WATER TESTING

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PA does not *require* testing of private wells …

But...

Why should I get my well water tested ?

How do I test it ?

Certified labs ?

How much will a test cost ?

What will a report look like ?

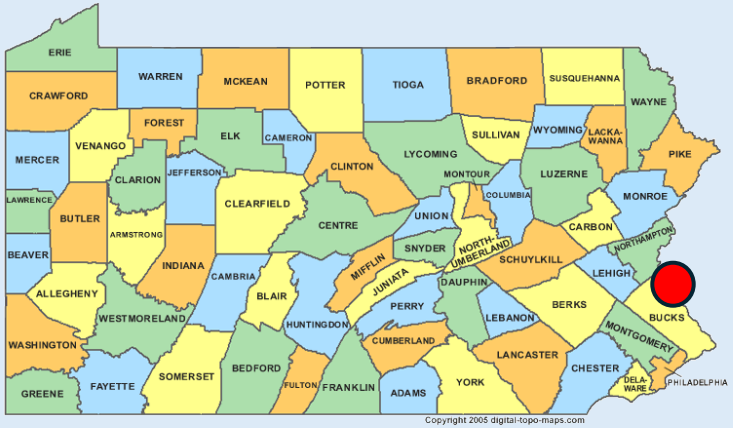
Who can help ?

Sharing and confidentiality

- **Half of the private water wells that have been tested in PA have at least one water quality problem.**

- **Only half of PA private wells have ever been tested**

- **It is fair to assume these statistics applies to BNT.**



Links -

Drinking Water Testing — Agricultural Analytical Services Lab — Penn State College of Agricultural Sciences (psu.edu)

EPA recommends testing **every year** for:

. total coliform bacteria

. nitrates

. total dissolved solids

. pH levels

$$$ Cost $70 plus $50 shipping
PSU lab

This applies to BNT due to septic tank prevalence, agriculture and older wells.

Link -

EPA Home Water Testing Facts

Link -

Drinking Water Testing — Agricultural Analytical Services Lab — Penn State College of Agricultural Sciences (psu.edu)

How to collect a sample?

Source vs Tap Water?

Self or professional?

Lab decisions?
(analogous to bloodwork)

Check out this 1 hour video introducing the PSU lab service -

Link - Drinking Water Testing — Agricultural Analytical Services Lab — Penn State College of Agricultural Sciences (psu.edu)

PSU Test Kit

Check out this 13 minute video explain how to take and ship water samples to PSU

Link - How To Use the Penn State Drinking Water Test Kit (psu.edu)

PennState
College of Agricultural Sciences

WD01	Standard	Basic tests for which drinking water samples should be routinely tested	Total coliform bacteria, *E. coli* bacteria, pH, and total dissolved solids add nitrate for $10 add arsenic for $30	$60.00
WD08	Extensive	Includes a combination of the most tests offered by the lab for customers interested in a more comprehensive analysis of their drinking water	Total coliform bacteria, E. coli bacteria, pH, total dissolved solids, hardness, alkalinity, corrosivity, arsenic, barium, copper (first draw and running water), iron, lead (first draw and running water), manganese, sodium, chloride, sulfate, and nitrate-nitrogen	$220.00

Link - Drinking Water Testing — Agricultural Analytical Services Lab — Penn State College of Agricultural Sciences (psu.edu

LAB ID	SAMPLE ID	REPORT DATE	DATE SAMPLED	DATE RECEIVED	SAMPLE TYPE:	COUNTY
W30037		8/3/2023	7/24/2023	7/25/2023	Drinking Water	Bucks

WATER ANALYSIS
Penn State Extension

Analysis	Units	Your Test Results	Drinking Water Standard[1] Standard	Type
Total Coliform Bacteria	MPN[2] per 100 mL	None detected[3]	0	Health
E. coli Bacteria	MPN[2] per 100 mL	None detected[3]	0	Health
Nitrate as N	mg/L	2.5	10	Health
Copper (Cu), first draw	mg/L	0.07	1.0, 1.3	Aesthetics, Health
Lead (Pb), first draw	mg/L	< 0.003	0.015	Health
Arsenic (As)	mg/L	< 0.003	0.010	Health
Barium (Ba)	mg/L	0.052	2	Health
Manganese (Mn)	mg/L	< 0.01	0.05	Aesthetics
Sodium (Na)	mg/L	15.10	-	-

Expensive Analysis
$300 - $600 each

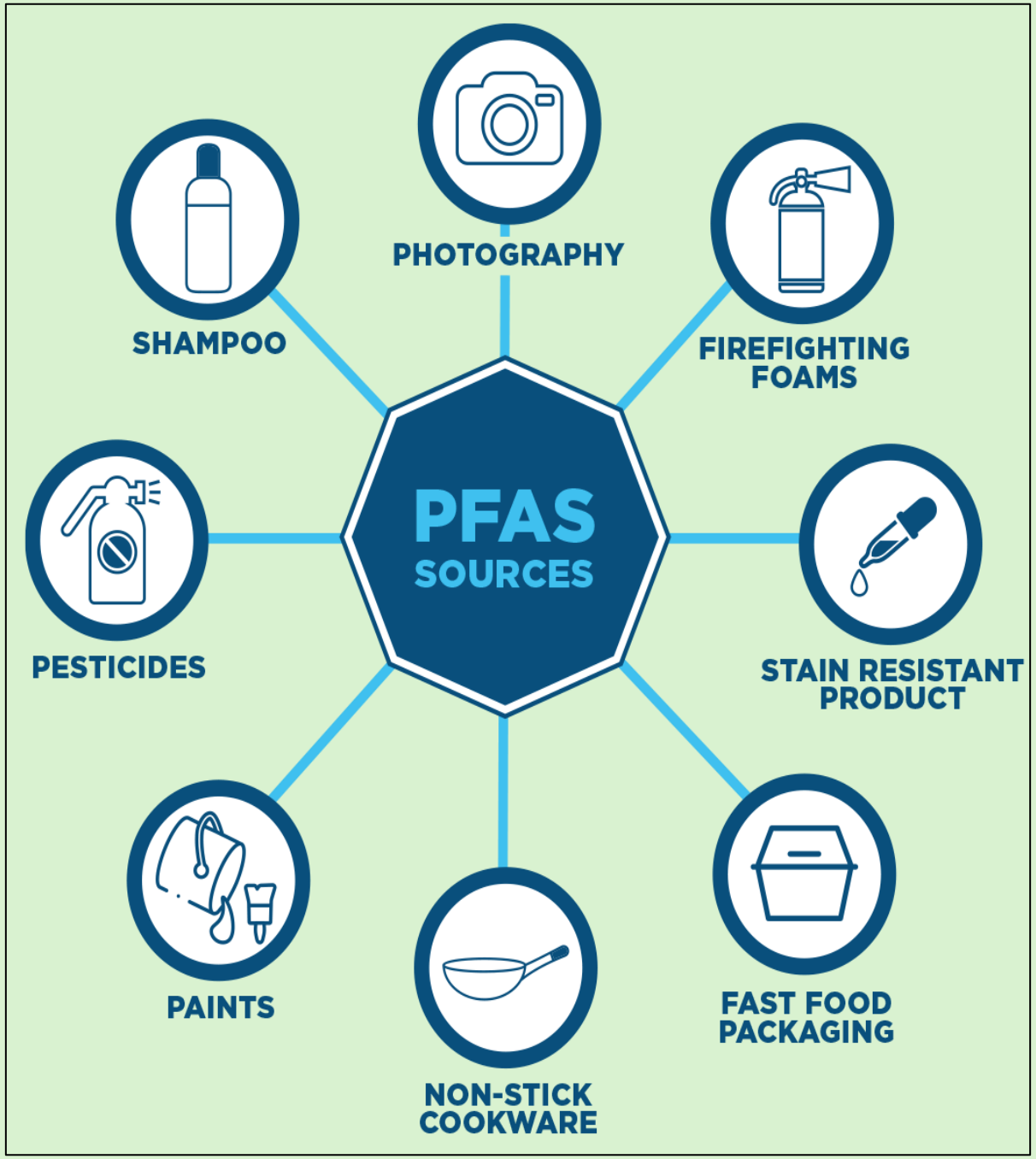
VOCs
- **Hydrocarons eg. BTEX**
- **Chlorinated Hydrocarbons**

PFAS Compounds

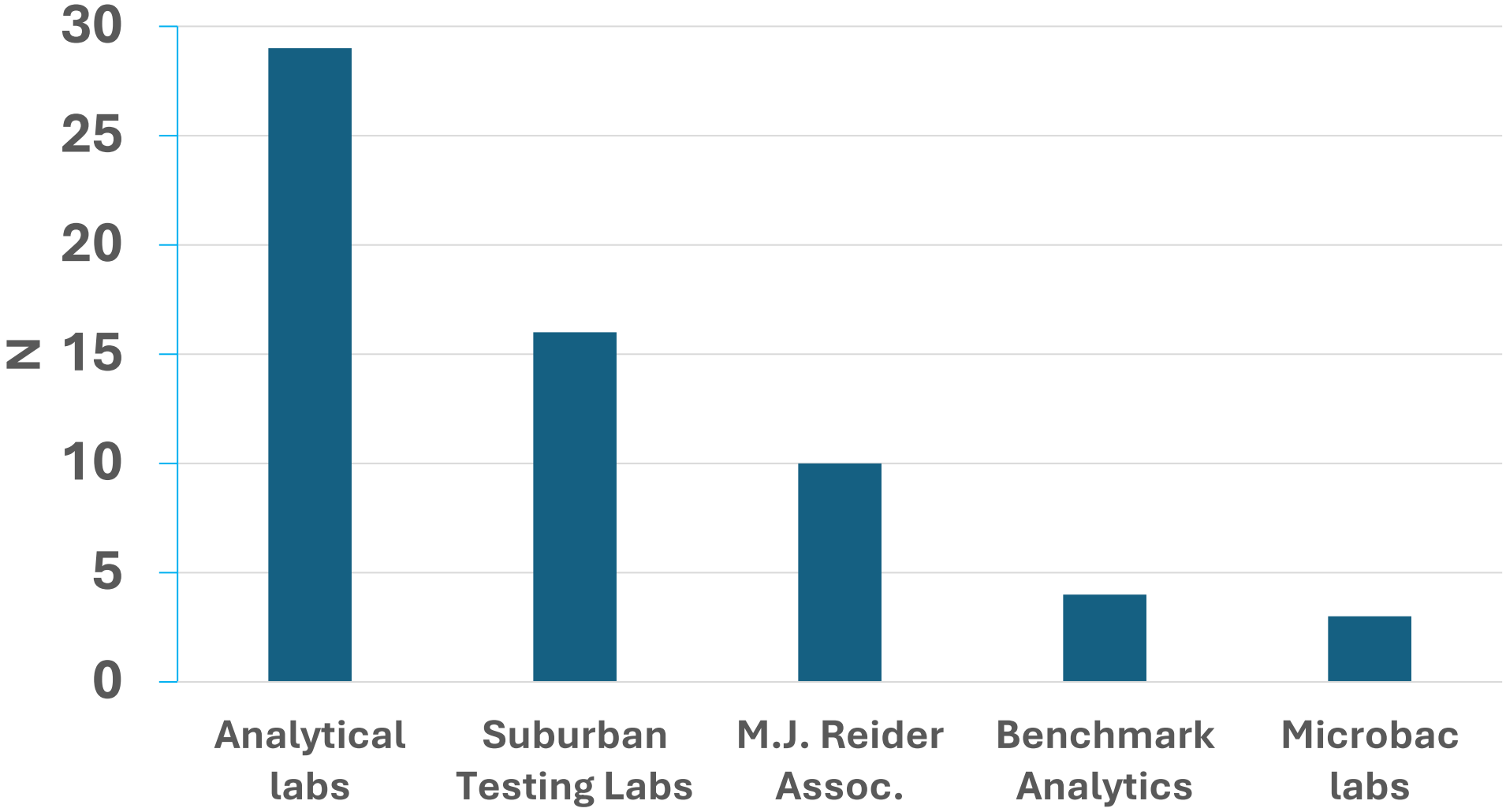
Pesticides

Pharmaceuticals

Additional tiers add expense
(analogous to bloodwork)


PFAS
SOURCES
PHOTOGRAPHY
SHAMPOO
FIREFIGHTING FOAMS
PESTICIDES
STAIN RESISTANT PRODUCT
PAINTS
NON-STICK COOKWARE
FAST FOOD PACKAGING

Lab use frequency 2013 to 2023
Bucks County Department of Health
BCDH - Well Permits - BNT



Penn State N=56
2007 to 2023
existing wells

Laboratory Accreditation Program (pa.gov)

Analytical Laboratories, Inc
4208 Bethlehem Pike
Telford, PA 18969
(215) 723-6466
Analytical Labratories, Inc, Home (analab.com)

M. J. Reider Associates Inc *
107 Angelica Street
Reading, PA 19611-1999
(610) 374-5129
M.J. Reider | (mjreider.com)

Suburban Testing Laboratories, Inc.
1037F MacArthur Road
Reading, PA 19605
(610) 375-8378
Homepage - Suburban Testing Labs

Agricultural Analytical Services Laboratory
111 Ag Analytical Srvcs Lab
University Park, PA 16802
(814) 863-0841
Drinking Water Testing — Agricultural Analytical Services Lab — Penn State College of Agricultural Sciences (psu.edu)

What to expect ?

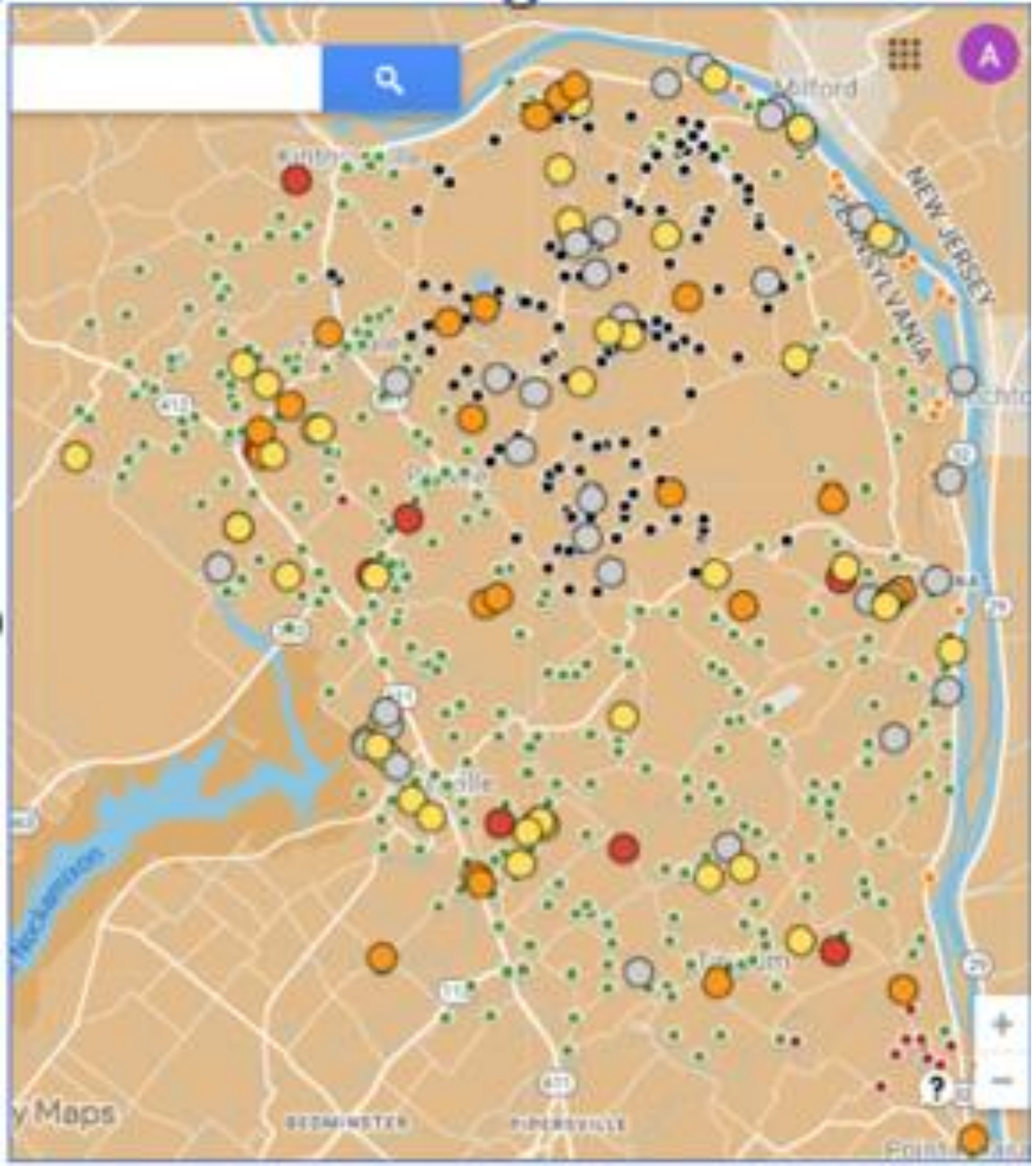
Total Coliform 20%

Fecal Coliform 7%

Corrosive 60%

Arsenic …

Naturally occurring or man-made ?



Arsenic – naturally occuring

38 of the 144 samples (26.4%) exceeded 10 µg/l MCL Maximum Contaminant Level
Drinking Water Standard

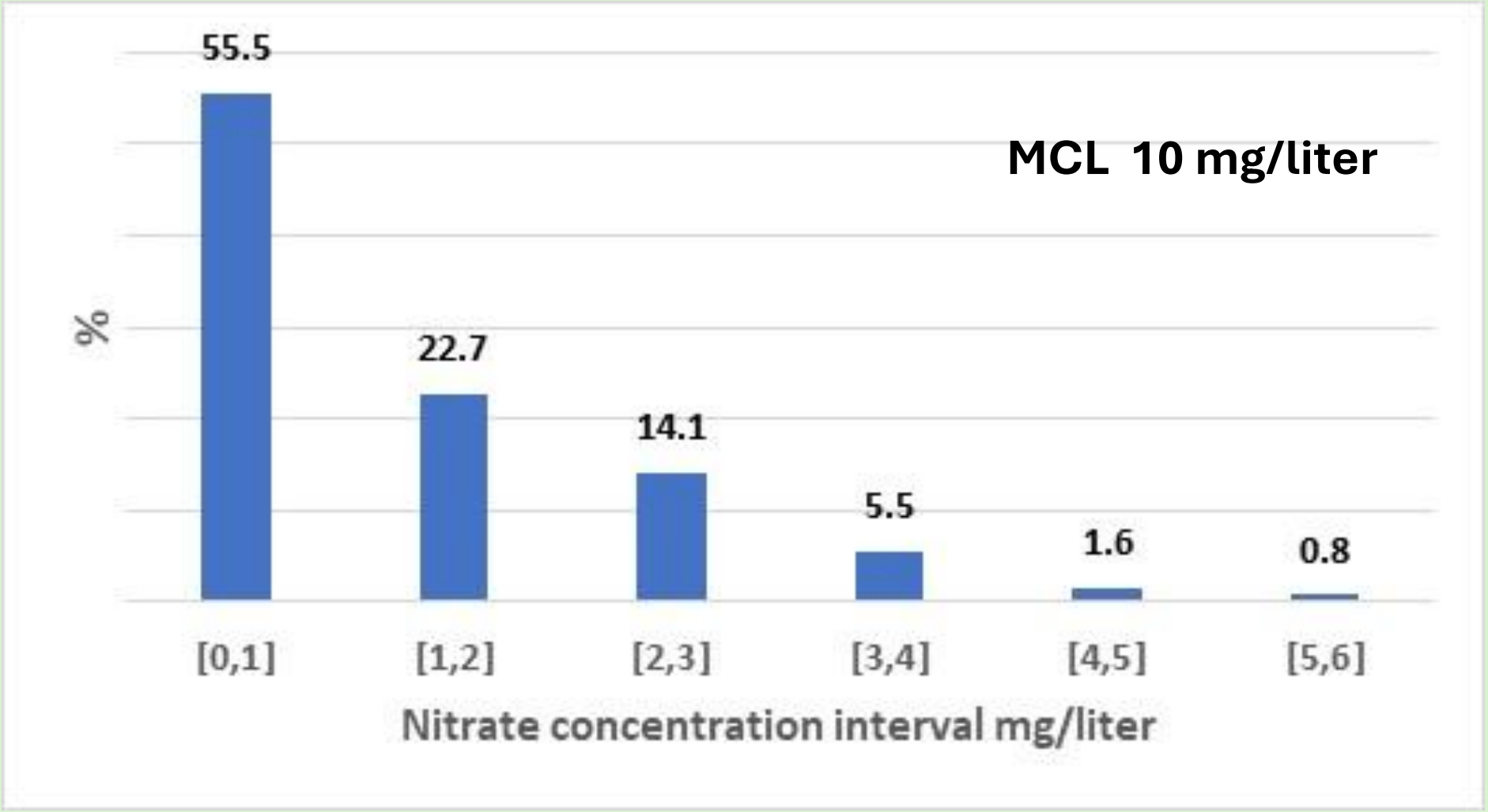
In 2006, the EPA reduced the MCL of arsenic in public water systems to 10 µg/L, from 50 µg/L

- 20-40 µg/L
- 10-20 µg/L
- < 10-µg/L
- not detected
- Brunswick
- Alluvium
- Diabase
- Lockatong

Link - Arsenic - Google My Maps

Nitrate concentrations

N=128

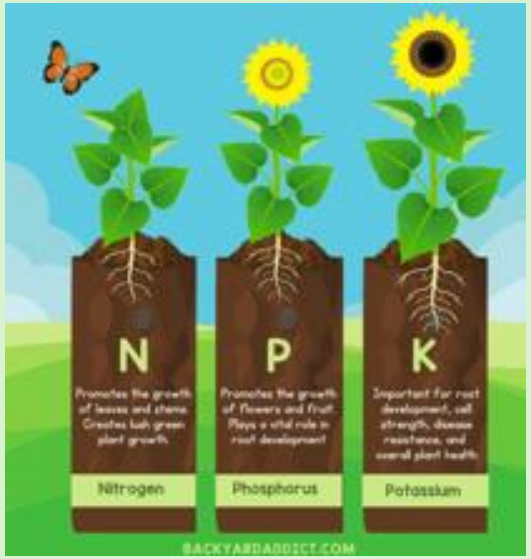


21.1% of the samples exceed 2 mg/liter

Nitrate occurs in precipitation at low levels averaging 0.5 mg/L nadp.slh.wisc.edu

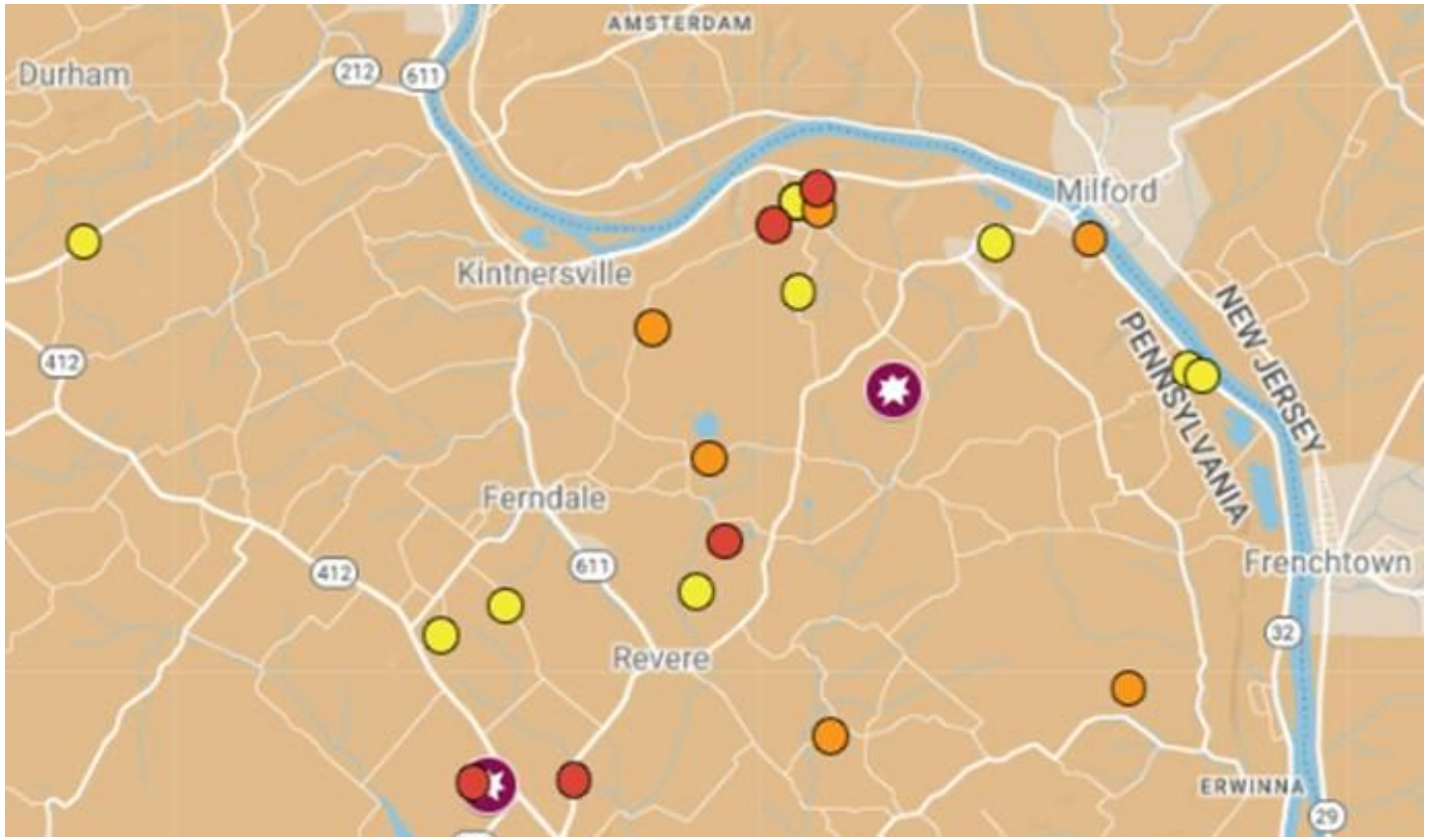
Concentrations exceeding
2 -3 mg/liter indicate a
terrestrial source such as fertilizers,
animal waste or septic effluent.

21.1% of the samples exceed 2 mg/liter



urine 40 mg/liter

At least one VOC was detected in 21 groundwater samples from 124 wells (16.9%).



Total VOC concentrations

greater than 10 µg/liter

between 1 and 10 µg/liter

less than 1 µg/liter

Boarhead and Ottsville sites

Link -

VOCs - Google My Maps

Report –
Water Quality Data - Bridgeton, Nockamixon, and Tinicum Townships 1992-2023

Link - BNTGMC (bntgroundwater.org)

EXISTING WELLS
Testing Recommendations
MCLs, (what to expect)

Every 1- 2 years

Microbes	pH
0	6.5 – 8.5
	(7.4 – 7.8)
Nitrate	**total dissolved solids**
10 mg/l	500 mg/l
(2 mg/l)	(275 mg/l)

At least once?
Every 5 years?
(team up)

Arsenic
10 µg/l
(6 µg/l)
Radon (indoor air)
4 pCi/L
VOCs
Pesticides
PFAS
Pharma.

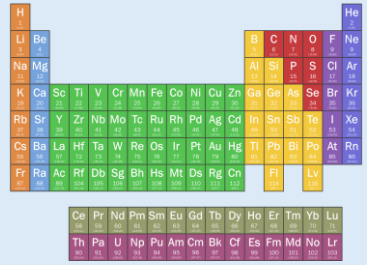
NEW WELLS
Subject to BCDH and Local Ordinance Requirements

Total Coliform
Fecal Coliform
E. coli

pH
Total Dissolved Solids
Hardness
Gross Alpha Particle Activity

Nitrate
Arsenic
Iron
Manganese
Lead
Copper
Mercury

Volatile Organic Compounds VOCs
for which maximum contaminant levels (MCLs)
have been established by federal and state law



MCL and Detection Limit

Parameter	MCL (mg/l)	Result (mg/l)
Benzene	0.005	< 0.0005
Carbon Tetrachloride	0.005	< 0.0005
1,2-Dichloroethene	0.005	< 0.0005
o-Dichlorobenzene	0.6	< 0.0005
para-Dichlorobenzene	0.075	< 0.0005
1,1-Dichloroethylene	0.007	**0.0102**
cis-1,2-Dichloroethylene	0.07	< 0.0005
trans-1,2-Dichloroethylene	0.1	< 0.0005
Dichloromethane	0.005	< 0.0005
1,2-Dichloropropane	0.005	< 0.0005
Ethylbenzene	0.7	< 0.0005
Monochlorobenzene	0.1	< 0.0005
Styrene	0.1	< 0.0005
Tetrachloroethylene	0.005	< 0.0005
Toluene	1.0	< 0.0005
1,2,4-Trichlorobenzene	0.07	< 0.0005
1,1,1-Trichloroethane	0.2	0.0029
1,1,2-Trichloroethane	0.005	< 0.0005
Trichloroethylene	0.005	**0.0271**
Vinyl Chloride	0.002	< 0.0005
Total Xylenes	10.0	< 0.0005

Treatments

Link - [7 Methods to Remove Arsenic from Drinking Water - Water Treatment (purewaterblog.com)]

Link - [Predicting How Effective Water Filters are at Removing a Variety of PFAS | US EPA]

Share? Confidentiality

also submit via email artbaehr@comcast.net