PFAS and RY2020 TRI Reporting
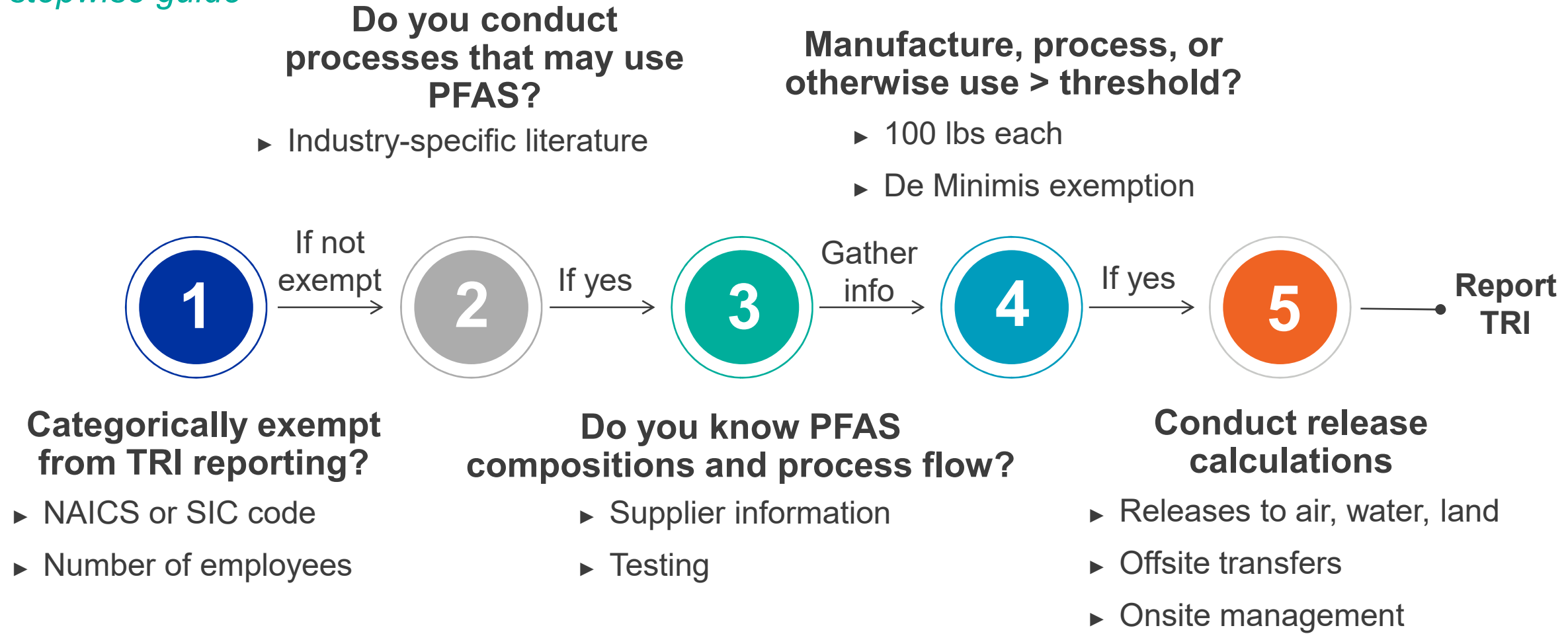
Addition of PFAS to TRI Reportable Chemicals

▶ Action in Dec. 2019 and Feb. 2020 added 172 new PFAS chemicals

▶ Reportable in RY2020

▶ **Threshold Calculations:**

- Manufacturing, processing, otherwise use threshold (MPOU)
  - ◆ **100 lbs for each individual PFAS**
  - ◆ Manufacturing includes impurities and byproducts
- De minimis exemption
  - ◆ *Only for processed/otherwise used/impurities retained in product distributed commercially*
  - ◆ Substances with reportable chemical below de minimis levels don't have to be included in threshold calculations or release reporting
  - ◆ 0.1% for PFOA (CAS 3335-67-1)
  - ◆ 1% for all other PFAS

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Are You Subject to TRI Reporting for PFAS?

A stepwise guide

Do you conduct processes that may use PFAS?

▸ Industry-specific literature

Manufacture, process, or otherwise use > threshold?

▸ 100 lbs each

▸ De Minimis exemption

(1) — If not exempt → **(2)** — If yes → **(3)** — Gather info → **(4)** — If yes → **(5)** — **Report TRI**

Categorically exempt from TRI reporting?

▸ NAICS or SIC code

▸ Number of employees

Do you know PFAS compositions and process flow?

▸ Supplier information

▸ Testing

Conduct release calculations

▸ Releases to air, water, land

▸ Offsite transfers

▸ Onsite management

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PFAS in the Air

PFAS Occurrence - Outdoor Air

► Elevated concentrations observed or expected in urban areas nearest to major emission sources:
- Industrial facilities producing or using PFAS
- Chrome platers
- Areas where Class B firefighting foams used
- Landfills and wastewater treatment plants

► PFOA and PFOS in air typically fall within a range of about 1-20 pg/m3 (although concentrations as high as 900,000 pg/m3 observed near large manufacturers)

Sources: Ge et al. 2017; Bossi et al. 2016; Lai et al. 2016; Liu et al. 2015; Wang et al. 2015; Ahrens et al. 2011; Cai et al 2012; Goosey and Harrad 2012; Shoeib et al. 2011; Dreyer et al. 2010; Shoeib et al. 2010; Dreyer et al. 2009; Suja et al. 2009; Loewen et al. 2008; Barton et al. 2007; Jahnke et al. 2007; Kim and Kannan 2007; Piekarz et al. 2007; Barton et al. 2006; Shoeib et al. 2004; Stock et al. 2004.

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Transport of PFAS in Air

▶ PFAS commonly found in precipitation (rain and snow)

▶ Wet and dry deposition major removal mechanisms from atmosphere, on a timescale of a few days

▶ Short-range atmospheric transport can result in contamination to terrestrial and aquatic systems near emission sources with multi-media impacts

▶ Evidence of releases observed **miles** from source where transport by water unlikely
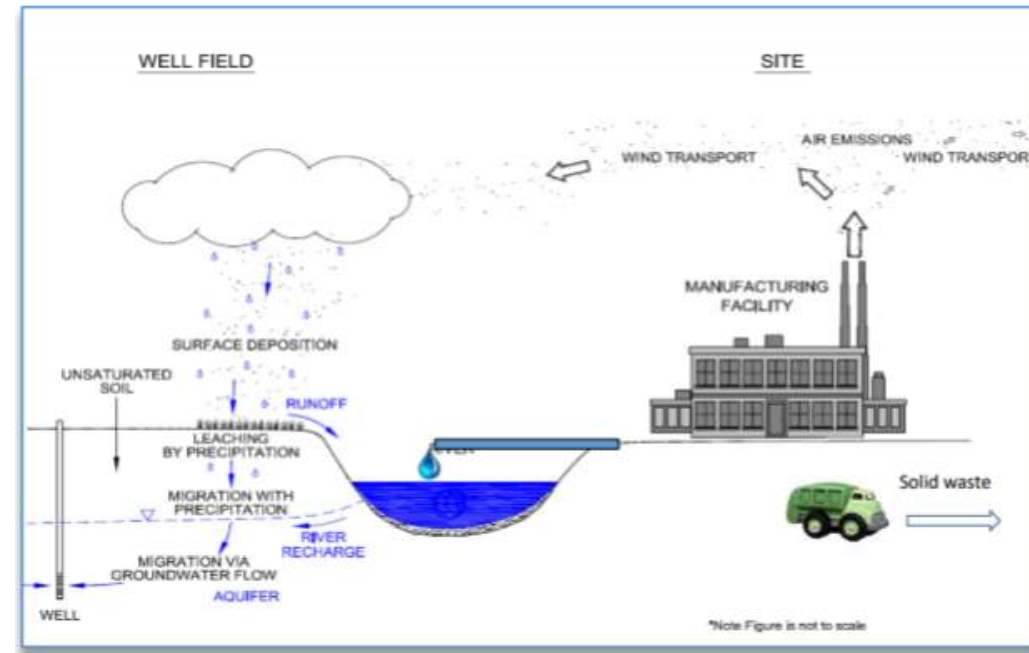
Sources: Liu et al. 2017; NHDES 2017; Chen et al. 2016; NYDOH 2016; Lin et a. 2014; Post 2013; Taniyasu et al. 2013; Zhao et al. 2013; Post 2012; Dryer et al. 2010; Kwok et al. 2010; Frisbee et al. 2009; Barton et al. 2007; Davis et al. 2007; Kim and Kannan 2007; Hurley et al. 2004

Example: PFAS Investigation Near Manuf. Plant

► Drinking water wells up to ~20 miles from industrial source were contaminated with PFOA through air deposition (WV & Ohio).
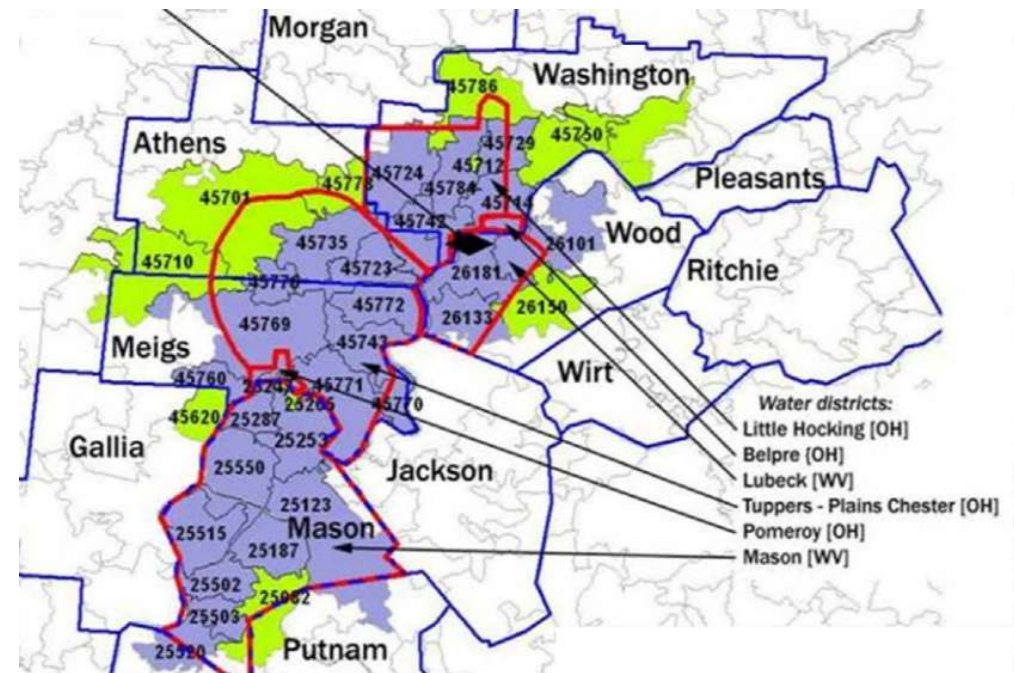
Source: S. Frisbee, West Virginia Univ. School of Medicine. 2008.

PFAS Source Emission Measurements

▶ **No EPA approved methods for PFAS Emissions – EPA Developing OTM-45**

- Diverse Sources - chemical manufacturers, commercial applications, etc.
- Expected in 2021

▶ **No EPA Approved methods for PFAS ambient air methods**

- Considering both sampling and analysis methods, targeted and non-targeted
- Applications could include fenceline monitoring for fugitive emissions, deposition, receptor exposure
- Expected in 2021 or later

Source: USEPA's "Update on PFAS Analytical Methods"

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EPA's PFAS Action Plan

▶**PFAS in Air**

*"EPA is working to better characterize and understand the **environmental impacts of PFAS emitted to the air.** This work will build on the scientific foundation that has been established to develop sampling and measurement methods for PFAS in air, assess effectiveness of PFAS disposal methods, and understand the efficacy of emission control technology. EPA also has provided support to states on technical matters on destruction and incineration of PFAS in contaminated waste and materials."*