

The Phreatic Line (*Water Table*) in Lake Petit Dam has increased since the 90's, when concerns were that the elevated levels had created a substantial safety issue regarding Seismic Stability. Our Engineer JJ&G rated the Seismic Rating at 0.7, well below the Regulatory Seismic Stability Requirement of 1.1. Elevation of the Phreatic Line has increased in 2020 (see chart), and the effect on our unstable "Clay Core" dam design can only be interpreted as being even more unstable now. No one has been able to explain the increase in the water levels in the recent March 2020 Study. The POA has refused to share followup study data and readings. Below are the Water Table Reading Comparisons.

Piezometer Location	1998 Reading	2020 Reading
G-1A Shallow	1593.68	1601.90 ↑
G-1A Deep	1577.07	1582.08 ↑
G-1B	1580.87	1586.32 ↑
G-2 Shallow	1566.23	1575.95 ↑
G-2 Intermediate	1588.90	1562.62 ↓
G-2 Deep	1553.41	1555.39 ↑
G-3	1531.94	1536.84 ↑

Here is a comment from our Engineer in 1997:.

“Our review of the piezometer data provided verbally by Mr. Robertson and field measurements from these monitoring wells during our May 13th site visit have suggested that a shallow water surface has existed within 12 feet or less of the downstream slope face's lower sections since within 1-2 years after its construction. Based on our experience with similar earth fill dams, this water surface should be much deeper on a structure of this size, particularly with a designed clay core and internal drainage system. The primary effect of an elevated internal water surface within this dam would be a substantial decrease in stability safety factors.” **It goes on to say....** *“...the resulting calculated minimum safety factors were 1.1 for steady state conditions and 0.7 for the seismic event. These values are well below the Safe Dams' design requirements, and raise some serious concerns about the potential stability of the existing dam structure..... it is our preliminary opinion that if there is an elevated phreatic surface in the dam, it could cause a potentially dangerous condition within the downstream slope face.”*

Excerpt Document Reference:

https://bigcanoe.themountainsvoice.com/wp-content/uploads/2021/01/1997-06-27_LTR-JJG-to-BCPOASummaryOfPrelimEvalhilite.pdf