



**IDENTIFY. RESOLVE.**

# Managing Per- and Polyfluoroalkyl Substances (PFAS)

June 2021

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# Disclosures

## Safe Harbor

All statements in this communication other than statements of historical fact are “forward-looking statements” for purposes of federal and state securities laws, including any statements of the plans, strategies and objectives for future operations, profitability, strategic value creation, coronavirus impacts, risk profile and investment strategies, and any statements regarding future economic conditions or performance, and the expected financial and operational results of AECOM.

Although we believe that the expectations reflected in our forward-looking statements are reasonable, actual results could differ materially from those projected or assumed in any of our forward-looking statements. Important factors that could cause our actual results, performance and achievements, or industry results to differ materially from estimates or projections contained in our forward-looking statements include, but are not limited to, the following: our business is cyclical and vulnerable to economic downturns and client spending reductions; impacts caused by the coronavirus and the related economic instability and market volatility, including the reaction of governments to the coronavirus, including any prolonged period of travel, commercial or other similar restrictions, the delay in commencement, or temporary or permanent halting of construction, infrastructure or other projects, requirements that we remove our employees or personnel from the field for their protection, and delays or reductions in planned initiatives by our governmental or commercial clients or potential clients; losses under fixed-price contracts; limited control over operations run through our joint venture entities; liability for misconduct by our employees or consultants; failure to comply with laws or regulations applicable to our business; maintaining adequate surety and financial capacity; high leverage and potential inability to service our debt and guarantees; exposure to Brexit; exposure to political and economic risks in different countries; currency exchange rate fluctuations; retaining and recruiting key technical and management personnel; legal claims; inadequate insurance coverage; environmental law compliance and adequate nuclear indemnification; unexpected adjustments and cancellations related to our backlog; partners and third parties who may fail to satisfy their legal obligations; AECOM Capital real estate development projects; managing pension cost; cybersecurity issues, IT outages and data privacy; risks associated with the benefits and costs of the Management Services transaction, including the risk that the expected benefits of the Management Services transaction or any contingent purchase price will not be realized within the expected time frame, in full or at all; the risk that costs of restructuring transactions and other costs incurred in connection with the Management Services transaction will exceed our estimates or otherwise adversely affect our business or operations; as well as other additional risks and factors that could cause actual results to differ materially from our forward-looking statements set forth in our reports filed with the Securities and Exchange Commission. Any forward-looking statements are made as of the date hereof. We do not intend, and undertake no obligation, to update any forward-looking statement.

# We are the world's trusted infrastructure consulting firm

## OUR INHERENT COMPETITIVE ADVANTAGES

- ✓ Unrivalled technical expertise and scale
- ✓ Established history of delivering on our clients' most complex projects
- ✓ Proven agility to perform through periods of uncertainty
- ✓ Substantial backlog and visibility
- ✓ Highly cash generative business model

## SIMPLIFYING OUR STRATEGY TO CAPITALIZE ON OUR STRENGTHS:

- ✓ Restructured the business and changed leadership positions to strengthen accountability, collaboration and our focus on clients
- ✓ Removed costly bureaucracy that limited our potential
- ✓ Investing in growth through our improved margins
- ✓ Broadening our focus to advise on strategy and program management to drive efficiency in the future of design

## UNPARALLELED TECHNICAL EXPERTISE

# ENR

#1

Environment Firm

Transportation  
Design Firm

Facilities Design  
Firm

Mixed-Used  
Buildings

Education Buildings

Aviation

Highways

Remediation

#2

Green Design Firm

Commercial Offices  
& Government  
Offices

Bridges

Mass Transit & Rail

Water Supply

Hazardous Waste

Wastewater  
Treatment

Dams & Reservoirs

#3

Site Assessment

Clean Air Compliance

Desalination Plants

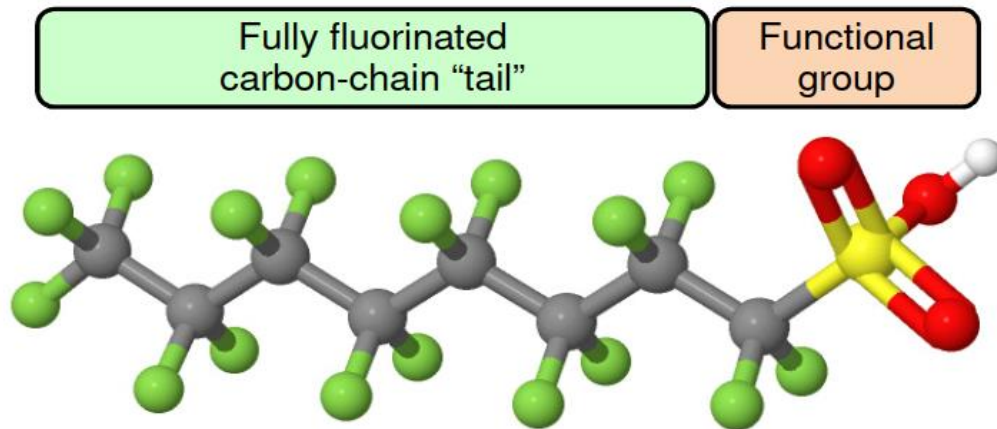
Solar Power

Source: 2020 and 2021 ENR Rankings, reflecting global revenue.

# What are Per- and Polyfluoroalkyl Substances (PFAS)?

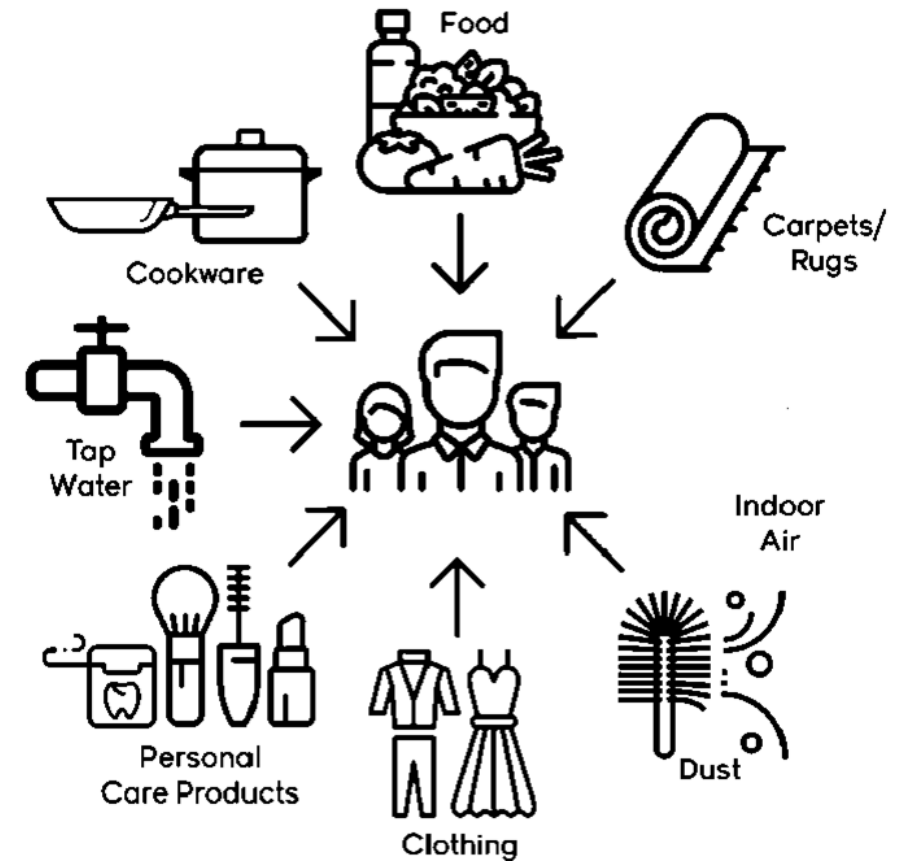
## PFAS ARE UNIQUELY DIFFICULT TO REMEDIATE:

- Class of >4,000 synthetic compounds, including PFOS and PFOA
- Carbon chains with fluorine replacing hydrogen
- Carbon-Fluorine one of the strongest chemical bonds
- Many resist thermal, chemical, and biological degradation
- Many act as surfactants



*e.g. Per-fluorinated - PFOS*

## PFAS ARE “EVERYWHERE”:



NRDC, PFAS in Drinking Water, 2019

# PFAS in the environment



Persistent, bioaccumulative, and toxic<sup>1</sup> substances



Significantly mobile in water – impacting many stakeholders



Regulations vary, tend to be very conservative to address their persistence and bioaccumulation



Toxicity studies are open to interpretation – more compounds being studied



Compounds occur widely in everyday applications



Regulatory drivers – Federal Health Advisories; state drinking water limits; fish and tissue limits



Remediation estimated at \$160 billion<sup>2</sup>

## <sup>1</sup> Human Toxicity:

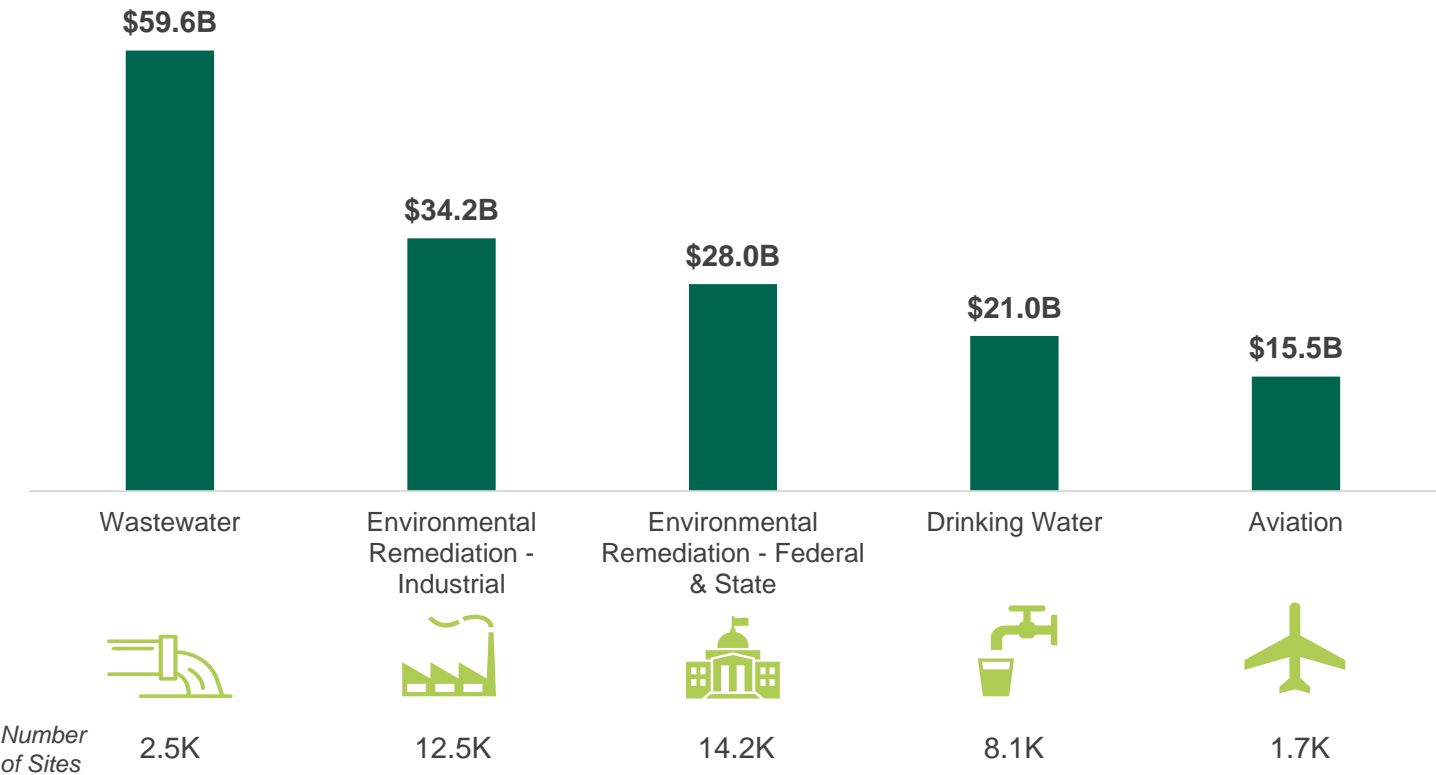
- Bioaccumulative in tissue, present in blood serum
- Linked with autoimmune and endocrine disorders
- Concerns with development during fetal development or breastfeeding
- Believed to be human carcinogens: testicular, kidney and liver cancer

## <sup>2</sup> Environmental Business Journal estimates over 40k PFAS sites and \$160B in environmental restoration, system upgrade and lifecycle costs

- Estimates from EPA, ITRC, US Canus, US DOT FAA, water and solid waste industry associations, and a consensus of expert respondents
- Environmental Business Journal, Volume 32, 5/6, 2019

# PFAS market overview

## AECOM CORE OFFERINGS ESTIMATED MARKET SIZE:



Source: Environmental Business Journal, Volume 32, 5/6, 2019

- EBJ 2019 estimate focused on traditional remediation market
- New market areas continue to emerge
  - air emissions
  - biosolids
  - manufacturing regulatory compliance
- Water treatment market expands with increasingly conservative state and federal regulations
- USEPA funding toxicity studies on numerous PFAS may create more drivers in more places

**AECOM OFFERS CLIENTS A COMPLETE SOLUTION ACROSS EACH ADDRESSABLE MARKET**

# AECOM is positioned to serve all aspects of our clients’ PFAS needs

## OUR SERVICES AND SOLUTIONS:

AECOM’S DESTRUCTION TECHNOLOGY DE-FLUORO™	SOURCE IDENTIFICATION AND FORENSIC ANALYSIS	TREATABILITY STUDIES AND SOURCE CONTROL
HUMAN AND ECOLOGICAL RISK ASSESSMENT	WASTE MANAGEMENT AND DISPOSAL, INCLUDING AFFF	REGULATORY NAVIGATION
REMEDIATION MANAGEMENT AND SOLUTIONS	WATER TREATMENT – SMALL TO VERY LARGE SCALE	WASTEWATER AND BIOSOLIDS

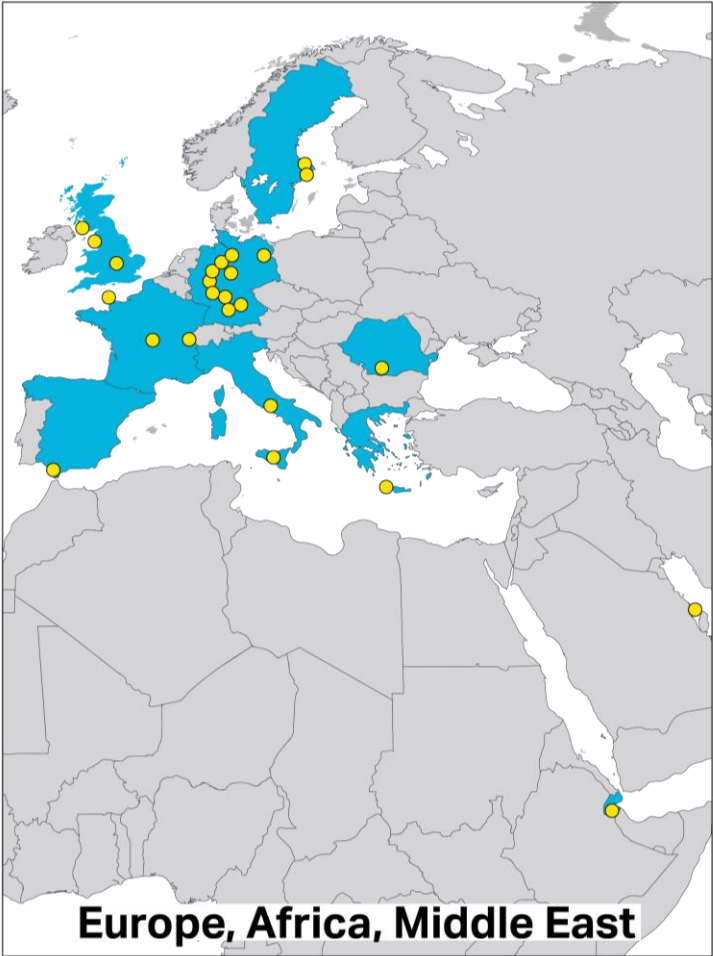
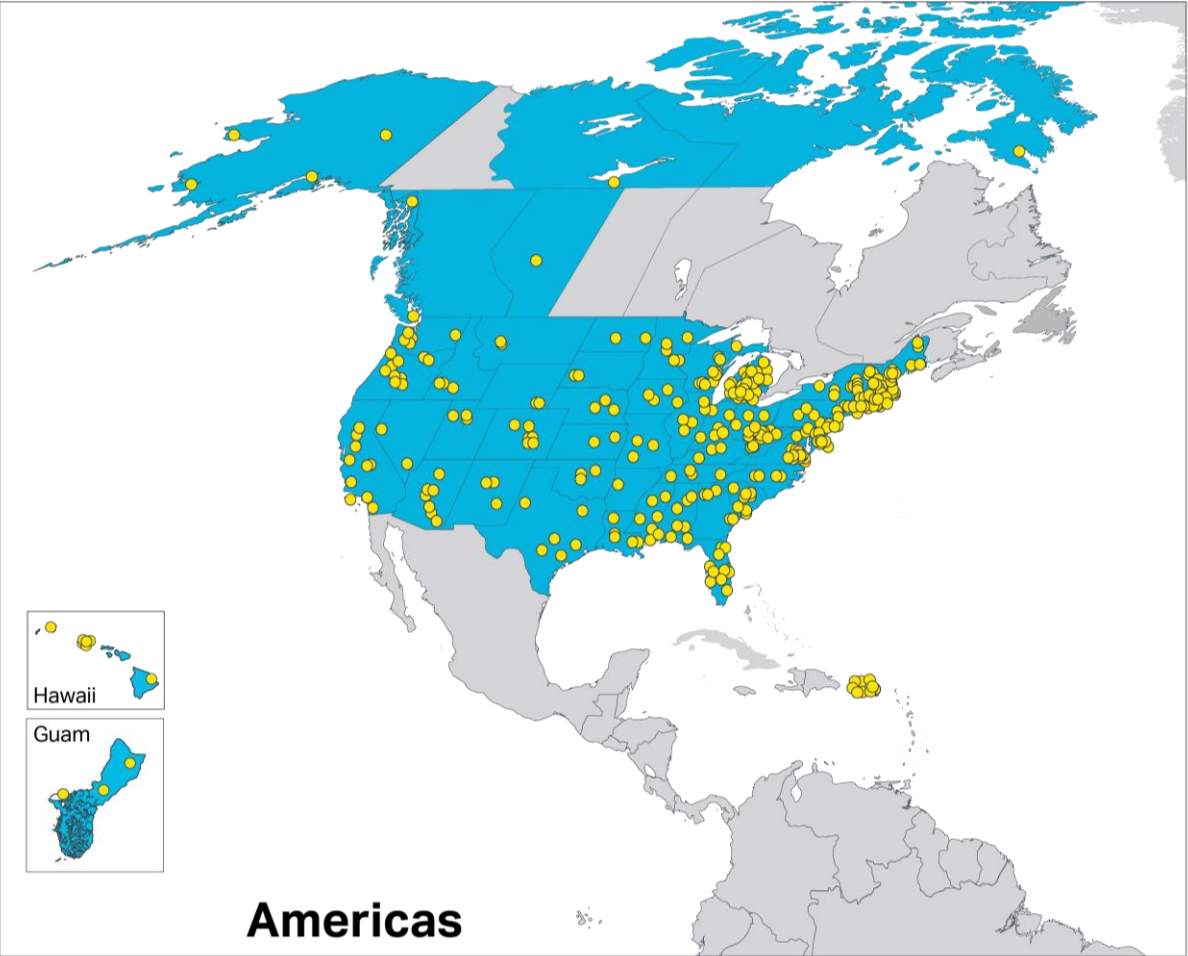
- Serve as trusted advisor to clients’ evolving concerns AHEAD of unfolding regulations
- Provide PFAS services for nearly 300 unique clients globally, expanding rapidly worldwide
- Started over 100 new PFAS-related projects in the Americas in FY’19 and again in FY’20
- Support U.S. government clients in site identification, PFAS quantitative assessment, and mitigation
- Consult on responses by manufacturing, oil and gas, and waste management clients
- Continually expanding services in potable water and wastewater markets

# AECOM's unrivalled global experience

**20** Years

**500+** PFAS Project Sites

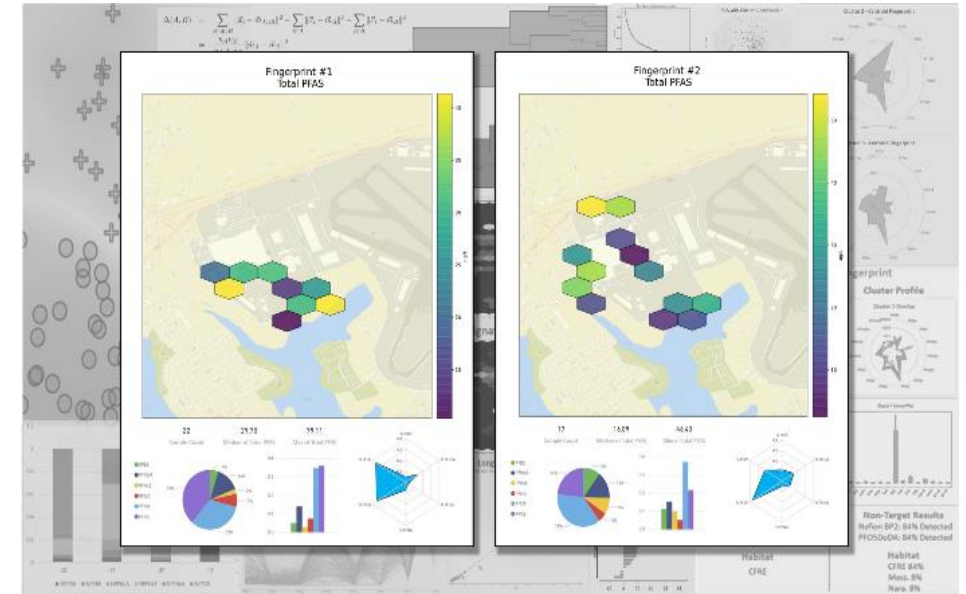
**75,000+** PFAS Samples



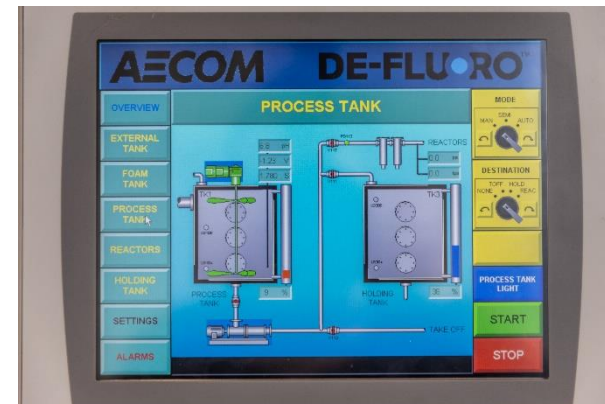
# AECOM PFAS thought leadership

- Developed a 'clean' sampling methodology nearly 20 years ago
- Performing food exposure modeling – fish, eggs, beef, vegetables
- Evaluating wastewater treatment plant influent, effluent and biosolids
- Applying chemical forensics to leverage analytical power
- Testing novel sample screening methods
- Commercializing DE-FLUORO™ a proprietary technology designed to destroy PFAS on-site

## ADVANCED FORENSICS AND CHEMOMETRICS



## FIRST-TO-MARKET DESTRUCTIVE REMEDIATION TECHNOLOGY



# We are investing in proprietary solutions to grow in this market

**DE-FLUORO™**  
PFAS DESTRUCTION TECHNOLOGY



## *Degradation via **Electrochemical** oxidation of per- and poly**fluoro**alkyl substances*

- Employs a proprietary, high-durability / low-cost electrode, adaptable to different sizes, and shapes
- Bench- and small field-pilots destroyed 90-100% of target and non-target PFAS mass
- First large field DE-FLUORO™ launched in Australia June 2020; a second in the US slated for 2021Q4
- Use stand-alone or coupled with other treatment technologies that generate PFAS concentrated liquid waste
- Global market entry anticipated early 2022



## *Perceiving the subsurface through a more accurate lens*

- Improve the Conceptual Site Model (CSM)
  - Identify contaminant sources
  - Mass fate & transport
  - Migration pathways
- Reduce Life-Cycle Costs
  - Leverage pre-existing data
  - Streamline investigations
  - Optimize remediation

- ✓ US EPA endorsed remediation best practice  
<https://clu-in.org/conf/tio/DCHWS4/>
- ✓ 75+ CSMs across USA, Canada, and UK

# AECOM PFAS project examples

## DEFENSE PFAS RESPONSE:



- Defense support on nearly every continent
- >500 sites with multidisciplinary investigations
- Optimizing via PRISM™ and modeling fate and transport
- Quantifying human and ecological risk
- Providing drinking water as tie-critical interim measure
- Implementing treatment solutions for drinking water, soil, groundwater, surface water, wastewater

## WASTEWATER TREATMENT PLANT SAMPLING:



- Sampled >100 WWTPs with range of treatment processes
- Characterize PFAS in influent, effluent and biosolids
- PFAS forensics reveal transformation via treatment process
- Biosolids' beneficial reuse and impacts to agricultural land and products under scrutiny

## POTABLE DRINKING WATER DESIGN AND CONSTRUCTION:



- Time-critical response for public drinking water
- Design-Build with aggressive schedule
- Collaboration with two affected communities
- Infrastructure solutions for crossing active rail, connecting to existing plants
- Completed construction of two IX treatment plants to deliver 10 million gallons per day (mgd) and 5 mgd

**AECOM** Delivering a  
better world

# We are a key partner as our clients work to solve their critical challenges

Industry-Leading Capabilities	Investing in Innovation	Addressing Growing ESG Concerns
<p><i>We are largest and most diverse global Environment firm. No other company does more Air Quality, Remediation or Natural Resources work, with 8,500 global environmental staff providing services in all sectors.</i></p>	<p><i>We are leveraging our leading scale and investments in technology to invest in innovation and bring advanced, proprietary solutions to the market.</i></p>	<p><i>These services and capabilities are ideally suited to address our clients' growing demands to address ESG related concerns and challenges.</i></p>
<p><b>#1 Environment Firm</b></p> <p><b>#1</b> Chemical Remediation</p> <p>Water Supply Hazardous Waste</p> <p><b>#2</b> Water Transmission &amp; Aqueducts Wastewater Treatment Dams &amp; Reservoirs</p> <p><b>#3</b> Site Assessment Clean Air Compliance Desalination Plants</p>	<ul style="list-style-type: none"><li>✓ DE-FLUORO™, our PFAS remediation technology</li><li>✓ Environmental Engagement, a first-of-its-kind digital EIS platform</li><li>✓ PRISM™, our Predictive Integrated Stratigraphic Modeling tool</li><li>✓ LNAPL digital probe</li><li>✓ Algae remediation process</li><li>✓ COVID water detection technology</li></ul>	<ul style="list-style-type: none"><li>✓ Next Generation Energy Solutions – Electrification, Hydrogen Fuel Cell, etc.</li><li>✓ Decarbonization and Transition to Net Zero Carbon Operations</li><li>✓ Climate Action Strategies</li><li>✓ Environmental Remediation</li><li>✓ Disaster Resilience and Recovery</li><li>✓ Carbon Capture and Storage</li><li>✓ Carbon Offsetting</li></ul>

2020 and 2021 ENR Rankings, reflecting global revenue.

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# Investing to strengthen our capabilities and deliver higher returns

- Every day, our teams are supporting our clients across market sectors through innovative technologies and solutions that allow us to gain share in the marketplace
- We are leading the acceleration of innovation and digital transformation in the industry
- Driving increased competitive differentiation as a result of our ability to deploy innovation at our scale and invest across our platform
- Focused on driving ROIC improvement as we invest in our business and capabilities



***CREATING A VIRTUOUS CYCLE FOR THE BENEFIT OF ALL STAKEHOLDERS***