

A Short Overview of Requirements for Abandonment of Test Holes/Dewatering Wells

Application: Wells over 6.5cm (2.6in) and less than 65cm (26 in) in diameter

- Remember - Under Reg. 903 the entire borehole is the "well". The well diameter is the entire diameter of the original borehole, including any annulus.
- Always preserve/return the tag [R.903 Section 21.1(1)1]. File a well record after abandonment (not mandatory when removing wells installed in the past 30 days) [16.5(1) & (2)]
- If the entire well has been removed during excavation for unrelated purposes, sealing requirements do not apply. A licensed well tech must still be involved [21.1(1)8] & [21(13)]
- The Reg specifies additional requirements and details that are not covered in this short overview.

(1) Address the Well Casing & Well Screen

Overdrill the entire well
(including annulus)
[21.1(2)]

OR

Make reasonable efforts to
remove the casing and screen
[21.1(1)4]

OR

If reasonable removal was not
possible, make reasonable efforts to
remove the top 2m [21.1(1)5]

The Reg is difficult to interpret on these points - for casing/screen installed in soil, it still may be necessary to remove the annulus, requiring overdrilling. [Best Management Practices manual, Ch.17 figures 17-32 through 17-40 and figure 17-50]

(2) Install the Abandonment Barrier

Create a barrier that prevents movement of water, natural gas, contaminants or other material through the well [21.1(1)3(i)] as outlined below:

Dry Method

0-0.5m below surface	Fill with soil or material that is consistent with the surrounding surface area [21.1(1)8(ii)]
0.5-1.5m below surface	Fill with soil or surface material (as above) OR bentonite chips, pellets, granules or powder [21.1(1)8(i)]
1.5m to end of hole	Fill with screened bentonite chips or pellets, used according to manufacturer's specs [21.1(1)3(i)] [21.1(1)8(i)] [21.1(3)7(vii)] (Granules or powder may not be used below 2m) - Best Management Practices manual recommends: When using chips, prevent bridging by filling at a rate of 3 minutes per 50 lb bag. - To comply with the requirement of making a water and vapour proof seal, hydrate the chips/pellets (especially above the water table).

Wet Method

0-0.5m below surface	Fill with soil or material that is consistent with the surrounding surface area [21.1(1)8(ii)]
0.5-1.5m below surface	Fill with soil or surface material (as above), OR bentonite chips, pellets, granules or powder. [21.1(1)8(i)]
0.5-1.5m below surface	Fill with bentonite chips pellets, granules or powder, used as per manufacturer's specs [21.1(1)8(i)]
2.0m to end of hole	Use a tremmie pipe [21.1(3)8] to fill with one of the following [21.1(3)7]: - slurry of clean water and min. 20% bentonite solids by weight - slurry of clean water, Portland cement and no more than 5% bentonite. - slurry of clean water and Portland cement. - slurry of equal weights Portland, and clean gravel, mixed with clean water. - slurry/concrete slurry of clean water, Portland, clean sand and gravel. - other material approved in writing by the Ministry.

- Do not allow soil, cuttings or other materials to impair the quality of the barrier; do not use soil/cuttings in sections containing bentonite or cement [21(3)2]
- After the well has been filled, ensure the final ground surface is stable and will not erode [21(2)9]
- Note: If the barrier contains cement, let the column from 2m downwards set until firm. If it settles during that time, top it up to 2m [21(1)6]
- Note: If the well is a flowing well, commercial drilling mud may be used to assist in abandonment but may not be used as an abandonment barrier [21.1(7)]