

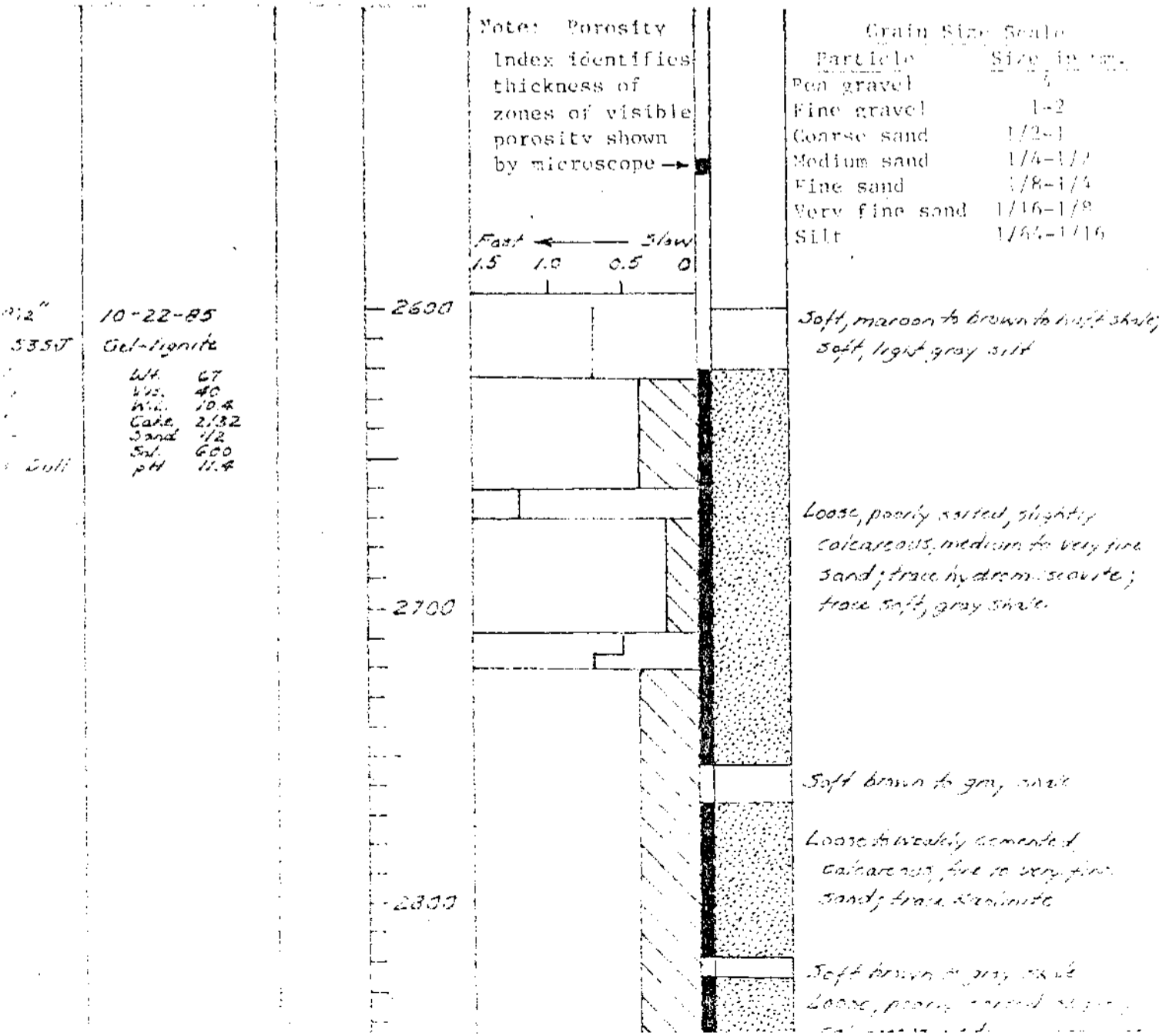


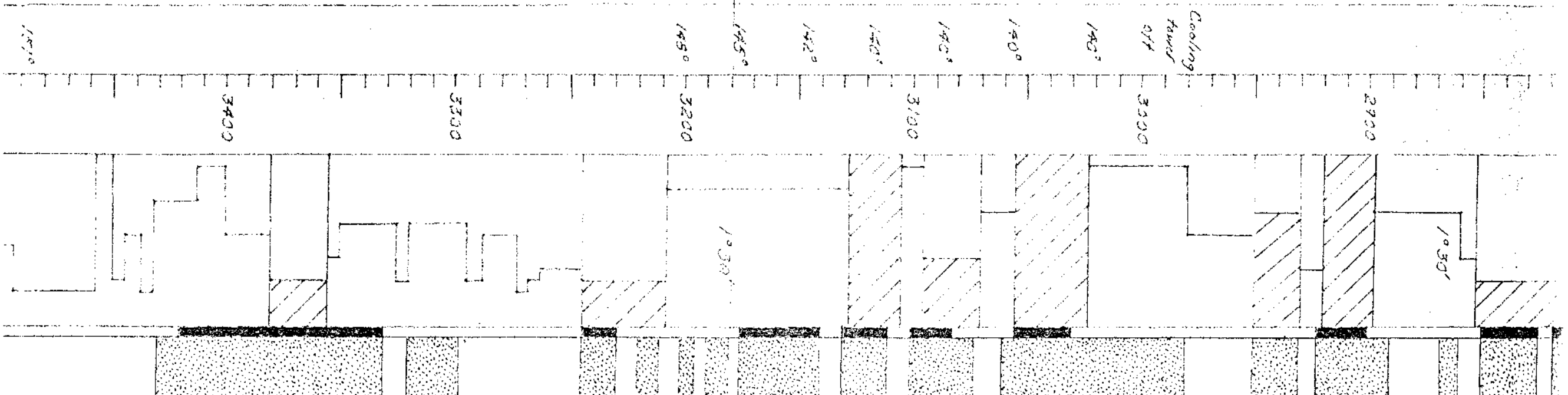
**GEORGE P. ZEBAL AND ASSOCIATES**  
INDUSTRIAL UTILIZATION OF GEOLOGY

GRAPHIC WELL REPORT

Company: Magma Power Company Well: Magma-USA 03-7  
East Mesa Location:  
 Driller: H & W Drilling Co. No. 7 500 feet west and 1500 feet south of  
 Started: 8:00 PM 10-14-85 NE corner of Sec. 7, T 16 S, R 17 E.  
 Completed: 11-02-85 Elevation:  
 Logging Record: Ground Level 40 feet  
3/8-inch conductor set at 201 feet Kelly Bushing 52 feet  
5/8-inch surface set at 1415 feet Remarks: Production well  
1-inch hung to 3913 feet

Engineering Data			Geological Data			
Record	Mud Record	Temp.	Depth	Drilling Time	Sample	Sample Description
Type	Date	°F	Feet	Ft/min	Log	
Well No.	Type	at	below		Porosity Index	
Weight	Viscosity	flow	KB			
Water loss		line		Deviation		
Cake				Degrees		
Sand						
Salinity						
pH						





Soft brown to gray shale  
 Loose, poorly sorted, slightly  
 calcareous, medium to very fine  
 sand; brown to gray shales  
 White, weakly cemented calcareous,  
 fine to very fine sand  
 Soft brown to gray shale

Loose to weakly cemented,  
 calcareous, argillaceous, poorly  
 sorted, medium to very fine sand  
 Soft, brown to gray shale  
 White, weakly cemented, calcareous,  
 fine to very fine sand; trace  
 kaolinite; trace gypsum (?)  
 Soft, brown to gray shaly, sandy,  
 light gray, sandy silt

Loose to weakly cemented,  
 calcareous, argillaceous  
 Poorly sorted, medium to very  
 fine sand; trace pale green  
 shales; trace kaolinite

Medium shales  
 Hard shale and mudstone; calcareous  
 calcareous to fine to medium,  
 cemented, medium to fine sand  
 with some fine green grains;  
 trace pyrite; medium to coarse  
 to gray shales

Medium shales  
 White, weakly cemented, very  
 fine to very, fine sand

Hard, shaly, medium to very  
 calcareous, gray, medium to  
 medium to fine sandstone  
 with isolated coarse sand  
 grains; brown to brownish  
 gray shales  
 Loose to weakly cemented,  
 calcareous, fine to very fine  
 sand; trace pyrite

Brown to brown to gray shaly,  
 soft, light gray, sandy silt  
 White, weakly to well cemented,  
 calcareous, slightly argillaceous,  
 fine to very fine sand; shale  
 and silt as above

Loose to weakly cemented,  
 calcareous, slightly argillaceous,  
 fine to very fine sand

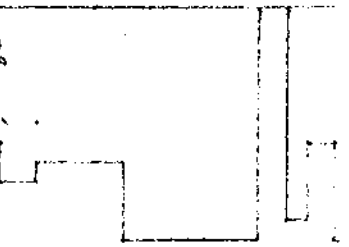
White, well cemented sandstone  
 as above

Brown, massive, light gray to  
 gray shale; buff, shaly, medium  
 thin beds of white, sandy  
 cemented sandstone

15-23' 05'  
 67  
 68  
 69  
 70  
 71  
 72  
 73  
 74  
 75  
 76  
 77  
 78  
 79  
 80

2 1/2"  
0.57  
10-24-65

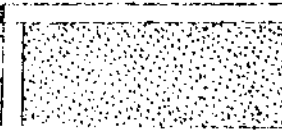
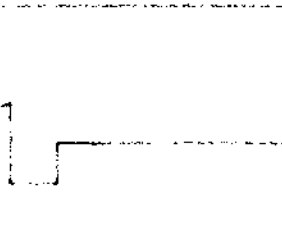
151°  
152°  
3500



Brown, porous, light gray to gray shale; buff, silty, med. thin beds of white, weath. cemented, calcareous, fine to very fine, silty sand and med. light gray, var. sandy silt; trace pyrite.

10-23-65

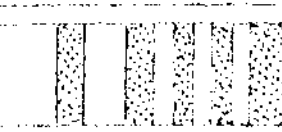
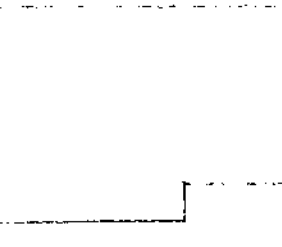
142°  
140°  
3700



White, weakly cemented, calcareous, slightly arenaceous, med. to very fine sand; thin beds of light gray, weath. cemented, very sandy silt; trace kaolinite; light gray, shaly, weath. med. to very fine sand.

10-22-65

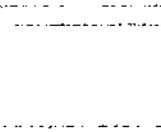
142°  
140°  
3700



White, weakly to well cemented, calcareous, slightly arenaceous, medium to very fine sand; med. to brown to red, grayish, trace kaolinite.

10-21-65

142°  
140°  
3800



Buff, brown, med. gray, arenaceous, shaly, thin beds of white, weath. cement. & red var. calcareous, fine to very fine sand and light gray, med. to coarse, clay, sandy silt; trace muscovite.

10-20-65

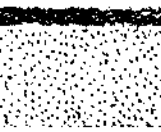
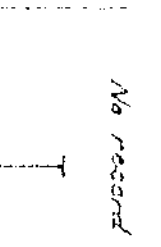
140°  
140°  
3900



White, weakly cemented, slightly arenaceous, coarse, fine to very fine sand; light gray to gray shale; trace muscovite.

10-25-65

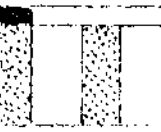
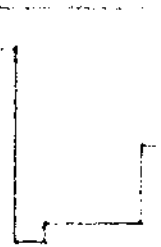
140°  
140°  
4000



Loose, to weakly cemented, calcareous, medium to very fine sand; trace muscovite.

10-27-65

172°  
4100



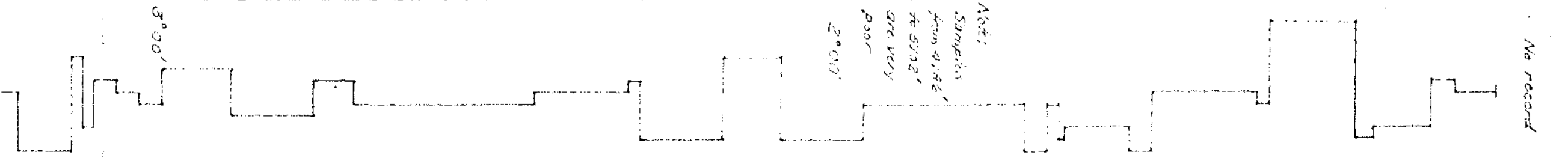
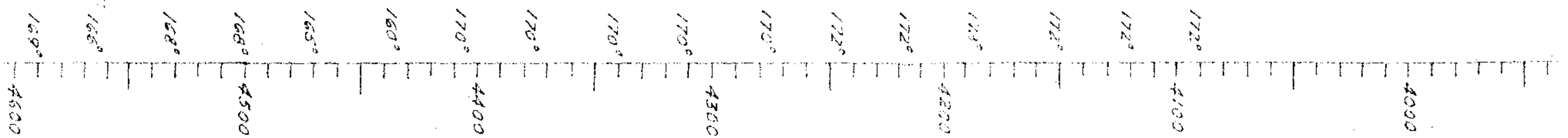
White, well cemented, calcareous, fine to very fine sandstone; light gray to gray shale. Loose to weakly cemented, slightly arenaceous, medium to very fine sand; trace pyrite, trace kaolinite.

Light to dark gray, med. white, well cemented, calcareous arenaceous, fine to very fine sand; light gray, to gray, to red.

W/L 68  
 W/L 400  
 GALE 2/82  
 SAND 1/4  
 SAND 500  
 SAND 9.8  
 P/H

10-27-85  
 W/L 68  
 W/L 40  
 GALE 18.0  
 SAND 2/82  
 SAND 1/4  
 SAND 450  
 SAND 16.2  
 P/H

10-28-85  
 W/L 66  
 W/L 39  
 GALE 9.0  
 SAND 2/82  
 SAND 1/2  
 SAND 480  
 SAND 2.5  
 P/H



Loose to weakly cemented, arkosic, calcareous, medium to very fine sand; trace muscovite.

White, well cemented, calcareous fine to very fine sandstone; light gray to gray shale.

Loose to weakly cemented, slightly arkosic, medium to very fine sandy shale; greenish trace kaolinite.

Light to dark gray shale. White, well cemented, calcareous, arkosic, fine to very fine sand. Light gray to gray shale. Sand to arkosic.

Light gray to gray shale. White, weakly cemented, arkosic, calcareous, fine to very fine sand. Thinly bedded, weakly cemented, fine to very fine sand. Strongly light gray, calcareous, arkosic shale.

Loose to weakly cemented, arkosic, calcareous, fine to very fine sand. Thinly bedded, weakly cemented, fine to very fine sand. White, well cemented, calcareous, arkosic, fine to very fine sand. Light gray to gray shale.

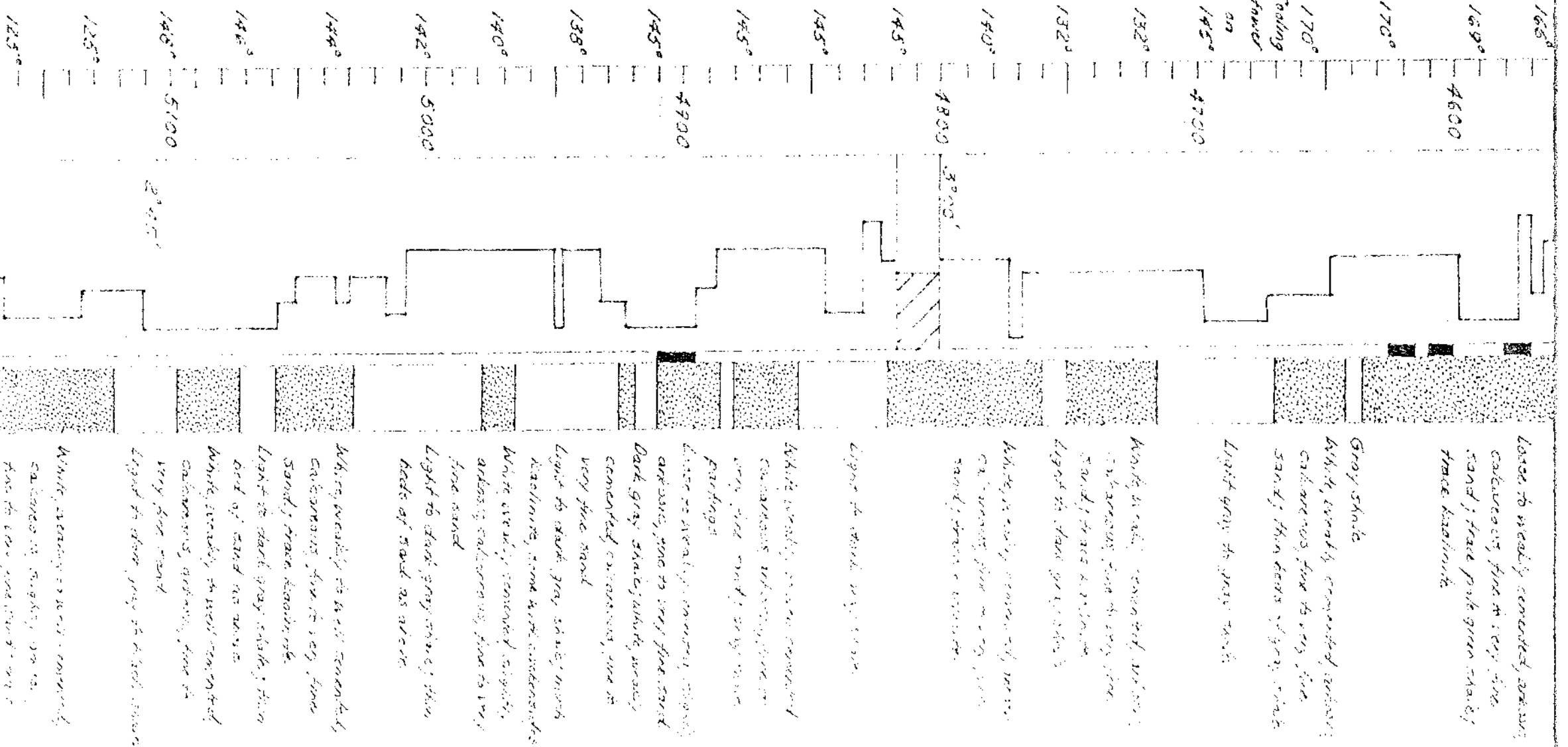
White, calcareous, fine to very fine sand. Light gray to gray shale.

Light gray to gray shale. White, weakly cemented, calcareous, fine to very fine sand.

Light to dark gray shale. White, weakly cemented, calcareous, fine to very fine sand; thin beds of gray shale; trace pale green shale.

Light gray to gray shale in thin beds of sand or arkosic.

Loose to weakly cemented, arkosic, calcareous, fine to very fine sand; trace pale green shale; trace kaolinite.



Drill  
 10-29-05  
 W/L 67  
 V/L 38  
 G/L 9.2  
 C/L 2132  
 S/L 112  
 SW 450  
 PW 90

1535  
 1535  
 1535



