

# Technical Bulletin

## Wells Regulation – Shallow Works Test Holes & Dewatering Wells

This technical bulletin is one in a series of seventeen <sup>1</sup> on well issues created for a person who:

- may have a new test hole or dewatering well constructed in the future, or
- currently owns a test hole or dewatering well.

The purpose of this technical bulletin is to summarize the information found in the *Test Holes and Dewatering Wells – Requirements and Best Management Practices* manual published by the Ministry of the Environment, April 2014 (**hereon in referred to as the “Manual”**) regarding what the legislation considers a shallow works and the requirements and exemptions for these test holes and dewatering wells.

## Understanding the Term Shallow Works

A shallow works is considered:

- a well <sup>2</sup> as defined in the Ontario Water Resources Act,
- a test hole <sup>3</sup> or dewatering well <sup>4</sup> as defined in the Wells Regulation, and

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<sup>1</sup> A list of the seventeen technical bulletins is shown in the Additional Information Sources section near the end of this technical bulletin.

<sup>2</sup> A “well” means a hole made in the ground to locate or to obtain ground water or to test or to obtain information in respect of ground water or an aquifer, and includes a spring around or in which works are made or equipment is installed for collection or transmission of water and that is or is likely to be used as a source of water for human consumption, subsection 1(1) of the Ontario Water Resources Act, e-laws: [http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_90o40\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90o40_e.htm)

<sup>3</sup> A “test hole” means a well that, (a) is made to test or to obtain information in respect of ground water or an aquifer, and (b) is not used or intended for use as a source of water for agriculture or human consumption, subsection 1(1) of the Wells Regulation, e-laws: [http://www.e-laws.gov.on.ca/html/regs/english/elaws\\_regs\\_900903\\_e.htm](http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_900903_e.htm)

<sup>4</sup> A “dewatering well” means a well that is not used or intended for use as a source of water for agriculture or human consumption and that is made, (a) to lower or control the level of ground water in the area of the well, or (b) to remove materials that may be in the ground water, subsection 1(1) of the Wells Regulation, e-laws: [http://www.e-laws.gov.on.ca/html/regs/english/elaws\\_regs\\_900903\\_e.htm](http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_900903_e.htm)

- a well (hole) that is made to a depth of not more than three (3) metres below the ground surface.

A water supply well used, or intended for use, for human consumption, agriculture, industrial, commercial or municipal purposes is not considered a shallow works.

### *Exemptions*

A person who constructs, maintains or abandons a shallow works:

- is exempt from the sections on licensing of the Ontario Water Resources Act that pertain to wells <sup>5</sup>
- need only meet the requirements found in section 1.1 of the Wells Regulation.

The shallow works exemption does not apply if the test hole or dewatering well:

- is constructed in a contaminated area,
- is constructed in an area with conditions likely to result in flowing wells (where the static water level will likely be above the ground surface), or
- penetrates through a formation that is not an aquifer. For example, if the well is constructed entirely through a 2 m (6.5') thick clay formation and into a sand formation below.

If it becomes apparent that the test hole or dewatering well does not meet the requirements for the shallow works exemption, then see the “When to Hire a Licensed Well Contractor” section for further information on what steps need to be taken.

### *Clarification of Contaminated Area*

A contaminated area is an area which contains a contaminant.

As guidance and for the consideration of the person constructing, maintaining or abandoning a well, “contaminant” means any solid, liquid, gas, odour, heat, sound, vibration, radiation or combination of any of them resulting directly or indirectly from human activities that causes or may cause an adverse effect. The clarification is

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<sup>5</sup> Sections 36 to 50 of the Ontario Water Resources Act, R.S.O. 1990, c. O. 40, e-laws: [http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_90o40\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90o40_e.htm)

consistent with the definition of the term “contaminant” found in the Environmental Protection Act, R.S.O. 1990. c. E. 19.

To help determine if the well site is an area that is considered a contaminated area, a person constructing, maintaining or abandoning a test hole or dewatering well should exercise due diligence by:

- reviewing previous hydrogeological and geological reports for the well site,
- assessing the formations at the well site, and
- using the Guideline titled Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act <sup>6</sup>.

For example, if a dewatering well driven-point system is installed to a depth no greater than 3 metres for the purpose of extracting contaminated water as part of a remediation project, then:

- the Ontario Water Resources Act, including the well licensing sections (sections 36 to 50) of the Act apply, and
- all sections of the Wells Regulation, other than shallow works exemption found section 1.1 of the Wells Regulation, apply.

#### *Clarification of Areas Likely to Result in Flowing Wells*

In an area with springs and a seasonally high water table, a person may wish to jet, dig or otherwise install a test hole or dewatering well. Because the area will likely have flowing well <sup>7</sup> conditions, the person constructing the test hole or dewatering well that will extend no more than 3 metres below the ground surface will need to meet:

- the Ontario Water Resources Act, including the well licensing sections (sections 36 to 50) of the Act, and
- all sections of the Wells Regulation, other than shallow works exemption found section 1.1 of the Wells Regulation.

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<sup>6</sup> Government of Ontario. April 15, 2011. *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*. PIBS# 7382e01, Available at URL: [http://www.downloads.ene.gov.on.ca/envision/env\\_reg/er/documents/2011/011-2347%202.pdf](http://www.downloads.ene.gov.on.ca/envision/env_reg/er/documents/2011/011-2347%202.pdf)

<sup>7</sup> A flowing well means means a well that has a static water level above the ground surface & a static water level means means the level attained by water at equilibrium in a well when no water is being taken from the well, subsection 1(1) of the Wells Regulation, e-laws: [http://www.e-laws.gov.on.ca/html/regs/english/elaws\\_regs\\_900903\\_e.htm](http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_900903_e.htm)

### *Clarification of Formation Penetration Condition*

If a test hole or dewatering well penetrates through an entire non-aquifer formation, such as a clay formation, then:

- the Ontario Water Resources Act, including the well licensing sections (sections 36 to 50) of the Act apply, and
- all sections of the Wells Regulation, other than shallow works exemption found section 1.1 of the Wells Regulation, apply.

If, however, the test hole of dewatering well terminates within a non-aquifer formation, such as clay, then a person who constructs, maintains or abandons a shallow works:

- is exempt from the sections on licencing of the Ontario Water Resources Act that pertain to wells <sup>8</sup>
- must only meet the requirements found in section 1.1 of the Wells Regulation.

### **Shallow Works Requirements**

The person who constructs the shallow works must abandon (backfill) the well using one of the following two methods <sup>9</sup>:

- Method #1:      The major horizons of soil are excavated separately, stored separately, kept free from contamination and, when the well is no longer being used or maintained for future use as a well, backfilled in the same relative positions that they originally occupied, or
- Method #2:      When the test hole or dewatering well is no longer being used or maintained for future use as a well, it is backfilled with:
- commercially produced dry bentonite sealing material (e.g. chips or pellets) or other suitable sealant, or with clean, uncontaminated soil that has a grain size that is the same as or finer than the soil that was originally excavated.

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<sup>8</sup> Sections 36 to 50 of the Ontario Water Resources Act, R.S.O. 1990, c. O. 40, e-laws: [http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_90o40\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90o40_e.htm)

<sup>9</sup> Subsections 1.1(2) and (3) of the Wells Regulation, e-laws: [http://www.e-laws.gov.on.ca/html/regs/english/elaws\\_regs\\_900903\\_e.htm](http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_900903_e.htm)

As the Method #1 (above) can be challenging in certain environments or using certain construction equipment (e.g., driving), Method #2 is often the preferred option.

This backfilling requirement applies to the person who originally constructs the shallow works.

### **Best Management Practice – Covering a Shallow Works**

The Ontario Water Resources Act prohibits the impairment of the quality of any waters. As such, a shallow works should be covered to prevent surface water or other foreign materials from entering the hole, and be secure enough to prevent physical hazards and vandalism.

In situations where a shallow works has a casing, persons constructing the test hole or dewatering well should cover the upper open end of the well with a cap or cover as described in Chapter 12 of the Manual: *Equipment Installation*.

In situations where a person constructs a relatively narrow (e.g., less than 30 cm diameter) shallow works without a casing, it is recommended that a temporary vertical tube and horizontal cover that is larger than the hole be installed into the ground and around the test hole or dewatering well to prevent hole collapse and the entry of surface water and other foreign materials. See Chapter 6 of the Manual: *Constructing the Hole, Casing & Covering the Test Hole or Dewatering Well*, Figure 6-28, Figure 6-29 and Figure 6-30.

In situations where a person constructs a large diameter shallow works without a casing (e.g. test pit) that cannot be reasonably or safely covered, it is recommended that the test hole or dewatering well not be left unattended and be immediately backfilled as required in Methods #1 or #2 in the “Shallow Works Requirements” section of this technical bulletin.

### **Best Management Practice <sup>10</sup> – Retaining Experienced & Licensed Professionals to Construct Shallow Works**

Although there are exemptions from the licensing requirements in the Ontario Water Resources Act (sections 36 to 50) and the Wells Regulation for a shallow works, the equipment, materials and expertise needed to properly and safely construct, inspect, test,

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<sup>10</sup> Best management practices are recommended actions or steps that exceed the minimum regulatory requirements to better protect the groundwater and the natural environment but are not enforceable.

sample, monitor, maintain and abandon a shallow works far exceed the average person's abilities and resources.

For instance, the shallow works or the sides of the shallow works may become unstable if not properly constructed or conditions may be present which do not meet the conditions for shallow works (e.g., contamination or hazardous gas) and may not be recognized by unlicensed people causing a risk. If the person, including the well owner, does not have the necessary equipment or cannot employ proper safety procedures, then s/he should not perform the construction activity on a well.

A well technician with a valid well technician licence of the correct class, working for a well contractor with a valid well contractor licence, should be retained to construct and work at a shallow works.

### **When to Hire a Licensed Well Contractor for a Shallow Works**

If it becomes apparent during construction, use or abandonment of a test hole or dewatering well that the shallow works exemption does not apply (see "Understanding the Term Shallow Works" section), the person who originally constructed the well must retain the services of a licensed well contractor unless the next paragraph applies.

If the structural stage <sup>11</sup> of the well is complete and the well owner has assumed control over the operation of the well and it becomes apparent during use or abandonment that the shallow works exemption does not apply, then the well owner must retain the services of a licensed well contractor.

The retained licensed well contractor must ensure compliance with the Wells Regulation, the Ontario Water Resources Act and the Environmental Protection Act.

A licensed well contractor does not have to be retained if the person who would have to meet either of the above obligations has an employee who:

- has a valid well technician licence of the correct prescribed class of licence,
- works for a licensed well contractor, and
- ensures compliance with the Wells Regulation, the Ontario Water Resources Act and the Environmental Protection Act.

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<sup>11</sup> The structural stage is complete on the day on which the well is capable of being used for the purpose for which it was constructed except for pump installation and disinfection of the water in the well in accordance with the Wells Regulation.

If the test hole or dewatering well is abandoned and the shallow works exemption does not apply, then the person abandoning the well, often the well owner, must ensure that the well is properly plugged and sealed in accordance with the Wells Regulation. For further information, including clarification on the term “the person abandoning the well”, see the *Wells Regulation – Abandonment: How to Plug and Seal Test Holes and Dewatering Wells* technical bulletin.

## **Monitoring Wells under the Records of Site Condition Regulation**

There are additional well construction requirements for monitoring wells that are used in an assessment in support of a record of site condition for a property.

O. Reg. 153/04<sup>12</sup> prescribes that the provisions of the Ontario Water Resources Act and of Regulation 903 of the Revised Regulations of Ontario, 1990 (Wells) made under that Act, that would apply to a test hole but for section 1.1, and subsections 13 (2), 14.1 (2), 14.2(3), 14.3 (2), 14.4 (4) and 14.5 (3) of that regulation, apply to a monitoring well installed for the purpose of,

- a phase one environmental site assessment; and
- a phase two environmental site assessment.

A monitoring well is considered a test hole.

### *Implications for the Qualified Person*

The qualified person<sup>13</sup> shall ensure that the phase one and phase two environmental site assessments (ESAs) are conducted in accordance with the requirement stated above.

### *Implications for Shallow Works*

The shallow works exemption contained in section 1.1 of the Wells Regulation does not apply to a monitoring well that is constructed as part of a phase one or two ESA for a record of site condition.

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<sup>12</sup> Ontario Regulation 153/04 as amended made under the Environmental Protection Act, R.S.O. 1990, c. E. 19, e-laws: [http://www.e-laws.gov.on.ca/html/regs/english/elaws\\_regs\\_040153\\_e.htm](http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_040153_e.htm)

<sup>13</sup> See the definition of Qualified Person in Chapter 2 *Definitions and Clarifications of the Test Holes and Dewatering Wells – Requirements and Best Management Practices* manual and section 5 of Ontario Regulation 153/04 as amended made under the Environmental Protection Act, R.S.O. 1990, c. E. 19, e-laws: [http://www.e-laws.gov.on.ca/html/regs/english/elaws\\_regs\\_040153\\_e.htm](http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_040153_e.htm)

## Exempted Wells

The Wells Regulation exempts certain types of wells, such as a pond or trench, from the Wells Regulation and from the sections on licensing of the Ontario Water Resources Act that pertain to wells <sup>14</sup>. Therefore, the shallow works requirements in the Wells Regulation do not apply to exempted wells. See the *Wells Regulation – Understanding a Well, Test Hole and Dewatering Well* technical bulletin for further information.

## Water Supply Wells

Certain licensing and construction requirements for water supply wells are different from the requirements for test holes and dewatering wells as defined by the Wells Regulation. For further information on the requirements for water supply wells see the *Water Supply Wells – Requirements and Best Management Practices* manual, published by the Ministry of the Environment, December 2009 and the Wells Regulation.

## Additional Information Sources

The seventeen technical bulletins on test holes and dewatering wells are:

- Wells Regulation – Understanding the Meaning of Well, Test Hole and Dewatering Well
- Wells Regulation – Shallow Works Test Holes & Dewatering Wells
- Wells Regulation – Exempted Activities Performed on Wells, Including Test Holes & Dewatering Wells
- Wells Regulation – Test Hole and Dewatering Well Licensing
- Wells Regulation – Licensing (Class 5) for Individuals who Perform Tests on Wells
- Wells Regulation – Site Considerations & Initial Planning for Test Holes & Dewatering Wells
- Wells Regulation – Constructing New Uncased Test Holes & Dewatering Wells in Operation for No Longer than 30 Days
- Wells Regulation – Constructing New Test Holes & Dewatering Wells in Operation for No Longer than 180 Days
- Wells Regulation – Constructing New Test Holes & Dewatering Wells

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<sup>14</sup> Sections 36 to 50 of the Ontario Water Resources Act, R.S.O. 1990, c. O. 40, e-laws: [http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_90o40\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90o40_e.htm)



- Wells Regulation – Constructing New Multi-level Monitoring Test Holes
- Wells Regulation – Completing the Structure of the New Test Hole or Dewatering Well
- Wells Regulation – Flowing Test Holes & Dewatering Wells
- Wells Regulation – Test Hole & Dewatering Well Maintenance
- Wells Regulation – Well Record, Reporting & Tagging for a Test Hole & Dewatering Well
- Wells Regulation – Test Hole & Dewatering Well Repairs & Alterations
- Wells Regulation – Well Abandonment - When to Plug & Seal a Test Hole or Dewatering Well
- Wells Regulation – Well Abandonment - How to Plug & Seal a Test Hole or Dewatering Well

These technical bulletins are available on Ontario.ca.

Further information on shallow works can be found in Chapter 2: *Definitions and Clarifications* and Chapter 3: *Exemptions: Wells, Activities & Experienced Professionals* of the Manual.

A copy of the *Test Holes and Dewatering Wells – Requirements and Best Management Practices* manual can be obtained on Ontario.ca.

A copy of the Ontario Water Resources Act, Wells Regulation and other regulations can be obtained from the e-Laws website at [www.e-laws.gov.on.ca](http://www.e-laws.gov.on.ca).

The publications are also available by calling the Publications Information Centre at 1-800-565-4923 or (416) 325-4000.

For further information about wells, contact the Wells Help Desk at 1-888-396-9355 (Well) or the nearest Ministry of the Environment office listed in the blue pages of the telephone directory.

***Notice: This bulletin is being provided for information purposes only and is not intended, nor should it be construed as providing legal advice in any circumstances. The applicable environmental legislation, including the following, should be consulted.***

- ***Ontario Water Resources Act, R.S.O. 1990, c. O. 40***
- ***R.R.O. 1990, Regulation 903 (Wells) as amended made under the Ontario Water Resources Act, R.S.O. 1990, c. O. 40***
- ***Ontario Regulation 153/04 as amended made under the Environmental Protection Act, R.S.O. 1990, c. E. 19***

***Legislation and regulations change from time to time so it is essential that the most current versions be used.***

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