



# Environmental Health Information

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## Perfluorochemicals and the 3M Cottage Grove Facility

The 3M Company produced perfluorochemicals (PFCs) at its Cottage Grove facility from the late 1940's until 2002. Perfluorooctanoic acid (PFOA) was the main type of PFC made at this site. PFOA is used in the making of products that resist heat, oil, stains, grease and water. Common uses include nonstick cookware, stain-resistant carpets and fabrics, and other industrial applications.

### **How were PFCs released on site?**

For a time, wastes from the production process were disposed on site in a specially prepared pit; there may be other disposal sites as well. The water treatment plant on site that processed water from production activities did not remove PFCs, so PFCs were in the waste water that went into the Mississippi River. Some sludge left over from the water treatment process also contained PFCs and was disposed on site. On the west side of the site, firefighting foams containing PFCs were used in training exercises. PFCs may also have been released into the air.

### **Where is the PFC contamination now?**

Preliminary environmental testing shows that the groundwater beneath the 3M Cottage Grove site is contaminated with PFOA, a related chemical, perfluorooctane sulfonate (PFOS), and other PFCs. In some areas, the levels of PFOA and PFOS exceed the Minnesota Department of Health (MDH) drinking water criteria. More testing needs to be done to define the extent of contamination. However, testing of the water from four residential drinking water wells just to the east of the facility did not find either chemical. These wells are deep and not "downstream" from the contamination.

An extensive system of wells contains and collects much of the groundwater from under the site so that the wastewater treatment plant can process it. Recently, a large granular activated carbon filter was added to the plant to remove PFCs from the water before it goes into the river. Shallow groundwater near the disposal pit is not collected by the well system and may still allow PFCs to enter the river.

### **What do we know about PFCs? Are they harmful?**

PFOA and PFOS are very stable chemicals that do not change or break down in the environment. There are a few studies indicating that PFCs easily enter groundwater and move long distances. Some experts also suggest that during the years of PFC production, PFCs in air emissions from the facility could have deposited on soil and leached into the groundwater.

The PFC family of chemicals is relatively new and there are not many studies of health effects in people. In animals, high concentrations of PFCs cause harm to the liver and other organs. Exposures to high concentrations of PFOA over a long period of time also



cause cancer in animals. Developmental problems have been seen in the offspring of rats exposed to PFCs while pregnant.

### **Have people been exposed in the past?**

Workers at the facility were exposed to PFCs in the course of their work and also through the facility's water supply. 3M has been monitoring PFCs in the workers' blood since the 1970's. Epidemiological studies of these workers show no impact of PFCs on worker mortality.

There is no similar epidemiological information on PFCs in the general population. Studies do show that everyone has some PFCs in their blood, regardless of age. Concentrations of PFCs in the general population are many times less than that of the 3M workers. The way PFCs get into human blood is not known at this time. People could be exposed through food, water, use of commercial products or from the environment. PFCs stay in the human body for many years.

PFCs have also been found in the blood of several species of wildlife around the world; the highest concentrations are in bald eagles and mink in the midwestern U.S. Studies also show that PFOS bioconcentrates: large fish have more PFOS in their bodies than small fish.

### **What does MDH recommend?**

We cannot fully assess the impact of PFCs from the Cottage Grove facility on public health at this time. More testing of the soil, groundwater, surface water, sediments and biota is planned. Understanding the different pathways for human exposure to PFCs in the environment is critical. MDH will continue to work with the Minnesota Pollution Control Agency and 3M to collect environmental data and assess the public health impacts of this site.

#### **For more information contact:**

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