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A DUPONT LEGACY: PFOA Pollution

Perfluorooctanoic acid (PFOA), made and used by Dupont, is used to make non-stick products such as Teflon pans. Dupont also uses fluorinated telomers, called “precursor chemicals”, which are found to break down into PFOA. This family of chemicals is used in nonstick papers such as food containers, stain resistant and water resistant fabric, and other commonly used products. Dupont pioneered their use in the 1950’s as Teflon, dominating the PFOA market. Along with 3M Corporation, Dupont has used PFOA and related perfluorinated chemicals for decades.

PFOA use is so widespread and their nature so durable that PFOA has become ubiquitous in our environment. This is proven by blood studies that show the presence of PFOA chemicals in the blood of 96% of people in the U. S. The University of Pennsylvania School of Medicine found that PFOAs concentrate in the blood – because the chemical tends to build up in the human body and is difficult to excrete, the levels in an individual’s blood is about 105 times the amount in their drinking water. According to the U.S. Environmental Protection Agency (EPA): “Because PFOA can remain in the body for a long time, drinking water that contains PFOA can, over time, produce concentrations of PFOA in blood serum that are higher than the concentrations of PFOA in the water itself.” (US EPA Consent Order - November 2006).

The EPA has concluded that PFOA chemicals may be hazardous to human health and says they want the use of this family of chemicals phased out; rulemaking issued in 2006 removes exemptions previously given to these chemicals, making them subject to toxic chemical control requirements. (EPA 40 CFR Part 723) EPA fined Dupont \$16.5 million in 2006 for covering up years of health hazard information. 3M Co. was fined \$1.5 million for similar deception. But EPA has not banned the chemical yet and the EPA/Dupont agreement is only a voluntary reduction program; Dupont has until 2015 to discontinue PFOA. Dupont has not published concrete evidence showing its annual manufacture reduction in the meantime.

A federal report by an independent scientific review panel, the Science Advisory Board, acknowledged in a report dated May 2006 that the compounds are a “likely” cause of cancer¹. The Centers for Disease Control and John Hopkins recently reported health impacts in newborn babies such as low birth weight and reduced head circumference.² Recent studies show that PFOA may be related to infertility in women³. Metabolic effects are reported in mice in adulthood after prenatal exposure to PFOA⁴. Pregnancy loss, increased neonatal mortality, abnormal mammary gland growth and other developmental changes are also reported in recent studies.⁵ Studies have shown that workers who contact these chemicals are more prone to prostate and bladder cancer and higher than normal levels of cholesterol — a risk factor for heart attack and stroke.⁶ In Oregon, studies on trout show that PFOA may promote liver cancer in trout and humans.⁷

¹ [EPA-SAB-06-006 SAB Review of EPA's Draft Risk Assessment of Potential Human Health Effects Associated with PFOA and Its Salts](#)

² Benjamin Apelberg, Department of Epidemiology, Bloomberg School of Public Health, John Hopkins University, August 2007.

³ Chunyuan Fei^{1,5}, Joseph K. McLaughlin^{2,3}, Loren Lipworth^{2,3}, and Jørn Olsen^{1,4}. Maternal levels of perfluorinated chemicals and subfecundity. *Human Reproduction*, Vol.1, No.1 pp. 1–6, 2009.

⁴ Hines, E.P.; Gibbs-Flournoy, E.A.; Stanko, J.P.; Newbold, R.; Jefferson, W.; Fenton, S.E. Testing the uterotrophic activity of perfluorooctanoic acid (PFOA) in the immature CD-1 mouse. *The Toxicologist* 2009, 108, 297.

⁵ Hines, E.P.; White, S.S.; Stanko, J.P.; Gibbs-Flournoy, E.A., Lau, C., Fenton, S.E. Phenotypic dichotomy following developmental exposure to perfluorooctanoic acid (PFOA) in female CD-1 mice; Low doses induce elevated serum leptin and insulin, and overweight in mid-life. *Mol. Cell. Endocrinol.* 2009, doi:10.1016/j.mce.2009.02.021.

⁶ Dupont Council, “Facts not Fiction”, The Case of C8, http://www.dupontcouncil.org/About_Us.htm

A class-action lawsuit was brought against Dupont at their West Virginia Washington Works Plant by residents who were found to have excessive amounts of PFOA in their blood (298 to 369 ppb but some had ppb levels in the thousands); all Americans have approximately 4 ng/mL (nanogram/milliliter) of PFOA in their blood.

In February 2007, the New Jersey Department of Environmental Protection (NJDEP) set a drinking water guidance level of .04 parts per billion (PPB) after finding PFOA contamination in drinking water supplies in 17 of 23 water systems they tested across the state. This is the nation's strictest level and is the first step towards establishing a mandatory drinking water standard in the state. The level is based on occurrence and human health effects over lifetime exposure.⁸ Dupont is testing wells within a 2 mile radius of Chambers Works and will have to provide an alternative drinking water source to residents if PFOA is found. Dupont and NJDEP are planning to use the recently issued federal level (by the outgoing federal administration) of 0.4 ppb as the trigger for providing water, even though New Jersey has issued .04 ppb as a protective guidance level. DRN and other groups are advocating that the more protective standard be applied through an interim specific groundwater quality criterion attached to Dupont's Site Remediation Program.⁹

PFOA was first discovered in residents' tap water in New Jersey through water testing by Delaware Riverkeeper Network (DRN) in communities that neighbor the Dupont Chambers Works facility, namely Deepwater, Penns Grove, and Carney's Point, New Jersey. The levels found subsequently by NJDEP confirm that drinking water levels there exceed NJDEP's guidance level. PFOA chemicals were reported in May 2007 in Thorofare, New Jersey drinking water samples near a company that used them in manufacturing, Solvay Solexis. This was not part of NJDEP's water system study. High blood levels of PFOA were found in Dupont workers in Deepwater.¹⁰ PFOA contamination is surfacing as a pollutant in many communities including Virginia, North Carolina (where PFOA is still manufactured by Dupont), and Minnesota, near 3M Company's plants. Dupont is sending PFOA from other sources for discharge by Dupont's Pascagoula Mississippi facility, despite fiery opposition.

Dupont still manufactures PFOA and discharges this unregulated chemical into the nation's ground and surface waters. Some companies are taking action: 3M discontinued manufacture based on their own health studies; Burger King stopped using PFOA-coated paper in 2002, IKEA phased out its use on upholstery several years ago based on health concerns. But Dupont still supplies the product and it turns up in the most unexpected places such as cooking utensils and fabrics that are labeled "stain resistant" and "water resistant". While DuPont has agreed with the U.S. Environmental Protection Agency (EPA) to slowly phase out the manufacture of PFOA over many years (by 2015), fluorotelomer alcohols are not included in the phase out and are still being made and used by Dupont. Fluorotelomers are used widely in products (such as McDonalds fast food and ConAgra's Act II and Orville Redenbacher microwave popcorn bags), fire-fighting foams, carpet and upholstery, stain resistant clothing and even cosmetics. And testing of fluorotelomers was just extended by the outgoing federal administration for three more years, delaying until December 2011 the deadline for DuPont to purify its fluorotelomer products.¹¹ This extends the time that residents and the environment will be exposed to these chemicals.

A Dupont scientist discovered PFOA in 1938 but concerns about poisonous vapors from the chemical held up its use by Dupont. After about 15 yrs. it was made into Teflon and then into dozens of other applications. Why were the health and safety concerns that Dupont found almost 70 years ago not heeded? How could Dupont move ahead using this family of chemicals without comprehensive human health studies and regional water monitoring safeguards?

In the 1980's/1990's Dupont acknowledged that drinking water levels should be set but nothing was done by the company or environmental regulators. Dupont should be volunteering to find out how PFOA is escaping their facilities and taking proactive measures to clean up the source of PFOA contamination in order to stop the spread of these pollutants into the water and air, in addition to providing clean water to communities that have been polluted by PFOA. Despite the fact that surface and groundwater discharges by Dupont must be monitored for PFOA, there is no discharge limit. Also, air transport of perfluorinated chemicals is suspected of being a major pollution pathway and should also be stopped.

For more info: Delaware Riverkeeper Network, www.delawareriverkeeper.org

⁷ http://www.sciencenews.org/view/generic/id/43712/title/Nonstick_chemical_pollutes_water_at_notable_levels

⁸ "Occurrence and potential significance of perfluorooctanoic acid (PFOA) detected in New Jersey public drinking water systems" by Gloria Post, NJDEP Division of Science, Research and Technology (DSRT); Judy Louis, NJDEP DSRT; Keith Cooper, Rutgers University; Betty Boros-Russo, NJDEP Bureau of Safe Drinking Water; and Lee Lippincott, NJDEP (DSRT)

⁹ Letter to NJDEP from DRN, ANJEC, NJEF, NJWEC, SJEJA, and USW, 4.28.09

¹⁰ Perfluorooctanoic Acid (PFOA) Updated Occupational Serum Sampling, Chambers Works Facility, Deepwater, New Jersey; submitted to EPA June 4, 2008 by DuPont Corporation

¹¹ Andrew Eder, "Environmental Appeals Board extends federal deadline three years", The News Journal, February 10, 2009.