**<u>Summary of Proposed Revisions to 15A NCAC 02L .0202</u>**
***<u>Groundwater Quality Standards</u>***

In Section .0202(c), language is proposed to clarify the meaning of "detection" when there is no standard. The meaning of detection proposed is ***"concentrations at or above the practical quantitation limit (PQL)".*** This will provide consistency with the meaning of detection as it appears in Section .0202 (b)(1) which states "where the standard for a substance is less than the PQL, the detection of that substance at or above the PQL shall constitute a violation of the standard." The PQL is the lowest concentration that can be reliably detected and quantified by a lab.

In Section .0202(g), the following revisions are proposed:

- Change units of measure from milligrams per liter (ppm) to micrograms per liter (ppb) except where otherwise noted;
- Round all standards to one scientifically significant figure;
- Combine the groundwater standard for *endrin* and *total endrin* into one *total endrin* standard which is inclusive of endrin as well as its breakdown products endrin aldehyde and endrin ketone;
- Add a standard for *formaldehyde;*
- Incorporate seven existing interim maximum allowable concentrations (IMACs) as standards--*benzoic acid, bis(chloroethyl)ether, dibromochloromethane, ethyl acetate, hexachlorobutadiene, 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene;*
- Remove two existing IMACS due to lack of toxicity data on which to base a standard--*dibenzofuran, 2-hexanone;*
- Remove ten current groundwater standards due to lack of toxicity data on which to base a standard --*n-butylbenzene, sec-butylbenzene, tert-butylbenzene, chloroethane, di-n-octyl phthalate, diundecyl phthalate, Isopropylether, n-propylbenzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene;*
- Lower the existing standard for fifteen standards due to updated information *(arsenic; barium; chromium; 1,1-dichloroethane; 1,4-dioxane; lindane; methyl tert-butyl ether; naphthalene; petroleum aliphatic carbon fraction class C9-C18; petroleum aliphatic carbon fraction class C19-C36; phenol; selenium; styrene; tetrachloroethylene; toluene).*
- Raise the existing standard for twelve standards due to updated information *(acetone, boron; butylbenzyl phthalate; 1,2-dibromo-3-chloropropane; 1,4-dichlorobenzene; 1,2-dichloropropane; 1,3-dichloropropene; ethylene dibromide; 2-methylnaphthalene; 3-methylphenol; 4-methyphenol; vinyl chloride).*
- Update ten chemical names to the term most commonly used by analytical laboratories and EPA databases for the following:
    - Di (2-ethylhexyl) phthalate is now listed as bis(2-ethylhexyl) phthalate;
    - Di-n-butyl phthalate is now listed as dibutyl phthalate (di-n-butyl phthalate);
    - Orthodichlorobenzene is now listed as 1,2-dichlorobenzene (orthodichlorobenzene);
    - Metadichlorobenzene is now listed 1,3-dichlorobenzene (metadichlorobenzene);
    - Paradichlorobenzene is now listed as 1,4-dichlorobenzene (paradichlorobenzene);
    - Cis-1,2-dichloroethene is now listed as 1,2-dichloroethene (cis);
    - trans-1,2-dichloroethene is now listed as 1,2-dichloroethene (trans);
    - p-dioxane is now listed as 1,4-dioxane;

- Diphenyl is now listed as 1,1-diphenyl;
- Endosulfan II is now listed as endosulfan because the standard is based on a technical mixture of alpha and beta isomers (endosulfan II is the beta isomer).

The following tables outline the proposed changes to the groundwater standards as a result of the triennial review.

**Table 1: Groundwater Standards Proposed for Decrease in Concentration (more stringent)**

| Chemical Class & Name | Current 2L ppb (ug/L) | Proposed 2L Standard ppb (ug/L) | DWQ Lab PQL ppb (ug/L)* | Proposed 2L Standard less than PQL? |
|---|---|---|---|---|
| **Metals/ Inorganics** | | | | |
| *Arsenic (C)* | 50 | 0.02 | 5 | ***Yes*** |
| *Barium (N)* | 2000 | 700 | 10 | *No* |
| *Chromium (N)* | 50 | 10 | 10 | *No* |
| *Selenium (N)* | 50 | 20 | 5 | *No* |
| **Organics** | | | | |
| *1,1-dichloroethane (C)* | 70 | 6 | 0.25 | *No* |
| *1,4-dioxane (C)* | 7 | 3 | 2.5 | *No* |
| *Lindane (C)* | 0.2 | 0.03 | 0.01 | *No* |
| *methyl tert-butyl ether (C)* | 200 | 20 | 5 | *No* |
| *Naphthalene (C)* | 21 | 6 | 2 | *No* |
| *petroleum aliphatic carbon fraction class C9-C18 (N)* | 4200 | 700 | 15+ | *No* |
| *petroleum aliphatic carbon fraction class C19-C36 (N)* | 42,000 | 10,000 | 20+ | *No* |
| *Phenol (N)* | 300 | 30 | 10 | *No* |
| *Styrene (N)* | 100 | 70 | 1 | *No* |
| *Tetrachloroethylene (C)* | 0.7 | 0.07 | 0.25 | ***Yes*** |
| *Toluene (N)* | 1000 | 600 | 1 | *No* |

****** *The PQL is the lowest concentration that can be reliably quantified by a lab. 2L .0202 (b)(1) states "where the standard for a substance is less than the practical quantitation limit (PQL), the detection of that substance at or above the PQL shall constitute a violation of the standard." The DWQ recognizes that PQLs will vary based on a variety of factors such as matrix and dilution and that PQLs established by commercial labs may differ.*
*+Estimated PQL obtained from the Division of Waste Management UST Section.*
***(N)*** *contaminant is classified by USEPA as a non-carcinogen.*
***(C)*** *contaminant is classified by USEPA as a carcinogen.*

## Table 2: Standards or Interim Maximum Allowable Concentration (IMACs) Proposed for Removal

| Standard or IMAC | Current 2L ppb (ug/L) | DWQ Estimated PQL ppb (ug/L)* | Current Standard Less than PQL? |
|---|---|---|---|
| *n-butylbenzene (N)* | *70* | *1* | *No* |
| *sec-butylbenzene (N)* | *70* | *1* | *No* |
| *tert-butylbenzene (N)* | *70* | *1* | *No* |
| *Dibenzofuran (IMAC) (N)* | *28* | *10* | *No* |
| *Chloroethane (N)* | *2800* | *0.50* | *No* |
| *Di-n-octyl phthalate (N)* | *140* | *10* | *No* |
| *Diundecyl phthalate* | *140* | *10* | *No* |
| *2-hexanone (IMAC) (N)* | *280* | *1* | *No* |
| *Isopropyl ether (N)* | *70* | *5* | *No* |
| *n-propylbenzene (N)* | *70* | *1* | *No* |
| *1,2,4-trimethylbenzene (N)* | *350* | *1* | *No* |
| *1,3,5-trimethylbenzene (N))* | *350* | *1* | *No* |

***For standards proposed for removal, according to 02L .0202(c) the detection of that chemical at or above the practical quantitation limit (PQL) would constitute a violation of the standard. Therefore, these contaminants will be regulated at the existing PQL concentration. The DWQ recognizes that PQLs will vary based on a variety of factors such as matrix and dilution and that PQLs established by commercial labs may differ.*
***(N)*** *contaminant is classified by EPA as a non-carcinogen.*

## Table 3: Groundwater Standards Proposed for Increase in Concentration (less stringent)

| Chemical Class & Name | Current 2L Standard ppb (ug/L) | Proposed 2L Standard ppb (ug/L) | DWQ Lab PQL ppb (ug/L)* | Proposed 2L Standard less than PQL? |
|---|---|---|---|---|
| **Metals/Inorganics** | | | | |
| *Boron (N)* | 315 | 700 | 0.25 | *No* |
| **Organics** | | | | |
| *Acetone (N)* | 700 | 6000 | 10** | *No* |
| *Butylbenzyl phthalate (N)* | 100 | 1000 | 10 | *No* |
| *1,2-dibromo-3-chloropropane (C)* | 0.025 | 0.04 | 0.30 | ***Yes*** |
| *1,4-dichlorobenzene (C)* | 1.4 | 6 | 0.25 | *No* |
| *1,2-dichloropropane (C)* | 0.51 | 0.6 | 0.25 | *No* |
| *1,3-dichloropropene (C)* | 0.19 | 0.4 | 0.25 | *No* |
| *Ethylene dibromide (C)* | 0.0004 | 0.02 | 0.25 | ***Yes*** |
| *2-methylnaphthalene (N)* | 14 | 30 | 10 | *No* |
| *3-methylphenol (N)* | 35 | 400 | 10 | *No* |
| *4-methyphenol (N)* | 3.5 | 40 | 10 | *No* |
| *Vinyl chloride (C)* | 0.015 | 0.03 | 10** | ***Yes*** |

| **Chemical Class & Name** | **Current 2L Standard ppb (ug/L)** | **Proposed 2L Standard ppb (ug/L)** | **DWQ Lab PQL ppb (ug/L)*** | **Proposed 2L Standard less than PQL?** |
|---|---|---|---|---|
| **Standard Proposed for Addition** | | | | |
| *Formaldehyde (N)* | *None* | *600* | *20 - 250* | *No* |

***** *The PQL is the lowest concentration that can be reliably quantified by a lab. 2L .0202 (b)(1) states "where the standard for a substance is less than the practical quantitation limit (PQL), the detection of that substance at or above the PQL shall constitute a violation of the standard." The DWQ recognizes that PQLs will vary based on a variety of factors such as matrix and dilution and that PQLs established by commercial labs may differ.*
***** *means PQL was not available from the DWQ lab and a USEPA PQL from the following web site was used (http://www.epa.gov/safewater/methods/analyticalmethods.html).*
***(N)*** *contaminant is classified by USEPA as a non-carcinogen.*
***(C)*** *contaminant is classified by USEPA as a carcinogen.*