DuPont Agrees to Lower Limit Of PFOA in Drinking Water

DuPont Washington Works

Parkersburg, West Virginia March 2009

A new legal agreement between U.S. Environmental Protection Agency and E.I. du Pont de Nemours & Co. will lower the limit of PFOA in drinking water for people who live near DuPont's Washington Works facility in Parkersburg, W.Va. Under terms of the agreement – known as a "consent order" – DuPont will offer water treatment or bottled water to people on public or private water systems when the level of a chemical called PFOA – also known as perfluorooctanoic acid or C-8 -- in water supplies reaches 0.40 parts per billion (ppb).

EPA's Office of Water issued a Provisional Health Advisory (PHA) in January for PFOA that establishes a reasonable, health-based value above which action should be taken to reduce exposure to PFOA in drinking water. The time frame for action is short-term – meaning weeks to months. This PHA prompted the new agreement to lower the allowable concentration of PFOA in drinking water from 0.50 ppb to 0.40 ppb in communities near the Washington Works facility. If affected homes cannot be connected to a public water system or a treatment system within 30 days, DuPont must offer bottled water. People who live in the PFOA-contaminated water areas affected by the new action level may reduce their exposure by not drinking the water until treatment systems are installed, or they are connected to a public water system.

EPA expects a limited number of residents will be affected by the new action level. Current data identifies about 14 private residences that may need a treatment system installed or connection to a public water system. If these residences cannot be connected to a public water system or treatment system within 14 days after the order is signed, then DuPont must offer alternative water. In addition, there may be a small number of private drinking water wells, installed after 2006, that need to be tested for PFOA. EPA is also assessing monitoring data and other information to determine if there are any previously untested areas that need to be surveyed.

Under a 2006 consent order, all public and private water systems that had PFOA levels above 0.50 ppb were offered alternative water or treatment, and DuPont is maintaining the alternative water or treatment at those systems today.

EPA issued the 2006 order in response to a study available at the time that evaluated about 340 residents living in the most heavily affected communities in Ohio near DuPont's Washington Works plant. That study showed residents had an average PFOA level of 298 to 369 ppb in their bloodstreams. More recent data gathered under a PFOA health study involving some 64,000 people, indicates the average PFOA levels in the bloodstreams of everyone in the affected communities to be about 28 ppb. These values are still much higher than the average 5 ppb level found in the national population.

If you want to know more

For general information about this order:
EPA hot line -- 866-575-8543

The 2009 consent order is available at:
www.epa.gov/region5/water/gwdw/dupont/index.htm

The 2006 consent order is available at:
www.epa.gov/regio03/enforcement/dupot_order.pdf

For information on the PFOA Stewardship Program and on the risk assessment activity see:
www.epa.gov/oppt/pfoa.

For reference materials and information on the C-8 Health Project, residents and physicians can refer to the documents available on these Web sites:
www.odh.ohio.gov/odhPrograms/eh/hlth_as/chemfs1.aspx and
www.c8healthproject.org

The 2006 order also relied on other studies that demonstrated various kinds of toxic effects on experimental animals. EPA believed the results were a concern for public health. EPA's Office of Water used new information, an advanced risk assessment technique and a different principal study from the one used in 2006 to establish the new national limit for PFOA of 0.4 ppb.

Boiling does not remove PFOA from water. That is done by treatment with granular activated carbon. Where this treatment has been installed in a water system, consumers are receiving water with either undetectable PFOA levels or very low concentrations of .003 ppb, well below the 0.40 ppb action level. All of the area's large public water systems, including Belpre, Little Hocking, Lubeck, Mason County, Tupper Plains/Chester and Pomeroy, are already treating water for PFOA.

As for private water systems – primarily water wells for private homes – since 2006 DuPont tested a large number of systems and either connected them to a public water system or installed treatment equipment on 50 systems that had PFOA levels of 0.50 ppb or above.

Order requires expanded survey

DuPont is required under the terms of the new consent order to survey geographical areas defined by EPA to determine if additional public or private water systems contain water that exceeds the new 0.40 ppb PFOA action level. These areas will be further evaluated and refined in consultation with Ohio and West Virginia officials as analytical data become available. Residents with newly drilled drinking water wells or wells not previously tested for PFOA may be eligible for sampling. They should contact EPA at 866-575-8543.

EPA does not certify labs for analysis of PFOA. Due to the complex nature of analytical procedures for this substance, EPA strongly encourages residents to allow DuPont to sample their water.

There is no consensus on how PFOA may affect people. However, concerns have been raised because of data from animal experiments and data from blood samples from people who live near the Washington Works facility. More studies are in progress but results may not be available for several more years. In the meantime, the new action level will reduce local exposure to PFOA from drinking water and reduce the possibility of adverse health effects.

Technical background: What is PFOA?

PFOA, or C-8, is a man-made chemical that resists heat, water, oil, grease and stains. It has been used in making common household and industrial items such as non-stick pots and pans, flame resistant and water-proof clothing, wire coatings, and chemical resistant tubing. PFOA can also be formed by the breakdown of other highly fluorinated chemicals used in stain-resistant carpets and fabrics, stain-resistant paints, fire fighting foam, and oil- and grease-resistant food cartons and wrappers. PFOA does not occur naturally in the environment and is highly persistent, with little or no degradation occurring in air, water or soil.

History of legal orders

This order supersedes the Emergency Administrative Order on Consent that was issued in 2006 under the authority of the Safe Drinking Water Act. Section 1431 of the Act requires a finding that "a contaminant is present in or is likely to enter a public water system or underground source of drinking water … which may present an imminent and substantial endangerment to the health of persons." It does not require a conclusive finding that a contaminant has, or definitely will, cause harm.

The 2006 order contained a temporary threshold value of 0.50 ppb PFOA based on information available at the time about blood serum levels of the chemical in the local population and scientific studies. The 2006 order was a revision to a 2002 order, which established an action level of 150 ppb. The new order's revised action level of 0.40 ppb PFOA is based on new and different information than what was used to calculate the 2006 action level. The former 0.50 ppb site-specific action level for PFOA was a threshold for DuPont to provide treatment or alternate water to public and private water users in the vicinity of the facility, and the new action level of 0.40 ppb is an updated threshold. The Agency continues to conduct its risk assessment under the authority of the federal Toxic Substances Control Act. Until that process is complete there will not be a reference dose or an official maximum contaminant level for drinking water.

West Virginia and Ohio authorities have relied on EPA to review the existing 2006 order and have requested EPA's assistance with this matter.

PFOA levels in drinking water and human blood

The average human blood serum PFOA concentration in the United States is around 5 ppb. PFOA can be absorbed though swallowing, breathing and skin exposure. We do not know which exposure routes account for the background levels of PFOA in the general population.

Some residents in the vicinity of the Washington Works plant had median blood serum levels ranging from around 298 to 369 ppb PFOA. Data from a more recent study indicate the average has dropped to about 28 ppb. The high blood serum levels in residents are attributed to accumulation of PFOA in the bloodstream and its slow elimination from the human body. The half-life of PFOA in humans is approximately 3.8 years. Half-life is the time required to reduce the chemical to one-half the initial concentration. For example, with no additional PFOA input it will take approximately four years for blood values of 100 ppb to be reduced to 50 ppb. Ingestion of PFOA through drinking water is considered a major source of the chemical found in the blood of residents in the vicinity of the DuPont facility. Reducing exposure to PFOA in drinking water will reduce the accumulation of the chemical in residents.

The drinking water levels in nearby water systems have historically averaged from 1 to 20 ppb PFOA. For the six public water systems in the area and for private residences that accepted treatment, PFOA levels in drinking water have been significantly reduced to undetectable concentrations and most often less than .003 ppb. While much is known about the occurrence of PFOA in the vicinity of this DuPont facility, the substance is not a regulated drinking water contaminant. Therefore, public water systems are not required to monitor for PFOA.

Recent scientific information

EPA's Office of Water used new scientific information, an advanced risk assessment technique, and a different principal study from the one used in 2006 to develop the PHA. The principal study the Office of Water used involves peer-reviewed research in mice that looked at developmental effects of PFOA as the toxicological endpoint. The 2006 calculation used an earlier study of monkeys that looked at mortality rates as the toxicological endpoint. Additionally, since the 2006 order was issued new information and data has become available on PFOA half-lives in some animal species that the Office of Water used in its calculation. The Office of Water also applied a more advanced risk assessment technique that resulted in an update to some of the values used to calculate the new Provisional Health Advisory from those used in 2006. EPA continues to monitor emerging scientific information regarding PFOA in the interest of public health. EPA and DuPont agreed to revise the existing order.

Other legal actions

In 2001 DuPont, the West Virginia Department of Environmental Protection and the West Virginia Department of Health and Human Resources entered into a consent agreement. The legal order required a toxicological and human health risk assessment of C-8 be conducted under the supervision of a C-8 assessment of toxicity team. Ground-water and surface-water monitoring and plume identification in West Virginia and Ohio were conducted under the supervision of a ground-water investigation team.

An order issued in 2005 in response to a 2001 civil suit in Wood County, W.Va., (*Leach, et al v. E.I. DuPont de Nemours & Company)* required collection of blood serum and health data from about 70,000 people who live near DuPont's Washington Works facility. The collection of blood serum and health data is known as the Brookmar Study. It also provided for the installation of carbon filters for six public water service districts in West Virginia and Ohio. EPA was not a party to the civil action or the settlement. EPA will, however, evaluate data produced by these studies as well as other information generated as part of its ongoing review in the risk assessment process.

Major human health studies in progress

PFOA Health Project: In 2006 about 64,000 people completed questionnaires and had blood drawn. Brookmar Inc. has been hired to collect and compile the health data and blood serum levels. Then a three-member science panel will assess whether there are adverse health effects to humans associated with elevated levels of PFOA in the blood serum. Although the full results of the study are not expected until about 2011, the blood serum concentrations are available to the people who participated. Ohio Department of Health, the federal Agency for Toxic Substances and Disease Registry, Ohio Environmental Protection Agency, West Virginia Department of Environmental Protection and West Virginia Department of Health Human Resources wanted to have reference materials available to local physicians as their patients received data. Information is available at: www.odh.ohio.gov/odhPrograms/eh/hlth_as/chemfs1.aspx

Status of EPA risk assessment

Under the Toxic Substances Control Act, EPA is evaluating PFOA and related perfluorochemicals. A formal risk assessment process is under way. EPA's Science Advisory Board completed a review of a draft risk assessment of PFOA in 2006, and the board made recommendations for the further development of the assessment. A final risk assessment may not be completed for several years. Once a final risk assessment is completed, or if further information about the health effects of PFOA indicates it is necessary , the action level of 0.40 ppb PFOA established in the latest legal order with DuPont will be re-evaluated. The Agency is funding additional research regarding the toxicity of PFOA and other perfluorochemicals, as well as research to help identify where these chemicals are coming from and how people may be exposed to them.

Other EPA actions on PFOA

The EPA risk assessment activity on PFOA and its salts will take time to complete, but the Agency has already taken action to reduce the amount of PFOA getting into the environment. In 2006 EPA invited major companies in the industry to commit to a voluntary, global PFOA Stewardship Program. All invited companies, including DuPont, have committed to the goals of the program, which include reducing facility emissions and product content of PFOA and related chemicals by 95 percent by 2010 and working toward elimination of releases and product content of these chemicals by 2015. As of the end of 2006, DuPont had reduced annual air discharges of the chemical from the Washington Works facility by 99.1 percent and had reduced annual water discharges by 99.2 percent since 2000. DuPont and the other companies are submitting reports to EPA on their past activities and on their progress toward the Stewardship Program goals.