

NOTES ON THE GEOLOGY OF THE REDMAN DRAW DAMSITE JOHNSON COUNTY

Introduction

The Redman Draw damsite is located about 6 miles northeast of Buffalo in S 1/2 Sec. 7, T. 51 N., R. 81 W. Maximum depth of water measured at the dam will be approximately 60 feet. The proposed storage capacity of the reservoir is 2500 acre-feet.

At the request of the Natural Resources Board the writer made a geological examination of the site on October 26, 1954.

Geology and Hydrology

The rocks cropping out at the damsite surrounding and underlying the reservoir site are all part of the Wasatch formation. The attitude of the beds is difficult to define due to the nature of the lithology. The Wasatch formation in the vicinity of the reservoir and damsite consists chiefly of a reddish-brown to black highly porous and vesicular earthy burnt shale. Overlying this unit is a brownish gray earthy-looking sandy shale.

Underlying the burnt shale unit is a sequence of shale and coal. The description of these beds (copied from a log of the water well at the John Kumar Ranch, located several hundred yards southeast of the damsite) is as follows:

<u>Depth (in feet)</u>	<u>Lithology</u>
Surface - 15'	soil and white sand*
15' - 42'	gravel and quick sand*
42' - 45'	brown shale
45' - 67'	gray shale
67' - 85'	coal
85' - 110'	gray shale
110' - 238'	light brown shale
238' - 267'	coal
267' - 295'	light brown shale
295' - 300'	coal
300' - 305'	light brown shale
305' - 306'	coal
306' - 327'	gray shale
327' - 334'	light brown shale
334' - 351'	gray shale

* Water-bearing

Static water level, 15 feet below surface

Bailing test at 70 feet yielded 20 gallons per minute. In other places on the ranch water was struck at 5 feet. Most coals supply water. Quality of water; hard, highly mineralized, produces a brown (iron?) stain on vessels. Water is suitable for stock but too hard for drinking purposes.

Conclusion

The possible leakage of water into surrounding rocks of the reservoir is a factor that should be considered before constructing a reservoir. Possibly information from Lake De Smet, several miles to the north, can furnish the type of data necessary here. Further, the leakage should also be taken into consideration of the damsite, otherwise a highly unstable foundation might exist here.

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