

Water Bores—Troubleshooting

Problems often encountered with water bores include reduced supply, dirty water, pumping of sand and deteriorating water quality. While many of the problems encountered with water bores are often associated with some mechanical defect, this is not always the case.

Before work is carried out on a bore, you should first try to identify the cause of the problem. Significant time and money can be wasted on rehabilitation works which do not target the cause of the problem.

Broadly, problems encountered with bores fall into the following three categories:

- state of the resource
- physical condition of the bore
- condition of pumping equipment.

State of the resource

If drought conditions exist or demands on the aquifer system are excessive, then a fall in water level may occur. This is likely to result in a decrease in bore yield. A direct measure of an aquifer's performance is the position of the standing water level—if it is lower than normal, there is less water to pump and the supply will decrease. Where there are a large number of bores tapping an aquifer or there are nearby bores being pumped, a reduction in individual bore yields may result.

Generally, if the supply has diminished but the standing water level is normal, the fault lies with the bore or pump.

Physical condition of bore

Many problems arise when the condition of a bore deteriorates.

Water entry into the bore can be reduced or stopped when:

- corrosion of the bore casing or screens (or casing slots) allows sediment to enter the bore.
- screens (or slots) are blocked by chemical deposits or bacterial slime
- fine material enters the bore due to poor design of screen or slot size
- clayey particles build-up adjacent to screens or slots.

Corroded casing will also allow poor quality water from an untapped, higher aquifer to enter the bore.

Condition of pumping equipment

You should also look at the condition of the pump if water supply problems occur. As a first step check that the pump, motor and delivery systems are operational. Pump impellers wear, inlets become blocked and holes form in pump casings. Any of these can lead to reduced or complete loss of supply.

For new bores, ensure that the capacity of the pump is not greater than the yield of the bore.

Solutions

Table 1 lists a number of problems, possible causes, tests, and solutions for overcoming some of the problems often encountered with water bores. This should help to determine the most likely cause of your problem, but you should always seek further advice if you have any doubts.

Further information

Should you require assistance or advice on this topic, please contact a local groundwater consultant. You will find their contact details in the yellow pages under 'Natural Resources Consultants' or 'Boring and Drilling Contractors.'

More information on groundwater or other natural resource management topics is available on the Department of Environment and Resource Management's website at <www.derm.qld.gov.au>.

Table 1—Troubleshooting for water bores

Problem	Possible cause	Test	Solution
Supply failed completely	Pump malfunction	Check power and pump operation	Repair or replace pump
	Water entry to bore blocked	Measure standing water level	Redevelop bore and/or treat with chemicals
	Bore dewatered	Measure standing water level	Relocate bore or drill to a deeper aquifer
	Bore collapsed	Measure bore depth	Replace bore
	Formation collapsed	Measure standing water level	Replace bore or clean out and re-case
	Water level low	Measure standing water level	Reduce pumping rate and/or deepen bore
	Water entry to bore restricted	Measure water level and check discharge for deposits	Redevelop bore and/or treat with chemicals
Supply reduced	Pump malfunction	Check pump	Repair pump
	Bore silted up	Measure bore depth	Clean out and redevelop bore
	Interference with neighbouring bores	Observe effect on standing water level of neighbouring bore's pumping	Reduce pumping rate
	Iron/manganese bacteria	Check discharge for slimy deposits and/or water analysis	Disinfect bore/treat with chemicals
Discoloured/bad smelling water	Clay or silt particles entering bore	Check discharge for deposits	Redevelop bore
	Water source polluted e.g. leak from nearby septic tank	Water analysis	Relocate bore, and/or seal surface casing and/or remove source of pollution
Pumping sand	Hole in casing or screen	Measure bore depth and check discharged water	Replace casing or bore
	Incorrect screen or slot size	Measure bore depth and check discharged water	Redevelop bore and replace screen/slots
Subsidence at surface	Water bed collapsed	Check discharged water	Replace bore
	Pumping sand through incorrect screen / slot size	Check discharged water and measure bore depth	Redevelop bore and replace screen/slots

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For general enquiries contact the
Queensland Government call centre 13 74 68 (13 QGOV)
or visit www.derm.qld.gov.au