

The Social and Scientific Discovery of PFASs

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June 14, 2017

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Northeastern University
*Social Science Environmental Health
Research Institute*

Overview

Background:
Research Questions

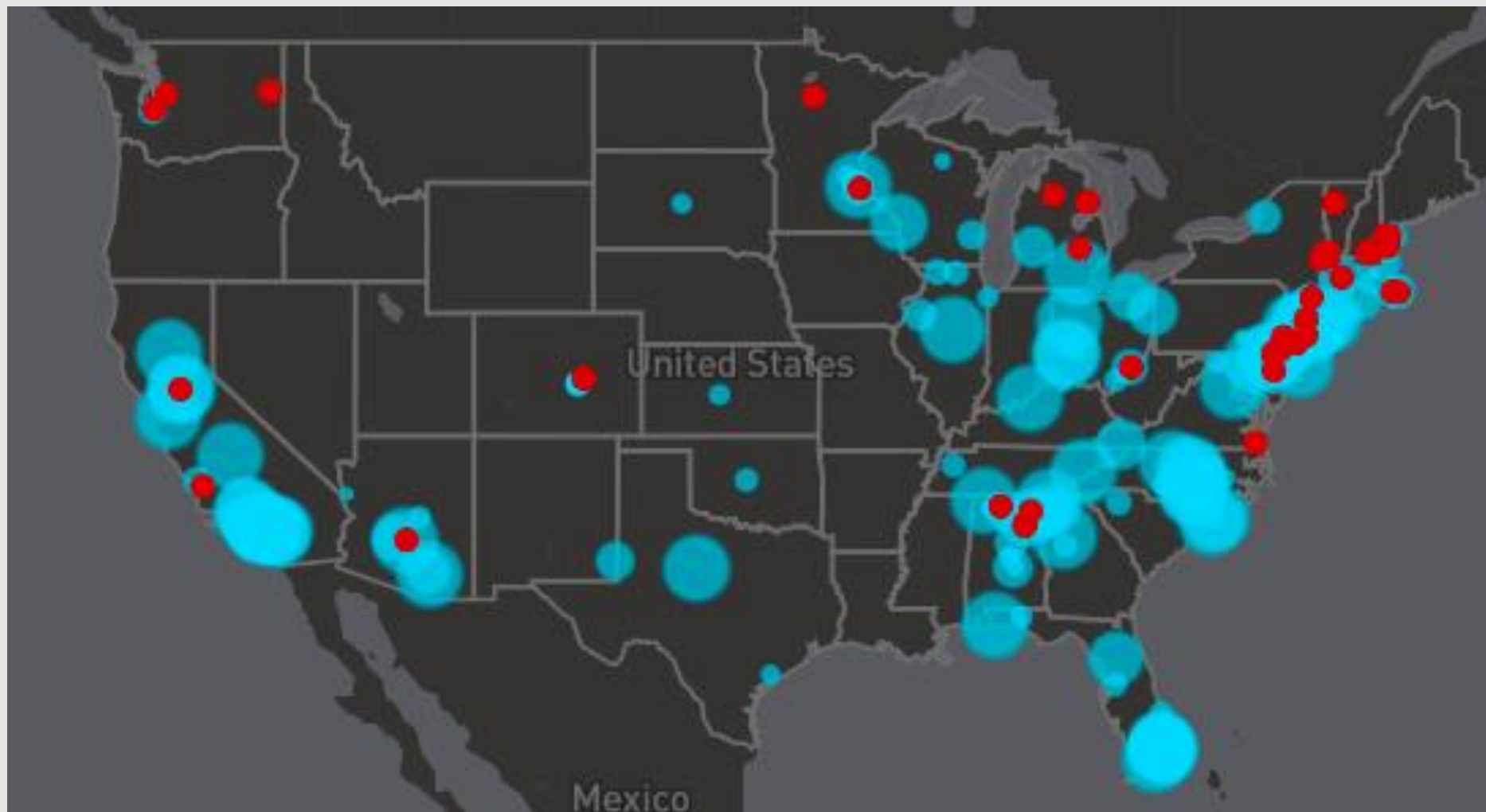
Theoretical framing:
Social Discovery



Preliminary findings:
Three Moments of Discovery

Next steps





<http://www.ewg.org/research/mapping-contamination-crisis>

Research Questions

- How have the dangers of per- and polyfluorinated compounds (PFASs) been discovered, interpreted, and acted upon?
- What accounts for the uneven social and scientific discoveries of this class of compounds after decades of research, litigation, and adverse health impacts?

Theoretical Framing

Scientific Knowledge → Environmental Protection?

May 1980

2-A—Sarasota Herald-Tribune *Wesley, Charlotte, E*
Tuesday, May 20, 1980

Love Canal Residents Hold Hostage 2 EPA Officials To Press Demands

NIAGARA FALLS, N.Y. (UPI) — Love Canal residents said Monday they were holding two federal officials as “hostages” and that they would be held until the White House authorizes the immediate relocation of more than 700 families.

No weapons were involved and no injuries were reported. Lois Gibbs, president of the Love Canal Homeowners Association, said Dr. James Lucas and Frank Napolitano of the Environmental Protection Agency were being against their will at a home serving as the group’s headquarters.

She said a telephone line was being kept open to receive any response from federal officials to the homeowner’s demands.

No weapons were reported used and Lucas and Napolitano told reporters allowed in the house that they were complying with the association’s instructions.

“We’ll keep them fed, we’ll keep them happy,” Mrs. Gibbs said.

Niagara Falls police were at the scene but said they were denied access to the office by groups of homeowners blocking the two entrances to the house.

The residents were demanding immediate relocation because of an EPA study released Saturday showing chromosome damage in 11 of 36 Love Canal residents, a highly abnormal level. The chromosome aberrations can be an early warning of future

Federal officials said they wanted to further verify the results of the study before deciding whether to order relocations. They said there would be no decision before Wednesday.

“Why Wednesday? Why not today?” complained Mrs. Gibbs. “Why wait? We’ve paid enough. Move us into hotels and motels and place that cost onto the lawsuit against Hooker.”

The health testing was originally conducted to gather evidence for the federal government’s \$124.5 million lawsuit against the Hooker Chemical & Plastics Corp., which used the Love Canal as a toxic chemical dump more than 25 years ago. Hooker covered the site in 1953 and sold it to the city school board.

New York State has also filed a \$635 million lawsuit against Hooker.

Another resident, Phyllis Whitenight, underwent breast cancer surgery 5 years ago. She and her husband, Leonard, were told over the weekend that they were among the 11 residents whose blood showed evidence of chromosome damage.

“When I realized what was going on, I was weak, numb and nervous,” Mrs. Whitenight said when asked how she reacted to the health report. “Leonard was just worried about me.”

“In the past 6 years, at least seven people on our street contracted some form of cancer,” she added. “Five of those

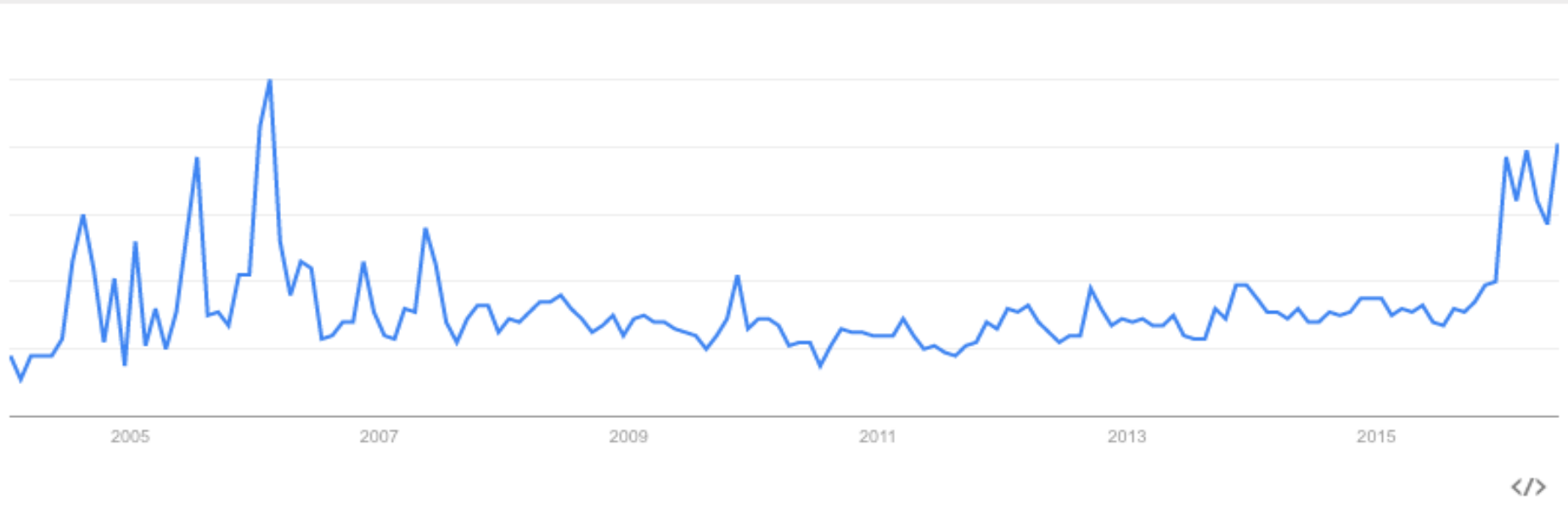
Superfund Act Signed into Law
December 1980



“PFOA” trending on Google

Jan. 2006: US EPA PFOA
Stewardship Program

Jan. 2016: NY Times
Magazine Cover on Rob
Bilott and DuPont



2005

2007

2009

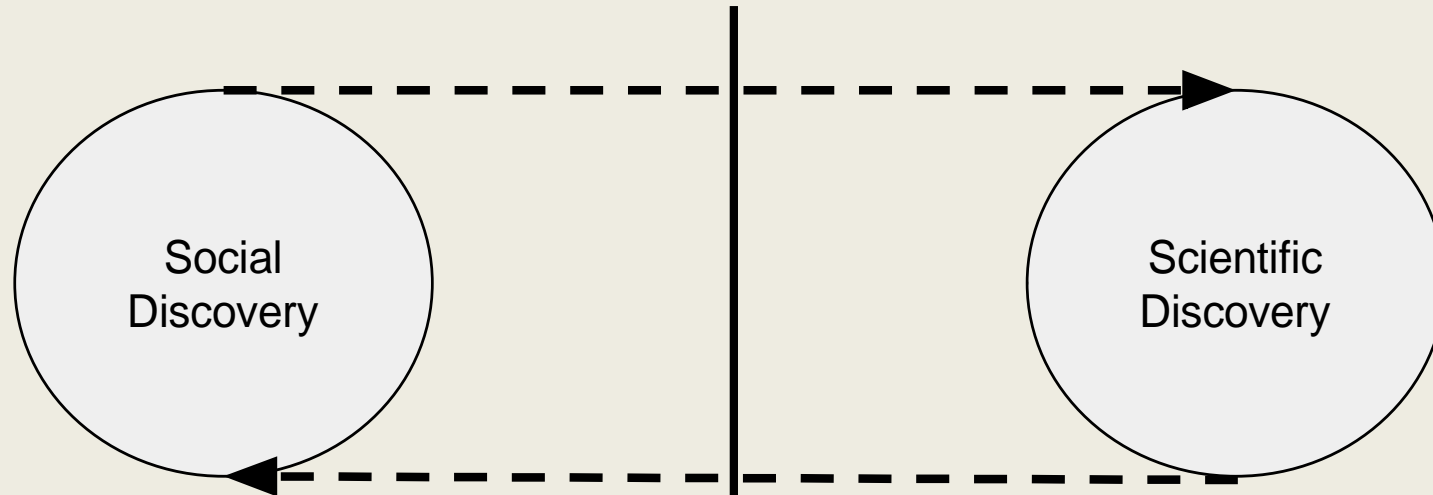
2011

2013

2015

Source: Google Trends

Social and Scientific Discoveries



Social Discovery: New or increased awareness of previously unrecognized social or environmental phenomenon.

Possible barriers
between social and scientific discovery, including the production of inaccurate science due to conflict of interest, or lack of statutory capacity for EPA.

Scientific Discovery: The development or establishment of a research base by scientific practitioners typically located in an institution such as academia, government or industry.

Methods

Qualitative Data Collection

- In-depth Interviews
- Multi-sited Observations
 - *Regulatory agencies*
 - *Research laboratories*
 - *Contaminated communities*
- Scientific Literature Review
- Regulatory Document Analysis

Tracking Contamination Cases

- Media Coverage
- Date of Discoveries
- PFASs Levels Detected
- Source(s) of Contamination
- Regulatory Responses
- Community Concerns
- Biomonitoring
- Litigation

1. Industry Scientific Discovery 1981

- i. **3M** rodent studies find low dose PFOA exposures can cause birth defects. Data shared with **DuPont** and **EPA** under TSCA.
- ii. **DuPont** monitors pregnant employees, two of eight babies born to female employees are born with birth defects.



- iii. **DuPont** and **3M** pull female workers from Teflon production temporarily. **DuPont** later fined by **EPA** under TSCA for not disclosing "*substantial risk of injury to human health.*"



Tennant Family Farm, Mid Ohio Valley. Source: New York Times

2. Social Discovery

1999: Tennants sue DuPont for negligent disposal of PFOA on farm, following the death of cattle herd.

2001: Class action lawsuit filed against DuPont for Mid-Ohio Valley PFOA exposure.

2000: Attorney Rob Bilott requests all PFOA documents from DuPont in legal discovery.



3. Litigation-Inspired Scientific Discovery

2004: DuPont settles class-action lawsuit \$235 million.

2005 – 2007: DuPont required to fund health studies; compensation possible for individuals with health impacts linked to PFOA through C8 Science Panel.

2012: C8 Science Panel finds PFOA exposure linked to **kidney cancer, testicular cancer, thyroid disease, ulcerative colitis, thyroid disease, pregnancy induced hypertension, & hypercholesterolemia.**

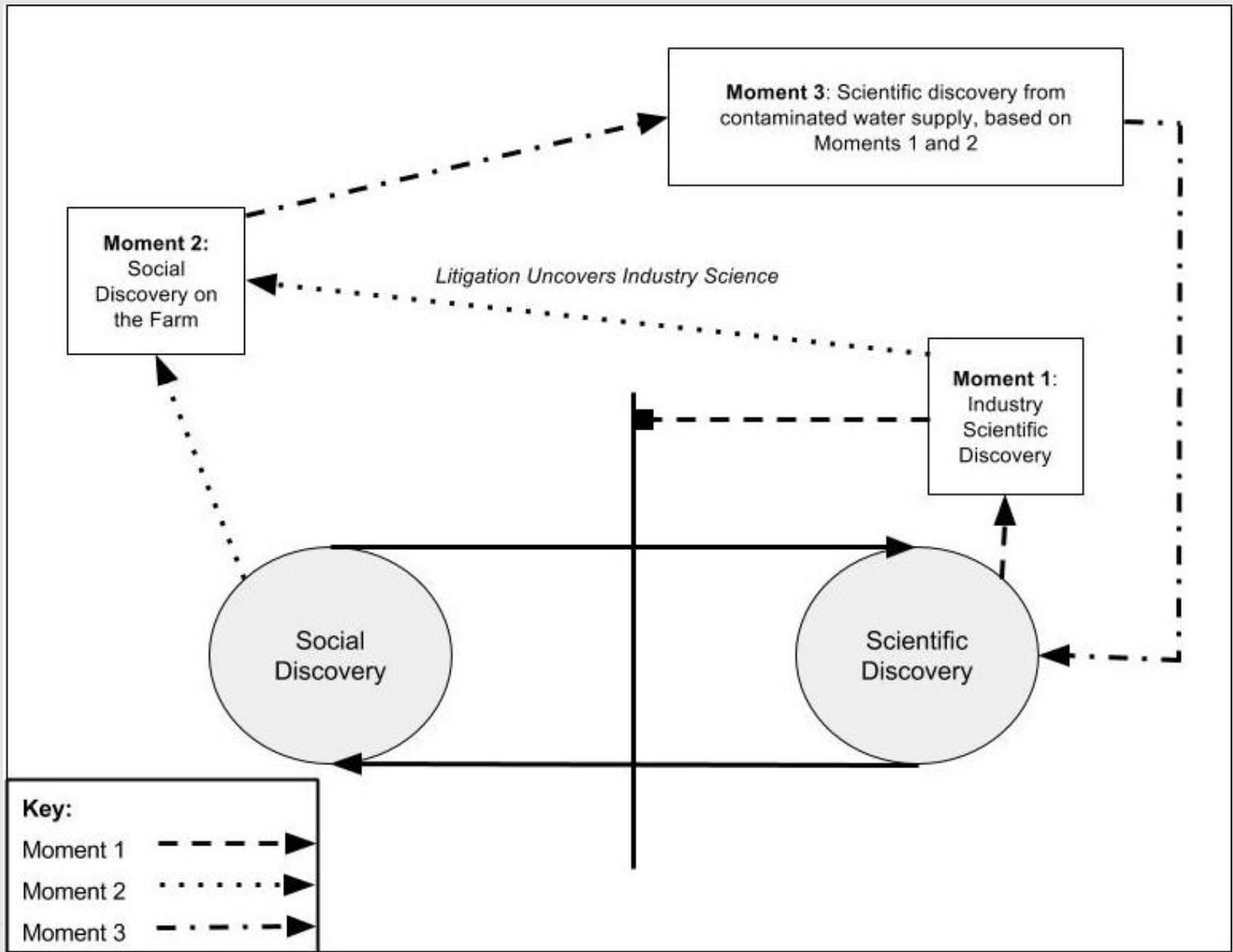
2017: 3,550 personal injury lawsuits against DuPont settled.

July 7, 2016

NEWS

Jurors: DuPont acted with malice; \$5M due to man with cancer

Social and Scientific Discovery at Different Moments



1. Industry Scientific Discovery

- Industry- to-industry disclosure
- Disclosure to EPA with qualifications

2. Social Discovery

- Observed health effects → litigation
- Litigation → industry disclosure
- Exposed industry data → public attention & research

3. Litigation-Inspired Scientific and Social Discovery

- Industry forced to fund independent health study → PFOA as likely carcinogen
- Over 3,000 academic articles by 2015
- 3,500 personal injury lawsuits by 2015

The New York Times Magazine

The Lawyer Who Became DuPont's Worst Nightmare

Rob Bilott was a corporate defense attorney for eight years. Then he took on an environmental suit that would upend his entire career — and expose a brazen, decades-long history of chemical pollution.

By NATHANIEL RICH JAN. 6, 2016

The New York Times

January 6, 2016

EPA Probes Safety Of Key Chemical in Teflon

Majority of Advisory Panel Calls It a 'Likely' Carcinogen; Changing French-Fry Cartons

By

SARA SCHAEFER MU&NTILDE;OZ Staff Reporter of THE WALL STREET JOURNAL

Updated Jan. 31, 2016 12:01 a.m. ET

The push by federal regulators last week to cut back on certain chemicals used to make nonstick, water-repellent and grease-resistant products could affect an array of consumer goods.

The Environmental Protection Agency is pressuring eight companies to reduce the presence of a group of chemicals that are used in the manufacture of such things as nonstick cookware, microwave popcorn bags, fast-food containers, carpeting, nail polish and stain-resistant clothing.

Yesterday, an EPA advisory group issued a statement, saying the majority of its members agree that the main chemical under review -- perfluorooctanoic acid, or PFOA -- is a "likely" cancer-causing agent. However the group, made up of outside experts, failed to agree unanimously on this likelihood and recommended further study. The findings come after a lengthy review of EPA data on the chemical, including studies linking it to cancer in rats, and indicating that PFOA is found in many people's blood.

The EPA says it will review the findings of the panel, issue a final report assessing the risks, and take any necessary regulatory steps. Already some companies, including [DuPont Co.](#), [3M Co.](#) and [McDonald's Corp.](#), say they are reducing their use of PFOA-related products or emissions of PFOA.

So far, the EPA has said that use of products that involve PFOA is safe. "The information that we have available doesn't indicate that the routine use of household products poses a concern," said Susan Hazen, EPA's acting assistant administrator for the Office of

THE WALL STREET JOURNAL.

January 31, 2016

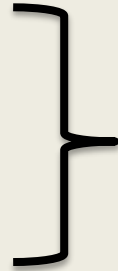
Implications for Coalition and Community Building

- Multi-sector alliance
- Technological disasters and “corrosive communities”
- Limitations of EPA and current regulations of industrial chemicals and water treatment

Contributions

Current Literature

- Doing Science
- Interpreting Science
- Acting on Science



Future Directions

Operate differently in each stakeholder group?

- Strategic Science **Translation** → Strategic Science **Production**
 - What dynamics truncate knowledge production?
 - What dynamics facilitate knowledge production?



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Thank you!

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