

FACTSHEET: BORE HEAD SECURITY



PROTECTING YOUR GROUNDWATER SUPPLY

Groundwater provides us with a source of fresh water which has been naturally filtered and stored away from surface activities. The groundwater in the Amuri Basin is predominantly recharged from surface water from the Pahau, Hurunui and Waiau rivers, rainfall and other land drainage.

Any land use activity can impact on the state of our groundwater quality if not managed well. We should take all efforts to keep contaminants away from that precious resource.

WHAT CAN AIC DO?

If you use water from a bore for potable supply (domestic consumption for cooking, cleaning and drinking), we can arrange for a Potable Drinking Water test to ensure the water supply is safe for drinking.

WHY IS THIS IMPORTANT?

The presence of Escherichia coli (E. coli) in groundwater indicates that water may be contaminated by excrement and the potential presence of pathogenic viruses, bacteria and protozoa. E. coli poses a significant risk to people's health when found in drinking water. It is also a risk that should be considered for stock and dairy shed supply.

Our sampling has shown that typically 25% of the bores sampled in the Amuri Basin exhibit positive E. coli results. This is around 10% higher than the Canterbury average and some bores show positive detections of E. coli in over 50% of samples taken.

The bore head is particularly vulnerable to contamination as it provides the physical connection between the land surface and the underlying well. Ideally a bore and bore head should be clean and form a tightly fitting seal into the underground reservoir.

RESULTS FROM THE BASIN

Environment Canterbury records show there are 578 wells drilled in the AIC Command area. Of these, 308 (53%) are recorded as being in use. The remainder are unused, decommissioned or were never drilled.

Groundwater levels across the Amuri Plains range between of 11-17m below ground level (bgl) towards the western range, to less than 3m bgl on the Lowry Range.

Bores are typically screened to 20-40m bgl but a large number are less than 5m. These shallow bores sit just below the water table where water quality is highly influenced by local land use.

Water quality testing indicates that groundwater quality is generally high across the Amuri Basin. Major ion concentrations are typically low to moderate and trace metal concentrations are typically close or below detection limits. However, nitrate-nitrogen concentrations remain elevated in some bores.

WHAT CAN WE DO?

Everyone should have access to a safe and reliable water supply. Maintaining a healthy and productive farm team is part of your duty of care as an employer.

We all play a part in reducing potential for contamination and protecting the quality of your water should be an integral part of your farm system. Just because a water supply has been adequate in the past, doesn't mean it will remain so in the future. Regular inspection and maintenance of your water supply should form part of your farm operations.

Groundwater flow pathways and/or land use activities close to the bore can contaminate water. Inadequate bore construction and/or bore head security can contribute to localised microbial contamination.

The Water Services Act creates greater responsibility on landowners to maintain safe drinking water supplies. You can take steps to protect the bore and maintain the quality of the water in it.

DO'S AND DONT'S



How to do it: A secure bore head with a stable concrete base.



How to do it: The bore head is fenced to prevent stock access.



What to avoid: An unsealed open bore head which is also used for storage creates a possible risk for water contamination. Birds have been in here which poses a threat of nesting fires, a further risk to water quality.



What to avoid: An unsecure and unprotected bore head pooling water with stock pugging up the ground around it. [Photo Credit: Environment Canterbury]

FURTHER INFORMATION

■ **New Zealand Health Safe Household Water**

www.healthed.govt.nz/resource/secure-groundwater-bores-and-wells-safe-household-water

■ **Environment Canterbury**

Private bore drinking water: www.ecan.govt.nz/document/download?uri=3529584

Land use consents for new bores: www.ecan.govt.nz/document/download?uri=3016046

■ **Hill Laboratories**

Water testing: www.hill-laboratories.com/analytical-testing/water-testing/other-water-testing

CHECKLIST: BORE HEAD SECURITY



LOOKING AFTER YOUR BORE HEAD

- Consider the location and siting of the bore. Involving experts in the planning of your bore can help get the basics right in design and construction.

- Bores should be sited outside of areas prone to flooding. The bore head should ideally be elevated above potential flood risk height. Ensure the well casing extends at least 500mm above ground.

- The area around the bore should be contoured or cambered to divert surface run-off away from the bore.

- Bores should be sited away from sources of contamination (e.g., septic tank disposal, effluent storage facilities, supplementary feed storage areas, chemical storage, fuel tanks, compost, rubbish pits and burning drums, sheep dips (active or disused), stockholding yards, farm access ways and soak holes, as these may release contaminants into the water).

- Review any consents you hold to ensure there are not stipulated separation distances from bores, such as the discharges of animal effluent or septic tanks.

- Fencing the bore head prevents contamination and damage to the bore by stock or vehicle movements. Ideally this should give a 5m buffer to the well head.

- Keep in mind access for maintenance, including large machinery.

- Consider what activities surround the bore, as what was a low risk site can over time become affected by more intensive land use. Bores should be located away from potential sources of runoff.

- Don't store chemicals, herbicides or other products in close proximity to the well head.

- Ensure the bore headworks is capped and sealed to prevent foreign material getting into the bore (this includes any hoses or cables going down the well). Seal around the top of the casing with a raised concrete pad to help prevent contaminated water entering the side of the casing and into the bore.

- Regular and proactive maintenance prevents breakdowns which can pose further risk of contamination. Check and regularly maintain the bore, pump shed, electrical componentry and surrounding area.

- All pipes and tanks should be sealed to prevent contamination once water is abstracted from the bore.

- Keep the area around the bore clear. Use glysohate to keep down vegetation, limit rodent habitat and to better identify any leaks from the bore, pumping and mainline infrastructure.

- Ensure there are no birds' nests around the pump and electrical wiring. Nests can cause faults and fires.

- Label your bore shed with your well number. These can be found on the Environment Canterbury website at www.ecan.govt.nz/data/well-search. Note that older bore numbers may not be readily available.