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Participants

1. City Staff
 - a. Suzanne M. Woodland, Acting Deputy City Manager/Deputy City Attorney
 - b. Peter Rice, P.E. Director of Public Works
 - c. Todd Henley, Recreation Director
2. CMA Engineers
 - a. Philip Corbett, P.E.
 - b. William Straub, P.E., P.G.
3. Weston & Sampson Engineers
 - a. Frank Ricciardi, P.E., LSP
 - b. Marie Rudiman
 - c. Steven LaRosa
4. Green Toxicology
 - a. Dr. Laura C. Green

Participants

1. Non-Toxic Portsmouth
 - a. Ted Jankowski
 - b. Diana Carpinone
 - c. Kristen Mello
2. Andrea Amico
 - a. Dr. Kyla Bennett

Participants in the Discussion

CMA Engineers Team

Philip Corbett, P.E., is chief civil engineer of the firm, a principal and project manager with experience with a wide range of site design, utilities, and transportation projects. He serves on the Board of the American Council of Engineering Companies (ACEC) – NH, and the Institute of Transportation Engineers (ITE) - NH. He earned a BS in Civil Engineering from the University of Colorado, and MS in Civil Engineering from the University of Washington.

William Straub, P.E., P.G. is a senior principal of the firm with 40 years' experience in environmental and civil projects serving municipal clients throughout NH and NE. He has completed multiple projects involving management of complex environmental issues in soil, groundwater and surface water. He has served as a leader in multiple professional engineering organizations in NH. He holds a BSCE from UNH and a Master of Engineering from at Dartmouth College.

Green Toxicology

Dr. Laura C. Green is a chemist and a board-certified toxicologist. She has specialized in evaluating risks to the environment and to public health for many years, starting in 1978, under contract to the National Academy of Sciences. For 25 years, she was on the part-time faculty of MIT, where she lectured in Environmental Health & Toxicology. She is currently an independent consultant, serves on the editorial board of the journal, Human and Ecological Risk Assessment, and provides scientific support on behalf of indigent defendants throughout the Massachusetts court system.

Participants in the Discussion

Weston & Sampson Team

Frank Ricciardi, PE, LSP, is a professional environmental engineer and Licensed Site Professional with 28 years of experience. He is the discipline leader for the company's environmental assessment and remediation practice. He is the Chair of the Environmental Business Council of New England Emerging Contaminants and TSCA subcommittee.

Marie Rudiman is a human health and ecological risk assessor and toxicologist with 27 years of experience in the environmental field. She has been a Senior Risk Assessor/Toxicologist with Weston & Sampson since 2013. Marie's focus is on protection of public health and evaluation of contaminants in the environment. She is a participating member of LSPA's Technical Practices Group and Weston & Sampson's Emerging Contaminants Group. Marie earned a BS in Toxicology from Northeastern University.

Steven LaRosa (via Zoom) is a leader in the Weston & Sampson Emerging Contaminants Group who has been evaluating PFAS presence and impacts on soil, groundwater, surface water and fish for many years. Steve has more than 30 years of experience assessing contaminants in the environment throughout New England.

Participants in the Discussion

Speaking for Members of the public:

Kyla Bennett is Public Employees for Environmental Responsibility's (PEER) Northeast and Mid-Atlantic Director, and PEER's Director of Science Policy. Kyla previously worked at EPA Region 1 for approximately 10 years as a wetland permit reviewer and as the Region's Wetlands Enforcement Coordinator. Kyla has a Ph.D. in Ecology and Evolutionary Biology from the University of Connecticut, a law degree from Lewis and Clark Law School in Portland, Oregon, and a Master Herpetologist certificate from The Amphibian Foundation in Atlanta, Georgia. She has been working on PFAS issues around the country for several years and is the scientist who discovered PFAS in both artificial turf and pesticides.

Kristen Mello (she/her) has a Bachelor's degree in Chemistry (Umass Amherst), and a Master's degree in Analytical Chemistry specializing in Chemometrics (University of Delaware). She is the Director of Westfield Residents Advocating For Themselves (WRAFT), a community group formed in response to the PFAS contamination of their drinking water. Kristen led the effort to get PFAS blood testing for Westfield residents in the form of a PFAS Exposure Assessment from the Agency for Toxic Substances and Disease Registry (ATSDR). She was one of only two Community Representatives invited to be on the MassDEP PFAS Maximum Contaminant Level Stakeholder Group, is a Community Member of the Barnes Air National Guard Base Restoration Advisory Board, and works directly with UMASS Amherst researchers on the Mass PFAS-Cov Study. Her PFAS advocacy work, in large part, led to her being elected a Westfield City Councilor At Large in 2019 and 2021.

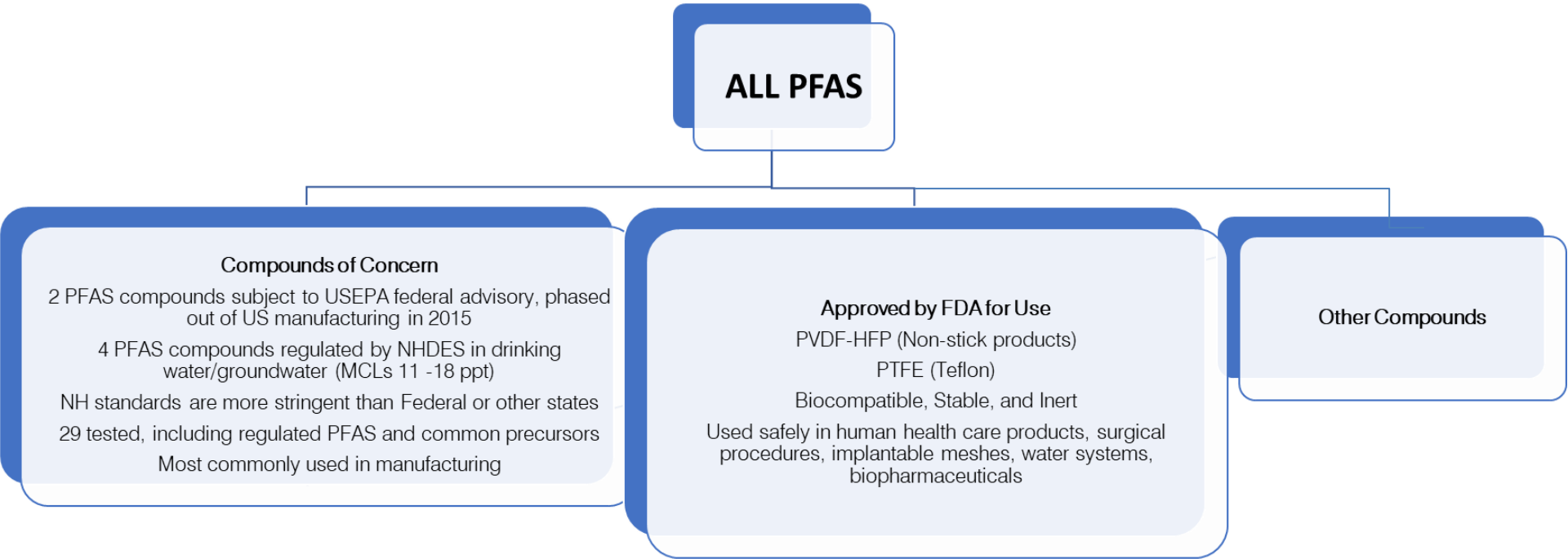
Common Ground

1. Provide abundant recreational opportunities
2. Prevent harmful exposure
3. Recognize that PFAS are common and widespread in our environment

Questions to be Answered

1. Is there justification/value to additional testing of the field?
2. Is there justification/value to testing the surface water?
3. Is there reason to add signs at the field?

Vocabulary: Universe of PFAS



Vocabulary: PFAS of Concern

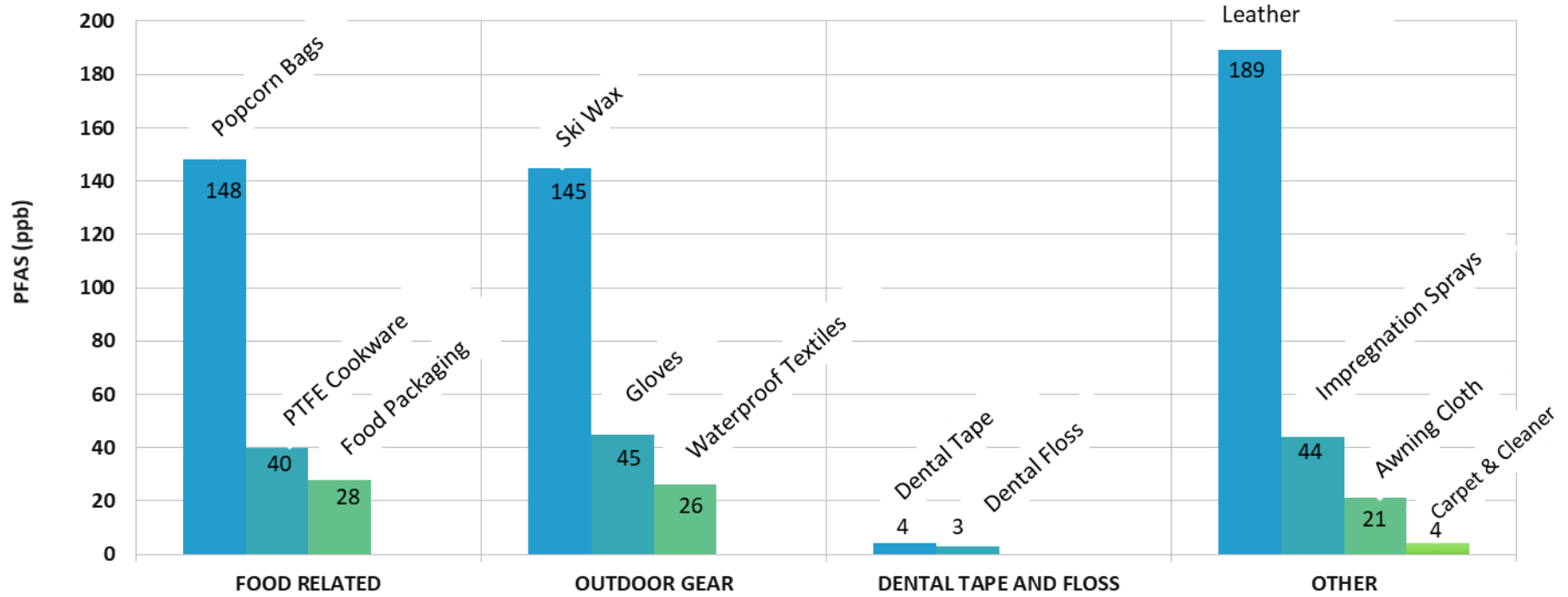
PFAS of Concern are Ubiquitous in our Environment

- **Soil** – Background PFAS concentrations
 - VT soil study indicated 540 to 35,000 ppb.
 - The same analytical method was used for the synthetic turf testing
- **Rain/Snow** – Up to 1,000 ppt
- **Human Urine** – ~8-11 ppt
- **Sewage** – 9.3-520 ppb

FieldTurf, the synthetic turf manufacturer – PFAS were not detected using same analytical method as VT soil study

Vocabulary: PFAS of Concern in Commerce

Various levels of 29 PFAS in everyday items



Vocabulary: Fluorine

Fluorine - natural element, not inherently toxic

- Non-specific fluorine test methods are *less informative* than PFAS-specific test-methods.
- About 20% of currently used pharmaceuticals – such as Lipitor and Prozac – are synthetic organo-fluorine chemicals.
- These pharmaceuticals are safe and effective for their intended uses ... and all contain organo-fluorine bonds ...
- Also, samples were analyzed for total fluorine which may have picked up fluorine from other sources on the turf samples collected from the trash dumpster

Vocabulary: Total Fluorine



Soil



Plastics



Fruit



Vegetables



Drinking Water



Seafood

Project History: Program Development

- 2010, 2016, Recreation Needs Study - 3 to 4 new synthetic turf fields.
- December 11, 2019, Recreation Board - Voted to recommend synthetic turf field
- February 18, 2020, City Council Work Session
 - Field type selection discussion: athlete safety, environmental considerations, recreational needs, cost.
 - Addressed PFAS questions and described approach: goal to meet REACH and PROP 65.
 - Recommend synthetic turf field: safe for athletes and environment (robust specifications and testing requirements); maximizes periods of use and lowest cost per hour of use.
- March 2, 2020, City Council Meeting - Voted to direct City Manager to proceed with bidding current design for synthetic turf fields, with bid alternates related to the type of infill.

Project History: Product Assurance

Specifications Required:

- Appropriate and state of the art standard of care
- PFAS free requirement defined and addressed in Project Specification
- Statement from manufacturer indicating the synthetic turf does not contain and is not manufactured with PFAS compounds as defined
- EPA Method 537 Modified testing showing ND (Non Detect) in turf components (before approval)
- Turf meets EU REACH standards and California Prop-65
- Independent testing on samples of the turf components installed (same lot number) showing ND

Project History: Testing Methodology

Why is EPA Method 537 Modified appropriate for testing?

- Proven and the approved method to test PFAS in solids accepted by NHDES, multiple additional states and DoD
- Solids vs drinking water – ppb vs ppt
- Analyzes for 29 PFAS compounds including all 4 regulated in NH plus 25 other compounds (EPA deems most common/potentially toxic)
- When used in the manufacturing process, PFAS are detected at the ppb to ppm (parts per billion/million) level

Project History: Implementation

- May 19, 2020, Bid Received – With bid alternates for alternative infills
- June 1, 2020, City Council Meeting – Voted to proceed with synthetic turf field with “safe shell” alternative for the Multi-Purpose Athletic Field
- July 2020 – May 2021 Construction
 - December 2020 – Turf submittals approved, including vendor PFAS certifications
 - April 2021 – As specified, factory sample of turf system was tested by third-party for presence of PFAS. Results: Non-Detect for PFAS compounds
 - May 2021 – Turf field installed

Project Installation

Field Installation Requirements

1. Contract Requirements and Specifications
 - PFAS Free requirement defined and addressed in Project Specification
 - EPA Method 537 Modified, REACH, Cal Prop-65
 - Vendor certifications of compliance
 - Independent third-party testing for compliance with specifications
 - Review for conformance by City's consultant team

2. Installation
 - City reviewed provision and installation of all field components
 - All work conformed with project requirements, including PFAS free specification

Completed Project



Current Use

- Opened in June 2021
- Approximately 400 total hours of play since opening
- Heaviest use August-October, 7 days/week, afterschool and all day on weekends
- User groups: Youth Soccer, Youth Football, Youth Lacrosse, Adult Soccer, Adult Ultimate Frisbee, Recreation Department Events
- Sporadic day-time use for general public training
- Expect expanded usage in Spring and beyond with lighting scheduled to be installed in the Spring

Non-Toxic Portsmouth

Request to Test Surface Runoff & Post Signage

Project Team's Response & Recommendations

1. Is there justification/value to additional testing of the field? No
 - The installed turf met the project specifications and is safe for use
 - Tested for PFAS of concern, Not Detected
 - Given the current state of science, additional testing of turf materials would not result in more effective management or decision-making
 - Requested PFAS specific testing results could not be differentiated from background/environmental sources of PFAS
 - Total Oxidizable Precursor (TOP) Assay is not representative of natural environmental conditions
 - Total fluorine testing is not indicative of PFAS presence

Project Team's Response & Recommendations

2. Is there justification/value to testing the surface water? No
 - Not possible to isolate runoff or groundwater from turf field
 - Requested PFAS specific testing results could not be differentiated from background/environmental sources of PFAS

Project Team's Response & Recommendations

3. Is there reason to add signs at field? No

- Given current state of science, signage would be inappropriate when there is no evidence for increased public health concerns
- With ubiquitous nature of PFAS, signage would imply that this field is unique compared to other locations

City Council Questions