



# Radiological Contaminants in Wake County Well Water

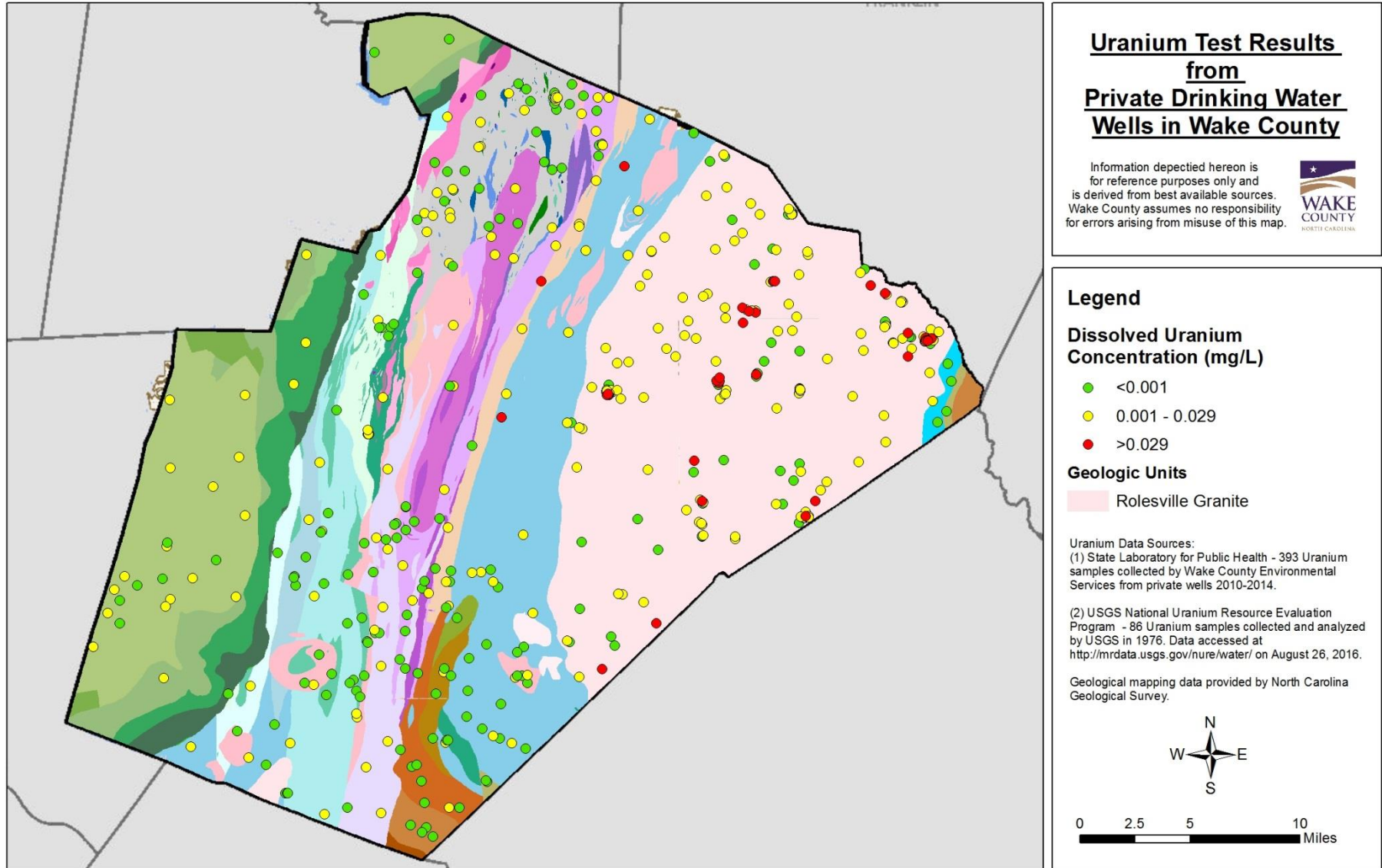
GLUE Committee Meeting  
*February 13, 2017*



# Outline

1. Background on radiological contaminants in Wake County
  - Occurrence
  - Testing recommendations
  - Treatment options
2. Recent experience in one neighborhood
3. Programmatic recommendations

# Uranium in Wake County Well Water



# Radiological Contaminants in Wake County Well Water

Contaminant	Relevant Standard	Potential Health Effects	Source
Uranium	30 µg/L (Federal MCL)	Increased risk of cancer from ingestion	Naturally occurring, especially in “younger” granitic rocks
Radium 226 & 228	5 pCi/L (Federal MCL)		
Radon (in water)	No Federal MCL or state groundwater standard	Increased risk of lung cancer from inhalation; Increased risk of stomach cancer from ingestion	

# Relative Frequency of Well Water Quality Problems

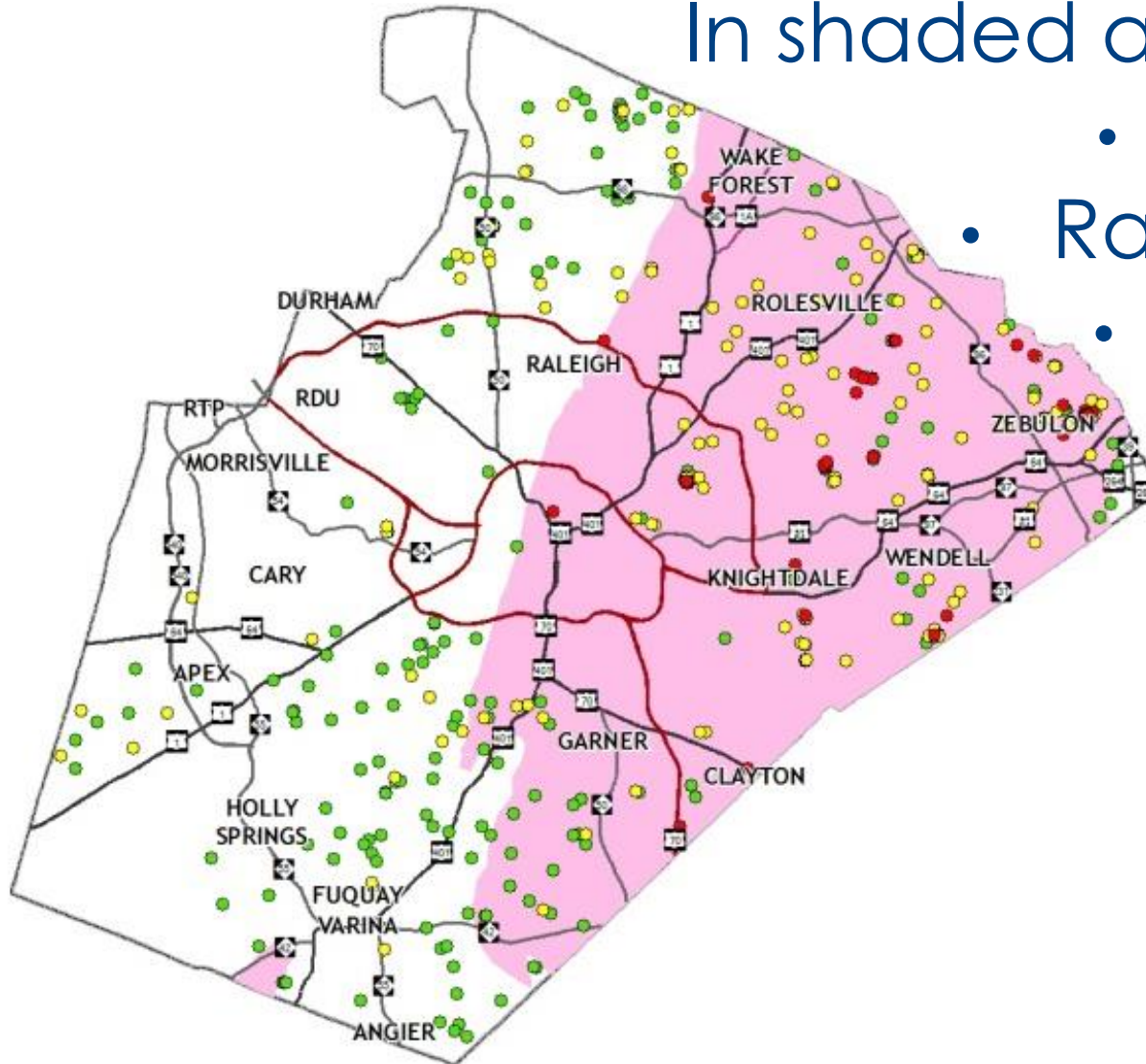
Contaminant	Number of Tests	Percentage Exceeding Federal Standards
Uranium	393	9.9%
Pesticides - Bond Street Investigation	211	4.3%
TCE	410	1.0%
Nitrate	4,736	0.7%



# Testing Recommendations

In shaded areas, test for:

- Gross alpha
- Radon in water
- Radon in air
- Cost: \$150



# Treatment Options

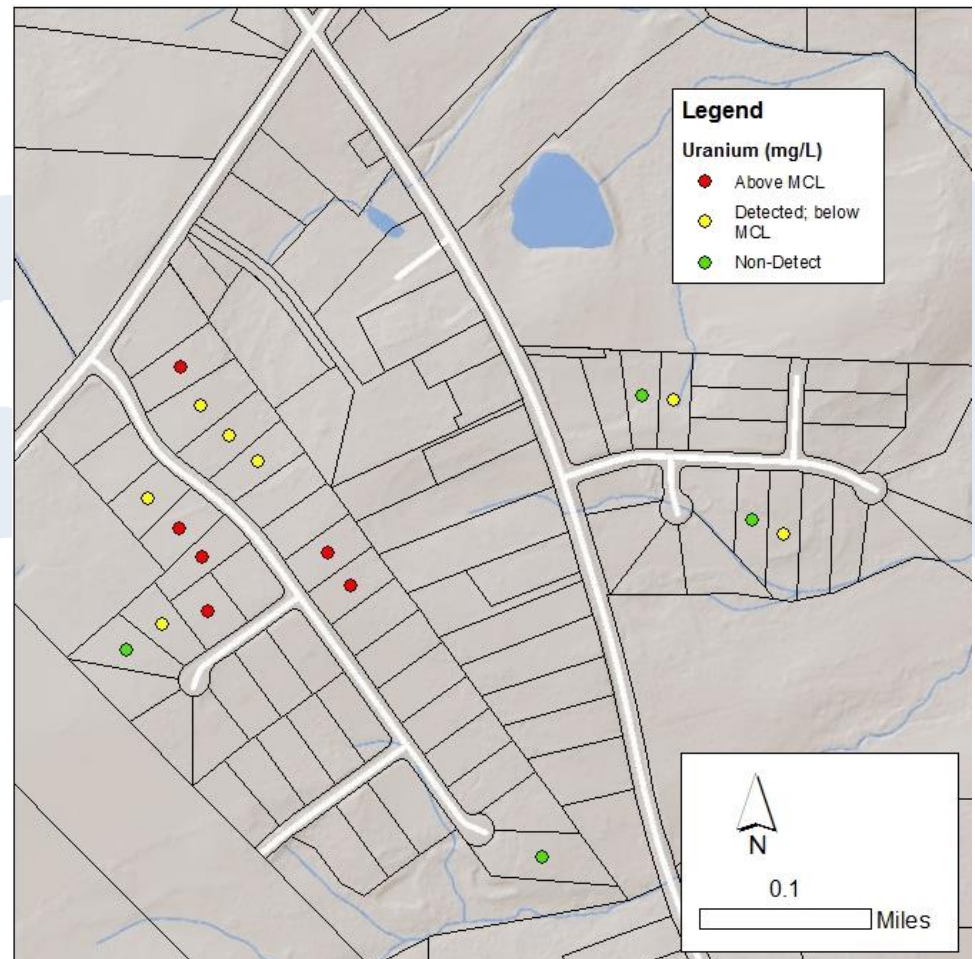
- Uranium
  - Point of Use: Reverse Osmosis
  - Point of Entry: Anion Exchange
- Radium
  - Point of Use: Reverse Osmosis
  - Point of Entry: Cation Exchange
- Radon (in water)
  - Point of Use: Exhaust fan
  - Point of Entry: GAC filter or aeration system

# Recent Experience with Radiological Testing



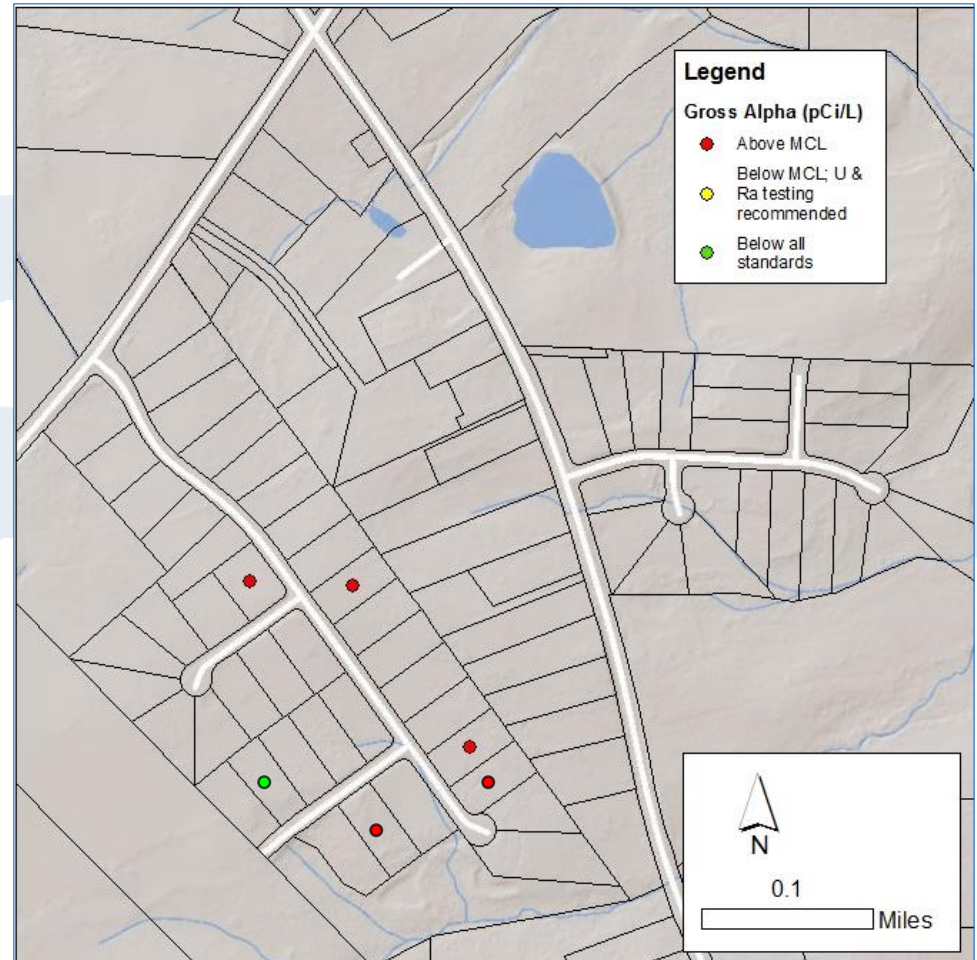
# 2012-2014 Uranium Testing

- 17 wells tested for Uranium at time of construction
  - 7 above MCL
  - Highest concentration: 65x MCL



# 2016 Gross Alpha & Radon Testing

- 6 wells tested for gross alpha
  - 5 above MCL
  - Up to 90x MCL
- 5 wells tested for radon
  - All above 10,000 pCi/L



# Program Development Recommendations

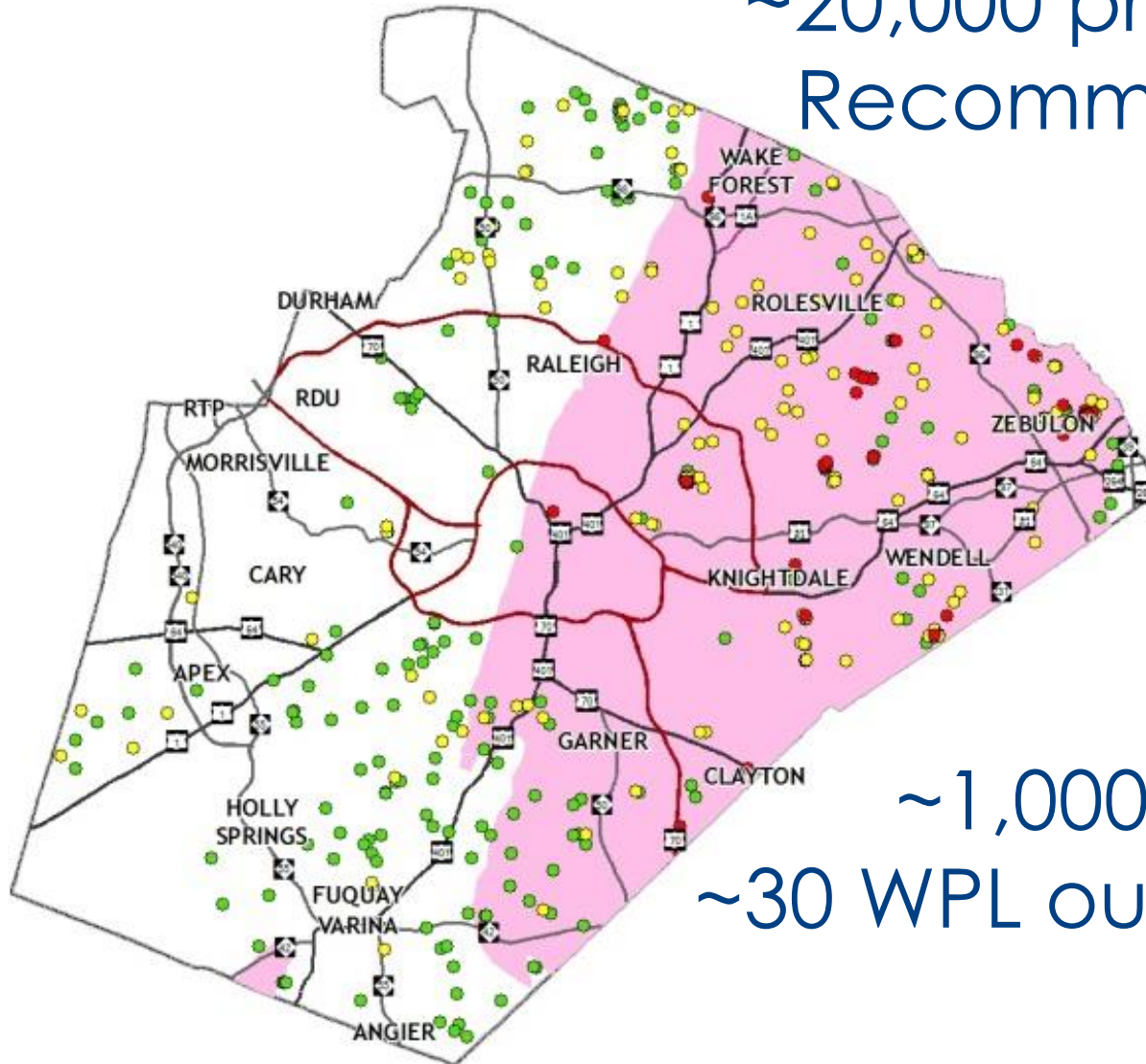
Risk-based prioritization of WPL outreach by prevalence and severity of contaminants in private wells

Consider radiological test requirements during upcoming rule revision process

Improve communication of test results to buyers of new homes

# Outreach for Radiologicals

~20,000 private wells in  
Recommended Rads  
Testing Area



~1,000 properties in  
~30 WPL outreach areas

# Summary

- Radiological contaminants are:
  - relatively common in Wake County
  - treatable
- Well program is increasing emphasis on radiological contaminants through:
  - Passive outreach
  - Targeted outreach
  - Rule revision process



# Discussion