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U.S. Environmental Protection Agency

Perfluorochemical (PFC) Contamination Near Decatur, AL

Fact Sheet *Spring 2013*

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Introduction

Between 2007-2011, EPA worked with federal and state agencies, the Decatur Utilities Dry Creek Wastewater Treatment Plant (Decatur Utilities) and local industries to assess the extent of perfluorochemical (PFC) contamination in and around Decatur, Alabama.

Wastewater from several local industries that manufactured and used PFCs was discharged to Decatur Utilities. The treated sewage sludge, known as "biosolids," from Decatur Utilities was distributed as a fertilizer. PFCs migrated into the environment at sites where these biosolids were applied.

EPA has now completed its monitoring of PFCs in soil and water in Decatur related to the contaminated biosolids. None of the soil or public drinking water samples had PFC concentrations above EPA's health-based screening levels. All residences with private drinking water wells that exceeded health-based screening levels for PFCs have been connected to public water.

In 2009, EPA requested that the Agency for Toxics Substances Disease Registry (ATSDR) conduct an exposure investigation of those individuals who may have been exposed to contaminated biosolids. Investigation results were released in April 2013, and are available online at: http://www.atsdr.cdc.gov/hac/pha/HCPHA.asp?State=AL

Decatur Utilities voluntarily stopped distributing its biosolids as a fertilizer in November 2008. Local industries in Decatur have stopped manufacturing PFOS and are currently phasing out PFOA. These industries are also taking measures to reduce and prevent the release of PFCs to the environment, including the Tennessee River.

Background

PFCs are used in a variety of industrial and consumer applications and products, including fire-fighting foams; personal care and cleaning products; and oil, stain, grease, and water repellent coatings on carpet, textiles, leather and paper.

PFCs have been manufactured in Decatur since the 1960s by the 3M Corporation (3M), and later by Daikin America, Inc. (Daikin). Additionally, Toray Carbon Fibers America, Inc. (Toray) in Decatur historically used PFCs. In the past, 3M disposed of PFC waste on-site as well as in local landfills. Wastewater containing PFCs from the three industrial facilities was treated at the Decatur Utilities.

In 2007, a local industry notified EPA that it had inadvertently discharged large quantities of a PFC to Decatur Utilities. At that time, biosolids from Decatur Utilities was being applied as a fertilizer on about 5000 acres of privately owned agricultural fields in Alabama's Lawrence, Morgan and Limestone counties. This practice had been ongoing since 1996.

EPA regulations under the Clean Water Act allow biosolids to be applied as a fertilizer as long as certain operating and monitoring requirements are followed. PFCs are a class of man-made chemicals that, in most cases, are not regulated by EPA. Therefore, biosolids are typically not required to be tested for PFCs.

In response to the notification, EPA tested biosolids and a limited set of soil samples from two agricultural sites where biosolids from Decatur Utilities had been applied. The results indicated elevated levels of perfluorooctyl sulfonate (PFOS), perfluorooctanoic acid (PFOA) and other PFCs when compared with sampling results from industrial and residential sites.

Environmental Studies

Between 2005 and 2011, EPA and a group of local industries sampled for PFCs in soils and water in areas where biosolids were applied. A summary of these sampling efforts follows:

Public drinking water

Beginning in 2005, water from the following public drinking water systems was tested for PFCs: Decatur Utilities, West Morgan-East Lawrence, Moulton, Muscle Shoals, Florence, Sheffield, Limestone County and Swann Creek.

None of the water systems had PFC levels in finished water above EPA's drinking water Provisional Health Advisory (PHA) levels. PHA levels are the concentrations of PFOA or PFOS in drinking water that will not cause adverse health effects from short-term consumption. PHA levels are established to be protective of human health, but do not prevent PFCs from entering the system/body.

In 2013, ATSDR found an association between elevated levels of PFOA and the blood serum of tested local residents and the West Morgan-East Lawrence (WM-EL) Water Authority.

Accumulation of PFOA and PFOS in blood will occur at the PHA levels, although the magnitude of the accumulation is not known. Decatur residents may have been exposed to PFOA and PFOS through many potential pathways, such as the use of consumer products containing PFCs, the consumption of contaminated fish caught in the Tennessee River, and even through air.

Another factor complicating the understanding of the elevated blood levels is the lack of data on past (pre-2005) concentrations of PFOA and PFOS in the Tennessee River, which is the source of WM-EL's drinking water system.

Private drinking water wells

Three of the 19 wells tested had PFC levels above EPA's provisional health advisory levels for drinking water. These three residences received bottled water and were later connected to public drinking water. Two other homes with private wells that did not have elevated levels of PFCs were also connected to public drinking water. EPA is not aware of any residents presently drinking private well water with elevated levels of PFCs.

Agricultural wells and surface water

PFCs were detected in 12 agricultural wells, 32 farm ponds and one stream. There are no provisional health advisory levels for water not used as drinking water. EPA is therefore unable to determine what, if any, health or environmental risk may be posed by these sources.

Biosolids and the soil that received the biosolids

None of the soil samples exceeded EPA's soil screening values for protection of children's health (which is also protective of adult health). After learning of the PFC levels in its biosolids, Decatur Utilities voluntarily stopped distributing them in November 2008 and instead began disposing of them in a landfill.

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Animal and Fish Testing

Other federal and state agencies conducted sampling as well, and a summary of their efforts follow:

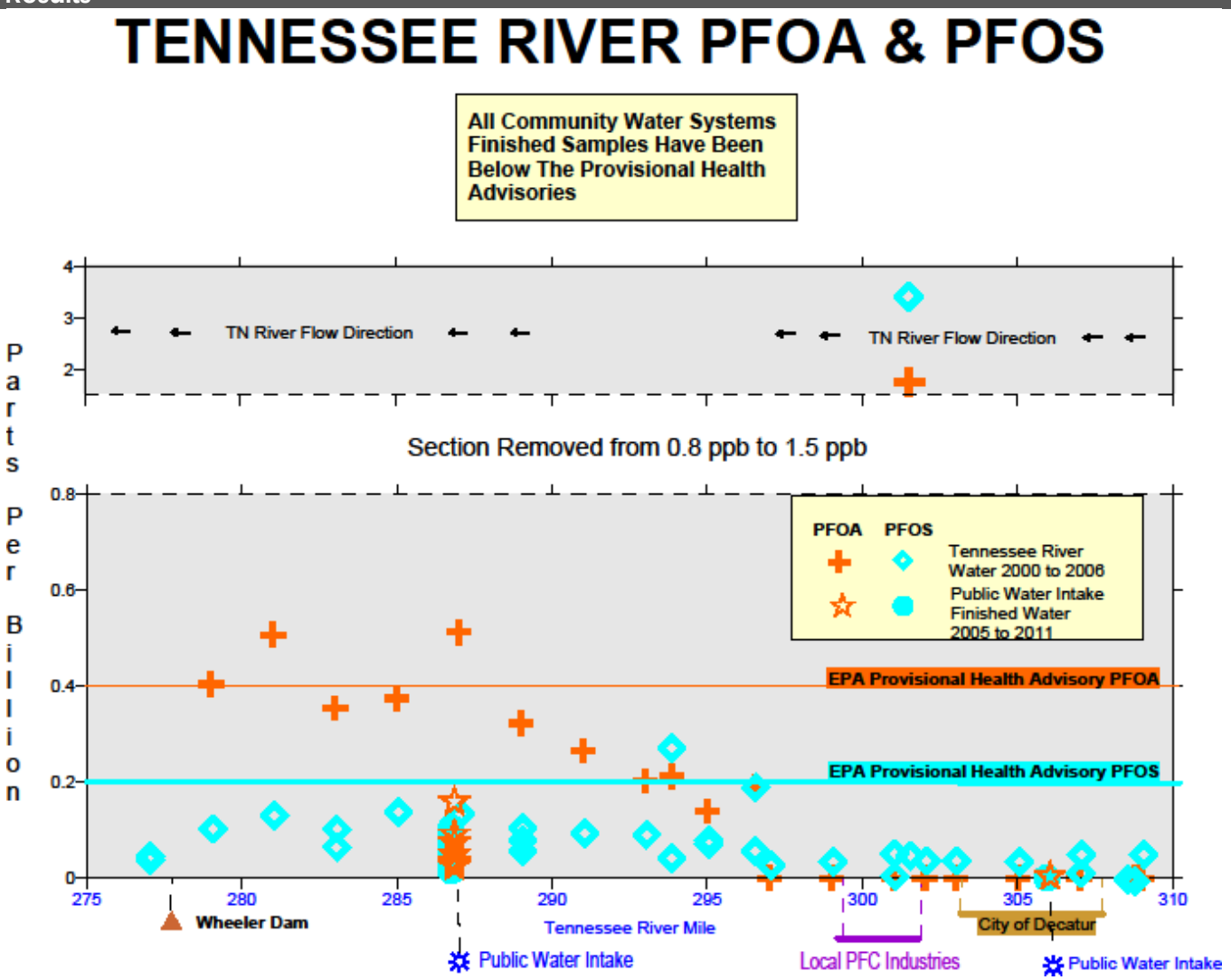
Local cattle

In 2009, the U.S. Department of Agriculture (USDA) and the Food and Drug Administration (FDA) tested for PFCs in the blood, tissue and milk samples from local cattle grazed on farms where Decatur Utilities biosolids were applied. The agencies concluded there is "no reason to believe there are human health concerns with consuming the meat processed from cattle grazed on lands receiving these biosolids." A very low level of PFOS was detected in a bulk milk sample.

Locally-caught fish

PFCs, including both PFOA and PFOS, were detected in tissue samples of catfish and large-mouth bass from the Tennessee River adjacent to the 3M facility. Fish tissue samples were collected by 3M and Alabama Department of Environmental Management (ADEM) between 2006 and 2012. PFOA concentrations averaged approximately 0.74 ppb and PFOS concentrations averaged approximately 806.06 ppb. Based on the PFOS results, the Alabama Department of Public Health has issued a 'no consumption' fish advisory for all species of fish in the Baker's Creek embayment of Wheeler Reservoir. Future testing will determine if this advisory needs to be expanded or reduced. The entire advisory can be found at: www.adph.org.teo.

Results



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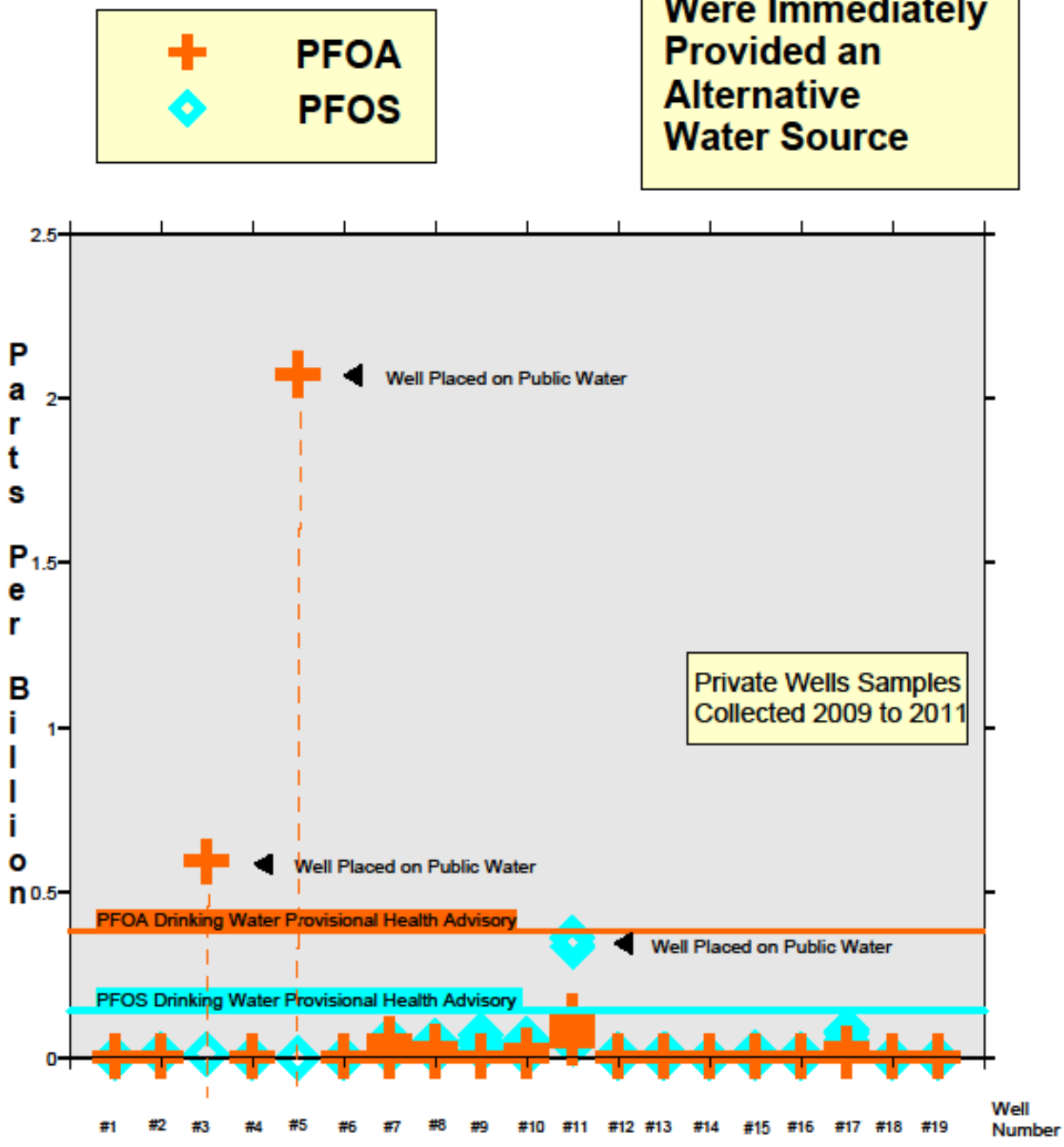
PRIVATE WATER SUPPLY SAMPLING

All Wells Above EPA Provisional Health Advisory Were Immediately Provided an Alternative Water Source



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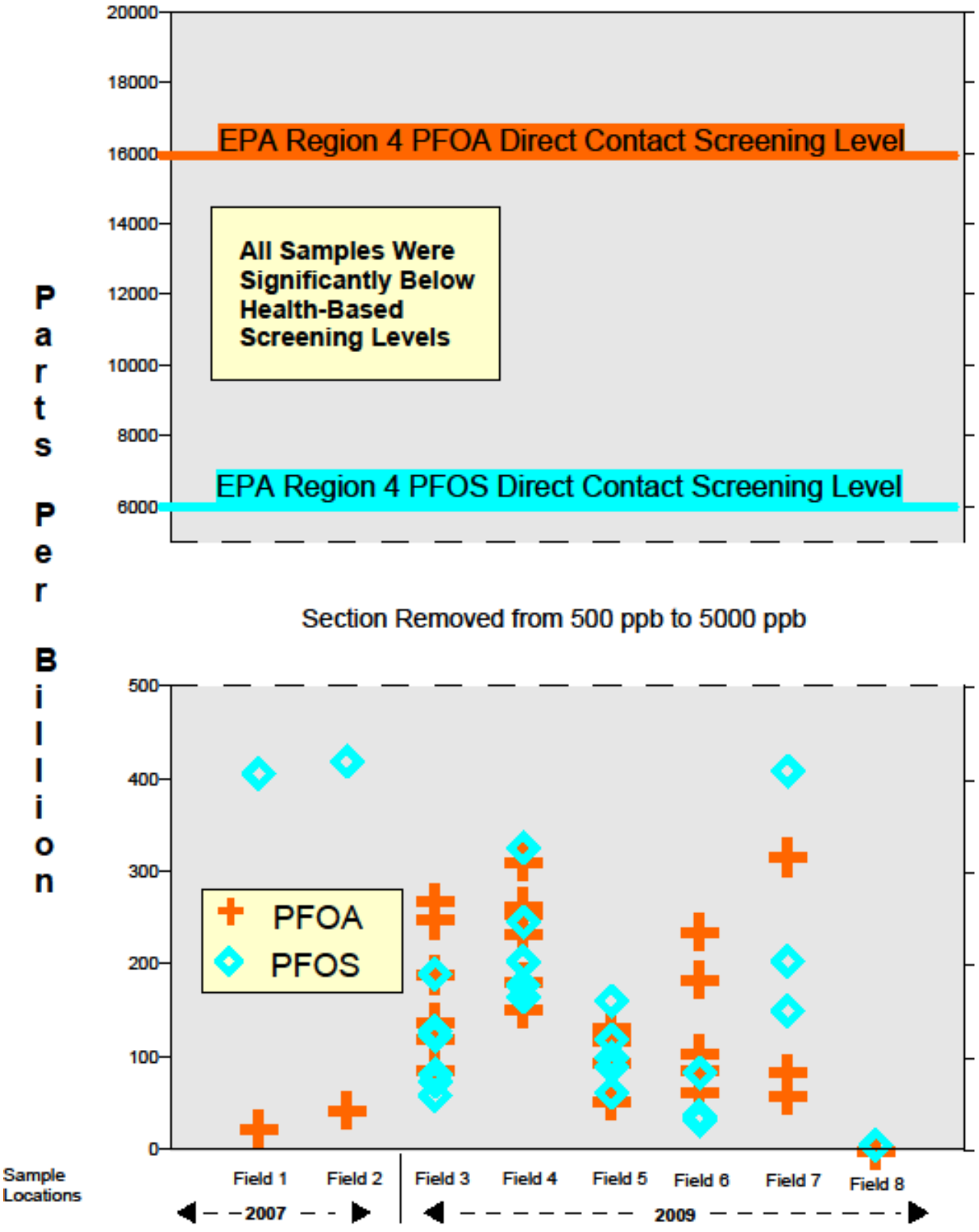
DECATUR BIOSOLIDS FIELDS



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ADDITIONAL INFORMATION AND CONTACTS

Information on PFC contamination of biosolids applied near Decatur, Alabama and other related topics are available at the EPA Region 4 website:

http://www.epa.gov/region4/water/PFCindex.html

You may also wish to contact one of the following Agency representatives:

U.S. Environmental Protection Agency Region 4

Questions concerning environmental studies

Lee Thomas

Water Protection Division

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Agency for Toxic Substances and Disease Registry

Questions concerning human health exposure

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Questions about food safety

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Food Safety and Inspection Service

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Questions concerning fish tissue sampling

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Alabama Department of Public Health

Questions concerning fish consumption advisory

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