

Consultation report

Water Act 2000

Bore assessments guideline (version 5.00)

This report summaries submissions, and the Department of Environment and Heritage's response to these submissions, received as part of targeted industry consultation for version 5.00 of the guideline Bore assessments (ESR/2016/2005).

Table of contents

Executive summary	1
1 Context.....	2
2 Consultation	2
2.1 Results of consultation and response.....	2
2.2 Summary of submission and responses.....	3

Executive summary

This report summarises the results of targeted consultation undertaken between July and October 2016 on proposed changes to the guideline Bore assessments (the guideline) under the *Water Act 2000* (Water Act). This report outlines the key issues raised during consultation and the Department of Environment and Heritage Protection's (the department) responses to these issues.

Version 5.00 of the guideline, under section 413 of the Water Act, took effect on 02 March 2017. Under section 413 of the Water Act, the chief executive may make guidelines about the minimum requirements for undertaking a bore assessment.

On the 6 December 2016, the *Water Reform and Other Legislation Amendment Act 2014* (WROLA Act) expanded Chapter 3 of the Water Act to apply to both petroleum and mining tenure holders. In addition, on 6 December 2016, the *Environmental Protection (Underground Water Management) and Other Legislation Amendment Act 2016* (EPOLA Act) amended section 412 of the Water Act to state when a water bore is considered to have an impaired capacity as a result of free gas.

The revised guideline clearly establishes that bore assessments are undertaken by resource tenure holders (both petroleum and mining tenure holders to which Chapter 3 of the Water Act applies) and includes a number of minor, clarifying amendments. The department conducted targeted consultation with a range of stakeholders on the proposed changes to the guideline and a broad range of feedback informed the department's decision to proceed with the amendments to the revised guideline.

1 Context

Bore assessments are required to establish whether a bore has, or is likely to have, an impaired capacity as a result of resource activities.

Prior to version 5.00, the guideline applied to petroleum tenure holders only and did not clearly establish which requirements were considered minimum requirements. The WROLA Act also inserted a provision that makes it an offence for a resource tenure holder to fail to comply with the Bore Assessment Guideline when undertaking a bore assessment. In addition the EPOLA Act amended section 412 of the Water Act to state when a water bore is considered to have an impaired capacity as a result of free gas thereby recognising a second situation where a resource tenure holder's exercise of underground water rights may cause a water bore to have, or likely have, an impaired capacity.

Under section 413 of the Water Act, the department may consult with entities it considers appropriate before making guidelines. The department therefore undertook targeted consultation with stakeholders to revise and clearly articulate the minimum requirements for undertaking a bore assessment, and to provide mining tenure holders which are now subject to obligations under Chapter 3 of the Water Act with an opportunity to comment on their new obligations.

2 Consultation

Targeted consultation on the proposed changes to the guideline was undertaken between July 2016 and October 2016, with the department emailing stakeholder and requesting formal submissions. Formal submissions were received from:

- AgForce Queensland
- Arrow Energy Pty Ltd
- Australian Petroleum Production & Exploration Association
- Gasfields Commission Queensland
- Origin Energy Pty Ltd
- Shine Lawyers
- QGC Pty Ltd
- Queensland Farmers Federation
- Queensland Resources Council

2.1 Results of consultation and response

All submissions were considered in developing the revised guideline, and key issues raised by submitters have been summarised below.

Table 1 below summarises the submissions received which were within the scope of the current review, along with the department's response.

A number of submissions were also made which the department considers to be outside the scope and purpose of the current review of the guideline. These submissions have been included in this report and are listed in Table 2, along with the department's response.

2.2 Summary of submission and responses

Table 1: Submissions made within the scope of current review

Summary of submission	Response to submission
<p>Three submissions supported the requirements of suitably qualified persons undertaking the field assessment component of the bore assessment however suggested that the disciplines of hydrogeology/engineering needed to be clarified to ensure the person possessed the specific skills required to undertake the assessments.</p> <p>In addition, there was concern that removing the requirement that field verification must be conducted on at least 10% of assessments will reduce the integrity of the certification process and that an independent third party certifier should be present at all assessments.</p>	<p>The department notes the comments in favour of maintaining minimum requirements for the persons undertaking a bore assessment and has amended the guideline to clarify that, as a minimum requirement, the persons conducting the field measurements required for a bore assessment possess a minimum of two years prior experience in any one of the following fields:</p> <ul style="list-style-type: none"> (a) underground water level monitoring programs, including monitoring of water level in bores equipped with pumping infrastructure, (b) the conduct of underground water quality sampling programs, and (c) hydrogeology and/or engineering. <p>In addition, the persons must also have a practical knowledge of water bore construction and infrastructure. These requirements allow flexibility and recognise the range of different experience combinations which are suitable as minimum requirements for conducting field measurements.</p> <p>Skills and experience of persons conducting field measurements and quality assurance of data collected is verified by the minimum requirements that the bore assessment must be either conducted by, or certified by an independent third party and this person must possess a minimum of five years experience in the above relevant criteria.</p> <p>The department notes the comment expressing concerns of removing requirements that field verification must be conducted on 10% of assessments. The guideline must be followed for each individual bore assessment, and minimum requirements cannot apply to more than one bore assessment. However, although not a minimum requirement, the guideline does continue to recommend that field verification on 10% of all assessments is good practice and should be considered.</p> <p>The department considers that the minimum requirements of the guideline for the tenure holder develop and adhere to a formal quality assurance program, along with the minimum qualification standards for persons conducting the field measurements and certification from an independent third party will ensure appropriate standards are maintained. In</p>

	<p>consideration of this, the department also considers that requiring an independent third party present in the field for all bore assessments to be an exorbitant requirement in proportion to the additional benefits it would achieve.</p>
<p>Three submissions received expressed concerns that if declining water levels in a bore have been determined to be unrelated to the exercise of underground water rights, that it is unreasonable that the tenure holder be responsible to undertake further investigation into an unrelated cause for a water level decline as an investigation of this nature would be expensive and difficult as the tenure holder may not have appropriate access rights to adequately complete the investigation.</p> <p>One submission received suggested that when assessing whether a decline in groundwater level has occurred because of the exercise of underground water rights, any inferences made from the information outlined in Step 3 can be uncertain and may not be definitive. The submission recommended that this requirement should include a statement expressing that these investigations are "assessed based upon the currently available data".</p>	<p>The department notes the submissions concerning the minimum requirement to investigate the possible causes of water level decline and that inferences based on the information listed in Step 3, can come with some level of uncertainty. The department acknowledges a degree of uncertainty involved with investigations of this nature and considers that the guideline articulates that investigations are undertaken considering currently available data.</p> <p>Since the initial publication of the guidelines, it has always been a minimum requirement that the tenure holder investigate other possible causes for water level declines to further substantiate that the decline was not caused by the exercise of underground water rights.</p> <p>To improve the quality of these investigations and to clearly establish obligations where there is uncertainty as to the cause of water level decline, EPOLA introduced changes to section 412 of the Water Act to clarify that a bore has an impaired capacity if the exercise of underground water rights has, or has likely caused or materially contributed to the decline. The guideline was consequently amended to reflect this and it is expected that this will improve the understanding of the extent to which water level declines are, or are not due to the exercise of underground water rights, thereby also providing further certainty for the subsequent negotiation of a make good agreement.</p>
<p>One submission questioned the ability to indicate potential future water quality impacts from a bore assessment (Step 4), and that an estimate of potential water quality impacts would require additional information that would delay the bore assessment. Consequently, the submission suggests to include the statement "estimated based upon the currently available data".</p>	<p>The department notes the comment expressing the difficulty in determining potential water quality impacts based on a bore assessment and the correlated uncertainty. The department does not consider that further amendments to the guideline is required as the minimum requirements already acknowledge this uncertainty.</p> <p>Minimum requirement 9 under Step 4 (page 12) states that where the bore assessment indicates that water quality may be affected in the future, the assessment must estimate the extent of impact and evaluate the likelihood of these negative impacts occurring.</p> <p>The department has, however, clarified in the guideline under section 1.6 Outcome of outcome of bore assessment that the bore assessment is completed once laboratory results are received and have been analysed. Resource tenure holders must be able to provide evidence of when a bore assessment was completed when demonstrating compliance with section 419 of the Water Act.</p>

<p>One submission stated that dissolved gas has no relevant water quality guideline and therefore should be considered a separate matter from water quality</p>	<p>The department notes the submission however considers that dissolved gas is a consideration of water quality. The guideline states in Step 4 that negative impacts on water quality that may be associated with water level declines include increases in the concentrations of dissolved gas associated with the depressurisation of coal seams.</p>
<p>One submission expressed concerns that the requirement listed in Step 4 stating that similar detection limits and methods should be used when comparing water quality data, may be unachievable. As different laboratories may use different methods over time, the detection limits may differ. Therefore the term "best endeavours" should be used for this requirement, rather than "must".</p>	<p>If there are aspects of the bore assessment that cannot be met, the resource tenure holder should provide commentary with the bore assessment regarding the reasons for not obtaining this information to demonstrate what efforts were made to meet the requirements of the guideline. This may include, details of any alternative approach used or assumptions applied when comparing two sets of water quality in order to estimate an impact or the likelihood of negative impacts occurring.</p> <p>A resource tenure holder should notify the department if concerns arise regarding the minimum requirements for a bore assessment. These issues will considered by the department on a case by case basis.</p>
<p>One submission received expressed concerns of relying on SWL and water quality as a measure of impairment. The submission stated that gassy bores are now recognised as a major source of impact, and assessing gassiness from CSG activity should be included in a bore assessment.</p>	<p>The department notes the submission and has amended the guideline following changes introduced through EPOLA which amended section 412 of the Water Act to include that a water bore also has an impaired capacity if it is adversely affected by free gas.</p> <p>The guideline was amended to reflect this second situation by establishing a separate method (Part B) for conducting a bore assessment on a water bore where the resource tenure holder is required to evaluate whether the bore is experiencing an adverse affect due to free gas. Currently, resource tenure holders must undertake a bore assessment in accordance with part B only when the chief executive directs the resource tenure holder to do so under section 418 of the Water Act.</p> <p>The department is undertaking a targeted consultation process with affected stakeholders to establish the minimum requirements for undertaking a bore assessment under Part B. Until this process is complete, the minimum requirement is to follow best practice industry</p>

	<p>standards for carrying out work similar in nature to that of undertaking a bore assessment.</p> <p>It is important to note that this does not negate the requirement that under section 411 of the Water Act, that the bore assessment must establish whether the bore has or is likely to start having an impaired capacity. Specifically, the bore assessment must establish if there is evidence of any of the following:</p> <ul style="list-style-type: none"> • damage to the bore or the bore’s pumps or other infrastructure; • that the bore poses a health or safety risk; • that the bore can no longer, or it is likely that the bore can no longer, provide a reasonable quantity or quality of water for its authorised use or purpose; <p>and</p> <ul style="list-style-type: none"> • free gas derived from carrying out of authorised activities under a resource tenure has, or has likely caused or materially contributed to the adverse effect.
<p>One submission received expressed concerns that if conditions are unsafe to conduct bore yield testing, (gassy bores, etc), the capacity can be concluded by alternative means such as a slug test. Consequently, if yields are inferred by an alternative means, the term "determined" should be replaced with "assessed".</p>	<p>The department acknowledges that there may be circumstances where it is not practicable to safely conduct bore yield testing using recommended methods such as pumping tests. This is one of the contributing factors as to why specific methods for determining yield have not been set as minimum requirements. The guideline instead provides flexibility, however it recommends that the Australian Standard AS2368—1990 Test pumping of water wells should be used when determining the most suitable type and duration of pumping test (Committee CE/28, 1990). In addition the guideline emphasises that it is important that methods for determining bore yield are supported by a rationale which considers the assumptions and limitations of that method in relation to the water bore and the condition of the water bore itself as established under step 1 of this guideline. If the method adopted is supported by a suitable rationale, the department does not consider it necessary to state that yields are “assessed” as opposed to “determined” as the rationale should outline the assumptions and limitations of the method and therefore the bore yield result itself.</p>
<p>One submission received expressed concerns that tenure holders are dismissive of low yield bores. The submission states that low yield bores are often relied upon by landholders to provide a significant contribution when using a network of bores.</p>	<p>Resource tenure holders must undertake a bore assessment in accordance with the guideline for any bore that is located in an immediately affected area of an underground water impact report or a bore that is subject to a direction notice from the chief executive. The guidance provided under Step 4 in relation to methods for determining bore</p>

Consultation report
Bore assessments guideline (version 5.00)

	<p>yield was amended to clarify that there may be situations such as where a water bore is located in a low permeable formation which require the adoption of methods such as slug or bail tests may provide useful information for consideration.</p>
<p>One submission suggested that if a bore yield was not provided prior to the bore assessment, and in the absence of any other historical bore capacity information, assumptions of previous levels of yield can be based on historical data of bores of similar demand in the same formation.</p>	<p>The department considers that the guideline currently accounts for a range of circumstances which may apply when determining if the current bore yield has, or is likely to be reduced. The minimum requirements of Step 4 of the guideline state that comparisons must be made with historical data to determine if bore yield has, or is likely to be, reduced. In addition, the guideline requires that the sources of historical data must be clearly noted. This information is important as it clearly establishes what information and assumptions were applied in determining the impaired capacity of the water bore.</p>
<p>One submission received requested clarity on a tenure holder's obligations if a bore assessment has determined that there is no impaired capacity, if the tenure holder is still required to give a notice of outcome and is still required to enter into a make good agreement. This submission also suggested that Figure 2 of the bore assessment guideline could be amended to explain this process clearer.</p>	<p>If the bore assessment establishes that there is no water level decline (Step 2) or that the exercise of underground water rights is not the cause or has not materially contributed to the decline in water level (Step 3) then the tenure holder may complete the bore assessment (i.e. impaired capacity does not need to be established). However obligations under the Water Act still apply and the resource tenure holder must submit the notice of outcome to the office of groundwater impact assessment and the bore owner (section 419 of the Water Act) and enter into a make good agreement (section 423 of the Water Act).</p> <p>In addition to the guidance previously provided in steps 2 and 3, the department has amended Figure 2 (now Figure 1) to clearly outline tenure holder obligations for when a water bore has an impaired capacity as a result of a water level decline as specified in section 412 (1) and (2) of the Water Act and the timeframes for subsequent obligations for the notice of outcome and make good agreement under the Water Act.</p>

Table 2: Submissions made outside the scope of the current review

Summary of Comments	Response to Comments
<p>Two submissions stated the need for certainty regarding authorised bores to which Chapter 3 of the Water Act applies, particularly in relation to stock and domestic bores.</p>	<p>The department notes the comments made however considers that section 363 of the Water Act adequately clarifies the water bores to which Chapter 3 applies. As noted in section 1.1 of the guideline, an authorised water bore includes water bores for which the taking of, or interference with water is authorised under the Water Act, and if required, a development approval has been granted under the <i>Sustainable Planning Act 2009</i> (or was granted under the repealed <i>Integrated Planning Act 1997</i>). This includes water bores from which the taking or interference with water is authorised without the requirement for a water entitlement under section 20 of the Water Act. However, in accordance with section 363 of the Water Act, the requirements for Chapter 3 do not apply to a water bore if it is only used for water monitoring.</p>
<p>One submission received stated that where the tenure holder acknowledges that a bore is, or will be impaired, conducting a bore assessment is costly and unnecessary. The submission suggests that the tenure holder should be able to directly enter into a make good agreement, without undertaking a bore assessment.</p>	<p>The department notes the submission however a responsible tenure holder must, if required under section 417 or 418 of the Water Act, undertake a bore assessment. A bore assessment establishes whether a bore has or is likely to have an impaired capacity and forms a significant component of the make good agreement as outlined in section 420 of the Water Act.</p>
<p>One submission received requested clarification and possible suggestions of what make good measures may include, as well as a clear reasoning that the make good measures are for ensuring the bore owner has access to reasonable quantity and quality of water for the bore's authorised use/purpose. Further, it was also suggested to include a reference to water quality aspects in relation to make good agreements.</p>	<p>The department notes the submission however it is out of scope of this guideline review. Make good measures are separate from the bore assessment as they form part of the make good agreement. Section 421 of the Water Act clearly states what is a make good measure for a water bore. A make good agreement considers water quality aspects as it must provide for if the bore has, or is likely to have an impaired capacity. Impaired capacity as defined under section 412 of the Water Act, includes the ability of the bore to provide a reasonable quantity or quality of water for its authorised use or purpose.</p>
<p>One submission suggested that if a significant number of bores are to be assessed, the guideline should recognise that all bore assessments may not be able to completed within the 60 business days or the reporting taking effect.</p>	<p>The department notes the submission however compliance with statutory timeframes established under the Water Act are out of scope for this review of the bore assessment guideline.</p>

Consultation report
Bore assessments guideline (version 5.00)

<p>One submission commented that the guideline does not address the issue of overlapping tenure and responsibility when CSG and Coal have tenure over the same bores</p>	<p>The department notes the submission and confirms that the management of cumulative or overlapping impacts are addressed under the legislative framework of Chapter 3 of the Water Act and not the bore assessment guideline.</p> <p>The chief executive may declare a cumulative management area for an area which may be affected by 2 or more resources tenures. An Underground Water Impact Report for a CMA must establish responsibilities for tenure holders including who is responsible for conducting bore assessments on water bores identified in immediately affected areas.</p> <p>Alternatively, under section 418(4), in deciding the resource tenure holder to whom a notice to undertake a bore assessment is to be given, the chief executive must have regard to the impact considerations relating to the holder.</p>
<p>One submission discussed the inconsistency with the terminology used between the approved forms and the guidelines, and suggested the approved forms require updating. The submission noted that the approved forms presently refer to only one petroleum holder, and the term "applicant" should be changed to "tenure holder". The submission also states that the scope of works section requires amending to include other categories of bores.</p>	<p>The department notes this submission and the Notice of outcome form has been updated accordingly.</p>
<p>Two submissions received expressed concerns that the bore assessment is always conducted by the tenure holder or its agent, which has the appearance of partiality. A suggestion was made that the information collected from the bore assessment should be provided to the bore owner before the bore assessment is finalised, which would provide the bore owner an opportunity to express concern and comment at that stage of the assessment.</p>	<p>The department notes the submissions however the requirement to undertake a bore assessment is the responsibility of the resource tenure holder under either section 417 or 418 of the Water Act.</p> <p>Under section 419 of the Water Act, the resource tenure holder must provide the bore owner with the notice of outcome of bore assessment. Section 420 of the Water Act state that a make good agreement must provide for the outcome of the bore assessment. Therefore it is the negotiation of the make good agreement which will provide the bore owner with an opportunity to express concern or comment on the outcome of the bore assessment.</p>
<p>Two submissions expressed concerns that the burden of proof falls on landholders to dispute the tenure holder's determination of impairment, and that the obligation should be on the tenure holder to show they have not caused impairment.</p>	<p>Since the initial publication of the guidelines, it has always been a minimum requirement that the tenure holder must investigate other possible causes for water level declines to further substantiate that the decline was not caused by the exercise of underground water rights.</p>

	<p>To improve the quality of these investigations and to clearly establish obligations where there is uncertainty as to the cause of water level decline, EPOLA introduced changes to section 412 of the Water Act to clarify that a bore has an impaired capacity if the exercise of underground water rights has, or has likely caused or materially contributed to the decline</p> <p>The guideline was consequently amended to reflect this and it is expected that this will improve the understanding of the extent to which water level declines are, or are not due to the exercise of underground water rights, thereby also providing further certainty for the subsequent negotiation of a make good agreement.</p>
--	--