

US EPA ARCHIVE DOCUMENT

Soil Contamination in Decatur, AL
Statement and Background
Prepared by U.S. Environmental Protection Agency

Statement:

Treated sewage sludge (biosolids) from Decatur Utilities was used as a soil amendment on about 5000 acres of privately owned agricultural fields in three counties near Decatur, Alabama. EPA is investigating the potential for perfluorochemical (PFC) contamination to the environment associated with the application of the biosolids at these sites. The Agency has collected and analyzed samples of public drinking water, private wells and ponds, and soil in the area to better understand human and environmental exposures. In addition, EPA has established drinking water Provisional Health Advisories for two of the PFCs, perfluorooctanoic acid (PFOA), and perfluorooctyl sulfonate (PFOS). The Provisional Health Advisory levels are 0.4 ppb for PFOA, and 0.2 ppb for PFOS. Based on its current understanding, EPA believes the public drinking water levels are not of concern and residents may rely on public water systems. Two of six private drinking water wells exceeded the Provisional Health Advisory for PFOA, and the residents were connected to the public water supply system. The results of soil sampling and analysis may be available in June. EPA is coordinating with the State of Alabama, the US Department of Agriculture (USDA), the US Food and Drug Administration (FDA), Decatur Utilities and local industries, and will keep the public informed of what we are finding and our actions taken to limit human and environmental exposures.

Background

- In October 2008, EPA received analytical results from its Office of Research and Development laboratory for a limited set of samples from two agricultural sites in Alabama where biosolids from Decatur utilities were applied. The Decatur Utilities plant receives wastewater from domestic as well as industrial sources, including fluorochemical manufacturing and use facilities in the area. Biosolids generated at the plant were land applied to approximately 5,000 acres of farm land in three surrounding counties. Analytical results indicate elevated (ppb to ppm) levels of perfluorooctyl sulfonate (PFOS), perfluorooctanoic acid (PFOA), and other perfluorinated compounds (PFCs) in sewage sludge and in soil that received sewage sludge when compared with other environmental sampling results from industrial and non-industrial sites. Screening data for the 2 soil sample sites for PFOS ranged from 715 -1296 ppb in 4 samples analyzed by the EPA laboratory in Georgia, and 589-708 ppb in 5 samples analyzed by the EPA laboratory in North Carolina. Screening data for PFOA ranged from 818-2531 ppb in 4 samples analyzed by the EPA laboratory in Georgia, and 55-2144 ppb in 5 samples analyzed by the EPA laboratory in North Carolina. Other PFCs were also analyzed. Because of the small sample size and preliminary nature of the results, EPA has conducted additional soil sampling. The final results of these analyses may be available in June 2009.
- EPA initially collected the samples in response to information it obtained from companies discharging into the Decatur Utilities waste water treatment plant indicating high concentrations of PFOS and PFOA in the industrial discharges and [elevated measurements of PFOS and PFOA in the biosolids?]. PFOA and PFOS are known to be mobile in the environment.

- EPA has developed drinking water Provisional Health Advisories for PFOA and PFOS to provide information in response to an urgent and rapidly developing situation. These Provisional Health Advisories reflect reasonable, health-based hazard concentrations above which action should be taken to reduce exposure to unregulated contaminants in drinking water. The Provisional Health Advisories are 0.4 ppb for PFOA, and 0.2 ppb for PFOS.
- EPA Regions III and V established a site-specific action level of 0.50 ppb for PFOA in drinking water in the DuPont 2006 Consent Order. EPA Regions III and V recently lowered the action level to 0.4 in response to the Office of Water Provisional Health Advisory. Several States have established guidance values or regulatory limits for PFOA in drinking water (MN 0.5 ppb; NC 2 ppb; NJ 0.04 ppb). MN has also established a health-based value of 0.3 µg/L for PFOS in drinking water. EPA is not aware of any other action levels that have been established for other PFCs. EPA has not established an action level for PFOA or PFOS in soil or sewage sludge.
- The levels of PFOA and PFOS recently analyzed by EPA in community water systems in Lawrence and Morgan Counties are all lower than the Provisional Health Advisory. Two systems, Decatur and Moulton, had no detects of PFOA or PFOS. One system, the East Lawrence/W. Morgan system had detects of PFOA and PFOS at the 0.02 ppb level, well below the Provisional Health Advisory of 0.4 for PFOA and 0.2 for PFOS. Based on its current understanding, EPA believes these levels are not of concern and residents may rely upon public water systems.
- EPA collected additional samples to determine if PFOA/PFOS has migrated over or through the soils to ground water or surface water and contaminated drinking water supplies. Two of the six private drinking water wells sampled had PFOA levels above EPA's Provisional Health Advisory level and none had levels above the PFOS Provisional Health Advisory level. These two wells had PFOA levels of 2.2 ppb and 0.6 ppb respectively. Both of the residences served by these two wells were quickly provided with bottled water and within days connected to the public water supply system by Decatur Utilities and a group of local industries in the area. Other PFCs were also analyzed. The agency is evaluating the significance of the other PFCs detected.
- PFOA, PFOS and other PFCs were also detected in many of the samples collected from ponds in the vicinity of the land application sites. These concentrations varied significantly; PFOA ranged from non-detect to 11 ppb and PFOS ranged from non-detect to .06 ppb.
- Additional soil samples were collected in March of 2009. Analytical results are not yet available.
- Perfluorochemicals (PFCs) are synthetic (man-made) chemicals that do not occur naturally in the environment. These compounds are used in a variety of industrial and consumer applications, including use as a processing aid in the manufacture of non-stick and stain-resistant surfaces and products and to impart water, stain, and grease resistance to carpets, paper and textiles. PFOS and PFOA are very persistent in the environment and have been found at very low levels both in the environment and in the blood of the general U.S. population. PFOS is no longer manufactured in the United States. Other PFCs have been determined to be degradable in the environment and to form PFOA, PFOS and related compounds.
- Studies indicate that PFOS and PFOA can cause systemic and developmental toxicity in laboratory animals. Both compounds have a very long half-life (i.e., time required to clear the body) in humans (years). These factors, taken together, prompted the Agency to

investigate whether these perfluorinated compounds might pose a risk to human health and the environment at the levels currently being found, or at levels that might be reached in the future as perfluorinated compounds continue to be released into the environment.

- Some PFCs are mobile in the environment and may leach to underlying groundwater and run off into nearby surface waters. A limited amount of data exists which suggests that PFOS and PFOA can be taken up by plants.
- EPA has initiated discussions among key program Offices and with other Federal agencies as well as the Region and State agencies to determine appropriate next steps.
- EPA Headquarters is working with Region 4, Alabama Department of Environmental Management (ADEM), U.S. Department of Agriculture, Food and Drug Administration, industry, and Decatur Utilities and others from the area to better understand the extent of the contamination and to take actions needed to protect public health and the environment.
- As the investigation progresses, EPA will keep the public informed of what we are finding and planned next steps.
- Since April 2003, EPA has been working closely with companies and interested parties to develop the information necessary to better understand the sources and exposure pathways of PFOA. In January 2006, EPA invited the eight major companies in the industry to participate in the 2010/2015 PFOA Stewardship Program. The companies agreed to participate and in so doing committed to reduce facility emissions and product content of PFOA and related chemicals by 95 percent by 2010, and to work toward eliminating emissions and product content by 2015. The first progress reports were received in October 2007, and showed significant reductions. For example, three companies reported greater than 98 percent reductions in emissions of PFOA in the United States, and 5 companies reported greater than 74% reductions of PFOA outside the United States.