INFORMATIONAL HEARING SUBJECT:
Microplastics In Our Water and Environment: Understanding a Growing Pollution Source

"I like to compare synthetic turf to a bad relationship . . . It gets dangerously hot, it's toxic to everyone around me, it's unsustainable . . . and it's really hard to get rid of."
Diana E. Conway, President, Safe Healthy Playing Fields, Inc.

Today in the US there are between 15,000 – 20,000 plastic grass playing fields, based on industry estimates. Playing fields average 80k square feet: 40,000 pounds of plastic backing and blades; 400,000 of used plastic tire or other infill, per playing field. In addition, synthetic plastic turf is found in day care centers, dog parks, batting cages, paint ballparks, roof tops, spas, gyms, residential and commercial applications. The average 80k square foot playing fields, translates to 1.2 to 1.6 trillion sq feet of these toxic carpets covering our land. Additionally, there are over 1.2 million square feet of plastic grass covering a landfill and two SuperFund sites in California alone.

The plastic blades in the carpets begin to degrade the moment they are laid. The grinding action during play, UV radiation and environmental exposure causing breakdown, forming microplastics. Each field looses 0.5 to 8.0% of its blades annually, contributing 200 to 3200 pounds of plastic waste to our environment. That is 3 to 64 million pounds of absolutely unnecessary waste created by these 15 to 20 thousand playing fields.

The infill for 15-20K playing fields would be 6-8 trillion pounds of primarily crumbed used tires. Approximately 1.5 to 5 tons of these microplastics migrate off each field annually- microplastics lost to the air, soil, waterways and oceans. That's 45k to 100k tons for 15 to 20 thousand fields adding to the microplastics burden in the US and causing illicit MS4 violations even in the face of best management practices.

While OEHHA has not yet released its most recent study, Yale researchers (2019) have identified a total of 306 chemicals in crumb rubber. Of these, 52 are classified as known carcinogens and another 6 are considered suspected or presumed carcinogenic by both the US EPA and the European Chemicals Agency (ECHA). An additional 197 are considered carcinogenic a priori. It should be noted that of some 80,000 identified chemicals, the EPA has only studied 0.27%. In December 2020, researchers in the Netherlands revealed they identified an additional 46 carcinogenic chemicals in crumb rubber products.

Tire crumb is estimated to be 28-30% of the microplastic pollution in our oceans. In December 2020, researchers at the University of Washington announced their discovery of a chemical in tires, 6PPD that becomes 6PPD quinone when is interacts with the ozone, that is responsible for killing 40-90% of the salmon population. Salmon populations are being decimated in the central California coast as well. This chemical is also suspected in the decline of other species in additional states.

Synthetic turf has been shown to reach temperatures in excess of 200^{o}F on a 98^{o}F day. They are always significantly hotter than natural grass, concrete and asphalt. The impact of these massive plastic carpets is not a simple matter of their average 80k square feet each. All aspects of each individual blade contributes to the overall surface area of each carpet. There are

~60,912 blades of plastic grass/square yard. That's in excess of 1.624 trillion blades per single average playing field…massive heat islands contributing to global warming.

Plastics have been shown to off gas methane and ethylene. Methane is 21x more powerful than carbon dioxide. In studies comparing green house gas release by plastics in the water to plastics on land, when exposed to air, methane release is 2 times greater and ethylene 76 times greater when exposed to air versus than when in the ocean. This off gassing begins with UV exposure and continues throughout nighttime hours. The more the >1.64 trillion blades degrade, the greater their surface area and the greater the amount of emissions.

Patents reveal that synthetic turf contains numerous carcinogenic and toxic chemicals. A short list includes hormone disrupting chemicals, neurotoxins, immune system disruptors, flame retardants, pesticides and other antimicrobial agents, such as:

- phthalates,
- anti-oxidants,
- plasticizers,
- heavy metals in pigments (lead, Cadmium..)
- PFAS chemicals- necessary for extrusion of the unnecessary plastic yarns for unnecessary plastic carpets.

Testing of various synthetic turf blades and backing have shown a 100% positive test rate for total fluorine, the gold standard for testing products for the presence of PFAS, a class now estimated 9,000 "forever" chemicals. These chemicals leachate into soil, waterways and oceans.

The potential impacts to human, aquatic and environmental health is enormous. The risk and the cost undeniably unnecessary.

Where do these unregulated products go at the end of their "useful" short lives? Despite industry claims and a gross misuse of the word, there is no recycling available. They go into landfills, have been found illegally dumped in California, around the country and globally. They are found for sale on multiple websites, most without disclosing their locations for fear of being found and reported to CalReycle or OEHHA. They are "upcycled" in their disintegrating state and passed on to yet more unsuspecting consumers where they go on to pollute in yet another location until they ultimately are landfilled or dumped.

We must turn off the tap on these wholly unnecessary plastics. We must track and trace what is in current use. With thousands of these massive carpets "expiring each year, we need a transparent and verifiable chain of custody to ensure their legal disposal.

Respectfully,
Dianne Woelke MSN
Ret. Advanced Practice & Public Health Nurse
Oceanside, CA

*source citations available upon request