Assessing and Managing PFAS Risk/Liability

December 10, 2024

SUPPORTING [DOING] LEADING

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Why Do You Need to Evaluate Your PFAS Liability?

Expanding regulatory drivers

- May affect business now or in the future
- Need to prepare for and be able to respond to regulations

Many different sources of PFAS

Historical/legacy use of PFAS

Important for buyers, sellers, lenders, investors, and insurers during transaction due diligence

Ultimate liability could be dependent on specific PFAS in use

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Avoid Surprises

- Don't have a regulator or third party identify a previously unknown contaminant of concern like PFAS
  - For example: California State Water Board issued Investigative Orders to different industries that may have used PFAS
  - Upcoming Effluent Limit Guidelines (ELGs): Do you have PFAS in your effluent? How will best available technologies and ELGs impact your operations and budgets?
- Recognize that PFAS are likely being used in certain products and industries
- Are you doing due diligence or in a transaction?
- Recognize potential for risk: know which sites have high or low risk
  - Actively manage sites with high risk:
    - Sites in areas with sensitized population or regulatory groups
    - Near sensitive receptors – water supplies
    - Potential for high concentrations (e.g., manufacture PFAS)
  - Watch sites with lower risk

Industry or Facility Type	Date	Number of Recipients	Number of PFAS Compounds Required
Airports	March 2019	30	23
Landfills	March 2019	196	23
Chrome Platers	October 2019	217	25
POTWs	July 2020	249	31
Bulk Fuel Storage/Refineries	March 2021	161	31

Starting the PFAS Discussion

Question	Solutions
Do I have PFAS?	• Risk management reviews/planning • Site investigations • Water and wastewater testing • Air testing
Is it really mine?	• Forensics • Fate and transport modeling • Background sampling
How much is it going to cost?	• Risk assessment • Alternative remedies • Cost/scenario modeling
When will I be done?	• Regulatory negotiations • Smart closure strategies

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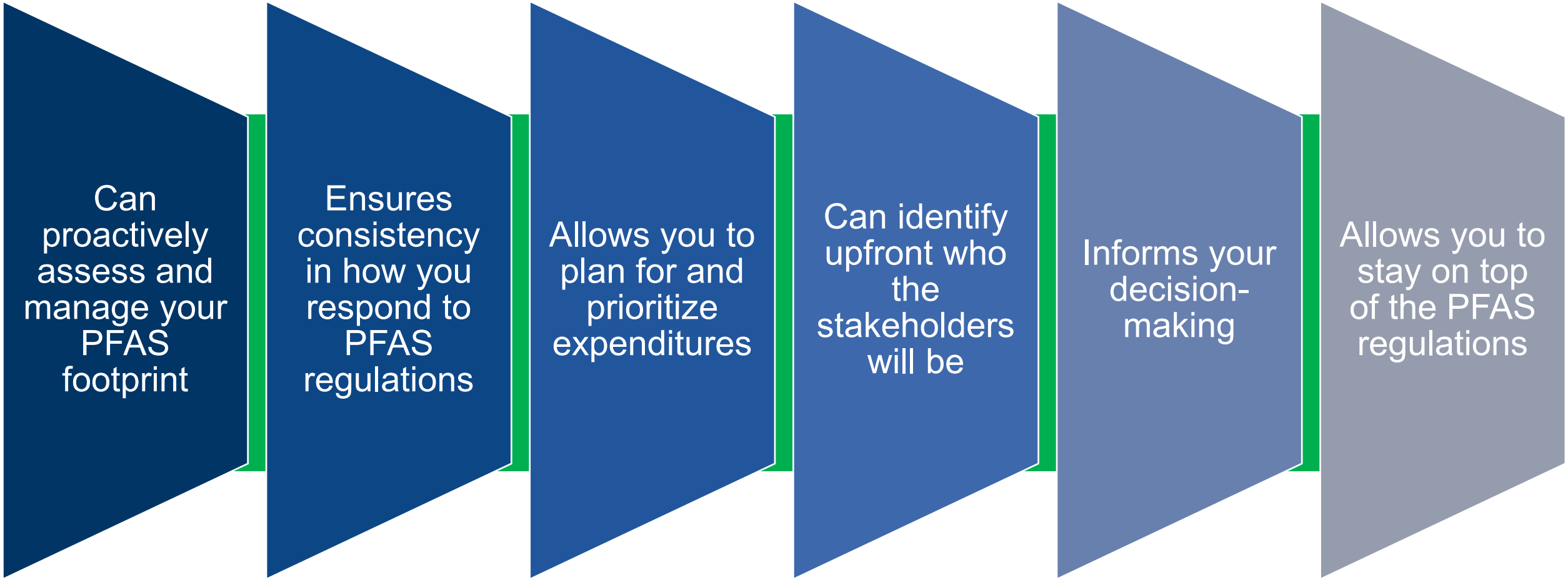
Develop a Strategy



Having a strategy allows stakeholders and operating companies in your business to respond to regulatory drivers consistently with your business goals being top priority

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How Do You Begin?

Corporate buy-in and collaboration with experts on strategy

Designate Corporate Sponsor

Establish in-house team to collaborate with experts

- Company leaders, EHS Managers, Internal and/or external counsel

Set goals and schedules

Approve and authorize funding for liability assessment/ management program

Important for your leadership to show visible support to your staff for goals and objectives of this program

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Nuts and Bolts of PFAS Risk/Liability Assessment

Review facility operations, past use, potential use of PFAS-containing substances

Review regional PFAS data and other publicly available information

Provide understanding of regulatory environment in facility locations

Develop a conceptual risk/process model: sources, migration, exposure

Characterize and prioritize potential PFAS risks

Develop risk management plan: potential mitigation; PFAS-free alternatives

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Step 1: Review facility operations, past use, potential use of PFAS-containing substances

- Comprehensive inventory of materials used in operations
  - Review safety data sheets
  - Sourced domestically or internationally
  - Supplier verification statements on PFAS compliance

2. COMPOSITION / INFORMATION ON INGREDIENTS

		ACGIH/PPM		OSHA/PPM	
CAS NO.	Common Name	TWA	STEL	PEL	% by wt
7732-18-5	water				85% - 90%
57018-52-7	propylene glycol t-butyl ether	not established			2% - 4%
7487-88-9	magnesium sulfate	N/A	N/A	N/A	1% - 2%
proprietary mixture	proprietary hydrocarbon surfactant	N/A	N/A	N/A	proprietary
proprietary mixture	proprietary fluorosurfactant	N/A	N/A	N/A	proprietary

Review ingredient list on SDS

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Step 1 (continued): Review facility operations, past use, potential use of PFAS-containing substances

Product Review

3. Composition/information on Ingredients

3.1. Mixture

The following component(s) in this product are considered hazardous under applicable OSHA(USA)

Chemical name	CAS No.	weight-%
2-(2-Butoxyethoxy)ethanol	112-34-5	5 - 10
Lauryl Imino Propionate, Sodium Salt	14960-06-6	1 - 5

5.3. Specific Hazards Arising from the Chemical

None known.

Hazardous Combustion Products Carbon oxides, Fluorinated oxides, Nitrogen oxides (NOx), Oxides of sulfur

No evidence of PFAS in ingredient list
Review Hazardous Combustion Products Section of SDS

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Chemical name	CAS No.	weight-%
2-(2-Butoxyethoxy)ethanol	112-34-5	5 - 10
Lauryl Imino Propionate, Sodium Salt	14960-06-6	1 - 5

15.3. US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals

Chemical name	California Proposition 65
Perfluorooctanoic acid - 335-67-1	Developmental Toxicity
[redacted]	Carcinogen
1,3-Dichloropropene - 542-75-6	Carcinogen

No evidence of PFAS in ingredient list
Review Regulation Section of SDS

To Whom it May Concern,

To the best of our knowledge after inquiry, PFAS are not used by any of [redacted] vendors or suppliers.

Supplier verification statements

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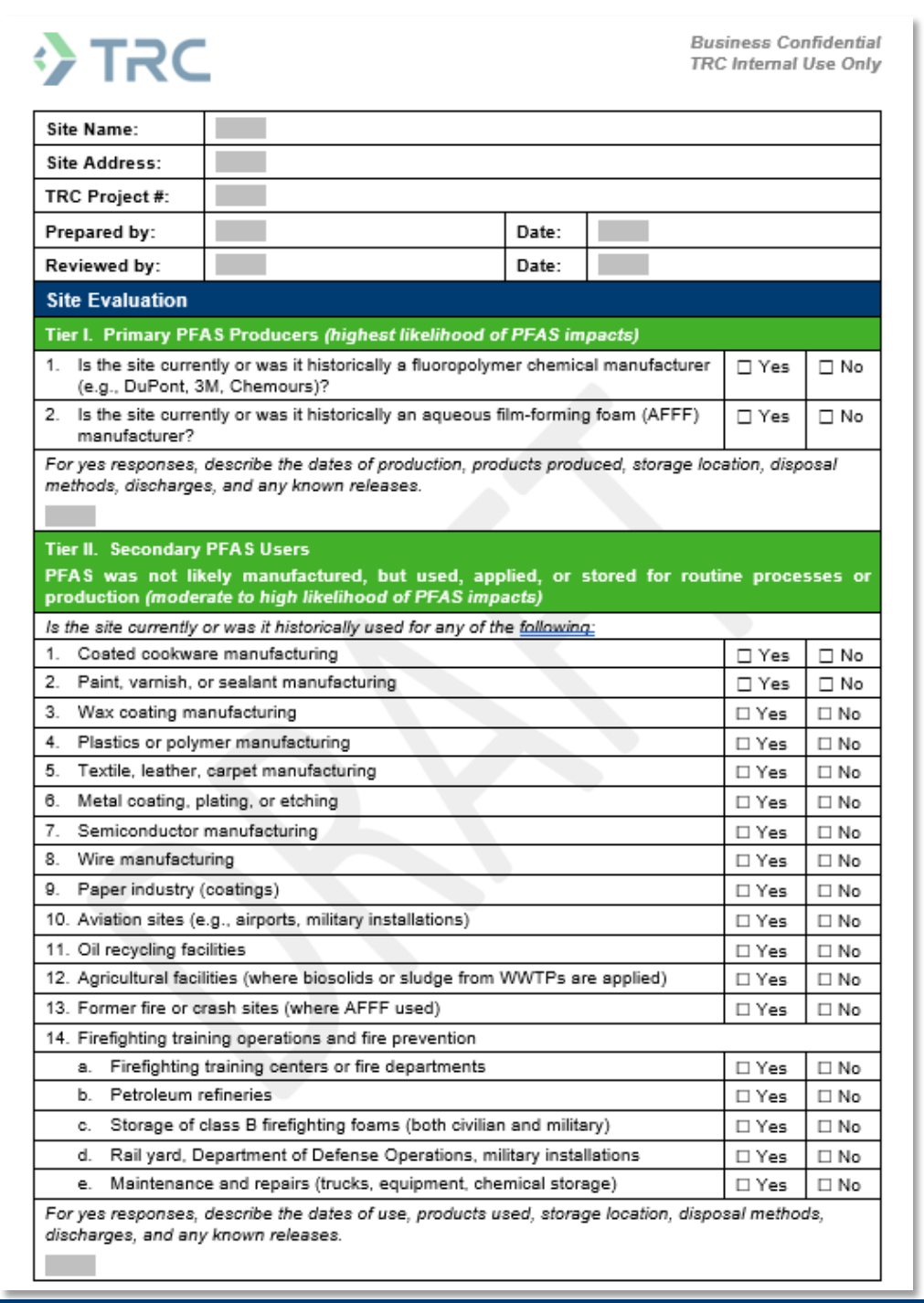

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Site Name:			
Site Address:			
TRC Project #:			
Prepared by:		**Date:**	
Reviewed by:		**Date:**	

Site Evaluation

Tier I. Primary PFAS Producers ***(highest likelihood of PFAS impacts)***

1. Is the site currently or was it historically a fluoropolymer chemical manufacturer (e.g., DuPont, 3M, Chemours)?	☐ Yes	☐ No
2. Is the site currently or was it historically an aqueous film-forming foam (AFFF) manufacturer?	☐ Yes	☐ No

For yes responses, describe the dates of production, products produced, storage location, disposal methods, discharges, and any known releases.

Tier II. Secondary PFAS Users

PFAS was not likely manufactured, but used, applied, or stored for routine processes or production ***(moderate to high likelihood of PFAS impacts)***

Is the site currently or was it historically used for any of the following:

1. Coated cookware manufacturing	☐ Yes	☐ No
2. Paint, varnish, or sealant manufacturing	☐ Yes	☐ No
3. Wax coating manufacturing	☐ Yes	☐ No
4. Plastics or polymer manufacturing	☐ Yes	☐ No
5. Textile, leather, carpet manufacturing	☐ Yes	☐ No
6. Metal coating, plating, or etching	☐ Yes	☐ No
7. Semiconductor manufacturing	☐ Yes	☐ No
8. Wire manufacturing	☐ Yes	☐ No
9. Paper industry (coatings)	☐ Yes	☐ No
10. Aviation sites (e.g., airports, military installations)	☐ Yes	☐ No
11. Oil recycling facilities	☐ Yes	☐ No
12. Agricultural facilities (where biosolids or sludge from WWTPs are applied)	☐ Yes	☐ No
13. Former fire or crash sites (where AFFF used)	☐ Yes	☐ No
14. Firefighting training operations and fire prevention		
a. Firefighting training centers or fire departments	☐ Yes	☐ No
b. Petroleum refineries	☐ Yes	☐ No
c. Storage of class B firefighting foams (both civilian and military)	☐ Yes	☐ No
d. Rail yard, Department of Defense Operations, military installations	☐ Yes	☐ No
e. Maintenance and repairs (trucks, equipment, chemical storage)	☐ Yes	☐ No

For yes responses, describe the dates of use, products used, storage location, disposal methods, discharges, and any known releases.

What Are Some Questions You Need to Answer?

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PFAS in Due Diligence Screening and Checklist

- PFAS manufactured on site now or previously?
- PFAS used in prior or current operations?
- Where within the process are PFAS being used?
- Any fires on or near the property?
- Is there an airport or military facility near the site?
- Are there wastewater discharges?
- Have you reviewed all safety data sheets?

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Step 1 (continued): Review facility operations, past use, potential use of PFAS-containing substances

- Does the facility discharge wastewater to a publicly owned treatment works (POTW)?
  - Review EPA's list of POTWs who were asked to conduct influent studies
    https://www.epa.gov/eg/study-pfas-influent-potws
  - If your local POTW is on list, consider collecting wastewater samples
  - Is your state intending on implementing PFAS requirements in NPDES permits?
- How is facility impacted by CERCLA Hazardous Substance designation?
  - Is one of your facilities a potentially responsible party in current or closed Superfund site?
  - How could you be impacted by use of AFFF at your site and CERCLA reporting?
  - Should you switch out AFFF to fluorine-free foam?
- Does the facility have impacted groundwater that discharges to a surface water body?
- Does the business report under TSCA or TRI?
  https://www.epa.gov/system/files/documents/2024-01/list-of-pfas-added-to-the-tri-by-the-ndaa.xlsx
  https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/tsca-section-8a7-reporting-and-recordkeeping
- How is the facility impacted by the PFAS MCLs?
  - Is the facility considered a public water supply?
  - If the facility has impacted groundwater, is it upgradient or discharging to a drinking water source?
- Does the facility dispose of waste that may contain PFAS in a landfill?
  - Future landfill regulations may put limits on what landfills are willing to accept

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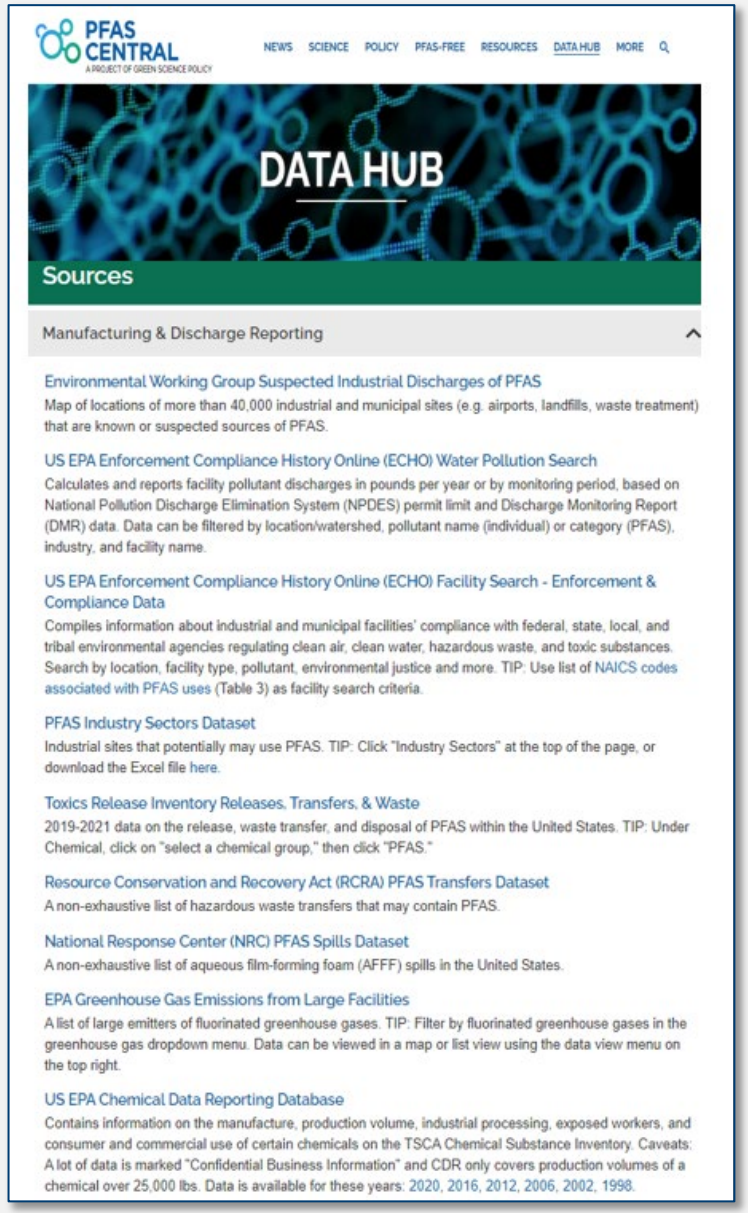
Step 2: Review regional PFAS data and other publicly available information

- Upgradient sites
- Regional groundwater contamination
- State PFAS databases
- EPA data

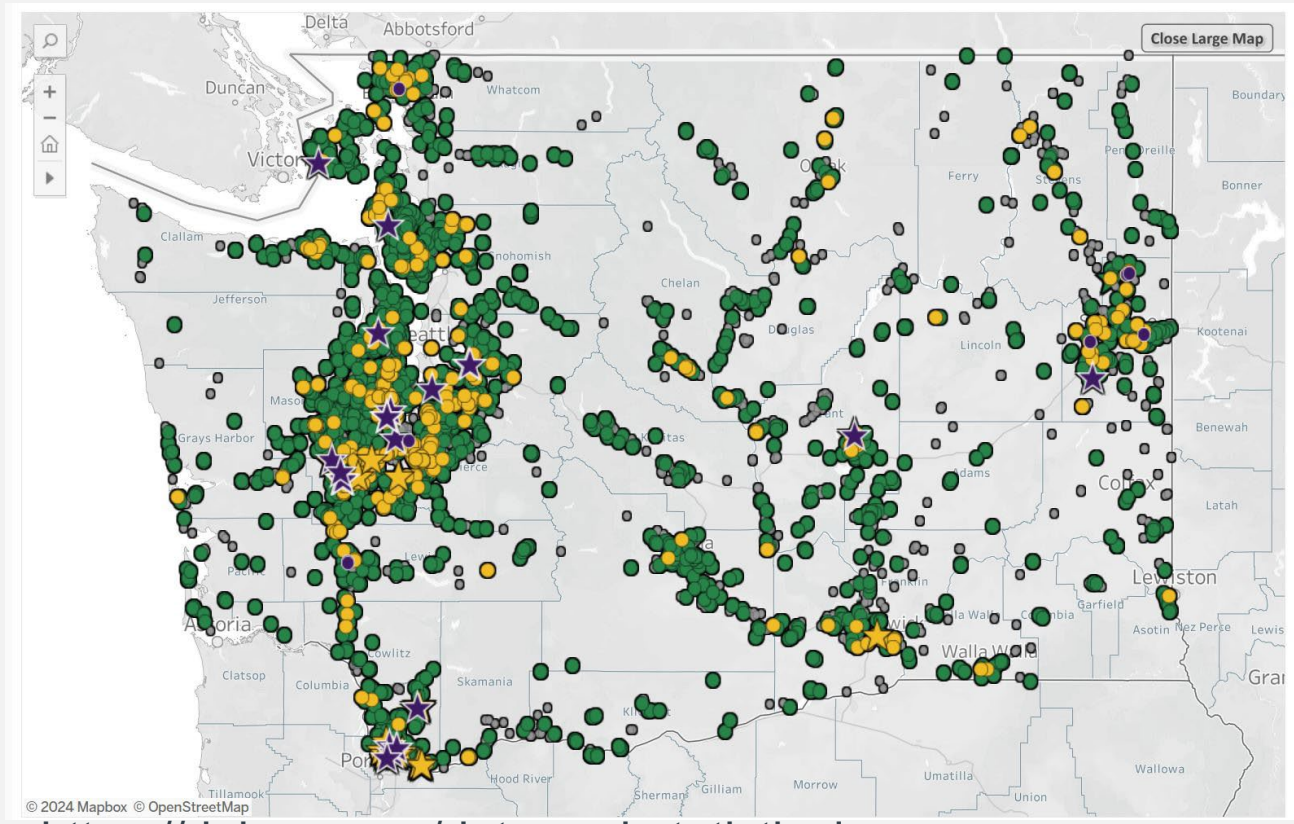


EPA Releases New PFAS Analytic Tools

Provides Information on PFAS Sources Across the U.S.

January 5, 2023

Contact Information
EPA Press Office (press@epa.gov)



https://doh.wa.gov/data-and-statistical-reports/washington-tracking-network-wtn/pfas/dashboard

Step 3: Provide understanding of regulatory environment in facility locations

- Current and future regulations and legislation
- Current and future product bans
- Consistency in regulatory reporting
- Drinking water & groundwater standards
- Wastewater and stormwater discharge
- EPA Information Collection Requests: Chromium, Textile Industries
- Options for PFAS waste disposal

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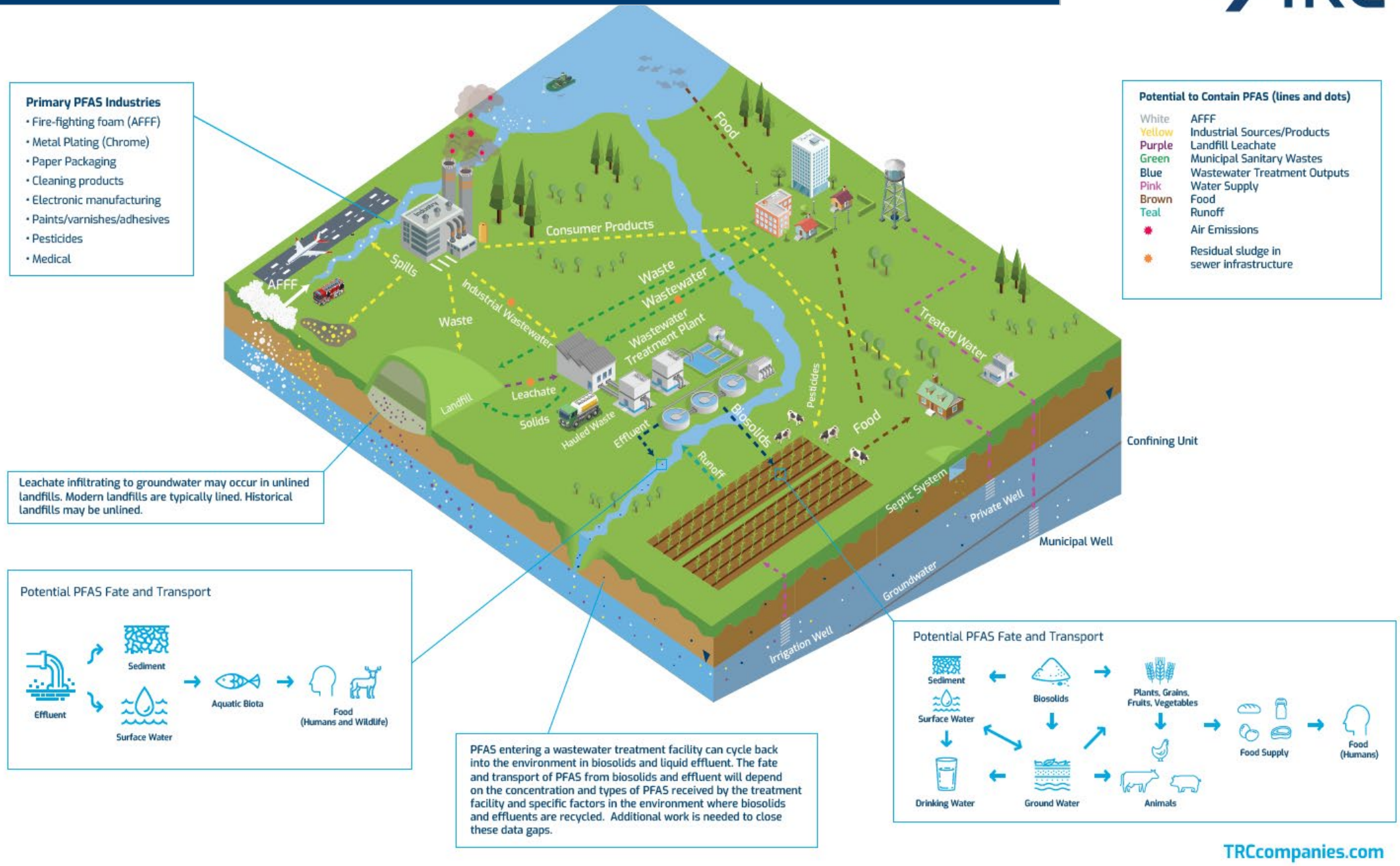
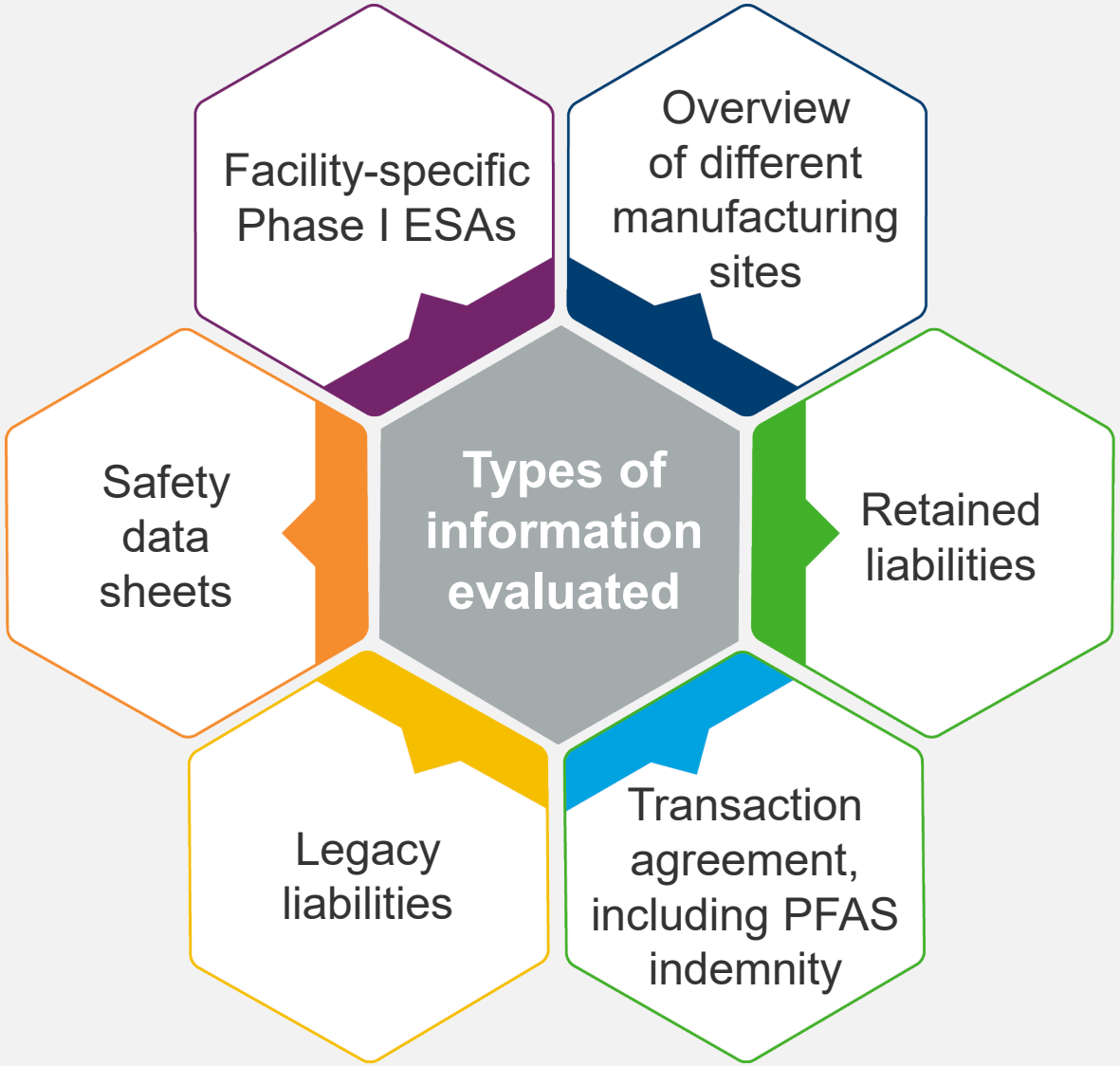
Step 4: Develop Conceptual Risk or Process Model

- General facility description
- Potential sources
- Migration routes through operations
- Downgradient liabilities
- Human and environmental exposure pathways



Step 4: PFAS Risk Evaluation



PFAS Risk Evaluation

(low, medium, or high-risk classification)

- Chemistry of products manufactured at each facility
- Likelihood of fluorinated chemistries to cause PFAS risk
- Are identified fluorinated organic chemicals classified as PFAS (OECD/EPA/state/ECHA PFAS definitions)?
- Volume of fluorinated product used in production
- Status of on-going remediation at facilities
- Results of PFAS evaluations in Phase I ESAs (historical PFAS releases, potential for AFFF to have been deployed, adjacent properties with potential for PFAS release)
- PFAS indemnities in transaction agreement, including definition of PFAS

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Step 5: Characterize and Prioritize Potential PFAS Liability

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TRC Project #:			
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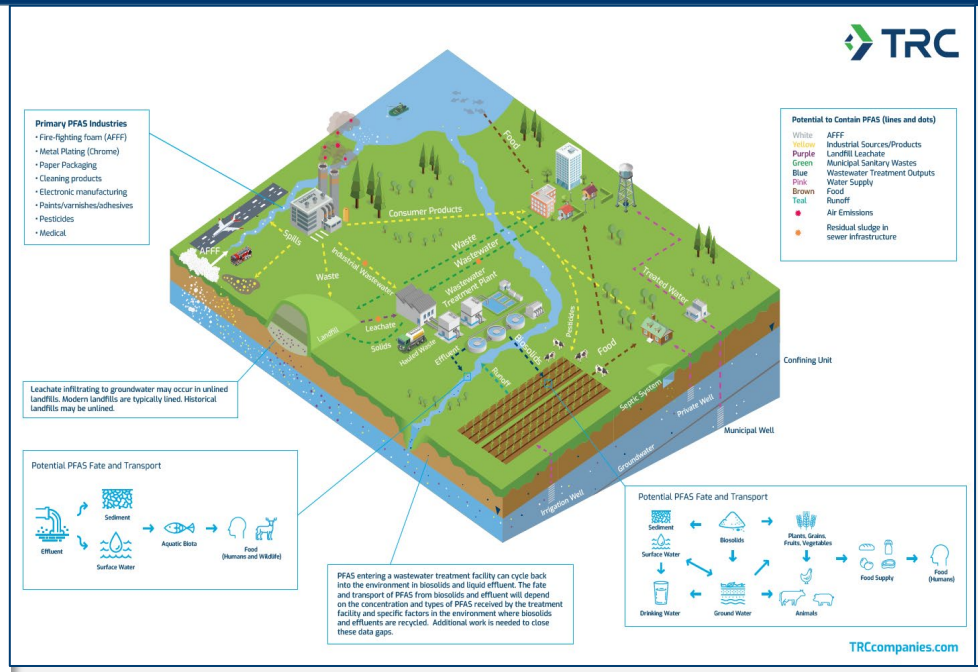

- Develop risk ratings using gathered information
- Quantify liabilities
- Move on to risk management, if appropriate

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Step 6: Develop PFAS Risk Management Plan

Summaries of where PFAS risks lie

Strategies and actions to manage risks

Potential mitigation actions to reduce or eliminate PFAS

Goal-oriented sampling plans

Source identification approach

Review of historical insurance

Communications and public relations

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Assess and Manage Risks

- Manage sites proactively
  - Develop a plan prior to a site becoming an emergency
- Understand what constituents might become an issue
- Understand what regulatory limits are being considered or implemented
- Minimize potential PFAS contamination
  - Re-structure/re-engineer the “process”
  - Understand alternative products and the supply chain
- Maintain a Balanced Approach
  - Is there a regulatory requirement to fix contamination?
  - Understand the fate & transport of PFAS at your site; create a conceptual site model

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Questions?

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