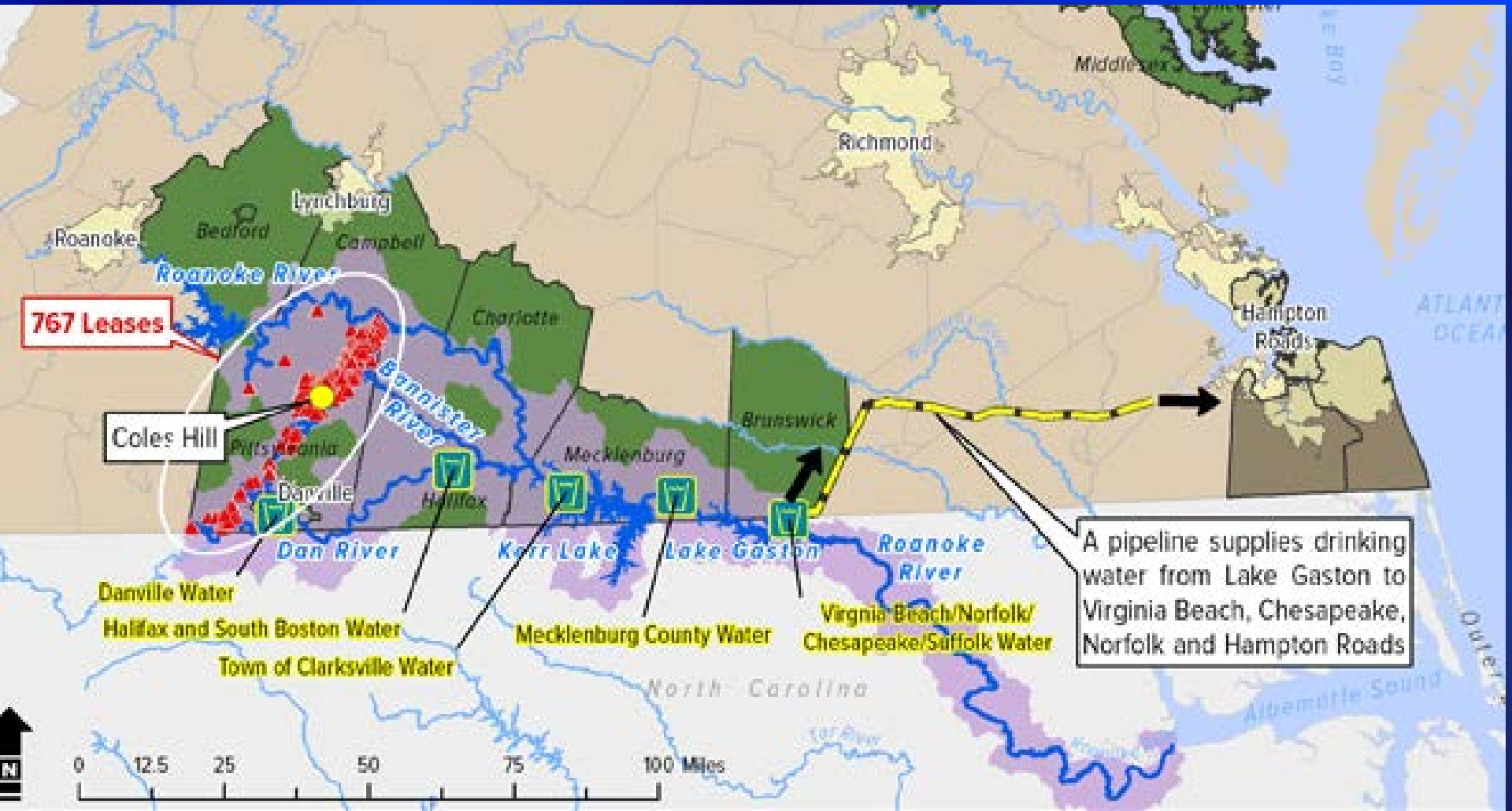
Uranium Mining Impact Study
Hampton Roads Planning District Commission - July 19, 2012



Virginia Beach/Michael Baker Study

- Computer simulation of downstream water quality impacts from a theoretical breach of a single, above grade, uranium mine tailings disposal cell resulting from a catastrophic precipitation event
- Worst case scenario for a single, above grade cell failure on the Banister River
- The event is unlikely and one that technology and regulations should prevent

Model Assumptions

- Release of 0.7 MCY of tailings following a hypothetical disposal cell breach caused by a catastrophic precipitation event
- Discharge to Banister River near Coles Hill
- Tailings release is followed by either
  - Wet period (Sep 1996 – Aug 1998)
  - Dry period (Jun 2001 – May 2003)
- Lake Gaston pump station does not operate
- Three contaminants are modeled: radium, thorium, uranium

Water Column Impacts: Lake Gaston

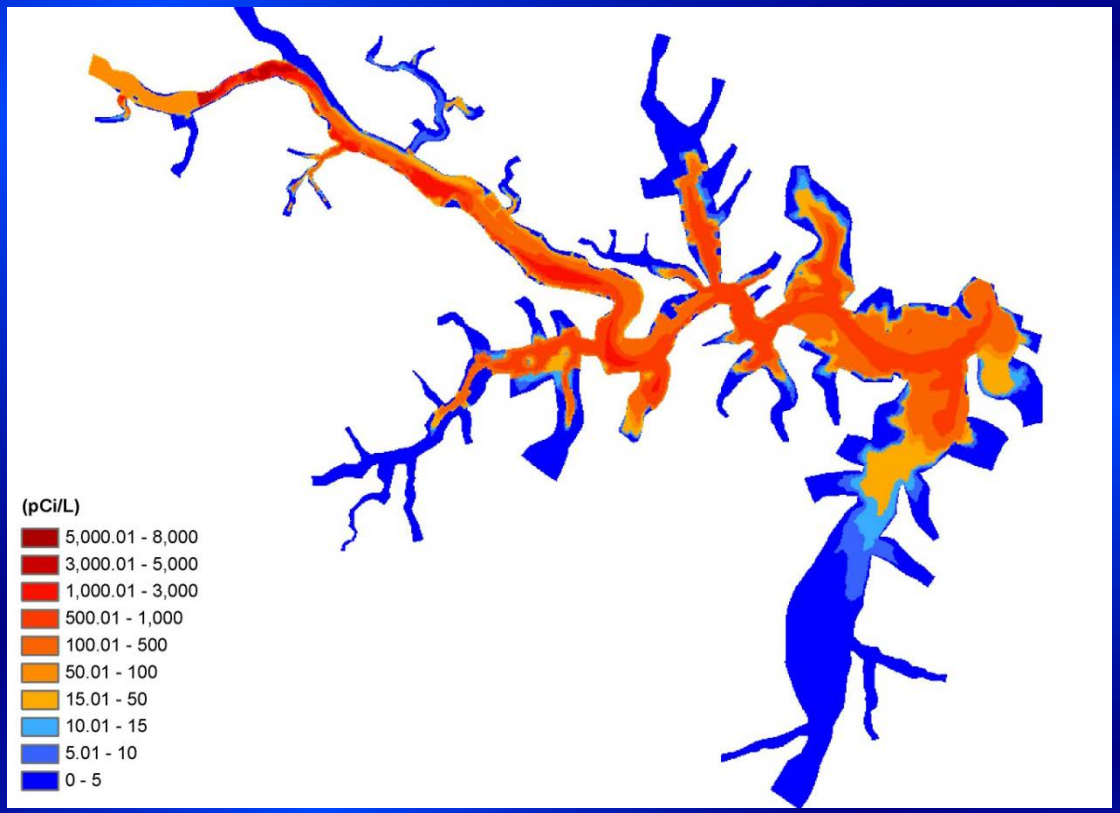
- Elevated uranium, but less than the Maximum Contaminant Level (MCL)
- Total Radioactivity (radium plus thorium) would remain above the MCL
  - Less than a month during wet years
  - 7 to 10 months during dry years
- Radium radioactivity would remain above the MCL
  - Up to two months during wet years
  - 6 to 16 months during dry years

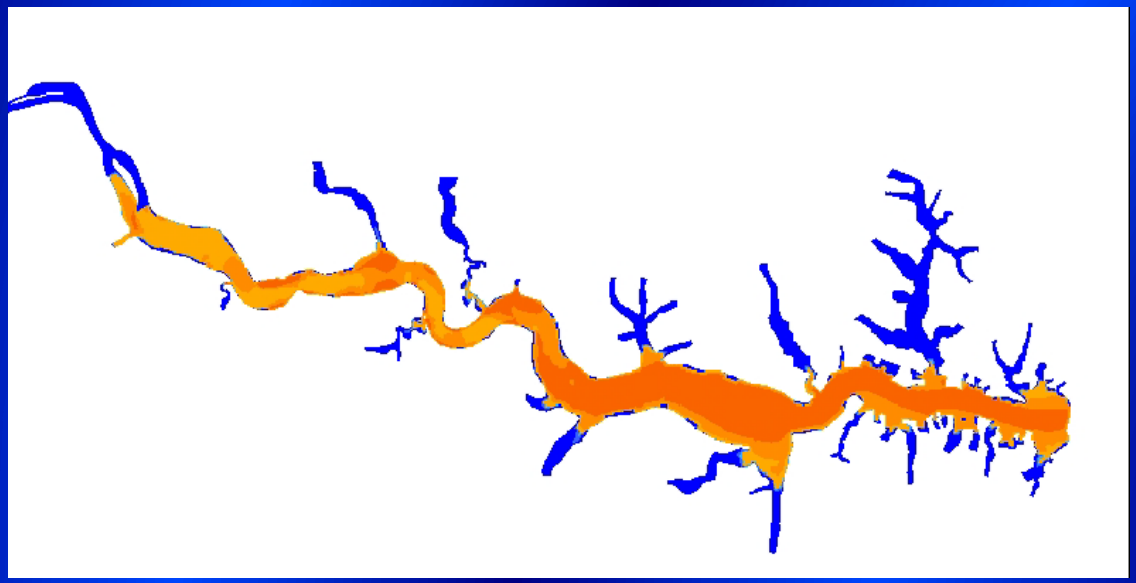
Videos Showing Progression of Radium Through Kerr Reservoir and Lake Gaston

Kerr Reservoir Dry Year Video

Lake Gaston - Dry Year Video

Radioactivity Remaining in Reservoir Bed Sediments After Two Years





Uranium Mining in Virginia

- The necessary regulatory framework is not in place today and there are “steep hurdles” to overcome before it ever would be
- Although unlikely, extreme natural events intersecting with human errors could result in a significant tailings release from above grade tailing disposal cells
- A breach of an above grade disposal cell caused by a catastrophic precipitation event could force the Gaston pipeline to shut down for a period of months to more than one year
- Probability is small, but consequences are great

Questions?