



PFAS Sampling in Indiana's Public Water Systems

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IDEM PFAS Sampling Initiative

- The purpose of this sampling project is to evaluate the statewide occurrence of PFAS compounds at approximately 778 Community Public Water Systems (PWS).
- Workplan development started in Spring of 2020.
- In July 2020, IDEM applied for an Emerging Contaminants Grant from the EPA's Public Water System Supervision (PWSS) Grant Program; approved in September 2020.
- Surveys were sent to the PWSs to notify them of the project, ask for participation, and obtain a valid shipping address for sample bottle delivery.



IDEM PFAS Sampling Initiative

- Coolers containing bottles and sampling supplies are shipped to the PWS from the lab.
- Operators are asked to read the sampling instructions thoroughly, fill the sampling bottles, and return them to the lab via FedEx within a reasonable timeframe.



Workplan

- Samples collected by the drinking water operator:
 - Finished water at points of entry into the distribution system.
 - Raw water samples at wells or intakes.
- Using U.S. EPA Method 537.1 - 18 PFAS compounds .
- Detection limits of 2 parts per trillion (ppt).
- Phase 1, samples sent to the Indiana Department of Health Lab.
- A private lab, Pace Analytical, was used for Phases 2, 3, 4, and 5.



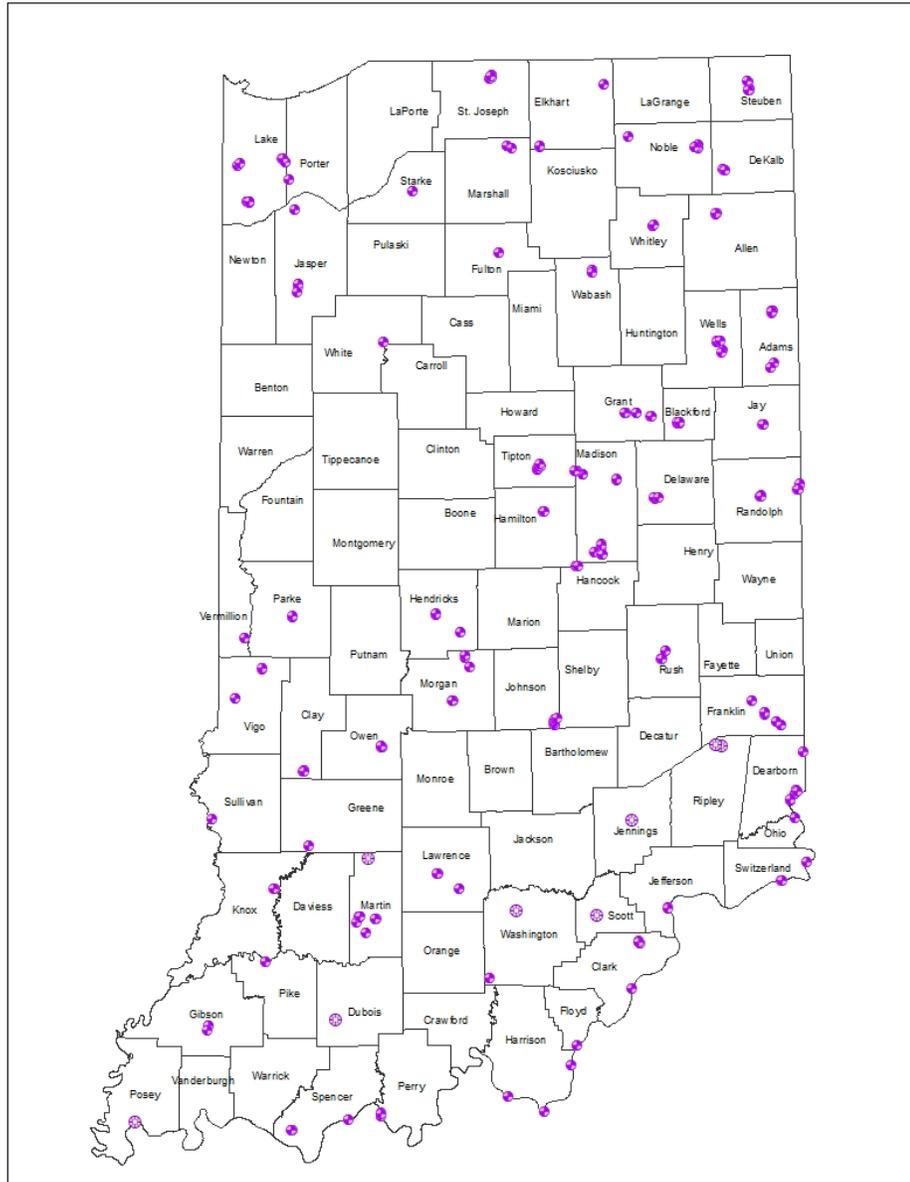
Timeline

	Population Served	Active Systems	Dates
Phase 1	3,300 to 10,000	123	March 2021 - October 2021
Phase 2	< 3,300	570	November 2021 – January 2023
Phase 3	>10,000	85	January 2023 – October 2024



Phase 1 Sampling

- 3,300-10,000 population served.
- IDOH lab.
- 106 systems agreed to participate.
- 78 systems returned samples to IDOH.





Phase 1 Results

- 39 systems showed detectable levels of at least one PFAS compound.
- 22 showed detection in water purchased from a larger system.
- Compounds most frequently detected:
 - PFBS
 - PFOS
 - PFOA
 - PFHxA

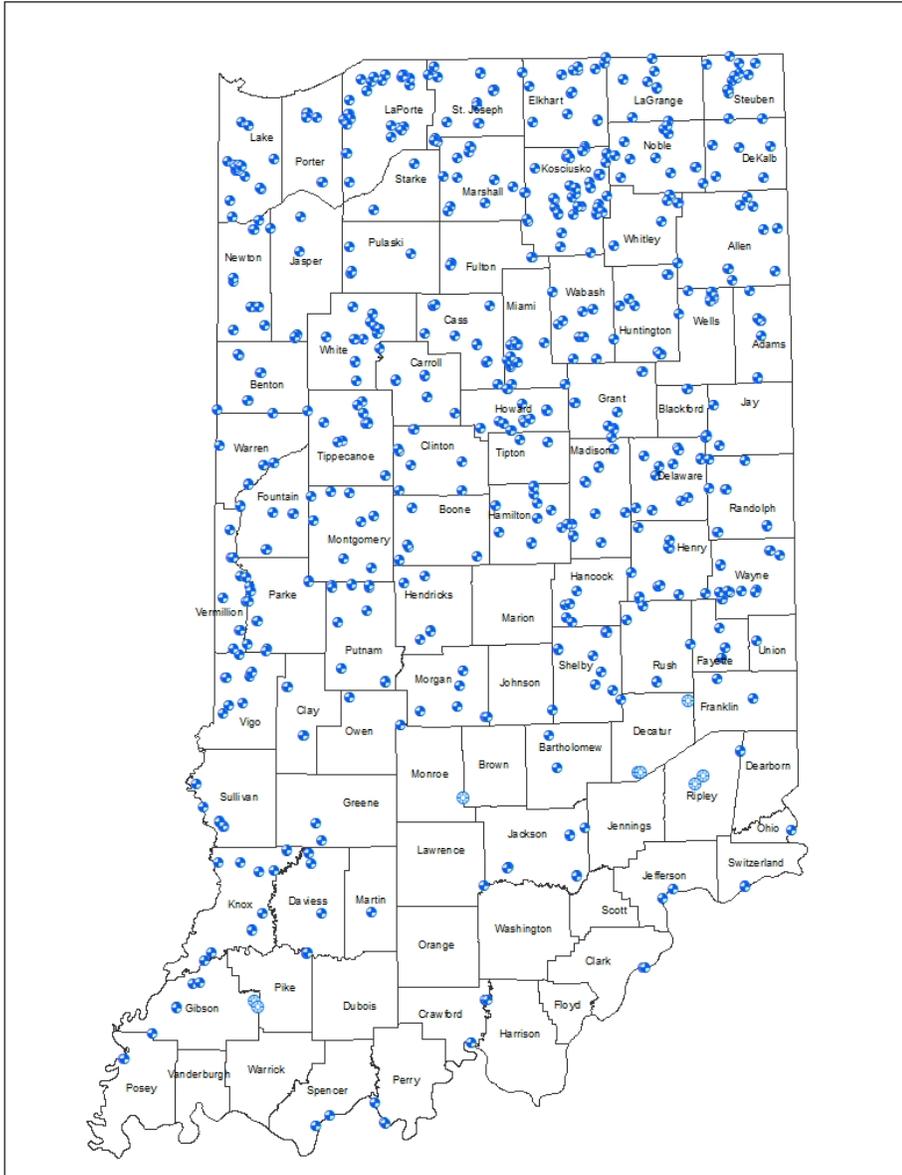


Resampling by IDEM staff and Pace Labs

- 39 systems were resampled by IDEM staff to verify the sampling results because of:
 - PFOS or PFOA detections
- 13 systems had detectable levels of PFOS or PFOA in the resamples.
- 6 systems had PFOS or PFOA above the proposed Maximum Contaminant Level (MCL) in finished drinking water (PFOA at 6.2 ppt max)

Phase 2 Sampling

- < 3,300 population served
- 562 total number of PWSs
 - 383 agreed to participate
- 324 PWSs returned samples between Dec. 2021 and Jan. 2023
- Additional systems requested bottles after the EPA's proposed MCLs were released





Phase 2 Results

- 27 systems had a PFAS compound detected in their finished drinking water.
- 10 systems had detections for PFOS or PFOA in finished water.
- Only one of the 324 systems sampled in Phase 2 exceeded the proposed MCL for PFOS or PFOA in finished drinking water (PFOS at 4.0 and 5.6 ppt).



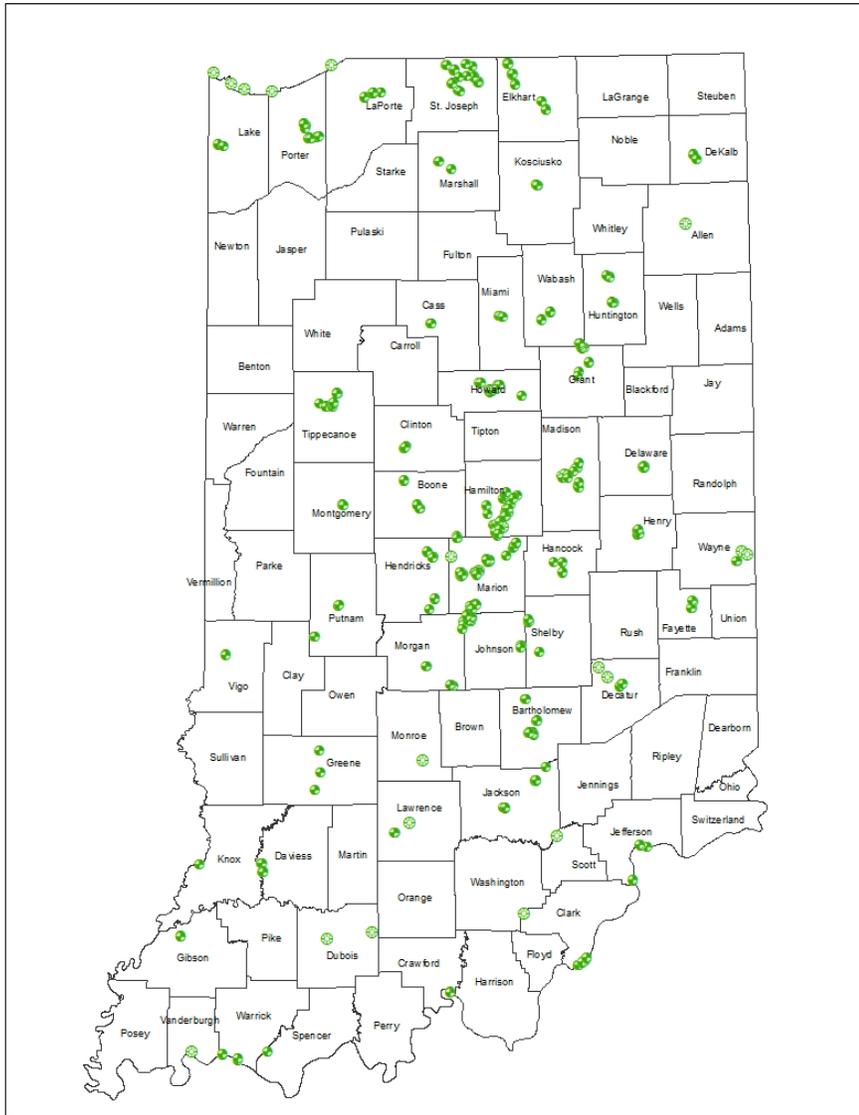
Phase 2 Resampling

- 27 systems were resampled by IDEM staff to verify sampling results:
 - PFOS or PFOA detections
 - Mix-ups with sample numbers
- 14 systems contained detectable levels of PFOS or PFOA in their finished drinking water.
- Only 1 system contained PFAS contamination above the proposed MCL (PFOS at 4.4 ppt).



Phase 3 Sampling

- > 10,000 population served
- 85 total PWS with 69 agreeing to participate.
- Began in January 2023



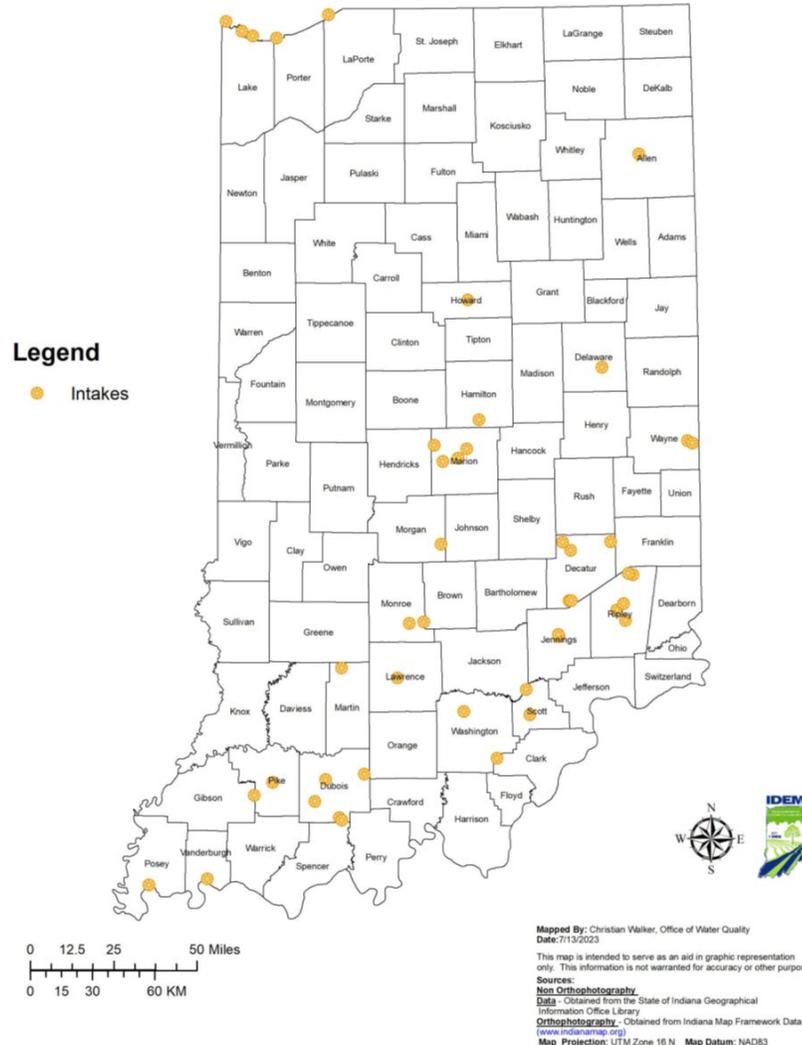


Phase 3 Results

- 24 systems contained detectable levels of a PFAS compound in finished drinking water.
 - 4 systems contained a detection above the proposed MCL (PFOA at 9.3 ppt max).

Phase 4 Sampling Locations

Phase 4



- A significant number of PFAS detections in the first three phases of the project come from systems that purchase water from larger surface water systems.
- 30 PWS source their drinking water from surface waters.
- Sampling started in May 2024



Phase 4 Planning

- Collect surface water sample up stream from drinking water intake locations on rivers, and near drinking water intakes in the case of lakes.
- Total of 44 intake locations.
- Used grab sample method, samples were collected with a bailer if water was not safely accessible from bank.
- Worked with Michigan (EGLE) to get advice on putting together sampling protocol.

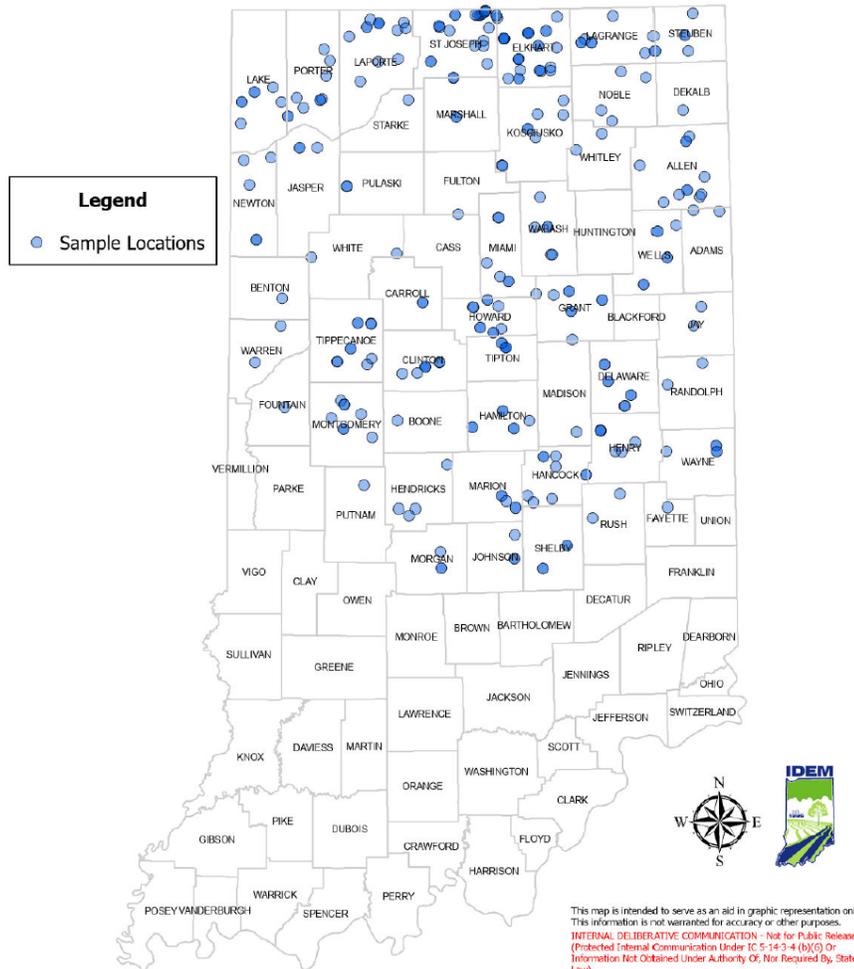


Phase 4 Results

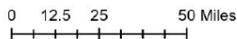
- 18 locations (15 PWS's) had detectable levels of a PFAS compound.
- 5 (3 PWS's) locations had detectable levels of a PFAS compound above the MCL for drinking water.
- Confirmation sampling was completed on locations that had detectable levels of a PFAS compound above the MCL for drinking water.
- Compounds most frequently detected:
 - PFHxA
 - PFBS
 - PFOS
 - PFOA

Phase 5 Planning

Phase 5 Sampling Locations



- Sampling was conducted at 236 non-transient non-community (NTNC) Community Public Water Systems (CWS).
- We focused on schools and daycares.
- 6 locations had detections for a PFAS compound.
- Only 1 had PFOA above the MCL.
- We are currently working on a second round of sampling for these NTNC systems.



This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.
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Date: 11/8/2024
Sources:
Non Orthophotography Data - Obtained from the State of Indiana Geographical Information Office Library
Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N
Map Datum: NAD83



Sampling results and additional information about PFAS in Indiana can be found at:

idem.IN.gov/pfas

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