



October 22, 2010

Office of Water Quality Water-Quality Information Note 2011.01

Subject: Redefinition of units for selected mass per unit mass parameters

The purpose of this Water-Quality Information Note (WaQI note) is to announce changes to the definition of units for a selected group of parameters that are expressed as a mass per unit mass.

Background

Recently assigned parameter names for constituents with mass per unit mass as their unit of measure have kilogram in the denominator in the National Water Information System (NWIS) Parameter Table. Previously assigned parameter names sometimes have gram in the denominator. This has resulted in a mixture of units in parameter names that have both gram and kilogram in the denominator in the NWIS Parameter Tables.

Planned changes to the NWIS parameter tables

Existing parameter names that use gram as the unit-mass basis will be changed to the equivalent kilogram unit-mass basis in the NWIS Parameter Table. This change affects about 1,100 parameter names (see attached file). Because all changes are to equivalent units, no action is required to republish results or to update the results in NWIS.

This change will become effective with the next release of the NWIS reference list planned for the end of October 2010.

The change in unit descriptions will be limited to the units shown below.

Units in the July 2010 NWIS reference list	Units in the October 2010 NWIS reference list
micrograms per gram	milligrams per kilogram
milligrams per gram	grams per kilogram
nanograms per gram	micrograms per kilogram
picograms per gram	nanograms per kilogram

The proposed changes do NOT include other miscellaneous units with gram in the denominator where gram is the conventional denominator such as becquerels per gram (bq/g), disintegrations per minute per gram (dpm/g), colonies per gram (col/g), milliequivalents per 100 grams (meq/100g, pCi/g).

Justification for this change

All aspects of the metric system are governed by the International Bureau of Weights and Measures. The National Institute of Standards and Technology (NIST) Special Publication (SP) 811 is the U.S. government's official reference to the metric system as defined by the International Bureau of Weights and Measures. Accordingly, the kilogram is the base unit in the metric system and quantitative values should be expressed in base units wherever possible. Specifically, Section 6.2.5 of the NIST publication states that the kilogram is the base unit recommended as the denominator for units of measure that are expressed as a mass per unit mass.

Questions about the revised parameter names can be sent to Ken Pearsall (pearsall@usgs.gov).

< file of parameter codes (WAQI.perkg.list.txt) is attached to email>

If this Note was forwarded to you and you would like to have your name placed on the WaQI Notes distribution, please send email to nlsnow@usgs.gov.

*WaQI Notes are archived on the Office of Water Quality web site,
<http://water.usgs.gov/usgs/owq/WaQI/index.html>*

Signed,

The Office of Water Quality
10/22/10

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