

# PFAS Litigation and Regulatory Developments Conference

## AGRICULTURAL EXPOSURES



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# MEET THE EXPERT

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Dr. Miller specializes in geochemistry & hydrogeology. He provides consulting & expert services for a variety of public & private sector clientele throughout the United States, Brazil, DRC, Greece, Papua New Guinea, the Philippines, Sweden, Taiwan, & Chad.

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J.S. Held is not a law firm & does not provide legal advice. This presentation is intended as an educational tool to explain a complicated topic in an easy-to-understand format. It should not be used or cited in any scientific publication or legal brief.



# What Are PFAS?

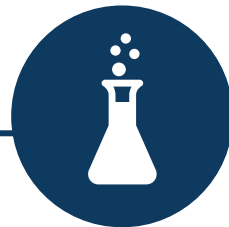
## DEFINITION

Per- and polyfluoroalkyl substances (PFAS) are a large group of synthetic chemicals used since the 1940s in many consumer & industrial products due to their resistance properties.



## PERSISTENCE & IMPACT

Referred to as 'forever chemicals,' PFAS do not break down easily in the environment & accumulate in bodies & ecosystems over time.



## HEALTH & SAFETY CONCERNS

Widely detected in water, soil, food, & dust, PFAS presence in environment can affect health, highlighting the need for awareness & mitigation strategies.



# What Are PFAS?

## EXTENSIVE NUMBER OF COMPOUNDS

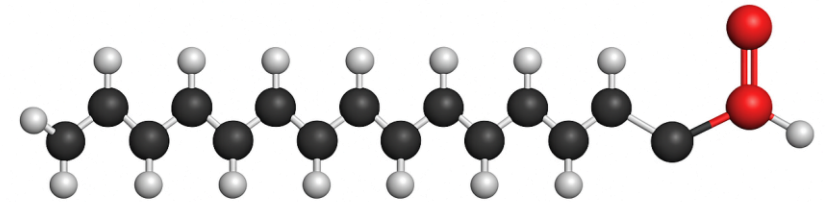
Currently 4,700 PFAS compounds (likely more than 10,000). The two most common are **PFOA** & **PFOS**.

## STABILITY

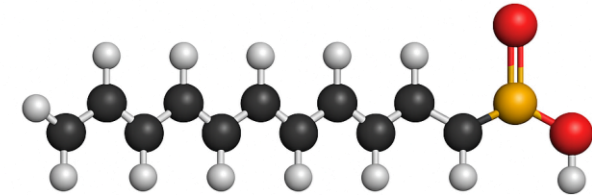
The C—F bond is very strong & requires a lot of energy to break.

## RESISTANCE

Thermal, chemical, & biological degradation resistance; microorganisms cannot easily break these bonds.



Perfluorooctanoic acid (PFOA)



Perfluorooctane sulfonic acid (PFOS)



# What Are PFAS?

## INDUSTRIAL USES

Due to these characteristics, PFAS compounds have been used in many manufactured products including:

Cookware

Fire-fighting foams – class B foams

Textiles & leather – water repellence

Paper products – repellence of grease & moisture

Metal plating & etching

- Corrosion prevention,
- Surfactant ,
- Wetting agent, &
- Fume suppressant for chrome, copper, nickel, & tin electroplating.

Wire manufacturing – coating & insulation

Industrial surfactants, resins, molds, & plastics

- Manufacture,
- Plumbing flux agent ,
- Coatings,
- Composite resins, &
- Fire retardance.

Photolithography, semiconductor industry – anti-reflective coatings

Cleaning agents, polishes, waxes, & paints

Hydraulic fluids adhesives

Medical products

Personal care products



# What Are Biosolids?

- ▶ Treated solid, semi-solid, or liquid residues produced during the treatment of domestic or industrial wastewater at municipal wastewater facilities.
- ▶ Further treated biologically, chemically, or physically to reduce pathogens & stabilize organic matter.
- ▶ Used as a fertilizer or soil amendment because they contain nutrients & organic material beneficial to soils.

**Biosolids are a beneficial reuse product regulated primarily under 40 CFR EPA Part 503 with state-specific variations.**



# Why Are PFAS in Biosolids?

1. PFAS enter wastewater from homes, commerce & industry.
2. Treatment processes do not destroy PFAS → They concentrate in solids.
3. PFAS are consistently detected in biosolids globally.

1. Land application, landfilling, & incineration create exposure pathways.
2. PFAS persist → Soil accumulation, crop uptake, livestock uptake.
3. Legislators increasingly care about this due to health + commodity markets.

**PFAS mobility & bioaccumulation create potential impacts to food, water, & agricultural markets, which raises policy concerns for legislators focused on protecting public health, farm economies, & drinking-water resources.**



# Federal & State Regulations

## **NO FEDERAL LIMITS FOR BIOSOLIDS YET**

EPA's Part 503 rule still governs metals and pathogens; states are filling the gap while EPA completes its PFAS biosolids risk assessment.

## **STATE APPROACHES VARY WIDELY**

Some states (ME, MI, NH, VT, MA, CO) have mandatory PFAS monitoring, land-application restrictions, or full bans; most others have no PFAS requirements and are waiting for federal direction.

## **GROWING MONITORING REQUIREMENTS**

States adding PFAS testing are converging on EPA Draft Method 1633, and several now require soil, groundwater, and even crop sampling at land-application sites.



# Federal & State Regulations

## **PRETREATMENT & SOURCE CONTROL RISING**

A few states (notably MI) are using industrial pretreatment programs to manage PFAS at the source, signaling a trend toward upstream regulation rather than end-of-pipe management.

## **REGULATORY MOMENTUM IS BUILDING**

Legislatures increasingly view PFAS in biosolids through the lens of drinking water protection, agricultural impacts, and liability exposure, driving interest in future statewide limits or bans.

# What Are Regulators Debating?

## SHOULD PFAS SAMPLING BE REQUIRED?

Some states mandate PFAS testing (MA, MI, NH, VT, CO), while others require annual nutrients & metals testing but decline to require PFAS sampling, citing cost, lab capacity, and pending federal standards.

## DO WE REGULATE NOW OR WAIT FOR EPA?

With no federal PFAS limits for biosolids yet and EPA's 2025 draft risk assessment still unfinished, states disagree on whether to act now or hold off for national consistency.

## HOW MUCH MONITORING IS ENOUGH?

Some states push for soil, groundwater, and crop testing at land-application sites (e.g., Vermont), while others limit requirements to biosolids only.

# What Are Regulators Debating?

## WHAT MANAGEMENT OPTIONS SHOULD REMAIN LEGAL?

States debate whether to continue land application, restrict it, or ban it entirely (Maine). Some argue for maintaining options; others prioritize eliminating PFAS pathways.

## WHO SHOULD BEAR LIABILITY?

After EPA designated PFOA/PFOS as CERCLA hazardous substances, regulators worry about exposing wastewater utilities and landowners to cleanup liability, even though they're passive recipients of PFAS.

## HOW BROAD IS SAMPLING?

Debates over matrix scope & frequency: biosolids only vs. adding soil, groundwater, and crop testing at land-application sites (e.g., VT requires multi-media monitoring; NH advancing soil standards & monitoring).



# Why This Matters for Litigation & Liability

## **CERCLA IMPLICATIONS**

EPA's hazardous-substance designation for PFOA/PFOS creates cost-recovery exposure for any party in the biosolids chain, including passive receivers like POTWs and landowners.

## **PASSIVE RECEIVER CONCERNS**

Wastewater utilities, farmers, and land-application contractors face liability risk despite not generating PFAS, a recurring theme in state and federal rulemaking debates.

## **RECORDS BECOME EVIDENCE**

Sampling data, biosolids tracking, and land application logs may be discoverable. States requiring more monitoring expand the evidentiary footprint.



# What to Expect

- ▶ **More State Action:** States like MA, VT, OR, CO continue pushing new PFAS bills, expanding testing, restricting land application, or setting PFAS ceilings, filling the gap while EPA finalizes the biosolids risk assessment.
- ▶ **Tightening Management Options:** Expect more bans or partial bans, PFAS-triggered land-application limits, and lifecycle controls as states respond to soil, groundwater, and crop-uptake findings.
- ▶ **Insurance & Cost Exposure:** Growing PFAS exclusions in environmental and property policies increase uninsured liability risk for utilities and landowners.
- ▶ **Expanding Analyte Lists:** Method 1633 adoption and multi-matrix sampling (biosolids, soil, groundwater, crops) continue to expand PFAS analyte lists and regulatory expectations.

A background image featuring a complex, light-colored molecular structure with numerous spheres and connecting lines, overlaid on a light blue and white gradient. On the left side, there is a vertical bar with three colored segments: green at the top, blue in the middle, and dark blue at the bottom.

# **Federal Regulation of Biosolids and PFAS**

# MEET THE EXPERT

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Brian Gross has a proven record of delivering client-focused solutions to complex legal challenges. With two decades of courtroom experience, he handles environmental litigation, products liability, asbestos, toxic torts and business disputes nationwide. Brian is particularly accomplished in defending PFAS claims and serves as National Coordinating Counsel for PFAS and environmental cases involving commercial airports for multiple insurers. His work includes advising clients on PFAS contamination, regulatory compliance, and liability risk mitigation, especially for corporate transactions and investments.

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# Federal Biosolids Regulation

- ▶ Section 405(d) Clean Water Act sets biosolids requirements:
  - Establish numeric limits and management practices for reasonably anticipated adverse effects during use or disposal
  - Review biosolid regulations biannually to identify pollutants and set regulations
- ▶ EPA proposes Part 503 Rule in 1989 and finalizes it in 1993
- ▶ EPA promotes biosolids use and benefits



# What about PFAS?

- ▷ Only 9 pollutants listed in Rule 503 - all metals
- ▷ PFAS **NOT** currently included as a Rule 503 pollutant
- ***James Farmer et al. v. EPA***, U.S. District Court for the District of Columbia Citizen Suit
  - Alleged EPA failed to perform a non-discretionary duty under CWA Section 405
  - Sought to force EPA to regulate PFAS in biosolids
  - DISMISSED – Held agency must conduct biennial review, but no deadline to regulate



# EPA Biosolids Risk Assessment

- ▶ Found elevated risk of adverse health effects from consuming farm products, water, and fish from biosolids containing PFOA and PFOS at low concentrations (1 ppb)
- ▶ EPA released Biosolids Draft Sewage Sludge Risk Assessment for PFOA and PFOS for public comment
  - Drawn criticism from many stakeholders
  - Evaluated narrow scenarios that are inapplicable to the general public and to biosolids land application as practiced in the U.S.
- ▶ If adopted, will require EPA to regulate the pollutant under CWA Section 405(d)





# State Regulation of Biosolids and PFAS



A background image of a molecular structure with white spheres and connecting lines, set against a light blue gradient. On the left side, there are three vertical bars: a green one at the top, a blue one in the middle, and a dark blue one at the bottom.

# **Biosolids Litigation**

# Wastewater Treatment Plant Settlement

- ▶ *Coosa River Basin Initiative v. City of Calhoun*
- ▶ CWA and RCRA Citizen Suit Against City for Land Application of Biosolids with PFAS
- ▶ Settlement has sweeping and onerous requirements for City including impacts for Upstream Industrial Dischargers



# Farmers File Suit Under Common Law Theories

- ▶ *Allessi v. Synagro Tech* (N.D. Tex. 2025)
- ▶ Texas farmers filed suit against manufacturer of biosolids-based fertilizer
- ▶ Claim land application contaminated soil, surface and well water, and livestock
- ▶ Claims = strict product liability, negligence, private nuisance



# RICO and Medical Monitoring Claims

- ▶ ***Ryan v. Newark Group*** (D. Mass. 2022) and ***Ryan v. EIDP*** (D. Mass 2025)
  - ▶ Granted 2022 defendants' MTD in part and denied in part
    - Found conduct alleged sufficient for RICO claims
    - RICO = treble damages and attorney fees
    - Found medical monitoring claims sufficiently alleged
    - Premature to dismiss based on no “subcellular changes”
- ▶ Granted 2025 defendant's MTD
  - Court took judicial notice of testing that demonstrated waste material did not contain PFAS



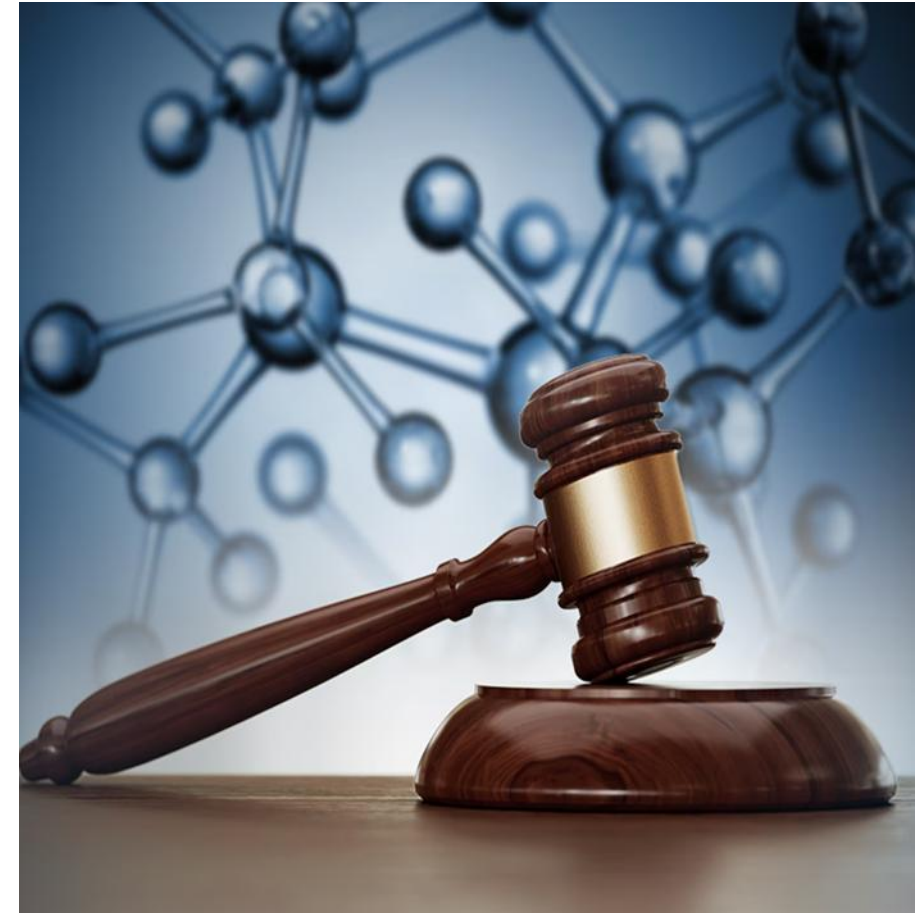
# Personal Injury Claims

- ▷ ***Cerasuolo v. The Newark Group*** (MA. Super. 2024)
- ▷ Claims for negligence, ultrahazardous activity, willful and wanton, 93A, breach of warranty
- ▷ Seeks damages for kidney cancer and liver steatosis
- ▷ Defendants' MTD denied in part, granted in part
- ▷ Court found:
  - Plaintiff sufficiently alleged duty
  - Not required to allege special relationship
  - Sufficiently alleges premises defendants carry on abnormally dangerous activities
  - Plaintiff failed to plausibly allege direct or indirect commercial relationship for 93A claim
  - Unable to determine whether sufficiently alleged proximate cause



# Farmer Asserts Novel Claims Against U.S.

- ▷ ***Schaap v. United States*** (D.S.C 2024)
- ▷ Originally asserted taking under 5<sup>th</sup> Amendment
- ▷ Dismissed – contamination from operational activities, not regulatory action, not a taking
- ▷ Refiled CERCLA claim against U.S. and common law claims against AFFF manufacturers
- ▷ U.S. acknowledged hazardous designation but sought abeyance of CERCLA claims to avoid double recovery
- ▷ Argued discovery needed to determine whether plaintiffs qualified as contiguous property owners, given their disposal of PFAS-contaminated milk, carcasses, and manure





# Pesticides and PFAS

# MEET THE EXPERT

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Mr. De Carlo has over twenty (20) years of experience performing environmental services for a broad range of clients including the United States Environmental Protection Agency (USEPA), United States Army Corp of Engineers (USACE), the New York State Department of Environmental Conservation (NYSDEC), utilities, private corporations, municipalities, real estate developers, financial institutions, and insurance companies. He has extensive experience with the New Jersey Department of Environmental Protection (NJDEP) Technical Requirements of Site Remediation, NYSDEC Draft DER-10, United States Environmental Protection Agency Field Sampling Technical Protocols, and New York State Department of Health (NYSDOH) Soil Vapor Intrusion Guidance and has served as the environmental expert on several litigation cases in New York and New Jersey.



# WHAT'S THE CONCERN

- Nearly 1.2 billions of acres of land in the US are Farmland
- USDA reports approximately half a million tons of pesticides are applied to US farmland **PER YEAR**
- Pesticide residues can leach into groundwater and runoff into surface water bodies
- Pesticide residues can remain on produce and grain sold to consumers



# SOURCES OF PFAS IN PESTICIDES

- Packaging
- Additives
- Active Ingredient



# PACKAGING

- Pesticides have been historically packaged in fluorinated plastic containers
  - Creates Chemical Barrier
  - Improves Stability
  - Less Permeable, reactive and dissolvable
  - PFAS Residue can leach into pesticide
- Testing data identified the potential for eight (8) PFAS Compounds (PFBA, PFPeA, PFxA, PFHpa, PFOA, PFNA, PFDA, and PFUdA)
- EPA Provided information to manufacturers on March 16, 2022 to raise awareness of issue
- Use of PFAS Compounds still allowed under current regulation



# INERT INGREDIENTS

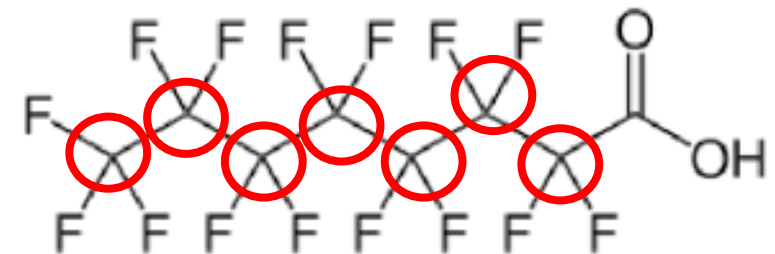
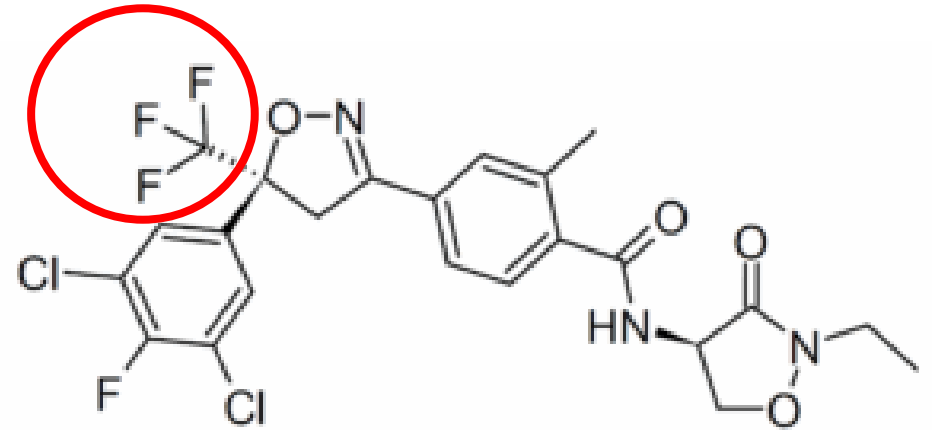
Additives (inert ingredients) are blended into concentrate formulae or are sold as separate supplements

- Stabilizers
- Defoamers
- Nonionic surfactants
- Penetrant Enhancers
- Buffering Agents
  
- EPA reviewed its list of chemicals approved for use of inert ingredients under the PFAS Strategic Roadmap and identified twelve (12) PFAS compounds that are no longer approved for use.
  
- Addition of future additives need to be supported by data



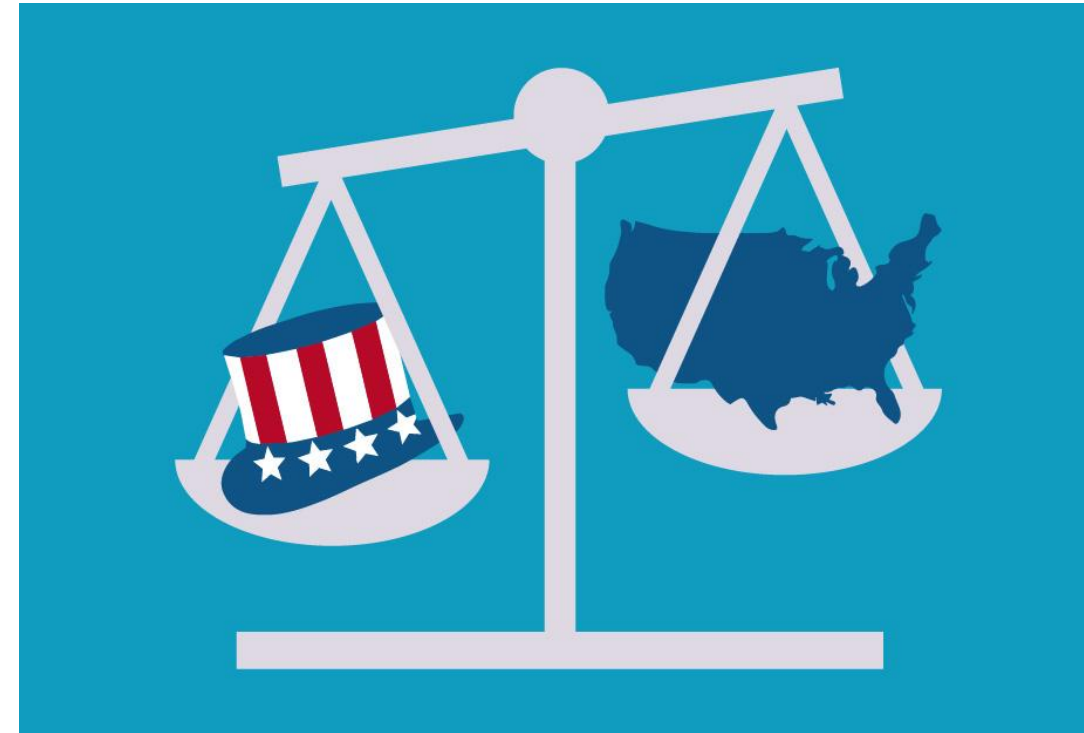
# ACTIVE INGREDIENTS

- Multiple FIFRA Registered Pesticides are formulated with a single fully fluorinated atom.
- Not considered a PFAS Compound under the current USEPA definition - OPPT defined PFAS as a chemical containing at least one of these three structures:
  - $R-(CF_2)-CF(R')R''$ , where both the  $CF_2$  and  $CF$  moieties are saturated carbons
  - $R-CF_2OCF_2-R'$ , where  $R$  and  $R'$  can either be  $F$ ,  $O$ , or saturated carbons
  - $CF_3C(CF_3)R'R''$ , where  $R'$  and  $R''$  can either be  $F$  or saturated carbons.
- EPA stance is: “extensive scientific evidence and public input demonstrate molecules with only one fluorinated carbon generally lack the persistence and bio-accumulation properties that are commonly associated with forever chemicals.”



# ACTIVE INGREDIENTS

- Nearly half of US states define PFAS compounds as chemicals containing at least one fully fluorinated carbon atom
- Many states are considering controls or bans on pesticides considered PFAS under this definition
  - Maine to ban by 2030
  - Minnesota to ban by 2032
- Future regulatory action can change the definition of PFAS in the future





# Pesticides Litigation

# Pesticide Approval Challenged

- ▶ ***Farmworker Justice Pesticide Action & Agroecology Network North America and Center for Food Safety v. USEPA (9<sup>th</sup> Cir. 2025)***
- ▶ Farmworker and food safety groups challenged EPA's approval of four cyclobutrifluram pesticide products
- ▶ Claim cyclobutrifluram is a PFAS that increases risk of thyroid cancer
- ▶ EPA responds:
  - Not PFAS – EPA defines PFAS as chemicals with two or more fluorinated carbons
  - EPA found no human health risks when used according to approved labels



# Pesticide Approval Challenged

- ▶ ***Center for Biological Diversity and Center for Food Safety v. USEPA*** (9<sup>th</sup> Cir. 2026)
- ▶ Conservation groups challenged EPA's approval of isocycloseram
- ▶ Claim isocycloseram is a PFAS that presents significant human health and environmental risks
- ▶ EPA responds:
  - Not PFAS – EPA defines PFAS as chemicals with two or more fluorinated carbons
  - EPA concluded “not likely to be carcinogenic to humans”





# Questions?