



WATER-RIGHT DOCKET

Natchez Trace Parkway

Docket No: 14

GLANROCK PICNIC AREA

Supporting Hydro Data

03-15-1967: clenrock test hole no. 4: lithologic log

Glenrock Test Hole No. 4 LITHOLOGIC LOG

Owner: National Park Service	WELL No: Wn: M-33
Driller: Miller Drilling Co. Date: 3-15-67	County: Wayne State: Tenn.
Logged by: C.R. Burchett Date: 4-14-67	Location: Natchez Trace Parkway
Datum Land surface	Location No. 351518N0873756.1
Depth, hole: 150' dia: 6"	
Depth, casing: None dia:	
Depth, screen: None dia:	Alt. datum 780' Alt. LSD 780'
E. log: gamma: caliper: temp: conductivity flow meter	

AGE	FORMATION	LITHOLOGY	Thick- ness (ft)	Depth (feet)
Miss.	Ft. Payne	Chert gravel, sand, and silt, moderate reddish brown to brownish black, angular, loose, poorly sorted, earthy luster, moderate intergranular porosity, weathered small amount of iron and manganese oxide.	6	0-6
		Samples lost.....	8	6-14
		Limestone, dolomitic, spotted medium grayish blue to brownish gray, cryptocrystalline to microcrystalline, dense, partly weathered.....	3	14-17
		Dolomite, limy, brownish gray, crypto-crystalline, dense, slightly glauconitic, partly weathered.....	5	17-22
		Dolomite, limy, brownish gray to bluish gray, microcrystalline, dense, irregular patches of chert, slightly glauconitic...	6	22-28
		Dolomite - 50%, limy, brownish gray, micro-crystalline, dense, slightly glauconitic. Chert - 50%, medium bluish gray, crypto-crystalline, dense.....	11	28-39
		Dolomite, limy, brownish gray, microcrystal-line, dense, slightly glauconitic, con-taining a few pyrite crystals.....	6	39-45
		Limestone, dolomitic, light brownish gray, microcrystalline, dense, slightly glau-conitic, partly weathered.....	6	45-51
		Limestone, dolomitic, light brownish gray, microcrystalline, dense, slightly glau-conitic.....	12	51-63

Glenrock Test Hole No. 4 (continued)

LITHOLOGIC LOG

Owner:		WELL No:	
Driller:	Date:	County:	State:
Logged by:	Date:	Location:	
Datum		Location No.	
Depth, hole:	dia:		
Depth, casing:	dia:		
Depth, screen:	dia:	Alt. datum	Alt. LSD
E.log:	gamma:	caliper:	temp: conductivity flow meter

AGE	FORMATION	LITHOLOGY	Thick- ness (ft)	Depth (feet)
		Dolomite, limy, light brownish gray to medium gray, microcrystalline, dense, slightly glauconitic, containing a few pyrite crystals.....	6	63-69
		Dolomite, limy, light brownish gray, microcrystalline, dense, slightly glauconitic..	6	69-75
		Dolomite, limy, brownish gray, microcrystalline, dense, slightly glauconitic, containing a few pyrite crystals.....	54	75-129
		Dolomite, limy, brownish gray, microcrystalline, dense, slightly glauconitic, containing a few pyrite crystals and thin veins of white calcite.....	9	129-138
Sil.	Dixon (?)	Dolomite, limy, clayey, pale green, microcrystalline, dense, slightly glauconitic, containing a few pyrite crystals.....	12	138-150

Glenrock Test Hole No. 2

LITHOLOGIC LOG

Owner: National Park Service	WELL No: Wn: M-31
Driller: Miller Drilling Co. Date: 3-29-67	County: Wayne State: Tennessee
Logged by: C. R. Burchett Date: 3-28-67	Location: Glenrock, site #2
Datum Land surface	Location No. 351552N0873744.1.
Depth, hole: 119 dia: 6"	
Depth, casing: dia:	
Depth, screen: dia:	Alt. datum 840' Alt. LSD 840'
E. log: gamma: caliper: temp: conductivity	Flow meter

AGE	FORMATION	LITHOLOGY	Thick- ness (ft)	Depth (feet)
Miss.	Fort Payne	Chert gravel, sand, and silt, moderate reddish brown, angular, loose, poorly sorted, earthy luster, weathered.....	6	0-6
		Chert gravel, moderate yellowish brown, microcrystalline, slight intercrystalline porosity, earthy luster, weathered. Grayish orange 12 to 30 ft.....	24	6-30
		Chert gravel, grayish orange speckled with brown iron oxide, microcrystalline to coarse crystalline, medium intercrystalline porosity, earthy texture, weathered. Pale brown 36 to 39 ft.....	9	30-39
		Limestone, medium dark gray, crypto-crystalline, dense.....	2	39-41
		Dolomite, limey, brownish gray to light brownish gray, cryptocrystalline, dense..	16	41-57
		Limestone, dolomitic, brownish gray, cryptocrystalline, dense, partly weathered.....	6	57-63
		Limestone, dolomitic, brownish gray, cryptocrystalline to microcrystalline, dense.....	17	63-80
		Silica stone - 50%, light bluish gray to light gray, microcrystalline, dense, glauconitic, containing thin veins of white calcite and a few pyrite crystals. Dolomite - 50%, dark greenish gray, microcrystalline, dense, glauconitic....	7	80-87

Glenrock Test Hole No. 2 (continued)
LITHOLOGIC LOG

Owner:		WELL No:	
Driller:	Date:	County:	State:
Logged by:	Date:	Location:	
Datum		Location No.	
Depth, hole:	dia:		
Depth, casing:	dia:		
Depth, screen:	dia:	Alt. datum	Alt. LSD
E. log:	gamma:	caliper:	temp: conductivity flow meter

AGE	FORMATION	LITHOLOGY	Thick- ness (ft)	Depth (feet)
Sil.	-	Dolomite, pale green, microcrystalline, dense, glauconitic, containing pyrite crystals.....	5	87-92
		Dolomite, limy, pale green to light gray to light brownish gray, slightly glau- conitic, containing a few pyrite crystals.	27	92-119

Glenrock Test Hole No. 5
LITHOLOGIC LOG

Owner: National Park Service	WELL No: Wn: M-32
Driller: Miller Drilling Co. Date: 4-7-67	County: Wayne State: Tennessee
Logged by: C. R. Burchett Date: 4-13-67	Location: Natchez Trace Parkway
Datum Land surface	Location No. 351507N0873804.1
Depth, hole: 145' dia: 6"	
Depth, casing: None dia:	
Depth, screen: None dia:	Alt. datum 750' Alt. LSD 750'
E. log: gamma: caliper: temp: conductivity flow meter	

AGE	FORMATION	LITHOLOGY	Thick- ness (ft)	Depth (feet)
Miss.	Ft. Payne	Gravel, sand, and silt, light brown, angular, loose, poorly sorted, earthy luster, weathered.....	3	0-3
		Limestone, dolomitic, brownish gray, microcrystalline, dense, irregular patches of dense chert.....	6	3-9
		Silica stone, limy, light brownish gray, microcrystalline, dense, slightly glauconitic.....	6	9-15
		Silica stone, spotted light bluish gray to brownish gray, microcrystalline, dense, moderately dolomitic, slightly glauconitic.	6	15-21
		Silica stone, spotted light bluish gray to brownish gray, microcrystalline, dense, moderately dolomitic, slightly glauconitic, partly weathered	6	21-27
		Silica stone, spotted light bluish gray to brownish gray, microcrystalline, dense, slightly glauconitic, containing a few pyrite crystals.....	6	27-33
		Dolomite, limy, grayish red to medium light gray, microcrystalline, dense, slightly glauconitic, containing veins of white calcite crystals, partly weathered.....	6	33-39
		Dolomite, limy, grayish red to medium gray, micro crystalline, dense, slightly glauconitic.....	6	39-45

Glenrock Test Hole No. 5 (continued)

LITHOLOGIC LOG

Owner:		WELL No:	
Driller:	Date:	County:	State:
Logged by:	Date:	Location:	
Datum		Location No.	
Depth, hole:	dia:		
Depth, casing:	dia:		
Depth, screen:	dia:	Alt. datum	Alt. LSD
E.log:	gamma:	caliper:	temp: conductivity flow meter

AGE	FORMATION	LITHOLOGY	Thick- ness (ft)	Depth (feet)
Miss.	Ft. Payne	Limestone, dolomitic, brownish gray micro-crystalline, dense, slightly glauconitic..	36	45-81
		Dolomite, limy, brownish gray, microcrystal-line to cryptocrystalline, dense, slightly glauconitic, containing a few pyrite crystals.....	48	81-129
		Dolomite - 40%, limy, brownish gray, micro-crystalline, dense, slightly glauconitic. Silica stone - 55%, slightly dolomitic, light grayish blue, microcrystalline, slightly glauconitic. Shale -5%, limy, spotted brownish gray to grayish green, microcrystalline, dense, highly glauconitic, containing a few phosphatic nodules, and a few pyrite crystals.....	8	129-137
Silurian	~~MISSISSIPPIAN~~ Dixon	Dolomite, limy, very clayey, pale green to medium light gray, glauconitic, contain- ing pyrite crystals.....	8	137-145

WATER LEVEL DATA - PUMPING TEST
 Glenrock Picnic Area - Natchez Trace Parkway
 Well Number 2 - April 25, 1967

Time	Water Level In Feet Below Land Surface	Remarks
7:24 AM	22.90	Electric tape
7:26	22.94	Steel tape
7:32	"	" "
7:34	"	" "
7:43	"	" "
7:50	"	" "
7:55	"	" "
8:00	22.93	Pump on
8:01	23.73	Steel tape
8:02	23.45	" "
8:03	23.33	" "
8:04	23.25	Open discharge
8:05	23.53	Steel tape
8:06	24.20	" "
8:07	25.04	" "
8:08	25.66	" "
8:09	25.82	" "
8:10	25.90	" "
8:11	26.71	" "
8:12	26.02	" "
8:13	"	" "
8:14	25.93	" "
8:15	25.91	" "
8:16	26.17	" "
8:17	25.83	" "
8:18	25.89	" "
8:19	25.85	" "
8:20	25.76	" "
8:21	26.34	" "
8:22	26.60	" "
8:23	25.74	" "
8:24	25.67	" "
8:26	25.65	Electric tape used to end of test
8:28	25.61	
8:30	25.37	
8:32	25.64	
8:34	25.62	
8:36	25.57	
8:38	25.35	
8:40	25.55	
8:45	25.44	
8:50	"	
8:55	25.35	
9:00	25.80	
9:05	25.95	
9:10	25.71	
9:15	25.40	
9:20	27.15	
9:27	25.65	

Time	Water Level In Feet Below Land Surface	Remarks
9:30	25.67	Increase discharge
9:32	25.87	
9:33	28.90	
9:34	29.90	Pump off-motor trouble
9:38	25.50	
9:42	25.00	
9:46	23.79	
9:49	-	Pump on
9:50	24.88	
9:51	24.35	
9:52	24.22	Discharge opened
9:53	26.25	
9:54	26.24	
9:55	26.38	
9:56	28.42	
9:57	27.92	
9:58	27.20	
9:59	28.80	
10:00	28.90	
10:01	29.60	
10:02	29.25	
10:03	29.40	
10:04	29.20	
10:05	"	
10:06	29.10	
10:07	29.50	
10:08	29.60	
10:09	29.90	
10:12	30.15	
10:14	30.23	
10:15	30.35	
10:18	32.90	
10:20	"	
10:22	"	
10:24	32.75	
10:26	32.70	
10:28	32.63	
10:30	"	
10:35	32.55	
10:40	32.58	
10:45	32.68	
10:50	32.87	
10:55	32.64	
11:00	32.20	
11:06	33.09	
11:10	32.93	
11:15	33.50	
11:20	35.5	Increase discharge. Tape read to nearest 0.1 feet only.
11:21	38.9	
11:22	40.2	
11:23	39.7	
11:24½	41.7	
11:26	41.4	
11:27	40.6	

Time	Water Level In Feet Below Land Surface	Remarks
11:28	39.8	
11:29	42.0	
11:30	41.9	
11:32	42.0	
11:34	"	
11:36	45.0	
11:38	46.9	
11:40	46.6	
11:42	45.4	
11:44	"	
11:46	45.7	
11:48	45.6	
11:50	51.0	
11:53	49.9	
11:55	52.6	
12:00	54.0	
12:05 PM	54.6	
12:10	55.3	
12:15	55.4	
12:20	56.2	
12:25	55.6	
12:30	54.8	
12:35	54.2	
12:45	56.5	
1:00	61.4	
1:15	57.0	
1:30	56.3	
1:45	56.5	
2:03	61.4	
2:15	57.0	
2:30	56.3	
2:48	55.1	
3:03	54.1	
3:30	53.6	
3:40	58.6	
3:57	60.2	
4:07	63.9	
4:10	-	
4:11	55.05	
4:12	49.83	
4:13	45.60	
4:14	42.98	
4:15	42.07	
4:16	41.68	
4:17	40.58	
4:18	38.90	
4:19	37.57	
4:20	35.67	
4:21	34.60	
4:22	33.77	
4:23	33.08	
4:24	32.45	
4:25	31.95	
4:26	31.56	

Time	Water Level In Feet Below Land Surface	Remarks
4:28	30.90	
4:30	30.35	
4:32	29.91	
4:34	29.60	
4:36	29.28	
4:38	29.02	
4:40	28.80	
4:46	28.27	
4:50	27.95	
4:55	27.65	
5:00	27.37	
5:10	26.90	
5:20	26.51	
9:39	23.57	End of test

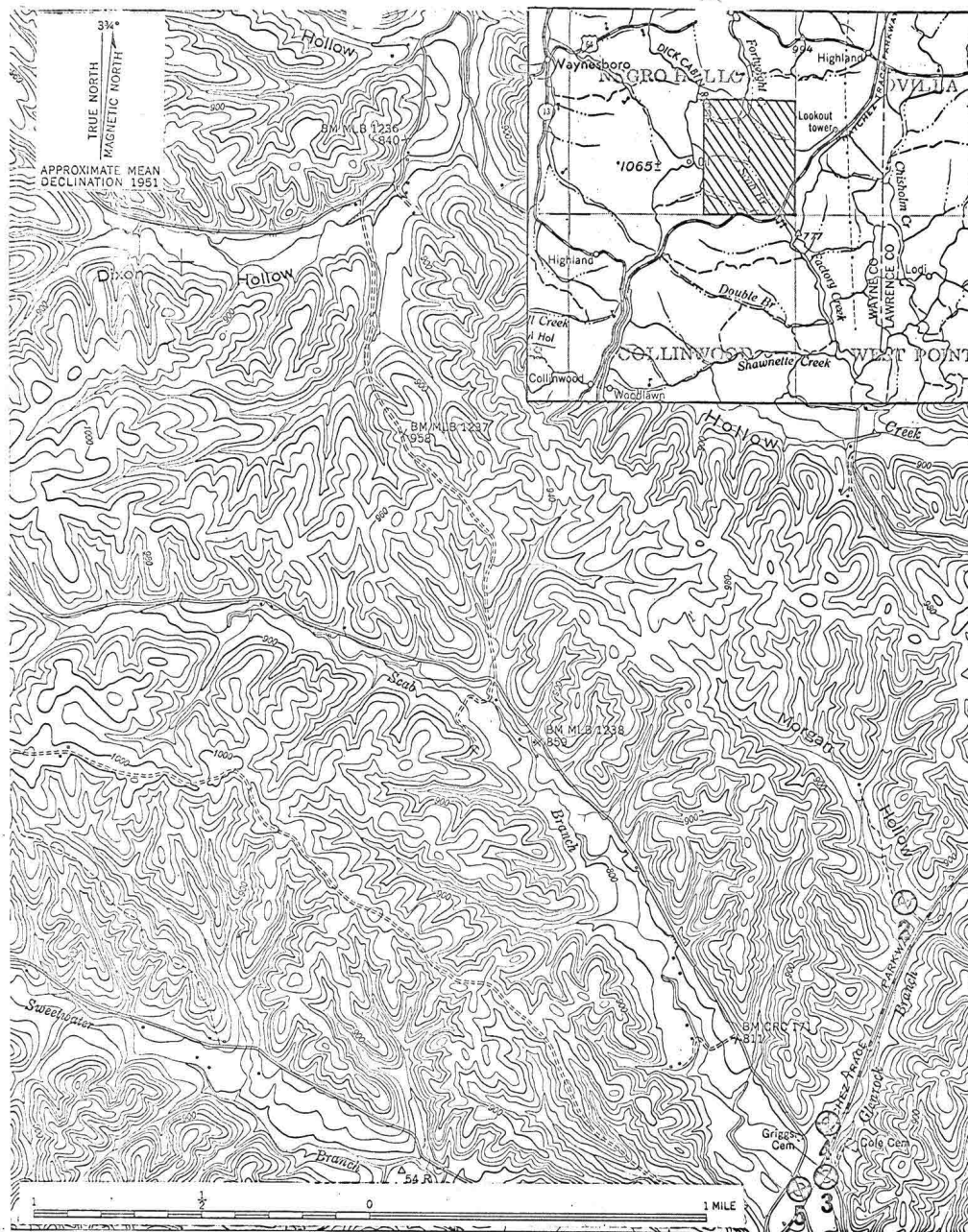
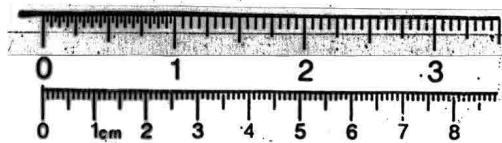
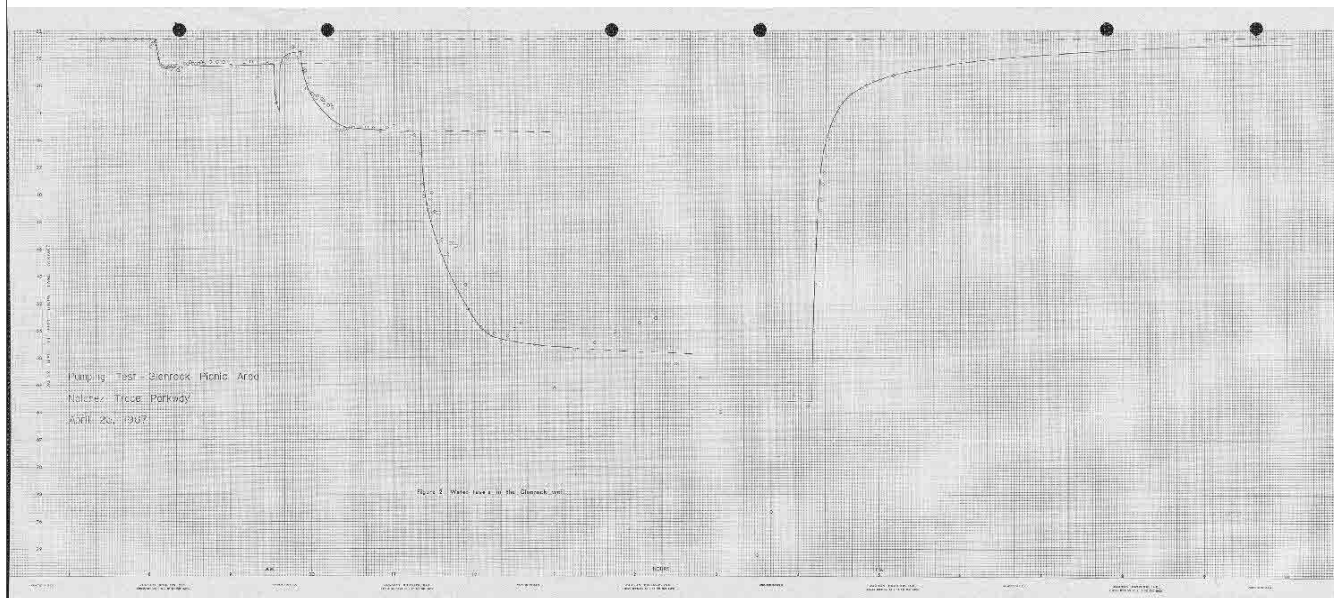
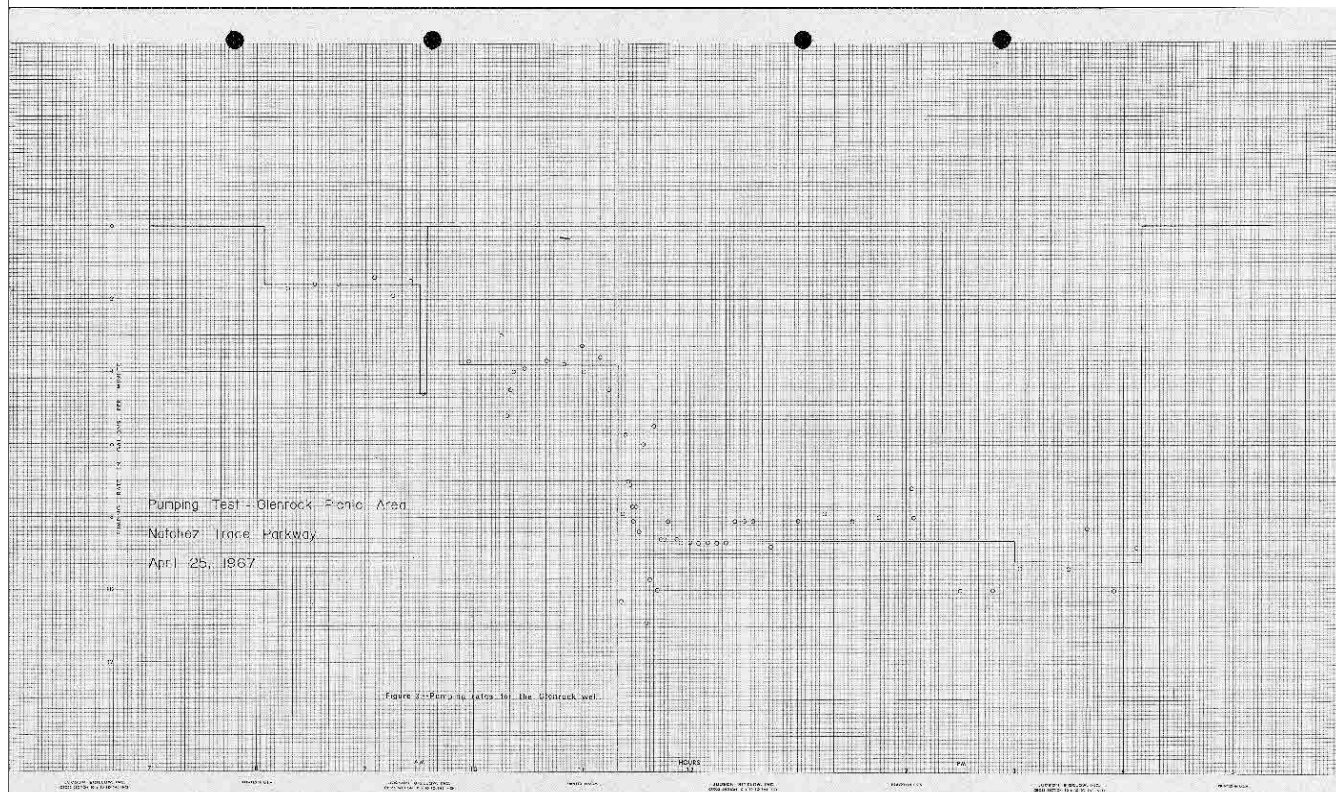
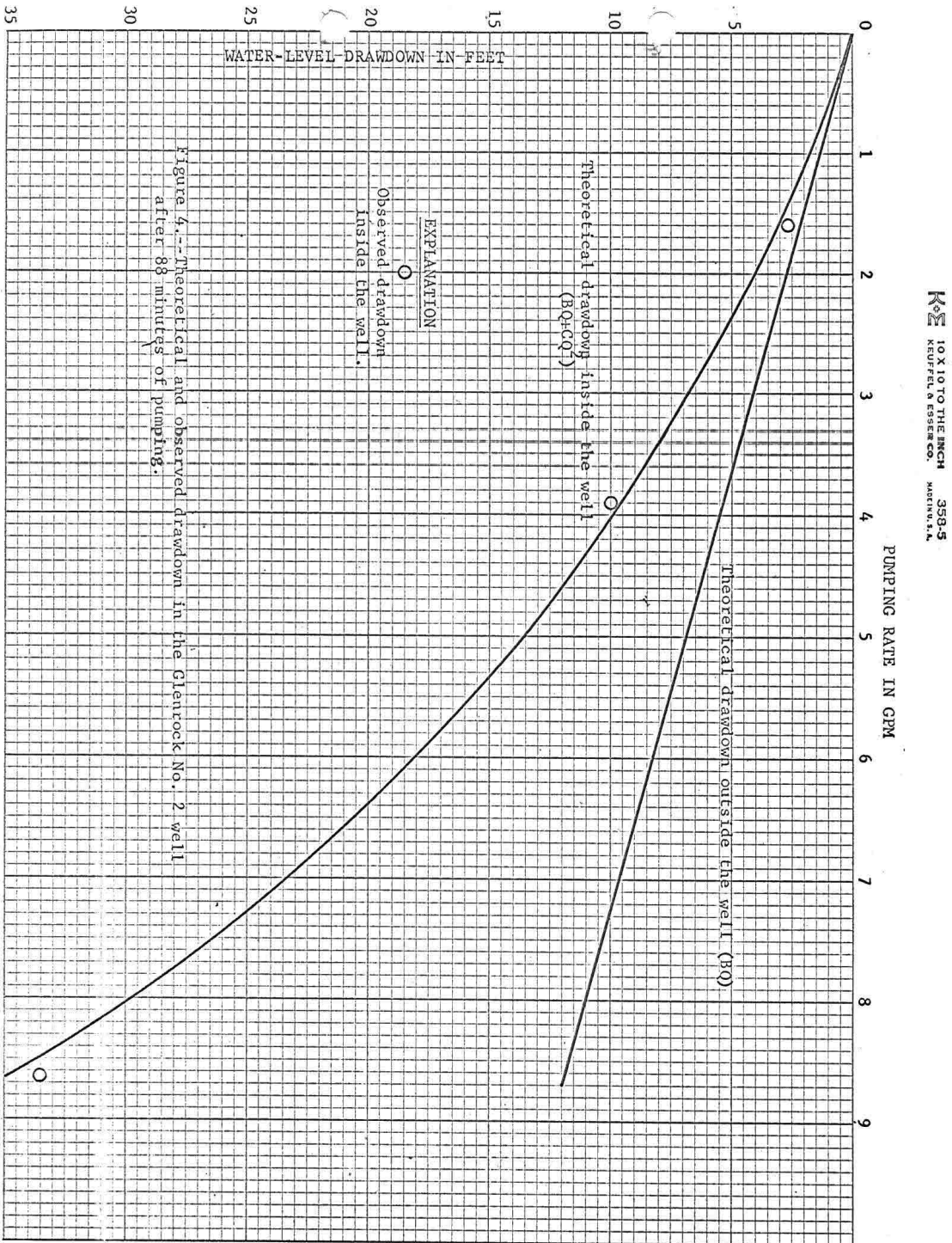


Figure 1.--Location of test holes near Glenrock picnic area.









NO. 31,193. 20 DIVISIONS PER INCH (120 DIVISIONS) BY TWO 4 1/2-INCH CYCLES RATIO RULING.



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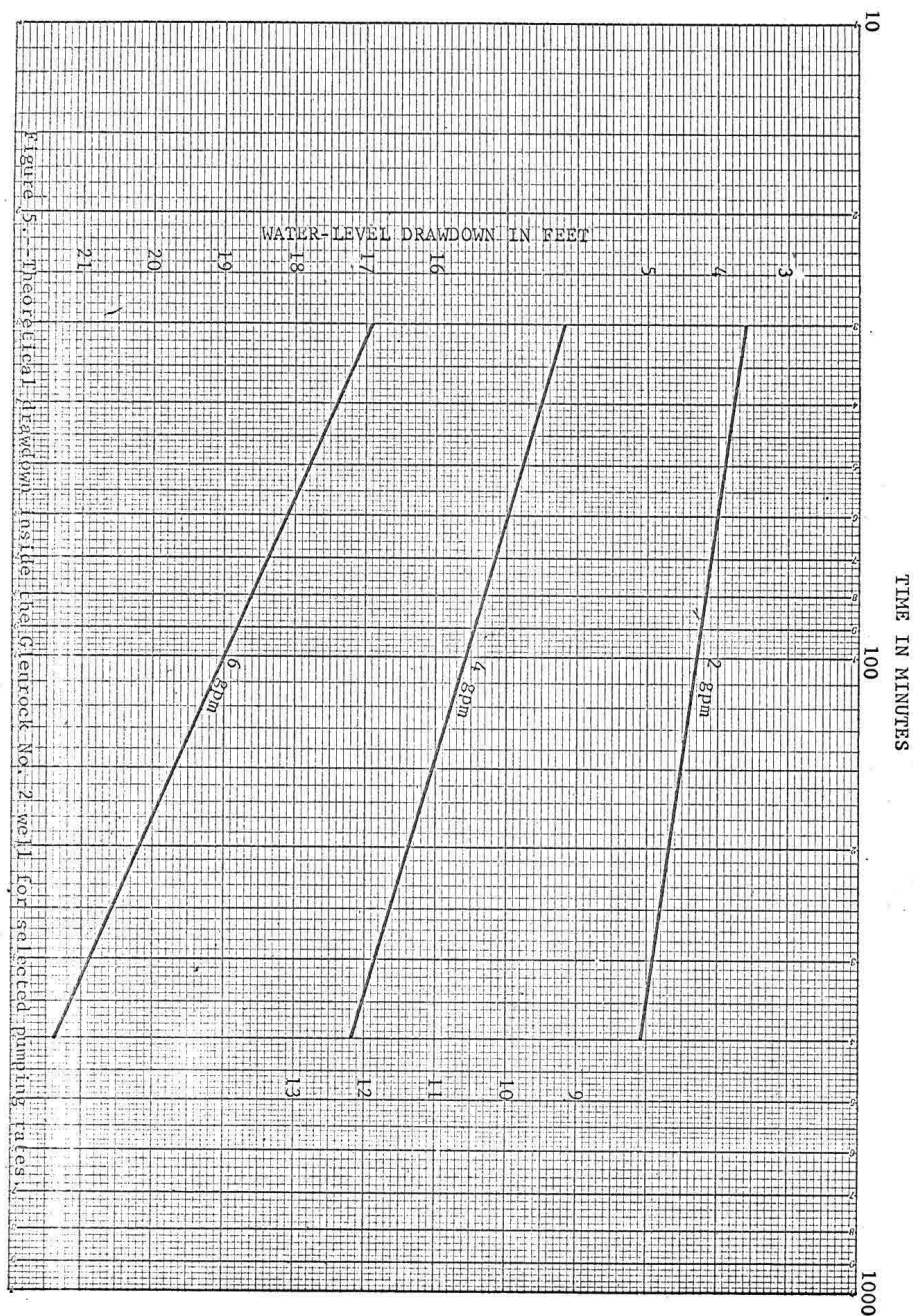
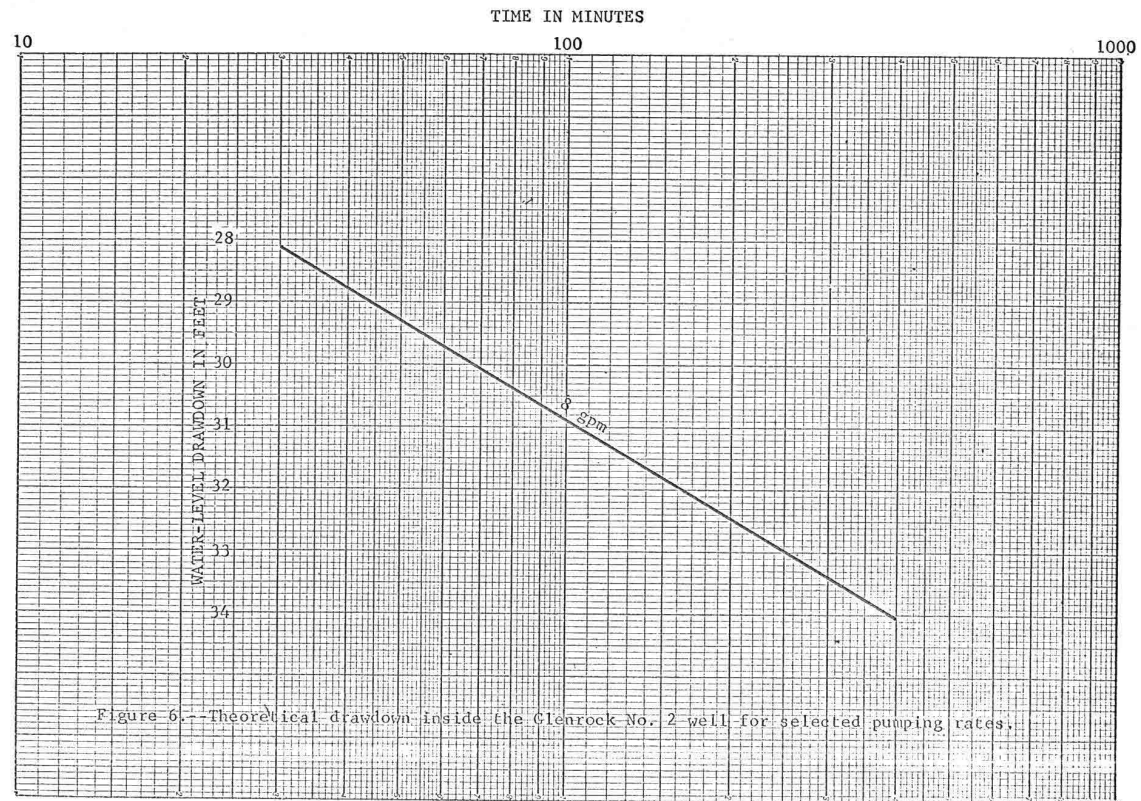


Figure 5. Theoretical drawdown inside the Glenrock No. 2 well for selected pumping rates.

NO. 31,193. 20 DIVISIONS PER INCH (120 DIVISIONS) BY TWO 4 1/2-INCH CYCLES RATIO RULING.



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Other Supporting Information

154-OBL

February 10, 1959

Memorandum

To: Regional Director, Region One

From: Chief, Water Resources Section

Subject: Glenrock Picnic Area Water System, Docket 1, Natchez Trace

Folders for the subject docket are being distributed as indicated, with copies of the completion report. The tab on the folder leaves space for future addition of references to application, notice, or other recording which the State of Tennessee may require. I have also shown the state under name of the water system, which will be very helpful in areas which extend into several states. Finally, I have given priority of well drilling, with space to indicate whether this is Well #1, or later, which has served the area.

As explained to Mr. Vick on February 5, as a general comment, there should be a docket for each water system, and I am starting a number as reports on new construction become available. The completion report in this docket should be supplemented by a plan of the water system. The completion report refers to PKY-WT-2787, but the D&C files contain only 2787-A, in three sheets. Sheet 2 of the latter, with a few additions will be sufficient for the docket, but sheet 3 is also worth including although it adds to the bulk of the docket.

On four prints of sheet 2, or on an ozalid reproducible from which three additional prints can be made, I suggest the following additions:

1. Indicate mileage from campground to nearest town along Parkway, or trace significant portion of road systems from sheet 1 and show mileage.
2. Show proposed plan of camp or picnic sites or give number of picnic units and anticipated maximum population.
3. Give name of stream near the well, if any, and the distance to, and larger stream to which it is tributary.
4. I assume that distances along Parkway road, and numbers of Parkway boundary corners, are part of master system, and provide good description of location. They should be explained if this is not true.

5. Any original vendor's tract boundaries should be projected. If none fall within the stretch of Parkway, there should be a note that the area is all within the former tract No. _____ of _____, giving name of vendor (to state).

The completion report, like most we receive, only states that surplus Heil vertical lift pump and one HP electric motor were transferred from Tupelo. We should know pump capacity. We should also have age of pump, if possible.

The construction report also indicates that the well was bailed for 16 hours at rate to keep it dry, and the included well driller's report of March 8, 1957, only indicates well "production 5 gallons per minute". We should know the actual rate at which the well was bailed to keep it dry and the rate at which it was first bailed to dewater the well. We should also know how long it took to dewater the well, and the lengths of successive periods of the 16 hours during which bailing may have been at different rates. We should also know the time required after bailing, for water to return to its normal level.

These details may not be required of well drillers in Tennessee, but as much of the data as possible should be obtained and added to the records. We have previously supplied each region and EODC and WODC with standard specifications for well drilling which were prepared in part by the Geological Survey and published by the American Water Works Association. I think that the specifications for future wells should follow those specifications with particular detail when the well is to be in a state such as Tennessee where state requirements seem to be lax.

Studying the log and cross-section of the well, I gather that the water is probably limited to 5 gpm, which enters the well under a 35 ft. head, and the hole was drilled an additional 225 feet through limestones which could be routes for water drainage. Water might also seep away at the 40 foot depth if the concrete was not properly bonded to the flint. If there is any suggestion of decreasing well yield, those questionable sections should be plugged or sealed.

~~SIGNED~~

A. van V. Dunn
Chief, Water Resources Section

Attachment

Copy to: Superintendent, Natchez Trace, w/c attachment
Chief, EODC, w/c attachment
Mr. Dunn

AvVDunn:lct

Docket Information

Number of Documents in Docket 18
Documents Dated from 2/10/1959 to 4/25/1967
Docket Compiled: 5/27/2011