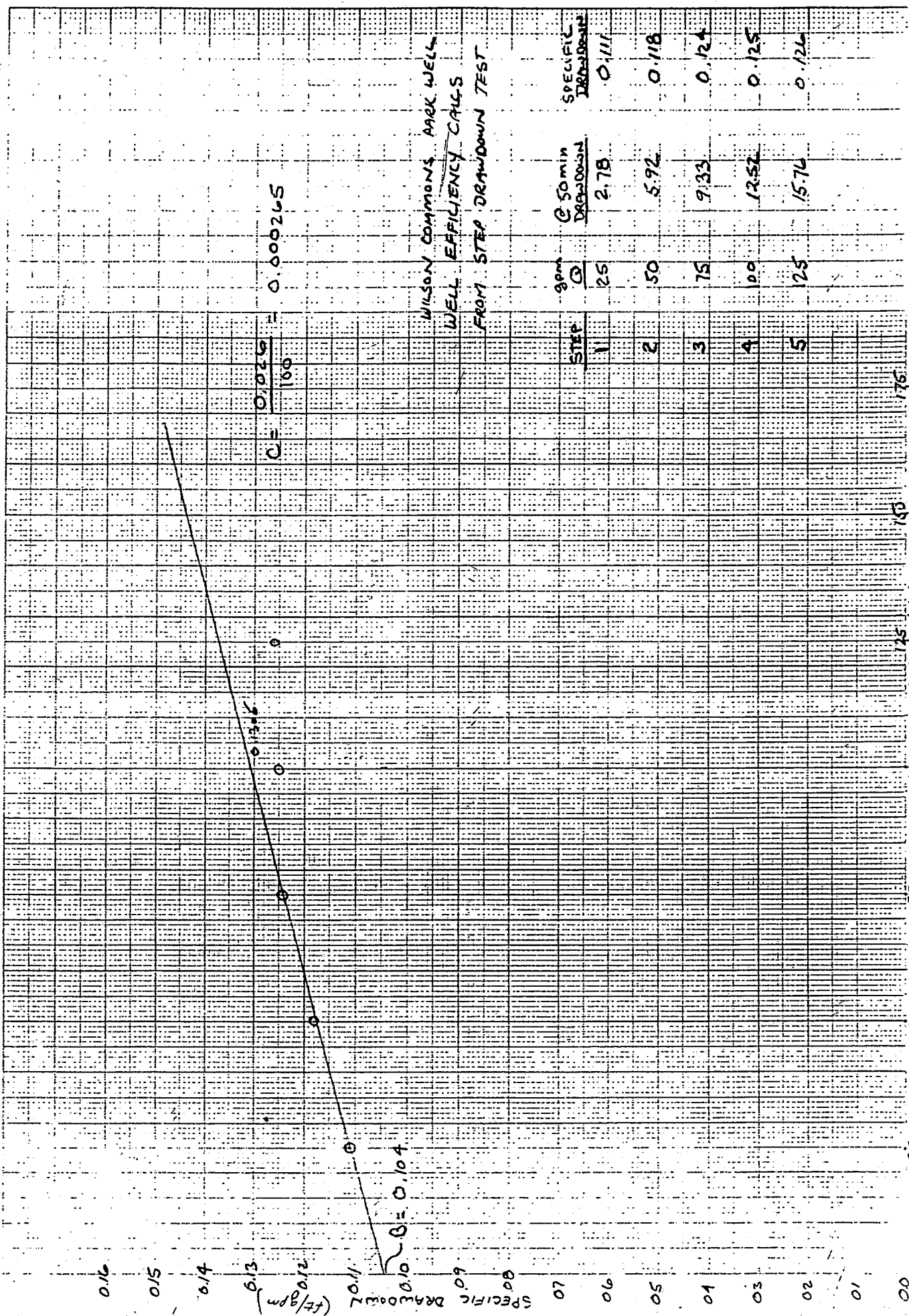
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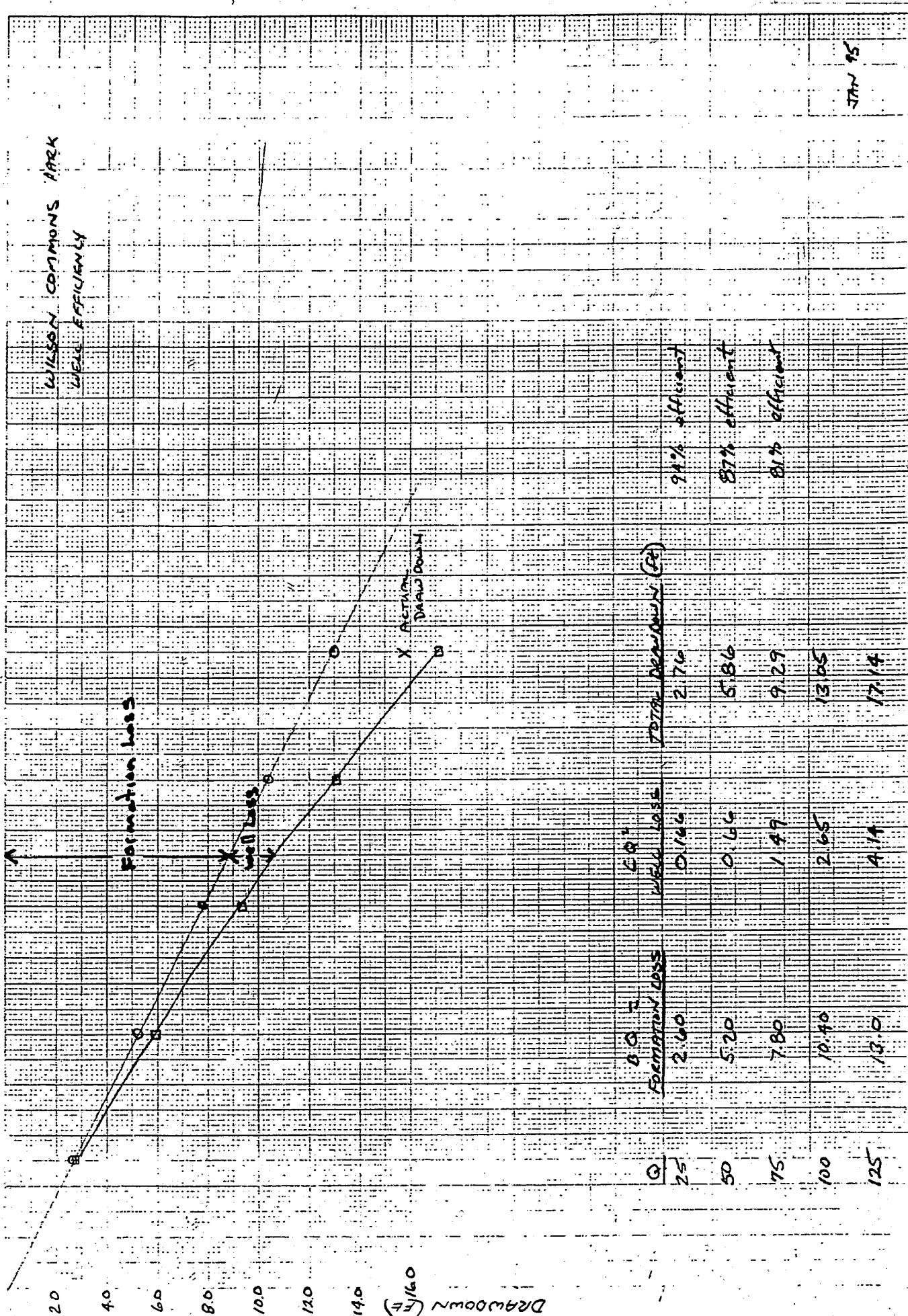
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21



WILSON COMMONS PARK WELL  
STEP DRAWDOWN TEST  
12/30/94





WILSON COMMONS ARK  
WELL EFFICIENTLY

FORMATION LOSS

WELL LOSS

ACTUAL DRAWDOWN

Q	FORMATION LOSS	WELL LOSS	TOTAL DRAWDOWN (ft)	Efficiency
25	2.60	0.166	2.76	94% efficient
50	5.20	0.66	5.86	87% efficient
75	7.80	1.49	9.29	81% efficient
100	10.40	2.65	13.05	
125	13.0	4.14	17.14	

JAN 95



# WASHOE COUNTY

DEPARTMENT OF PUBLIC WORKS  
UTILITY DIVISION

## PUMPING TEST DATA

WELL WILSON COMMONS PARK

PUMPING / OBSERVATION WELL  
PUMPING / RECOVERY DATA  
PAGE 1 OF 2

TYPE of PUMPING TEST CONSTANT Q DISCHARGE

HOW Q MEASURED FLOWMETER

M.P. for WL's TOP SOUNDING TAP elev. \_\_\_\_\_

HOW WL's MEASURED SOUNDING SOUND

DEPTH of PUMP/AIRLINE \_\_\_\_\_ wrt \_\_\_\_\_

PUMPED WELL NO. \_\_\_\_\_

% SUBMERGENCE: initial \_\_\_\_\_; pumping \_\_\_\_\_

RADIUS of PUMPED WELL \_\_\_\_\_

PUMP ON: date 1/3/95 time 1010

DISTANCE from PUMPED WELL \_\_\_\_\_

PUMP OFF: date \_\_\_\_\_ time \_\_\_\_\_

TIME					WATER LEVEL DATA				WATER PRODUCT.		COMMENTS
CLOCK TIME	ELAPSED TIME		t/t'	READING	CONVERSIONS or CORRECTIONS	WATER LEVEL	ft/s'	Q	Q	(NOTE ANY CHANGES IN OBSERVERS)	
	mins	hrs									t
1001	/	/	1							FLOWMETER BRUKE	
1010	/	/	0	5.78						ESTIMATING FLOW	
	/	/	1	13.50			7.72			TRYING FOR 110 gpm	
1012	/	/	2	14.94			9.16			CLOSING VALVE.	
1013	/	/	3	15.66			9.88				
1014	/	/	4	16.00			10.22				
1015	/	/	5	16.40			10.62				
1016	/	/	6	16.60			10.82				
1017	/	/	7	16.84			11.06				
1018	/	/	8	16.92			11.14				
1019	/	/	9	17.10			11.32				
1020	/	/	10	17.26			11.48			QL	
1022	/	/	12	17.48			11.70				
1024	/	/	14	17.70			11.92				
1026	/	/	16	17.96			12.18			QL	
1028	/	/	18	18.10			12.32				
1030	/	/	20	18.26			12.48				
1035	/	/	25	18.64			12.86				
1040	/	/	30	18.96			13.18				
1045	/	/	35	19.20			13.42				
1050	/	/	40	19.48			13.70				
1055	/	/	45	19.66			13.88			QT VALVE WIDE OPEN	
1106	/	/	56	20.26			14.48				
1115	05	/	65	20.60			14.82				
1130	20	/	80	20.97			15.19				
1145	36	/	95	21.32			15.54			Q = 120 scf Q/s = 7.7 Q = 125 scf Q/s = 8.04	
1200	50	/	110	21.59			15.81			Q/s = 7.9 : Q = 123 gpm	
1220	10	2	130	21.92			16.14			20 psi	
1240	30	2	150	21.66			15.88			Qt to 30 psi	
1300	50	2	170	21.84			16.06				
1310	0	3	180	21.94			16.16				
1330	20	3	200	22.06			16.28				
1350	40	3	220	22.30			16.52				
1410	0	4	240	22.45			16.67				
1430	20	4	260	22.54			16.76				
1450	40	4	280	22.66			16.88				
1510	0	5	300	22.78			17.00				
1530	20	5	320	22.91			17.13				



# DRAWDOWN (ft)

30

25

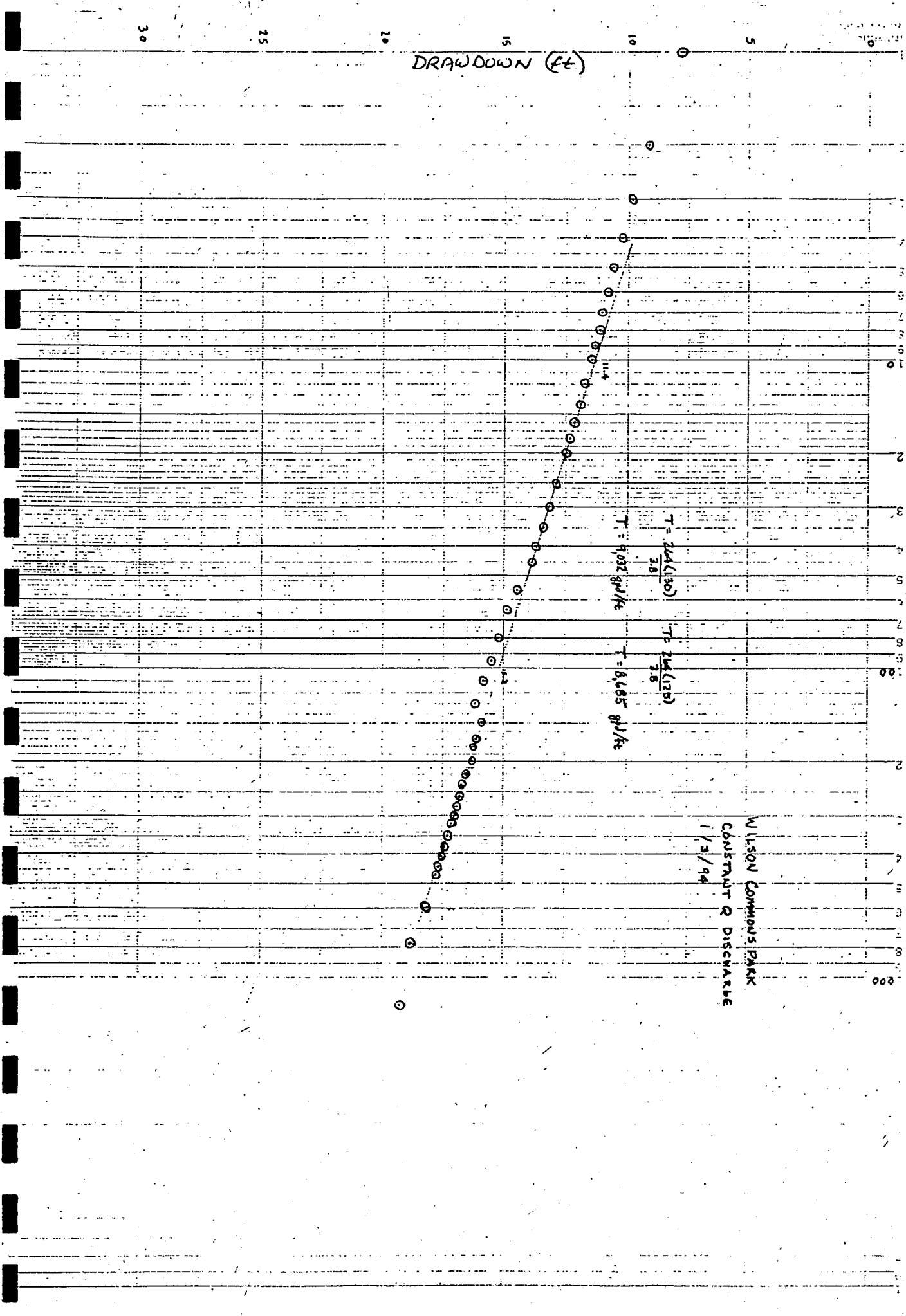
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15

10

5

0







# WASHOE COUNTY

DEPARTMENT OF PUBLIC WORKS  
UTILITY DIVISION

## PUMPING TEST DATA

WELL Wilson Common 5  
PUMPING/OBSERVATION WELL  
PUMPING/RECOVERY DATA  
PAGE 1 OF       

TYPE of PUMPING TEST Constant Q - Recovery

HOW Q MEASURED \_\_\_\_\_ M.P. for WL's \_\_\_\_\_ elev. \_\_\_\_\_

HOW WL's MEASURED electric sounder - Solinst DEPTH of PUMP/AIRLINE \_\_\_\_\_ wrt \_\_\_\_\_

PUMPED WELL NO. \_\_\_\_\_ % SUBMERGENCE: initial \_\_\_\_\_; pumping \_\_\_\_\_

RADIUS of PUMPED WELL \_\_\_\_\_ PUMP ON: date 1/3/94 time 1010

DISTANCE from PUMPED WELL \_\_\_\_\_ PUMP OFF: date 1/4/94 time 0800

TIME t = 1/310 at t' = 0					WATER LEVEL DATA STATIC WATER LEVEL 5.78				WATER PRODUCT.	COMMENTS
CLOCK TIME	ELAPSED TIME		t/t'	READING	CONVERSIONS or CORRECTIONS	WATER LEVEL	S or S'	Q	(NOTE ANY CHANGES IN OBSERVERS)	
	mins	hrs								
0759		1309	-	-	25.14		19.36		GEN WKS 2304.3	
0801		1311	1	1311	16.79		11.01			
0802		1312	2	656	16.14		10.36			
		1313	3	498	15.66		9.88			
		1314	4	329	15.34		9.56			
0805		1315	5	263	15.07		9.29			
		1316	6	219	14.83		9.05			
		1317	7	188	14.59		8.81			
		1318	8	165	14.44		8.66			
		1319	9	147	14.30		8.52			
0810		1320	10	132	14.10		8.32			
		1325	15	88	13.49		7.71			
0820		1330	20	66.5	13.15		7.37			
0830		1340	30	44.7	12.44		6.66		66% recovery	
0840		1350	40	33.8	11.98		6.20			
0850		1360	50	27.2	11.68		5.90			
0900		1370	60	22.8	11.34		5.56		71.3% recovery	
0910		1380	70	19.7	11.19		5.41			
0920		1390	80	17.4	10.87		5.09		73.7% recovery	
0930		1400	90	15.6	10.69		4.91			
0945		1415	105	13.5	10.43		4.65		76.0% recovery	
1000		1430	120	11.9	10.22		4.44			
1020		1450	140	10.4	9.95		4.17		78.5% recovery	
1040		1470	160	9.2	9.76		3.98			
1100		1490	180	8.3	9.56		3.78		80.5% recovery	
1120		1510	200	7.55	9.32		3.54			
1150	40	25	1540	230	6.70	9.14	3.36			
1415		1685	375	4.5	8.42		2.64			
1900		2090	780	2.7	7.58		1.80			
0745		2376	1426	1.7	6.65		0.87			