

WELL-SPRING INTERFERENCE
PROBLEM, T18N/R20E-29,
Klickitat County, Washington

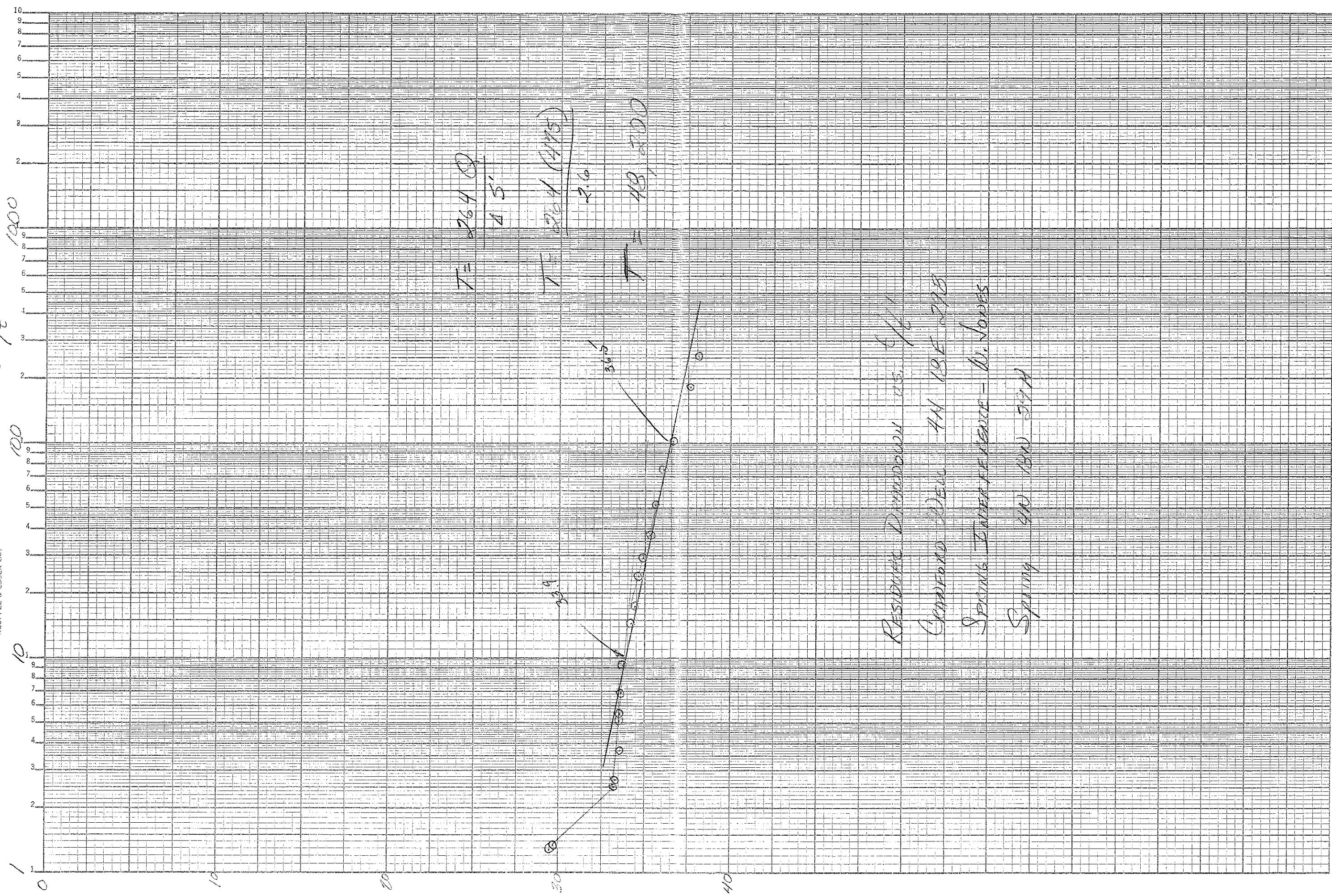
by E.A. Nemecek

April 7, 1977

Open-File Technical Report 77-05

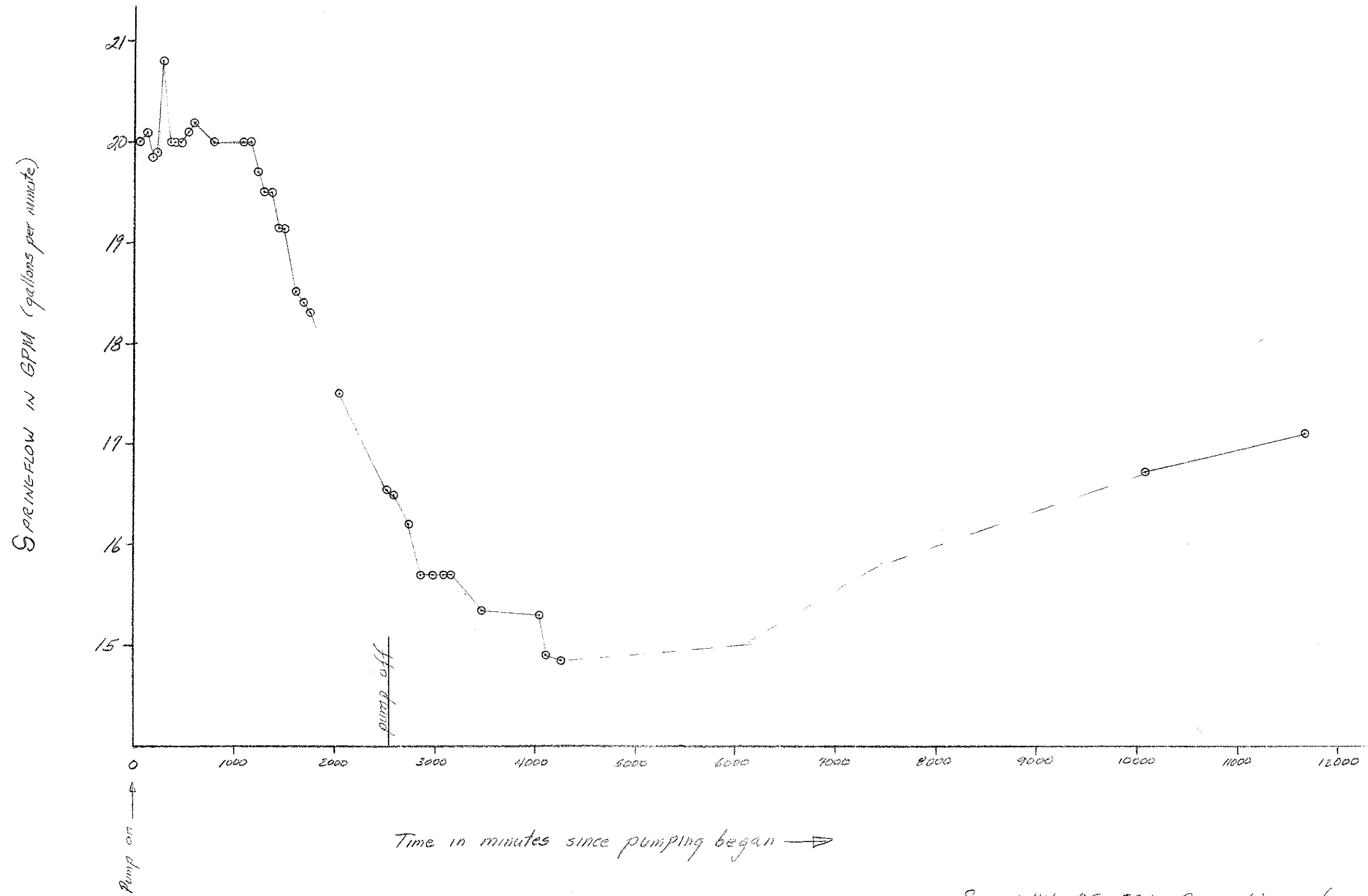
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Ratio t/t'



RESIDUAL DIMENSION $115. 6/16''$
 CHAFFORD WELLS 4N 19E R1B
 SPRING INTERFERENCE - Mr. Jones
 Spring 4N 18W 24N

(24) 11/11/1917



SPRINGFLOW VS TIME

Spring: 4N 18E 29A Owner: Walter Jones
 Well: 4N 18E 29B Owner: Kent Cranford
 Well pumped 42 hrs 10 mins. MAR. 15-17, 1997

M E M O R A N D U M

April 7, 1977

State of
Washington
Department
of Ecology



To: Howard Powell

From: E. A. Nemecek

Re: Well-Spring Interference Problem; T18N, R20E,
Section 29, Klickitat County

A test of the well-spring relationship was conducted on March 15-17, 1977. The well (Sec. 29B) was pumped for forty-two hours and ten minutes at an average discharge of 475 gallons per minute. The spring (Sec. 29B) is approximately 1800 NE of the well. The discharge of the spring was monitored before, during and after the well was pumped.

Approximately twenty hours after pumping began a decline in spring flow was noted. This decline in flow continued approximately 28 hours beyond when the well ceased to pump. The spring flow began to recover sometime after that at a much slower rate than it had declined most probably indicating pumpage was from a limited system. Water level recovery in the well tends to confirm this.

Springflow dropped from approximately 20 gallons per minute to a measured minimum of 14.85 gallons per minute. See the enclosed graph for details. Further analysis of the springflow data by a different method supports the conclusion that the springflow is related to pumping the well, that is, pumping the well has a negative effect on the flow from the spring.

EAN:ee



Owner KEITH CRANFORD Location AN 18E 29 B Well No. _____
 Date MAR 17 Meas. by E. NEMECER Test RECOVERY County KLIKITAT
 Meas. point -3.4 FT CORRECTION* Elev. Meas. Point 1640⁺ FROM TOPO
FROM DAY BEFORE
 Meas. equipment ELEC SOUNDER STEEL TAPE ATTACHED
 DTW 86.8 STATIC t₀ _____ Q _____ r _____
 Will attempt to measure recovery thru column pipe

Date	Hour	Water level			* s CORRECTED	t	$\frac{1440r^2}{t}$ t'	REMARKS WISH ME LUCK! z/z'
		Held	Wet	Depth (DTW)				
MAR 17	0700			PUMP OFF		2530		
"	0710				38.05	2540	10 254	
"	0714				37.6 36.6	2544	14 182	
MAR 22	0725				36.6	2555	25 102	
"	0734				36.2	2564	34 75.4	
"	0750				35.6	2580	50 51.6	
"	0810				35.3	2600	70 37.1	
"	0830				34.95	2620	90 29.1	
"	0850				34.7	2640	110 24.0	
MAR 23	0935				34.4	2685	155 17.3	
"	1007				34.25	2717	187 14.5	
"	1210				33.15	2840	310 9.2	
"	1408				33.70	2958	428 6.9	
"	1619				33.60	3089	559 5.5	
"	1717				33.55	3147	617 5.1	
"	2240				33.55	3470	940 3.7	
MAR 18	0800			2.7	33.30	4030	1500 RECOVERY EXTREMELY SLOW	
"	1145			2.5	33.25	4255		
MAR 22	1300			1.33	29.70	10090	3.55 FEET IN 4 DAYS	
MAR 23	1520			1.28	29.45	11670	.25 FEET IN 26 HRS.	

MAR 22
 119.9
 - 3.4 corr
 116.5
 86.8 static
 29.7

MAR 23
 119.65
 3.4
 116.25
 86.8
 29.45



Owner CRAFORD Location NW 1/4 NE 1/4 Sec 27 Well No. TUNIR 186WM
 Date 3-15-77 Meas. by M. BERRY Test _____ County KLUCKITAN
 Meas. point 1620' MSL Elev. Meas. Point 1620' MSL
 Meas. equipment 2 TAPE - 5 FT. CORRECTION FOR ACTUAL DRAWDOWN
 DTW: 86.8 SWL to 0 Ave = 475 r 6PM

Date	Hour	Water level			s	t	1440r2 t	Remarks
		Held	Wet	Depth (DTW)				
Mar 15 77	1250			86.8	86.8		STATIC	
	1253				5.1			
	1254				5.1			
	1255				4.9			
	1256				4.9			
	1257				4.75			
	1258				4.75			
	1259				4.75			
	1:00				4.77			
	1:01				4.70			
	1:02				4.72			
	1:03				4.75			
	1:04							
	1:05							
	1:08				4.75			
UNABLE TO MEASURE DRAWDOWN. MOST PROBABLY DUE TO WELL CONSTRUCTION. 10" CSNG TO 83' THEN 15' GAP THEN 8" CSNG WITH LARGE COLUMN PIPE. SIMPLY CANNOT GET PROBE INTO 8" BECAUSE OF OFFSET AND SMALL GAP. DISCHARGE MEASURED BY TRAJECTORY METHOD AS 434 GPM.								
EAN								

T.C. 132.6 = 0
 DISCHARGE MEASURED BY TRAJECTORY METHOD

132.6
 86.8
 219.4



AQUIFER TEST

Owner WALTER JONES Location 4N 18E 29A Well No. SPRING
 Date MAR 15 77 Meas. by M. BEER, F. NEMPOEK Test WELL - Spring County Klickitat
 Meas. point 2" PIPE Elev. Meas. Point -130 FEET (SD @ WEL)
HAND LEVEL AND REOSURVEY
 Meas. equipment 5 GALLON BUCKET, STOPWATCH, 3 MEASUREMENTS THEN
AVERAGE SECONDS
 DTW 0 to 0 0 r
SPRING LOCATED 130 FT. BELOW AND 18000 FT. NE OF WELL

Date	Hour	Water level		Depth (DTW)	5 gallons	AVE. SECONDS	1440t ² Q	Remarks
		Head	Wet					
t MAR 15 77	1216				14.5 14.0 15.0	14.5	20.7	9pm
"	1250	PUMP ON						Possibly
44	"	1334			15.0 15.0 15.0	15.0	20.0	9pm
117	"	1447	WELL Q = 434 gpm by TRAJECTORY METHOD		15.0 14.8 14.9	14.9	20.1	9pm
175	"	1545			15.0 15.0 15.0	15.1	19.85	9pm
218	"	1620			15.0 15.0 15.2	15.07	19.90	9pm
292	"	1742			14.4 14.4 14.4	14.4	20.80	
343	"	1833			15.0 15.0 15.0	15.0	20.0	9pm
396	"	1926			3/15.0	15.0	20.0	9pm
408	"	1936	17" x 29" =		493.6 GPM			WELL Q TRAJECTORY METHOD
450	"	2020			3/15.0	15.0	20.0	
520	"	2130			15.4 15.0 14.5	14.9	20.1	
595	"	2245			14.8 14.8 15.0	14.8	20.2	
797	MAR 16	0207			14.8 15.0 14.9	15.0	20.0	
1045	"	0645			3/15.0	15.0	20.0	
1150	"	0800			14.7 15.2 15.0	15.0	20.0	
1205	"	0950			15.4 15.0 15.2	15.2	19.70	
1285	"	1015			15.0 15.0 15.0	15.4	19.5	
1350	"	1120			15.0 15.0 15.0	15.4	19.5	
1360	"	1130	16 1/2" x 29" = 478 GPM		WELL Q TRAJECTORY			
1420	"	1230			15.5 15.5 15.0	15.67	19.15	
1490	"	1340			15.4 15.6 15.0	15.67	19.15	
1500	"	1350	16 1/2" x 29" = 478 GPM					



Owner WALTER JONES Location 4N 18E 39A Well No. SPRING
 Date MAR 15-16 Meas. by E. NEMECER Test Well - Spring County Klickitat
 Meas. point 2" PIPE Elev. Meas. Point -130 FT. WELL DATUM
 Meas. equipment STOPWATCH, 5 GAL. BUCKET, 3 MEASUREMENTS / LOGICAL SECONDS
 DTW o t o Q r

Date	Hour	Water level		Depth (DTW)	5 GAL. SECONDS	AVERAGE SECONDS	140.2 + 2.90m	Remarks
		Held	Wet					
1600	MAR 16	1530			3/16.2	16.2	18.5	
1650	"	1630	16" x 29"	4770 GPM	16.2 16.2 16.4	16.3	18.4	WELL Q
1690	"	1700			17.2 17.2 17.3	17.1	17.5	
1940	"	1750			18.5 18.5 18.0	18.2	16.5	
2025	"	2235			18.4 18.4 18.6	18.5	16.2	
2035	"	2245	17" x 29" =	493 GPM	18.8 18.8 19.0	19.5	15.35	WELL Q
2515	MAR 17	0645			19.4 19.4 19.4	19.6	15.30	
2525	"	0655	16" x 29" =	435 GPM	20.0 20.0 20.1	20.1	14.9	WELL Q
2530	"	0700	PUMP OFF		20.4 20.4 20.4	20.2	14.85	
2590	"	0800			18.0 18.0 18.0	18.0	16.7	MAR 19 6100 min 15 gpm MAR 20 7450 15.8 gpm
2705	"	0955			17.4 17.4 17.4	17.5	17.1	
2850	"	1220						
2970	"	1420						
3080	"	1610						
3140	"	1710						
3460	"	2230						
4040	MAR 18	0810						
4150	"	0910						
4250	"	1140						
10075	MAR 22	1245						
11650	MAR 23	1500						

1800

Galdendale Wm
March 23 - 1977

C. L.

Here are the measurements on spring

March 19	6:30 P.M.	- 30 Sec.	- 3 trial buckets
" 20	4 P.M.	- 19 Sec	- " " "
22	10 A.M.	- 18 Sec	- " " "
23	9:45 A.M.	- 17 1/2 Sec	- " " "

I'll check it in a couple of days to see if there is any more difference.

I really believe that if the pumps were started again for another 24 or 36 hrs there would be a real drop in flow of water at spring.

I believe it should be checked out real good as the place is being sold again depending on the outcome of the well having a definite effect on the flow of the spring. As I understand it the new owners would like to irrigate possibly 80 acres and I am sure the spring will dry up again.

Hope to see you again.

Best Regards

Shelton M Jones

Rt 1 Box 260

Galdendale Wm 98620

Phone (509) 773-5388 - evenings

FEB 11, 1977 E.A.N. @ WALTER JONES SPRING 4N/18E 29 A(2)

SPRING LOCATED left bank side (west) of gully near head. 30-40 feet below rim, 100 ft. N of head of gully. Small seep (2.5 gpm) located 50 feet E. Flow of spring approx. $\frac{16.7}{25}$ gpm (5 gal bucket) 18 secs. Probably @ bottom of 30-50 foot basalt flow.

REITH CRANFORD Rt 1
Box 261, Goldendale

WELL ON NOSE OF SMALL LOBE (HILL?) 1/2 mile ± N of BARN SHOWN ON TOPO. ELEV OF WELL SITE FROM TOPO 1600 feet ± 20 feet. See SKETCH FOR DISTANCES (PALED). CASCADING WATER IN WELL. DOESN'T SOUND LIKE MUCH, PERHAPS A FEW GPM.

Walter M Jones - Route 1, Box 260, Goldendale
Mr. Jones 509-773-5380 98620

Well appears to AFFECT SPRING -

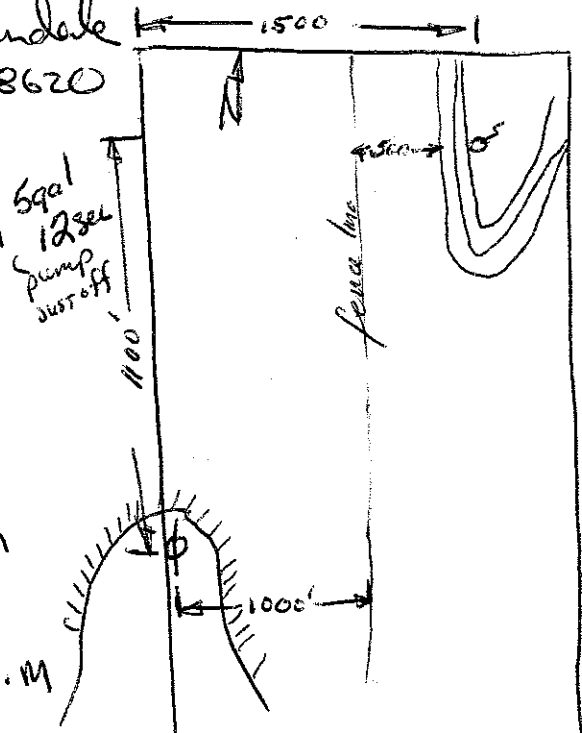
from WALTER JONES NOTES June 5, Pump on June 7, 1976 7 P.M.

*next page

30 gpm 180m Spring 5 gal in 10 seconds June 8 8 A.M.

24 gpm 120m June 9 8. A.M Pump still on Spring 5 gal 12.5 secs.

June 10 Pump still on 8.30 A.M cont.



cont.

3690m 22.2 gpm Spring 5 gal 13 1/2 secs

June 11 Pumped continuously since June 7

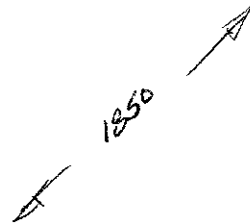
355m 20 gpm June 11 7:15 A.M. 5 gal 15 secs

5790 pump off June 12 7:30 Pump off - time unknown (probably evening)

6510m 18.8 gpm before) S Spring 5 gal in 16 seconds

* June 2 (morning pump on) 5 gal / 8 secs. }

+ Spring



1100

+ WELL

1500

+