WATER STEWARDSHIP INFORMATION SERIES

# B.C.'S GROUND WATER PROTECTION REGULATION

## Some Frequently Asked Questions Related to Geotechnical Wells

BRITISH COLUMBIA
Ministry of Environment

### What is the Ground Water Protection Regulation?

On November 1, 2005, a new regulation that affects well drilling, including geotechnical, environmental and low temperature geothermal drilling in B.C. came into force to improve the safety and protection of British Columbia's ground water resources.

The Ground Water Protection Regulation (the regulation) establishes standards to protect ground water supplies by requiring all wells in British Columbia, including geotechnical wells (boreholes, test pits, and closed loop geothermal wells), to be properly constructed, maintained, and at the end of their service, properly closed or deactivated.

### What are the new requirements?

All geotechnical wells constructed after November 1, 2005 must meet the minimum construction standards in the Ground Water Protection Regulation. This means:

- If a geotechnical well is to be drilled into or through an aquifer (see notes), the geotechnical well must be constructed by a qualified well driller or under the direct supervision of a qualified well driller or qualified professional (P. Eng. or P. Geo. registered with the Association of Professional Engineers and Geoscientists of British Columbia).
- A three-foot surface seal is required when constructing a closed loop geothermal well.
- If drilling encounters artesian flow, the flow must be controlled or stopped.
- The well must be closed (within 30 days for boreholes and 90 days for other geotechnical wells) by filling the well throughout its length with a combination of appropriate sealants and backfill if it is no longer to be used.

### What types of geotechnical holes are captured under the *Water Act* and regulation?

If a well, borehole (including a cone penetration test (CPT) borehole) or test pit is constructed:

- for stratigraphic, hydrologic or geotechnical information, or
- as a closed loop geothermal well, then

it is a geotechnical well regulated under the *Water Act* and regulation. Stone columns, caissons and piles are not considered geotechnical wells. The flow chart in this brochure shows examples of geotechnical wells and their requirements.

### Who can drill or close geotechnical boreholes, test pits or closed loop geothermal wells?

Starting on November 1, 2004, a geotechnical borehole or test pit, or closed loop geothermal well must be constructed (e.g., drilled, closed) by a qualified well driller (QWD) registered with the Ministry of Environment (see registry: http://www.env.gov.bc.ca/wsd/plan_protect_sustain/groundwater/wells/applications/well_drillers_reg.pdf) or under the direct supervision of a QWD or qualified professional. A qualified well driller is not required if the geotechnical borehole, test pit, or closed loop geothermal well, will not encounter an aquifer or is constructed by digging to < 50 feet depth.

### Who is responsible for the well?

If the driller is working under the direct supervision of an engineering consultant, the engineering consultant is the person responsible for the well. Otherwise, the driller or the driller supervising the work would be responsible. The driller and the engineering consultant should be clear about their supervisory relationship and their respective responsibilities under the regulation prior to starting work.

### Alternative specifications – when and how they are used?

Some requirements in the regulation (e.g., surface seal, well closure) allow for alternative specifications, if the minimum standards in the Code of Practice can not be feasibly met. A qualified professional with competency in hydrogeology or geotechnical engineering can provide written alternative specifications if the minimum standards cannot be met, provided the alternative specification achieves the same objectives as the standards in the Code of Practice. The work must then be done according to the alternative specifications.

### What if a borehole is converted to a monitoring well or piezometer?

Sometimes, a geotechnical borehole is completed with a standpipe to monitor water levels over time. In this case, the geotechnical borehole is being converted to a monitoring well and minimum well construction standards for a monitoring well must also be met.

### What is my responsibility as a Qualified Professional under the *Water Act* and regulation?

You, as the qualified professional responsible for the geotechnical well drilling work, must:

- develop specifications that meet or exceed the minimum specifications for a geotechnical well,
- ensure the well is constructed and ultimately closed in accordance with the minimum standards in the regulation,
- provide written alternative specifications for the geotechnical well if it is not feasible to comply with the minimum standards, and
- complete and retain the well reports.

### Questions?

Ministry of Environment officials are responsible for administering the *Water Act* and Ground Water Protection Regulation. Any questions about the legislation should be directed to the nearest Ministry of Environment office (see listing below). The *Water Act* and Ground Water Protection Regulation can be found on the Ministry's Water Stewardship Division web site: http://www.env.gov.bc.ca/wsd/index.html.

**Vancouver Island Region**, Nanaimo .....(250) 751-3100
**Lower Mainland Region**, Surrey ..... (604) 582-5200
**Thompson and Cariboo Regions**, Kamloops ..... (250) 371-6200
**Kootenay and Okanagan Regions**, Nelson ..... (250) 354-6333
Penticton ..... (250) 490-8200
**Omineca Peace & Skeena Regions**, Prince George ..... (250) 565-6135

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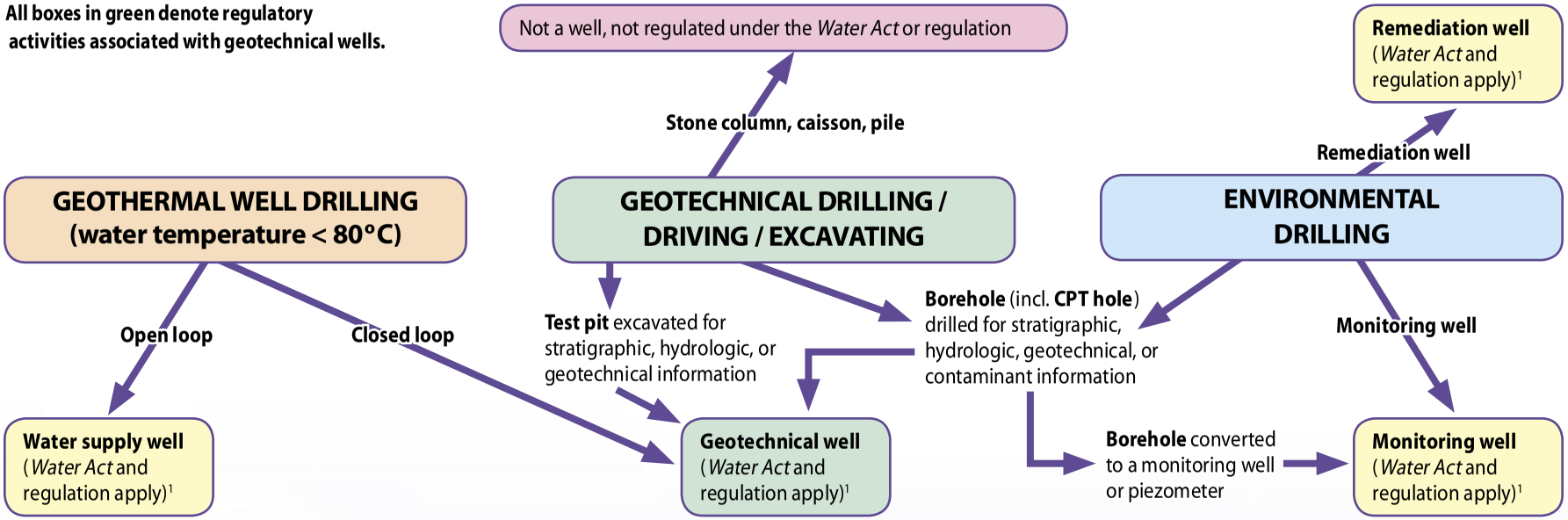
# Flow Chart for Ground Water Protection Regulation Requirements for the Geotechnical Industry

**All boxes in green denote regulatory activities associated with geotechnical wells.**




## CLOSED LOOP GEOTHERMAL WELL | TEST PIT | BOREHOLE

**No well identification plate required**

**Well construction standards for new closed loop wells:**
- Minimum 3-foot surface seal required
- No cap required
- No minimum stick-up required

**Well construction standards for test pits:**
- No surface seal required
- No cap required
- No minimum stick-up required

**Well construction standards for boreholes:**
- No surface seal required
- No cap required
- No minimum stick-up required

**Well closure standards for closed loop wells:**
- Backfill and seal closed loop wells
- Minimum 3-foot closure plug
- Complete and retain closure report
- Closure not required for existing closed loop wells

**Well closure standards for test pits:**
- Backfill test pits
- Closure plug not required
- Closure report not required

**Well closure standards for boreholes:**
- Backfill and seal boreholes
- Minimum 3-foot closure plug for boreholes > 15 feet deep
- No closure plug required for boreholes ≤ 15 feet deep
- Complete and retain closure report

**NOTES:**
- [1]For other classes of wells regulated under the *Water Act* and regulation, refer to the *Act* and regulation for specific requirements related to those other classes of wells.
- **"New"** means a borehole, test pit or closed loop geothermal well constructed on or after November 1, 2005.
- **"Existing"** means a borehole, test pit or closed loop geothermal well constructed before November 1, 2005.
- **"Aquifer"** means **a)** a geological formation, **b)** a group of geological formations or **c)** part of one or more geological formations that is water bearing and capable of storing, transmitting and yielding water.