

Jocassee Overtopping Notes

NRC Data

Using 1940 – 2000 data of all types and sizes of dams with inadequate flow out of spillways:

- There were 134 failures in 1.37×10^6 dam-years producing a rate of 9.78×10^{-5} per year.
- Of the spillway failures, 5 were in earthen dams.
- No spillway failures seen in rockfill dams.
- There were 17 gate failures for all dams with 2 of them resulting in dam failure producing a failure rate of 1.46×10^{-6} per year.

Duke

- Cameras monitor level staff gage and forebay.
- Monitoring in Jocassee control room and at the Charlotte, NC office.
- The dam has sufficient freeboard. Top of dam is at 1125-ft msl.
- The dam has regular inspections with weekly visual checks of gate mechanism.
- Spillway design would allow spillover before the main dam overtops.
- During a PMF event, the spillway Tainter gates are required to be fully opened with 3-out-of-4 hydro-turbines for adequate relief.
- Tainter gates have backup motive power from portable air compressors.

FERC

- Identified conservatism in 18 CFR 12D report

(b)(7)(F)

Conclusions

- Dam failure data is too sparse to make decisions on constituent failure modes.
- Statistically overtopping cannot be completely ruled out but, given the above information, it appears to have a low likelihood as a major contributing failure mode for Jocassee.
- Piping and foundation failures still need to be addressed.

References

- [1]. Operation Report, "Jocassee Development of Keowee-Toxaway Project", Federal Energy Regulatory Commission, August 23, 2007
- [2]. Supporting Technical Information Document, "Jocassee Pumped Storage Project", STI No. 2503-JO-03, Duke Power, December 3, 2004.
- [3]. Part 12 Inspection Report, "Jocassee Development of Keowee-Toxaway Project", NATDAM ID # SC00529, Findlay Engineering Inc., December 2004.
- [4]. Emergency Action Plan Dam Failure Inundation Study, "Jocassee Hydro Project", Duke Power Company, December 10, 1992.

- [5]. Letter from D. Baxter (Duke Energy) to J. Giiter (US NRC), "Response to 10 CFR 50.54(f) Request, September 26, 2008.