



Technical Guidance for Determining the “Base of Usable Groundwater”

EFFECTIVE DATE: Immediately

As per Section 18 of the Drilling and Production Regulation, a qualified professional is required to determine the depth of “all porous strata that are (a) less than 600 m below ground level and, (b) contain non-saline groundwater that is usable for domestic or agricultural purposes.” This depth is referenced as the “base of usable groundwater”.

The BC Oil and Gas Commission (Commission) may request permit holders to submit documentation of the qualified professional’s determination of the “base of usable groundwater”.

Please note that a Commission map or database for the “base of usable groundwater” is not available, however, the following technical guidance is provided.

Technical Guidance for determining the “base of usable groundwater”

The “base of usable groundwater” can be determined by the qualified professional, supported by review and analysis of local or site specific information, such as geology and stratigraphy, mapped aquifers, groundwater chemistry, or other data that may be available through DataBC, iMapBC, or Commission well information. For this interpretation of the “base of usable groundwater”, “usable” is defined by the Commission as groundwater with up to 4000 mg/L total dissolved solids.

Alternatively, the “base of usable groundwater” can be determined by the qualified professional, using the definition of “deep groundwater” in Section 51 of the [Water Sustainability Regulation](#). Using this approach, the “base of usable groundwater” is defined as: between 300 m and 600 m below the ground surface, and below the “base of fish scales marker” or an identified older geological marker. The definition for “base of fish scales marker,” can be found in the Water Sustainability Regulation.

For clarity, when using the geological marker based approach:

- the minimum depth of the “base of usable groundwater” is 300 m below the ground surface;
 - the maximum depth of the “base of usable groundwater” is 600 m below the ground surface; and
 - between 300 m and 600 m below the ground surface, the “base of usable groundwater” is identified to be the depth of the above-referenced geological markers. The geological marker may be interpreted using well site data, or data from nearby oil and gas wells, available as Commission well information or information sourced from commercial data vendors such as Acumap or Geosout.
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The above geological marker-based framework applies only to the “subject area”. For reference, “subject area” is defined in Section 51 of the Water Sustainability Regulation, and consists of the area east of the Laramide Disturbed Belt boundary (see attached map). Outside of the “subject area”, the “base of usable groundwater” is considered to be 600 m below the ground surface.

Note that the technical guidance for determining the “base of usable groundwater” outlined in this industry bulletin may not be suitable for locations of shallow gas potential or known areas of artesian groundwater pressures. The Commission should be contacted in such cases regarding proposed well drilling and completion.

Should you have any questions regarding this Industry Bulletin, please contact:

Laurie Welch, Ph.D., P.Geo.
Hydrogeologist
Resource Stewardship and Major Projects
BC Oil and Gas Commission
Laurie.Welch@bcogc.ca
250-980-6066

Laramide Belt Boundary and "Subject Area" for Defining "Base of Usable Groundwater" Using the Geological Marker Based Approach

