Risk Assessment of PFAS and Implications for Risk Management

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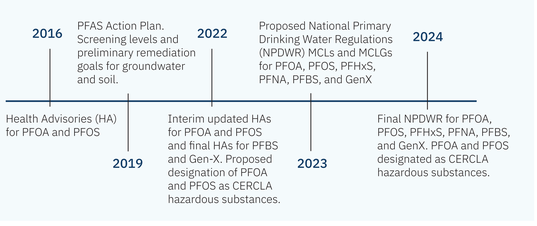
Knowledge regarding the toxicity of PFAS is rapidly evolving, impacting regulations across the U.S.

SELECT FEDERAL PFAS ACTIVITIES



Evaluating PFAS risks within the U.S.

Using a hypothetical groundwater data set, we selected chemicals of potential concern (COPCs) and estimated risks and hazards using EPA Regional Screening Levels (RSLs) and toxicity criteria published in November 2023 and May 2024 using standard risk assessment methodologies.

We also estimated risk and hazards using the screening levels and toxicity values available from Hawaii and Texas. Both Hawaii and Texas offer screening considerations and toxicity criteria unique from EPA. To select COPCs and calculate potential risks and hazards for each state, the lower PFAS screening criteria and toxicity value from the state and EPA was used.

We compared the results of the hypothetical risk characterization to highlight differences in perceived risks among different states and agencies. These results highlight how risk management decisions will be impacted by the varying agency approaches.

What does this mean for your site?

Regulatory Variability
Results for PFAS vary across different regulatory programs, complicating multistate site management.

Reevaluation Potential
Previously evaluated sites, especially those with PFAS in groundwater, may face challenges in risk characterization and management, leading to reopening of cases.

Basis for Risk Management Decisions
Risk management decisions may consider Applicable or Relevant and Appropriate Requirements such as MCLs. MCLs can be more or less conservative than risk-based screening levels.

PFAS groundwater screening levels evaluated and EPA drinking water MCLs (ng/L)

PFAS	EPA RSL Nov 2023	EPA RSL May 2024	Hawaii EAL	Texas PCL	*EPA MCLs*
6:2 FTOH			5,000		
6:2 FTS			1,500		
6:2 FTTAoS			1,900		
8:2 FTOH			4,200		
ADONA			1,200		
HFPO-DA	15	15	10		10
PFBA	18,000	18,000	15,000	24,000	
PFBS	6,000	6,000	2,000	34,000	2,000*
PFDA			8	370	
PFDoDA	1,000	1,000	26	290	
PFDS			38	290	
PFHpA			77	560	
PFHpS			38		
PFHxA	9,900	9,900	1,900	12,000	
PFHxS	390	390	10	93	10
PFNA	59	59	10	290	10
PFOA	60	0.0027	4	290	4
PFODA	800,000	800,000			
PFOS	40	2	4	560	4
PFOSA			46	290	
PFPeA			1,500	12,000	
PFPES			620		
PFPrA	9,800	9,800	510		
PFTeDA	20,000	20,000	260	290	
PFTrDA			26	290	
PFUnDA	6,000	6,000	19	290	
TFSI	5,900	5,900			

EAL = Environmental Action Level
RSL = Regional Screening Level
MCL = Maximum Contaminant Level
PCL = Protective Concentration Level
= most conservative screening level

* EPA did not establish an individual MCL for PFBS, but this value should be used when calculating a HI for mixtures with PFHxS, PFNA, or HFPO-DA.

Groundwater screening levels assume ELCR=1x10^{-6} and HI=1.

Learn about your state with Integral's State-by-State PFAS Regulatory Criteria Map

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Why are the levels so different?

Different Toxicity Values

Reference dose, reference concentration, cancer slope value

Background Exposure Consideration

Hawaii and EPA MCLs factor in ***background exposure***

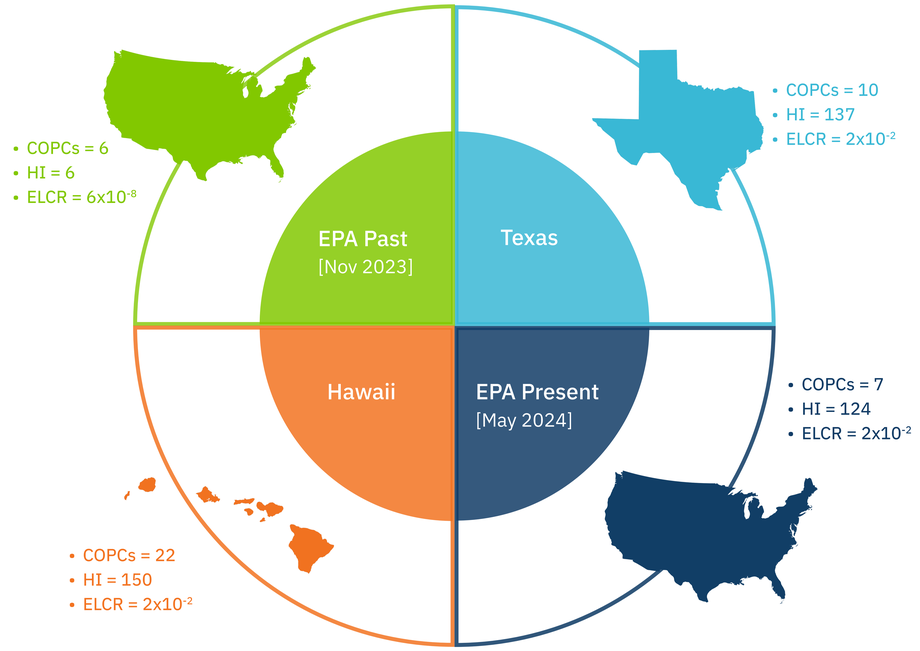
Exposure Pathways Consideration

EPA RSLs factor in ***dermal exposure***

Texas, Hawaii, EPA RSLs, and EPA MCLs factor in different amounts of water ***ingested***

Texas considers ***inhalation screening levels***

Risk outcomes per location



COPCs = chemicals of potential concern
ELCR = excess lifetime cancer risk
HI = hazard index

Using the same hypothetical groundwater data set, the risk characterization results and risk management decisions may vary significantly depending on the location due to varying regulatory approaches.

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