

Information update to the ATSDR Health Consultation Exposure Investigation Report: Perfluorochemical Serum Sampling In the vicinity of Decatur, Alabama - Morgan, Lawrence, and Limestone Counties dated April 1, 2013.

Update 1: The final Health Consultation Exposure Investigation Report notes in the second paragraph of the Discussion section on page 19 that "PFCs have been shown to have health effects on animals at serum concentrations that are higher than observed in human exposure studies". Also on page 19 in the first paragraph of sub section A of the Discussion section the report states that "In animals, adverse health effects have been demonstrated with PFOA/PFOS exposure at doses that are higher than have been observed in the general human population". Although those statements are accurate as written the report does not indicate whether animals studies have shown possible health effects in animals at levels of PFC exposure similar to those found in human populations. Since the release of the report it has come to the attention of ATSDR that at least one animal study by White et al. (2011) has shown alterations in mammary morphological development in mice receiving drinking water with low-dose PFOA exposure approximating the levels in human water supplies. Additional animal studies showing possible health effects in animals with low-dose PFOA exposure may have been published since the Exposure Investigation Report was completed.

The relevance of animal data to human exposure is uncertain. The pharmacokinetics of PFOA in mice differ from those in humans – the half-life is approximately 17 days in the mouse and 3.8 years in humans (Calafat et al., 2007; Lau et al., 2007; Olsen et al., 2007a). White et al. (2011) include the following statement in their publication: "...it is not known whether the effects of PFOA on the mouse mammary gland translate to effects in humans; research is ongoing to discern a mammary specific mode of action for PFOA and to determine its relevance to human breast health". This study indicates additional research is warranted.

The information in the White et al. (2011) study does not change the conclusions or recommendations of the Health Consultation Exposure Investigation Report. The citation for the study is:

White SS, Stanko JP, Kato K, Calafat AM, Hines EP, Fenton SE 2011. Gestational and chronic low-dose PFOA exposures and mammary gland growth and differentiation in three generations of CD-1 mice. *Environ Health Perspect* 19(8): 1070-1076

References:

Calafat AM, Wong LY, Zsuzsanna K, Reidy JA, Needham LL. 2007. Polyfluoroalkyl chemicals in the U.S. population: data from the National Health and Nutrition Examination Survey (NHANES) 2003-2004 and Comparisons with NHANES 1999-2000. *Environ Health Perspect.* 115(11):1596-1602.

Lau C, Anitole K, Hodes C, Lai D, Pfahles-Hutchens A, Seed J. 2007. Perfluoroalkyl acids: a review of monitoring and toxicological findings. *Toxicol Sci* 99: 366–394.

Olsen GW, Burris JM, Ehresman DJ, Froehlich JW, Seacat AM, Butenhoff JL, et al. 2007. Half-life of serum elimination of perfluorooctanesulfonate, perfluorohexanesulfonate, and perfluorooctanoate in retired fluorochemical production workers. *Environ Health Perspect.* 115(9):1298-1305.

Update 2: A reference to the C8 Science Panel probable link report for diagnosed high cholesterol (C8 Science Panel 2012) was inadvertently not included in the final Health Consultation Exposure Investigation Report. In addition, information that the C8 Science Panel has concluded its work and released a final report in October 2012 was also inadvertently not included in the Health Consultation Exposure Investigation Report and the Investigation Summary and Health Information Sheet (Appendix E of the report).

This information does not change the conclusions and recommendations of the Health Consultation Exposure Investigation Report. For more information see: <http://www.c8sciencepanel.org>

References:

C8 Science Panel. Probable Link Evaluation of Heart Disease (29 October 2012). Available: http://www.c8sciencepanel.org/pdfs/Probable_Link_C8_Heart_Disease_29Oct2012.pdf [accessed June 2013].