

Pumping Well Options

The Administration examined three options for pumping wells as a means of improving groundwater protection in Saskatoon. They address resident-owned domestic wells only. Other types of groundwater wells such as non-domestic wells or geothermal wells have been excluded since there are existing provincial regulatory mechanisms for these.

Table 1: Analysis summary for domestic purpose pumping well options

| Comparison | A1 Do not regulate domestic purpose pumping wells | A2 Allow new domestic purpose pumping wells for irrigation only | A3 Prohibit new domestic purpose pumping wells |
|-------------------------------------|--|---|---|
| Addresses groundwater quality risks | Does not address | Partially addresses | Fully addresses (moving forward) |
| Addresses public safety risks | Does not address | Partially addresses | Fully addresses (moving forward) |
| Engagement support | Least supported | Partially supported | Most supported |
| Triple Bottom Line support | Least supported | Partially supported | Most supported |
| Additional budget requirements | Not required | Required | Not required |
| Implementation time | Not required | ~9 months | ~6 months |
| Implementation ease | Not required | Hardest | Easiest |

A1: Do not regulate domestic-purpose pumping wells (maintain status quo)

The installation and operation of pumping wells for domestic purposes would remain unaddressed in Saskatoon.

Advantages of this option are:

- Requires no additional resources or funding to implement.
- Least restrictive for residents who wish to install a well.

Disadvantages of this option are:

- Does not address water protection objectives of the Official Community Plan.
- Does not address risk of aquifer contamination, drinking water cross-contamination, public health issues, and liabilities associated with unregulated domestic purpose wells.
- Least supported by engagement and Triple Bottom Line results.

The greatest risk to public safety would arise where a domestic purpose pumping well has been installed for a private residence and at the same time the residence is connected to the City's potable water supply. If the resident created a secondary or backup connection between their well and the City's potable water supply, there would be a risk of cross-contamination that could impact a large portion of the public distribution system.

A2: Allow new domestic purpose pumping wells for irrigation only

The Administration would create a bylaw to regulate the installation, operation, and decommissioning of new domestic purpose pumping wells for the sole purpose of irrigation for private residences. The use of groundwater for drinking or washing would be prohibited.

Advantages of this option are:

- Provides residents access to groundwater for irrigation only, if desired.
- Partially addresses water protection objectives of the Official Community Plan.
- Partially addresses risk of aquifer contamination, drinking water cross-contamination, public health issues, and liabilities associated with unregulated domestic purpose wells.

Disadvantages of this option are:

- Greater time and funding required for implementation.
- Compliance and enforcement resources and budgets will increase with the number of wells installed. May eventually impact water utility revenue.
- Increased risk to overuse of groundwater with greater public use over time.
- Increases the City's exposure to financial and public safety risk over time.
- Partially supported by engagement and Triple Bottom Line results.

This option reduces risks to human health and improves groundwater protection but does not eliminate risks. Groundwater could still become contaminated, be overused, or residents could still consume it, which could result in the City being liable due to approving the use of groundwater.

Implementation of this option would require the creation of an administration process for applications, approvals and enforcement, a records database, and education material for well owners and installers.

Initial uptake is expected to be low therefore compliance inspections and enforcement could likely be managed with existing staff and budgets. Additional resources and budgets could be required if there is greater demand than expected for irrigation-only wells, or as the number of wells increases over time.

A3: Prohibit new domestic-purpose pumping wells

No resident would be permitted to install or operate a new domestic purpose pumping well within city limits where municipal water service is available.

Advantages of this option are:

- Requires no additional resources or funding to implement.
- Addresses water protection objectives of the Official Community Plan.
- Addresses risk of aquifer contamination, drinking water cross-contamination, public health issues, and liabilities associated with unregulated domestic purpose wells.
- Highest support from engagement and Triple Bottom Line results.

Disadvantages of this option are:

- Most restrictive for residents who wish to install a well.

Enforcement would be complaint driven. With the anticipated low number of residents wishing to install a well, can be implemented utilizing existing staff and budgets. Education would be created for well drillers and consultants to inform them of the bylaw and a city webpage with bylaw details would be developed. Existing domestic purpose wells would not be affected but education and supporting rationale will be created for property owners with existing wells to encourage decommissioning.

Option A3 is the most effective at protecting groundwater, public health and safety, and security of the City's water system from risks associated with domestic wells. However, it prevents access to groundwater by residents. Residents would still have access to other water sources for irrigation such as City-water, rainwater collection, or by reducing their watering needs through conservation measures being explored in the [Water Conservation Strategy](#).

Other Options Considered

Allowing and fully regulating all domestic uses of groundwater by residents was initially considered as an option. However, to properly implement this option, the City would have to develop significant management and enforcement capacity similar to the Water Security Agency, which is considered infeasible and costly in relation to the few residents that are currently expected to want wells. This option could be revisited if the demand for wells increases in future.

Monitoring Well Options

The Administration examined two options for monitoring wells as a means of improving groundwater protection in Saskatoon.

Table 2: Analysis summary for monitoring well options

| Comparison | B1 New Development Standards | B2 New City-wide Standards |
|-------------------------------------|------------------------------------|----------------------------------|
| Addresses groundwater quality risks | Partially addresses | Fully addresses |
| Addresses public safety risks | Partially addresses | Fully addresses |
| Engagement support | Partially supported | Most supported |
| Triple Bottom Line support | Partially supported | Most supported |
| Additional budget requirements | Not required | Required |
| Implementation time | ~12 months | >12 months |
| Implementation ease | Easiest | Hardest |

B1: New Development Standard

The [Design & Development Standards Manual](#) would be updated to include standards and specifications for monitoring wells that are installed during land development. Development proponents would also be required to properly decommission any abandoned wells within the proposed development. Non-compliance could result in the delay of development plan approvals.

Advantages of this option are:

- Partially addresses water protection objectives of the Official Community Plan.
- Partially addresses risk of aquifer contamination associated with unregulated monitoring wells.
- Requires no additional resources or funding to implement.

Disadvantages of this option are:

- Monitoring wells installed on private property that are not part of a large-scale development would remain unaddressed.
- Additional expenses will be incurred by developers installing monitoring wells.
- Partially supported by engagement results.

This option, together with Administrative action on monitoring wells located on City property and rights-of-way, will provide an effective strategy for reducing the risks of contamination to groundwater within city limits. The creation of standards and specifications will require additional internal and external engagement with stakeholders and development proponents to achieve full implementation.

B2: New City-wide Standard

Creation of a Bylaw or amendment of existing Bylaws would be necessary to require adherence to a City-wide Standard detailing the construction, maintenance and decommissioning of monitoring well installations and the decommissioning of abandoned pumping wells.

Advantages of this option are:

- Addresses water protection objectives of the Official Community Plan.
- Addresses risk of aquifer contamination associated with unregulated monitoring wells.
- Highest support from engagement and Triple Bottom Line analysis.

Disadvantages of this option are:

- Requires additional funding to implement.
- Engagement did not include landowners that might be impacted by a City-wide approach.
- Additional expense would be incurred by landowners installing monitoring wells.

Implementation of this option would capture all monitoring wells installed within City limits and therefore provides the most effective strategy to reduce risks of contamination to groundwater from monitoring wells.

Although this option received the highest support from engagement and the Triple Bottom Line analysis, it would be the most expensive and controversial option to implement. It must be remembered that engagement for this project was targeted to subject matter experts, consultants, well drillers/installers, and land developers. Additional engagement would be desirable to gauge the acceptability of this option to other landowners who might be impacted by City-wide standards.

Additional resources would be needed for additional public engagement, to create new bylaw(s) and to enforce the bylaw and standards on private property.

Other Options Considered

Creation of an administrative policy and associated guidelines for the maintenance and decommissioning of monitoring wells on City property and rights-of-way was initially considered as an option. However, it was determined that this work could be undertaken with existing resources as a continuous improvement initiative and did not require City Council direction for implementation.