



Water Bore Drilling Licences

A how to for new, renewals and upgrades

Why Licence Water Bore Drillers?

Drillers play a vital role in the development, use and protection of the groundwater resource. They provide a service to clients and therefore have a responsibility to ensure that this role is fulfilled through high standards of work and use of materials.

The NT applies licensing standards, that are consistent with other jurisdictions throughout Australia. This is the most appropriate way to determine the skills and knowledge required by drillers and to protect the resource.

What are the Licence Classes?

The class of licence relates to the type of aquifer systems in which the driller may operate.

- Class 1 (Single non flowing aquifer systems)
- Class 1R (Single non flowing aquifer systems, restricted to geotech and monitoring bores to a maximum 30m depth)
- Class 2 (Multiple non flowing aquifer systems)
- Class 3 (Flowing aquifer systems including the Great Artesian Basin)
- Class 3R (Flowing aquifer systems excluding the Great Artesian Basin)

What are the Licence Endorsements?

Endorsements relate to the drilling method which a driller may use. Water bore driller licences are endorsed for one or more of the following methods:

- **Non drilling rig method** - This endorsement permits drilling methods which do not use conventional drilling rigs such as backhoes, hand dug wells, jetted and driven spears.
- **Cable tool** - This permits drilling operations using cable tool or percussion drilling methods.
- **Auger** - This permits drilling operations using bucket auger, hollow stem and solid stem auger techniques.
- **Rotary air** - This permits drilling operations which use rotary drilling methods with air or foam as the drilling fluid. This endorsement also includes the use of down hole hammers.
- **Rotary mud** - This permits drilling operations which use rotary drilling methods with water or water as a base for the drilling fluid.
- **Sonic** - This permits drilling operations using vibration (resonation) and downward force to advance the drill string, where the formation is retrieved via a core.



Applying for a New Drilling Licence

Step 1

1. Complete the application form for Grant or Renewal of Drilling Licence;
2. Attach two current passport photos;
3. Six signed (applicant and supervisor) Statement of Bores for the class and each endorsement that the applicant is applying for;
4. For the period up to 30 March 2018, applicants applying for sonic endorsement require six signed statement of bores using rotary air or rotary mud or sonic; and
5. Submit application to the Department.
6. Applicants must have the required qualifications, skills and experience as set out for the class and endorsements they are applying for. The following information is required by the applicant.

Note: In support of your application you can supply referee reports and course certificates.

Step 2

Completion of Module A and Module B exams are required.

1. The department will issue the Module A exam. It is a competency based exam to assess the applicants understanding of the Water Act and Regulations;
2. Applicant must submit the completed exam within 30 days of receipt; and
3. Applicants must successfully complete the exam with a pass mark of 80 per cent or higher. The department will notify the applicant of the outcome.

The Module B exam is administered by the Australian Drilling Industry Training Committee (ADITC). The exam is based on the class and endorsements from the Minimum Construction Requirements for Water Bores in Australia.

You will need to contact ADITC on (02) 9428 3444 or www.aditc.com.au to organise relevant examination papers.

Step 3

Upon successful completion of the Module A and B exams, your application will be forwarded to the Drillers Qualification Advisory Committee. The Committee, established under Section 54 of the *Water Act* provides advice to the Controller of Water Resources on the granting, renewal and variation of drilling licences. The Committee meets on a quarterly basis.

Step 4

The department will issue the applicant their licence; or contact the applicant to provide further information.

Renewing your Drilling Licence

The following information is required by the applicant:

1. Complete the application form for Grant or Renewal of Drilling Licence;
2. Attach two current passport photos;
3. Submit application to the department; and
4. An application to renew an existing licence must be lodged no later than one month before the date on which the licence is due to expire.

Drillers licensed in the NT wishing to operate outside of the Territory will require a separate licence from the relevant state or territory. NT Drillers licences are valid up to five years.



Upgrading your Drilling Licence

The following information is required by the applicant:

1. Complete the application form for Grant or Renewal of Drilling Licence;
2. Attach two current passport photos;
3. Six signed (applicant and supervisor) Statement of Bores for the class and each endorsement that the applicant is applying for;
4. For the period up to 30 March 2018, applicants applying for sonic endorsement require six signed statement of bores using rotary air or rotary mud or sonic; and
5. Submit application to the Department.
6. Completion of the Module B exam for the upgraded class and/or endorsements you are seeking. The Module B exam is administered by the Australian Drilling Industry Training Committee (ADITC). You will need to contact ADITC on Tel: (02) 9428 3444 or email: admin@aditc.com.au to organise relevant examination papers.
7. Upon successful completion of the Module B exam your application will be either forwarded to the Drillers Qualification Advisory Committee or proceed to step 8.
8. The department will issue the applicant their licence, or contact the applicant to provide further information.

Explanation of Classes

Class 1

This class is restricted to drilling operations in single non-flowing aquifer systems. Single aquifer systems must be protected primarily from surface pollution. The skills involved in achieving this (relating to drilling) are relatively modest, as surface pollution around the casing is easily prevented.

A Class 1 drillers licence may be issued on application to any person who has:

- Successfully completed an approved course and has been employed as a driller or driller's assistant for not less than six months; or
- been employed as a driller for not less than 12 months; and
- completed at least six Class 1 bores under supervision and passed the appropriate drillers licence examinations; or
- been issued with a Class 1 drillers licence to carry out bore construction work in another Australian state or territory and the department is satisfied that the qualification and experience of the applicant are equivalent to that required of a driller licence in the NT.

Skills, Experience and Abilities

An applicant applying for a Class 1 must have the experience relevant to the drilling method endorsement for which they are applying for.

In addition, an applicant must have the skill and knowledge of:

- The Minimum Construction Requirements for Water Bores in Australia (current edition);
- The provisions of the legislation and regulations relating to groundwater and drilling and have an understanding and appreciation of bore construction permit and driller licence conditions;
- siting a bore - recognising potential contamination sources for water supply bores and appropriately site a bore to prevent contamination;

- straightness and plumbness of the hole - setting up a rig, the causes of bent bores and the methods of hold straightening;
- drilling - correctly choosing and using equipment, having regard to such factors as rotational speed and proper annular velocities;
- fishing - tools string inventories, fishing tools and procedures;
- formation sampling and description - obtaining representative formation samples and labelling and describing them;
- bore design - designing and constructing bores for domestic use, stock watering, groundwater monitoring and irrigation purposes in single aquifer systems;
- construction - seating and sealing of casing, casing types, their limitations and uses, methods of grouting casing, headworks design and completion of the bore site;
- grouting - grouting surface casing and decommissioning bores or test holes;
- setting screens and gravel packs - selecting the appropriate slot size, screen length and diameter and procedures for screen installation. Selecting and installing a gravel pack;
- disinfection procedures - basic knowledge of disinfection procedures and safe chemical disposal;
- aquifer testing and water sampling - carrying out a single stage pumping test, then determining static water level, draw down and yield, taking and labelling a water sample;
- decommissioning - designing and selecting appropriate materials for the decommissioning of bores in single aquifer systems;
- Statement of Bore completion reports filled out correctly (and legibly) within 28 days of works completed.

Class 2

In addition to operating in Class 1 conditions, this class permits drilling operations in multiple aquifer systems. Drilling and bore construction in multiple aquifer systems requires more knowledge and skills on the part of drillers as inter-aquifer communication must be prevented to avoid aquifer contamination and depletion.

A Class 2 drillers licence may be issued on application to any person who has:

- held a Class 1 licence or has the qualifications and experience necessary to hold a Class 1 licence and employed as a driller for not less than 12 months; and
- completed at least six Class 2 bores under supervision and passed the appropriate drillers licence examinations; or
- been issued with a Class 2 drillers licence to carry out bore construction work in another Australian state or territory and the Committee is satisfied that the qualifications and experience of the applicant are equivalent to that required of a driller licenced in the NT.

Skills, Experience and Abilities

An applicant applying for a Class 2 licence must have the knowledge and skills required of a Class 1 driller, including the drilling method endorsement they are applying for.

In addition, the applicant must be experienced in:

- The Minimum Construction Requirements for Water Bores in Australia (current edition);
- bore design - designing and constructing bores in multiple aquifers with emphasis on designs and methods used to exclude unsuitable waters;
- screen setting and gravel pack selection - skill in the design of high yielding bores is required. This entails overcoming entrance velocity problems and carrying out sand sieve analysis in order to select appropriate gravel pack material and screens (ie. screen length, diameter and aperture);

- grouting - grouting casing, placing cement plugs over selected zones; ability to calculate hole volumes, slurry volumes and specific gravities; hole preparation; casing installation; and circulation requirements;
- aquifer testing - the procedures involved and data required from a multi-stage pumping test; and
- decommissioning - designing and selecting appropriate materials for the decommissioning of bores in multiple aquifers.

Class 3 Restricted

This is a restricted licence. In addition to operating in Class 2 conditions, class 3 permits drilling operations in flowing aquifer systems except in the Great Artesian Basin. Artesian (flowing or high pressure) aquifers require a high level of knowledge and skills on the part of the driller due to the requirement of understanding and controlling hydrostatic pressures.

A Class 3 Restricted drillers licence may be issued on application to any person who has:

- held a Class 2 licence or been employed as a driller for not less than 24 months; and
- completed at least six Class 3 bores under supervision and passed the appropriate driller licence examinations; or
- been issued with a Class 3 drillers licence to carry out bore construction work in another Australian state or territory and the Committee is satisfied that the qualifications and experience of the applicant are equivalent to that required of a driller licenced in the NT.

Skills, Experience and Abilities

An applicant for a Class 3 Restricted licence must have the knowledge and skills required of a Class 1 and 2 driller, including the drilling method endorsement they are applying for.

- In addition, the applicant must be experienced in:
- drilling fluids - methods, procedures and calculations required for formation fluid pressure control;
- grouting - methods, procedures and calculations required in carrying out pressure cement jobs;
- bore design - in aquifer systems that have high pressure conditions, design of efficient bores (ie be able to carry out screen surface areas and diameter calculations);
- aquifer testing - the procedures for a flow recession test, static and staged pumping tests on flowing bores; and
- decommissioning - designing and selecting appropriate materials for the decommissioning of bores having high pressure conditions.

Class 3

This is an unrestricted licence which permits drilling operations in flowing aquifers, including the Great Artesian Basin.

A Class 3 unrestricted drillers licence must have the same qualifications as a Class 3 Restricted licence with the addition of drilling experience in the Great Artesian Basin or similar.