PUBLIC COMMENTS SUBMITTED AT HIGHLANDS
COUNCIL MEETING ON MARCH 19, 2015

1

My name is Hank Klumpp. I own 150 acres in the Highlands Preservation Area.

At the June 19, 2014 meeting, I requested some information from this council as to how my property will be taxed in the future when I no longer can farm it, and I am left with property that has no equity and that can do nothing but stand idle. I have not heard a word from anyone so I guess the tax office is right — no one has any answers because, once again, the Highlands Act is so poorly written that this is just

(2)

another example of how it has hurt so many people. Anyone who did not have property valves stolen does not understand or care.

According to Pat Moffitt:

The Council has been given document after document outlining the evidence of scientific misconduct. The evidence has been submitted in multiple email exchanges with Margaret Nordstorm and Andrew Davis, outlined in a 7/10/13 letter to Council Chairman Rilee, and in multiple Council public meeting comments. The Council was given as an example some 20 pages detailing

(3)

evidence of gross scientific misconduct on 9/19/13 and an additional 21 pages on 9/15/14. The council has not addressed any of the submitted evidence.

The evidence of gross scientific misconduct represents an on going threat to the water supply, public health and environmental quality and as such the Council's legislative mission. A mission that Council members took an oath to uphold.

Council has an on going duty, not limited to the regional master plan, to consider and comment on

(4)

public input (C. 13:20-6 ~~K.A.~~). The Council, however, has failed to comment on the many concerns and questions. Many of these concerns, backed by supporting evidence, were matters that pertained to ongoing public health and water supply risks.

Hank Klumpp

24 Longview Road
Lebanon, NJ 08833

March 20, 2015

Editor:

Sen. Bob Smith lied to me in 2004 when he promised me he would show us the money when the Highlands Act was passed with no money in place to compensate the people who lost their property values and equity. Now, in 2015, 11 years later, Sen Smith is standing before the Environment Committee meeting trying to pass bills for Green Acres, farmland preservation, Blue Acres and historic preservation. What about compensation for the 859,358 acres that were taken under the Highlands Act? Sen. Smith has moved on. It is obvious that he does not care if a dedicated source is put in place. But — why isn't the Highlands Council lobbying for funds? The "Keep It Green" coalition always backs Smith because they love the 859,358 acre park the Highlands Act created. Highlands Council — how are you helping?

Hank Klumpp
908-832-7634
24 Longview Road
Lebanon, NJ 08833

Richard Plambeck Comments at

March 19, 2015 Meeting of the Highlands Council

Regarding Concerns With Proposed Pilgrim Pipeline

Richard Plambeck Relevant Background

- Professional Engineer registered in New Jersey for over 40 years
- 36 years employed with Exxon, including 2 years as Engineering Supervisor for the Exxon Gas (Pipeline) System, and 10 years as Site Operations Manager for major Exxon research and engineering campuses in Clinton Township and Florham Park
- 11 years on Chatham Borough governing body, including 4 as Mayor
- 20 years on Board of Trustees of Passaic River Coalition, including 3 as Chairman
- 8 years on Board of Trustees of the Morris County Municipal Utilities Authority, including 2 as Chairman

Water Supplies

- While New Jersey used to have an abundance of potable water available, that has changed dramatically over the years and getting new water allocations are almost impossible. For example, the Morris County Municipal Utilities Authority has been trying to obtain additional supplies for many years, and the NJDEP has not signed off on any of the proposed projects.
- Northern New Jersey's high population density and industrial past long ago forced major cities to abandon local water supplies from contaminated rivers and wells and switch to surface water from the Highlands region of New Jersey.
- Local inhabitants of the Highlands region primarily rely on local wells from unconfined aquifers like the Ramapo which are highly susceptible to contamination from local spills.
- New Jersey has several Sole-Source Aquifers in the region providing at least 50% of the water supply for residents and businesses in the area and for which there is no available auxiliary source. (See NJ map and Buried Valley Aquifer System Map.)
- Individual aquifers may supply local municipal water systems, as well as municipal and commercial systems serving populations some distance away. (See Chatham Area Wellhead Protection Map.)
- Commercial water companies provide primary or backup water supplies to many communities and may rely on both surface water (from rivers) and groundwater (from wells) to provide sufficient capacity and meet seasonal fluctuations and regulatory limits, so they are at risk of contamination to either groundwater or surface water.
- Pipeline leaks and spills can go undetected or unmitigated for long periods of time, releasing large quantities of dangerous chemicals into the water supply.

- Estimated times of travel for contamination based on local geology may overestimate the time available to react and mitigate leaks – storm sewers can short circuit and speed flows of contamination to streams closer to wells or to rivers with water intakes.
- Once an aquifer is contaminated, it can take decades to clean up, if that is even possible, and treatment and mitigation measures are very expensive.
- In our area, East Hanover, Madison and Parsippany have had to put air strippers on many of their wells to treat contamination from Volatile Organic Compounds (VOCs.) Other towns have had to abandon wells. The Honeywell site in Hanover Township has been pumping and wasting groundwater for years to contain a contamination plume.

Public Safety and Health

- Spills and leaks can lead to major fires and explosions from both crude and petroleum product pipelines, and much of the proposed pipeline route runs near homes and schools.
- Spill and leak prevention is always the best solution, but foreseeing all potential risks is not always possible. (EGSI 1976 compressor station fire example – caused by over-tightened bolts and bugs. One person killed and two injured.)
- Running additional crude and product lines in the same corridor with existing gas lines and electrical transmission lines increases the risk of serious disruptions to all these power and heating supply systems at the same time.
- Leaks into the groundwater can affect homeowners even before wells are affected through seepage of dangerous liquids or vapors into basements.
- Local examples include Pompton Lakes, which has a neighborhood with excessive VOCs in the groundwater from a DuPont plume of contamination, and vapor evacuation systems have had to be installed in hundreds of homes. Every gas station in Chatham has an active contamination mitigation program and at least one home was bought out as uninhabitable.

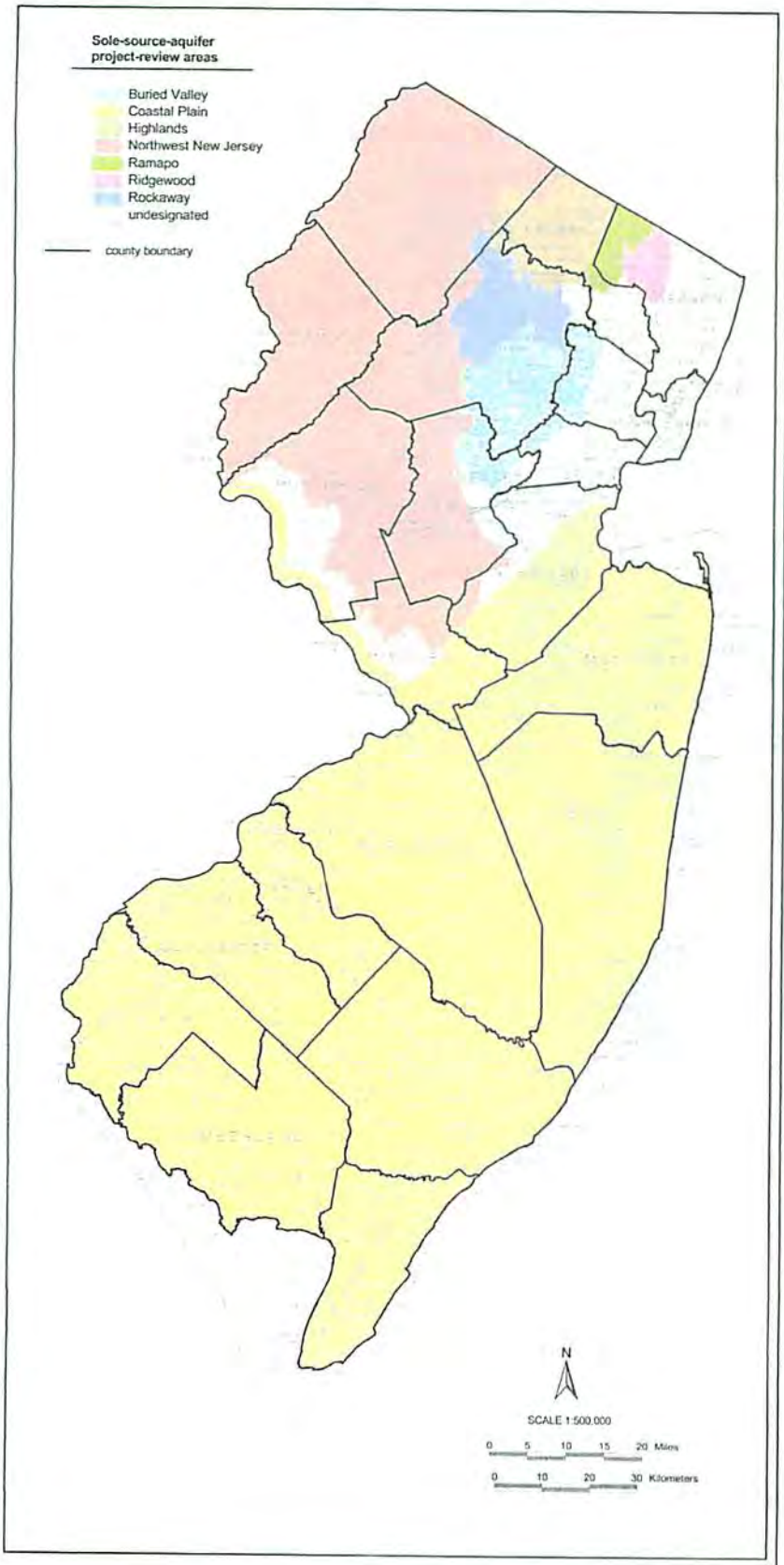
Property Values at Risk

- For many people, their homes are the largest portion of their life savings.
- Many studies have shown that homes close to pipelines (whether proposed, under construction or in operation) take longer to sell and fetch lower prices than homes farther away. Perception is reality when it comes to real estate.
- Homes in an area of contamination often can't be sold unless the responsible party is forced to buy them out. DuPont contamination in Pompton Lakes is a prime example.

The Pilgrim Pipeline Presents Unnecessary Risks and Should NOT be Permitted

Department of Environmental Protection
Division of Science, Research and Technology
New Jersey Geological Survey

USEPA-DESIGNATED SOLE-SOURCE AQUIFER PROJECT-REVIEW-AREAS IN NEW JERSEY
OPEN-FILE MAP OFM-26



ABSTRACT

A sole-source aquifer (SSA) is defined by the U.S. Environmental Protection Agency (USEPA) under regulations in the Safe Drinking Water Act of 1974. It is defined as an aquifer which contributes more than fifty percent of the drinking water to a specific area and its contribution would be impossible to replace if the aquifer were to become contaminated. Any project within such a designated area that receives federal funds must address the project's potential impact on ground water to the satisfaction of the USEPA. This 'project-review area' includes all or part of the 'stream-flow source zone,' the upstream watershed that may contribute recharge to the aquifer. The USEPA has designated seven sole-source aquifers in New Jersey. Their project-review areas are mapped at left.

REGULATORY AUTHORITY AND IMPLEMENTATION

The sole-source aquifer program was authorized by Section 1424(e) of the Safe Drinking Water Act of 1974 as follows:

"If the Administrator determines, on his own initiative or upon petition, that an area has an aquifer which is the sole or principal drinking water source for the area and which, if contaminated, would create a significant hazard to public health, he shall publish notice of that determination in the Federal Register. After the publication of any such notice, no commitment for federal financial assistance (through a grant, contract, loan guarantee, or otherwise) may be entered into for any project which the Administrator determines may contaminate such aquifer through a recharge zone so as to create a significant hazard to public health, but a commitment for federal assistance may, if authorized under another provision of law, be entered into to plan or design the project to assure that it will not so contaminate the aquifer".

A sole-source aquifer supplies at least fifty percent of the drinking water consumed in the area overlying the aquifer. An additional criteria is that there exist no alternative drinking-water sources. The process to identify and designate a sole-source aquifer begins with a petition submitted to the USEPA. This petition is published in the Federal Register. After a comment period, and perhaps changes to the petition, USEPA rejects or approves the petition. If approved, the USEPA publishes a notice of approval in the Federal Register.

SOLE-SOURCE-AQUIFER REGIONS

A sole-source-aquifer consists of three regions. The regions may or may not overlap, depending on specific site conditions and USEPA's determination. The three regions are: (1) the recharge zone; (2) the stream-flow source zone; and (3) the project review area. The zones of different sole-source aquifers may also overlap.

The recharge zone is that area through which water directly recharges the aquifer. It is usually the areal extent of the aquifer. For example, the New Jersey Coastal Plain SSA encompasses the entire Coastal Plain. Recharge can enter the aquifer throughout its areal extent.

The stream-flow source zone is the area that drains to the recharge zone. Because water flowing out of the stream-flow source zone may enter the recharge zone, contamination of this source water could contaminate the sole-source aquifer. For example, the New Jersey Coastal Plain sole-source aquifer receives recharge from the Delaware River. For this reason, the Coastal Plain SSA's stream-flow source zone includes all of the upstream portions of the Delaware River in New Jersey, Pennsylvania and New York. For some sole-source aquifers, the recharge zone is defined by watershed boundaries. For these SSAs the recharge zone and the stream-flow source zone coincide. This is the case for the Rockaway sole-source aquifer.

The project-review area is the area in which USEPA requires all projects receiving federal funds to be reviewed in order to determine if the project will affect the SSA's water supply. For most sole-source aquifers the project review area is the combined recharge zone and stream-flow source zone. The project-review area of each SSA in New Jersey is mapped at left and described in the following section.

SOLE-SOURCE-AQUIFER PROJECT-REVIEW-AREAS IN NEW JERSEY

Described below are the seven sole-source aquifers designated in New Jersey. The map at left shows all of the USEPA project review areas in New Jersey. Overlapping areas are indicated in the text, not on the map.

The Buried Valley sole-source aquifer is formally known as the 'Buried Valley aquifer in southeastern Morris and western Essex Counties.' Its notice of approval was published in the Federal Register, vol. 43, No. 91, 5/8/80, pp. 18732 - 18733. The recharge zone is defined by the outside boundaries of the municipalities of Berkeley Heights, Bernards, Caldwell, Chatham Borough, Chatham Township, Essex Fells, Fairfield, Harding, Livingston, Millburn, Montville, Morris, New Providence, North Caldwell, Parsippany-Troy Hills, Roseland, Summit, Warren and West Caldwell. Totally included in the recharge zone are East Hanover, Florham Park, Hanover, Long Hill, Madison, Morristown, and Morris Plains. The stream-flow source zone is defined by those portions of the Passaic, Rockaway and Whippany River watersheds that drain to the recharge zone. USEPA's project-review area is both the recharge zone and the stream-flow source zone.

The Coastal Plain sole-source aquifer is formally known as the 'New Jersey Coastal Plain aquifer system.' Its notice of approval was published in the Federal Register, vol. 53, no. 122, 6/24/88, pp. 23791 - 23794. The recharge zone is defined as the New Jersey Coastal Plain physiographic province. Its stream-flow source zone includes all upstream portions of the Delaware River watershed in New Jersey, Pennsylvania and New York. USEPA limits its project-review area to the recharge zone and that portion of the stream-flow source zone that lies within two miles of the main stem Delaware River.

The Highlands sole-source aquifer is formally known as the 'Highlands aquifer system in Passaic, Morris and Sussex Counties, NJ and Orange County, NY.' Its notice of approval was published in the Federal Register, vol. 52, no. 152, 10/5/87, pp. 37213-37215. The recharge zone is defined by the outside boundaries of the Wanaque River watershed and the Pequannock River watershed. Its stream-flow source zone is the same as the recharge zone. USEPA's project-review area is the same as the recharge zone.

The Northwest New Jersey sole-source aquifer is formally known as the 'Fifteen Basin aquifer systems of New Jersey.' Its notice of approval was published in the Federal Register, vol. 53, no. 121, 5/23/88, pp. 23685-23687. The recharge zone is defined by the outside boundaries of the following watersheds: Delawanna Creek, Flat Brook, Lopatcong Creek, Musconetcong River, North Branch Raritan River, Pequannock River, Paulins Kill, Pequest River, Pochuck Creek, Pohatcong Creek, South Branch Raritan River, Shimmers Brook, Van Campens Brook and Wallkill River. It also includes that portion of the Millstone River watershed outside the Coastal Plain. Its stream-flow source zone is same as recharge zone with the inclusion of the entire Millstone River watershed. USEPA's project-review area is the same as the stream-flow source zone.

The Ramapo sole-source aquifer is formally known as the 'Ramapo River basin aquifer system.' Its notice of approval was published in the Federal Register, vol. 57, no. 169, 9/28/92. The recharge zone is defined as the portion of the Ramapo River basin which lies in the Piedmont physiographic province in New Jersey and New York. Its stream-flow source zone is defined as the entire Ramapo River watershed in New Jersey and New York. USEPA's project-review area includes the entire Ramapo River watershed in New Jersey and New York.

The Ridgewood sole-source aquifer is formally known as the 'Brunswick Shale and Sandstone Aquifer of the Ridgewood Area, New Jersey.' Its notice of approval was published in the Federal Register, vol. 49, no. 16, 1/24/84, pp. 2943-2945. The recharge zone is defined as the outside boundaries of the municipalities of Ridgewood, Midland Park, Glen Rock and Wyckoff in Bergen County. Its stream-flow source zone is defined as the upstream portions of Ho-Ho-Kus Brook and Saddle River Run watersheds. This includes all or portions of the municipalities of Allendale, Franklin Lakes, Hillside, Ho-Ho-Kus, Mahwah, Montvale, Ramsey, Saddle River, Upper Saddle River, Waldwick, Washington and Woodcliff Lake (all in New Jersey), and Ramapo Township in New York. USEPA's project-review area includes both the recharge zone and the stream-flow source zone.

The Rockaway sole-source aquifer is formally known as the 'Unconsolidated Quaternary aquifer in the Rockaway River area, New Jersey.' Its notice of approval was published in the Federal Register, vol. 49, no. 16, 1/24/84, pp. 2946-2948. The recharge zone is defined by the outside boundaries of the Rockaway River watershed, the Black (Upper Lamington) River watershed in Roxbury and the Lake Arrowhead watershed in Denville and Mountain Lakes. Its stream-flow source zone is the same as the recharge zone. USEPA's project-review area is the same as the recharge zone.

FOR FURTHER INFORMATION

The sole-source aquifer program is a federal program. USEPA offers guidance on the sole-source-aquifer designation process at http://www.epa.gov/region02/water/aquifer/petsov/. Questions about its application in New Jersey should be directed to:

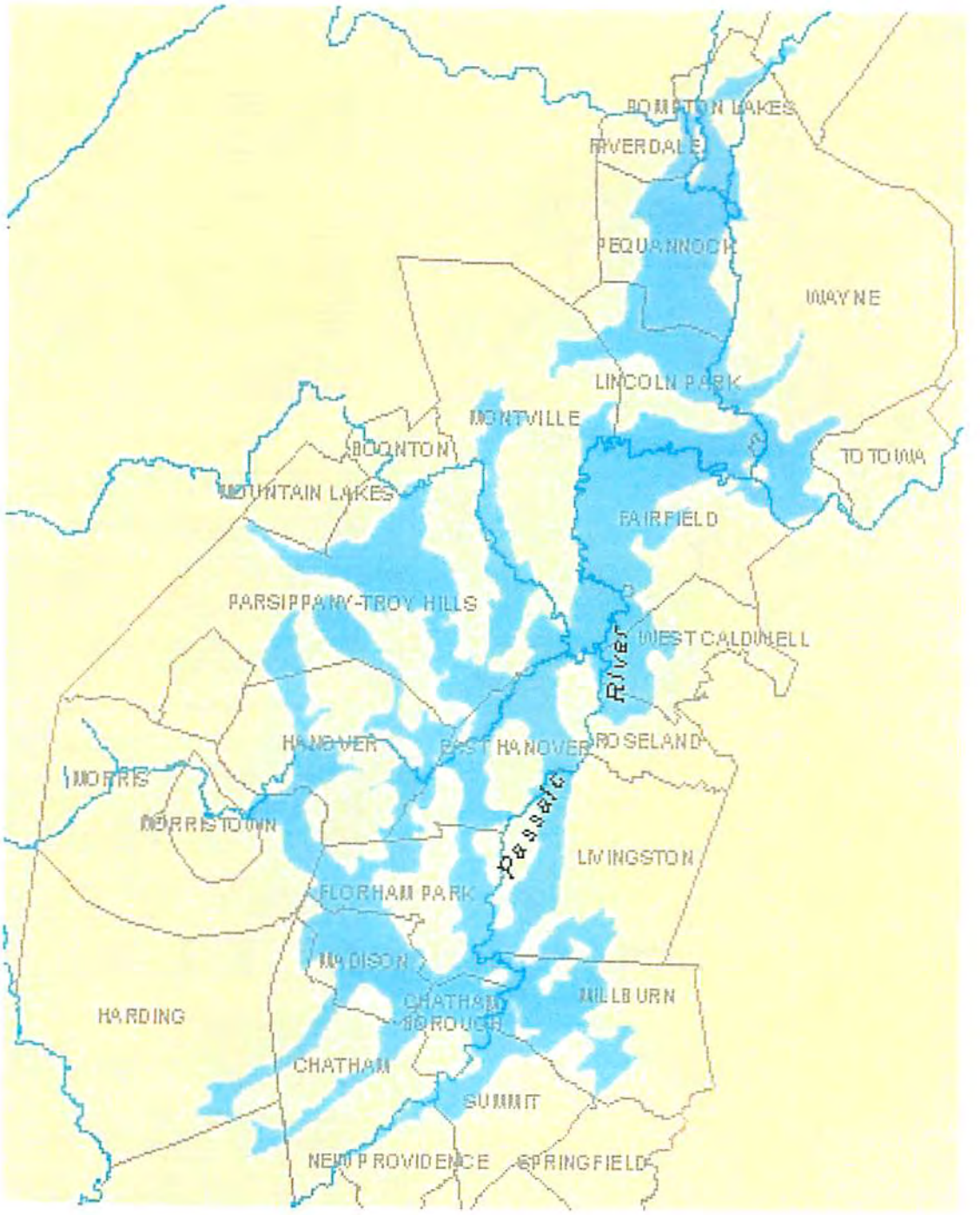
U.S. Environmental Protection Agency, Region II
Drinking & Ground Water Protection Branch
290 Broadway
New York, NY 10007
(212) 637-3000

USEPA-DESIGNATED SOLE-SOURCE-AQUIFER PROJECT-REVIEW-AREAS IN NEW JERSEY

by
Jeffrey L. Hoffman
1999

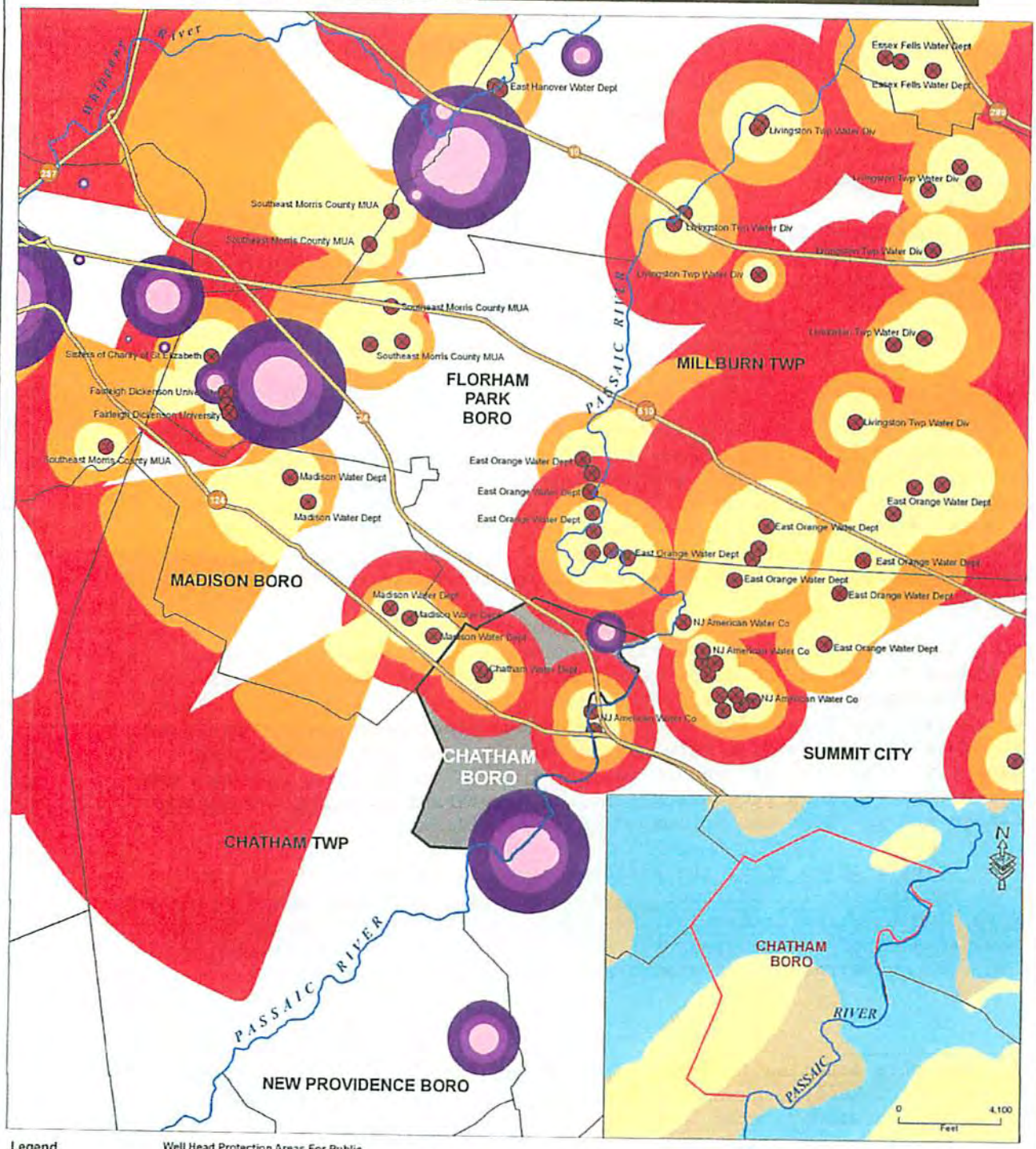
Let's protect our earth

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION



Buried Valley Aquifer Systems

CHATHAM BORO DRINKING WATER, AQUIFERS AND WELLS



Legend

- Basalt
- Brunswick aquifer
- Buried Valley Aquifers
- Municipal Border
- Chatham Boro
- NJ Routes
- Rivers
- Public Community Water Supply Wells

Well Head Protection Areas For Public Non-Community Water Supply Wells
Tier
1
2
3

Well Head Protection Areas For Public Community Water Supply Wells
Tier
1
2
3

PASSAIC RIVER COALITION
94 Mt. Bethel Rd
Warren, NJ 07059
(908) 222 - 0315
www.passaicriver.org

N

Sources:
NJ DEP and NJ GS GIS digital data (2007 Public Community Water Supply Wells, 1999 Bedrock Aquifers, 2004 Well Head Protection Areas For Public Non-Community Water Supply Wells, 2002 Well Head Protection Areas For Public Community Water Supply Wells); NJ DOT.

Produced in ArcView 9.2 by Lubica Cverckova, September 2008

0 3
Miles

Log P-88

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: October 31, 1977

Forwarded to:

Mr. Randall Meyer
President
Exxon Company, U.S.A.
P. O. Box 2180
Houston, Texas 77001

SAFETY RECOMMENDATION(S)
P-77-27 through P-77-33

At 11 a.m., c.s.t., on December 7, 1976, a natural gas compressor operating at 1,000 psig pressure failed and then exploded and burned at an Exxon Gas System, Inc., station near Robstown, Texas. An emergency shutdown system was activated by a worker at the station, but the four automated fire gate valves on the two pipelines that supplied the station did not close. Another emergency control system also failed to automatically close the shutoff valves leading to two of the five compressors in the station. 1/

At 11:30 a.m., a second explosion occurred within the burning building in one of the compressors that had not shut down automatically. Pipeline valves upstream and downstream of the station had to be closed manually. Gas burned for 3 hours until the pipeline pressure decreased to 250 psig and the fire gate valves could be approached and closed manually. The fire killed one person, injured two persons, and destroyed three engine-driven compressors and the compressor building. Property damage and gas loss was estimated to be $5 million.

Investigation after the accident revealed that many of the studs that secured the 10-inch suction valve covers to the compressor cylinders were tightened approximately three times the amount recommended by the manufacturer of the compressor. Metallurgy indicated that several studs had been overstressed and experienced fatigue-type failures.

1/ For more detailed information about this accident read: "Pipeline Accident Report, Exxon Gas System, Inc., Natural Gas Explosion and Fire, Robstown, Texas, December 7, 1976" (NTSB-PAR-77-3).

There had been no total systems review of the control components that operate the emergency shutdown valves. For example, an equipment-air line that failed as a result of the fire may have caused a loss of pressure in an instrument-air line that operated the shutoff valves. There had been no analysis of the effect of this type of failure and, consequently, no dual or emergency backup air system had been provided.

Although the remote-control equipment and the fire gate valves were inspected yearly in accordance with 49 CFR 192.731(c), the time interval between inspections and operations was too long to uncover potential equipment malfunctions. The linkage in a small 4-way pilot gas control valve had become stuck and prevented power gas from closing the two fire gate valves on the 36-inch pipeline. An insect and mud had clogged the 1/8-inch-diameter pressure relief vent line on a 3-way solenoid valve. The clogged vent made the two fire gate valves on the 30-inch pipeline inoperative.

The unit blowdown valves were designed to vent the gas trapped within the compressor building piping only, and were sequenced to open after all of the other shutdown valves had closed. Because some of the valves did not close, gas was vented only from a minor portion of the station's piping. There was no means of remotely blowing down all of the piping within the compressor station.

The operating personnel from other stations and from neighboring operating divisions of the company responded immediately to the emergency; however, if they had been trained on the equipment that they might be expected to operate in an emergency, and had there been signs that marked valves that were out of their normal positions, the fire probably could have been put out in less than 3 hours.

Therefore, the National Transportation Safety Board recommends that the Exxon Gas System, Inc.:

> Take necessary steps to insure that studs on compressors components are tightened to the number of foot-pounds of torque recommended by the equipment manufacturer. (Class II, Priority Followup)(P-77-27)
>
> Inspect emergency shutdown valves and their components at compressor stations at more frequent intervals than 1 year (monthly or quarterly) until equipment of proven reliability has been installed, tested, and shown to be responsive for longer periods of inactivity. (Class II, Priority Followup)(P-77-28)

Make a total systems review of electric, air, and gas-operated emergency equipment, with particular emphasis on interconnected air systems and backup or dual-feed air systems in compressor stations. (Class II, Priority Followup)(P-77-29)

Include, in emergency shutdown systems, a separate control to remotely operate valves that can independently blow down the station piping. (Class II, Priority Followup)(P-77-30)

Investigate more dependable items of control equipment and replace existing solenoid and 4-way valves at fire gate valves with this equipment. (Class II, Priority Followup)(P-77-31)

Designate critical valves on control lines (gas, air, and hydraulic) as to whether they should be normally open or closed, and place signs on these valves whenever the lines are shut down for maintenance or when the valves are not in their normal positions. Such changes should be authorized, logged, and reported to all personnel responsible for the operation of the system. (Class II, Priority Followup)(P-77-32)

Train operating personnel from other stations and other nearby operating divisons of the company on the operation of emergency transmission line valves and emergency station fire control valves. Furnish each nearby company office that could be expected to help in an emergency with a contingency plan book and drawings of all of the facilities they might be expected to operate. (Class II, Priority Followup)(P-77-33)

BAILEY, Acting Chairman, McADAMS and HOGUE, Members, concurred in the above recommendations. HALEY, Member, did not participate.

Kay Bailey

By: Kay Bailey
Acting Chairman

Greg Gorman
13 Jennings Road
Hamburg, NJ 07419
Affiliation: NJ Sierra Club Chapter, Conservation Chair
Tel: 973-886-7950 email: ggorman07419@embarqmail.com

March 19, 2015

Supporting Documentation for presentation to New Jersey Highlands Council meeting
Request to Prohibit or Ban Oil Pipelines

Decision risk analysis involves consideration of the consequences of outcomes and the probability of events occurring as a basis for mitigation planning and avoidance of damages. In regard to the Pilgrim Pipeline, many communities in N.J. and N.Y. have adopted a resolution against the project citing the risk involved with a catastrophic oil spill. In fact, 26 out of 28 towns in New Jersey located along the proposed route have passed resolutions to oppose the project. (http://stoppilgrimpipeline.com/resolutions/)

Oil spills can pose a serious threat to human health and the environment. According to the EPA, one pint of oil released into the water can spread and cover one acre of water surface area and can seriously damage an aquatic habitat. It can take years for an ecosystem to recover from damage caused by an oil spill. The Oakland Environmental Commission Report dated September 4, 2014 entitled; Pilgrim Pipeline Review, specifically documents catastrophic impacts for a typical Highlands municipality and addresses damages habitat loss, endangered species, contamination of ground water, and contamination of surface water. The report cites a US Dept. of Transportation study finding that the 3 year average for liquid onshore spills from 2011 to 2013 caused over $210 million in property damages as a result of an average of 84,000 gross barrels spilled. (http://chathamborough.org/chatham/Pipeline/Oakland%20Environmental%20Commission%20Report.pdf)

A report prepared for The Center for Biological Diversity demonstrates that over the lifespan of the pipeline, there is a high probability that a significant incident will occur. The report includes a video that shows pipeline incidents from 1986 to 2013, relying on publicly available data from the federal Pipeline and Hazardous Materials Safety Administration (PHMSA). Only incidents classified as "significant" by the agency are shown in the video. "Significant" incidents include those in which a person was hospitalized or killed, damages amounted to more than $50,000, more than 5 barrels of highly volatile substances or 50 barrels of other liquid were released, or where the liquid exploded or burned. According to the data, since 1986 there have been nearly 8,000 incidents (nearly 300 per year on average). These incidents resulted in more than 500 deaths, more than 2,300 injuries, and nearly $7 billion in damage. This is equivalent to 200 barrels every day. There's no way to get around the fact that oil pipelines are dangerous and have exacted a devastating toll on people and wildlife. The reason for the pipeline spills is primarily excavation operations incidents (24%) with the remainder metal failure, improper operation and corrosion. (http://www.biologicaldiversity.org/campaigns/americas_dangerous_pipelines/index.html#video)

Whereas the community's focus on the catastrophic impact of significant leaks is sufficient to support their resolution, the Highlands Council needs to consider the probability and impact of smaller and undetected spills.

Pipeline operators have not demonstrated a consistent record for cutting off the flow of leaking pipelines. In January 2015, a Bakken oil pipeline (the same type of oil proposed with Pilgrim) breach spilled up to 1,200 barrels (50,000 gallons) of oil into the Yellowstone River. Similarly, Tesoro Corp. pipeline near Tioga, North Dakota oozed 20,600 barrels (856,200 gallons) over an area the size of seven football fields. Unfortunately, all pipelines eventually leak, and many pipeline operators experience multiple events. For instance, Koch Industries was fined in Jan 2000 for over 300 spills - most of the spills were caused by corrosion of pipelines. (http://yosemite.epa.gov/opa/admpress.nsf/016bcfb1deb9fecd85256aca005d74df/981d17e5ab07246f852568650621079 and http://www.polluterwatch.com/koch-industries)

Greg Gorman
13 Jennings Road
Hamburg, NJ 07419
Affiliation: NJ Sierra Club Chapter, Conservation Chair
Tel: 973-886-7950 email: ggorman07419@embarqmail.com

March 19, 2015

We have a false sense of security thinking that pipelines are monitored and protected, often they are not. The responsibility for ensuring safe transportation of hazardous liquids rests Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA). The United States has over 2.6 million miles of pipeline with only 135 PHMSA inspectors. That's an average of 19,259 miles for each inspector. Only 1/5 of U.S. pipeline systems have been inspected by PHMSA or its state partners in the past eight years. The understaffed agency cannot adequately do its job. It relies on the diligence of the pipeline operators to monitor the pipelines and on their integrity to take quick and effective action to stop and report leaks.

Specific detection systems are only required in certain environmentally sensitive or populated areas, not along entire pipeline routes. Since 2010 fewer than 20% of pipeline oil spills that have monitoring systems are discovered by those monitoring systems; the rest are found by people along the pipeline. ("High-Tech Monitors Often Miss Oil Pipeline Leaks" By Alison Sider Wall Street Journal Jan. 20, 2014.) PHMSA "Leak Detection Study – DTPH56-11-D-000001" dated December 10, 2012 reports "The most used leak detection technique, Pressure/Flow monitoring was acknowledged by all operators not to be generally a sensitive method. It is only effective for large ruptures, and even then not consistently so." The study addresses various impediments (expense, retrofit, training, et. al.) and technology gaps to improve monitoring stems. Not many of the operators interviewed for the study had substantial leak detection systems improvement plans. ("Leak Detection Study – DTPH56-11-D-000001" www.phmsa.dot.gov/.../Leak Detection Study.pdf. The discussion of "Operator and Developer Opinions and Current Practice" begins on page 4-42). The implication is monitoring systems are not working sufficiently to detect moderate and small leaks.

United States Geological Service research report released January 21, 2015 sheds new light regarding the linkage of water quality, arsenic contamination, and oil spills. Elevated arsenic levels in groundwater used for drinking water is a significant public health concern. The long term case study of a 1979 petroleum spill in the shallow, glacial aquifer in Minnesota found arsenic levels rose from below 10 milligrams to over 230 milligrams-23 times the current drinking water standard. When bacteria break down petroleum underground, the chemical process can release naturally occurring arsenic. The presence and amount of naturally occurring arsenic and iron oxides and the condition of the groundwater in the study area are fairly typical of many geologic settings across the nation, suggesting that the process of arsenic mobilization that was observed in the presence of hydrocarbons is not geographically limited. The implication is that all leaks have long term adverse consequences for our water quality http://www.usgs.gov/newsroom/article.asp?ID=4110&from=rss_home#.VQWhX5VFDmQ

The Pilgrim Pipeline is proposed to run through the Ramapo River Watershed. This system serves Mahwah, Ramsey, Oakland, Franklin Lakes, Allendale, Pompton Lakes, and 8 more towns in New York as well as a backup to the Wanaque and Oradell Reservoirs during times of drought. The pipeline will pass through or near the Chatham aquifer. A 10,000 gallon spill could pollute more than 40 billion gallons of water. If a spill were to happen here, it would devastate the water supply intakes on critical water supply rivers and reservoirs, which could be closed for weeks if not longer until a spill is cleaned up. Toxic impacts of several types can persist for decades

Jeff Tittel, our NJ Sierra Club Director, said in a recent response regarding a North Dakota oil spill, "The Highlands is like our Yellowstone, but as you know is more important because of all the people who depend on the drinking water from the Highlands region." The purpose of the Highlands Act is to protect our greatest natural resource and sustain its ecosystems, water supply, and beauty for generations to come. You can't do that with oil

Greg Gorman
13 Jennings Road
Hamburg, NJ 07419
Affiliation: NJ Sierra Club Chapter, Conservation Chair
Tel: 973-886-7950 email: ggorman07419@embarqmail.com

March 19, 2015

pipelines. The Highlands Council needs to exercise its authority to prohibit- that is, ban- all oil and petroleum transmission pipelines in the NJ Highlands.

Note: NJ DEP imposes "Total Maximum Daily Load Limits" for arsenic. 2008 Highlands RMP Goal "PROTECTION, RESTORATION AND ENHANCEMENT OF THE WATER QUALITY OF THE HIGHLANDS REGION" includes Objective 2g3a. This objective states "Prohibit land uses that would increase pollutant loadings to waters for which TMDLs have been adopted by the NJDEP unless in compliance with the relevant TMDL".

"High-Tech Monitors Often Miss Oil Pipeline Leaks" By Alison Sider Wall Street Journal Jan. 20,2014.

Energy and pipeline companies like to point out they use high-tech sensors and remote-monitoring systems to automatically alert engineers when a pipeline starts to leak oil.

However, most leaks usually aren't discovered that way, according to a review of four years of liquid pipeline accident records. The overwhelming majority of these pipeline spills, ruptures and leaks were discovered by somebody near the accident site, a Wall Street Journal review of a database of more than 1,400 accident reports collected by the federal Pipeline and Hazardous Materials Safety Administration found.

The Journal's review focused on 251 hazardous liquids incidents in which operators had monitoring gear in place and which occurred where pipelines travel through private property.

Since 2010, leak-detection software, special alarms and round-the-clock monitoring by control rooms made initial discoveries in just 19.5% of the 251 spills reported. On-site employees and local residents combined were nearly three times as likely to be the first to spot trouble.

In September, a North Dakota farmer harvesting his wheat field first smelled crude which had seeped from a Tesoro Logistics LP pipeline. Only after Tesoro began digging did it discover that 20,000 barrels of oil had soaked an area roughly the size of six football fields. The company said it installed more monitoring and analysis equipment in the wake of that spill.

Experts have long considered pipelines to be the safest way to move petroleum, but high-profile spills in recent years have raised questions about whether the infrastructure can safely handle the increased traffic. The Journal last year reported many older pipes are welded in a way that leaves them vulnerable, and inspection technology misses many flaws.

Trains are playing a bigger role in moving oil. A string of derailments and fires in recent months have put a spotlight on troubles with rail as an alternative to pipelines.

There is no standard for how quickly pipeline leaks must be identified, and pipeline operators are required to put specific detection systems only in certain environmentally sensitive or populated areas, according to Carl Weimer, executive director of the nonprofit group Pipeline Safety Trust. "The regulations are pretty loose right now," he said.

Under orders from Congress that date back to 2011, PHMSA is considering new regulations on leak detection systems. "We're not standing still," said Alan Mayberry, deputy associate administrator for field operations and emergency response. "Industry needs to ante up and increase their funding of research in areas where there are challenges."

A spokesman for the Association of Oil Pipe Lines, an industry group, said current leak detection systems have a good track record when it comes to catching big, sudden spills. Since 2010 there have been 37 releases of more than 1,000 barrels, accounting for close to 90% of the total barrels spilled. Remote monitoring detected 23, or nearly two-thirds, of the big spills.

"Leak detection programs are working best where they are needed most—to minimize the impact of larger pipeline ruptures," said spokesman John Stoody.

But leaks that start small don't always stay that way, and many major spills have gone undetected by systems that can't always distinguish between normal fluctuations and leaks.

In the North Dakota leak, Tesoro said its pipeline was being monitored for pressure drops, but it didn't detect the slow seep of oil there. A metallurgical lab that examined the pipe said the leak probably started after an electrical charge—perhaps from a bolt of lightning—punctured the line.

Pipeline consultant Chuck O'Leary said no one-size-fits-all solution works for every pipeline. Many leak detection systems use software that measures how much liquid or gas went into a line, how much came out, and pressure inside a pipe. Companies also conduct regular inspections, often using helicopters and small planes to check for spills.

Even when leak detection systems work as they should, spills can be serious. Exxon Mobil Corp. said its operators in Houston began shutting down a crude oil pipeline within 90 seconds of spotting a pressure drop last March and finished the process within 16 minutes. But the force of the sudden rupture still sent 5,000 barrels of oil rushing through the streets of a neighborhood in Mayflower, Ark.

There is still room for human error. In 2010, an oil pipeline owned by Enbridge Inc. spilled 20,080 barrels of crude near Marshall, Mich., which flowed into a nearby river. A control center in Edmonton, Alberta, had received several readings that could signal a leak, but workers misinterpreted the alarms and pumped in more oil.

By the time a utility worker alerted Enbridge, 17 hours had passed since the initial rupture. Cleaning up that oil spill has cost the Calgary company close to $1 billion so far.

Critics say there are better new technologies, including acoustic sensors that search for unique frequencies created by leaks, infrared imaging and fiber-optic cables that can detect slight temperature changes that could signal leaks.

But a study commissioned by PHMSA found most pipeline operators didn't want to upgrade, fearing higher costs and false alarms. They already get dozens of alarms each hour with traditional methods, which makes it harder to detect serious problems said Richard Kuprewicz, president of Accufacts Inc., a consulting firm.

Detected Locally

A review of how hazardous pipeline spills were detected:

By on-site workers: 73

Local residents: 66

Remote detection: 49

Air and ground patrols: 28

Emergency responders: 16

Other and out-of-service tests: 19

Source: Pipeline and Hazardous Materials Safety Administration data on 251 spills from 2010-2013

Nuveen rethinks ETFs after

A pioneer in the space, company returns to the table with a new plan

By Trevor Hunnicutt

Nuveen Investments Inc. is rebooting a campaign that may culminate in the company's offering its own ETFs for the first time, 15 years after it pioneered — then dropped — efforts to bring bond exchange-traded funds to market.

Nuveen's about-face, disclosed Feb. 27 in filings with securities regulators, comes as adviser-facing asset management businesses without ETFs are stampeding to get in on that market, which now manages $2 trillion in the U.S.

But unlike many others, Nuveen was early to the ETF structure. In 2000, the company asked for permission to offer index-based ETFs and was developing proposals for what could have been the first bond ETFs. Both product areas are now a boon to a number of companies, including BlackRock Inc., The Vanguard Group Inc. and State Street Corp.

MONEY PRESSURES

But Nuveen closed its ETF unit in 2002 in the face of pressure to focus on more profitable businesses, according to "ETFs for the Long Run" (Wiley, 2008), Lawrence Carrel's book

Merrill to advisers: Get water

Resource may benefit from long-term trends, values-based investing

By Trevor Hunnicutt

A top strategist at Bank of America Merrill Lynch is asking its 14,000-plus financial advisers to consider an alternative asset to buoy sinking commodity returns.

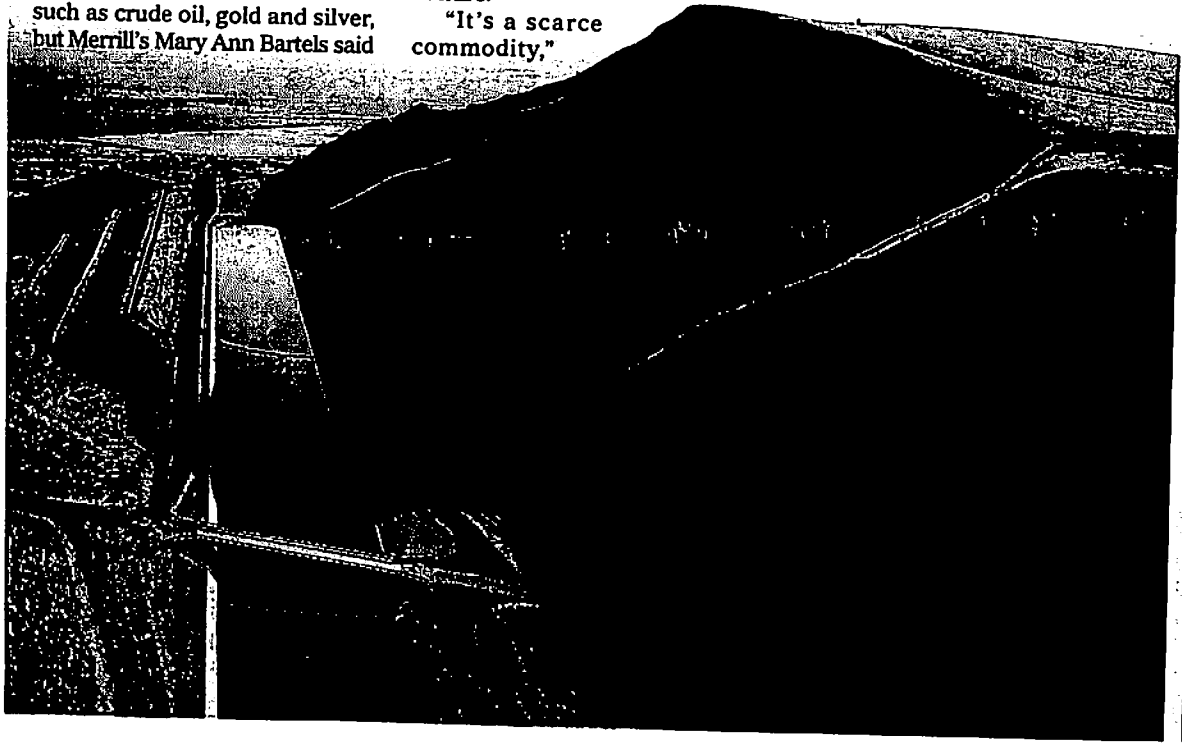
Water may not be listed on the New York Mercantile Exchange alongside traditional commodities such as crude oil, gold and silver, but Merrill's Mary Ann Bartels said investments related to the resource may become as important as energy and precious metals.

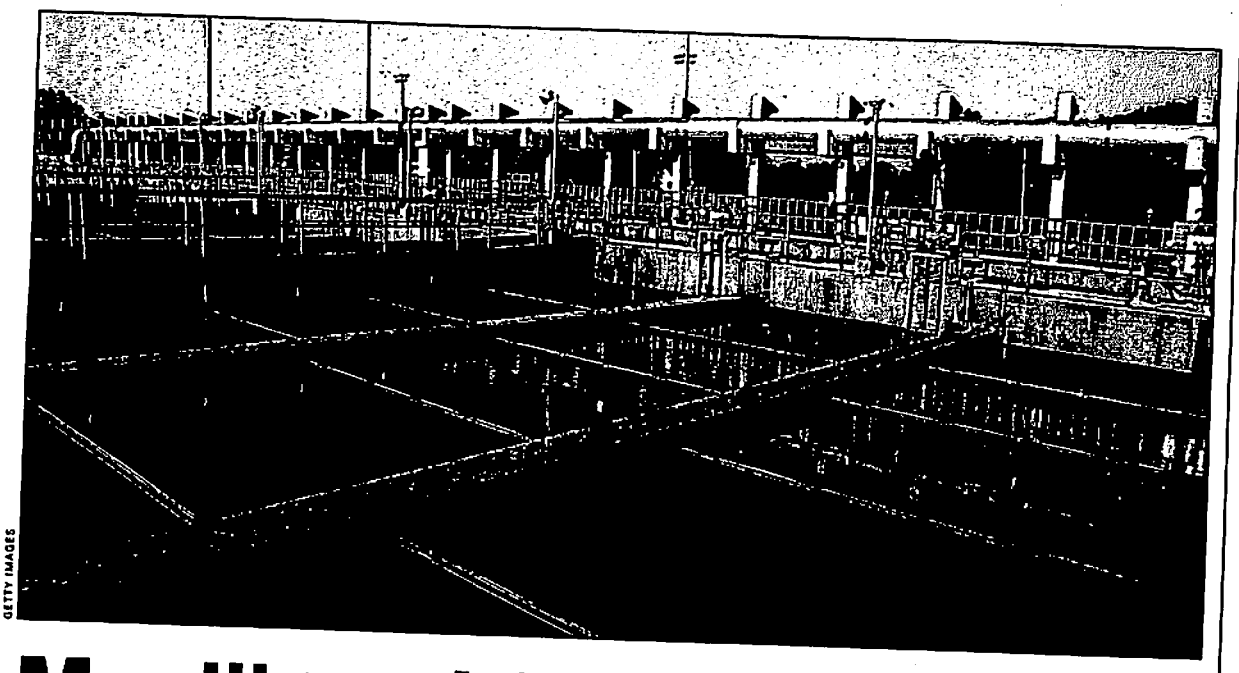
Much of the world's water is either not potable or unreachable, yet clean water is a precursor to economic growth in developing economies, for uses including energy generation and agriculture.

"It's a scarce commodity," said Ms. Bartels, Merrill Lynch's chief investment officer of portfolio solutions for U.S. wealth management.

She cited figures from the World Health Organization and Unicef suggesting that 2.5 billion people lack access to proper sani-

Continued on Page 24





GETTY IMAGES

Merrill to advisers: Get water

Continued from Page 3

tation. "It is an investable theme, but it's not just about buying the underlying commodity — water — it's about buying companies that clean the water, that build the infrastructure," Ms. Bartels added.

Broadly speaking, commodities have been disappointing. Mutual funds holding a basket of commodities bled 21% over the year ended Feb. 28, while precious metals funds slipped 12% in the same period, according to Lipper. Those categories also posted dismal returns over three and five years.

But its emphasis on water, which Merrill first presented as a long-term investing idea in 2013, isn't primarily about returns. The theme also can be used to bring client portfolios in line with values of environmental sustainability or social equity.

Advisers can't invest in water directly. Investing in water usually means allocating to companies that pump, pipe and filter it. But investors have options — from hedge funds and ETFs to unit investment trusts with baskets of water-related stocks, such as the ones that Merrill offers.

Among the ETF options are the PowerShares Water Resources (PHO), Guggenheim S&P Global Water (CGW) and the PowerShares Global Water (PIO).

REGULATORY ADVANTAGES

Some companies enjoy regulatory advantages that let them control their markets and pass price increases to customers. And they may be able to exploit growth in emerging markets and water scarcity in the western U.S.

"For China to grow its economy, they have to produce more clean water," said David Richardson, head of U.S. business development for Impax Asset Management, which runs a $1.8 billion private water strategy and the Pax World Global Environmental Markets Fund (PXEAX). "It's cold, red-blooded capitalism."

That said, investors may have to wait for those long-term benefits.

PHO, CGW and PIO trailed the MSCI World Index's 5% return last year; just one, CGW, exceeded the index's 11.4% return over five years.

While some advisers are more interested in impact investing than others — Merrill didn't provide hard numbers on how popular its strategies have been with financial advisers — large brokerages such as Merrill Lynch are putting increasing force behind their push to expand their impact investing product suites.

"The majority of our financial advisers are very familiar with impact investing," Ms. Bartels said. "The challenge becomes: Is your client interested?"

thunnicutt@investmentnews.com
Twitter: @trhunnicutt

Devil in details of Rubio proposal

Continued from Page 1

Although advisers embrace the idea of whittling down the country's massive tax laws, when they take a closer look at the Rubio-Lee plan, they have concerns.

Juan Ros, lead adviser at Lamia Financial Group, said reducing the number of tax brackets from the current seven to the two Mr. Rubio and Mr. Lee propose means that the 35% rate begins

needs to be done to flesh out the proposal.

"At least there's some proposal on the table as opposed to nothing," Mr. Ros said. "There's more positive than negative, so I would give it a 'B.' There's room for improvement."

The plan has to be analyzed for its total impact on the economy in order

"A PLAN THAT is not revenue

favorable tax treatment.

Sen. Lee acknowledged that he'll have to take on skeptics who want to save cherished tax breaks.

"We're trying to narrow it down to what most Americans rely most on in the code," he said at the Capitol Hill press conference. "In order to achieve the level of simplicity that we need, we concluded it was appropriate to

Feds promote artificial turf as safe despite health concerns

Thomas Frank, 6:50 a.m. EDT March 16, 2015

(Photo: Mike Derer, AP)

Lead levels high enough to potentially harm children have been found in artificial turf used at thousands of schools, playgrounds and day-care centers across the country, yet two federal agencies continue to promote the surfacing as safe, a USA TODAY analysis shows.

The growing use of turf fields layered with rubber crumbs has raised health concerns centered mostly on whether players face increased risk of injury, skin infection or cancer. The U.S. has more than 11,000 artificial turf fields, which can cost $1 million to replace.

But largely overlooked has been the possible harm to young children from ingesting lead in turf materials, and the federal government's role in encouraging their use despite doing admittedly limited research on their health safety.

Lead is a well-known children's hazard that over time can cause lost intelligence, developmental delays, and damage to organs and the nervous system.

The Consumer Product Safety Commission, charged with protecting children from lead in consumer products, has promoted turf-and-rubber fields for nearly seven years with a website headline declaring them "OK to install, OK to play on." A news release says, "Young children are not at risk from exposure to lead in these fields," even though the commission found potentially hazardous lead levels in some turf fibers and did not test any rubber crumbs, which are made from recycled tires that contain roughly 30 hazardous substances including lead.

The commission has acknowledged shortcomings in its 2008 study, which spokesman Scott Wolfson says "was just a handful of fields and was not representative of the full scope of fields across the country."

The Environmental Protection Agency has promoted the use of rubber crumbs in athletic fields and on playground surfaces since 1995 to help create markets for recycled car and truck tires.But the EPA didn't investigate the potential toxicity until 2008 and now says in a statement that "more testing needs to be done" to determine the materials' safety.

"We're using your children as part of the poison squad," said Bruce Lanphear, a leading researcher on lead poisoning at Simon Fraser University in Canada, who suggests a moratorium on installing artificial-turf fields until their safety is proved.

Forty-five of 50 New Jersey schools and towns contacted in 2009 by epidemiologist Stuart Shalat would not let him test their turf-and-rubber fields, Shalat's report states. *(Photo: Stuart Shalat)*

The health threat is substantial enough that the federal Centers for Disease Control and Prevention lists artificial turf as one of seven sources of children's lead exposure along with well-known items such as paint, water and toys.

The CDC in 2008 said communities should test recreational areas with turf fibers made from nylon, and they should bar children younger than 6 from the areas if the lead level exceeded the federal limit for lead in soil in children's play areas.

But some communities have refused to test their fields, fearing that a high lead level would generate lawsuits or force them to replace and remove a field, which costs about $1 million, according to a 2011 New Jersey state report.

Forty-five of 50 New Jersey schools and towns contacted in 2009 by epidemiologist Stuart Shalat would not let him test their turf-and-rubber fields, Shalat's report states. The EPA also found, in 2009, that "it was difficult to obtain access and permission to sample at playgrounds and synthetic turf fields."

"If you're exposing children to some potentially harmful compounds, whether it's organic compounds or metals, you'd think you'd want to know so you can take some action instead of putting your hands over your eyes and saying, 'I don't see a problem,' " Shalat said.

STUDIES ON RISKS WIDELY DEBATED

Industry groups have touted the federal endorsements, which have helped vastly expand the nation's use of artificial turf. It now blankets more than 11,000 fields, from NFL stadiums to elementary-school plots, and millions more square feet at resorts, office parks and playgrounds, according to the Synthetic Turf Council.

"There is tremendous growth in all sectors of the industry," the council says, calling turf a durable, year-round playing surface that needs no watering, pesticides or fertilizers.

The council says turf materials are safe for people of all ages who may absorb particulates through ingestion, inhalation or skin contact. Government and academic studies "all have concluded" that a turf-and-rubber field "does not pose a human health risk to people of all ages," the council says in a PowerPoint presentation.

But the council mischaracterizes some studies and ignores scientists' warnings about children possibly ingesting lead in turf fibers and rubber crumbs.

The council quotes a supposed statement in a 2002 EPA report saying that children who play for years on turf-and-rubber fields face only minimal increased cancer risk. The statement actually is from a Rubber Manufacturers Association report and is not in the EPA report. Council spokeswoman Terrie Ward said the inaccuracy was "an honest mistake."

Only a few studies have investigated the possible harm to young children from ingesting turf fibers or rubber crumbs, which can be as small as a pencil tip or as large as a wood chip. The studies analyzed a small number of turf materials.

A widely cited study by California officials in 2007 did not consider health effects of children ingesting rubber crumbs or turf fibers. The study analyzed three playground surfaces made of crumbs fused into a solid rubberized surface and found negligible risk from children ingesting rubber dust that might get on their hands or from swallowing a rubber chunk once in their lifetimes.

"Research consistently supports the safety of recycled crumb rubber," said Mark Oldfield, a spokesman for the California Department of Resources Recycling and Recovery. Nonetheless, the department is planning a new study on health effects of artificial turf and crumb rubber that will look at children ingesting crumb material chronically.

Connecticut state toxicologist Gary Ginsberg says turf materials would not be a "major source of lead" for young children given the limited amount of time they spend on a field or playground.

Others are worried. The Kentucky Department of Environmental Protection in January stopped giving communities money to build playgrounds and fields with crumb rubber. "There are no large-scale, national studies on the possible health issues associated with inhalation, ingestion or contact," the department said. "Research to date has been inconclusive, contradictory or limited in scope."

CDC: 'No safe lead level' in children

At least 10 studies since 2007 — including those by the safety commission and the EPA — have found potentially harmful lead levels in turf fibers and in rubber crumbs, USA TODAY found.

These crumbs are used as filler between blades of artificial grass. *(Photo: Elaine Thompson, AP)*

Researchers flagged fibers and crumbs that exceeded the federal hazard level of 400 parts per million (ppm) of lead in soil where children play. The limit aims to protect children if they ingest lead-contaminated soil — either by swallowing soil directly or by putting dirty hands and toys in their mouths.

But some scientists say that the limit, established in 2000, is too high and ignores recent research showing, as the CDC now says, that "no safe blood lead level in children has been identified."

"Every turf field has to be analyzed in detail to be sure it doesn't have a problem," said Paul Lioy, a professor of environmental and occupational medicine at the Robert Wood Johnson Medical School in New Jersey.

An empty Lions Stadium in April 2008 at The College of New Jersey following tests of artificial turf that turned up unsafe levels of lead. *(Photo: Mel Evans, AP)*

California has set a much lower standard for lead in soil: 80 ppm.

When the Los Angeles school district in 2008 tested turf-and-rubber play areas in its preschool facilities, it used 60 ppm as a safety level. After two play areas recorded lead readings in the low 60s, the district removed the turf-and-rubber surfaces from all 54 preschools and replaced them with solid rubber or asphalt at a total cost of several hundred thousand dollars.

"Because of the physical development of younger children, lead has a greater propensity to be absorbed," said Robert Laughton, the school district's environmental health and safety director. "They're the most at-risk population we have."

Artificial turf at a Nevada day care had 8,800 ppm of lead — 22 times the federal soil hazard level, according to a 2010 study led by a scientist at the federal Agency for Toxic Substances and Disease Registry. In 2008, New Jersey health officials found lead levels eight to 10 times the federal level in both school athletic fields and in turf marketed for residential use.

Turf-and-rubber fields typically contain about 200,000 pounds of rubber crumbs, made from thousands of former car and truck tires that may have varying levels of hazardous substances. A single field can have "substantial variability" in its materials and in the "concentrations of contaminants," the EPA wrote in a 2009 study, listing 32 potential contaminants including arsenic, benzene, mercury and toluene.

"You pick up rubber off a field and you don't know what that piece of rubber came from," said health advocate David Brown, Connecticut's former head of environmental epidemiology and occupational health. "It's not a manufactured item. It's a waste. There isn't quality control."

Lead in rubber crumbs under scrutiny

The presence of lead in turf or rubber crumb does not automatically endanger children. Health damage depends on how much lead children absorb into their bloodstream after ingestion. And absorption depends on whether the lead is tightly bound to the turf or crumb — or easily extracted during digestion.

The EPA's 2009 study said that more than 90% of the lead in rubber crumbs tested was "tightly bound" to the rubber and "unavailable for absorption." The results "do not point to a concern" about artificial turf-and-rubber crumb harming human health, the agency said.

The absorption finding was contradicted by a 2008 study in the *Journal of Exposure Science and Environmental Epidemiology* that found lead from rubber crumbs was "highly bioaccessible."

"When people ingest this (crumb rubber), the gastrointestinal tract, the bile fluids, will get the lead out. The [illegible] passing through," said the study's chief author, Jim Zhang, a Duke University environmental health professor.

Scientists and health officials havewarned also about older turf fibers. Many contain a lead-based pigment that adds vibrancy and colorfastness, and which could release lead particles as fibers get worn, cracked and abraded.

"Fibers deteriorate after five or six years. You're going to get leaching," Lioy said.

The CDC's 2008 advisory says that as turf ages and weathers, "lead is released in dust that could then be ingested or inhaled."

In California, after health advocates measured high lead levels in artificial turf at schools and public areas in 2008, the state attorney general sued manufacturers, which agreed to stop using lead-based pigments in turf. Manufacturers began using only lead-free pigments by the end of 2009, the turf council says.

"After our settlements, we think the industry has pretty much cleaned up," said Charles Margulis of the Center for Environmental Health in Oakland, which tested the turf. "But that leaves a lot of older fields out there."

It is unclear how many recreational areas have older fibers with lead-based pigment. Turf companies and consultants say a turf field lasts 10 to 15 years. In 2009, before turf manufacturers phased out lead, the U.S. had approximately 4,500 turf fields.

Internal warning surfaces at EPA

Federal regulators began focusing on possible health damage from turf-and-rubber fields in 2008, at least a decade after their installation began. The EPA had been promoting the use of rubber crumbs for various applications since the early 1990s as a way to recycle millions of discarded automobile tires.

The agency didn't consider toxicity until parents began calling its Denver office concerned about children coming home from sports practice covered in rubber crumbs, said Suzanne Wuerthele, a retired EPA toxicologist in Denver who raised concerns within the agency in 2007.

A 2008 memo by the Denver office noted the rubber's potential harm, the inadequacy of research — including industry-touted studies — and suggested a "formal risk assessment of risks to children playing on tire crumb surfaces."

The EPA study fell far short of that goal. The study is "very limited," the EPA said when it was released, and "it is not possible to extend the results beyond the four study sites."

The agency has said recently that the study was intended only to determine how to test crumb rubber, "not to determine the potential health risks of recycled tire crumb."

In 2013, following a complaint by an environmental group, the EPA qualified the news release for its 2009 study with a note stating, "This news release is outdated." Yet the note directs readers to a Web page that contains the same study.

"They need to stop promoting it and find out if it's safe, or make a statement that we don't know if it's safe," Wuerthele said, referring to recycled-rubber crumbs. "You just don't put children on a finely ground surface that contains organics, fibers, latex and heavy metals, particularly lead."

The Consumer Product Safety Commission launched its probe in 2008 after New Jersey health officials found high lead levels in three artificial turf athletic fields and told the commission that more than 90% of the lead could be absorbed into a human bloodstream. "It's a special concern for children who are already exposed to lead," New Jersey state epidemiologist Eddy Bresnitz said at the time. "This could add to their lead levels."

The commission tested 26 turf fibers from four manufacturers and has neither conducted nor cited research on rubber crumbs.

The Consumer Protection Safety Commission logo *(Photo: CPSC)*

By contrast, a 2007 commission investigation of possible lead poisoning from vinyl baby bibs tested 81 samples from 40 bibs. Although the average lead concentration in the bib samples was less than half the average lead concentration in the turf fibers, the commission warned about "potential risk of lead exposure from baby bibs."

The turf study showed that two fibers would release potentially harmful amounts of lead into a child's bloodstream — 9.9 micrograms and 6.6 micrograms.

"That's a huge concern," Lanphear, the lead expert said, noting that children can ingest lead from a range of sources such as household paint, dust and drinking water.

The Food and Drug Administration says children should ingest no more than 6 micrograms of lead a day from all sources — food and nonfood.

The commission says children can safely consume 15 micrograms per day of lead.

But the commission backtracked when the environmental group Public Employees for Environmental Responsibility asked it to rescind the "OK to play on" headline. The commission added a note to the release acknowledging it never tested for toxic substances other than lead and advising readers to "read and interpret the following press release carefully."

The commission did not change the headline because that might imply new research had been done, said Wolfson, the commission spokesman.

"They're making broad claims that aren't supported by the very limited information they have," said Jeff Ruch, the environmental group's executive director. Industry groups citing the commission "end up bordering on false advertising."

Read or Share this story: http://usat.ly/1MDmCha

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

DEC 16 2013

OFFICE OF
RESEARCH AND DEVELOPMENT

Jeff Ruch
Executive Director
Public Employees for Environmental Responsibility
2000 P Street, N.W.
Suite 240
Washington, D.C. 20036

Dear Mr. Ruch:

This is the response to your March 21, 2013 Request for Correction (RFC #13002[1]) sent on behalf of the Public Employees for Environmental Responsibility (PEER). In this RFC, you request that the U.S. Environmental Protection Agency (EPA) remove *A Scoping-Level Field Monitoring Study of Synthetic Turf Fields and Playgrounds*[2] from its official publications. You also request that the EPA rescind the study's accompanying Press Release,[3] issue a public statement about the rescinded study, and undertake a more expansive and externally peer-reviewed study concerning the potential human health and environmental effects.

After reviewing your RFC, the EPA agrees to put a heading in bold font on the press release that states **"This news release is outdated. Visit the EPA Tire Crumb Study Web Page for the most current information."** We will also update the EPA Tire Crumb web page (see Appendix for updated web page) to more accurately reflect the study objective and results. The EPA believes the study report articulates the study purpose and limitations and provides objective summaries of the study results.

If you are dissatisfied with this response, you may submit a Request for Reconsideration (RFR). The EPA requests that any such RFR be submitted within 90 days of the date of the EPA's response. If you choose to submit an RFR, please send a written request to the EPA Information Quality Guidelines Processing Staff via mail (Information Quality Guidelines Processing Staff, Mail Code 2811T, U.S. EPA, 1200 Pennsylvania Ave., N.W., Washington, D.C. 20460); electronic mail, quality@epa.gov; or fax, (202) 566-2104.
Additional information about how to submit a RFR can be found on the EPA IQG website (www.epa.gov/quality/informationguidelines).

---

[1] RFC 13002, March 2013 (http://epa.gov/quality/informationguidelines/documents/13002.pdf)
[2] National Exposure Research Laboratory, U.S. Environmental Protection Agency, *A Scoping-Level Field Monitoring Study of Synthetic Turf Fields and Playgrounds* (2009)
[3] Press Release, Limited EPA Study Finds Low Level of Concern in Samples of Recycled Tires from Ballfield and Playground Surfaces (December 10, 2009), available at http://yosemite.epa.gov/opa/admpress.nsf/4f88b25ea20ccbf985257359003f5345/c8d28e3f9f3ca0a4852576880053bed4!OpenDocument

Sincerely,

Lek Kadeli
Acting Assistant Administrator

cc: Renee P. Wynn, Acting Assistant Administrator and Chief Information Officer
Office of Environmental Information
Michael Firestone, Office of Children's Health Protection
Tala Henry, Office of Pollution Prevention and Toxics
Mark Schuknecht, Office of Resource Conservation and Recovery

The Use of Recycled Tire Materials on Playgrounds & Synthetic Turf Fields
Current web page is available by:
http://www.epa.gov/nerl/features/tire_crumbs.html

Background
Ground rubber — also called "tire crumb" or "crumb rubber" — is recovered from scrap tires or from the tire retreading process. It is used in road construction and in a number of athletic and recreational applications, including ground cover under playground equipment, running track material, and as a soil additive on sports and playing fields.

Crumb rubber is often used in synthetic turf fields as "infill" between turf fibers to provide stability, uniformity and resiliency to synthetic turf fields. Synthetic turf was developed in the mid-1960s and has since gained widespread popularity around the country. Synthetic turf was originally used in stadiums and on athletic fields for college and professional sports teams, but now is also used in municipal parks, golf courses, playgrounds, cruise ships, and airports. There is also a growing residential market.

According to the Synthetic Turf Council, synthetic turf has been installed in approximately 4,500 U.S. fields, tracks and playgrounds.

Public Concerns
Over the past several years, a number of public concerns have been raised over the use of tire crumb materials in turf fields and playgrounds. For example, parents in Colorado were concerned about children carrying home small particles of tire crumbs on their clothing. About this time, high levels of lead were detected on some synthetic turf fields in New Jersey.

EPA Research
In response to these concerns, the EPA developed an agency workgroup that initiated a limited-scale scoping study to test a study protocol and monitoring methods for generating environmental data associated with the use of recycled tire material on synthetic turf fields and playgrounds.

As part of this evaluation, data were collected at a limited number of sites. The full study protocol was implemented at two synthetic turf fields and one playground. Additional samples were collected at four other synthetic turf fields and a second playground. Sampling sites were located in North Carolina, Georgia, Ohio, and Maryland.

It is important to have accurate and reproducible methods for measuring environmental concentrations of the components of synthetic turf fields and playgrounds. The study protocols and the majority of the methods evaluated were found to be appropriate for characterizing concentrations of tire crumb components in the environment.

Given the very limited nature of this study (i.e., limited number of components monitored, samples sites, and samples taken at each site) and the wide diversity of tire crumb material, it is not possible to extend the results beyond the four study sites or to

reach any more comprehensive conclusions without the consideration of additional data.

Both the Consumer Product Safety Commission and the Centers for Disease Control and Prevention recommend that young children wash their hands frequently after playing outside and always before they eat. The EPA also recommends these practices.

Key Technical Findings from the EPA's Study

The key study findings are summarized below. In general, the study protocol is expected to reliably yield data for assessing environmental concentrations of selected tire crumb constituents and understanding potential routes of exposure.

1. The study protocol and many of the methods were found to be reliable and could be implemented in the field. Several limitations are noted as follows.
    - Collecting integrated air samples provided a high burden in terms of time and equipment.
    - Semivolatile organic compounds (SVOCs) were not measured.
    - At any single site, there can be substantial variability in the tire crumb materials used and the concentrations of contaminants measured. More work is needed to determine where to collect samples and how many samples to collect to fully characterize a given site.
    - It was difficult to obtain access and permission to sample at playgrounds and recreational fields. More work is needed to increase public and private owner participation if these studies are to be implemented.
2. Methods used to measure air concentrations of particulate matter (PM) and metals were found to be reliable.
3. Methods used to measure volatile organic compounds (VOCs) in air were found to be reliable.
4. Methods used to measure extractable metals from turf field blades, tire crumb materials, and turf field wipe samples were found to be reliable. However, the aggressive acid extraction procedure likely will overestimate the concentration of metals that are readily available for human uptake. Because understanding human uptake or absorption is a key component in understanding risk, methods to determine bioavailable metal concentrations are still needed.
5. Given the limited nature of the study (limited number of constituents monitored, sample sites, and samples taken at each site) and the wide diversity of tire crumb material, it is not possible, without additional data, to extend the results beyond the four study sites to reach more comprehensive conclusions.

When considering future study designs and implementation, the research needs to carefully consider issues associated with identifying and gaining site access, and benefits of obtaining the data versus the resource burden, and the implementation of other methods for generating data to address specific research hypotheses. Future

studies will need a carefully developed and implemented communications plan to promote the value of the research and gain access to the required facilities.

Additional information on recycled tire materials
After a review of the literature, the EPA identified a number of compounds or materials that may be found in tires, although not all are contained in every tire:

- acetone
- aniline
- arsenic
- barium
- benzene
- benzothiazole
- cadmium
- chloroethane
- chromium
- cobalt
- copper
- halogenated flame retardants
- isoprene
- latex
- lead
- manganese
- mercury
- methyl ethyl ketone
- methyl isobutyl ketone
- naphthalene
- nickel
- nylon
- phenol
- pigments
- polycyclic aromatic hydrocarbons
- polyester
- rayon
- styrene - butadiene
- toluene
- trichloroethylene

See Draft
Page 3 Revision
Exemption #6

FACT SHEET

Environment and Human Health, Inc. , 1191 Ridge Road, North Haven, Ct. 06473

(203) 248-6582 Fax: (203) 288-7571

What chemicals are in rubber tires? Most people have no idea.

Carbon Black is a Carcinogen – 20% to 30% of every tire is manufactured contains carbon black.

In addition there is:

- **1,3-butadiene: Carcinogen**
- **Benzene:** Carcinogen, Developmental Toxicant, Reproductive Toxicant

Phthalates: Suspected Developmental Toxicant, Endocrine Toxicant, Reproductive Toxicant

Polycyclic Aromatic Hydrocarbons (PAHs) - Suspected Cardiovascular or Blood Toxicant, Gastrointestinal or Liver Toxicant, Reproductive Toxicant, Respiratory Toxicant.

(a) **Flouranthene:** a PAH which is a carcinogen

(b : a PAH: a blood toxicant

Carcinogen Carbon Black Nanoparticles

(a) The highest volume use of carbon black is as reinforcing filler in rubber products, especially tires.

(b) Carbon black can be up to 30% of a rubber tire.

Benzothiazole: Skin and eye irritation, harmful if swallowed. There is no available data on cancer, mutagenic toxicity, teratogenic toxicity, or developmental toxicity.

Butylated hydroxyanisole: Recognized carcinogen, suspected endocrine toxicant, gastrointestinal toxicant, immunotoxicant (adverse effects on the immune system), neurotoxicant (adverse effects on the nervous system), skin and sense-organ toxicant. There is no available data on cancer, mutagenic toxicity, teratogenic toxicity, or developmental toxicity.

n-hexadecane: Severe irritant based on human and animal studies. There is no available data on cancer, mutagenic toxicity, teratogenic toxicity, or developmental toxicity.

4-(t-octyl) phenol: Corrosive and destructive to mucous membranes. There is no available data on cancer, mutagenic toxicity, teratogenic toxicity, or developmental toxicity.

1, 3-butadiene and benzene are both carcinogens linked to blood cancers –leukemia and lymphomas.

David Brown, Sc.D. Public Health Toxicologist - Nancy Alderman, MES, EHHI

The University of Washington Women's Soccer Coach, Amy Griffin, has been keeping a list of athletes who developed cancer after playing on turf fields containing waste tires. So far she has identified 126 athletes, 109 of which are soccer players of which many are soccer goalies. There are **51 Lymphomas** and **19 Leukemias** so far.

1, 3-butadiener is linked to lymphoma - http://www.ncbi.nlm.nih.gov/pubmed/2401263

Benzene is linked to leukemia

Both 1,3 butadiene and benzene are in rubber tires

Below is written by Public Health Toxicologist David Brown, Sc.D.

When one looks at the cancers that the soccer goalies who played on synthetic field are getting - most of the cancers are lymphomas. Lymphomas are cancers that are heavily influenced by environmental factors. The infill of synthetic turf fields is made up of ground up rubber tires that contain many carcinogenic compounds.

Scientist understand today, that when a population that is exposed in a particular setting comes down with one type of cancer it is often caused by an exposure to a specific group of chemical carcinogens that are in that particular environment.

The presence of a single type of tumor, or cancer, rather than the normal distribution of cancers expected in the overall population of that age group, is in itself an indication that the affected population is being exposed to the same chemical carcinogens.

The number of lymphomas in the population of athletes who played on synthetic turf collected by Amy Griffen is much higher than would be normally expected. This suggests that the athletes who have come down with lymphomas and have played on synthetic turf for years, may have all been exposed to the same chemical carcinogens just like those found in rubber tire infill.

The attached chart shows the distribution of lymphomas in 15 to 19 year olds who are treated for cancer nationally. Those percentages are 13.5% for Hodgkin's lymphoma; 8.3% for non-Hodgkin's Lymphoma; and 1.1% for Burkitt's Lymphoma. Data from the attached chart can be found at: EPA's "America's Children and the Environment" http://www.epa.gov/ace/publications/ace_2003.pdf

The percentage of lymphomas in the population of athletes who played on synthetic turf collected by Amy Griffen is much higher than this.

David Brown, Sc.D. Public Health Toxicologist - Nancy Alderman, MES, EHHI

For Immediate Release: Dec 23, 2013
Contact: Kirsten Stade (202) 265-7337

EPA RETRACTS SYNTHETIC TURF SAFETY ASSURANCES

New Agency Posting Stresses Uncertainty amid Wide Range of Chemical Exposures

Posted on Dec 23, 2013 | Tags: EPA

Washington, DC — The U.S. Environmental Protection Agency (EPA) has stepped back from prior safety assurances about artificial turf in response to an administrative complaint filed by Public Employees for Environmental Responsibility (PEER). The agency has posted new cautions concerning unexplored chemical exposure to more than 30 compounds found in synthetic shredded tire turf, including arsenic, lead, cobalt, mercury and trichloroethylene.

On March 21st, PEER issued a retraction demand to EPA that a 2009 study and press release expressing a "Low Level of Concern" about synthetic turf was based on flawed and limited science, in violation of federal information quality standards. In an initial response to the PEER complaint dated December 16, 2013, EPA Acting Assistant Administrator for Research and Development Lek Kadeli ordered the press release summarizing the study to be prominently stamped with a notice that it was "outdated" with a link to a new posting stressing the need for "future studies" to enable "more comprehensive conclusions."

"We are gratified that EPA has taken this small and grudging step toward a more responsible position reflecting synthetic turf exposure risks," stated PEER Executive Director Jeff Ruch, noting industry claims that approximately 4,500 synthetic turf fields have been installed across the U.S., each sitting atop in-fill consisting of between 20,000 and 40,000 shredded tires. "EPA now admits that it has no idea about the extent of chemical exposure to children and athletes playing on these surfaces."

The sole study on artificial turf that EPA conducted was back in 2009 when it took air and surface samples from three athletic fields and from one playground. The testing looked only at one chemical on brand new fields without levels of activity typical on a field or playground and ignored the role of heat in chemical release. EPA has refused to retract the study but now states that the study was "very limited" and provides no basis "to extend the results beyond the four study sites..."

The PEER complaint was filed under the Data Quality Act which requires information distributed by federal agencies be complete, objective and reliable. While EPA guidelines suggest the agency should respond to these complaints for correction within 90 days, in this case EPA took nearly nine months. PEER has the option to appeal this decision and seek full retraction of the now discounted study.

Back in 2009, EPA's own Office of Inspector General took it to task for endorsing reuse of industrial materials such as coal ash and shredded tires without conducting any credible risk assessments of those practices. While EPA promised to address this criticism, documents obtained under the Freedom of Information Act by PEER indicate that no reportable progress has been made.

"By blindly promoting so-called 'beneficial' reuse of tire crumbs and other toxic industrial wastes, EPA has shirked its public health duties," Ruch added. "EPA claims that minimizing chemical exposures to children is one of its top priorities yet through its slow-walking of synthetic turf studies, children on playgrounds and sports fields across the country are left to serve as human guinea pigs."
Meanwhile in response to another PEER complaint, the Consumer Product Safety Commission has ordered an enforcement review of marketing of artificial turf products for children because the agency has found lead levels in artificial sports fields above statutory limits in children's products. Significantly, there is no safe lead exposure level for children.

###

See EPA retraction decision and new posted cautions

Read the EPA complaint

Subject: New Press Release - U.S. PRODUCT SAFETY COMMISSION STUMBLES ON ARTIFICIAL TURF

From: Nancy Alderman (nancy.alderman@ehhi.org)

To: ; ;

Date: Thursday, February 19, 2015 12:05 PM

http://www.peer.org/news/news-releases/2015/02/19/u.s.-product-safety-commission-stumbles-on-artificial-turf/

Press Release from Public Employees for Environmental Responsibility (PEER)

For Immediate Release: Feb 19, 2015
Contact: Kirsten Stade from PEER (202) 265-7337

U.S. PRODUCT SAFETY COMMISSION STUMBLES ON ARTIFICIAL TURF

Consumer product Safety Commission (CPSC) Slow-Walks Its Review of Tire Crumb Playgrounds as Children's Products

Washington, DC - Amid growing calls to shield young children from toxic chemicals in playing surfaces made with shredded tires, the U.S. Consumer Product Safety Commission has sat on its own enforcement review of the product for more than a year, according to a federal lawsuit filed today by Public Employees for Environmental Responsibility (PEER). At issue is why the CPSC has not held synthetic playground turf to the same safety standard it applies to other playground equipment, such as swings and slides.

Spurred by outrage over importation of toxic Chinese-made toys, in 2008 Congress mandated safeguards for children's products by imposing a lead content limit of 100 parts per million and third-party testing to ensure compliance. Playgrounds made with shredded tires, however, generally exceed this lead limit. In fact, the only test the CPSC ever conducted found nearly half of the fields sampled contained lead in amounts more than three times this legal limit. Other studies have found even higher levels of lead, a substance for which medical authorities agree there is no "safe" level for childhood exposure.

In 2012, the Commission declined to classify crumb rubber playgrounds and elementary school sports fields as a children's product in response to a PEER request saying that it needed evidence of promotion and marketing directed at children. In 2013, PEER submitted evidence of companies like TotTurf and KidWise Outdoor Products marketing products under names such as PlaySafer and Play Tuff Tiles using sales slogans declaring "softer on little knees" and "keep kids safe."

In response to this submission, on September 27, 2013 the CPSC informed PEER that it had tasked its Office of Compliance and Field Operations with a "review and determination of whether any enforcement action is appropriate." A year later PEER inquired and ultimately submitted a formal request under the Freedom of Information Act to find out the outcome of this review. The Commission declined to reply and today PEER filed a lawsuit in federal district court to compel the answer. PEER is also seeking to reveal the extent of industry lobbying of Commission officials to keep the product on the

market.

"With their hands, eyes, hair and even mouths, children are in more intimate contact with the turf than they are with anything else on the playground." stated PEER Executive Director Jeff Ruch, noting that a children's product is defined as "a consumer product designed or intended primarily for children 12 years of age or younger." "Protecting children at play should be a priority not a grudging afterthought for the Consumer Product Safety Commission."

Beyond lead, shredded tires contain a host of other constituents such as arsenic, cadmium, chromium, mercury and a number of dangerous hydrocarbons, with potential toxicity to children. These exposure risks are largely unstudied and poorly understood. Nonetheless, there are an estimated 5,000 synthetic turf fields in the U.S. and many more playgrounds using shredded tires, with more being installed each month.

"We understand that reusing old tires reduces solid waste headaches," added Ruch. "But we do not understand the wisdom of placing our youngest children to play atop a pile of what is essentially hazardous waste."

###

--

Nancy Alderman, President
Environment and Human Health, Inc.
1191 Ridge Road
North Haven, CT 06473
(phone) 203-248-6582
(Fax) 203-288-7571
http://www.ehhi.org
http://ehhijournal.org

S T A T E O F N E W Y O R K

1634

2015-2016 Regular Sessions

I N A S S E M B L Y

January 12, 2015

Introduced by M. of A. ENGLEBRIGHT -- read once and referred to the Committee on Health

AN ACT to direct the department of health to conduct a comprehensive public health study; and providing for the repeal of such provisions upon expiration thereof

THE PEOPLE OF THE STATE OF NEW YORK, REPRESENTED IN SENATE AND ASSEMBLY, DO ENACT AS FOLLOWS:

Section 1. Legislative findings. The legislature finds that increasingly, synthetic turf is being installed in many locations in New York state, including parks, athletic fields and other settings where natural grass was previously grown. In recent years, crumb rubber fill is being used as a component of synthetic turf and mulch. Crumb rubber is the result of processing waste tires, which contain numerous components, some of which are known to be hazardous to people and the environment. The hazardous components include arsenic, cadmium, chromium, lead, vanadium, zinc and acetone. Health effects associated with these components, at dangerous levels, include birth defects, cancer, nervous system damage and immune system suppression. While various options for waste tire use are essential to reducing the significant stockpiles of waste tires, such uses should not threaten or compromise public health.

The legislature finds that more information is necessary to make an informed decision on the appropriate uses of synthetic turf containing crumb rubber. In the interest of preventing adverse health impacts and contamination to natural resources, the legislature finds that a comprehensive public health study on the potential threats associated with the use of synthetic turf is warranted.

Therefore, the legislature finds that it is consistent with public policy to require such comprehensive public health study to be undertaken immediately.

S 2. Public health study of the use of synthetic turf. 1. The state department of health, in cooperation with the department of environ-

EXPLANATION--Matter in ITALICS (underscored) is new; matter in brackets [ ] is old law to be omitted.

LBD06123-01-5

mental conservation, shall immediately undertake a review of all available data relating to the potential health risks and effects of synthetic turf, with particular attention to the crumb rubber content of such synthetic turf, including the installation, maintenance, removal and disposal of synthetic turf, and including comparisons with other alternatives including natural turf with modern drainage and other components.

2. The commissioner of health, or his or her designee, shall:

a. Solicit input from environmental and public health specialists, and other stakeholders in an open, public process;

b. Examine various routes of exposure and the health and environmental impact of these pathways including, but not limited to, small fill particle inhalation, volatility, leaching to groundwater, dermal absorption, and persistence in the environment of original and degradation by-products;

c. Prepare a report to the governor and the legislature which includes research and studies conducted on synthetic turf which were the source of the report findings and recommendations for appropriate and inappropriate use of synthetic turf, crumb rubber and waste tires. Such report shall be filed within six months of the effective date of this act, unless the commissioner of health requests in writing, an extension of time; and

d. Conduct an outreach program to inform local governments, private organizations, schools and the public regarding the findings of such report. If necessary, information on safe alternatives to synthetic turf in settings where this material is a potential or actual health risk should be disseminated to the public.

3. All other departments or agencies of the state or subdivisions thereof, and local governments shall, at the request of the commissioner of health, provide expertise, assistance, and data that will enable the commissioner to carry out his or her powers and duties.

S 3. This act shall take effect immediately; (a) provided, however, that this act shall continue in full force and effect for six months from such effective date, or until the department of health reports to the governor and the legislature as required by section two of this act, whichever date is later, when upon such date the provisions of this act shall be deemed repealed; and

(b) provided that the commissioner of health shall notify the legislative bill drafting commission upon filing the report required in section two of this act in order that the commission may maintain an accurate and timely effective data base of the official text of the laws of the state of New York in furtherance of effectuating the provisions of section 44 of the legislative law and section 70-b of the public officers law.

Text

STATE OF NEW YORK

1735

2015-2016 Regular Sessions

IN SENATE

January 14, 2015

Introduced by Sen. PARKER -- read twice and ordered printed, and when printed to be committed to the Committee on Health

AN ACT to direct the department of health to conduct a comprehensive public health study; and providing for the repeal of such provisions upon expiration thereof

THE PEOPLE OF THE STATE OF NEW YORK, REPRESENTED IN SENATE AND ASSEMBLY, DO ENACT AS FOLLOWS:

Section 1. Legislative findings. The legislature finds that increasingly, synthetic turf is being installed in many locations in New York state, including parks, athletic fields and other settings where natural grass was previously grown. In recent years, crumb rubber fill is being used as a component of synthetic turf and mulch. Crumb rubber is the result of processing waste tires, which contain numerous components, some of which are known to be hazardous to people and the environment. The hazardous components include arsenic, cadmium, chromium, lead, vanadium, zinc and acetone. Health effects associated with these components, at dangerous levels, include birth defects, cancer, nervous system damage and immune system suppression. While various options for waste tire use are essential to reducing the significant stockpiles of waste tires, such uses should not threaten or compromise public health.

The legislature finds that more information is necessary to make an informed decision on the appropriate uses of synthetic turf containing crumb rubber. In the interest of preventing adverse health impacts and contamination to natural resources, the legislature finds that a comprehensive public health study on the potential threats associated with the use of synthetic turf is warranted.

Therefore, the legislature finds that it is consistent with public policy to require such comprehensive public health study to be undertaken immediately.

S 2. Public health study of the use of synthetic turf. 1. The state department of health, in cooperation with the department of environ-

EXPLANATION--Matter in ITALICS (underscored) is new; matter in brackets [ ] is old law to be omitted.

LBD06123-01-5

mental conservation, shall immediately undertake a review of all available data relating to the potential health risks and effects of synthetic turf, with particular attention to the crumb rubber content of such synthetic turf, including the installation, maintenance, removal and disposal of synthetic turf, and including comparisons with other alternatives including natural turf with modern drainage and other components.

2. The commissioner of health, or his or her designee, shall:

a. Solicit input from environmental and public health specialists, and other stakeholders in an open, public process;

b. Examine various routes of exposure and the health and environmental impact of these pathways including, but not limited to, small fill particle inhalation, volatility, leaching to groundwater, dermal absorption, and persistence in the environment of original and degradation by-products;

c. Prepare a report to the governor and the legislature which includes research and studies conducted on synthetic turf which were the source of the report findings and recommendations for appropriate and inappropriate use of synthetic turf, crumb rubber and waste tires. Such report shall be filed within six months of the effective date of this act, unless the commissioner of health requests in writing, an extension of time; and

d. Conduct an outreach program to inform local governments, private organizations, schools and the public regarding the findings of such report. If necessary, information on safe alternatives to synthetic turf in settings where this material is a potential or actual health risk should be disseminated to the public.

3. All other departments or agencies of the state or subdivisions thereof, and local governments shall, at the request of the commissioner of health, provide expertise, assistance, and data that will enable the commissioner to carry out his or her powers and duties.

S 3. This act shall take effect immediately; (a) provided, however, that this act shall continue in full force and effect for six months from such effective date, or until the department of health reports to the governor and the legislature as required by section two of this act, whichever date is later, when upon such date the provisions of this act shall be deemed repealed; and

(b) provided that the commissioner of health shall notify the legislative bill drafting commission upon filing the report required in section two of this act in order that the commission may maintain an accurate and timely effective data base of the official text of the laws of the state of New York in furtherance of effectuating the provisions of section 44 of the legislative law and section 70-b of the public officers law.

Comments

Memo

BILL NUMBER:S1735

TITLE OF BILL: An act to direct the department of health to conduct a comprehensive public health study; and providing for the repeal of such provisions upon expiration thereof

PURPOSE: The bill requires an assessment of the public health and environmental impacts of the use of synthetic turf in indoor and outdoor settings.

SUMMARY OF PROVISIONS: The bill would require a comprehensive assessment of the potential adverse impacts of synthetic turf on public health and the environment by the Departments of Health and Environmental Conservation with a report back to the Governor and the Legislature.

EXISTING LAW: None.

JUSTIFICATION: Increasingly, synthetic turf is being installed in many locations in New York State, including parks, athletic fields, indoor facilities and other settings where natural grass was previously grown. In recent years, crumb rubber fill is being used as a component of synthetic turf and mulch. The crumb rubber is a result of processing waste tires, which contain numerous components, some which are known to be hazardous. These contaminants can include arsenic, cadmium, chromium, lead, vanadium, zinc and acetone. Health effects associated with these contaminants include birth defects, cancer, nervous system damage, and immune system suppression.

In 2004, the Legislature passed the historic Waste Tire Management Act, which provided for the collection and recycling/reuse of millions of waste tires stockpiled in New York State. While various options for waste tire use are essential to reduce significant stockpiles of waste tires, these uses should not threaten or compromise public health or the environment.

Limited testing of synthetic turf has occurred, identifying levels of concern of lead, arsenic, cadmium, chromium and other contaminants. However, more information is necessary to make informed decisions on the appropriate uses of this material. In the interest of preventing adverse health impacts and contamination to natural resources, the Legislature finds that a comprehensive investigation on the potential threats associated with the use of synthetic turf is warranted. Therefore, DOH is mandated, in cooperation with DEC, to conduct a comprehensive investigation into the exposure and contamination potential of synthetic turf, including routes of exposure through installation, maintenance, removal and disposal of synthetic turf and its alternatives including natural turf. The DOH report would be required to be submitted to the Governor and the Legislature.

LEGISLATIVE HISTORY: 2013-2014: S.853 - Referred to Health 2011-12: S.2439/A.5528 - Died in Health S.7124 of 2010 Referred to Health S.6531-B, 2008; A.9503-B, 2008,

FISCAL IMPLICATIONS: None.

LOCAL FISCAL IMPLICATIONS: None.

EFFECTIVE DATE: Immediately, with provisions.

http://www.sfchronicle.com/bayarea/article/Critics-say-EPA-played-dual-role-in-recycled-tire-6094382.php#/0

Critics say EPA played dual role in recycled tire controversy

By Melody Gutierrez **February 21, 2015** San Francisco Chronicle

Crumb rubber bounces from synthetic turf as a soccer ball hits it.

SACRAMENTO - The *U.S. Environmental Protection Agency* **has terminated its longtime campaign to promote the use of recycled tires on artificial turf fields and playgrounds**, amid growing concern from critics in California and elsewhere who fear the material poses a health risk to people.

Millions of children and athletes across the nation play on surfaces that contain rubber from scrap tires. The rubber is transformed into colorful soft landing mats beneath playground equipment or shredded to act as a replacement for wood bark at schools and parks. Ground up further, it makes up the tiny black pebbles that give resiliency to artificial turf.

But environmental groups and health advocates say the EPA failed to thoroughly study the health effects of the so-called "crumb rubber" because the agency was vested in promoting recycling of the material as a solution to the nation's growing stockpile of scrap tires. They fear the crumb rubber infill, used in artificial fields since the 1990s, has contributed to cancer cases in 126 soccer, field hockey and football players across the nation.

"The EPA made a mistake in promoting this. That's my personal view," said Suzanne Wuerthele, a former EPA toxicologist who is now retired. "This was a serious no-brainer. You take something with all kinds of hazardous materials and make it something kids play on? It seems like a dumb idea."

Concerns about the **possible link to cancer prompted a California lawmaker to call for a moratorium on the installation of crumb-rubber synthetic fields and playgrounds until the state can thoroughly study its health effects.**

"We have a responsibility to ensure that our children aren't being harmed by materials used on these fields and in their playgrounds," said **state Sen. Jerry Hill, D-San Mateo, who introduced SB47 in December** to require California to study at least 20 turf fields and playgrounds and halt new ones from being constructed with the material for two years until research is complete. **"Nearly all of the existing studies cite the need for additional research about whether there is a risk. The tests have never been conclusive, and there is a greater increase in the use of tire crumb."**

Groups concerned with the material say the studies done to date - including a **2009 EPA study** - have looked only at a limited number of toxics at a handful of fields, and they are calling for additional research.

"The common sense concern is that this is just chopped up hazardous waste," said Jeff Ruch, executive director of the Public Employees for Environmental Responsibility, a national nonprofit that has fought the EPA since 2009 over the federal agency's endorsement of ground tires in playgrounds and sports fields.

Industry groups say dozens of studies have validated the safety of synthetic turf, which appeared on the market in the 1960s and included crumb rubber or other infill material, such as sand, in the 1990s to enhance the product. Today, there are more than 11,000 turf sports fields across the country, according to the trade group the Synthetic Turf Council. Each field uses 20,000 to 40,000 scrap tires, according to various studies and industry groups.

"There are always things you can research more," said Dan Zielinski, spokesman for the Rubber Manufacturers Association. "But, given the body of research already done, had there been means for concern, I think we would have seen it."

126 athletes

University of Washington assistant soccer coach Amy Griffin points to her list of **cancer-stricken athletes** as reason enough for concern. *Eighty-two of the 126 athletes on her list are soccer goalies, players who were constantly diving into the synthetic turf.*

"Goalkeepers are in this stuff all the time," Griffin said. "Generally, during training, there are plenty of drills that you dive and save ball after ball after ball. You never really leave the ground."

At first, in 2009, Griffin said she thought it was a strange and sad coincidence that she knew two goalies diagnosed with cancer. Then Griffin heard of more players.

One goalie with cancer told her she couldn't help but think it had something to do with the little rubber pellets all over the turf field, the ones that would find their way into players' clothes, eyes, nose and mouth throughout games and practices. The ones tracked into homes and found at the bottom of showers when players rinsed off.

Griffin said she found there was little conclusive research on the health effects of the recycled tire pieces players often called "turf bugs." Since sharing her suspicions publicly, she said her phone has been ringing steadily and her list of athletes with cancer has grown.

"I was ready for people to call me and say I'm crazy, and instead people called and said, 'I've always wondered what's in that stuff,'" Griffin said.

EPA's turf plan

EPA efforts to promote recycled tires on athletic surfaces date back to a 1991 agency report on various ways to reduce the nation's scrap tire stockpile. The report said the tire piles posed a health risk because they were ideal breeding grounds for mosquitoes, which can spread diseases, and provided potential fuel for hazardous and toxic fires. Using recycled tire material on playgrounds and sports fields, among other possibilities, had potential, the report noted.

By 2003, the agency had partnered with environmental agencies in California and other states and with rubber manufacturers to create the Scrap Tire Workgroup, which promoted the use of recycled tires - including in playgrounds and artificial turf - and developed strategies to counter concerns about the toxicity and volatility of the material.

One strategy outlined in the Workgroup's 2007 marketing plan involved designating the EPA as the chief marketer to persistently promote the use of ground rubber while at the same time compiling and producing studies to respond to health and safety concerns over the material. Another strategy involved encouraging states to provide subsidies to cities and school districts that installed recycled tire material on playgrounds and athletic fields.

Indeed, millions of dollars in subsidies have been handed out. In California, part of the $1.75 fee added to each new tire purchase pays for annual grants, such as $47,000 for San Jose Unified School District to buy crumb rubber to install turf fields at two elementary schools and $24,000 to San Francisco Recreation and Parks Department to help cover the cost of rubber infill for synthetic sports fields at Ocean View Playground.

Money for new turf

Between 2005 and 2014, the California Department of Resources Recycling and Recovery (CalRecycle) awarded $21.4 million in tire recycling grants, mostly to cities and school districts wanting to use recycled tires on playgrounds and in new turf fields.

Of those, 22 grants worth a total of $2.3 million helped schools and park districts buy 7.5 million pounds of recycled rubber for synthetic turf fields, which is the equivalent of 623,000 passenger car tires, said CalRecycle spokesman Mark Oldfield.

Next month, more than $800,000 in new grants is scheduled to be awarded to cities, schools, state agencies and Indian tribes, Oldfield said.

During the time the **EPA was involved in the Scrap Tire Workgroup**, the agency issued a 2009 study on the health effects of crumb rubber, saying it found low levels of concern even though it identified 30 compounds found in tires, including known carcinogens and toxic substances such as arsenic, lead and cadmium.

But in 2013, the EPA backed off that **earlier statement**. The agency said its **2009 study** - often cited by industry groups to validate the safety of crumb rubber - ***was limited in scope and that no conclusions should be drawn by it.***

Now, the *EPA is further distancing itself from the crumb rubber controversy. Laura Allen, spokeswoman for the EPA*, said the **agency is no longer affiliated** with the Workgroup and has **no current initiatives to reduce tires in landfills.**

"**The EPA ended staff participation** in the independent Workgroup in **May 2014, and closed out administrative participation at the end of the year.**" Allen wrote in an e-mail to The Chronicle.

When asked if health concerns played a part in the EPA's decision to withdraw from the group, Allen said only, "There were various factors taken into consideration."

EPA ...

More tests needed

The **agency also says more testing on crumb rubber is needed** and that **states and local agencies should be responsible for conducting that research.**

"The decision to use tire crumb remains a state and local decision," Allen said. "Our highest priority is protecting public health and the environment, and we will carefully review any new findings or information."

Retired EPA environmental geologist Mark Schuknecht, who until May 2014 worked as a full-time coordinator for the Scrap Tire Workgroup, said he believes the agency's decision to disinvest in the group was due to budget cuts, not health concerns with the materials.

Schuknecht said he's confident the use of scrap tires on playgrounds and sports fields is safe and that future studies would come back the same.

"I was trying hard to keep EPA involved in the Workgroup while I was there and I was successful keeping them involved until I left," Schuknecht said. "That was my desire. With them involved, it helped encourage work within the group and kept scrap tires on people's minds. I think it was a positive thing."

The Workgroup continues to promote the material without the EPA's involvement. One of its members, the Rubber Manufacturers Association, calls the use of recycled tires across the nation "an environmental success story." In 2013, 96 percent of scrap tires discarded that year were recycled for various markets. The nation's scrap tire stockpile dropped from 1 billion in 1990 to 75 million tires in 2013, according to the association.

Putting recycled tires on playgrounds and turf not only cleans up the environment and reduces water use, it provides recreational space that can be used far more often because, unlike real grass, it doesn't need time to recover, Zielinski said.

'Government failure'

Public health toxicologist David Brown said the government failed the people.

"The studies that have been done are narrow and mostly funded by the industry or waste bureaus trying to get rid of tires," said Brown, who is the past chief of environmental epidemiology at Connecticut's Department of Public Health and currently works with the Connecticut-based advocacy group Environmental and Human Health Inc., which opposes the use of recycled tires where children play due to health concerns.

"The objective work that needs to be done hasn't been done," Brown said. "I see it as a governmental failure across the board that really we should try to learn from. We should ask the question, 'Who was responsible for determining the safety of these things?'"

In 2009, **the Los Angeles Unified School District** said *due to health concerns it would no longer use recycled tires on its turf fields, opting for alternatives like cork, and removed the used rubber from early education centers.*

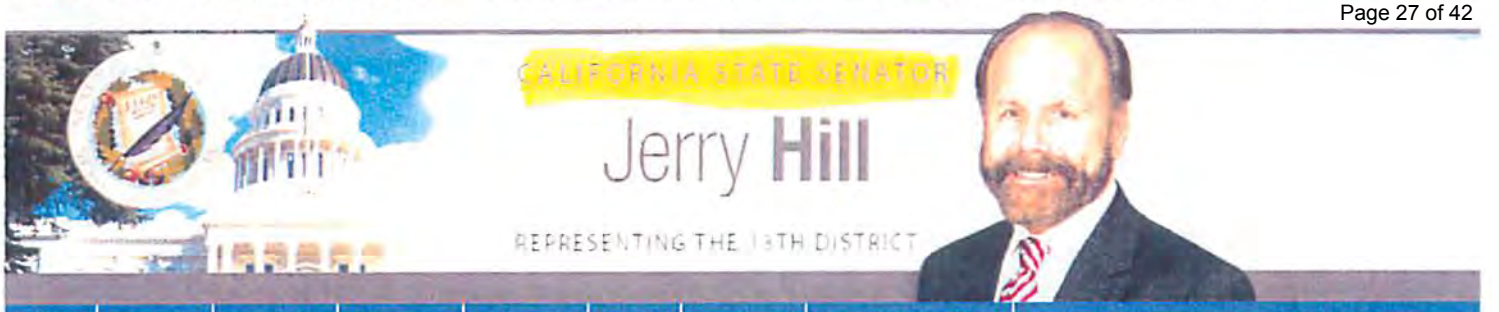
2009 The **New York City Department of Parks and Recreation** also *stopped using recycled tires on newly installed sports fields amid health concerns, instead opting for alternative products.*

In San Francisco, the Recreation and Park Department expects to replace grass at the Beach Chalet athletic fields in Golden Gate Park with synthetic turf in November using the recycled rubber Hill's bill proposes to study.

Sarah Ballard, spokeswoman for the parks department, said alternative products have not been well-vetted and may not hold up as well as the rubber pieces. Ballard said the parks department hopes to pilot the use of alternative products at smaller fields to see how they fare.

Opponents of the synthetic fields at Beach Chalet said they will continue to push for the parks department to use alternative products on the fields instead of recycled tires, such as used shoes, coconut fibers, rice husks or cork.

"We need to step back and study these before we install any more," said Kathleen McCowin, who was arrested after staging a one-person sit-in at Golden Gate Park to stop construction of the new turf soccer fields. "I wouldn't have gone to jail for anything less than children's health. My daughter has played on (turf) fields. I drove her to these fields. I've had colleagues who say that's all that's left. It's either play on these toxic turf fields or don't play."



Offices

Capitol Office
State Capitol, Room 5035
Sacramento, CA 95814
Phone: (916) 651-4013
Fax: (916) 651-4913

District Office
1528 South El Camino Real,
Suite 303
San Mateo, CA 94402
Phone: (650) 212-3313
Fax: (650) 212-3320

Hill Introduces Bill Banning New Artificial Turf Fields Made With Recycled Tires While State Studies Possible Link To Cancer And Other Health Risks

December 17, 2014

Senator Jerry Hill Introduces Bill Banning New Artificial Turf Fields Made With Recycled Tires While The State Studies Possible Link To Cancer And Other Health Risks

SB 47 Would Use Money From The California Tire Recycling Management Fund To Pay For The Comprehensive Study Prompted By Concerns These Surfaces Are Harming Children

SACRAMENTO – Senator Jerry Hill, prompted by increasing concerns that artificial turf fields made with crumbs of rubber from recycled tires may be linked to serious illnesses in children, today introduced legislation that would prohibit the installation of these surfaces in schools and parks in California while the state conducts a study to determine possible health risks.

"The Los Angeles Unified School District and city of New York have already implemented complete bans – this is just a temporary moratorium until a thorough analysis can be conducted," Hill, D-San Mateo and Santa Clara counties, said in introducing Senate Bill 47, The Children's Safe Playground and Turf Field Act of 2015.

Concerns have mounted about chemical compounds contained in recycled rubber tires as an increasing number of young athletes have developed leukemia, non-Hodgkin lymphoma, and testicular, prostate and other forms of cancer.

Hill's bill would require the state Office of Environmental Health Hazard Assessment, in consultation with the Department of Resources Recycling and Recovery, the Department of Public Health, and the Department of Toxic Substances Control, to conduct a study to be completed by July 1, 2017, into possible health risks posed by these artificial fields.

SB 47 would prohibit a public or private school or local government until Jan. 1, 2018, from installing or contracting for the installation of a new field or playground surface made from synthetic turf containing crumb rubber from used tires in public or private schools or public parks. The temporary moratorium would not affect the installation of fields already underway. The temporary moratorium will not impact turf fields and playground surfaces containing alternative materials made without used tires.

"We have a responsibility to ensure that our children aren't being harmed by materials used to make their fields and playgrounds," Hill said.

The federal Environmental Protection Agency has deferred such studies and regulation to states. In California, the Legislature commissioned a 2010 study that looked, specifically, at whether these fields release significant amounts of volatile organic compounds that are harmful to humans and if they increase the risk of serious skin infections.

Hill's legislation calls for a more comprehensive study, including the cumulative impacts on human health from various chemicals found in tires that might also be present in turf fields and playgrounds made with crumb rubber. The study will also look at alternatives to crumb rubber from used tires such as coconut fibers, rice husks, cork and used shoes.

Money for the study would come from the California Tire Recycling Management Fund, which requires a person who purchases a new tire to pay a state fee for programs related to disposal of used tires.

To view the text of SB 47, please click here

###

CA SB47

Environmental health: synthetic turf.

Summary Bill Text Action History Vote History Associated Documents

Introduced Chamber:

Upper

Introduced Session:

2015-2016 Regular Session

Bill Summary:

SB 47, as introduced, Hill. Environmental health: synthetic turf. Existing law regulates certain behavior related to recreational activities and public safety, including, among other things, playgrounds and wooden playground equipment. This bill would require the Office of Environmental Health Hazard Assessment, by July 1, 2017, in consultation with the Department of Resources Recycling and Recovery, the State Department of Public Health, and the Department of Toxic Substances Control, to prepare and provide to the Legislature and post on the office's Internet Web site a study analyzing synthetic turf, as defined, for potential adverse health impacts. The bill would require the study to include certain information, including a hazard analysis of individual, synergistic, and cumulative exposures to the chemicals that may be found in synthetic turf, as provided. The bill would prohibit a public or private school or local government, until January 1, 2018, from installing, or contracting for the installation of, a new field or playground surface made from synthetic turf within the boundaries of a public or private school or public recreational park, as provided. The California Tire Recycling Act (act) requires a person who purchases a new tire to pay a California tire fee, for deposit in the California Tire Recycling Management Fund, for expenditure by the department, upon appropriation by the Legislature, for programs related to the disposal of waste tires. The act specifies that the activities eligible for funding include the manufacture of specified products made from used tires. The bill would include the above study as one of the acceptable activities eligible for this funding. Vote: majority. Appropriation: no. Fiscal committee: yes. State-mandated local program: no.

Bill Subjects:

Not specified

Sponsors:

Gerald A. Hill (D)* (/LegislatorDetail/4861)

Last Action:

Referred to Com. on E.Q. (on 1/15/2015)

CA SB47

Environmental health: synthetic turf.

Summary **Bill Text** Action History Vote History Associated Documents

Version: 12/17/2014

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1.SECTION 1. Article 3 (commencing with Section 115810) is added to Chapter 4 of Part 10 of Division 104 of the Health and Safety Code, to read:

Article 3. The Children's Safe Playground and Turf Field Act of 2015

115810. For purposes of this article, "synthetic turf" means any composition material that contains recycled crumb rubber from waste tires and is used to cover or surface a field or playground.

115811. (a) By July 1, 2017, the Office of Environmental Health Hazard Assessment, in consultation with the Department of Resources Recycling and Recovery, the State Department of Public Health, and the Department of Toxic Substances Control, shall prepare and provide to the Legislature and post on the office's Internet Web site a study analyzing synthetic turf for potential adverse health impacts.

(b) The study shall include all of the following:

(1) A hazard analysis of individual, synergistic, and cumulative exposures to the chemicals that may be found in synthetic turf, such as 4-t-octylphenol, acetone, arsenic, barium, benzene, benzothiazole, butylated hydroxyanisole, codmium, carbon black, chloroethane, chromium, lead, manganese, matex, mercury, methyl ethyl ketone, methyl isobutyl ketone, n-hexadecane, naphthalene, nickel, nylon, phenol, phthalates, polycyclic aromatic hydrocarbons, and zinc.

(2) A specific analysis evaluating varying exposure activities, environments, duration of play, ages of different populations who play on synthetic turf, and exposure pathways, including whether chemicals found in tires have negative impacts on human health when used in indoor and outdoor fields and parks with various weather exposures and potentially ingested by children or coming in contact with children's bodies.

(3) Biomonitoring or other exposure monitoring of children or adults exposed to synthetic turf to be used to assess their exposure to chemicals found in the synthetic turf, to the extent feasible, to determine potential health impacts on children and other age groups.

(4) An examination of the potential for fields and playgrounds containing synthetic turf to cause adverse health impacts, including, but not limited to, non-Hodgkin lymphoma, testicular cancer, prostate cancer, sarcoma cancer, and leukemia. This examination shall include people who have

developed these health impacts and played on fields and playgrounds containing used tires, including, but not limited to, soccer goalies.

(5) An examination of the health impacts associated with synthetic turf fields and playgrounds of varying age.

(6) An evaluation of the differences in the manufacturers of synthetic turf and different turf, field, and playground products, including those that do not use recycled tires, and how these differences may affect health impacts. The evaluation shall include, but not be limited to, the types and age of tires used, the tire processing, and the type of plasticizer, backing material, adhesives, and plastic blades of artificial grass used to make the final synthetic turf product.

(7) An evaluation of the differences, in terms of health impacts, between crumb rubber and alternative surface materials, including coconut fibers, rice husks, cork, and used shoes.

(8) A review of current research on the health impacts of synthetic turf done by authoritative bodies from around the country and the world.

(9) Research to fill any data gaps, such as those data gaps identified by the report prepared by the Office of Environmental Health Hazard Assessment on behalf of the Department of Resources Recycling and Recovery titled "Safety Study of Artificial Turf Containing Crumb Rubber Infill Made From Recycled Tires: Measurements of Chemicals and Particulates in the Air, Bacteria in the Turf, and Skin Abrasions Caused by Contact with the Surface."

(10) An examination of the health impacts of exposures to many low level volatile organic compounds and polycyclic aromatic hydrocarbons found in synthetic turf fields and playgrounds.

(c) At least 20 synthetic turf fields and playgrounds around the state shall be analyzed for purposes of the study.

(d) (1) A study submitted to the Legislature pursuant to subdivision (a) shall be submitted in compliance with Section 9795 of the Government Code.

(2) The requirement for submitting a study to the Legislature imposed pursuant to subdivision (a) is inoperative on July 1, 2021, pursuant to Section 10231.5 of the Government Code.

115812. (a) (1) A public or private school or local government shall not install, or contract for the installation of, a new field or playground surface made from synthetic turf within the boundaries of a public or private school or public recreational park.

(2) Paragraph (1) shall not apply to any installation of a field or playground surface made from synthetic turf that commenced, or any contract for such installation entered into, prior to January 1, 2016.

(b) This section shall remain in effect only until January 1, 2018, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2018, deletes or extends that date.

SEC. 2.SEC. 2. Section 42873 of the Public Resources Code is amended to read:

42873. (a) Activities eligible for funding under this article, that reduce, or that are designed to reduce or promote the reduction of, landfill disposal of used whole tires, may include the following:

(1) Polymer treatment.

(2) Rubber reclaiming and crumb rubber production.

(3) Retreading.

(4) Shredding.

(5) The manufacture of products made from used tires, including, but not limited to, all of the following:

(A) Rubberized asphalt, asphalt rubber, modified binders, and chip seals.

(B) Playground equipment.

(C) Crash barriers.

(D) Erosion control materials.

(E) Nonslip floor and track surfacing.

(F) Oilspill recovery equipment.

(G) Roofing adhesives.

(H) Tire-derived aggregate applications, including lightweight fill and vibration mitigation.

(I) Molded products.

(J) Products using recycling rubber and other materials, such as plastic.

(K) Paint and coatings.

(6) Other environmentally safe applications or treatments determined to be appropriate by the ~~board.~~ department.

(7) A study to analyze synthetic turf for potential adverse health impacts, pursuant to Section 115811 of the Health and Safety Code.

(b) (1) The ~~board may~~ department shall not expend funds for an activity that provides support or research for the incineration of tires. For the purposes of this article, incineration of tires, includes, but is not limited to, fuel feed system development, fuel sizing analysis, and capacity and production optimization.

(2) Paragraph (1) does not affect the permitting or regulation of facilities that engage in the incineration of tires.

Contact
1747 Pearl St, Ste 304
Denver, CO 80203
Karen@LegiNation.com

Senator Jerry Hill, 13th Senate District

SB 47 – Turf Fields Containing Crumb Rubber from Used Tires

IN BRIEF

Prohibits the installation of new fields & playgrounds containing waste tires for two years (Jan 1, 2016 – Jan 1, 2018) while the state conducts a comprehensive study on potential health impacts. Fields and playgrounds made from alternative materials not containing waste tires are not subject to the moratorium. Fields and playgrounds made from waste tires that are already under construction, or where a contract has been signed for installation prior to Jan 1, 2016 are not subject to the moratorium.

THE ISSUE

In 2010, then Attorney General Jerry Brown settled a case with the nation's largest makers and installers of turf fields requiring them to reduce levels of lead in their products. The settlement required companies to reformulate their products to reduce lead levels to negligible amounts and established the nation's first enforceable standards applicable to lead in artificial turf. Brown brought the case in 2008 against these companies for excessive lead levels after testing by the Center for Environmental Health found high concentrations of lead in their products. Brown's office confirmed these findings in independent tests.

In recent years there has been an increased concern about the health impacts on frequent users of turf fields made from waste tires.

In a 2012 study published in Chemosphere titled, "Hazardous organic chemicals in rubber recycled tire playgrounds and pavers", the presence of hazardous organic chemicals in surfaces containing recycled rubber tires were investigated. Direct material analyses using solvent extraction, as well as SPME analysis of the vapour phase above the sample, were carried out. Twenty-one rubber mulch samples were collected from nine different playgrounds. All samples were extracted by ultrasound energy, followed by analysis of the extract by GC-MS. The analysis confirmed the presence of a large number of hazardous substances including PAHs, phthalates, antioxidants (e.g. BHT, phenols), benzothiazole and derivatives, among other chemicals. The study evidences the high content of toxic chemicals in these recycled materials. In addition, SPME studies of the vapour phase above the samples confirm the volatilisation of many of those organic compounds. The study found that "uses of recycled rubber tires, especially those targeting play areas and other facilities for children, should be a matter of regulatory concern."

A report from the Swedish Chemical Agency (KEMI) found that tires contain over 60 different substances—40% is rubber; the rest is carbon black, high aromatic oils, sulfur and various metals. Rubber is elastic polymers. The most common types of synthetic rubber are styrene-butadiene rubber and ethylene propylene rubber. Vulcanizing agents are used in manufacture, and fillers, antioxidants and plasticizers are added for technical properties. A large number of high aromatic oils are added, including polyaromatic hydrocarbons, phthalates that can leach into water, phenols, metals including zinc, and low concentrations of lead. Synthetic turf often contains rubber granules from waste tires, which in turn contain several particularly hazardous substances. The Swedish Chemical Agency recommends that rubber granules from waste tires not be used in synthetic turf.

The 2007 Connecticut Agricultural Experiment Station report found out-gassing and leaching from synthetic turf rubber crumbs under aqueous ambient temperatures. Several compounds were present, but four compounds gave the highest responses on GC/Mass

spectrographic analysis. The four compounds conclusively identified with confirmatory tests were: benzothiazole; butylated hydroxyanisole; n-hexadecane; and 4-(t-octyl) phenol. Approximately two dozen other chemicals were indicated at lower levels. These chemicals were released in laboratory conditions that closely approximate ambient conditions. Those chemicals identified with confirmatory analytical studies at the Connecticut Agricultural Experiment Station study have the following reported actions:

Benzothiazole: Skin and eye irritation, harmful if swallowed. There is no available data on cancer, mutagenic toxicity, teratogenic toxicity, or developmental toxicity.

Butylated hydroxyanisole: Recognized carcinogen, suspected endocrine toxicant toxicant, gastrointestinal toxicant, immunotoxicant, neurotoxicant, skin and sense-organ toxicant,

There is no available data on cancer, mutagenic toxicity, teratogenic toxicity, or developmental toxicity.

n-hexadecane: severe irritant based on human and animal studies. There is no available data on cancer, mutagenic toxicity, teratogenic toxicity, or developmental toxicity.

4-(t-octyl) phenol: corrosive and destructive to mucous membranes. There is no available data on cancer, mutagenic toxicity, teratogenic toxicity, or developmental toxicity.

The study also detected metals that were leached from the tire crumbs. Zinc was the predominant metal, but selenium, lead and cadmium were also identified.

The University of Washington Women's Soccer Coach, Amy Griffin, has been keeping a list of athletes who developed cancer after playing on turf fields containing waste tires. So far she has identified 126 athletes, 109 of which are soccer players, 10 were football players, and six were field hockey and lacrosse players, who have developed different forms of cancer including lymphomas (51), leukemia (19), brain (10), testicular, (9), sarcoma (9), thyroid (6) and many more.

ALTERNATIVES AVAILABLE

Not all turf fields contain crumb rubber from waste tires. There are several companies that offer turf field and playground products made from natural materials:
http://www.limontasport.com/
http://www.brock-international.com/
http://www.usgreentech.com/

Example 1
A typical new synthetic turf sports field measuring 80,000 sq. ft. can cost a customer between $800K - $1.2M. An alternative surface system made from natural materials not containing waste tires would only represent a 3-4% increase in the overall price of a project.

This comparison evaluates the costs for a first surface installation, removal and disposal, and then a second surface installation. This evaluation is critical to understand the true long-term costs of rubber crumb from waste tires as compared to more sustainable solutions. There are actually many landfills that do not accept crumb rubber, which increases the transport costs to move the material to a more distant disposal site.

Landfill disposal costs vary quite a bit across the state of California. This comparison uses a current conservative cost of $30.00 / ton with compounded inflation / increases of 4% per year. The resulting estimated disposal costs in 2023 will be $41.00 per ton when today's new fields will begin to be disposed of.

Example 2
Cost comparison between the same turf using SBR waste tire crumb ruber vs. an organic alternative:
Turf- 45 oz., 2-1/2" monofilament utilizing 3 pounds of sand per square foot as ballast:
Ø 5 pounds of SBR per square foot @18 cents/pound= $0.90 per square foot
Ø 2 pounds of Organic per square foot @75 cents per pound= $1.50 per square foot

The up-front cost differential for an 80,000 square foot field is $48,000:

- SBR- $0.90 x 80,000= $72,000
- Organic- $1.50 x 80,000= $120,000

This $48,000 will be offset at the end of life cycle by the average disposal cost of a field with SBR that ranges between $40,000-$50,000.

MORATORIUMS IN OTHER JURISDICTIONS

In 2009 the Los Angeles Unified School District and the City of New York banned waste tires from turf fields. LAUSD board member Marlene Canter said, "The health of our students is more important than any other issue. You should never equate economics with health. In no way should we be skimping on something like this that could affect our kids."

In February 2015, Montgomery County, Maryland, the most populous county in the state with over 1 million residents, approved a ban on waste tires in turf fields and instead required plant-derived materials for infill in future turf field projects.

CA SUBSIDIZES WASTE TIRE INDUSTRY

The state of California provides millions of dollars every year to schools and local governments to purchase turf fields and playground material made from waste tires. The state also provides millions to companies that make products from waste tires.

Tire-Derived Product (TDP) Grants

This grant program provides funding to certain entities for tire-derived products made from 100 percent California generated waste tires. Projects generally fall into one of three categories: agricultural/landscape, recreational, or transportation.

Tire Incentive Program

This grant program provides funding to eligible businesses to use crumb rubber in eligible products or substitute crumb rubber for virgin rubber, plastic, or other raw materials in products. The program's goal is to increase demand for crumb rubber and promote higher value products.

SUPPORT

Center for Environmental Health
Public Employees for Environmental Responsibility
Environment and Human Health, Inc.
Coalition for San Francisco Neighborhoods
Golden Gate Audubon Society
Golden Gate Park Preservation Alliance

FOR MORE INFORMATION

Nate Solov – 651-4013 – nate.solov@sen.ca.gov

A RESOLUTION commending the Energy and Environment Cabinet for suspending crumb rubber grants and encouraging the cabinet to continue studying the health effects of recycled waste tires.

WHEREAS, the Commonwealth has sought solutions to waste tires and orphan waste tire landfills by encouraging the recycling of tires through grants under KRS 224.50-878; and

WHEREAS, several grants were made to schools, local governments, and private organizations to build new running surfaces, playground decks, and roads using shredded or recycled tires; and

WHEREAS, the Energy and Environment Cabinet suspended awarding grants from the program due to health and safety concerns with using crumb rubber after environmental groups, hospitals, doctors, universities, and the United States Environmental protection Agency expressed new concerns about the chemicals found in tire shreds; and

WHEREAS, Mount Sinai Children's Environmental Health Center stated there is a potential air and water contamination from tire shreds and that exposure by children and the unborn can cause birth defects, neurologic and developmental deficits, and even cancer; and

WHEREAS, chemicals causing the most concern include carbon black, arsenic, cadmium, and benzene; and

WHEREAS, tire shreds also contain phthalates, which are known hormonal disruptors; polycyclic aromatic hydrocarbons (PAH), which cause cancer and increase the chance of birth defects; and volatile organic compounds (VOCs), which can cause asthma, eye and throat irritation, various types of cancer;

NOW, THEREFORE,

Be it resolved by the House of Representatives of the General Assembly of the Commonwealth of Kentucky:

➔Section 1. The House of Representatives commends the Energy and Environment Cabinet for suspending a program that potentially places the health and safety of the public at risk of disease and disability.

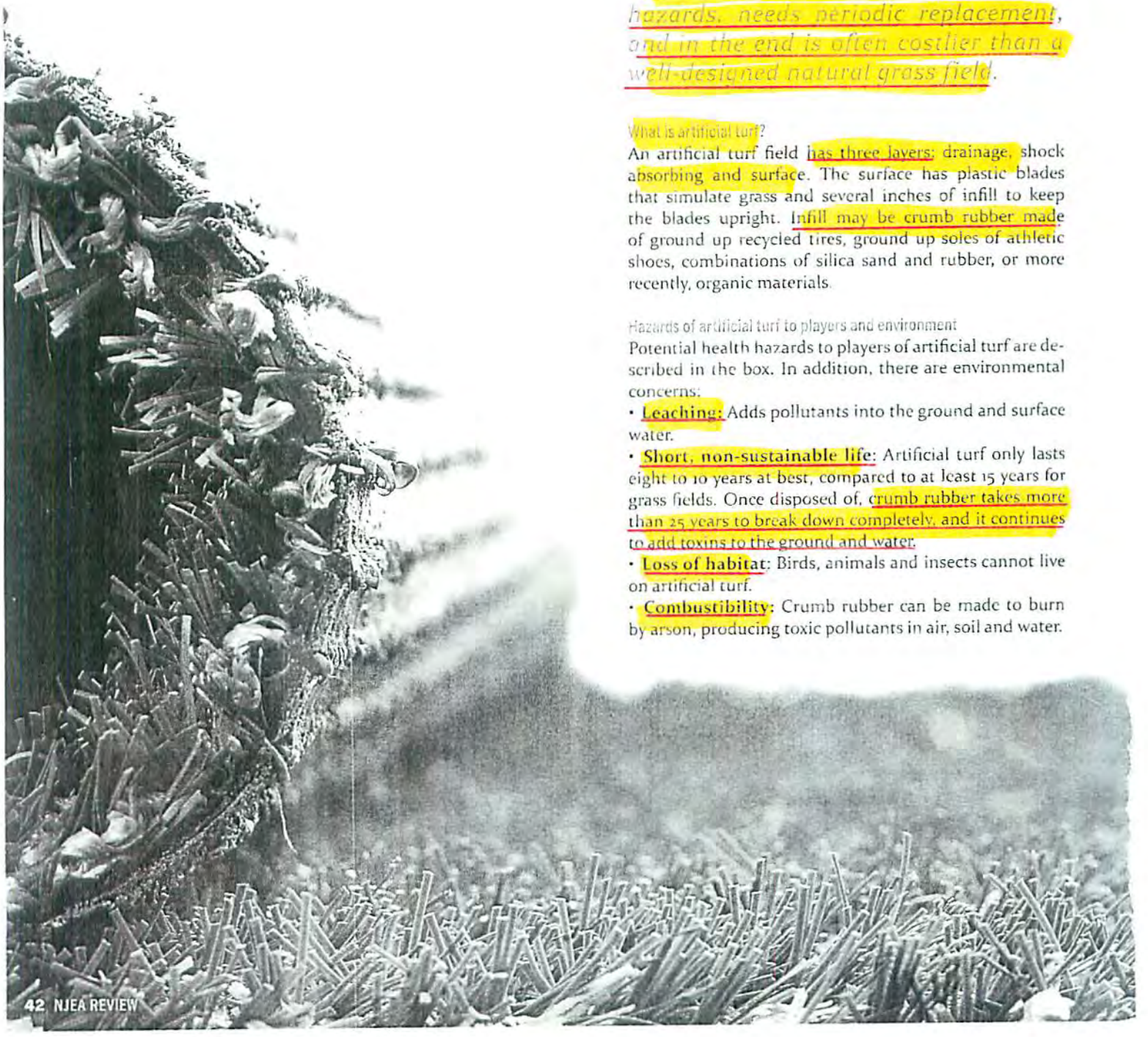
➔Section 2. The House of Representatives urges the Energy and Environment Cabinet to voluntarily study the health effects associated with using waste tires for downstream recycled products.

➔Section 3. The clerk of the House of Representative is directed to send a copy of this Resolution to Secretary Leonard Peters, Energy and Environment Cabinet, 500 Mero Street, 5th Floor Capitol Plaza Tower, Frankfort, Kentucky 40601.

Does artificial turf make sense?

BY FRANCES GILMORE

Artificial turf sounds like a solution to problems with grass fields. It doesn't require mowing, watering, pesticides or fertilizer. At first glance, it appears to be environmentally friendly and less costly than grass for playing fields and playgrounds. But a closer look shows it presents health and environmental hazards, needs periodic replacement, and in the end is often costlier than a well-designed natural grass field.



What is artificial turf?

An artificial turf field has three layers: drainage, shock absorbing and surface. The surface has plastic blades that simulate grass and several inches of infill to keep the blades upright. Infill may be crumb rubber made of ground up recycled tires, ground up soles of athletic shoes, combinations of silica sand and rubber, or more recently, organic materials.

Hazards of artificial turf to players and environment

Potential health hazards to players of artificial turf are described in the box. In addition, there are environmental concerns:

- **Leaching:** Adds pollutants into the ground and surface water.
- **Short, non-sustainable life:** Artificial turf only lasts eight to 10 years at best, compared to at least 15 years for grass fields. Once disposed of, crumb rubber takes more than 25 years to break down completely, and it continues to add toxins to the ground and water.
- **Loss of habitat:** Birds, animals and insects cannot live on artificial turf.
- **Combustibility:** Crumb rubber can be made to burn by arson, producing toxic pollutants in air, soil and water.

Is there a cancer connection?

Last October, several mass media outlets reported concerns about cancer among a number of young soccer goalies. The link to cancer is not proven. News reports did not make clear whether all the affected players were playing on artificial turf, nor have there been conclusive studies establishing a link. But the fact that most affected players were goalies is troubling, as goalies have the greatest exposure potential to the ground. They dive on the ground, suffering cuts and scrapes, and getting particles of material in their cuts, mouths and eyes and sometimes swallowing it.

The Environmental Protection Agency (EPA) and the Consumer Product Safety Commission (CPSC) performed limited studies five years ago, mainly looking at levels of carcinogens in the air close to the turf. These levels were not high, but such studies do not address the kind of exposures players can have, especially goalies, from extensive close contact with the infill. A study to investigate a potential cancer cluster among goalies would be extremely costly, and no federal agency has plans to do one. While unproven, the evidence of a link is suggestive and worth considering.

Playgrounds

School districts should also consider avoiding playgrounds made of artificial turf for the same reasons as soccer fields, plus one more: young children are much more vulnerable to carcinogens and toxins than adults and youth, since their cells are reproducing so fast.

Is it cheaper?

It is a myth that artificial turf is cheaper than natural grass. Artificial turf fields must be vacuumed to remove all leaves and debris. They must have the fibers brushed up regularly and occasionally be deep raked to loosen up the infill. Fields must also be disinfected, washed, and have loose seams repaired. Chewing gum and hard candy must be softened with a solvent and then hand-pried out of the fibers. Artificial turf is expensive to install, requires a lot of maintenance, has a short life and is expensive to dispose of.

Natural grass and other infills

While there are other infills less potentially hazardous than crumb rubber, the most sensible choice is still natural grass. Natural grass fields have their problems, including bogging down in rainy weather and requiring reseeding and other maintenance.

These problems can be reduced by various measures that involve a one-time expense. For areas with high-clay soils and a lot of rain, towns can introduce sand-cap fields. This requires excavating 12 to 16 inches of soil and installing drain tile, a 4-inch gravel layer and a 12-inch, sand-based root zone. The field can then be seeded with modern grasses that withstand traffic and don't need to be reseeded and reseeded every year. Modern grasses do not require pesticides and herbicides to thrive.

Other infills include ground rubber from athletic shoes. This material may have fewer toxins than tires, since shoe materials must meet tighter standards. But it is essentially untested for safety, is more expensive than crumb rubber, and presents the other problems of rubber infills.

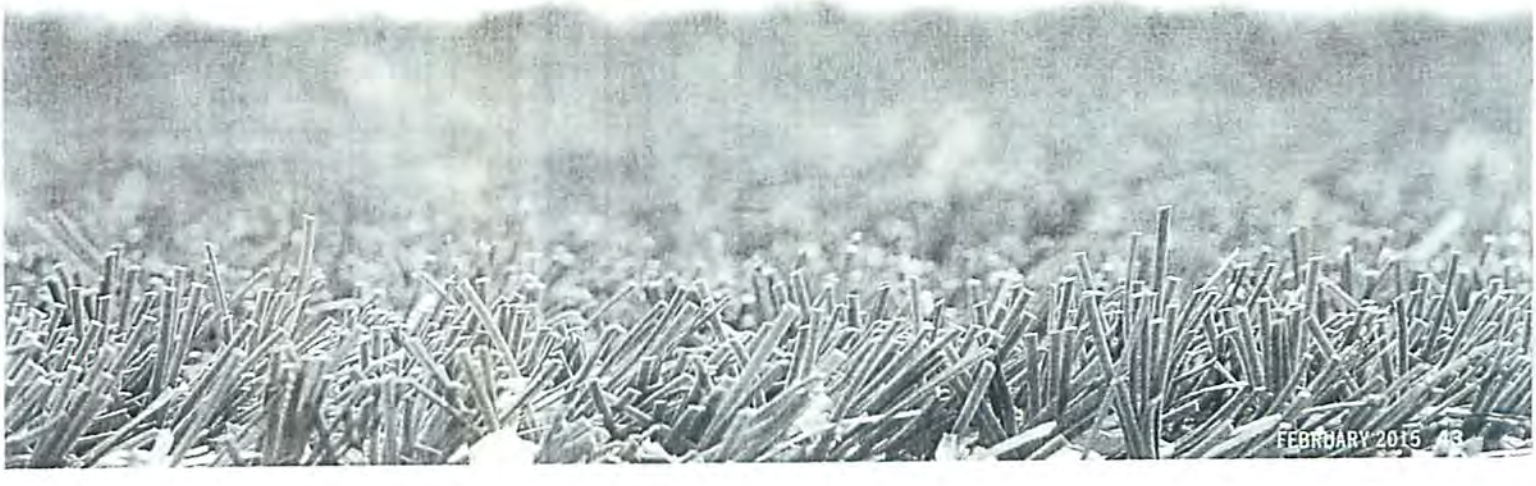
Some cities are experimenting with newer organic infills made of such materials as coconut shells, rice husks and walnut shells. These have some advantages over rubber, in that they are nontoxic, they don't overheat, and they decompose naturally. Because they decompose, they must be replaced about every two years, making it unclear why they would be preferable to natural grass.

The New Jersey Work Environment Council (WEC) provides a fact sheet on artificial turf that can be found at *http://bit.ly/WECturf*.

A good comparison of artificial turf and natural grass, "Turfgrass Science," is available from the University of Arkansas at *http://bit.ly/TurfgrassScience*.

Health hazards of artificial turf

- **Toxic metals and carcinogens:** Crumb rubber is of greatest concern. It contains toxic metals including zinc, lead, arsenic, mercury, cadmium and chromium, and carcinogens such as benzene and related compounds. It also contains potentially allergenic latex and other rubbers, and phthalate plasticizers that damage reproductive organs, lungs, kidneys and liver.
- **Excessive heat:** Artificial surfaces heat to 95 to 140 degrees Fahrenheit *hotter* than grass in sunlight, thereby contributing to burns, dehydration and heat exhaustion. Watering only cools them for a short time.
- **Abrasion and infection:** Some types can cause more skin abrasions than natural grass. In Texas in 2003-05, players primarily on artificial turf had an infection rate of antibiotic-resistant staph 16 times higher than the general population, associated with abrasions.
- **Droppings:** Animal refuse does not decompose on artificial turf.



Hi Nancy –
The Attachment wouldn't Attach so this is the Article with the comments bracketed we would like to Respond to.
Kind Regards, Rand, Jack & Cheryl

KINNELON

Synthetic turf opponents maintain their full court press

BY DEBORAH WALSH
Staff Writer

Opponents of an artificial turf field project have been making the rounds at Borough Council and school board meetings where they continue to raise concerns about safety risks potentially associated with the crumb-rubber base of synthetic fields.

Most recently, residents brought up safety issues at the Feb. 19 Borough Council regular meeting and the Feb. 26 school board meeting. At the Feb. 19 meeting, Councilwoman Carol Sventy, who is the council's liaison to the school board, said the school district would like to keep on track with having the artificial field installed by the start of the 2015-16 school year.

Randall Charles of Green Hill Road said he could not understand why the community would move forward with artificial turf when there seems to be a growing number of localities across the country that are holding off on synthetic turf projects until further studies are done to assess whether there is evidence that exposure to crumb rubber, which is manufactured with chemicals, is harmful.

Charles said Amy Griffin, an associate head coach for the University of Washington's soccer team, has been keeping track of the soccer players across the country who regularly played on synthetic turf and have been diagnosed with cancer. From an initial list of 38 soccer players, she has upped her list to 126 athletes, 82 of whom are soccer goalies prone to diving into the turf. Charles said the federal Environmental Protection Agency has abandoned its campaign to promote the use of recycled tires for turf fields.

"I just don't understand why we do not have kids' safety at the utmost and why we won't let this thing play out," he said. "We need fields, but we need safe fields."

Charles mentioned, as he had in a prior council meeting, that Senate Bill 47, introduced by California Sen. Jerry Hill, seeks to ban the installation of artificial turf until a hazard analysis is completed. The bill contains the following synopsis: "This bill would require the Office of Environmental Health Hazard Assessment, by July 1, 2017, in consultation with the Department of Resources Recycling and Recovery, the State Department of Public Health, and the Department of Toxic Substances Control, to prepare and provide to the Legislature and post on the office's Internet website a study analyzing synthetic turf, as defined, for potential adverse health impacts. The bill would require the study to include certain information, including a hazard analysis of individual, synergistic, and cumulative exposures to the chemicals that may be found in synthetic turf, as provided. The bill would prohibit a public or private school or local government, until Jan. 1, 2018, from installing, or contracting for the installation of, a new field or playground surface made from synthetic turf within the boundaries of a public or private school or public recreational park, as provided."

According to Charles, the Public Employees for Environmental Responsibility (PEER) on Synthetic Turf has requested that the Consumer Product Safety Commission (CPSC) remove information from its site that declares synthetic turf "OK to install, OK to play on." PEER contends the CPSC made those claims without citing reliable and objective data sources.

Charles said the borough has other options and is sitting on $700,000 in grant money that could be used to acquire property to develop grass fields. But Councilman Stephen Cobell said it is not that easy. The municipality must have a willing seller and it appeared that the borough was unable to make a deal with the church that owns the acreage next to the Kinnelon Recreation Park off of Boonton Avenue.

Since residents informed the council in January that there are legislative bills under consideration by the New York Senate and Assembly that ask for a public health study by the Department of Health on the installation of crumb rubber in artificial turf, Councilman James Freda said he attempted to contact the bill's sponsor, Sen. Kevin Parker, to obtain more information, but has not heard back from the Brooklyn representative.

[Freda said there seem to be too many different types of cancer among the 126 listed by Griffin to make an absolute correlation between the artificial turf and the illness. Also, if there is a link between the artificial turf and cancer, he asked why there have not been reports of professional soccer players with cancer attributed to artificial turf.

Freda said he would like to see concrete information on the matter.]

appreciate your help to

Councilwoman Sventy said the artificial turf of today is different than the first generation of synthetic turf in the 1960s. One of the difficulties is that there are so many different varieties made up with a different mix or level of components, she said.

"It's almost like a shell game. The synthetic turf keeps changing before it's tested," she said.

Jack Glaser, also of Green Hill Road, he appreciated that Freda is acting on public concerns and has contacted Parker to obtain more information.

Glaser also said he was surprised to hear the borough had $700,000 in grant money available to purchase property where grass fields could be installed. Glaser asked Freda if he would still want artificial turf if the borough was able to acquire property to install fields.

Freda said the borough was looking at artificial turf because there is no property left for field development. Even if a suitable parcel became available, Freda said he would still like to see a synthetic field installed in the borough because of the flexibility it offers. While more grass fields will ease wear and tear on fields, athletes cannot play on grass fields under certain weather conditions especially after rain.

Councilman Daniel O'Dougherty noted that any time the borough acquires property for open space or recreation, it is taken off the tax rolls.

The borough is already comprised of 52 percent open space, he said.

Mayor Robert Collins said the Association of New Jersey Environmental Commissions has reported that open space acquisition is a good investment because the property requires no services, does not burden the school system, and does not require a lot of costly infrastructure.

Liz Koch of Cliff Trail said she made an inquiry about the testing being proposed in New York, but unfortunately the testing is limited in scope and not very useful, which is compounded by the fact that each artificial turf manufacturer has its own proprietary brand.

Also artificial turf is impacted by the weather a locale has, said Koch, who reiterated her request for the council to look into organic turf, which has been successfully grown for field purposes in many areas including Branford, Conn.

In June, the Borough Council adopted a resolution supporting the installation of artificial turf at Kinnelon High School (KHS). The resolution indicated that the mayor and Borough Council would like to avail itself of all lawful means of utilizing the Board of Education field at KHS and that to achieve this shared use the borough supports the mutual cooperation in obtaining permits, leasing a portion of the school district's property, the subsequent construction of improvements to the field, and the implementation of an agreement that provides for the fair use of the improvements by both the school district and borough. The council decided to locate the turf at the school field because the school district has greater latitude in installing artificial turf on a school site than the borough would have on municipal property.

Though there seems to be some disagreement over whether the borough can legally make improvements on property it does not own and use Open Space, Historical Preservation and Open Space Trust Funds to do so, at the Feb. 19 meeting, Borough Attorney Mark Madaio stuck with the legal opinion he has rendered in the past.

Madaio said that funding improvements to an existing field or a new field is a valid use of the open space and recreation trust fund. Additionally, Madaio said the borough could make the improvements at a field owned by the school district providing that the municipality leased the property from the district. The court maintains that a municipality must have an interest in the property it is improving, he said.

Email: walshde@northjersey.com

Draft
Page 3 Revision
Exemption #6

State of New Jersey
Highlands Water Protection and Planning Council
100 North Road (Route 513)
Chester, New Jersey 07930-2322 (908) 879-6737
(908) 879-4205 (fax)
www.highlands.state.nj.us

Highlands Water Protection and Planning Act

Exemptions and Waivers

The Highlands Act creates seventeen exemptions that allow property owners to develop their properties without applying the enhanced environmental standards adopted by the New Jersey Department of Environmental Protection in the Preservation Area. In addition, the rules adopted by DEP include provisions for four waivers that allow some degree of deviation from the enhanced environmental standards.

Exemptions

1. **Construction of a single family dwelling for own use or family use:** The construction of a single family dwelling, for an individual's own use or the use of an immediate family member, on a lot owned by the individual on the date of enactment of this act or on a lot for which the individual has on or before May 17, 2004 entered into a binding contract of sale to purchase that lot;

2. **Construction of a single family dwelling on existing lot:** The construction of a single family dwelling on a lot in existence on the date of enactment of this act, provided that the construction does not result in the ultimate disturbance of one acre or more of land or a cumulative increase in impervious surface by one-quarter acre or more;

3. **Developments with prior Municipal and DEP Approvals:** A major Highlands development that received on or before March 29, 2004:

(a) one of the following approvals pursuant to the "Municipal Land Use Law," P.L.1975, c. 291

(C.40:55D-1 et seq.):

(i) preliminary or final site plan approval;

(ii) final municipal building or construction permit;

(iii) minor subdivision approval where no subsequent site plan approval is required;

(iv) final subdivision approval where no subsequent site plan approval is required; or

(v) preliminary subdivision approval where no subsequent site plan approval is required; and

(b) at least one of the following permits from the Department of Environmental Protection, if applicable to the proposed major Highlands development:

(i) a permit or certification pursuant to the "Water Supply Management Act," P.L.1981, c. 262 (C.58:1A-1 et seq.);

(ii) a water extension permit or other approval or authorization pursuant to the "Safe Drinking Water Act," P.L.1977, c. 224 (C.58:12A-1 et seq.);

(iii) a certification or other approval or authorization issued pursuant to the "The Realty Improvement Sewerage and Facilities Act (1954)," P.L.1954, c. 199 (C.58:11-23 et seq.); or

(iv) a treatment works approval pursuant to the "Water Pollution Control Act," P.L.1977, c. 74 (C.58:10A-1 et seq.); or

(c) one of the following permits from the Department of Environmental Protection, if applicable to the proposed major Highlands development, and if the proposed major Highlands development does not require one of the permits listed in sub-subparagraphs (i) through (iv) of subparagraph (b) of this paragraph:

(i) a permit or other approval or authorization issued pursuant to the "Freshwater Wetlands Protection Act," P.L.1987, c. 156 (C.13:9B-1 et seq.); or

(ii) a permit or other approval or authorization issued pursuant to the "Flood Hazard Area Control Act," P.L.1962, c. 19 (C.58:16A-50 et seq.).

The exemption provided in this paragraph shall apply only to the land area and the scope of the major Highlands development addressed by the qualifying approvals pursuant to subparagraphs (a) and (b), or (c) if applicable, of this paragraph, shall expire if any of those qualifying approvals expire, and shall expire if construction beyond site preparation does not commence within three years after the date of enactment of this act;

4. **Reconstruction of buildings or structures within 125% of the footprint**: The reconstruction of any building or structure for any reason within 125% of the footprint of the lawfully existing impervious surfaces on the site, provided that the reconstruction does not increase the lawfully existing impervious surface by one-quarter acre or more. This exemption shall not apply to the reconstruction of any agricultural or horticultural building or structure for a non-agricultural or non-horticultural use;

5. **Improvement to a single family dwelling:** Any improvement to a single family dwelling in existence on the date of enactment of this act, including but not limited to an addition, garage, shed, driveway, porch, deck, patio, swimming pool, or septic system;

6. **Places of worship, schools, or a hospitals:** Any improvement, for non-residential purposes, to a place of worship owned by a nonprofit entity, society or association, or association organized primarily for religious purposes, or a public or private school, or a hospital, in existence on the date of enactment of this act, including but not limited to new structures, an addition to an existing building or structure, a site improvement, or a sanitary facility; ***No Exemption for installation of SYNTHETIC TURF containing any COMPONENT OF CRUMB RUBBER FILL which CRUMB RUBBER is the result of processing of waste tires, which contain numerous components, some which are known to be hazardous to people and the environment. The hazardous components include, arsenic, cadium, chromium, lead, vanadium, zinc, acetone, benzene, mercury, carbon black, 1,3 butadiene, phthalates, polycyclic aromatic hydrocarbons (PAHs),benzothiazole, butylated hydroxyanisole, n-hexadecane, 4-(t-octyl)phenol, .***

7. **Woodland and Forest management plans:** An activity conducted in accordance with an approved woodland management plan pursuant to section 3 of P.L.1964, c. 48 (C.54:4-23.3) or the normal harvesting of forest products in accordance with a forest management plan approved by the State Forester;

8. **Trails on public or private lands:** The construction or extension of trails with non- impervious surfaces on publicly owned lands or on privately owned lands where a conservation or recreational use easement has been established;

9. **Repair of transportation or infrastructure systems:** The routine maintenance and operations, rehabilitation, preservation, reconstruction, or repair of transportation or infrastructure systems by a State entity or local government unit, provided that the activity is consistent with the goals and purposes of this act and does not result in the construction of any new through-capacity travel lanes;

10. **Transportation safety projects:** The construction of transportation safety projects and bicycle and pedestrian facilities by a State entity or local government unit, provided that the activity does not result in the construction of any new through-capacity travel lanes.

Randall I. Charles
H 973-838-6471
C 973-864-0815

Kinnelon Coalition For More Green Safe Fields
For Our Kids.