

[Only the first page of the memo and the PFOA table entry of the memo are displayed]

December 11, 2007

TO: Requesting Parties

FROM: Dr. Luanne K. Williams, Toxicologist
Dr. Kenneth Rudo, Toxicologist
NC Occupational and Environmental Epidemiology Branch (NC OEEB)
NC Division of Public Health
NC Department of Health and Human Services

SUBJECT: North Carolina Public Health Goals (NCPHG)

The North Carolina Public Health Goals (NCPHGs) are North Carolina Division of Public Health health-based drinking water levels. These levels are used by NC OEEB for evaluating the safety of private well drinking water. The basis for each NCPHG is provided in the table that follows. New or updated NCPHGs are also provided including the basis for the new NCPHGs. Questions regarding the calculation of the NCPHGs can be directed to the two state toxicologists, Dr. Luanne K. Williams at 919-707-5912 or Dr. Ken Rudo at 919-707-5911.

NCPHGs are not regulatory levels but provide guidance on the safety of North Carolina private wells. When NC OEEB receives private well sampling results, these results will be compared to the health-based NCPHGs to determine if the water is safe to drink. For new private wells, a "Guide for Interpreting Private Well Water Lab Results" and "Information and Recommendations for Uses of Private Well Water" will be provided to the health department responsible for collecting the private well samples. When the NCPHG is less than the practical quantitation limit, the detection of that substance at or above the practical quantitation limit, shall be considered an unsafe level.

The list of NCPHGs is subject to change and will be reviewed every year or sooner if new scientific and toxicological data become available. When a NCPHG is revised, we will send an electronic file to those that have requested to be placed on our list of individuals to receive the revised tables.

The following references shall be used in order of preference in establishing the NCPHGs.

1. US EPA Integrated Risk Information System Database <http://www.epa.gov/iris/index.html>
2. EPA latest Edition of the Drinking Water Standards and Health Advisories www.epa.gov/waterscience/criteria/drinking/dwstandards.html (which references a 10 fold adjustment factor in the development of the chronic oral reference dose to take into account possible human carcinogenicity by oral and/or inhalation routes).
3. US EPA Region 9 Preliminary Remediation Goals <http://www.epa.gov/region09/waste/sfund/prg/files/04prgtable.pdf>
4. US EPA Region 3 Risk-Based Concentration Table <http://www.epa.gov/reg3hwmd/risk/human/rbc/RBCapr07.pdf>
5. US EPA 1997 Health Effects Assessment Summary Tables
6. Centers for Disease Control and Prevention ATSDR chronic oral minimum risk level <http://www.atsdr.cdc.gov/mrls.html> and cancer risk evaluation guide for 1×10^{-6} excess cancer risk (CREG)
7. California EPA Public Health Goals (PHGs) <http://www.oehha.ca.gov/water/phg/allphgs.html>
8. National Primary Drinking Water Regulations <http://www.epa.gov/safewater/mcl.html>
9. Other health risk assessment data published by US EPA and states

Table entry for PFOA in the North Carolina Public Health Goals (NCPHG) December 11, 2007 memo

NCPHG for Total PFOA and PFOS 0.00063 mg/L (reference dose 0.00009 mg/kg-day generated by CIIT at RTP based on lower bound 10% benchmark plasma concentration response for monkeys associated with increased liver weight at 23,000 ng/mL, pharmacokinetic modeling data show equivalent human administered dose is 0.12 times serum 10% lower bound effect level of 23,000 ng/mL (equal to 2,760 ng/kg-day), safety factors 3 for animal to human and 10 for human variability corresponds to equivalent human administered dose of 90 ng/kg-day or 0.00009 mg/kg-day; 0.20 relative source contribution; due to half life differences between rats of 2.8 to 202 hours and humans 38,281 hours or 4.37 years (difference of as high as 13,671). Applying traditional safety factors to an administered effect dose is not a scientifically valid approach for determining a safe dose for humans because the corresponding serum level for humans at a given administered dose would be significantly higher than for animals such as rodents. Instead, EPA, EPA's Scientific Advisory Board, CIIT, and NC DHHS recommend the use of pharmacokinetic modeling to predict safe dose in humans based on serum effect levels. Previous NCPHG was just for PFOA of 0.00063 mg/L.

Odor threshold level not available

Taste threshold level not available

IMAC 0.002 mg/L (0.0003 mg/kg-day based on decreased body weight in rats and safety factor of 3000 based on 10 animal to human, 10 human variability, 10 Lowest Observed Adverse Effect Level to No Observed Adverse Effect Level, and 3 data gaps)

MCL not available