

Groundwater Standards: How Are They Determined?

**NC SWANA
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What is a Triennial Review of Groundwater Standards and Why is it Done?

- Triennial Review is Required in 15A NCAC 02L.0202
- Consists of a Six-Step Process Outlined in Rule
- Based in Scientific Calculations
- To Ensure Rules are Based in Most Up to Date Information



Procedure for Triennial Review:

1. Calculation of Systemic Threshold Concentration
2. Calculation of Cancer Risk (Lifetime Risk $<1 \times 10^{-6}$)
3. Taste Threshold Values
4. Odor Threshold Values
5. EPA's Current Published MCL
6. EPA's Current Published SMCL

Lowest of these numbers



Data Sources Include:

- EPA Integrated Risk Information System
(provides cancer risk levels)
- EPA Health Advisories
- EPA Preliminary Remediation Goals (PRGs)
Toxicity Values
- EPA Health Effects Assessment Summary
Tables (HEAST)



Agency Input and Initial Comments:

- Input from DENR and DPH
- Input from Regulated Communities (SWANA, COGs)
- Performance of Fiscal and Economic Analysis



Fiscal and Economic Analysis:

- Evaluates Reduction in Costs Due to Reduction in Illness and Cancer Rates/Cancer Mortality
- Evaluates Costs to Regulated Communities (UST, DSCA, SW, etc.)



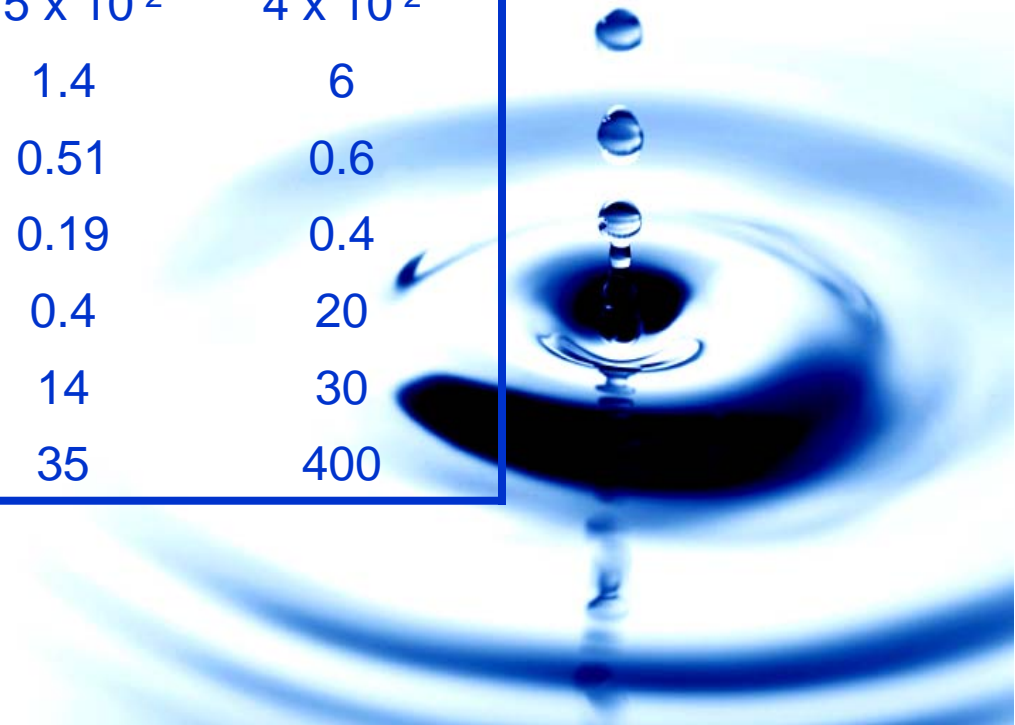
Summary of Proposed Changes:

- Change All Standard Concentrations to PPB
- Change Some Chemical Names to More Common Name
- 12 Standards Proposed to Increase (Less Stringent)
- 15 Standards Proposed to Decrease (More Stringent)
- Addition of a Standard for Formaldehyde
- Addition of 7 IMACs as Standards
- 12 Standards/IMACs Proposed for Removal



Standards Proposed for Increase:

Constituent	Current Std (ppb)	Proposed Std (ppb)
Acetone	700	6000
Boron	315	700
Butylbenzyl Phthalate	100	1000
1,2 Dibromo-3-chloropropane	2.5×10^{-2}	4×10^{-2}
1,4 Dichlorobenzene	1.4	6
1,2 Dichloropropane	0.51	0.6
1,3 Dichloropropene	0.19	0.4
Ethylene Dibromide (EDB)	0.4	20
2-Methylnaphthalene	14	30
3-Methylphenol	35	400



Standards Proposed for Decrease:

Constituent	Current Std	Proposed Std
Arsenic	50	0.02
Barium	2000	700
Chromium	50	10
Selenium	50	20
1,1 Dichloroethane	70	6
1,4 Dioxane	7	3
Lindane	0.2	0.03
MTBE	200	20
Naphthalene	21	6
Phenol	300	30
Styrene	100	70
Tetrachloroethylene	0.7	0.07
Toluene	1000	600
Petroleum C9-C18	4200	700
Petroleum C19-C36	42,000	10,000



Arsenic Standard Decrease

- Decrease from 50 ppb to 0.02 ppb
- Arsenic Found Naturally Across Piedmont Above Proposed Standard
- Barium, Chromium and Selenium Also Found Naturally



Effects of Standard Decrease

- Analytical Issues – SW-846 Methods vs. Non-SW-846
- Potential Need for Additional Statistical Evaluations
- Potential Need for Alternate Source Demonstrations
- Potential Need for Assessment Monitoring and Nature and Extent Studies



Standards/IMACs Proposed for Elimination:

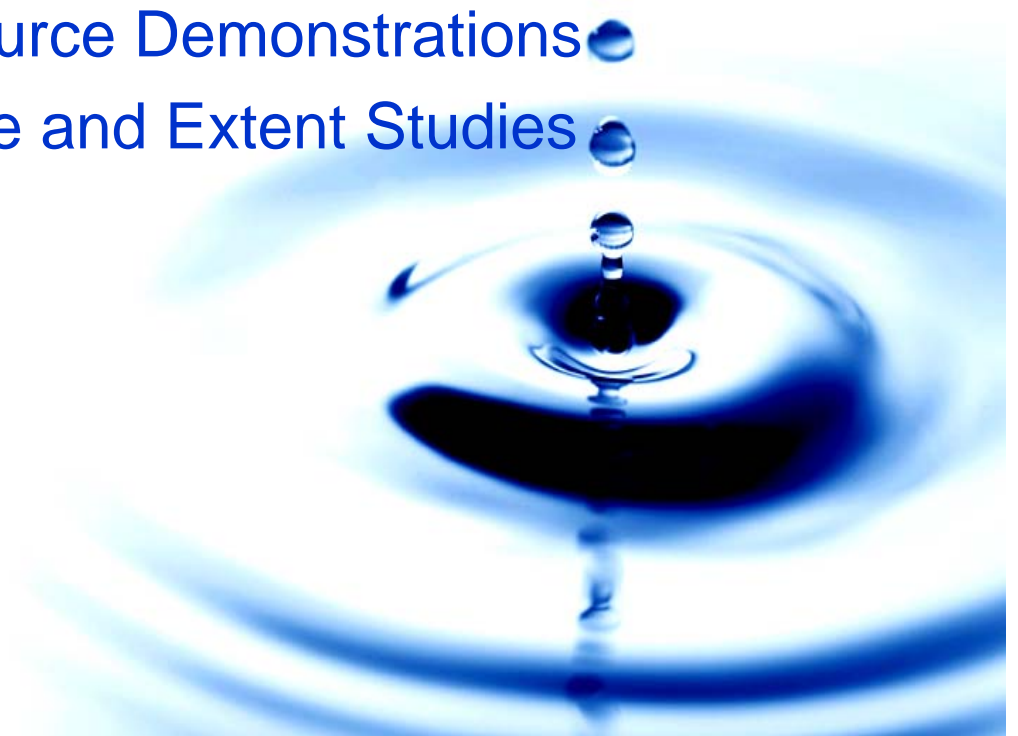
Constituent	Current Std
N-Butylbenzene	70
Sec-Butylbenzene	70
Tert-Butylbenzene	70
Dibenzofuran	28
Chloroethane	2800
Di-n-octyl phthalate	140
Diundecyl phthalate	140
2-Hexanone	280
Isopropyl Ether	70
N-Propylbenzene	70
1,2,4-Trimethylbenzene	350
1,3,5-Trimethylbenzene	350

← **No Toxicity Data to Support Current Standard**



Potential Effects of Eliminating Standards:

- 15A NCAC 02L.0202(c) States: “...substances which are not naturally occurring and for which no standard has been specified shall not be permitted in detectable concentrations...”
- Additional Alternate Source Demonstrations
- Assessment and Nature and Extent Studies



Public Comment Period:

- Public Comment Period through June 1st 2009

**Written Comments to Sandra Moore of DWQ
sandra.moore@ncmail.net**

- EMC Will Hold Public Hearings:

April 21, 6:30 PM – Western Piedmont C. C. in Morganton

April 23, 6:30 PM – Bladen C. C. in Dublin

April 30, 6:30 PM – Archdale Bldg in Raleigh



New Standard Implementation:

- Projected Promulgation 11/09
- Solid Waste Section Review
- Practical Quantitation Limit Evaluation
- Groundwater Protection Standards
- Use of EPA Regional Tap Water Concentrations



Questions?

Thank You!

For More Information Contact:

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