JOCASSEE DAM FAILURE FREQUENCY COMPONENTS

BRIEFER(S): Melanie Galloway, Mike Franovich, Jeff Circle, and James Vail.

PURPOSES: (1) To inform the NRR Associate Office Director of the technical reasons behind NRR's staff consideration of other contributions to Jocassee Dam failure frequency.
(2) To prepare for the follow-up discussions with the Oconee Nuclear Station (ONS) licensee on response to the 10 CFR 50.54(f) letter.
(3) To explore communicating with the ONS licensee, the requirement that all potential sources of ONS site flood be considered in response to the 10 CFR 50.54(f) letter.

EXPECTED OUTCOMES:
Common understanding that seismic and Probable Maximum Precipitation (PMP) leading to Probable Maximum Flood (PMF) need to be considered for a complete assessment of the Jocassee Dam failure frequency.

DISCUSSION:
The total dam failure frequency has three major contributors which are:

- Random ("sunny day") failure.
- Probable Maximum Precipitation.
- Seismically-induced failure.

In order to arrive at a decision based on risk-informed principles, the staff expects each constituent contributor to all sources of risk be considered. To that end, the 10 CFR 50.54(f) letter did not specify addressing only one of these contributors while ignoring the rest. The regulatory basis for the consideration of all contributors to all potential flood sources to the ONS site is based on the following background information.

Oconee was licensed to a draft form of GDC-2 which states (in part):
"Those systems and components of reactor facilities ... shall be designed, fabricated, and erected to performance standards that will enable the facility to withstand, ... the additional forces that might be imposed by natural phenomena such as earthquakes, tornadoes, flooding conditions winds, ice, and other local site effects..."

Regulatory positions stated in R.G. 1.59 specify that:

- For sites on a lakeshore, flood conditions caused by dam failure from earthquakes and probable maximum floods (PMF) due to hydrometerological conditions should also be considered in establishing the design basis flood.
- Reasonable combinations of less severe flood conditions and seismic events should be considered to the extent needed for a consistent level of conservatism.
- With some flood timing exceptions, hardened protection against flood be provided for Systems, Structures, Components (SSCs) which are used to maintain the plant in a hot shutdown condition.

Further examples of hardened protection are contained in R.G. 1.102.

Recommendation/Conclusion:
In keeping with the spirit of the draft GDC-2 and regulatory positions contained in R.G. 1.59 and R.G. 1.102, the staff strongly recommends that the licensee should not be misled into believing that by addressing only one contributor to one source of flood will resolve the adequate protection question at the ONS site. This would be contrary to NRC regulatory positions and tenets of risk-informed regulation.