PINEY RESERVOIR SITE, SUBLETTE COUNTY

Location:- Sec. 1, T. 29 N., R. 113 W., and Sec. 36, T. 30 N., R. 113 W.

Date Examined:- October 9, 1956.

Storage:- A dam 60 feet high with 8 feet of freeboard will impound about 5,130 acre-feet of water.

Geology

Both abutments at the damsite and the reservoir are located on the Wasatch formation of Eocene age. At the damsite, the Wasatch formation strikes approximately N. 20° E., and dips 1°-2° SE. Exposures at the north abutment show that the rock consists of light greenish gray and reddish shale and buff sandstone. This sequence is overlain by alternating light tan to gray to red shale and a buff-weathering cliff-forming sandstone. The shales weather readily and tend to form a badland-type topography.

No satisfactory outcrops occur on the south abutment, but rodent holes indicate that the rock types are similar.

Conclusion

Although the rocks are not too well consolidated as exposed at the surface, it is difficult to predict the effect of seepage losses. Further, the writer did not have access to the drill hole logs nor the core samples. Since the holes were drilled by a cable tool rig, it is the writer's opinion that the samples will not yield much data on permeability. In a report written by Palsce (1950), it was believed that there would be excessive

seepage from the reservoir basin. This conclusion was based on the loss of circulation in geophysical shot holes in the area as well as an examination of the local geology. Further, this conclusion may have been partially surmised with respect to a larger reservoir with a capacity of nearly 14,000 acre-feet. The writer, however, has talked with several oil well drillers in the area, and they have reported no loss of circulation in the first 500 to 600 feet of drilling.

Since the sandstones are porous, there will undoubtedly be some seepage loss, but its magnitude can only be determined by laboratory tests or pressure testing. The latter may be done by constructing a pressure device which consists of a length of perforated pipe equipped with a rubber packer at each end. The pipe is secured in the hole by pumping water into the packers. Water is then forced, under a pressure of about 50 pounds per square inch, into the interval between the packers by means of a pump. The hole may be tested in 5- or 10-foot intervals, or the whole length by removing the plug from the bottom of the pipe. The amount of water pumped into the foundation is measured by reading a water meter placed in the system. These readings should be taken every thirty seconds and recorded carefully.

The testing system described above will enable one to more satisfactorily determine the suitability of the damsite or reservoir basin.

William H. Wilson
Ass't. State Geologist
February 21, 1957

Reference

Palsce, John, "Geology and Soils at the Piney Dam and Reservoir Site", U. S. Soil Conservation Service, Worland, Wyoming, Dec. 1, 1950.