

**DWQ Request for Comment on the Proposed Change to the NC Groundwater
Quality Standard for Tetrachloroethylene (Perchloroethylene or PCE)**

April 20, 2009

Background

Tetrachloroethylene is a chemical solvent that is widely used for dry cleaning of fabrics, metal degreasing, and in making some consumer products and other chemicals. Discharges of tetrachloroethylene from factories and dry cleaners can contaminate groundwater.

1. The current 15A NCAC 2L .0202(g) groundwater quality standard for PCE is 0.7 ug/L and is based on a cancer potency factor (CPF) of 0.051 milligrams per kilogram per day (mg/kg/day) as referenced in the USEPA 1985 Tetrachloroethylene Assessment Report.

2. The proposed 2L groundwater standard of 0.07 ug/L is based on a CPF of 0.54 mg/kg-day developed by California's Environmental Protection Agency (Cal-EPA). The USEPA does not have an agency-wide CPF available for the assessment of the potential cancer risk presented by PCE and has suggested the use of the Cal-EPA CPF as an interim approach while it conducts an assessment of the solvent. Background information on California's development of their CPF can be found at the following web site (See 2001 Public Health Goal for Tetrachloroethylene in drinking water):
<http://www.oehha.ca.gov/risk/ChemicalDB/cancerpotency.asp?name=tetrachloroethylene&number=127184>

Or for the document:

<http://www.oehha.ca.gov/water/phg/pdf/PCEAug2001.pdf>

3. In June 2008 USEPA released an *External Review Draft of the Toxicological Review of Tetrachloroethylene*. This document is located at
<http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=192423>

The draft document references a cancer potency factor range of 0.01 to 0.1 mg/kg/day. Should the draft toxicological review be finalized before the next groundwater triennial review, and if the CPFs referenced do not change, a 2L groundwater standard of 0.4 ug/L would be derived using the most conservative CPF of 0.1 mg/kg-day referenced in the draft document. If the midrange CPF is used (0.05 mg/kg/day) then a 2L standard of 0.7 is derived.

4. The Cal-EPA CPF is an order of magnitude higher than USEPA's published estimates. The major reason for this difference appears to be the variability in the characterization of human metabolism of PCE in the various risk models. The

California CSF is based on rodent metabolic data rather than established human metabolic data and may be overstating the risk.

5. If the currently proposed standard of 0.07 ug/L is adopted it will likely result in increased costs to affected parties over the next few years. However, there is a possibility that during the next triennial review the proposed standard will be more in line with the current standard. According to the EPA web site below the assessment is scheduled to be completed in 2010.
http://cfpub.epa.gov/ncea/iristrac/index.cfm?fuseaction=viewChemical.showChemical&sw_id=1052
6. The DWQ is seeking comment on whether or not to a) adopt the proposed groundwater standard of 0.07 ug/L based on the cancer potency factor developed by California, or, b) leave the current standard of 0.07 ug/L in place until the next triennial review.