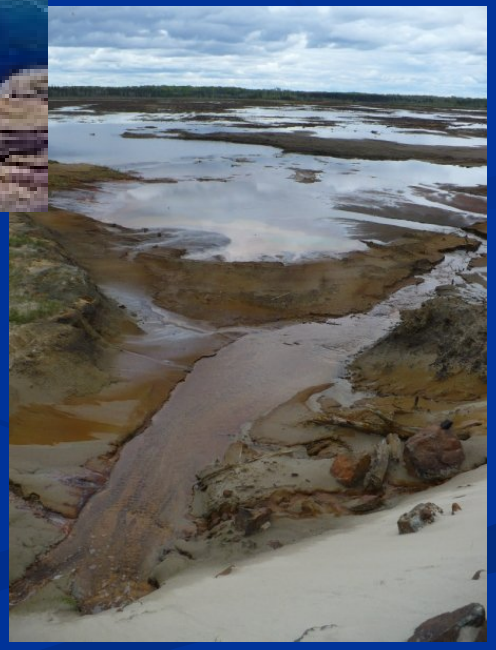
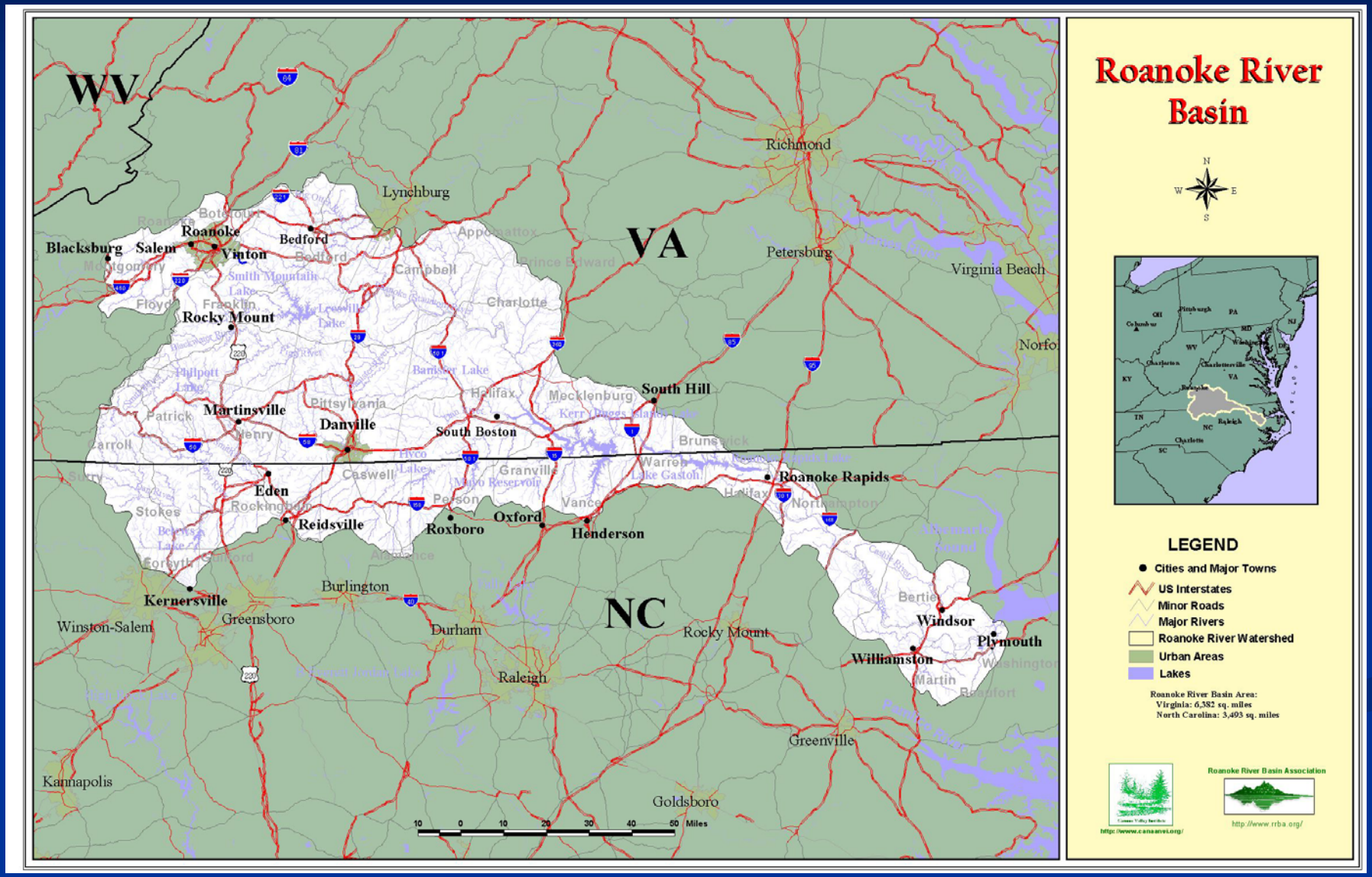
Proposed Uranium Mining, Milling, and Radioactive Waste Storage in the Roanoke's Watershed



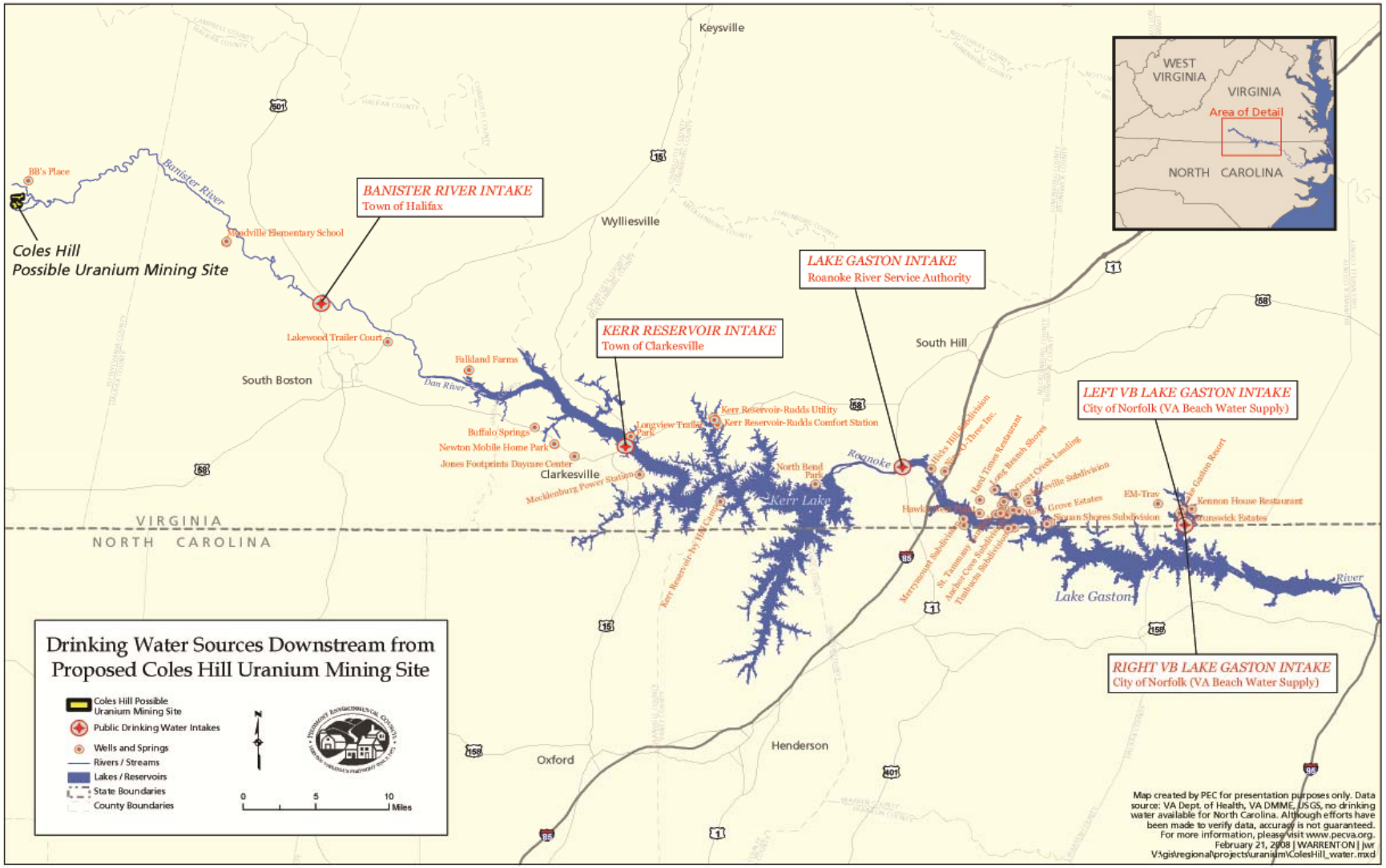
Roanoke River Basin
Bi-State Commission Meeting
Henderson, NC

July 25, 2012

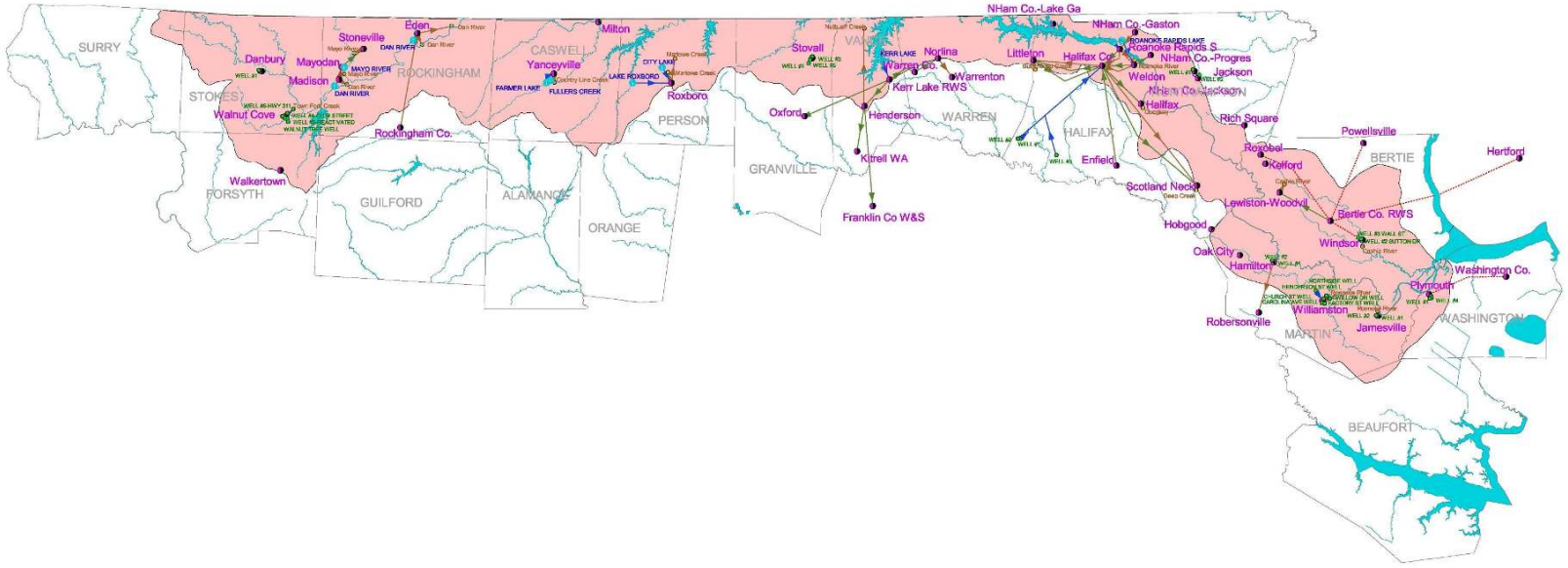
Roanoke River Basin Map



Downstream Water Intakes in Virginia



Downstream Water Intakes in North Carolina



Roanoke River Basin Water and Discharge Interconnect Map
NCDWR

Water Users Downstream of Coles Hill

VA Communities	**76,121 residents**
NC Communities	**344,638 residents**
Virginia Beach	**770,000 residents**
TOTAL:	**1,190,759 residents**

ADDITIONALLY:

Raleigh, NC	**403,892 residents***
KLRWS Service Area in NC**	**68,000 residents****

- *Raleigh, NC has requested an allocation from Kerr Reservoir
- **Based on 2008 estimates and does not include all service area

National Academy of Sciences Report, pages 124-25:

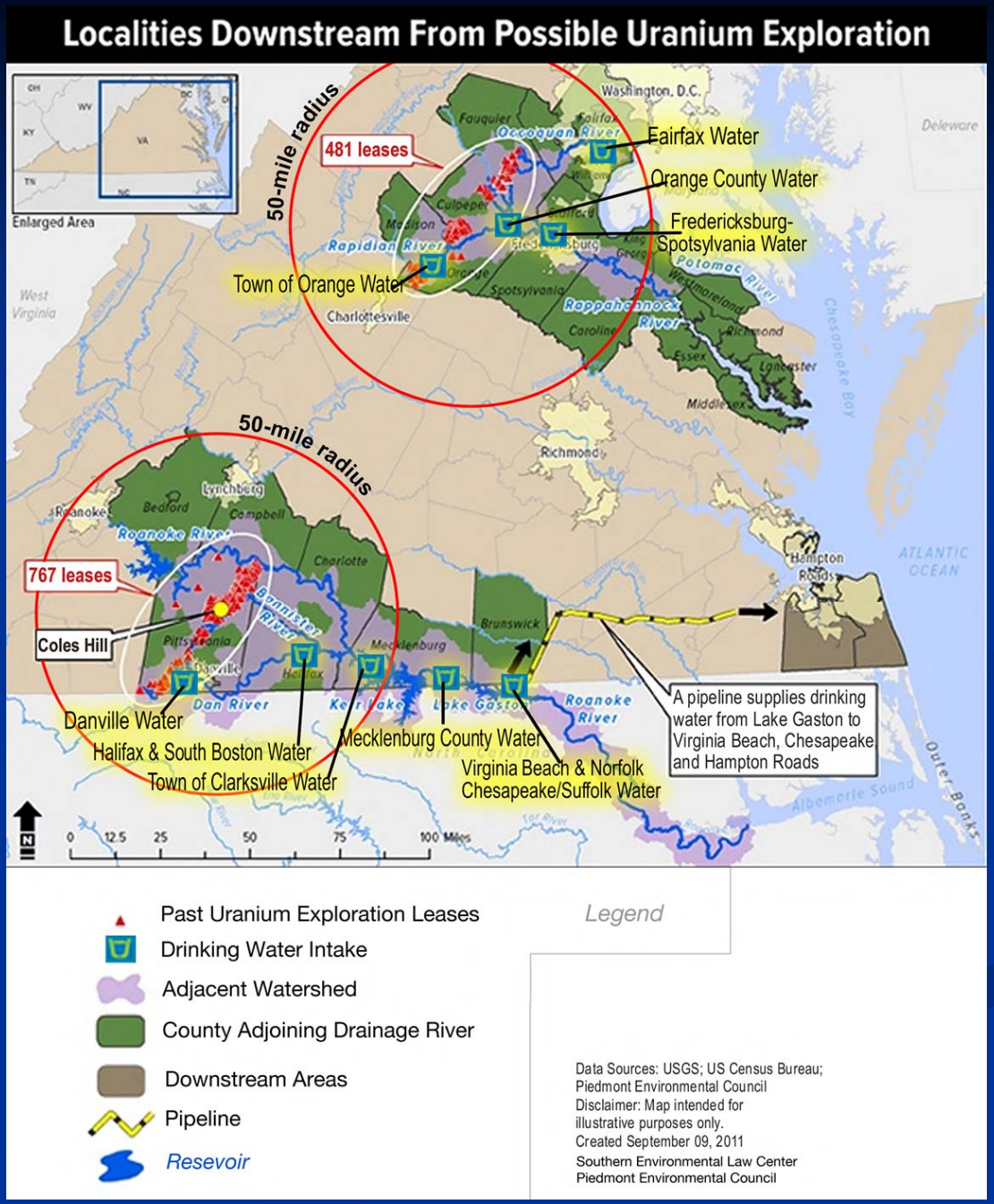
The US Environmental Protection Agency Nov. 10, 2011 model, based on a site in Culpeper, VA

ESTIMATES:

The maximum estimated population's dose living within 80 kilometers (50 miles) of the site was 200 person/rem/year, with a 1.4 per 1,000 chances of developing a latent cancer fatality.

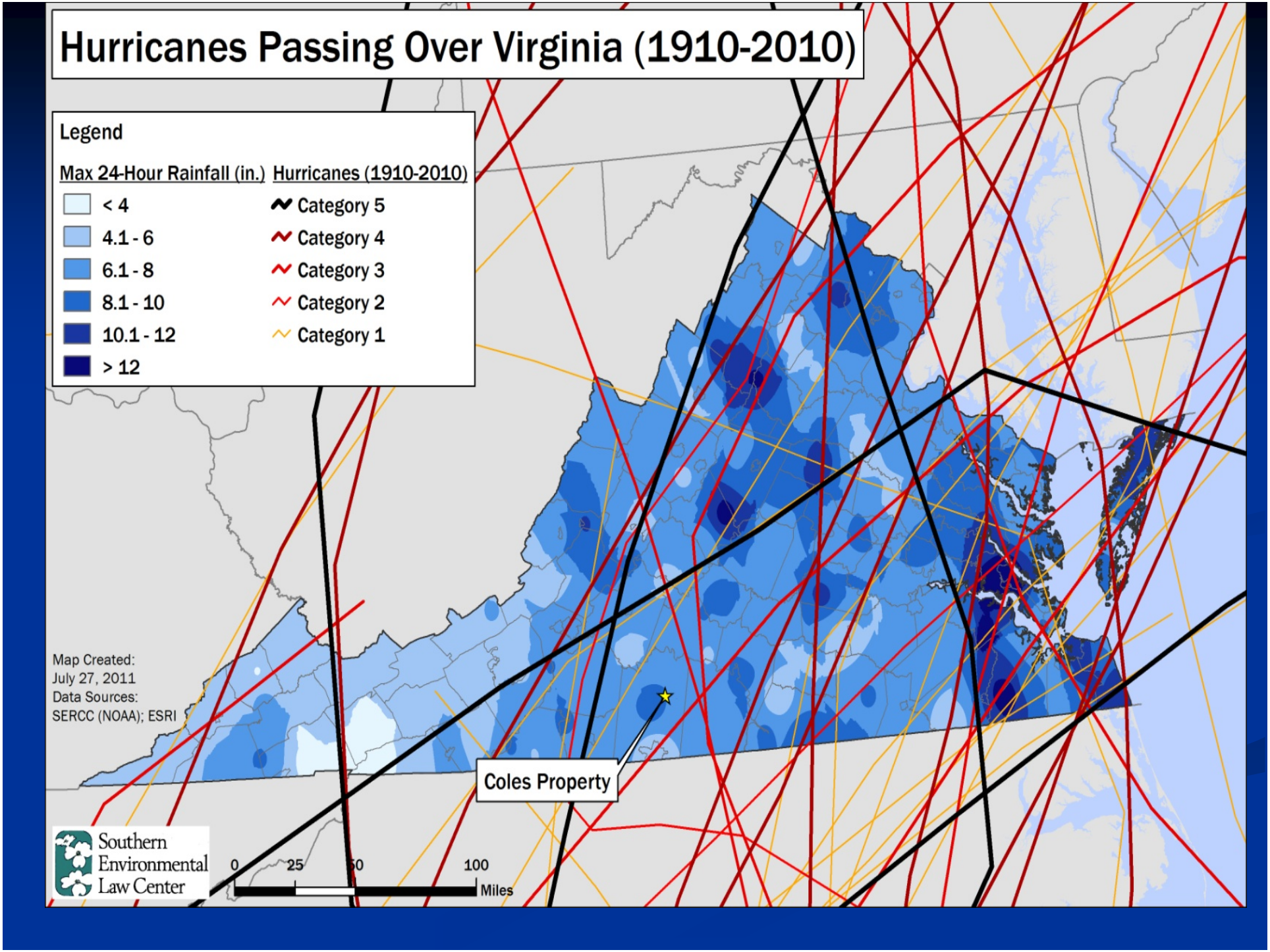
Did not address cancer risks for children, pregnant women unborn children, people with prior exposure and/or hereditary risks.

http://www.epa.gov/rpdweb00/docs/neshaps/subpart-w/historical-rulemakings/subpart-w-risk.pdf



RRBA Research

- RRBA has been the lead agency in the basin for almost 67 year.
- Our mission is to protect the natural resource and support its wise development
- RRBA has been researching implications of lifting VA's 30-year uranium ban on water quality and quantity in the basin
- 7 studies at a cost totaling $2.8 million
- The common denominator – risks are high and consequences are unpredictable mainly due to VA's climate


Hurricanes Passing Over Virginia (1910-2010)
Legend
Max 24-Hour Rainfall (in.)
< 4
4.1 - 6
6.1 - 8
8.1 - 10
10.1 - 12
> 12
Hurricanes (1910-2010)
Category 5
Category 4
Category 3
Category 2
Category 1
Map Created:
July 27, 2011
Data Sources:
SERCC (NOAA); ESRI
Coles Property
Southern Environmental Law Center
0
25
50
100
Miles

Tornado Cloud 5 miles from Coles Hill
April 2011

Tropical Storm Lee, August 2011
Northern VA

Franklin County, VA Spring 2012

NI 43 – 101 PRELIMINARY ECONOMIC ASSESSMENT

VIRGINIA URANIUM INC.
VIRGINIA ENERGY RESOURCES INC.

COLES HILL URANIUM PROPERTY
PITTSYLVANIA COUNTY, VIRGINIA
UNITED STATES OF AMERICA

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December 2010

Coles Hill Project : Facts

- **Coles Hill Preliminary Economic Assessment (PEA), dated Dec. 2, 2010 filed with Canadian Securities Administrators, www.sedar.com**
- **Coles Hill Project will produce 46 million lbs of yellowcake. VUI PEA, p. 109, Table 107**
- **First 20 years: estimated production 37 million lbs, VUI PEA, p. 109, Table 107**
- **Last 15 years: ONLY 9 million lbs to be produce with 30% increase in costs of production**
- **US EIA projects that US nuclear power plants will need app. 55 million lbs of yellowcake per year for the next 15 years**
- **46 million lbs over the 35-year lifetime of the proposed mine and mill will meet only 10 months of US annual demand**

Coles Hill Project: Questions

- **Walt Coles, Jr., CEO, Virginia Energy Resources, Inc., March 1, 2011:**

for years '21 through '35, this is in here to show a commitment to the community that we're going to have a long mine life on this project. From an MPV perspective, the cost of mining and the profits that you would earn in years '21 through '35, it's insignificant. Once you get that far out in the future, it does not have an impact on MPV, but we wanted to, again, demonstrate that this is going to be a long life mining project.

Transcript of March 1, 2011 Webcast of Virginia Energy Resource, Inc. Presentation, p. 6
available for fee from Wall Street Energy Forum, http://www.analyst-conference.com/

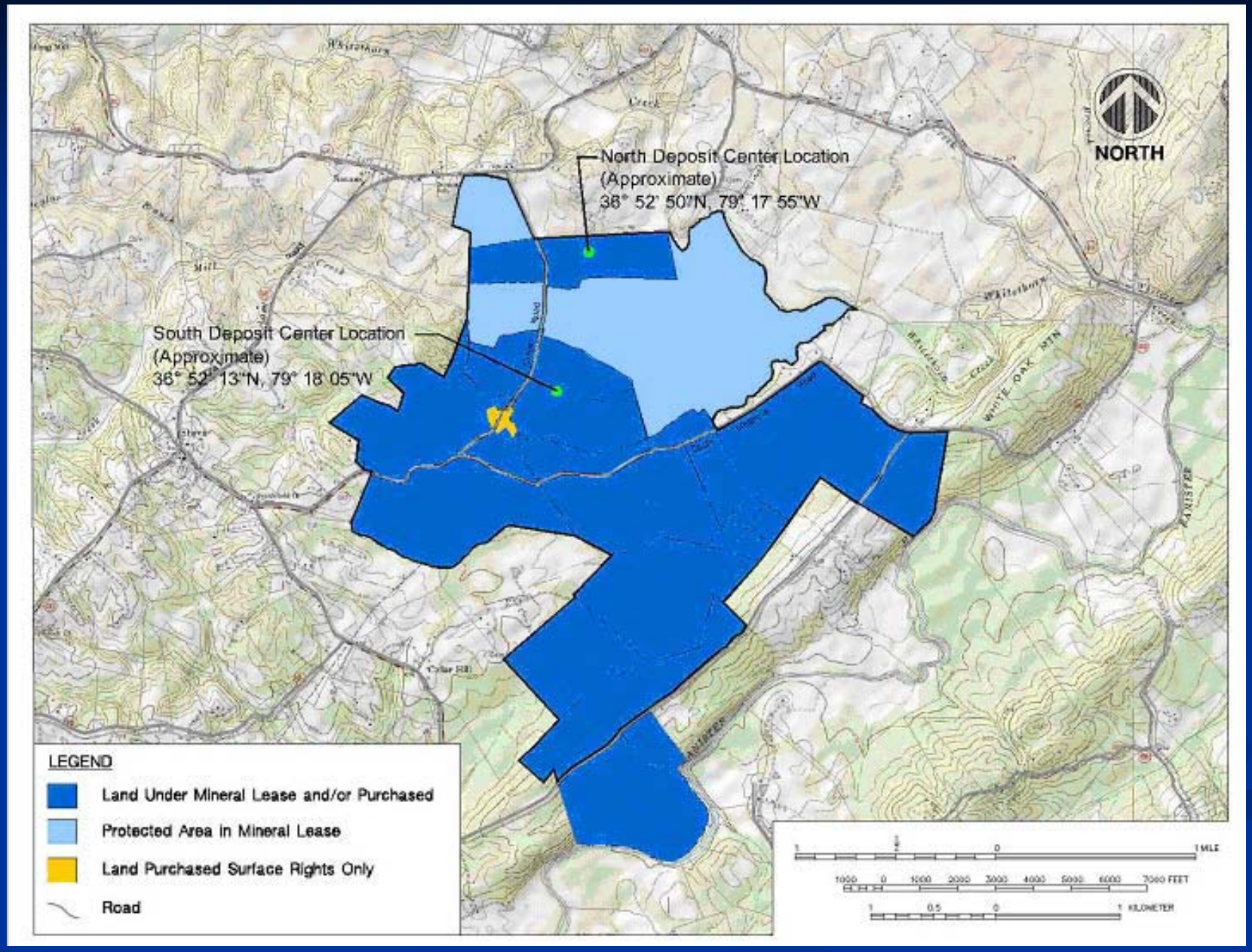
Moran Report

- In August 2011, RRBA commissioned Dr. Robert Moran, PhD, to perform a site-specific evaluation of the Coles Hill site
- Dr. Moran has 40 years of related experience at hundreds of mining, natural resource, and industrial sites
- The Moran Report focuses on water-related, technical issues.
- The report findings are based on review of the original data and reports (1979 to 1984), and the recent, publicly-available, company documents (2007-2010), as well as Dr. Moran's involvement in 1983 as a hydrogeological and water quality consultant to Marline and Union Carbide on many of the water-related activities at Coles Hill.
- The objective of the Moran Report is to assist the public and regulators in making better-informed, long-term decisions, not to tell them what should be done.

Moran Report: Site Characteristics

- **Unlike most U.S. uranium mining sites, which occur in desert or semi-desert, sparsely-populated regions, the Coles Hill site is wet, with annual precipitation equal to about 42 inches.**
- **Within a radius of 2 to 3 miles, Coles Hill has roughly 250 private wells, at least one dairy and numerous hay / forage fields**
- **Over 1268 people reside within a 3-mile radius of the site.**
- **3 "Class A" FEMA Flood Hazard Zones" -- a 1% annual chance of flooding and a 26% chance of flooding over a 30-year period.**
- **Flood zones are contiguous with Mill and Whitehorn Creeks and the Banister River.**
- **Springs and several acres of wetlands located within the bounds of the Coles Hill South Exploration Area.**

Coles Hill Project Location, VUI PEA, p. 1



Sping on Coles Hill Site off South Meadows Road, page 7


11.04.2011 07:30

Flooding at Coles Hill. Year 2009

Flooding at Coles Hill. Year 1996

Moran Report: Wastes

- **Mining Waste/Waste Rock: contains uranium concentrations too low to be economically processed. Often *discarded in huge piles, somewhere on the land surface, often near the pit perimeter.***

- **When exposed air, explosive chemicals, other gases and bacteria, mineralized rocks chemically-react with the local waters forming in some cases acidic waters.**

- **Several sources of mine rock release contaminants into the environment: the walls of the open pit, walls of the underground workings, waste rock piles, and road cuts.**

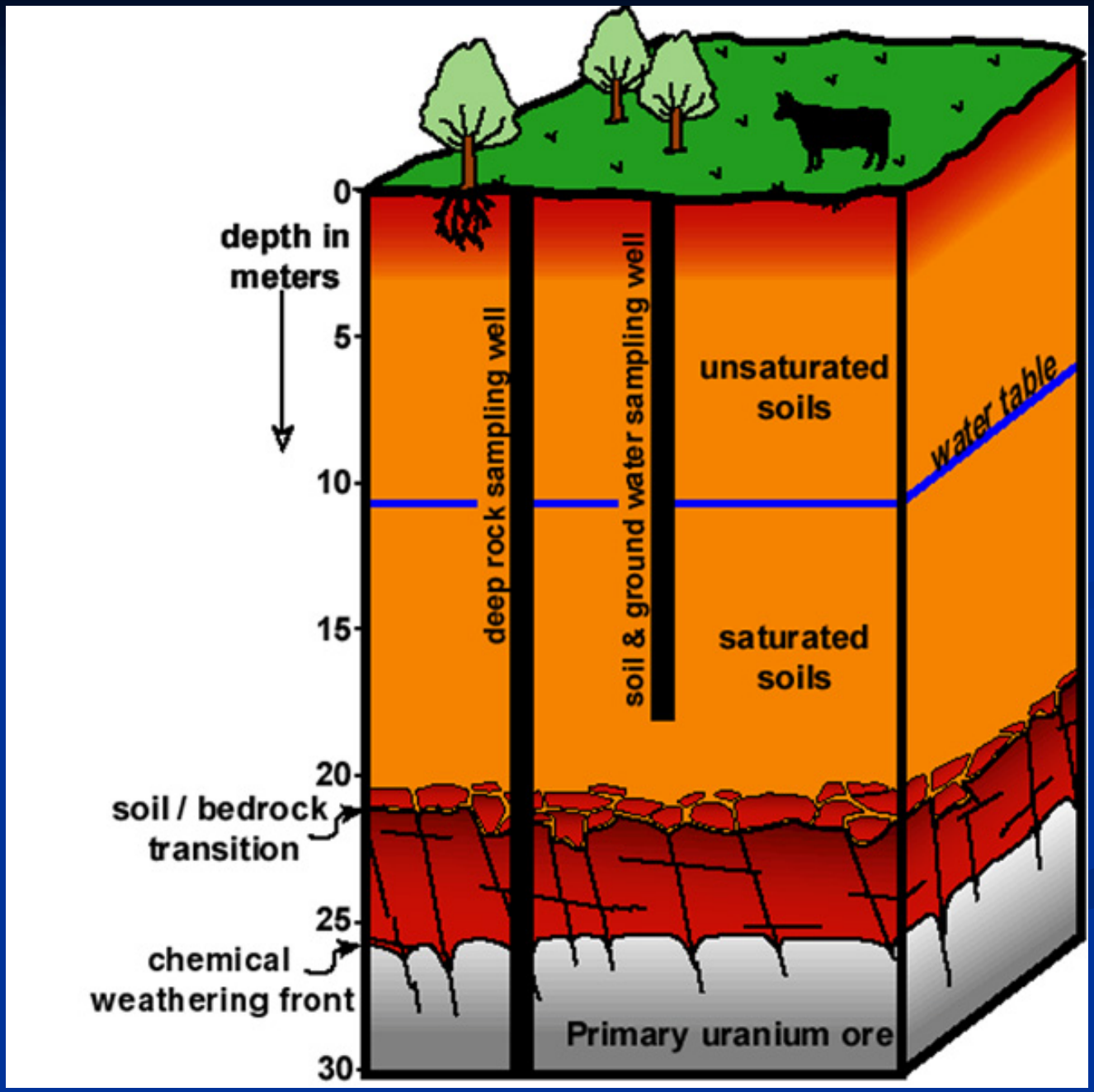
- **The confirmed presence of sulfides in the Coles Hill rock raises the possibility that long-term, active water treatment may be required, in perpetuity.**

Moran Report: Uranium Mill Tailings

- The project as proposed may generate at least 28 million tons of solid uranium mill tailings and roughly the same amount of liquid waste
- The solid wastes would remain on site forever, requiring maintenance forever
- Uranium mill tailings would contain radionuclides, heavy metals and other
- The Coles Hill Preliminary Economic Assessment states that the Coles Hill site will host eight (8) “surface impoundments” up to 40 acres each that will hold over 19 million tons of solid waste, not including liquids
- NRC allows above the grade waste storage where:
  - a ground-water close to the surface or not very well isolated
  - Too expensive or impractical

Source:
VA Tech

http://www.research.vt.edu/resmag/ColesHill/Figure2_low_res.jpeg



Moran Report: Water

- **Undiluted tailings liquids may contain 1160 to 1460 times the existing Safe Drinking Water Act standard for uranium. Undiluted tailings liquids may contain *2300 to 2900 times the allowable uranium concentrations when compared to the short-term Canadian aquatic life guidelines.***

- **Numerous factors (i.e., natural permeability of the rock due to fractures and faults; increased fracturing due to mine blasting; open or leaking boreholes and blastholes; high permeability in the nearby sediments; long-term degradation of tailings liners and other mine structures; and seismic activity) combine to provide long-term pathways for the migration of contaminants into local waters.**

- **The Coles Hill project may use over 2,030 tons of explosive per year, releasing potentially-toxic concentrations of nitrate, ammonia, and other organic compounds into the environment**

Moran Report: Water

- As proposed, the Coles Hill project would require over 5 billion gallons of water. During the start-up period, the project would use at least 525.6 million gallons per year.

- It has been estimated that at least 136 million gallons of ground water (mostly) would flow into the open pit, per year. This water would become contaminated with numerous radioactive and non-radioactive contaminants. To allow mining, this contaminated water must be pumped out of the pit and discharged to some undefined location.

CONCLUSION:

Such a project would cause long-term, chronic degradation of water quality and increase water competition in the region.

Questions?

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