

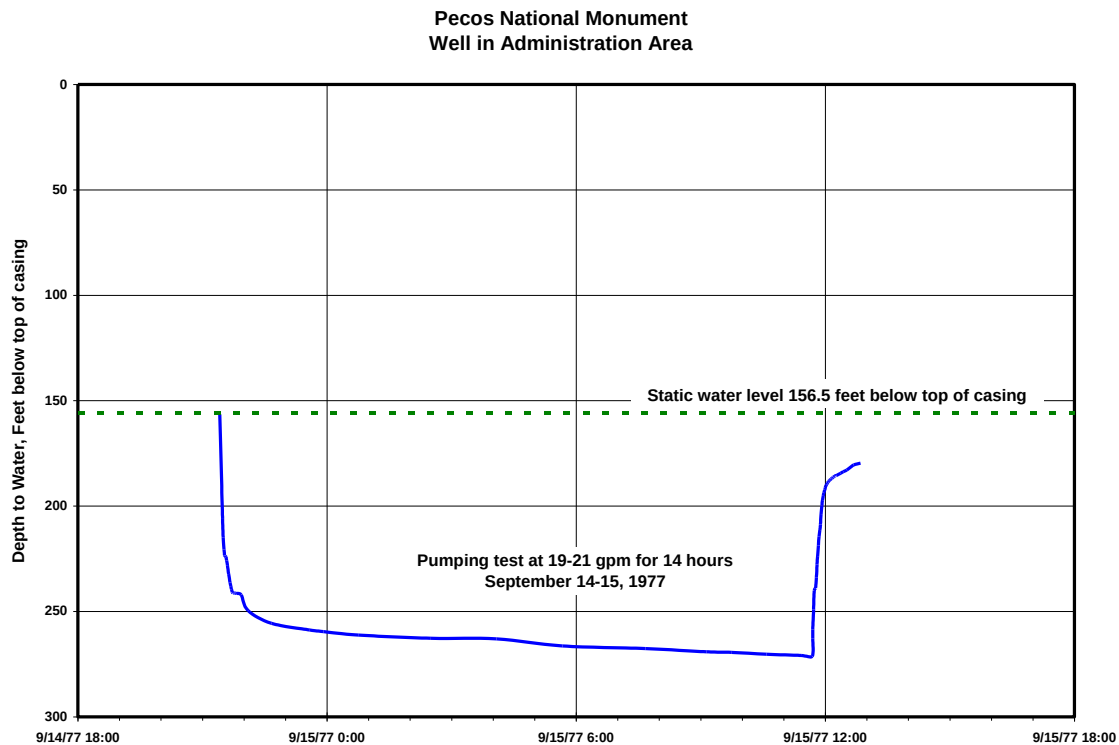
Pecos National Monument Water Supply Wells

Well in Administration Area

“Just prior to World War II, through the aid of the WPA, a residence was constructed at the Pecos State Monument. Having first investigated other wells in the area and consulting with Federal Offices in Albuquerque concerning underground water, it was believed that water could be found at less than 100 feet. A well was constructed by Mr. Barney Isbell of Las Vegas, NM. Water was obtained in the first 100 feet and the well was completed with pump etc. for less than \$800. The water gradually began to have a peculiar odor and taste; the caretaker fell ill and some of the poultry died. A hasty analysis of the water showed that it could not be treated to make it suitable for human consumption. Mr. Isbell returned to the site to sink the well deeper. Another vein of water was encountered at about 200 feet. Being insufficient, we continued to drill and eventually struck what we now think will be a satisfactory well.”

*[excerpts from an unsigned letter in WRD files, From the “Director”
to G.T. McWhirter, state purchasing agent, dated August 7, 1951]*

The New Mexico State Engineer’s water rights database shows a well at this location that matches the date and driller name. The well is recorded as being 322 feet deep. I could not find any information regarding how the well was constructed; the depth of the perforated intervals or screen, or which aquifers are providing water for the well. Comparison with geologic logs of other nearby wells would lead us to believe that the well obtains water from the Madera Limestone.



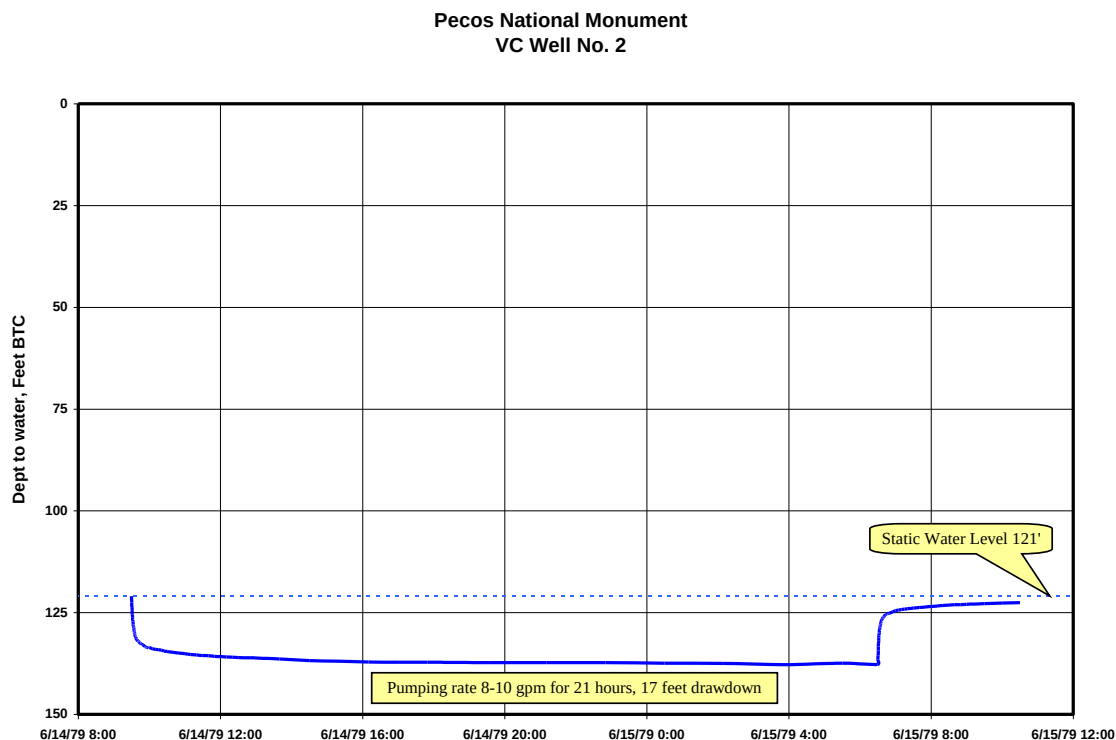
A pumping test of the well in September 1977 showed about 115 feet of drawdown after 14 hours of pumping at 19-21 gpm. I found no information in our files regarding the reason for conducting the pumping test. However, a pumping test is generally conducted because there is some concern about the production capability of the well. New wells were constructed a year later, in September 1978, by the ruins/Poison Spring. Perhaps the wells by the ruins were constructed as a possible replacement for the well at the administration area.

Two Wells by the Ruins/Poison Spring

A new well was constructed near Poison Spring in September 1978. The first borehole encountered unspecified problems with unstable geologic formations and was abandoned. The well was drilled to 300 feet, but only the first 20 feet had casing. In June 1979, the bottom of the well was at 38 feet and the depth to water was 1.75 feet below the top of the casing, or about 0.12 feet below ground surface.

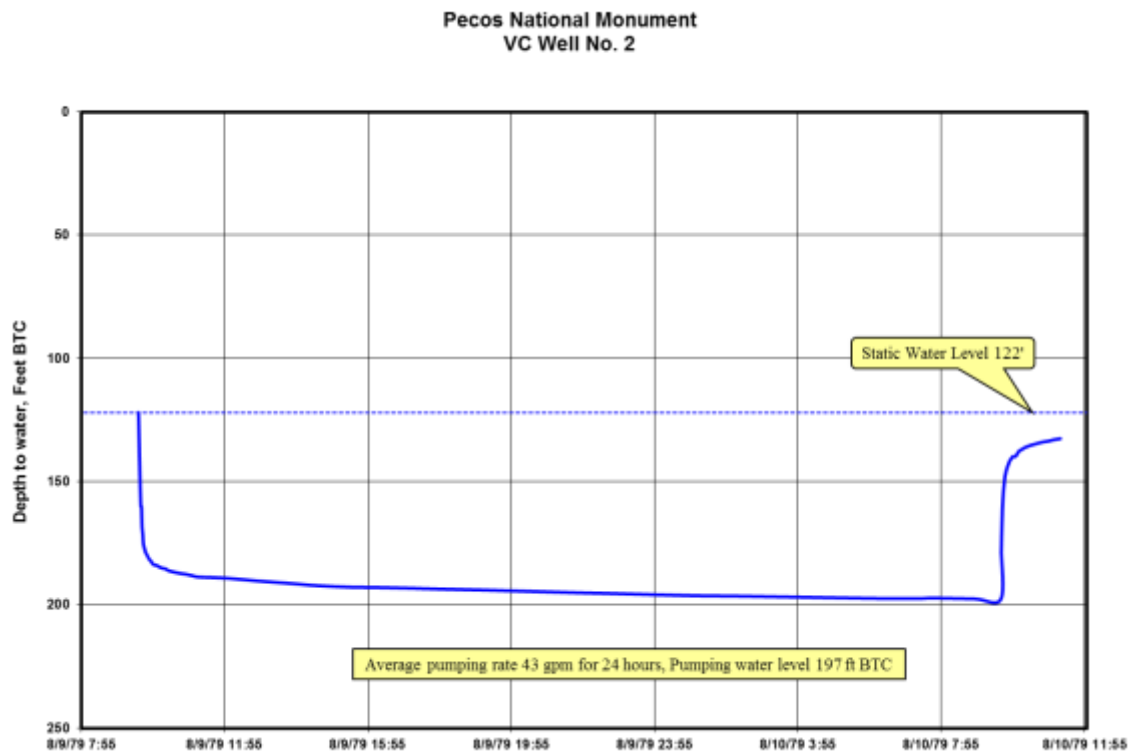
The driller moved the rig about 30 feet north and constructed a second well. This well is called "Well No. 2" in WRD files. The well was drilled to 560 feet deep. Only the first 210 feet were cased. The yield of the well was estimated to be 65 gpm. When workers returned a month later (October 25, 1978) to install a pump, they found the well had partially collapsed and the bottom was at 340 feet. Plans for test pumping were abandoned.

Workers returned in June 1979 and found the bottom of the well at 294 feet. A test pump was installed at 279 feet and the well was test pumped for 21 hours at 8-10 gpm, resulting in 17 feet of drawdown.



Red Top Drilling of Las Vegas, NM worked on the hole later in the summer (July 16-17, 1979). They redrilled the well with a 6-inch bit to 365 feet. There was already 6-inch casing to 210 feet. The redrilling was apparently to restore the depth of the well through the most productive zone within the Madera Limestone, from 315-350 feet. The log for the rehabilitation of the well states that casing and screen were installed. The casing is 5½" OD. There is a 10-foot section of well screen from 330-340 feet and then 10 feet of casing to a total depth of 350 feet.

Paul Christensen (1979) conducted a pumping test of the well in August 1979. The well had an average pumping rate of 43 gpm for 24 hours, resulting in 76 feet of drawdown. The Water Resources Management Plan for the park (NPS, 1994) states that the well was drilled at this location to provide water for a planned visitor center. Later, the location of the visitor center was changed because of concerns about its proximity to cultural resources. A well was drilled at the new location for the visitor center in 1983.



Well at the Visitor Center

A well was constructed at the Visitor Center in July 1983. The well is 350 feet deep. The driller's log indicates that water was obtained from limestone beds, with the majority of the water from 175-176, 243-245, and 323-325 feet. The well was completed with 0.010" slot stainless steel well screen from 310-330 feet. There are no pumping test data in the WRD files. The static water level was reported at 110 feet.

Trading Post Well

This well was constructed around 1978 when the site was still a part of the Forked Lightning Ranch (prior to NPS acquiring the property). The well is reportedly 350 feet deep. There is no documentation for construction or testing of the well.

Hydrogeology

Pecos National Historical Park, including the Trading Post, is underlain by bedrock of the Sangre de Cristo Formation to a depth of about 150 feet. The Sangre de Cristo is composed of alternating layers of conglomerate, sandstone, siltstone, shale and limestone.

The Madera Formation underlies the Sangre de Cristo Formation. The Madera is composed of layers of limestone, shale, and conglomeratic sandstone. Limestone layers in the Madera seem to be the primary source of groundwater for wells in the area. Many of the wells in the area are 300-400 feet deep to penetrate several layers of limestone within the Madera.

References

- Christensen, Paul K., 1979, *Hydrogeology of the Pecos National Monument Well No. 2*, Water Resources Report No. 80-4, National Park Service Southwest Region, 21 pp.
- Johnson, Ross B., 1973, *Geologic Map of the Pecos Quadrangle San Miguel and Santa Fe Counties, New Mexico*, U.S. Geological Survey Map GQ-1110, 1 sheet.
- National Park Service, 1994, *Water Resource Management Plan, Pecos National Historical Park*, National Park Service, Water Resources Division, Ft. Collins, CO, 65 pp.



