

Bulletin 2007-10

April 19, 2007

ST55-2007: Alberta's Base of Groundwater Protection (BGWP) Information

1 Introduction

With this bulletin, the Alberta Energy and Utilities Board (EUB) releases an updated version of the former *Statistical Series 55: Alberta's Usable Groundwater Base of Groundwater Protection Information (1995)*. The bulletin provides an overview of the BGWP information and reiterates cementing requirements designed to protect groundwater.

2 Base of Groundwater Protection

The Alberta Environment (AENV) *Water Act* defines saline groundwater as that containing greater than 4000 milligrams per litre (mg/L) total dissolved solids (TDS). Aquifers with (TDS) content less than 4000 mg/L are described as non-saline and may be contained in sandstones, siltstones, coals, or fractured shales. To ensure consistency with AENV's terminology, the term "usable" has been removed from the title of the document. All recent and future EUB documents refer to non-saline and saline groundwater resources.

AENV commissioned the Alberta Geological Survey (AGS) to complete the provincial BGWP information as part of the Water for Life Initiative, aimed at better understanding groundwater in Alberta. AGS updated and completed *ST55-2007* using a geostatistical mapping process, with stratigraphic information as the basis for the interpretation. This method was adopted to ensure consistency in the manner in which the BGWP was established across the province. This has resulted in some changes to previously defined depths in some areas. The BGWP was moved to the base of the formation as a conservative measure to ensure that non-saline groundwater is protected.

The BGWP is developed on a regional geologic basis and is the best estimate of the depth at which saline groundwater is likely to occur using the data available at the time. The EUB recognizes that local variations may exist that are not captured by a regionally based assessment. Therefore, if a company believes that the BGWP depth for a specific location is not accurate, it may choose to submit data that would support a change to the BGWP for that location. The EUB would accept representative water analyses from the subject well or wells in adjacent sections in support of such a request. Drillstem test data, short-term flow test results, or log-based salinity calculations will not be accepted.

BGWP information will now be available for every Dominion Land Survey location in Alberta down to the LSD level. As of April 23, 2007, the information will be available on the AGS Web site http://www.ags.gov.ab.ca/activities/Groundwater/base_groundwater_protection.html by selecting elements of the well's legal location.

3 Summary of Cementing Requirements

Cementing requirements for new wells related to groundwater protection are set out in EUB *Directive 009: Casing Cementing Minimum Requirements*, and those related to abandonment are found in *Directive 020: Well Abandonment Guide*. These requirements are summarized below.

3.1 New Wells

In accordance with *Directive 009*, non-saline groundwater must be protected by cemented casing. The EUB requires that **all** non-saline aquifers be covered with cement from the BGWP to surface by cementing the surface casing, cementing the next string of casing, or using an open-hole abandonment plug(s). Note that all non-saline aquifers must be covered or isolated to ensure protection. **For new wells requiring remedial cementing due to inadequate cement top, EUB Operations Group staff must be contacted.** Remedial cementing of new wells will **not** be deferred until abandonment.

3.2 Cased-Hole Abandonments

The EUB has required that non-saline aquifers be covered with cement in wells drilled after 1993. For wells drilled prior to that if the surface casing does not cover the BGWP and the well is not cemented full length, the EUB requires a remedial cementing program on abandonment. The acceptable methods are outlined in *Directive 020*.

Presentations on the new BGWP information will be held at a future date. Any questions or submissions relating to *ST55-2007* may be directed to the EUB Environment Group at (403) 297-8330 or by e-mail to enviro.services@eub.ca.

D. K. Boyler, P.Eng.
Executive Manager
Compliance and Operations Branch