

# Managing Per- and Polyfluoroalkyl Substances (PFAS)

October 1, 2020

#### **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.

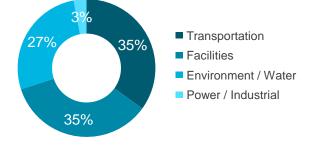


## **AECOM: The World's Premier Infrastructure Consulting Firm**

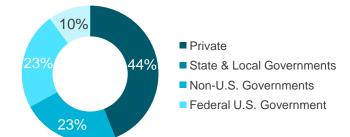
## Transforming into An Industry-Leading Higher-Margin, Lower-Risk Professional Services Business

- Transformation to a pure-play Professional Services business with world-class design, engineering and architecture leadership position
- Focused on continuing to lead the industry in key growth markets led by Transportation, Water and Environment, where we are consistently ranked #1 or #2 by ENR
- Partnering with our public and private sector clients to solve their most complex challenges and pioneer innovative solutions
- Rigorous and deliberate capital allocation focus to fully capitalize on the value inherent in our highly cash generative business, including a continued commitment to return substantially all available cash through share repurchases

ATTRACTIVE
EXPOSURE TO KEY
END MARKETS



DIVERSE CLIENT MIX



All numbers are presented as a percentage of TTM NSR (as of Q3'20)



## We Are a Key Partner as Our Clients Work to Solve Their Critical Challenges

## Industry-Leading Capabilities

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.

## Investing in Innovation

We are leveraging our leading scale and investments in technology to invest in innovation and bring advanced, proprietary solutions to the market.

## Addressing Growing ESG Concerns

These services and capabilities are ideally suited to address our clients' growing demands to address ESG related concerns and challenges.



#### **Environment Firm**



**Chemical Remediation** 

Water Supply Hazardous Waste

#2

Water Transmission & Aqueducts Wastewater Treatment Dams & Reservoirs

#3

Site Assessment Clean Air Compliance Desalination Plants

- ✓ DE-FLUORO<sup>TM</sup>, our PFAS remediation technology
- Environmental Engagement, a first-of-itskind digital EIS platform
- ✓ PRISM<sup>TM</sup>, our Predictive Integrated Stratigraphic Modeling tool
- ✓ LNAPL digital probe
- Algae remediation process
- COVID water detection technology

- Next Generation Energy Solutions –
   Electrification, Hydrogen Fuel Cell, etc.
- Decarbonization and Transition to Net Zero Carbon Operations
- Climate Action Strategies
- Environmental Remediation
- Disaster Resilience and Recovery
- Carbon Capture and Storage
- Carbon Offsetting

2020 ENR Rankings, reflecting global revenue.



## 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 are 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

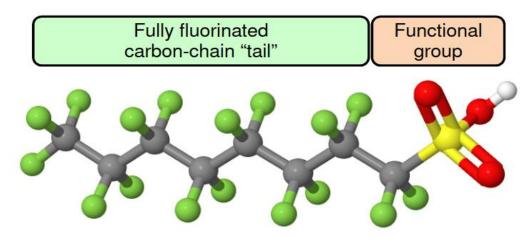


#### CREATING A VIRTUOUS CYCLE FOR THE BENEFIT OF ALL STAKEHOLDERS

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

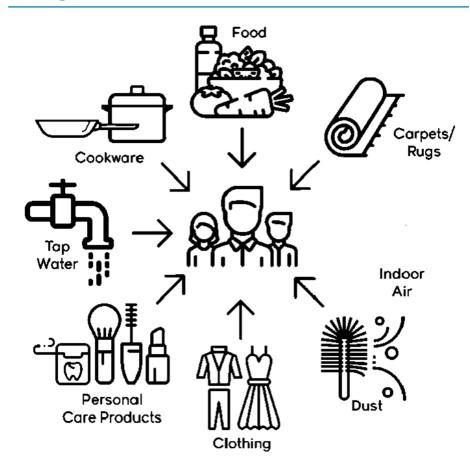
#### PFAS ARE UNIQUELY DIFFICULT TO REMEDIATE:

- 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>

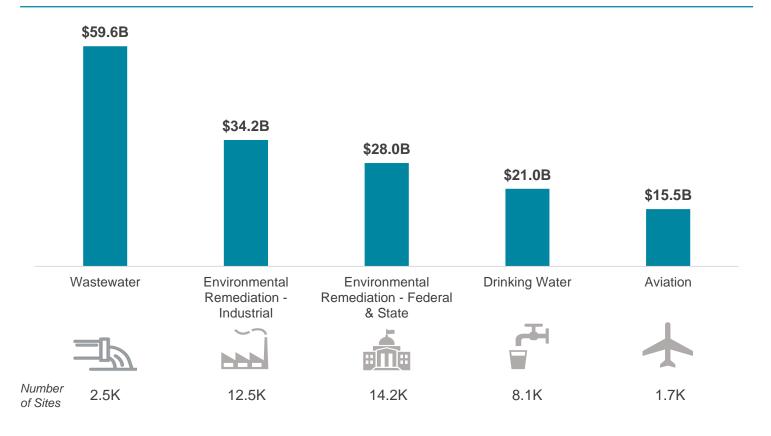
#### <sup>1</sup> Human Toxicity:

- 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:**



- EBJ estimates (at left) focus on "traditional remediation"
- Ancillary markets include AFFF replacement, alternate disposal
- Public health concerns drive regulations
- State litigation against manufacturers continues

AECOM OFFERS CLIENTS A COMPLETE SOLUTION ACROSS EACH ADDRESSABLE MARKET

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



## **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 SAMPLING INVESTIGATION	TREATABILITY STUDIES AND SOURCE CONTROL
HUMAN AND ECOLOGICAL RISK ASSESSMENT	WASTE MANAGEMENT AND DISPOSAL	REGULATORY NAVIGATION
REMEDIATION MANAGEMENT AND SOLUTIONS	WATER TREATMENT – SMALL TO VERY LARGE SCALE	WASTEWATER AND BIOSOLIDS

- Focus on serving as trusted advisor to clients' evolving concerns AHEAD of unfolding regulations
- Provide PFAS services for nearly 300 unique clients globally
- 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
- Perform strategic work for manufacturing, oil and gas, and waste management clients
- Hold key positions in potable water and wastewater markets

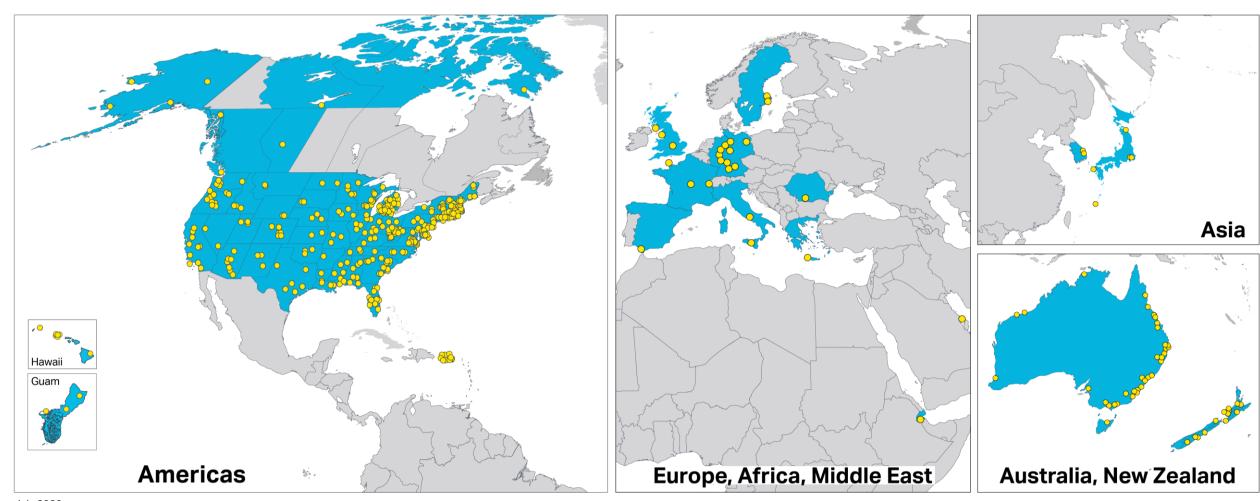


## **AECOM's Unrivalled Global Experience**

18 Years

**400** PFAS Project Sites

**50,000+** PFAS Samples







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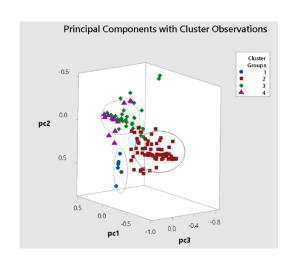
**AECOM** 

## **AECOM PFAS Thought Leadership**

- Developed a 'clean' sampling methodology nearly 20 years ago
- Performed food exposure modeling fish, eggs, beef, vegetables
- Evaluated wastewater treatment plant influent, effluent and biosolids
- Applying chemical forensics to better understand sites
- Testing novel sample screening methods
- Commercializing De-Fluoro™ a proprietary technology designed to destroy PFAS on-site

ADVANCED
FORENSICS AND
CHEMOMETRICS

FIRST-OF-ITS-KIND REMEDIATION TECHNOLOGY



#### ENVIRONMENTAL BUSINESS JOURNAL®

Strategic Information for a Changing Industry

Volume XXXII Number 1/2

REPRINT - EBJ 2018 Awards & 2019 Executive Review

#### AECOM MAKES STRIDES IN PFAS REMEDIATION WITH DE-FLUORO $^{\text{TM}}$ TECHNOLOGY

Technology demonstrated to destroy 95-100% of PFAS influent mass. Market analysis underway and field trials slated for fall 2019

AECOM is a global design and engineering firm with 87,000 employees across more than 100 countries. With revenue of \$2.0.2 billion in 2018, they ranked \$164 on the Fortune's 500. One of AECOM's greatest strengths is its global network of experts working with clients, communities and colleagues to develop and implement innovative solutions to the world's most complex challenges. They connect expertise across services, markets, and geographies to deliver transformative outcomes that protect our environment and improve people's lives. Their environmental services help industrial and public sector clients around the world balance growth with resiliency – achieving compliance and reducing or eliminating risks while protecting our natural environment. AECOM ranked as \$1 environmental firm by Engineering News Record

tor model, so we can assess the ability to treat different site specific conditions and a range of PFAS concentrations. Ongoing trials are providing encouraging results for creating a full-scale solution for industrial wastewater, drinking water, remediallyderived waste, or source area groundwater. Our technology has been demonstrated to successfully destroy between 95% and 100% of the PFAS influent mass.

EBJ: You have already tested the technology on PFAS-impacted solutions obtained from U.S. and Australian defense departments, aviation, chemical manufacturing, and oil and gas sites. What is the next step?



## We Are Investing in Proprietary Solutions to Grow in this Market

#### **PRISM™**

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

#### **DE-FLUORO™**

Degradation via Electrochemical oxidation of per- and polyfluoroalkyl substances

- Employs a proprietary, high-durability / low-cost electrode, adaptable to different sizes, and shapes
- Use stand-alone or coupled with other treatment technologies that generate PFAS concentrated liquid waste





## **AECOM PFAS Project Examples**

#### **DOD CERCLA RESPONSE:**



- Evaluating 100s of potential releases
- Sampling environmental media
- Applying PRISM™
- Modeling fate and transport
- Quantitatively evaluating human and ecological risk
- Providing drinking water as interim measure
- Implementing treatment solutions

## WASTEWATER TREATMENT PLANT SAMPLING:



- Sampled 90+ WWTPs with various treatment processes
- PFAS detected in influent, effluent and biosolids at all WWTPs
- Evidence of PFAS transformation through treatment process
- Concentration in biosolids affects beneficial reuse

## POTABLE DRINKING WATER DESIGN AND CONSTRUCTION:



- Responded to "do not drink" ban
- Design-Build with aggressive schedule
- Collaboration with City and its consultant
- Honor existing infrastructure; design GAC treatment for PFAS removal
- Complete construction of the GAC treatment process and major mechanical components in time to protect potable water



## AECOM Imagine it. Delivered.