

UNITED STATES
 DEPARTMENT OF THE INTERIOR
 GEOLOGICAL SURVEY

 File No. { Washington
 District

 N. LIBERTY
 7-10-76.

 MSTEEN-1545790
~~1545150~~

MP=30

TIME Hr	MIN	HOLD	± FT	WL	DD	GPM	TF					
		94.00	4.66	89.40								TAPPE
9:35		90.00	-0.86	89.14								ELEC
10:55		94.00	4.57	89.43								
		90.00	0.83	89.17								
7:24:70												
8:35		90.00	0.26	89.74								TAPPE
8:45		92.00	2.27	89.73								
8:55		92.00	2.28	89.72								
9:15		74	4.28	89.72								TAPPE
9:15		90.00	-0.71	89.29								ELEC line
9:20												PUMP ON
	1	130	+1.9									
10:05		210.0	+0.95									OMIT
												PUMP OFF 10 MIN
11:00		120.00	-0.6	119.4	?							ELEC LINE
												PUMP OFF
11:45		95.00	+1.00	96.00	?							
11:46												PUMP ON
11:50												PUMP OFF TO PUT VALVE IN
11:55		180.0	+1.50	181.2	91.48							
NOON	5	180.00	+0.25	180.25	91.53							
12:05	10	190.00	-0.90	189.9	100.18	55						
12:10	15	190.00	+0.80	190.8	101.08	50						
12:15	20	190.0	+1.16	191.1	101.38							
12:20	25	190.0	+1.45	191.45	101.73							
12:30	35	190.0	+1.40	191.40	101.68	50						
12:40	45	190.0	+1.45	191.45	101.73							
12:50	55	190.00	+2.20	192.20	102.48	50						
1:00	65	190.00	92.53	192.53	102.81							
1:15	80	190.00	+2.73	192.73	103.01	50						
1:30	95	190	+2.70	192.70	102.98							570

 Pump set @ 370'
 PLOT DD STAGE VS DD DISCHARGE

N. LIBERTY PUMPING TEST

JULY 29 1970

TIME	MIN	HOLD	± FT	W/L	D/D	GPM					
7:24	70										
8:35		90.00	-0.26	89.74				TAPE	MEAS.		
8:45		92.00	-2.27	89.73				"	"		
8:55		92.00	-2.28	89.72				"	"		
9:15		94.00	-4.28	89.72				"	"		
9:15		90.00	-0.71	89.29				Electric line			
9:20						Between 100-150		PUMP	ON		
	1	130.00	+1.90	131.90							
10:05								PUMP	OFF		
11:00		120.00	-0.60	119.40							
11:45		95.00	+1.00	96.00							
11:46								PUMP	ON		
11:50								PUMP	OFF	To PUT VALVE IN DISCHARGE LINE	
11:55		180.00	+1.20	181.20	91.48			PUMP	ON		
NOON	5	180.00	+0.25	180.25	91.53						
12:05	10	190.00	-0.90	189.90	100.18	52					
12:10	15	190.00	+0.80	190.80	101.08	50					
12:15	20	190.00	+1.10	191.10	101.38						
12:20	25	190.00	+1.45	191.45	101.73						
12:30	35	190.00	+1.40	191.40	101.68	50					
12:40	45	190.00	+1.45	191.45	101.73						
12:50	55	190.00	+2.20	192.20	102.48	50					
1:00	65	190.00	+2.53	192.53	102.81						
1:15	80	190.00	+2.73	192.73	103.01	50					
1:30	95	190.00	+2.70	192.70	102.98			WATER TEMP 57°F			
1:45	110	190.00	+2.35	192.35	102.63						
2:00	125	190.00	+2.30	192.30	102.58	48					
2:15	140	190.00	+2.73	192.73	103.01			WATER TEMP 57°F			
2:30	155	190.00	+2.60	192.60	102.88	48		AIR TEMP 84°F			
2:55								WATER SAMPLE - BOTTLE #T-755			
3:00	185	190.00	+1.95	191.95	102.23			WATER TEMP 57°F			

ALL MEAS. BY ELEC. LINE EXCEPT WHERE NOTED OTHERWISE

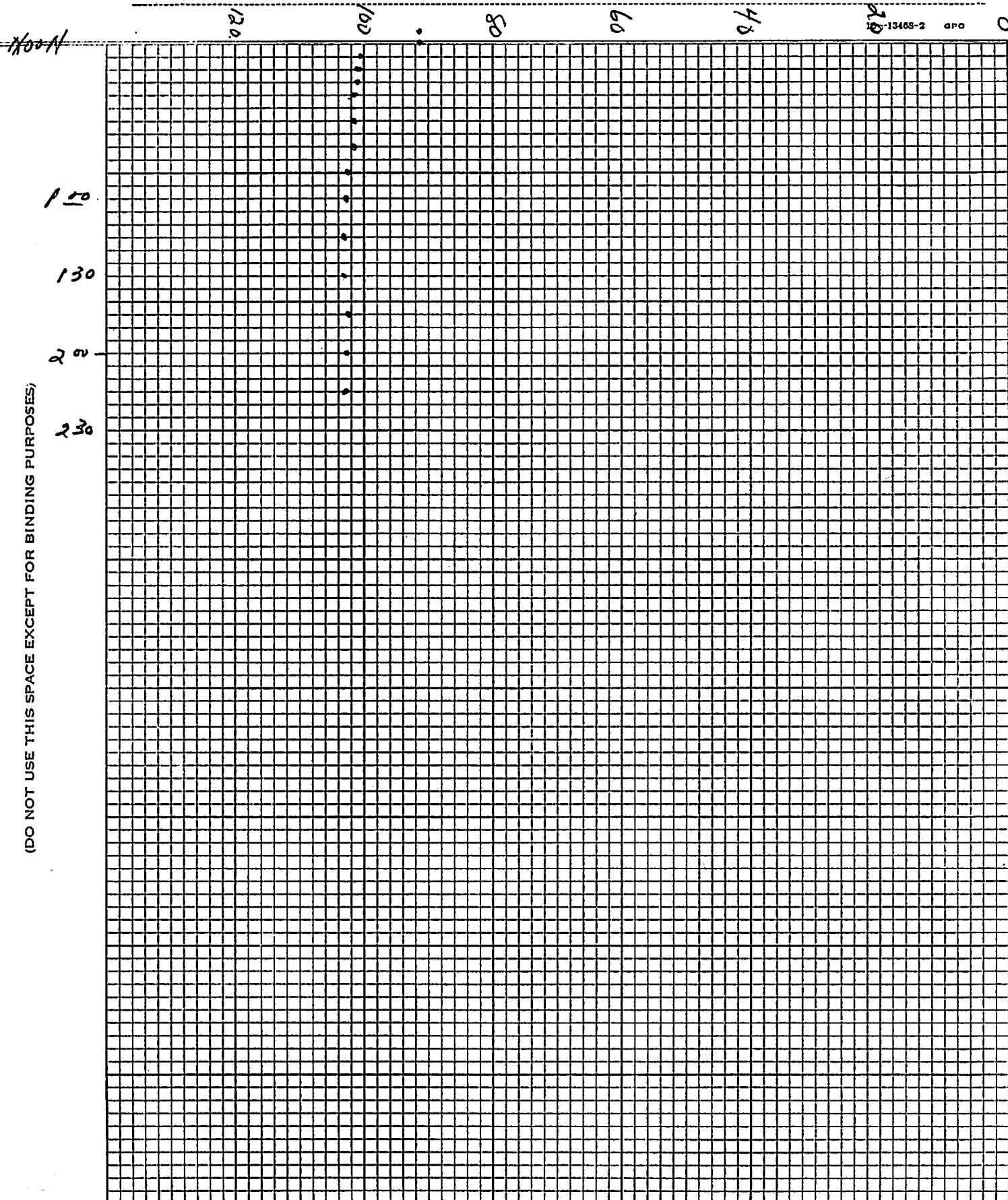
MP = 3.0' ABOVE L.S.D. PUMP SET AT 370 FEET

GPM MEAS. BY METER AT END OF 80 FT DISCHARGE PIPE

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

File Number { Washington
District

N. LIBERTY PUMPING TEST 7-24-70



1100/11

100

130

200

230

(DO NOT USE THIS SPACE EXCEPT FOR BINDING PURPOSES)

29 Sept 70

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

REH-LLS

File No. { Washington
District

North Liberty - Beaver Development Well - Test #2 (after acid)

Time Hr	min	Hold	±Ft	WL	P/D	GPM					
9.15		110.00	19.73	90.27						SWL	w/ tape
9.35		90.00	-0.92	89.08						SWL	w/e-line
9.40		90.00	-0.10	89.90						} SWL	w e-line
9.50		90.00	-0.10	89.90							
10.00										Start pump	
.01		130.0	+2.0			86					
.02		150.0	+3.05							Water cloudy	
.03		170.0	+0.35								
.04		170.0	-0.71								
.05		170.0	0.0			80					
.085		210.0	+0.30	210.30		55 gal 44 gal					
.10		210.0	-1.6	208.40		55 gal 30 gal					
.11		210.0	-1.57	208.43							
.12		210.0	-1.58	208.42							
.14		210.0	-1.62	208.38							
.16		210.0	-3.45	206.55		55 gal 51.5 gal					
.18		210.0	-1.63	208.37							
.235		210.0	-2.31	207.69							
.25		210.0	-2.35	207.65		55 gal 53 gal					
.30		210.0	-2.28	207.72							
.35		210.0	-1.74	208.26							
.45		210.0	-1.45	208.45	118.55	55 gal 53 gal					
11.15	75	210.0	+1.30	211.30	121.30						
11.30	90	210.00	-1.20	208.80	118.80						
12.30	150	210.0	+1.85	211.85	121.85						
13.15	195	210.0	+1.60	211.60	121.60	55 gal 57 gal					
13.30	210 210	210.0	+1.75	211.75	121.75	55 gal 55 gal					
13.40		210.0				55 gal 40 gal (79 gpm)				increase value	
14.00						55 gal 47 gal					
14.05						55 gal 42 gal				increase value	
14.30						55 gal 46 gal (70 gpm)					

pm

no further WL readings obtainable after 1340

(over)

UNITED STATES
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GEOLOGICAL SURVEY

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NORTH LIBERTY - Beaver Creek Development - Test #3

Oct. 19, 1970

TIME (HR)	TIME (MIN)	HOLD	± Ft	WATER LEVEL	DRAW-down	GPM					
A.M.	8.50		92.00	-1.10	90.90						} STATIC WATER LEVEL w/ STEEL TAPE
	9.43		93.00	-2.10	90.90						
	9.58		90.00	+0.70	90.70						
	10.00										STATIC WL w/ Elec. line START PUMP
		1				200					
		5				185					(Test #3 - casing pulled opposite Devonian)
		8				120					
		13				80					
		15	200	-4.60	195.40	104.70					
		20	190	+2.40	192.40	101.70	75				
		25		+1.50	191.50	100.80	75				
		30	180	-2.00	178.00	87.30					
		35	170	+1.15	171.15	80.45					
		40		+1.05	171.05	80.35	72				
		45		+0.20	170.20	79.50					
		55		+0.20	170.20	79.50					
	11.05	65		+0.60	170.60	79.90	71				
	11.15	75		-0.90	169.10	78.40					
	11.30	90		-2.95	167.05	76.35					
	11.45	105		-3.05	166.95	76.25	60 @ 11.55				adjusted valve
NOON	12.00	120		-4.80	165.20	74.50	66 1/2 @ 12.07				
P.M.	12.15	135		+2.05	172.05	81.35	70 @ 12.12				(100 gal / 8.5 sec)
	12.30	150		-0.50	169.50	78.80	70				
	1.00	180		0.00	170.00	79.30	70				begin adjusting discharge up
	1.12	192		+3.80	173.80	83.10					
	1.14	194	180	+2.20	182.20	91.50					
	1.16	196	190	-1.25	188.75	98.05					
	1.18	198		+4.05	194.00	103.30	~100				
	1.20	200	200	-2.60	197.40	106.70	97				(100 gal / 6.2 sec)
	1.22	202		-1.45	198.55	107.85					
	1.25	205		0.00	200.00	109.30					
	1.30	210		+0.70	200.70	110.00					

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Oct. 19, 1970

TIME (HR)	TIME (MIN)	HOLD	± Ft	WATER LEVEL	PRAW-down	GPM					
1.35	215	200	+1.55	201.55	110.85	97		(100 gal / 62 sec)			
1.40	220		+1.80	201.80	111.10						
1.50	230		+1.95	201.95	111.25			(100 gal / 63 sec)			
2.10	250		+2.80	202.80	112.10			(100 gal / 62 sec)			
2.30	270		+4.20	204.20	113.50			(100 gal / 63 sec)			
3.00	300	210	-4.35	205.65	114.95			(100 gal / 62 sec)			
3.30	330		-2.60	207.40	116.70						
4.00	360		-1.60	208.40	117.70						
4.30	390		-0.85	209.15	118.45			(100 gal / 62 sec)			
7.30	570		+1.00	211.00	120.30			(100 gal / 62 sec)			
11.07	787		+0.60	210.60	119.90			(100 gal / 63 sec)			
8.45	1365		-2.95	207.95	117.25			(100 gal / 63 sec)			
8.55	1375		-2.80	207.20	116.50						
9.40	1420		-2.85	207.15	116.45						
9.47	1427		+2.10	212.10	121.40				9.45 increase discharge up		
9.49	1429	220	-2.40	217.60	126.90						
9.51	1431		+2.80	222.80	132.10						
9.53	1433	230	-2.15	227.85	137.15						
9.56	1436		+2.60	232.60	141.90						
10.00	1440										
10.06	1446	250	-6.00	244.00	153.30			(100 gal / 48 1/2 sec)			
10.10	1450		-4.30	245.70	155.00	125		(100 gal / 48 sec)			
10.15	1455		-3.45	246.55	155.85			(100 gal / 48 sec)			
10.20	1460		-3.00	247.00	156.30						
10.26	1466		-2.55	247.45	156.75						
10.30	1470		-2.35	247.65	156.95						
10.39	1479		-1.95	248.05	157.35						
10.51	1491		-1.70	248.30	157.60						
11.00	1500		-1.60	248.40	157.70						
11.15	1515		-1.20	248.80	158.10						
11.32	1532		-0.95	249.05	158.35						
12.27	1587		-0.40	249.60	158.90			(100 gal / 49 sec)			
P.M. 1.02	1622		-0.25	249.75	159.05						

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NORTH LIBERTY - Beaver Creek Development - Test #3

Oct. 19, 1970

TIME (Hr)	TIME (MIN)	HOLD	± FT	WATER LEVEL	DRAW-DOWN						
1.05										PUMP OFF - <u>RECOVERY</u>	
	45 sec.	230	-2.40	227.60	136.90						
1.06 1/2	1 1/2	200	+1.90	201.90	111.20						
1.16	11	145	-22.13	122.87	31.97					Elec. line caught	
1.21	16	130	-12.03	117.97	27.07					TAPE MEASUREMENTS	
1.30	-	-	-	-	-						
1.32	27	130	-16.80	113.20	22.30					} ↓	
1.45	40	125	-14.71	110.29	19.39						
2.00	55	122	-13.89	108.11	17.21						
2.30	85	120	-14.70	105.30	14.40						
3.00	115	118	-14.60	103.40	12.50						
9.20	1215	115	-22.00	93.00	2.10						

Oct. 21
A.M.

Beaver Creek
Test 3

Semi-Logarithmic
4 Cycles x 10 to the Inch

