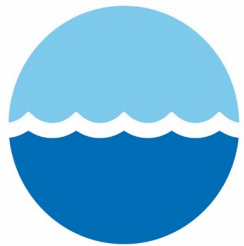


What's In Your Water?

Testing and Treatment Basics for
Healthy Communities



**Raritan
Headwaters**

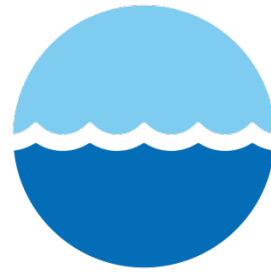
Your water is our mission.

Mara Tippet

mtippet@raritanheadwaters.org

908-234-1852 Ext 401

What Does



Raritan Headwaters

Do?



Science

- We monitor the health of surface water and groundwater, plants, and animals in the region to identify trends, discover problem areas, and measure the success of our programs.



Educate

- We craft education programs about water, wildlife conservation, and responsible stewardship practices for children of all ages, teachers, municipalities, home/landowners, and visitors.



Advocate

- As The Watershed Watchdog, we identify key water-related issues at all levels of government. We educate politicians to ensure they understand the environmental ramifications of the decisions before them. We also alert our membership to actions they can take to protect their water and environment.



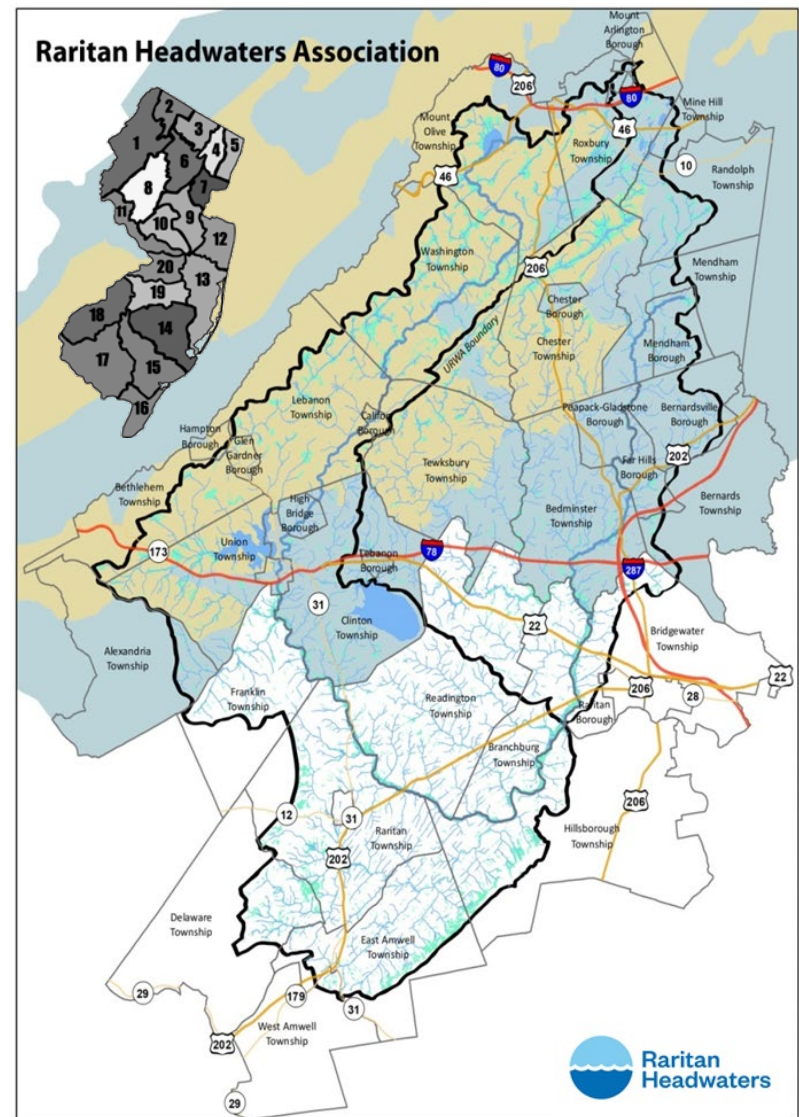
Preserve & Steward

- Our cleanup program engages hundreds of volunteers to remove tons of trash every year from our streams. We help preserve land with our partners. We manage our preserved lands using nationally recognized best management practices. Accredited through the Land Trust Alliance 2018.

Protecting water in our rivers, our streams and our homes.

North & South Branch Raritan Region

- ◆ 470 square miles: 43% of the Raritan Basin
- ◆ 3 Counties: Hunterdon, Somerset & Morris
- ◆ includes all or parts of 38 municipalities
- ◆ home to nearly 250,000 people
- ◆ 34% Urban, 22% Ag, 45% Forest & Wetland
- ◆ our rivers provide drinking water to more than 1.5 million citizens downstream
- ◆ part of the Highlands Water Supply





North Branch: Headquarters
Fairview Farm Wildlife Preserve

● 2121 Larger Cross Road, Bedminster

South Branch: Well Testing Program

● 124 Main Street, Flemington

Seminar Series: Watershed Tools for Local Leaders

- Share and apply key science, planning, and regulatory tools
- Partner on projects to identify, protect, and restore water resources
- For upcoming seminar topics & dates visit www.raritanheadwaters.org

Climate Resilient Municipalities: Controlling Stormwater, Protecting Streams & Maintaining Water Quality

Dr. Chris Obropta, Rutgers University
Dr. Kristi MacDonald and Bill Kibler, RHA

Thursday, May 16

2-4pm

Clarence Dillon Library

2336 Lamington Rd., Bedminster Twp.

For more info, please email: kmacdonald@raritanheadwaters.org



PUBLIC WATER SYSTEM

A system that pipes water for human consumption if such system has at least 15 service connections or regularly serves at least 25 individuals 60 or more days out of the year.



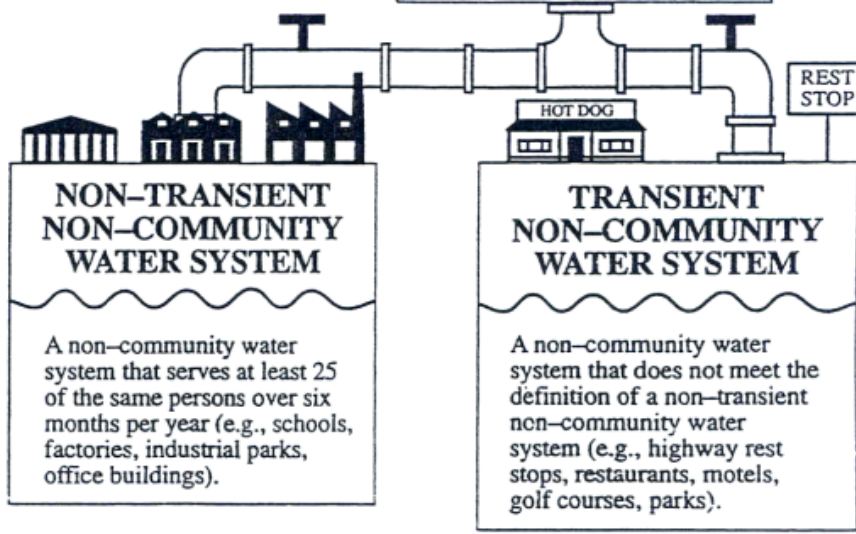
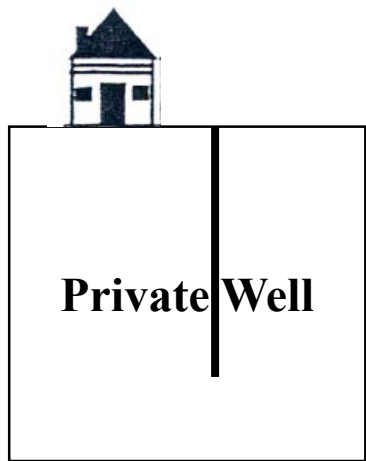
COMMUNITY WATER SYSTEMS

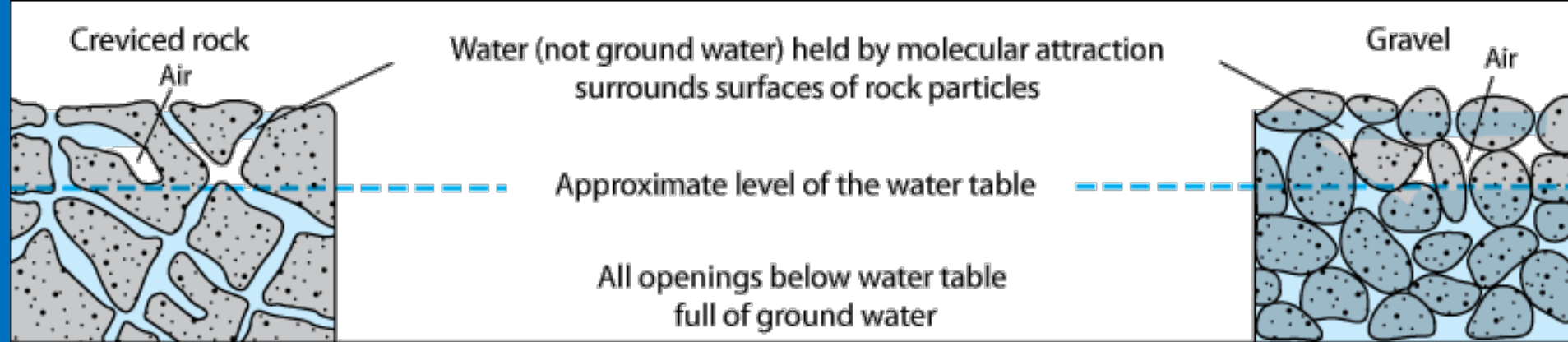
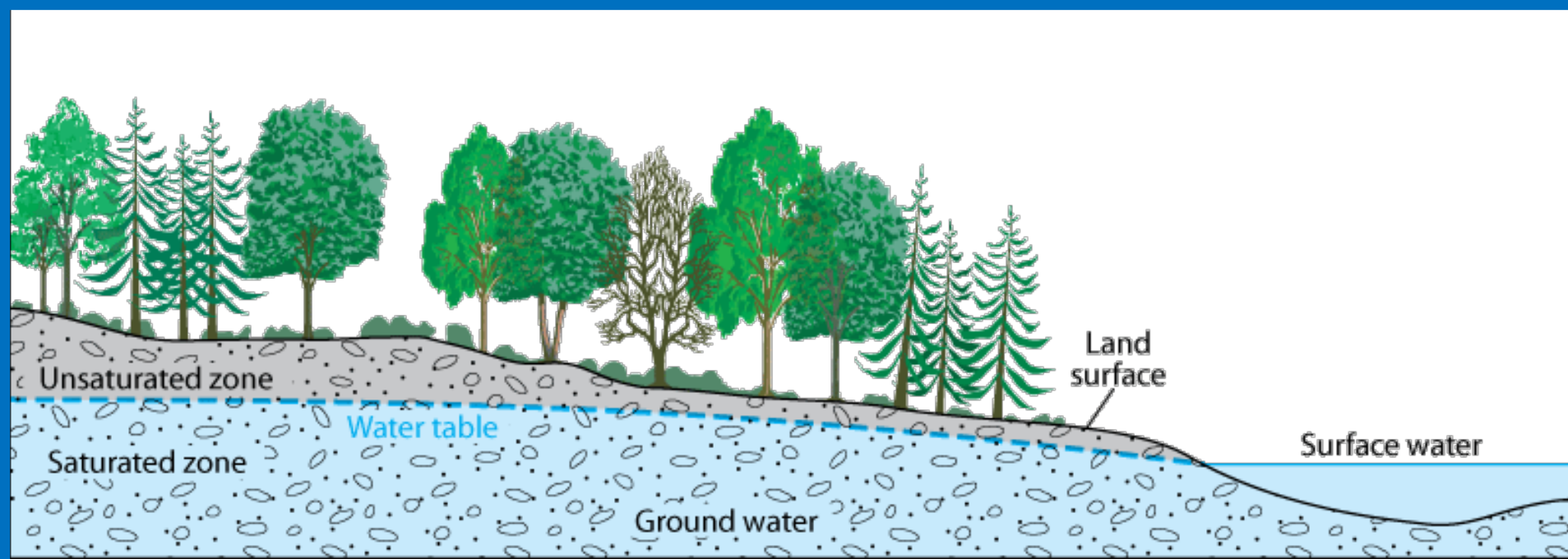
A public water system that pipes water for human consumption to at least 15 service connections used by year-round residents, or one that regularly serves at least 25 year-round residents (e.g., municipality, subdivision, mobile home park).

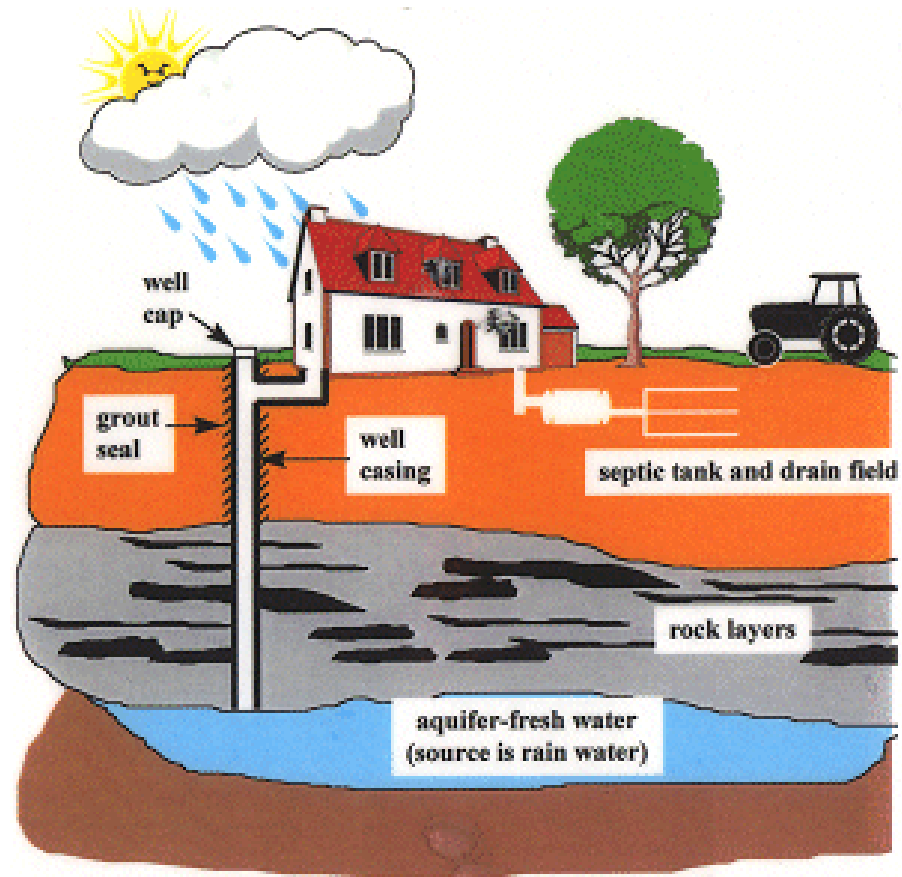
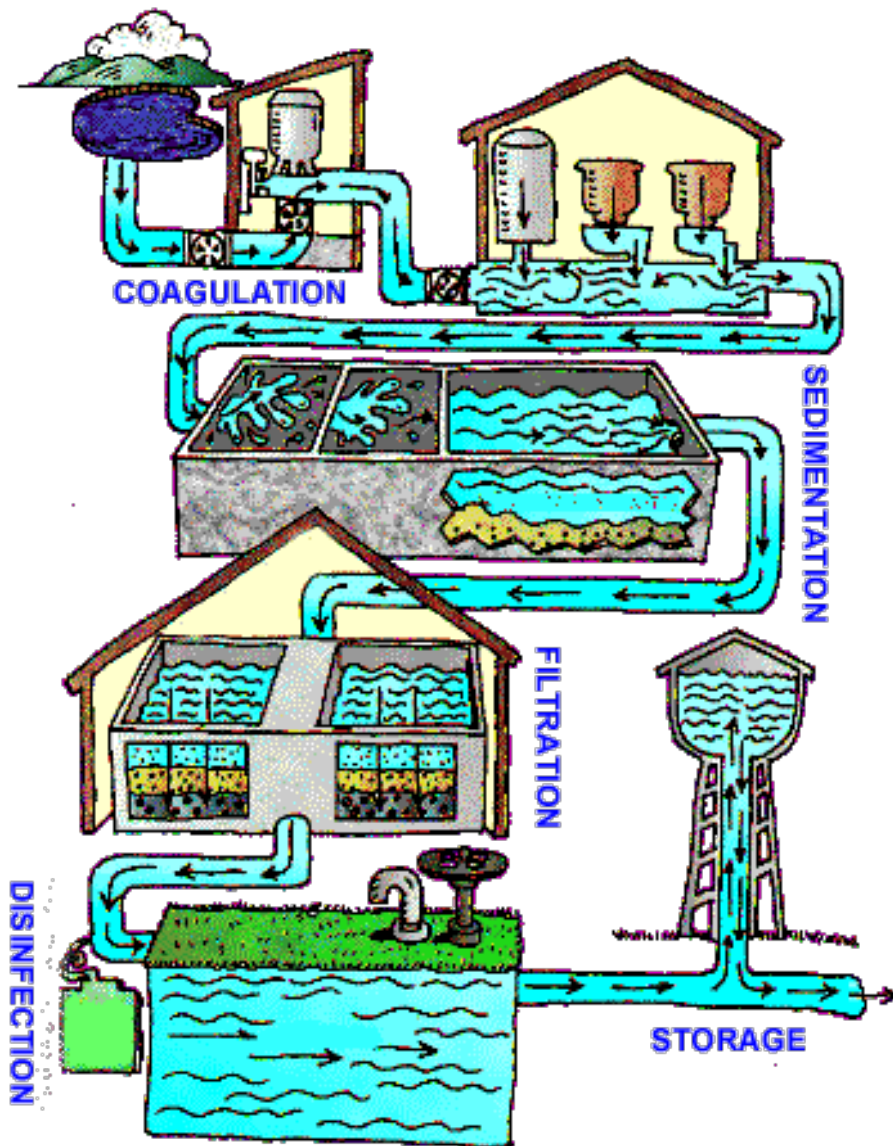


NON-COMMUNITY WATER SYSTEM

A public water system that pipes water for human consumption to at least 15 service connections used by individuals other than year-round residents for at least 60 days a year, or serves 25 or more people at least 60 days a year (e.g., schools, factories, rest stops, interstate carrier conveyances).







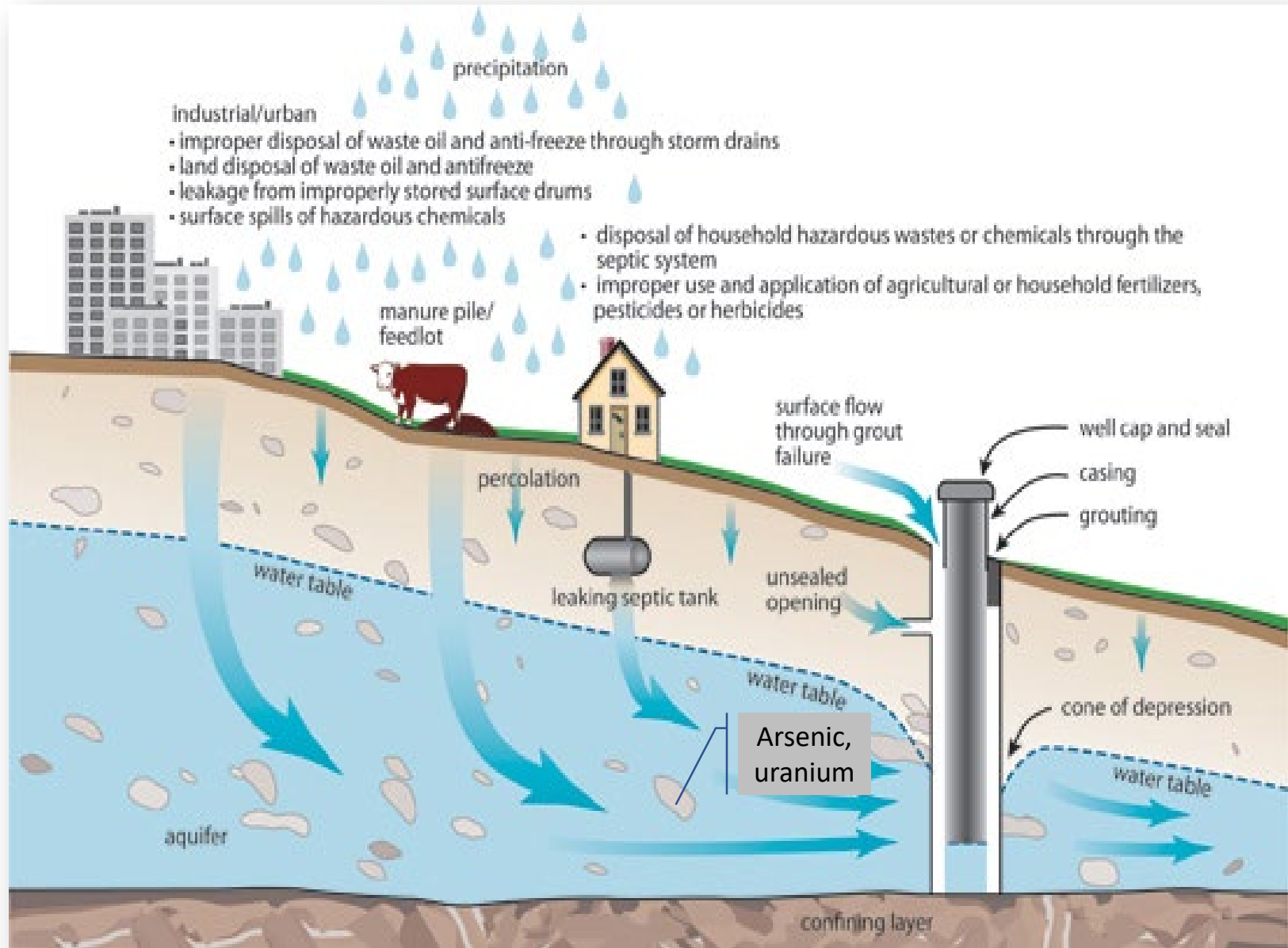
Community Water Systems: Public Water

Private Wells in New Jersey

- NJ Population: 8.9 million (2015 est.)
 - 13% of the population (1,150,000 people) have private wells for their drinking water supply.
- An estimated 400,000 private (domestic) wells in New Jersey.
- No federal regulations cover private wells.
- Before 2002: state regulations applied only to newly-constructed wells.



Groundwater Contamination



DRINKING WATER PROTECTION IN NEW JERSEY

NJ Private Well Test Act-2002

- Requires testing of private residential wells when sold or leased
- Additional testing for:
 - 1,2,3-trichloropropane (TCP)
 - 1,2-dibromomethane (EDB)
 - 1,2-dibromo-3-chloropropane (DBCP)
 - PFOA
 - Arsenic
 - Uranium
 - Gross Alpha

Safe Drinking Water Act-1974

- Requires periodic testing by public water utilities for a number of contaminants
- Established Drinking Water Quality Institute (DWQI)

What your water could have looked like before the SDWA was est. in 1974...

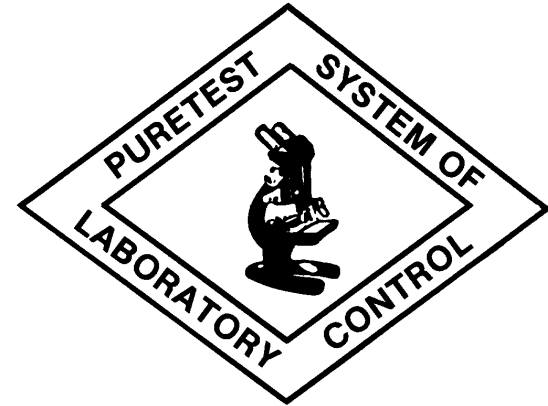


Deanna Doster

Project Coordinator

Garden State Laboratories, Inc.

ddoster@gslabs.com



Private Well Testing Act: Overview and New Additions

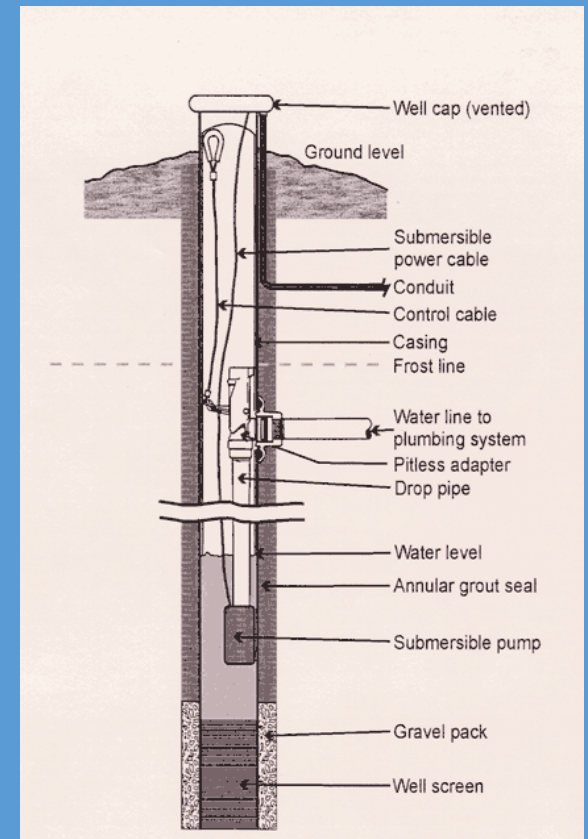


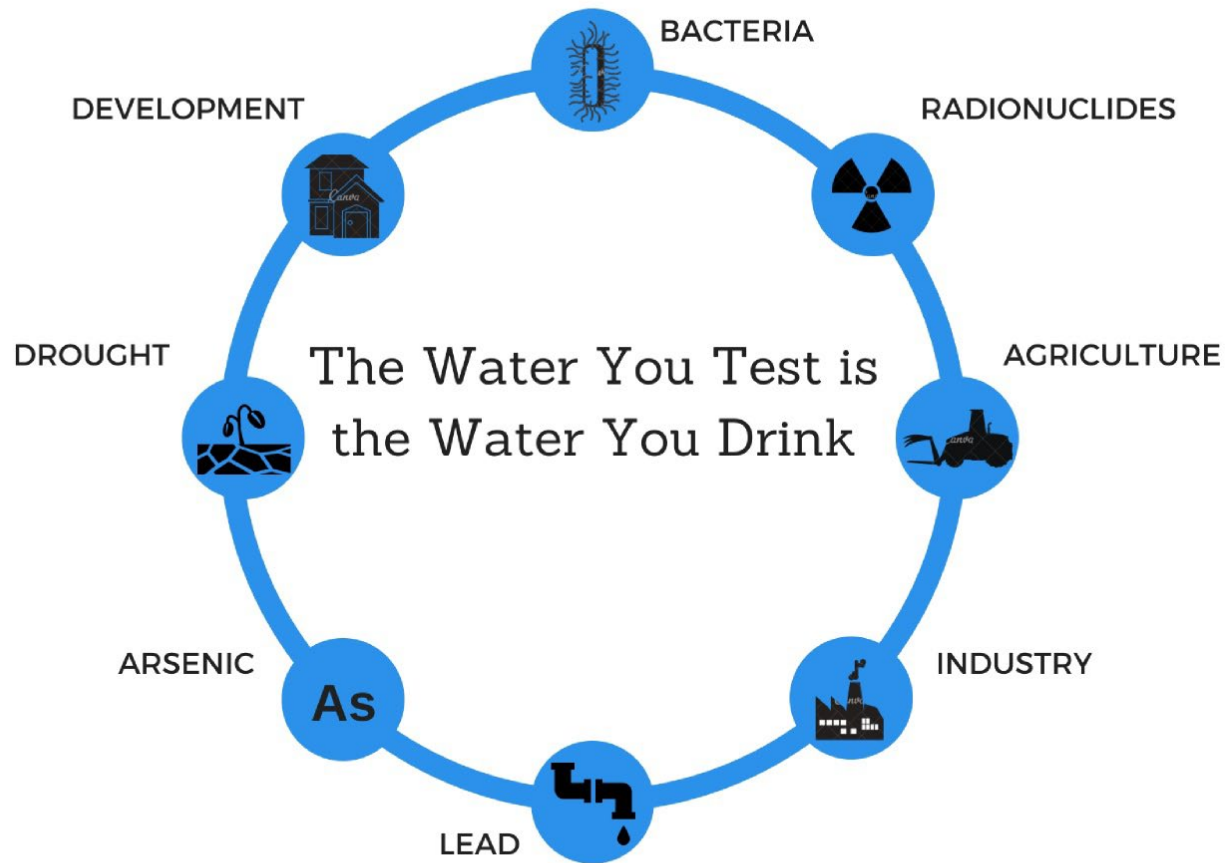
Garden State Laboratories, Inc.
BACTERIOLOGICAL AND CHEMICAL
TESTING
Analytical Excellence Since 1943



NJ Private Well Testing Act

- Became effective 9/16/2002.
- Real estate with wells. Untreated well water must be tested during real estate transactions for up to 35 parameters (county-dependent).
- Testing done by private, state-certified labs. Cost paid by seller or buyer.
- Results provided to client and submitted electronically to the NJDEP.
- No action required if a parameter limit is “exceeded” (a right-to-know law).





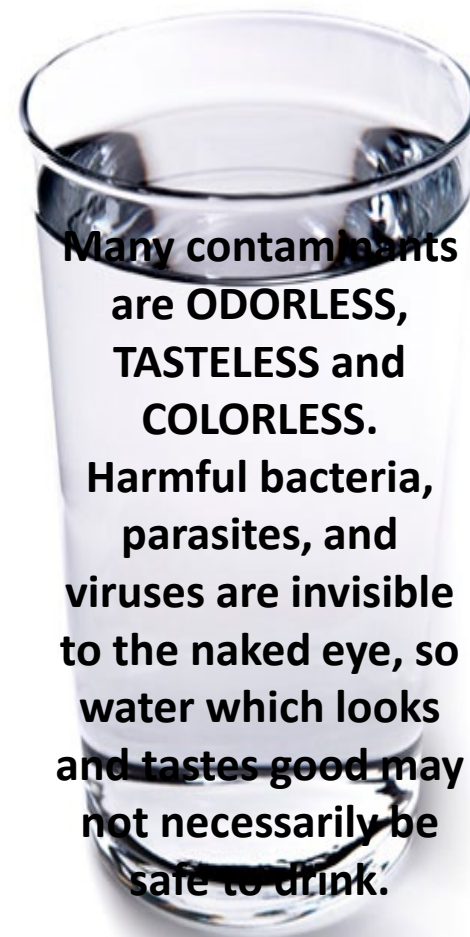
WHAT'S IN YOUR WATER?

Mara Tippet

RHA Watershed Science, Ground Water

mtippet@rارانheadwaters.org

908-234-1852 ext. 401



Many contaminants are **ODORLESS, TASTELESS and COLORLESS.** Harmful bacteria, parasites, and viruses are invisible to the naked eye, so water which looks and tastes good may not necessarily be safe to drink.

Community Well Testing Program

TestMyWell.org

Bridgewater Township

WELL TESTING 2018

Pick up a test kit @

Bridgewater Twp Municipal Building, 100 Commons Way

October 13th

9am - noon

This event will include brief presentations on water quality, please join us!



Basic Kit \$60
(bacteria and nitrate)

Arsenic \$35

Lead* \$25

Iron \$15

Radon \$50

Gross Alpha \$80

*other testing options
available

WHAT'S
IN YOUR
WATER?

TestMyWell.org

Sponsored by the
Bridgewater Township
Environmental Commission

For more info. contact the
Well Testing Office @
908-234-1852 ext. 401

- RHA partners with municipalities throughout the region to offer residents the opportunity to test their well water.
- Testing is done by a state-certified laboratory for analysis.
- Test results come directly to us, and we share the results directly with residents.

The only way to know your well water is safe is to test it!



Raritan Headwaters

COMMUNITY WELL TESTING PROGRAM



**Raritan
Headwaters**



Well Test

Purchase Kits Here

Oct 3 - 21 Mon-Thurs

9:00am - 1:00pm & 2:00 - 4:00

Oct 11 & 18

5:00 - 8:00pm

Readington Twp Office

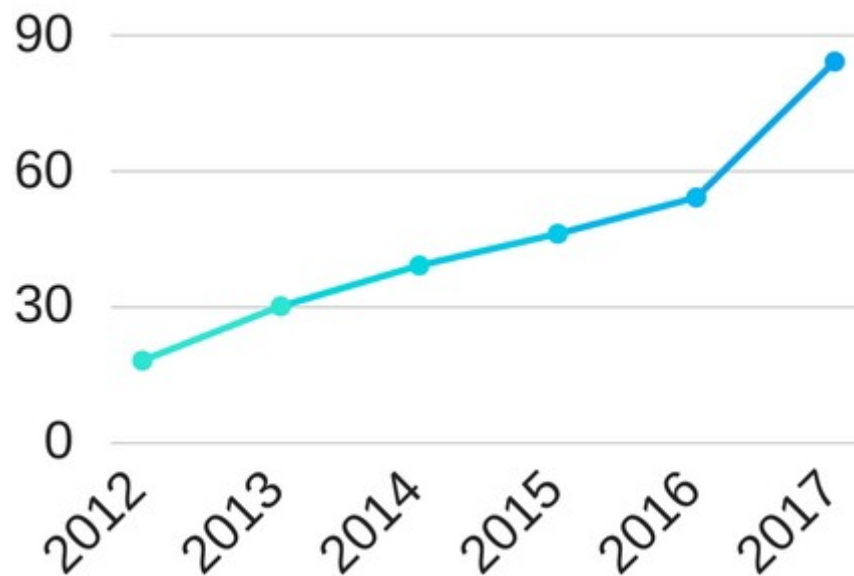


Our community of
private well owners
is growing!

The RHA Well
Testing Program
continues to be a
reliable resource for
residents to monitor
their drinking water.



Lebanon Twp. Community Well Testing Participation



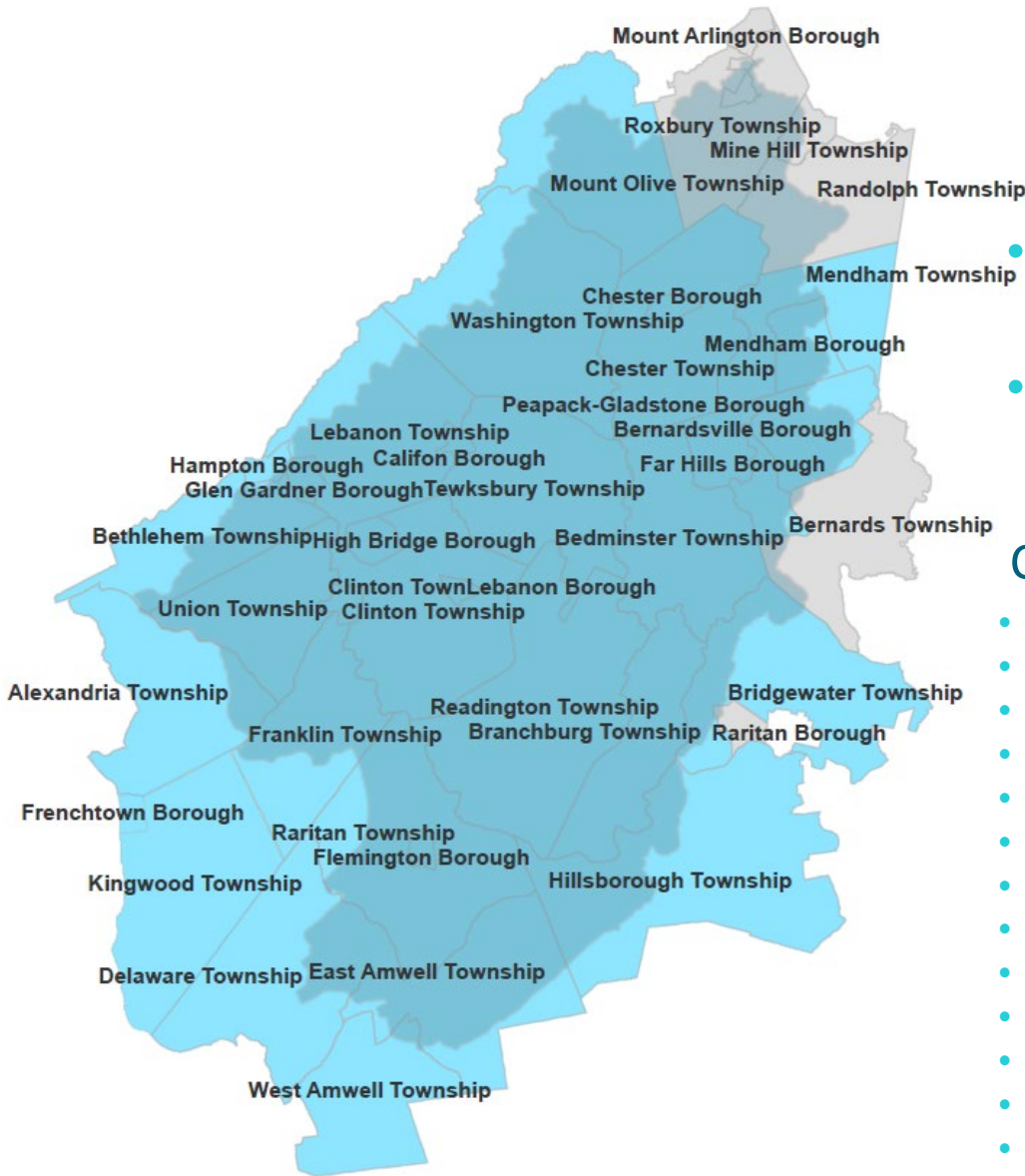
18 wells tested in 2012
84 wells tested in 2017!

Watershed-wide Well Testing

- 45 years of helping private well owners test their water
- 80% of residents in Raritan Headwaters region rely on well water

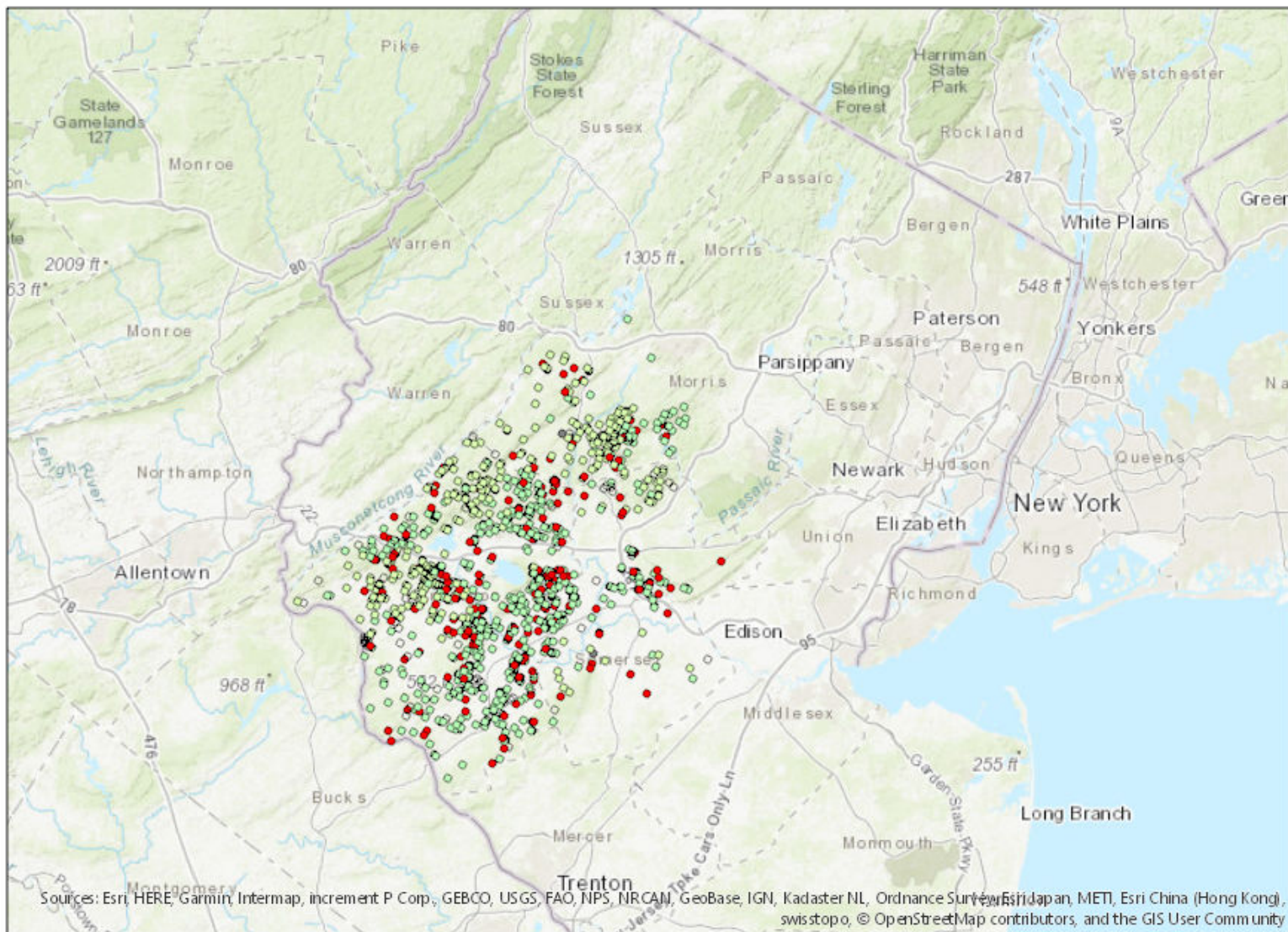
CWT Participating Municipalities

- Alexandria Township
- Bedminster Township
- **Bernardsville Borough**
- Bethlehem Township
- Branchburg Township
- **Bridgewater Township**
- Califon Borough
- Chester Township
- Chester Borough
- Clinton Township
- Delaware Township
- East Amwell Township
- Far Hills Borough
- Franklin Township
- **Frenchtown Borough**
- **Hillsborough Township**
- Kingwood Township
- Lebanon Township
- Mendham Township
- Mount Olive Township
- Peapack-Gladstone
- Raritan Township
- Readington Township
- Tewksbury Township
- Union Township
- Washington Township
- West Amwell Township



~1,200 wells tested annually

Wells Tested by Raritan Headwaters in 2018





WHAT WORKS?

Convenience



Residents find the program's accessibility and affordability appealing. This is key to increasing participation rates.

Communication



Township generated messages are an effective means of communicating with the public. Residents need reminders to test!

Community



Health professionals and groundwater professionals can work together to help well owners.

Education



Well owners come from every social, economic and educational class. Many homeowners are new to rural life and the responsibility that comes with a well.

STEPS TO BETTER PARTICIPATION

1

Support

township partners in communication efforts and provide resources for education and outreach

2

Emphasize

convenience, privacy and affordability

3

Disseminate

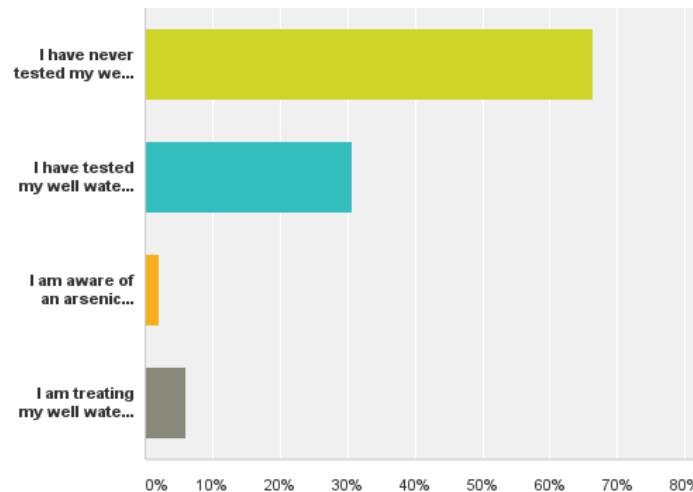
information to the public regarding local contamination risks and the need to test. Work with partners in healthcare fields for broader reach

Informational Survey for Private Well Owners

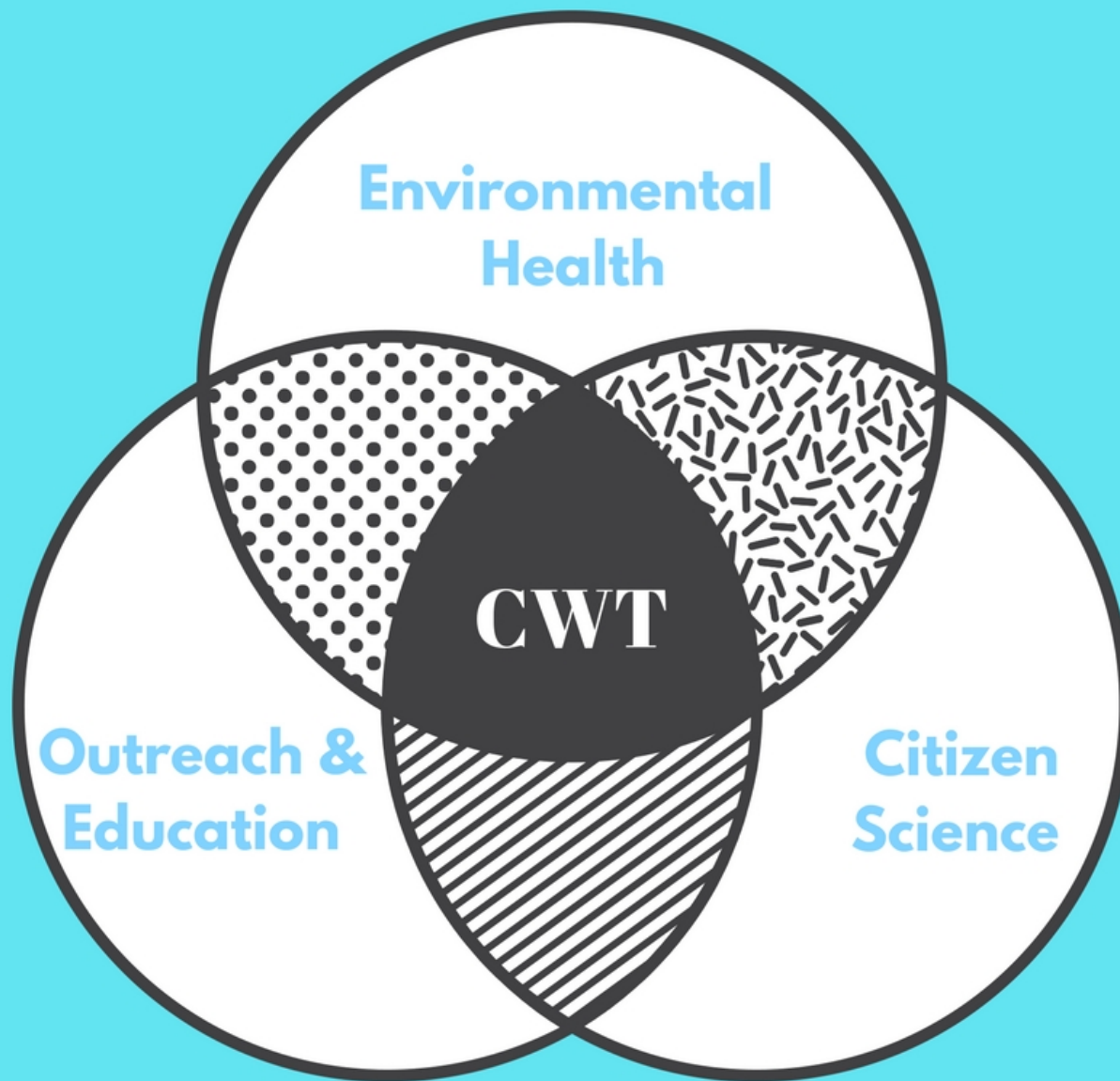
Community Well Test Participant Pilot Study, Fall 2016

A Joint Project of Raritan Headwaters and Columbia University Superfund Research Program (Community Engagement and Research Translation Cores)

- 88% heard about the program through a township communication
- 64% tested through RHA out of convenience
- 70% of respondents have never tested their well for arsenic

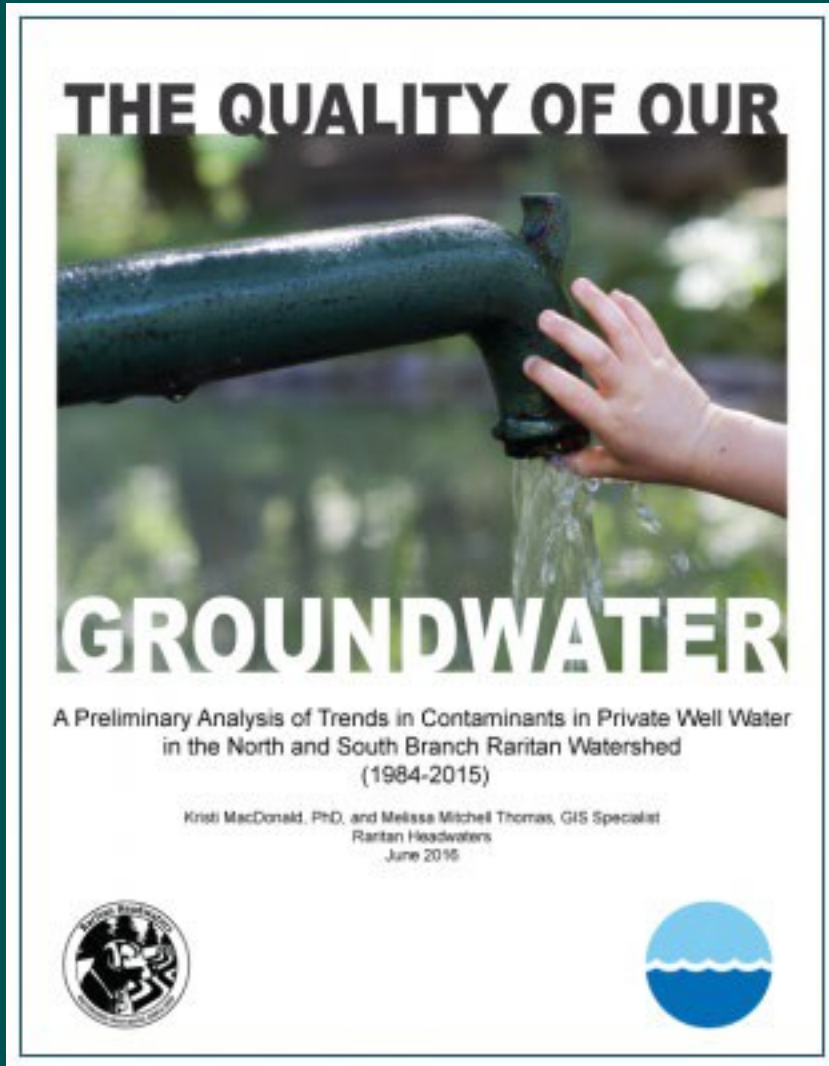


What is your experience with arsenic? Please choose all that apply



Community Well Testing

Long-term Trend Analysis of Groundwater Data



Purpose:

- To determine whether water quality in private wells has changed
 - Analyze how the amount of category 1 contaminants, arsenic, nitrate, coliform bacteria, and lead have changed over the past 30 years
- Long-term trend analyses detect changes
 - that occur slowly or lag and cyclic trends
 - due to multiple stressors
 - response and recovery from rare or extreme events
- Identify causes of change



What are we testing for?

“Basic Kit” of Water Quality Indicators: Coliform Bacteria & E.coli

Nitrates

Iron

Manganese

Arsenic

Lead

Pesticides

Volatile Organic Compounds

Gross Alpha

Radon

Maximum Contaminant Levels:

- Coliform **zero**
- Lead **0.015 mg/L**
- Arsenic **0.005 mg/L (NJ)**
- Nitrate **10 mg/L**
- Gross Alpha **15 pCi/L**
- Iron **0.3 mg/L**
- Manganese **0.05 mg/L**

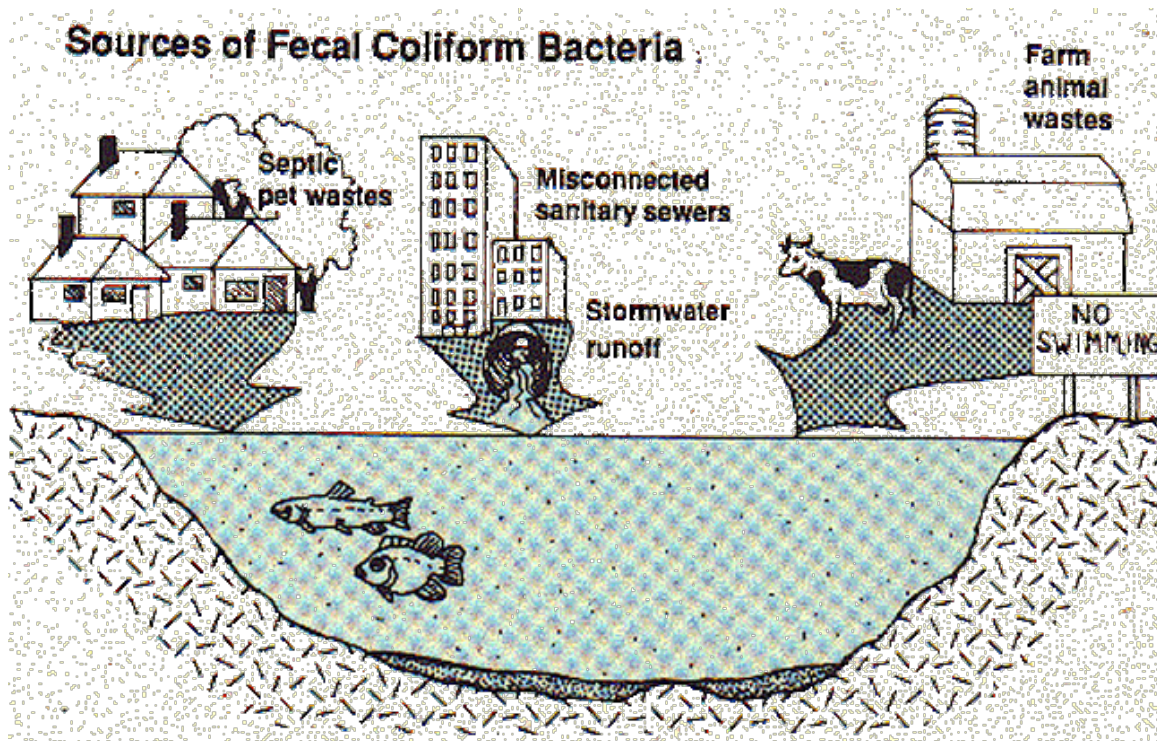
List of Required Parameters for Private Well Testing

	Total Coliform	*E.coli	Nitrate	Iron	Manganese	pH	VOCs	Lead	Arsenic	Mercury	Gross Alpha Particle Activity	Uranium
Atlantic	X	X	X	X	X	X	X	X	X	X	x	
Bergen	X	X	X	X	X	X	X	X	X		X	X
Burlington	X	X	X	X	X	X	X	X	X	X	x	
Camden	X	X	X	X	X	X	X	X	X	X	x	
Cape May	X	X	X	X	X	X	X	X	X	X	x	
Cumberland	X	X	X	X	X	X	X	X	X	X	x	
Essex	X	X	X	X	X	X	X	X	X		X	X
Gloucester	X	X	X	X	X	X	X	X	X	X	x	
Hudson	X	X	X	X	X	X	X	X	X		X	X
Hunterdon	X	X	X	X	X	X	X	X	X		x	X
Mercer	X	X	X	X	X	X	X	X	X		x	X
Middlesex	X	X	X	X	X	X	X	X	X		x	X
Monmouth	X	X	X	X	X	X	X	X	X	X	x	
Morris	X	X	X	X	X	X	X	X	X		X	X
Ocean	X	X	X	X	X	X	X	X	X	X	x	
Passaic	X	X	X	X	X	X	X	X	X		X	X
Salem	X	X	X	X	X	X	X	X	X	X	x	
Somerset	X	X	X	X	X	X	X	X	X		X	X
Sussex	X	X	X	X	X	X	X	X	X		X	X
Union	X	X	X	X	X	X	X	X	X		X	X
Warren	X	X	X	X	X	X	X	X	X		X	X

*E. Coli testing is required only if a sample tests positive for total coliform. See N.J.A.C. 7:9E-2.1(a)2.

- Commonly found in soil and surface water
- As well as in the intestines of animals and humans
- Indicator of Water Quality
- Defective well cap or casing
- Flooding
- Close proximity to septic tanks, drains or animal feedlots

- Health Symptoms include:
 - ✓ Mild digestive upset
 - ✓ Gastroenteritis (food poisoning)
 - ✓ Urinary tract infections



What to do?

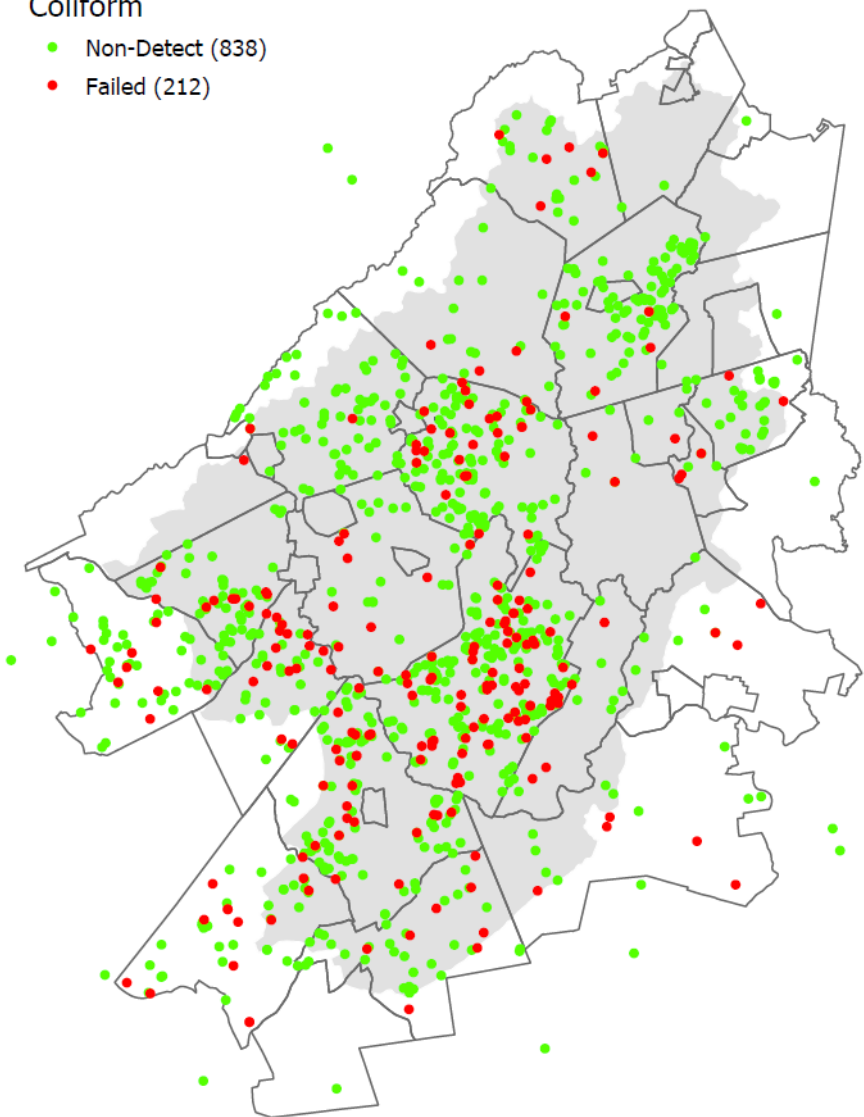
- Regularly service septic system
- Maintain a properly functioning well
- If Positive:
 - ✓ Do not drink the water (use bottled) or boil water for 1 minute before using
 - ✓ Disinfect your well or call a plumbing professional
 - ✓ UV light

Coliform Bacteria and E. coli

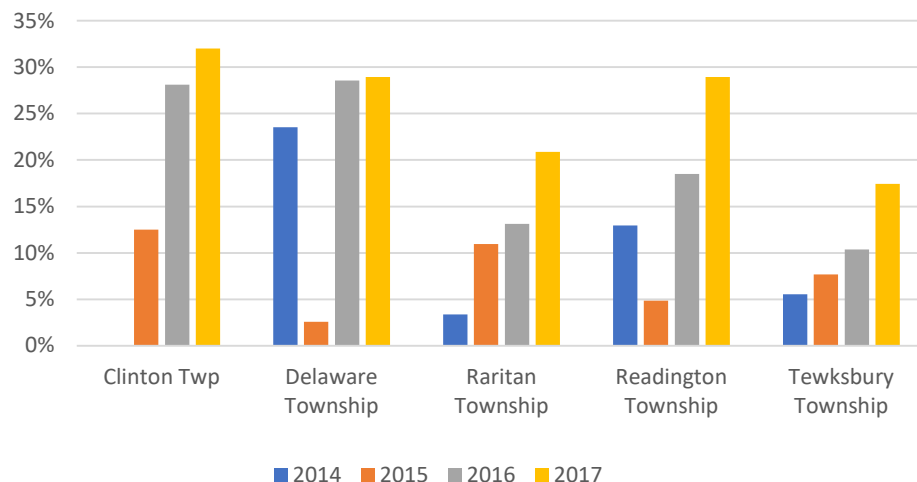
Watershed-Wide Results Fall 2017-Spring 2018

Coliform

- Non-Detect (838)
- Failed (212)

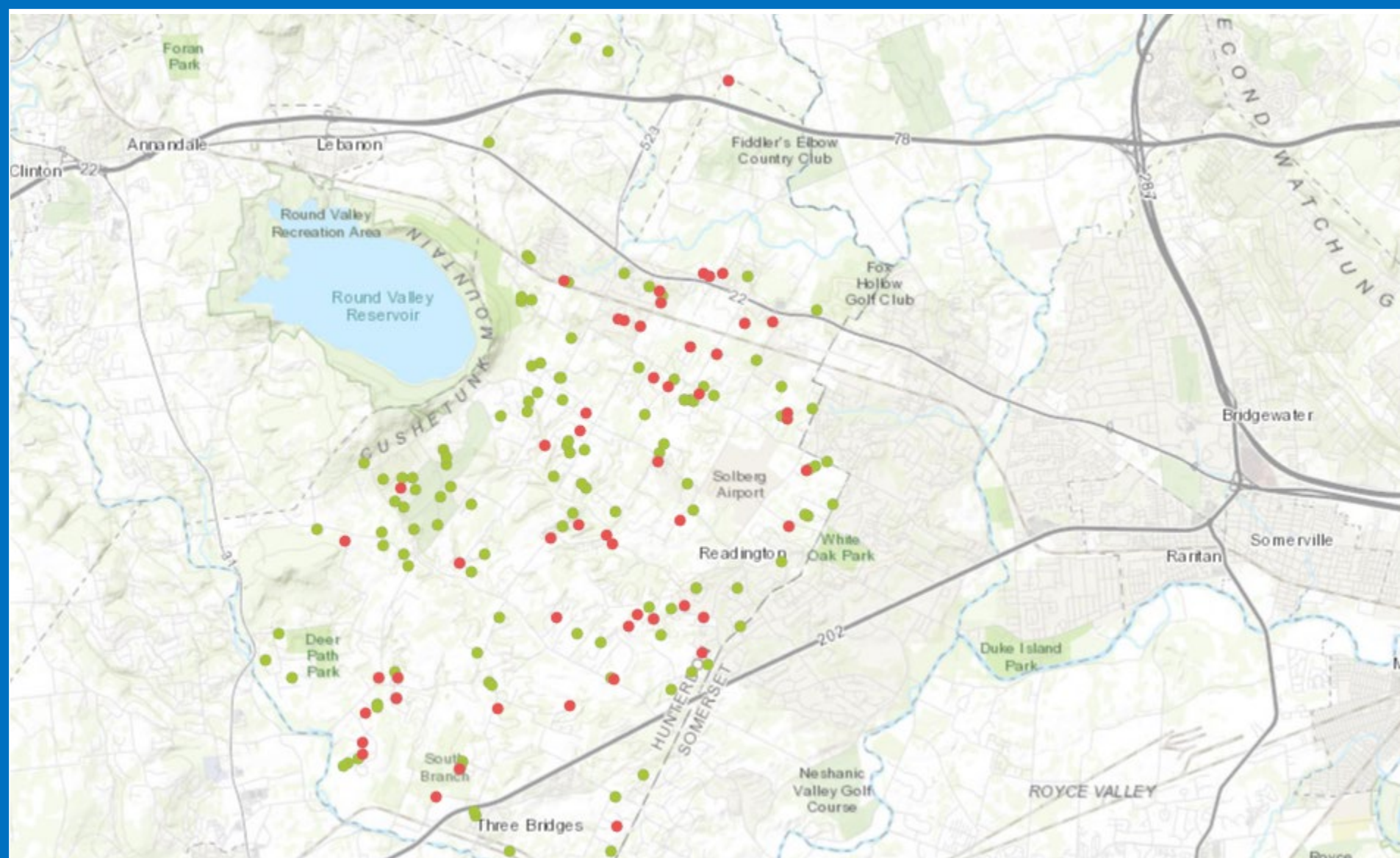


Coliform Bacteria Failure Rates 2014-2017



How does bacteria infect a well?

- Heavy rain events
- Problems with the well cap seal or casing
- Work was done recently on the well
- Water standing next to the well
- The well is shallow
- Septic system or animal waste close to the well



Readington Township
 Community Well Testing
 October, 2018

wells tested = 170

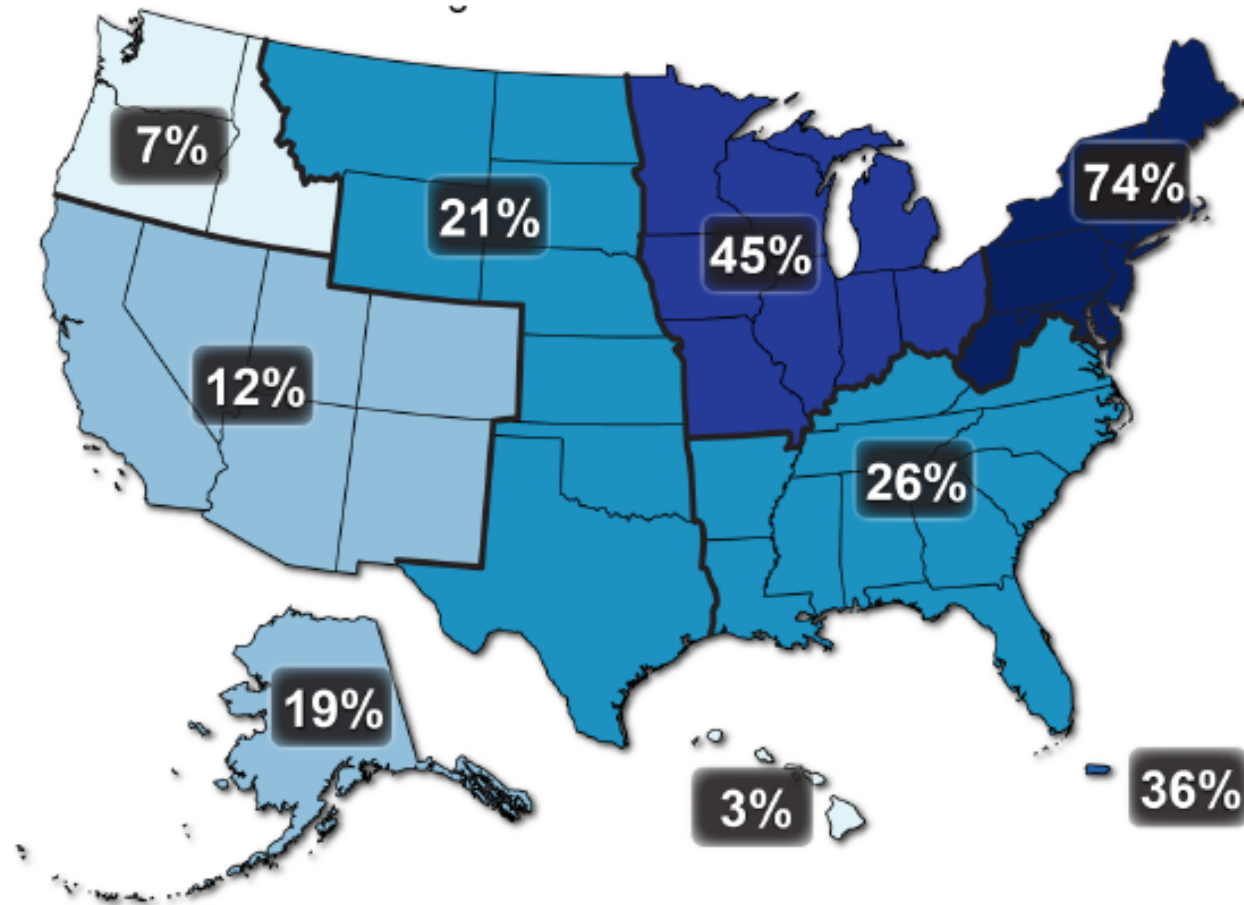
No coliform bacteria detected=115

Coliform bacteria detected=55 (32%)

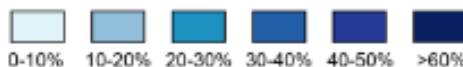


Observations show major increase in very heavy precipitation events over last 50 years

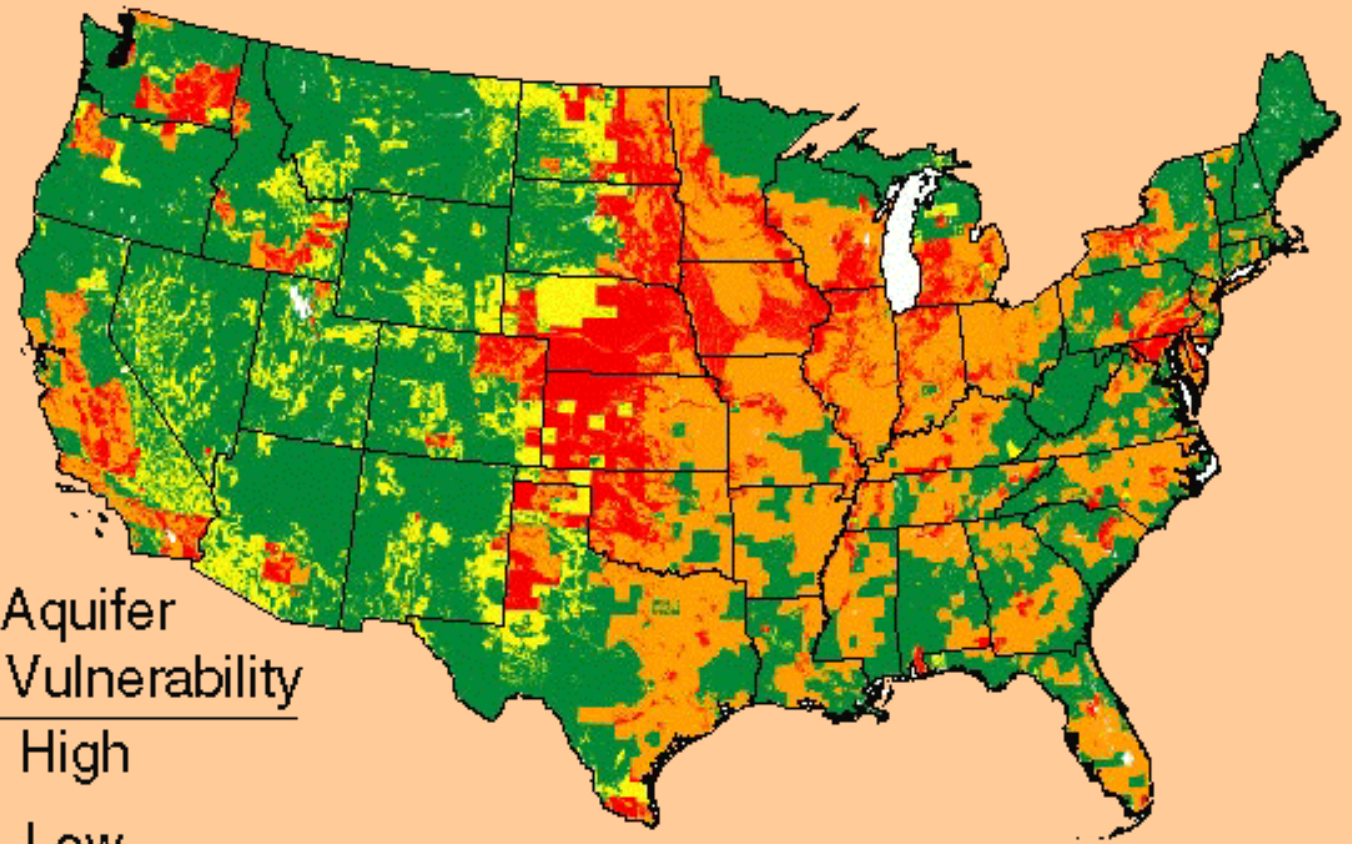
defined as the heaviest 1 percent of all daily events from 1958 to 2010



Percentage Change in Very Heavy Precipitation



Increasing risk of ground-water contamination



Nitrogen
Input

Aquifer
Vulnerability

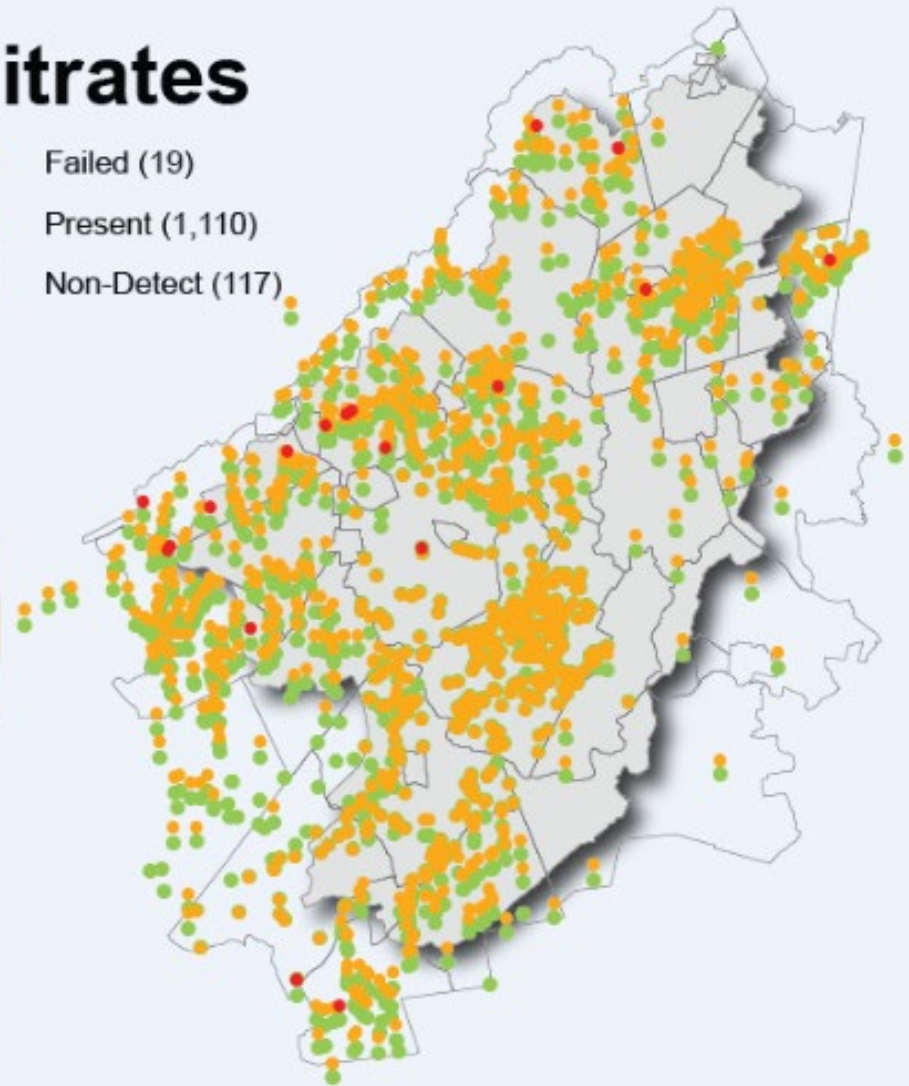
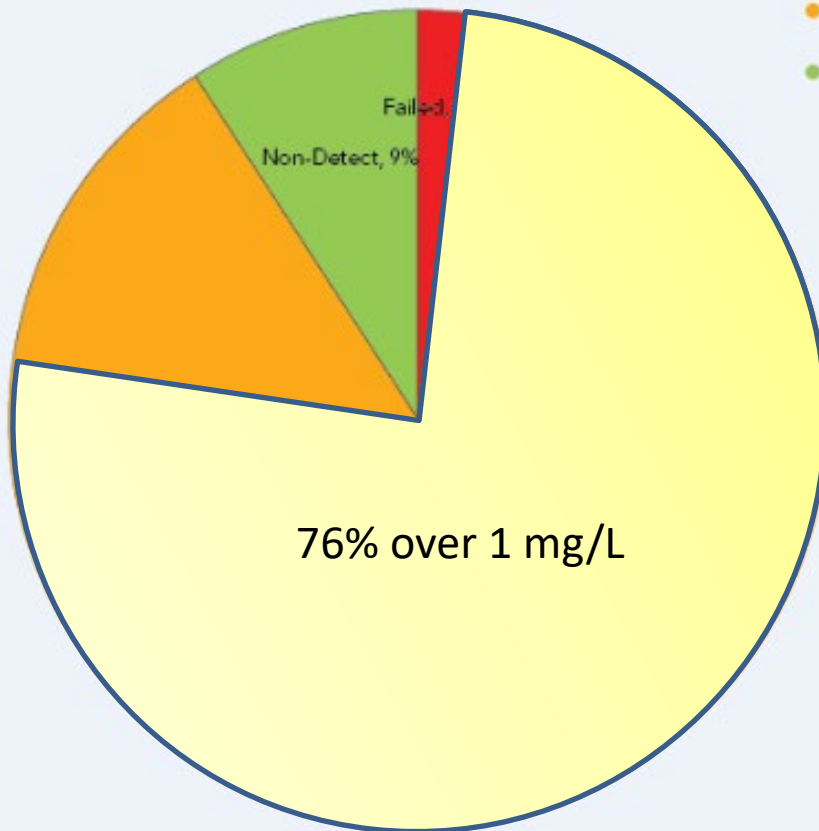
- High
- High
- Low
- Low

- High
- Low
- High
- Low

Watershed-Wide Results Fall 2016-Spring 2017

Nitrates

- Failed (19)
- Present (1,110)
- Non-Detect (117)



- 2% of nitrates tests were at or above 10 mg/L
- 39% of nitrates tests were at or above 3 mg/L
- 76% of nitrates tests were at or above 1 mg/L

Arsenic

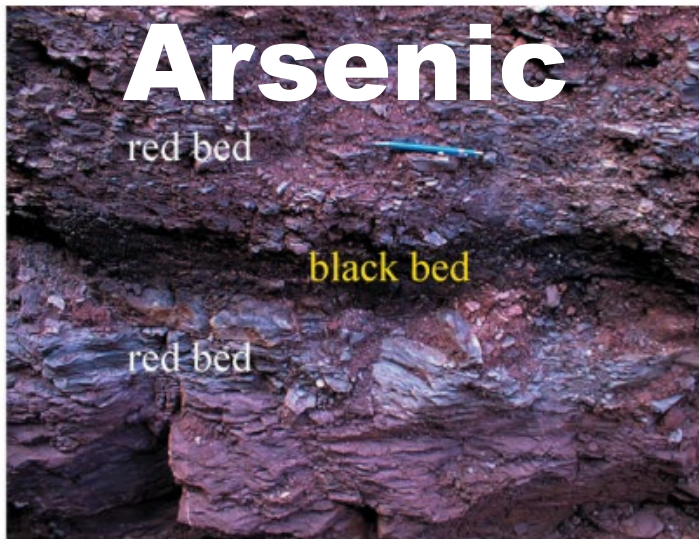
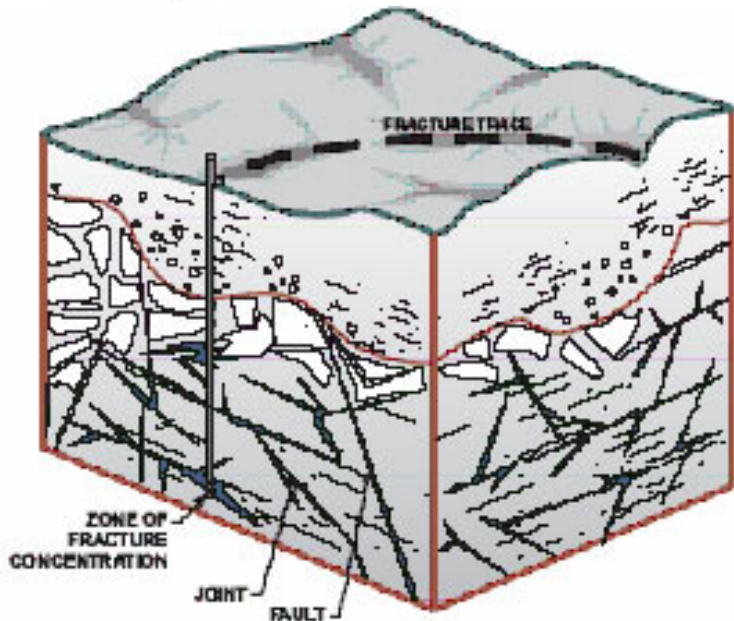
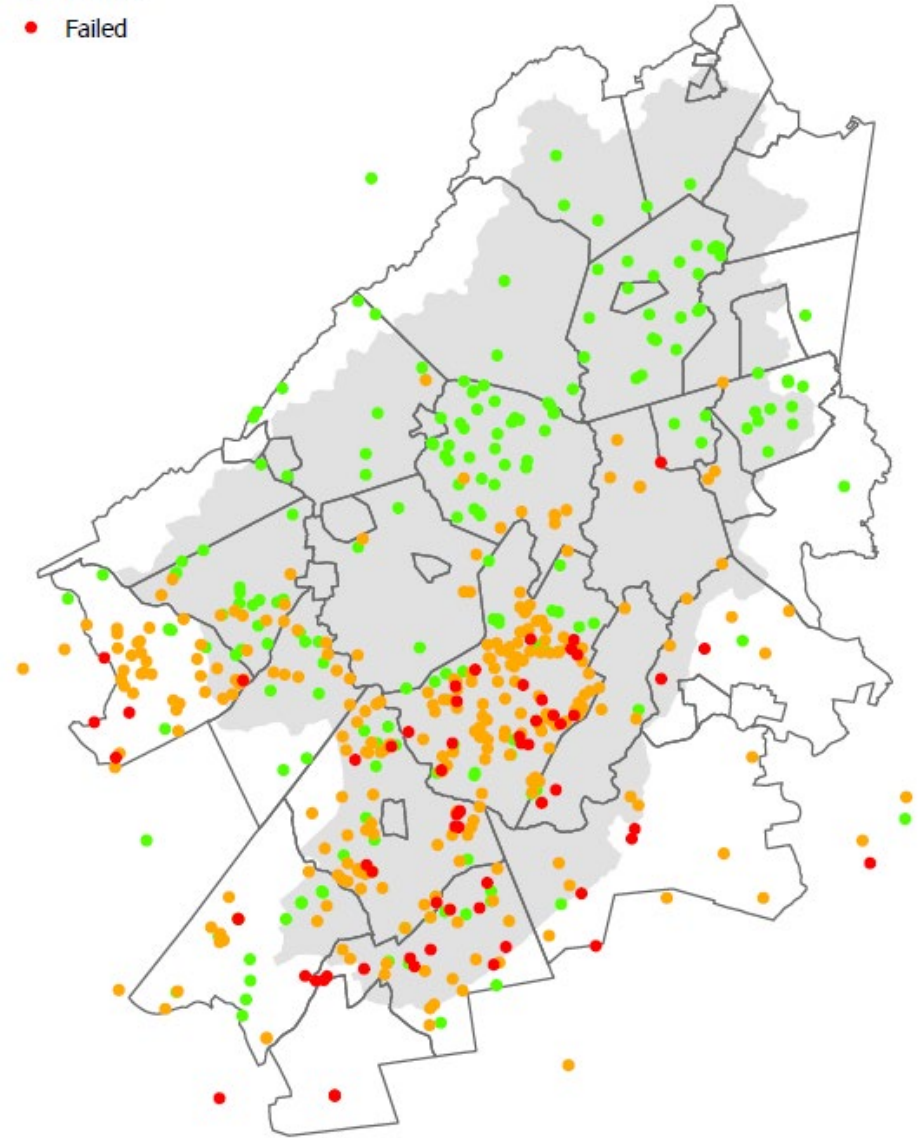


Figure 2. Outcrop showing metal-rich black shale between red beds in the Passaic Formation near Flemington, NJ. Blue pencil shown for scale.



Arsenic

- Non-Detect
- Present
- Failed



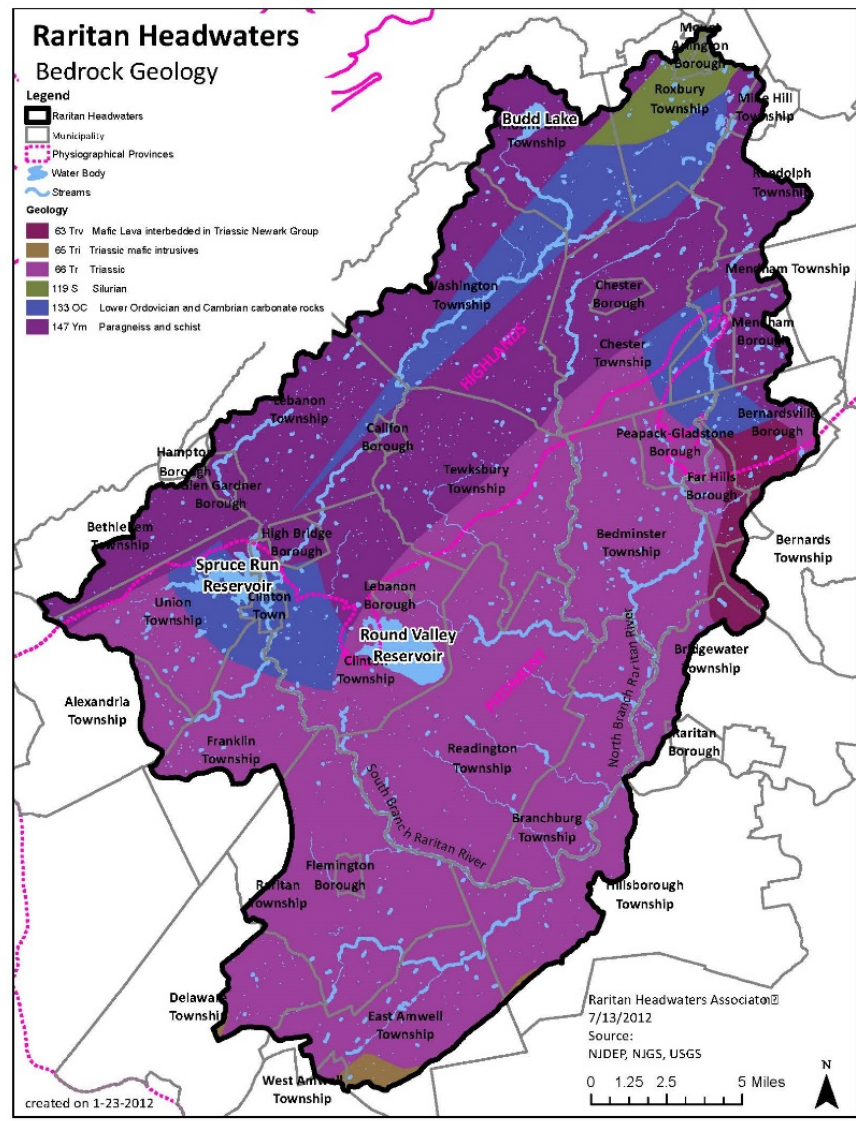
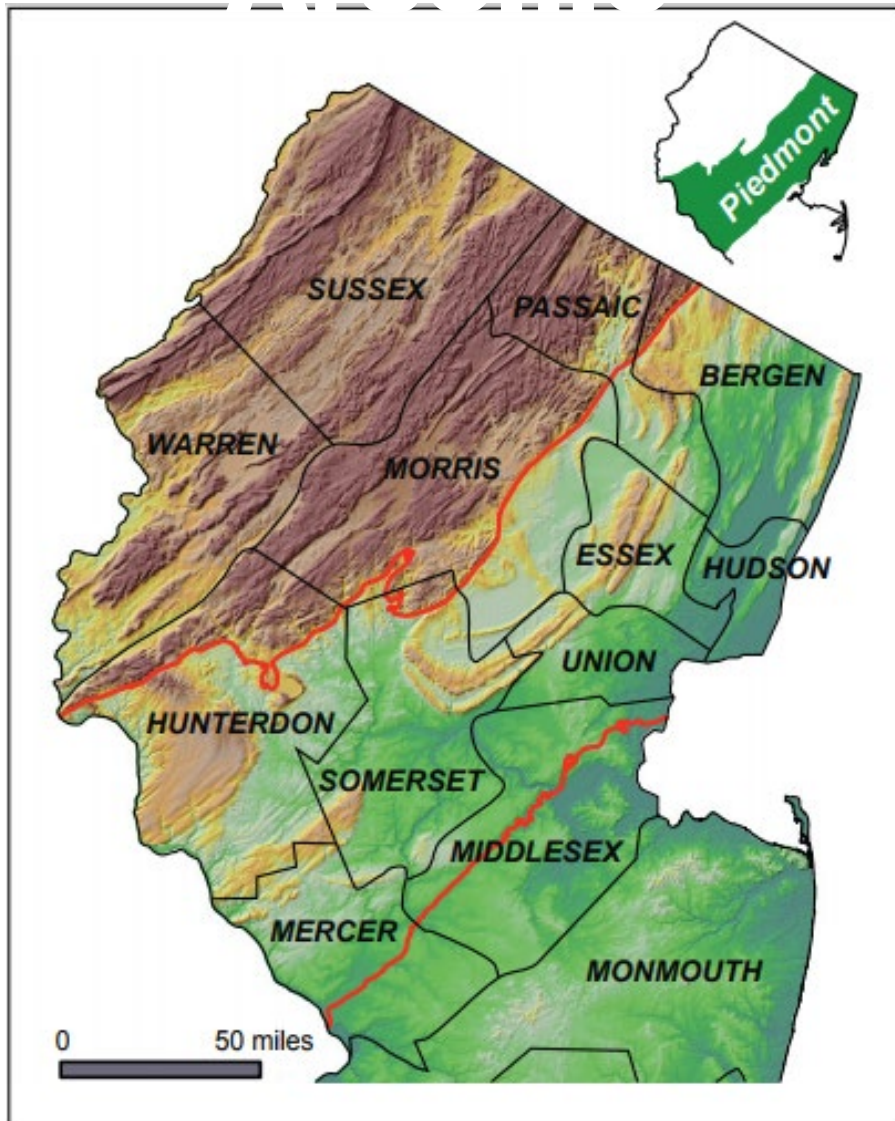


Figure 1. Location of the Piedmont Physiographic Province (shaded area in upper illustration) and color-shaded relief map (lower illustration) of northern New Jersey

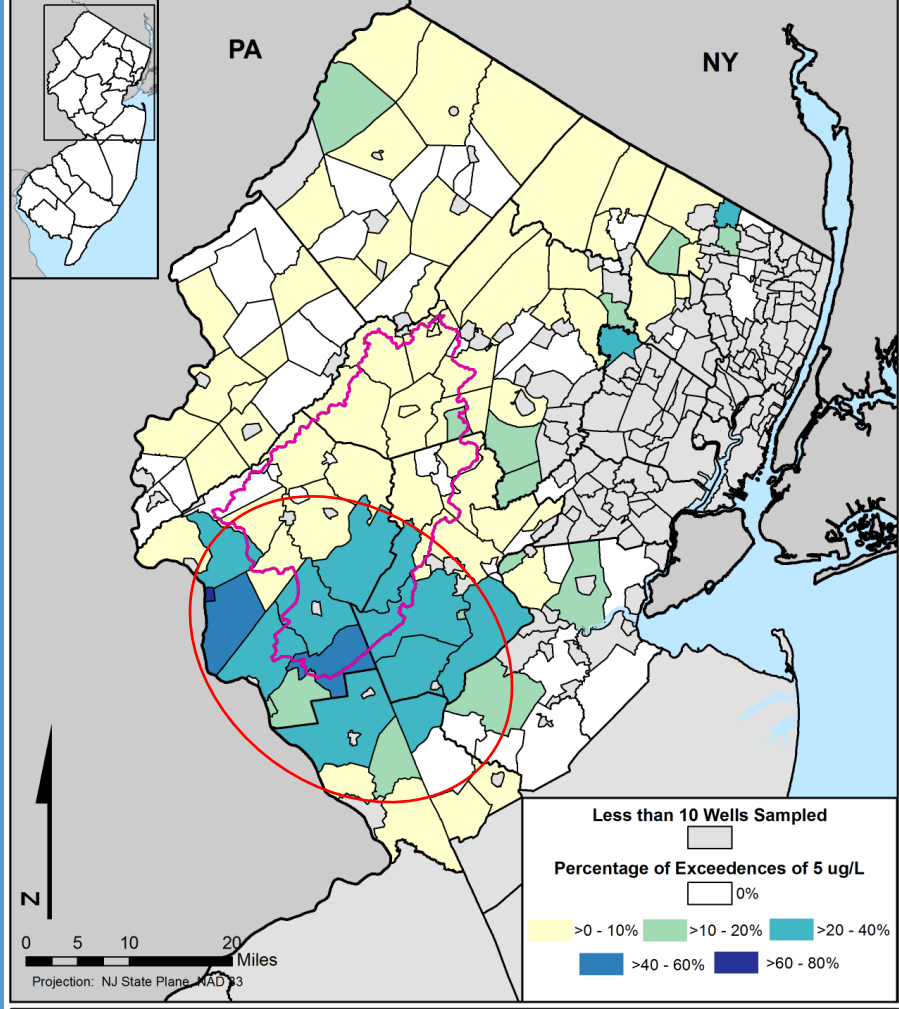
Arsenic Exceedances*

Overall 8.9% of wells exceeded the NJ MCL and
3.0% exceed the Federal MCL

Province	Exceedance of NJ Standard (5 ug/l)	Exceedance of Federal Standard (10 ug/l)
Valley and Ridge	2.0%	0.5%
Highlands	1.1%	0.5%
Piedmont	17.1%	5.7%
Coastal Plain	1.0%	0.6%

*Current through March 2014

Arsenic - Percentage of Wells Exceeding 5 ug/L Northern New Jersey



Arsenic's Effects on the Human Body

Nervous System

Impaired intellectual function
Impaired motor function
Neuropathy

Cardiovascular System

Coronary heart disease
Hypertension
Heart attack

Renal System

Kidney cancer
Bladder cancer

Skin

Skin lesions
Skin cancer

Endocrine System

Diabetes
Impaired glucose tolerance in pregnant women

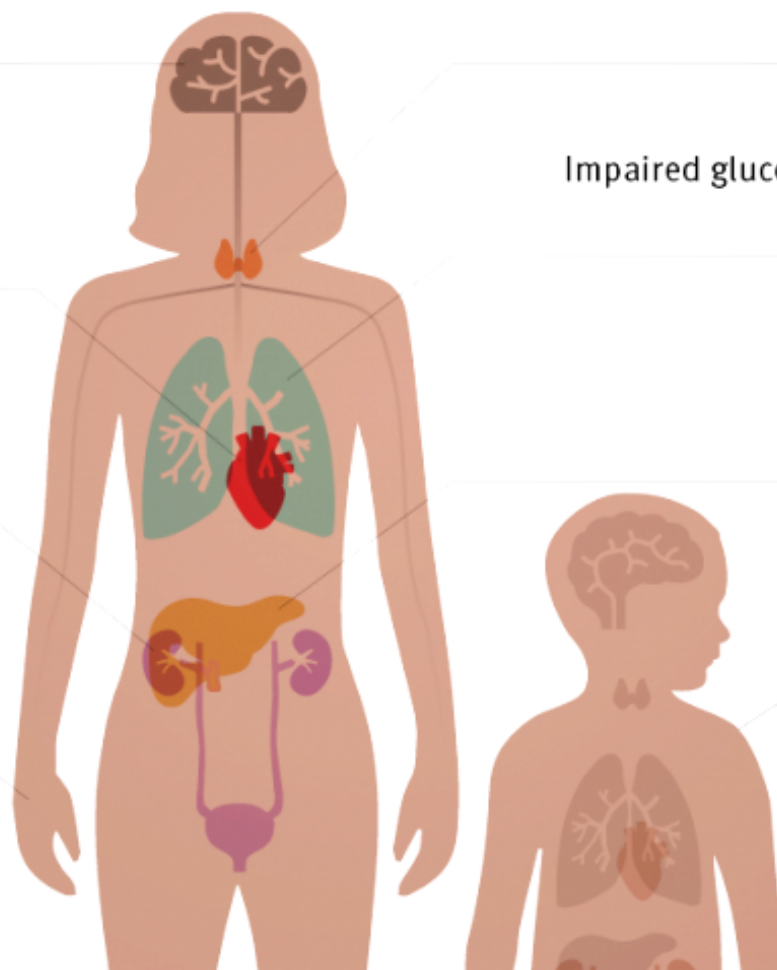
Respiratory System

Pulmonary tuberculosis
Bronchiectasis
Lung cancer

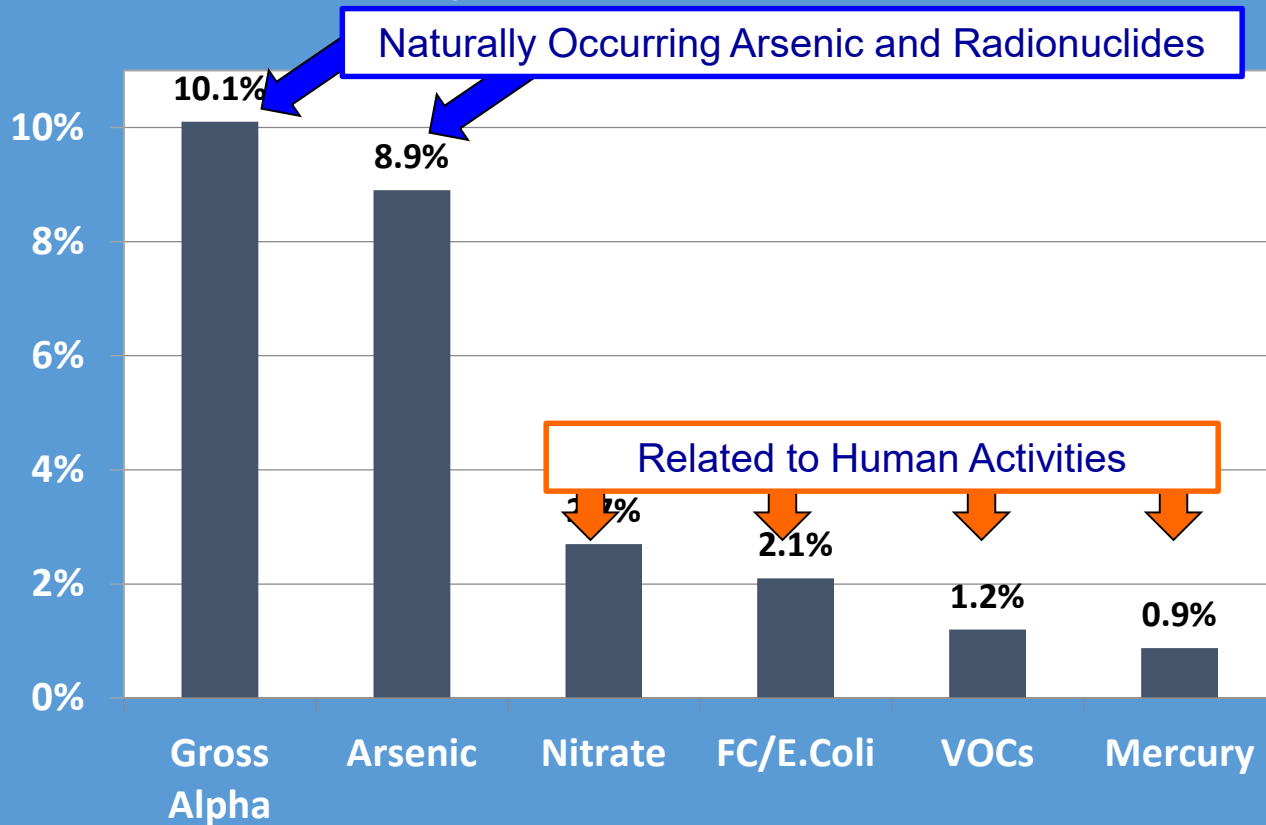
Liver cancer

Developmental Process

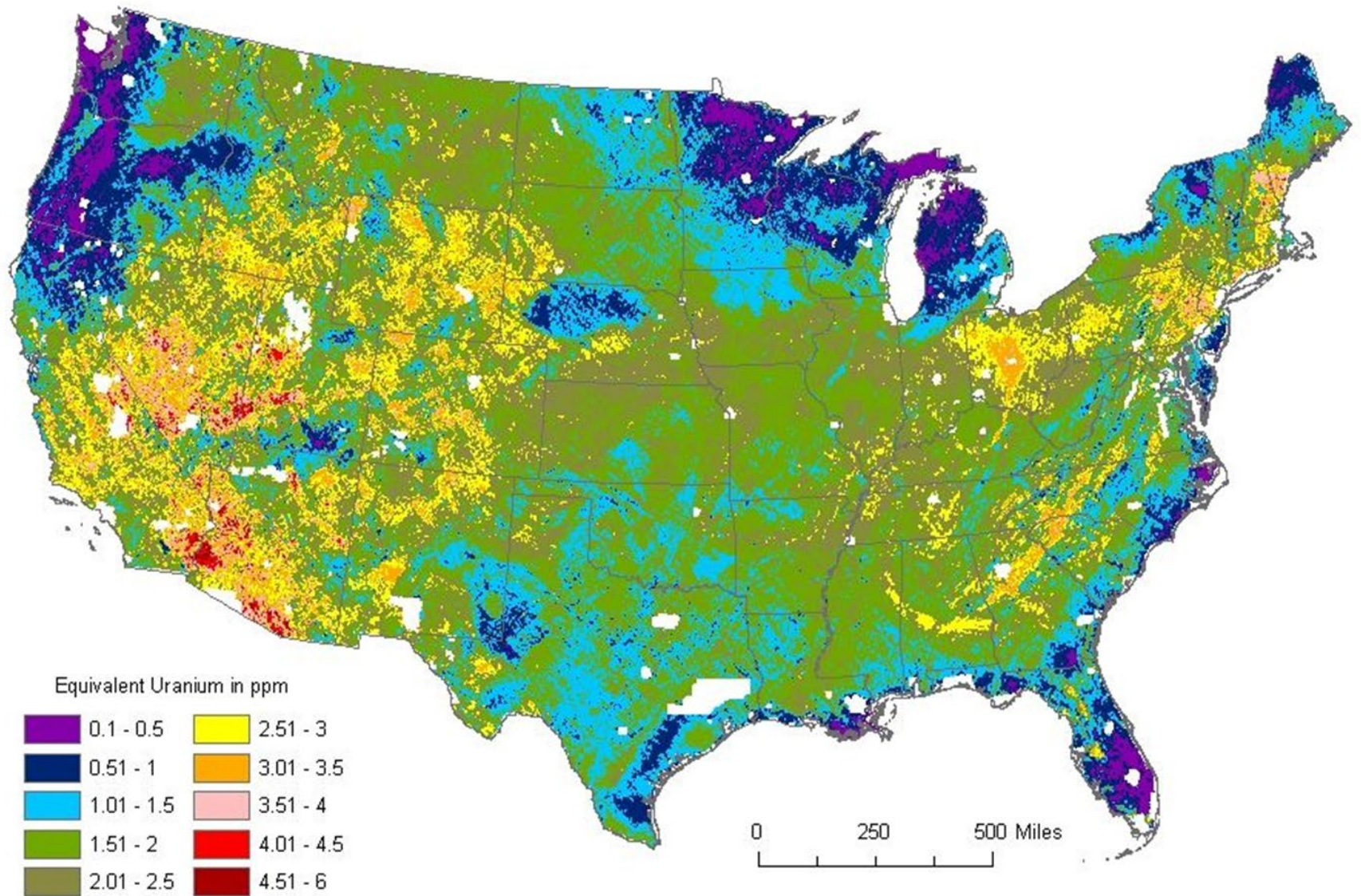
Increased cancer risk as adults
Increased infant mortality
Neurological impairment
Reduced birth weight



Percent of Tested Wells that Exceed Specific MCLs in NJ



Gross Alpha: Uranium and Radium



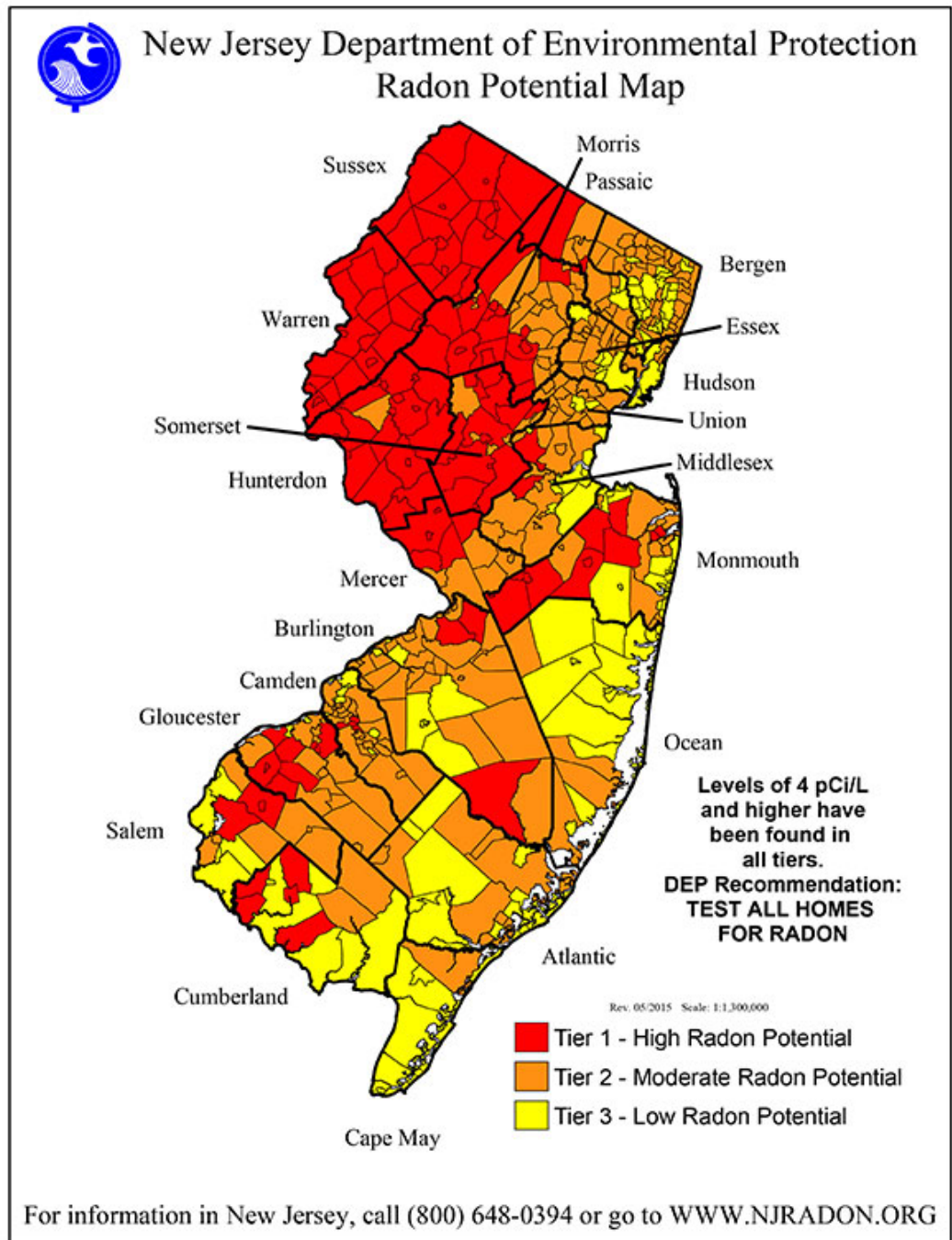
Gundersen and Szabo, 1995

Uranium decay



Source: U.S. Environmental Protection Agency

- 5% of wells over Gross Alpha MCL of 15 pCi/L (117 wells tested this year)
- No MCL set for radon in NJ. **EPA Action Standard= 4,000 pCi/L**
- Radon range is 0-62,142 pCi/L watershed wide since 2011 (575 tests for radon in water)
- Mean concentration of radon was 2,292 pCi/L



LEAD IN THE NEWS

CITY OF FLINT



Flint, MI



Newark, NJ



St. Joseph, LA

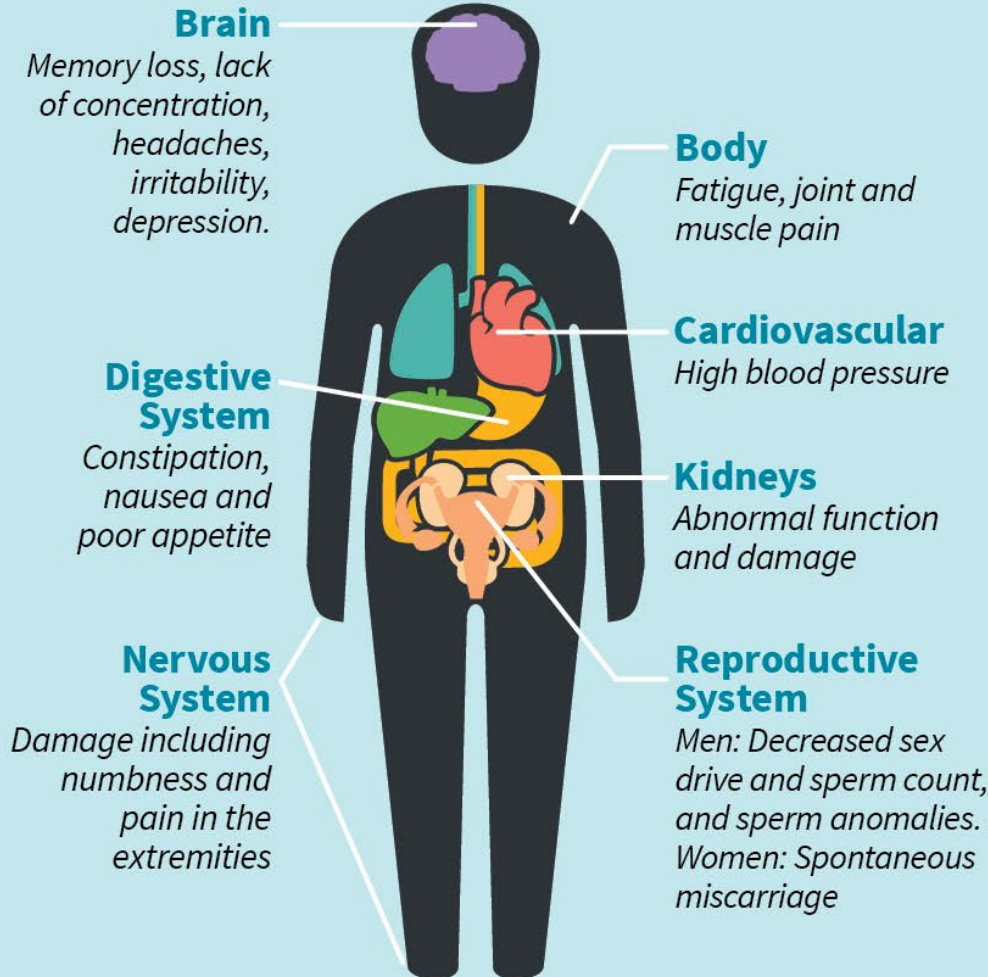
"Beyond Flint: Excessive lead levels found across all 50 states"

"Public health emergency declared in St. Joseph, Louisiana; water being tested for lead"

"Arsenic, lead levels could crush property values in N.J. town, suit says"

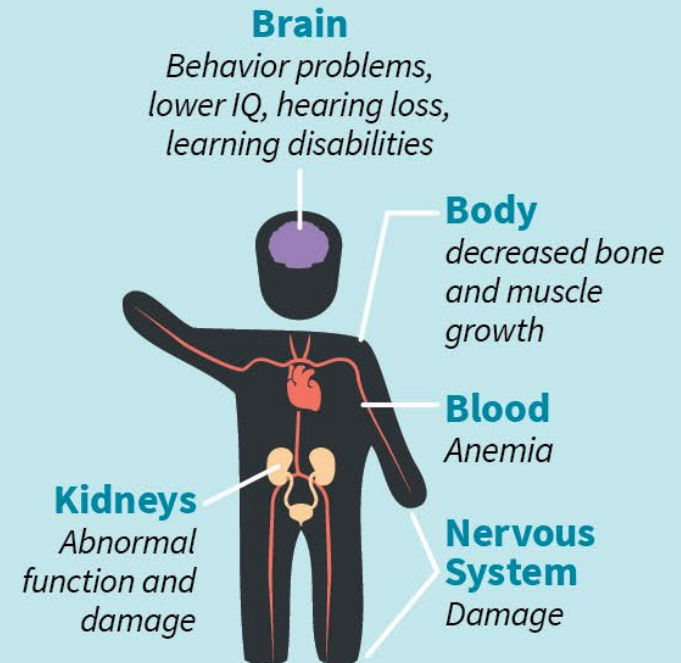
Health Impacts of Lead

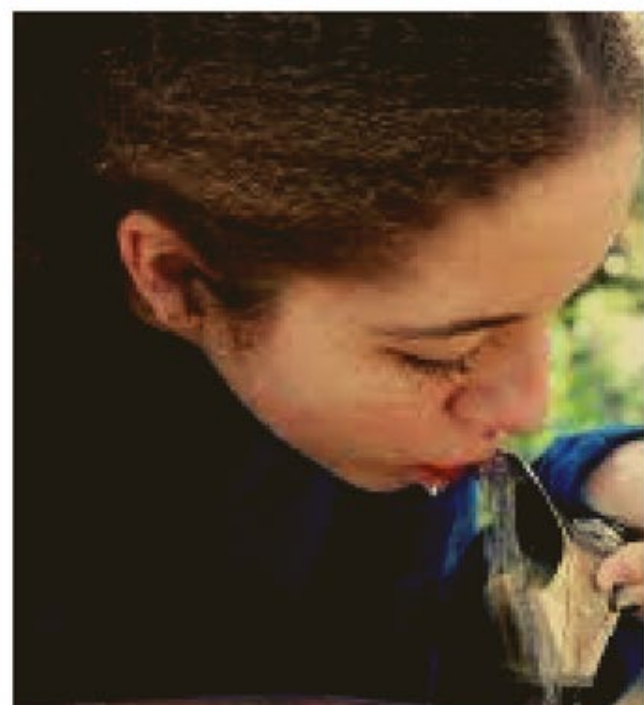
ADULTS



Exposure to high levels of lead can cause severe damage to the brain, blood and kidneys. Children under six are most at risk from lead poisoning. Even low levels of lead exposure have been found to permanently reduce cognitive ability and cause hyperactivity in children.

CHILDREN





447

HOUSEHOLDS,
in 22 municipalities of the Upper Raritan Watershed tested for lead in the last year of testing (2017-2018).

5

PARTS PER BILLION,
(ppb) is the maximum amount of lead allowed in bottled water sold in the U.S. The limit for lead in public water supplies is 15 ppb.



0

PPB,
is the goal level for lead in drinking water. There is no known amount of lead exposure that is considered safe.

74

SAMPLES,
out of 447 had lead levels over 5 ppb.



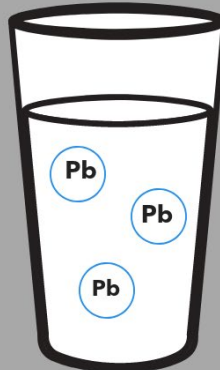
412

PARTS PER BILLION,
was the highest amount of lead detected during the 2017-18 testing period.



51

PERCENT,
of homes tested had some level of lead contamination.



IN THE YEAR, 1986

Safe Drinking Water Act amendments defined "lead-free" plumbing. Lead solder was banned for use in potable water systems nationwide.

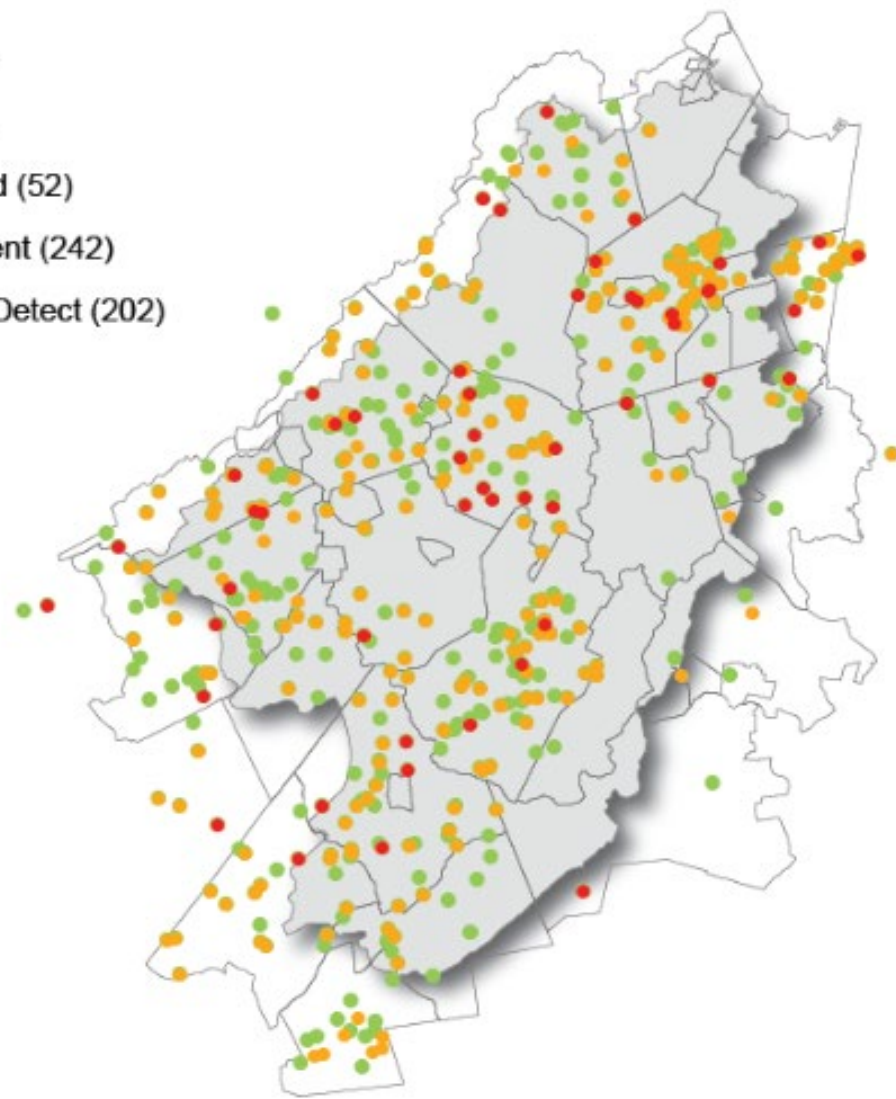
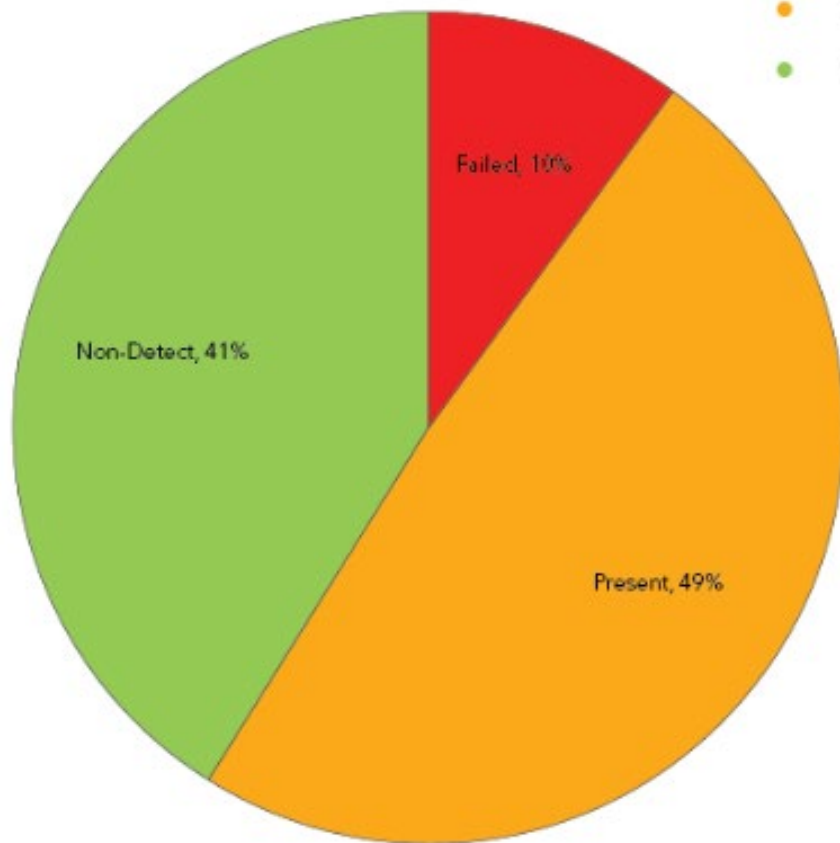
**LEAD IS EASY TO TEST FOR AND EASY TO TREAT.
PROTECT YOUR HEALTH-TEST TODAY WITH RHA.**

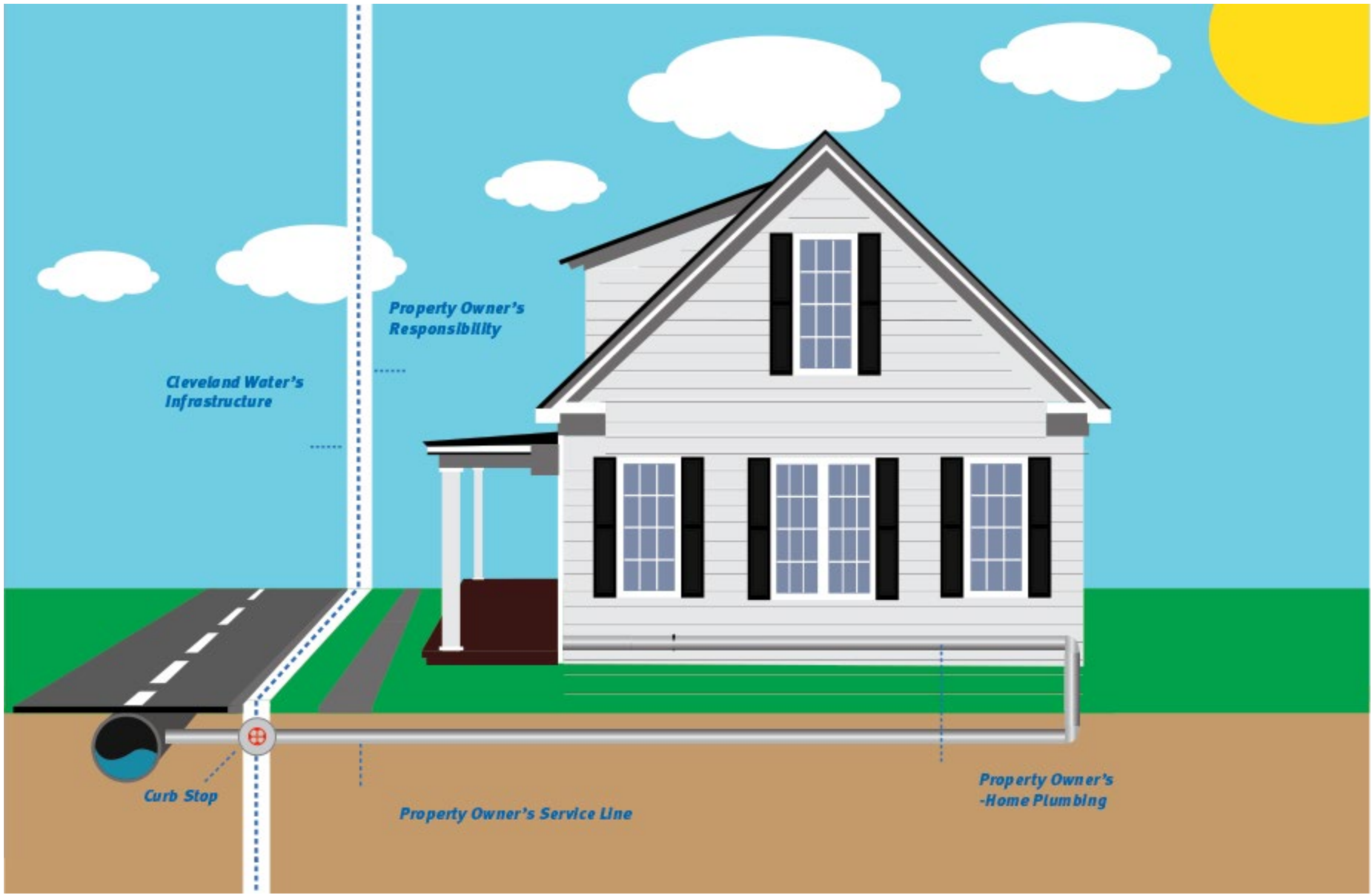


Watershed-Wide Results Fall 2016-Spring 2017

Lead

- Failed (52)
- Present (242)
- Non-Detect (202)





*Cleveland Water's
Infrastructure*

*Property Owner's
Responsibility*

Curb Stop

Property Owner's Service Line

*Property Owner's
-Home Plumbing*



<https://www.wrc.umn.edu/chloride>

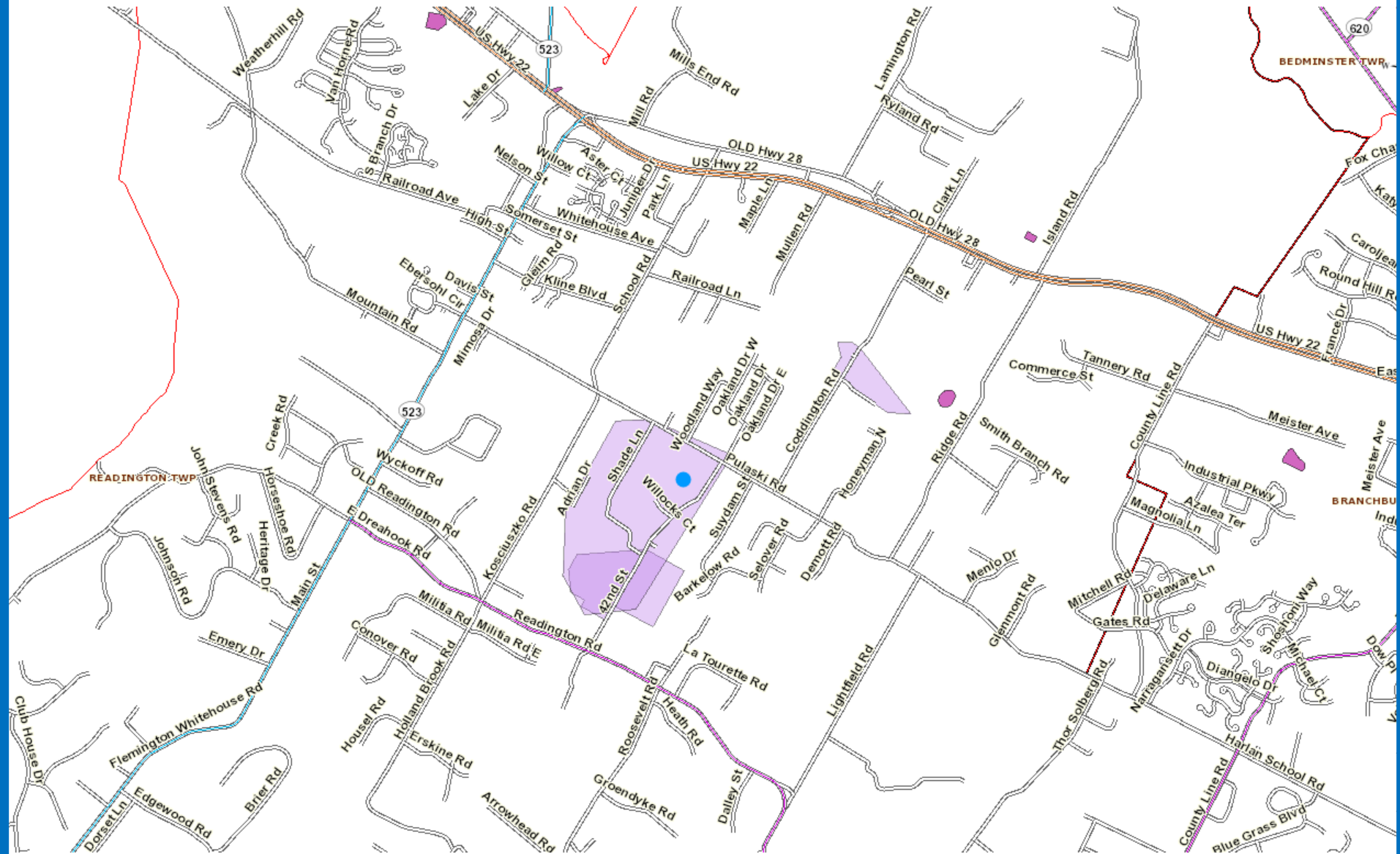
Volatile Organic Compounds Found in the Home

VOCs, such as formaldehyde, are found in many building supplies and household products:



1. adhesives
2. air fresheners
3. drapes
4. floor polishes
5. glue
6. carpet backing
7. dyes
8. liquid cleaners
9. markers
10. paint
11. toilet cleaners





Source: NJDEP- NJGeoWeb



Volatile Organic Compounds

Dichlorodifluoromethane
Chloromethane
Vinyl Chloride
Bromomethane
Chloroethane
Trichlorofluoromethane
1,1-Dichloroethylene
Methylene Chloride
Methyl tert-Butyl Ether
t-1,2-Dichloroethylene
Isopropyl Ether
1,1-Dichloroethane
2,2-Dichloropropane
cis-1,2-Dichloroethylene
Chloroform
Bromochloromethane
1,1,1-Trichloroethane
1,1-Dichloropropylene
Carbon Tetrachloride
Benzene

1,2-Dichloroethane
Trichloroethylene
1,2-Dichloropropane
Bromodichloromethane
Dibromomethane
Toluene
1,1,2-Trichloroethane
Tetrachloroethylene
1,3-Dichloropropane
Dibromochloromethane
1,2-Dibromoethane
Chlorobenzene
Ethylbenzene
1,1,1,2-Tetrachloroethane
o-Xylene
m&p-Xylene
Xylenes, total
Styrene
Isopropyl Benzene
Bromoform

1,1,2,2-Tetrachloroethane
1,2,3-Trichloropropane
n-Propyl Benzene
Bromobenzene
1,3,5-Trimethyl Benzene
1,2,4-Trimethylbenzene
sec-Butylbenzene
p-Isopropyltoluene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
n-Butylbenzene
1,2-Dichlorobenzene
1,2-Dibromo-3-chloropropane
1,2,4-Trichlorobenzene
Hexachlorobutadiene
Naphthalene
1,2,3-Trichlorobenzene
cis-1,3-Dichloropropylene
trans-1,3-Dichloropropylene
tert-Butyl-Alcohol

TOXIC FLUORINATED

contaminants

<https://www.ewg.org>



Public Water Supply Testing 2013-2016

System name: **NJ AMERICAN WATER - RARITAN**

PWSID: **NJ2004002**

Population served: **609,305**

City served: **ELIZABETH CITY**

County served: **UNION**

State served: **NJ**

PFOA/PFOS contaminant(s): **PFOA, PFOS**

PFOA/PFOS detection: **16 out of 36 PFOA samples detected an average of 13 ppt with a maximum of 54 ppt and a minimum of 0 ppt. 1 out of 36 PFOS samples detected an average of 1 ppt with a maximum of 43 ppt and a minimum of 0 ppt.**

Other contaminant(s): **PFHpA, PFHxS**

Other detections: **1 out of 36 PFHpA samples detected an average of 0 ppt with a maximum of 11 ppt and a minimum of 0 ppt. 2 out of 36 PFHxS samples detected an average of 3 ppt with a maximum of 60 ppt and a minimum of 0 ppt. No PFNA detection. No PFBS detection.**

Source: EWG from (USEPA) Third Unregulated Contaminant Monitoring Rule

NJ Private Well Testing Act Data Summary (Sep. 2002 to Apr. 2014)



Click a tab for more information then click a location on the map for data.

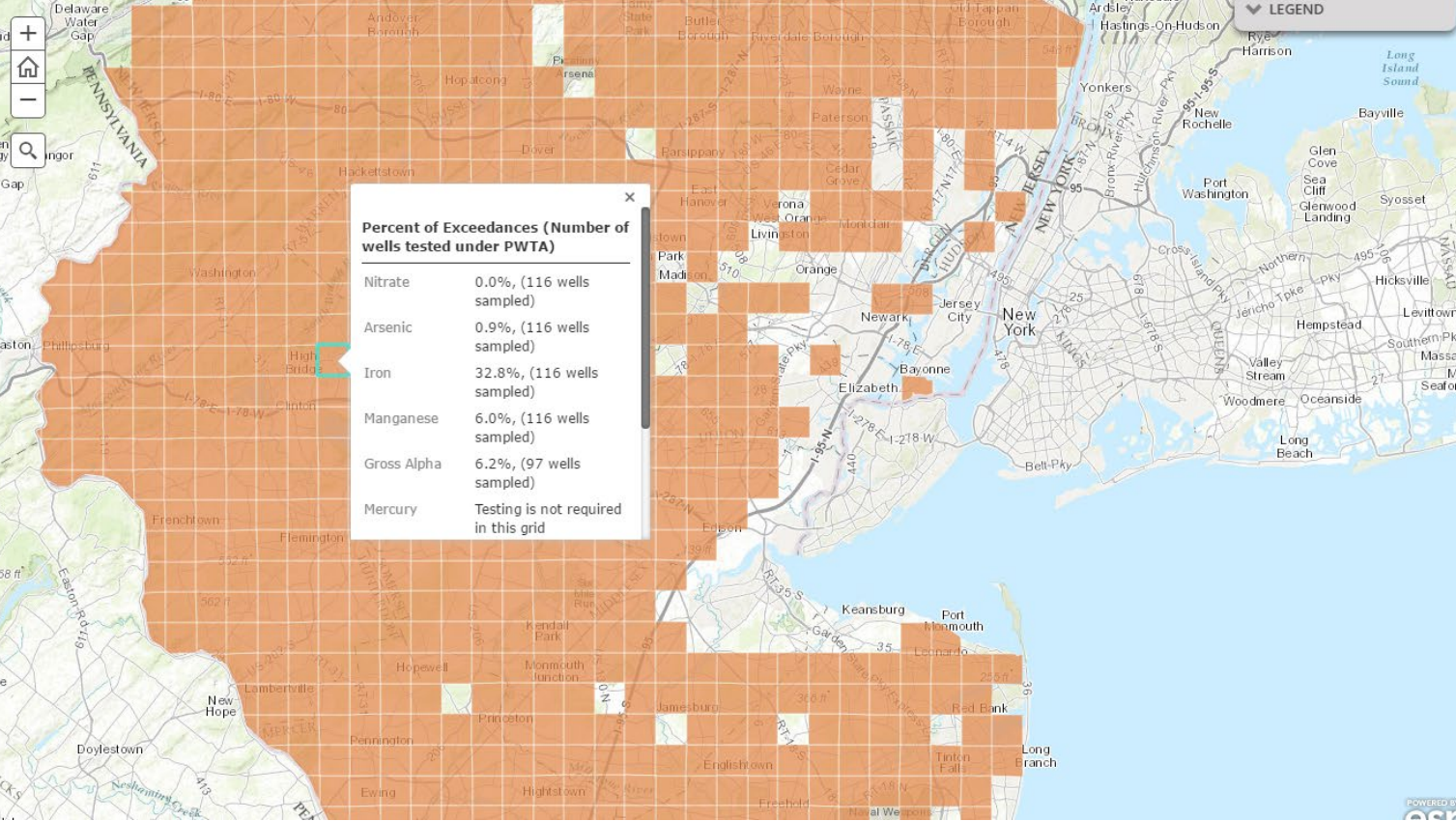
- Background
- Counties
- Municipalities
- Grids**
- Arsenic
- Fecal coliform or E. coli
- Gross Alpha
- Iron
- Manganese
- Mercury
- Nitrate
- pH
- Volatile Organic Compounds (VOCs)

Click on a grid for PWTA data.

PWTA data are summarized within 2 mile x 2 mile grids to show the percent of wells that exceeded a maximum contaminant level (MCL) for each parameter and the number of wells sampled. Data is not reported in grids where less than 10 wells were sampled.

Areas not covered by a grid are areas where no wells were tested as part of the PWTA.

Please visit the [PWTA webpage](#) for additional information.



What Can We Do to Protect Groundwater Resources?



THANK YOU



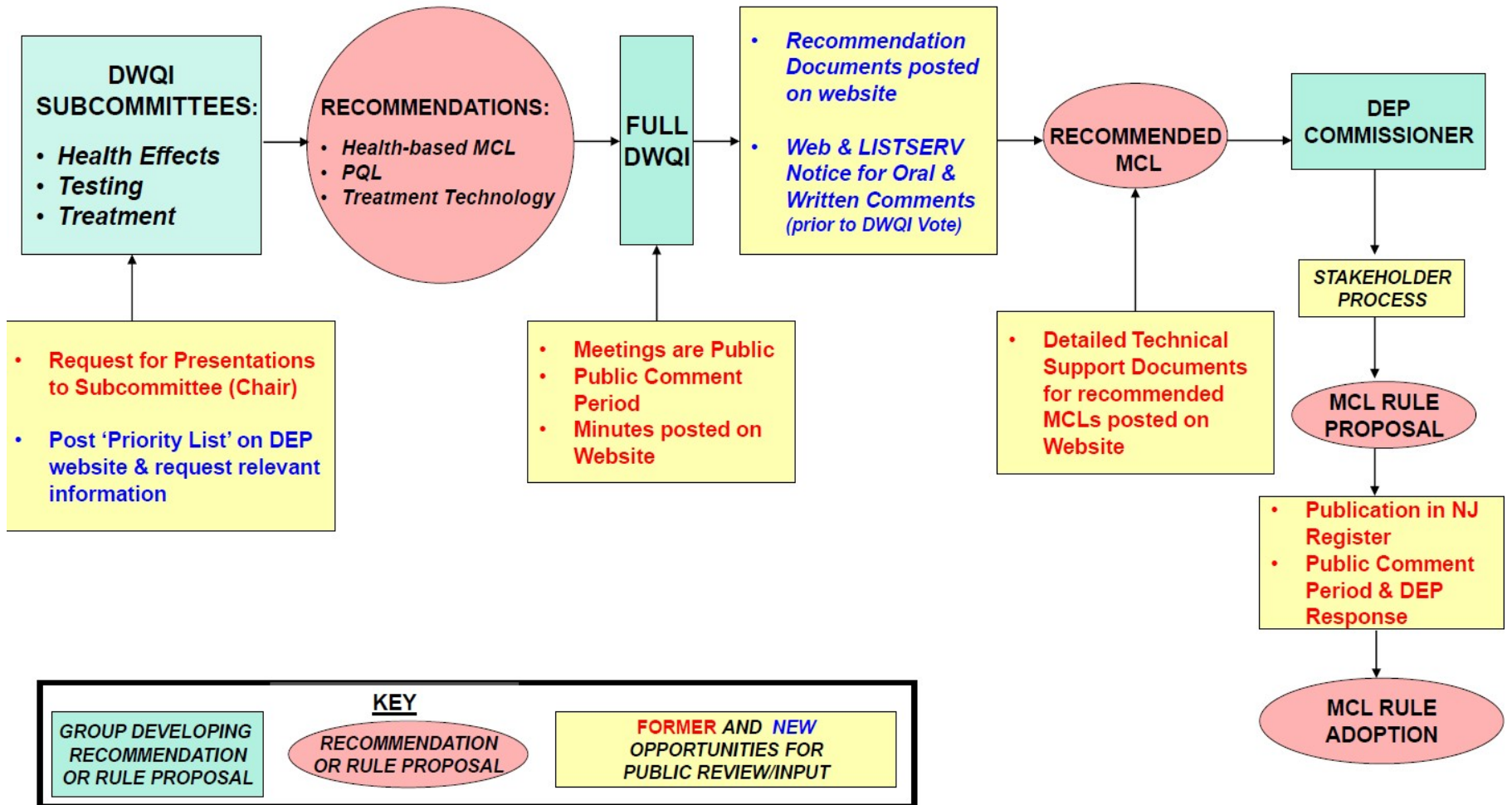
and please don't
forget to
TEST YOUR WATER!

Mara Tippet
mtippet@raritanheadwaters.org
Testmywell.org



**Raritan
Headwaters**

PUBLIC PARTICIPATION IN MCL DEVELOPMENT PROCESS



Federal and NJ State Primary and Secondary Drinking Water Standards as of February 2005

Volatile Organic Compounds

Contaminants	Maximum Contaminant Levels [MCL] [µg/l or ppb]
Benzene	1*
Carbon Tetrachloride	2*
1,2-Dichlorobenzene	600
1,3-Dichlorobenzene	600*
1,4-Dichlorobenzene	75
1,1-Dichloroethane	50*
1,2-Dichloroethane	2*
1,1-Dichloroethylene	2*
cis-1,2-Dichloroethylene	70
trans-1,2-Dichloroethylene	100
1,2-Dichloropropane	5
Ethylbenzene	700
Methyl tertiary Butyl Ether	70*
Methylene Chloride	3*
Monochlorobenzene	50*
Naphthalene	300*
Styrene	100
1,1,2,2-Tetrachloroethane	1*
Tetrachloroethylene	1*
Toluene	1,000
1,2,4-Trichlorobenzene	9*
1,1,1-Trichloroethane	30*
1,1,2-Trichloroethane	3*
Trichloroethylene	1*
Vinyl Chloride	2
Xylenes [total]	1,000*

* N.J. MCL [A-280]

Key: One milligram per liter [mg/l] = one part per million = one cent in \$10,000 or one second in 12 days.
One microgram per liter [µg/l] = one part per billion = one cent in \$10,000,000 or one second in 32 years.

Trihalomethanes 80 µg/l [ppb] running annual average
Total of Dichlorobromomethane, Chlorodibromomethane, Bromoform and Chloroform.

Halooacetic Acids 60 µg/l [ppb] running annual average
Total of Monochloroacetic, Dichloroacetic, Trichloroacetic, Bromoacetic and Dibromoacetic acids.

Bromate (plants using ozone) 10 µg/l [ppb] running annual average

Chlorite (plants using chlorine dioxide) 1,000 µg/l [ppb] daily/ follow-up monitoring

Radionuclides Combined radium 226/228 md is 5 picocuries/l [pCi/l]; gross alpha particle radioactivity (including radium 226 but excluding radon and uranium) MCL is 15 pCi/l; beta/alpha emitters MCL is 4 mrem/yr; uranium MCL is 30 µg/l.

Turbidity No more than 5% of the samples may exceed 0.3 NTU, nor any sample exceed 1 NTU.

Coliform bacteria standards are based on the presence or absence of coliforms in a sample. The number of samples collected by a public water system is determined by the size of the population served. A system collecting at least 40 samples/month can have coliform in no more than 5% of the samples. A system collecting fewer than 40 samples/month can have no more than one coliform positive. Any number exceeding these amounts triggers an MCL exceedance.

Inorganics

Contaminants	Maximum Contaminant Levels [MCL] [µg/l or ppb]
Antimony	6
Arsenic	5* #
Asbestos	7 X 10 ⁶ fibers/l > 10µm
Barium	2,000
Beryllium	4
Cadmium	5
Chromium	100
Copper	1,300**[AL]
Cyanide	200
Fluoride	4,000
Lead	15**[AL]
Mercury	2
Nickel	+
Nitrate[as nitrogen]	10,000
Nitrite	1,000
[combined nitrate/nitrite]	10,000
Selenium	50
Thallium	2

**An [AL] action level is not an MCL. It is a trigger point at which remedial action is to take place.

+No MCL - Monitoring Required

Effective January 23, 2006

* N.J. MCL [A-280]

Synthetic Organic Compounds

Contaminants	Maximum Contaminant Levels [MCL] [µg/l or ppb]
Alachlor	2
Aldicarb	+
Aldicarb Sulfone	+
Aldicarb Sulfoxide	+
Atrazine	3
Benzo[a]pyrene	0.2
Carbofuran	40
Chlordane	0.5*
Dalapon	200
Dibromochloropropane [DBCP]	0.2
Di[2-ethylhexyl]adipate	400
Di[2-ethylhexyl]phthalate	6
Dinoseb	7
Diquat	20
Endothal	100
Endrin	2
Ethylene dibromide [EDB]	0.05
Glyphosate	700
Heptachlor	0.4
Heptachlor Epoxide	0.2
Hexachlorobenzene	1
Hexachlorocyclopentadiene	50
Lindane	0.2
Methoxychlor	40
Oxamyl	200
PCBs	0.5
Pentachlorophenol	1
Pidloram	500
Simazine	4
Toxaphene	3
2,3,7,8-TCDD [Dioxin]	3 X 10 ⁻⁶
2,4-D	70
2,4,5-TP [Silvex]	50

* N.J. MCL [A-280]

+No MCL - Monitoring Required

For a detailed explanation of the Safe Drinking Water Program, refer to the Federal Safe Drinking Water Act regulations [40 CFR Parts 141, 142, 143] and the New Jersey Safe Drinking Water regulations [N.J.A.C. 7:10-1 et seq.].

Secondary Standards

[primarily aesthetic]

Physical Characteristics	Recommended Upper Limit or Optimum Range
Color	10 color units (standard cobalt scale)
pH	6.5 to 8.5 (optimum range)
Odor	3 Threshold odor number
Taste	No objectionable taste
Chemical Characteristics	Recommended Upper Limit [mg/l or ppm]
ABS/L.A.S.	0.5
Aluminum	0.2
Chloride	250
Fluoride	2
Hardness (as CaCO ₃)	250
Iron	0.3
Manganese	0.05
Silver	0.1
Sodium	50
Sulfate	250
Total dissolved solids	500
Zinc	5



New Jersey Department of Environmental Protection

Division of Water Supply

Bureau of Safe Drinking Water

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