Australian Government

Department of Climate Change, Energy, the Environment and Water

Significant impact guidelines 1.3

Unconventional gas developments and large coal mining developments — impacts on water resources

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Original 2022		
Version 1.1 (2024)	These guidelines reflect amendments made to expand the water trigger provisions in the EPBC Act to ensure all new unconventional gas developments consider their impact on water resources. These amendments were introduced by the Albanese government and came into effect on 15 December 2023. Appendix A and B have been removed from this version as they are subject to further technical amendments. Transferred to a new accessible format. Updated links and names of departments.	No other parts of this document were updated. Those using this document must check other resources including scientific literature for the most up to date information.

Acknowledgement of Country

We acknowledge the Traditional Owners of Country throughout Australia and recognise their continuing connection to land, waters and culture. We pay our respects to their Elders past and present.

Contents

1 Introduction

1.1 About these guidelines

The core purpose of these guidelines is to assist any person who proposes to take an action which involves an unconventional gas development or a large coal mining development to decide whether the action has or is likely to have a significant impact on a water resource.

If the action is likely to have such an impact, you (the proponent) must submit a referral to us (the Australian Government Department of Climate Change, Energy, the Environment and Water) for a decision by the Australian Government Environment Minister (the minister) on whether assessment and approval is required under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act).

These guidelines may also assist members of the public or interest groups who wish to comment on actions which have been referred under the EPBC Act.

The guidelines should be read in conjunction with EPBC Act Policy Statement 1.1 Significant Impact Guidelines – Matters of National Environmental Significance.

A range of other EPBC Act policy statements are available to assist you in determining whether a proposed action is likely to have a significant impact on a matter of national environmental significance.

These guidelines reflect amendments made to expand the water trigger provisions in the EPBC Act to ensure all new unconventional gas developments consider their impact on water resources. These amendments were introduced by the Albanese government and came into effect on 15 December 2023.

These amendments expanded the scope of the water trigger in the EPBC Act to include all new unconventional gas developments in addition to large coal mining developments but did not otherwise change the structure of the water trigger provisions. The definition of coal seam gas development was repealed, and new definitions of unconventional gas development and unconventional gas production were introduced. The amendments did not alter any other definitions including the relevant definitions of water resources, action, or impact.

Updates to these guidelines have been made to incorporate the known impacts of the expanded water trigger for stakeholders and users of the EPBC Act.

These guidelines are subject to change and should not be relied on by persons who may be impacted by the water trigger provisions of the EPBC Act or related transitional provisions. While every effort has been made to ensure accuracy of this document at the time of its publication, it does not replace professional legal advice for specific circumstances.

1.2 About the EPBC Act

The EPBC Act is the Australian Government's central piece of environmental legislation. It provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places, amongst other things – referred to in this guidance as 'protected matters'.

These protected matters are 9 matters of national environmental significance:

- world heritage properties
- national heritage places
- wetlands of international importance
- nationally threatened species and ecological communities
- migratory species
- Commonwealth marine areas
- the Great Barrier Reef Marine Park
- nuclear actions (including uranium mining)
- a water resource in relation to an unconventional gas or large coal mining development (the water trigger)

as well as:

- the protection of the environment from actions on or impacting on, Commonwealth land or by Commonwealth agencies, and Commonwealth heritage places outside Australia.

These guidelines relate to the water trigger.

1.2.1 The 'water trigger'

The water trigger was originally introduced by the *Environment Protection and Biodiversity Conservation Amendment Act 2013* (Amendment Act), which provided that water resources are a matter of national environmental significance in relation to coal seam gas development (CSG) and large coal mining development. This amendment came into effect on 22 June 2013.

As a result of the *Nature Repair (Consequential Amendments) Act 2023* (the Further Amendment Act), further amendments have been made to the EPBC Act to expand the scope of the water trigger to provide that water resources are a matter of national environmental significance in relation to unconventional gas development and large coal mining development. For example, in addition to the extraction of gas from coal seams, this now also includes the extraction of gas from coal beds, layers of shale rock and tight gas reservoirs. This amended scope came into effect from 15 December 2023. This means that under the EPBC Act, an action which involves unconventional gas development or large coal mining development requires approval from the minister if the action has, will have, or is likely to have a significant impact on a water resource.

Action is defined in the EPBC Act and includes a project, a development, an undertaking, an activity or series of activities and an alteration of any of these things.

A particular action will be determined to involve unconventional gas development if unconventional gas production could not be undertaken without undertaking that particular action. Unconventional gas production is defined in the EPBC Act and includes the extraction, recovery, or intentional release, (whether by drilling, hydraulic fracturing or other means) of any gas from coal seams or beds, layers of shale rock, or tight gas reservoirs.

Whether a particular action can be described as involving large coal mining development will be determined based on whether that action is so closely associated with the mining of coal as to be integral to that mining (Australian Conservation Foundation Incorporated v Minister for the Environment (2021) 390 ALR 157).

1.2.2 Referral of an action

Referral of an action involves filling out a referral form and submitting it to us through the EPBC Act Business Portal. A referral identifies the person proposing to take the action and includes a description of the proposal, the project location, the nature and extent of any potential impacts to protected matters, and any proposed avoidance and mitigation measures. The EPBC Act referral process is outlined in more detail at the end of these guidelines.

An action will involve unconventional gas development or large coal mining development if the action is so closely associated with unconventional gas production or coal mining as to be integral to it. If you plan to undertake an action which involves a unconventional gas development or large coal mining development which has, will have, or is likely to have, a significant impact on a water resource you must refer the proposal to the minister before starting. The minister (or the minister's delegate) will then decide whether assessment is required under the EPBC Act.

The potential significance of each action is judged on a case-by-case basis and decision makers will have regard to these guidelines. Substantial penalties may apply for undertaking an action, to which the EPBC Act applies, without approval. Our website provides more information on referral, assessment and compliance under the Act.

You can also refer your proposed action if you are uncertain about whether the EPBC Act applies. Contact us for questions about referrals at EPBC.referrals@DCCEEW.gov.au.

2 Activities covered by the water trigger

2.1 Definitions

An 'unconventional gas development' is defined under section 528 of the EPBC Act as:

any activity involving unconventional gas production that has, or is likely to have, a significant impact on water resources (including any impacts of associated salt production and/or salinity):

a) in its own right; or

b) when considered with other developments, whether past, present or reasonably foreseeable developments.

'Unconventional gas production' is defined under s 528 of the EPBC Act as:

extraction, recovery, or intentional release, (whether by drilling, hydraulic fracturing or other means) of gas from:

a) coal seams or beds; or
b) layers of shale rock; or
c) tight gas reservoirs; or
d) any other sources prescribed by the regulations.

A 'large coal mining development' is defined in s 528 of the EPBC Act as:

any coal mining activity that has, or is likely to have, a significant impact on water resources (including any impacts of associated salt production and/or salinity):

a) in its own right; or
b) when considered with other developments, whether past, present or reasonably foreseeable developments.

Other relevant definitions are included in the Glossary at the rear of this guideline, including the definition of water resource and action.

2.2 Size and purpose of the development

The application of the water trigger relates to a development's likely impact on a water resource, and not the size of the proposed unconventional gas or coal mining activity per se.

The definitions are not limited to commercial operations. Therefore, actions involved in exploration, appraisal and pilot developments may be captured by the definition where they involve unconventional gas production or coal mining, (i.e., are activities integral to the mining of coal or unconventional gas production). Exploration, appraisal and pilot activities are however less likely to have a significant impact on a water resource, given the usually small scale of that activity (chapter 4.5.3).

Transitional provisions of the Further Amendment Act provide exemptions for unconventional gas developments that were already commercially operational on the 14 December 2023. Further detail on exemptions from the water trigger is provided at chapter 3 of this guideline.

2.3 Type of proponent

The water trigger only applies to unconventional gas developments and large coal mining developments that are undertaken by:

- a constitutional corporation
- the Commonwealth
- a Commonwealth agency
- a person who is doing the action for the purpose of domestic (between state or territory jurisdictions) or international trade.

This reflects the limits placed on the Commonwealth's legislative power by the Australian Constitution.

2.4 Unconventional gas production or coal mining

The definitions of 'unconventional gas development' and 'large coal mining development' relate to unconventional gas production and coal mining activities (including activities that are so closely associated with unconventional gas production or coal mining as to be integral to those activities, or without which the relevant production or mining could not be undertaken) that have, or are likely to have, significant impacts on a water resource. This means that infrastructure that is an integral part of unconventional gas production or coal mining is likely to be included in the definition of an unconventional gas development or large coal mining development (as relevant), as are facilities that enable whole-of-life activities (including mine closure and completion activities).

While proposals will be considered by us on a case-by-case basis, the following are examples of activities that are likely to be considered an integral part of unconventional gas production or coal mining:

- construction, operation and decommissioning of open-cut and underground coal mines or wells
- construction, operation and decommissioning of infrastructure to provide water supply for use in unconventional gas production or the extraction of coal, including the use of water in activities such as cooling cutting surfaces and mining equipment, or dust suppression
- management of water generated as a result of unconventional gas production or extraction of coal, such as holding dams or water treatment facilities
- disposal of water produced from coal mining or unconventional gas production into streams/rivers
- management of waste generated as a result of unconventional gas production or extraction of coal, such as spoil heaps
- construction of infrastructure to provide power necessary for the operation of a mine, including relocated power lines
- construction of infrastructure (such as roads) that enable mining or unconventional gas production operation inputs which are integral to coal mining or unconventional gas production
- products, equipment or waste which are integral to coal or unconventional gas production that will be taken off the mine-site.

In deciding whether water trigger controlling provisions apply, proposed activities should be considered in terms of their relationship to the unconventional gas production or extraction of coal (see Example 1). Where a proposed project is referred separately from an unconventional gas development or large coal mining development, whether or not actions need to be considered under the water trigger will be determined by whether they are integral to the unconventional gas production or extraction of coal (see Example 2).

2.5 Associated infrastructure

An action involving the construction of infrastructure that is associated with unconventional gas development or large coal mining development, but which is not integral to unconventional gas production or coal mining, is unlikely to be subject to the water trigger (see Example 3). Note that the action will nevertheless need to be referred to us if it may be a controlled action (including if it impacts on other protected matters).

Where an action referred includes both unconventional gas production or coal mining, and associated infrastructure, then the significance of the impacts on water resources of the whole of the referred action would be considered at the assessment stage.

2.5.1 Examples

Example 1

Coal Mining Company (CMC) is developing a new coal mine, which will include an open-cut mine, a storage dam for water generated through mine de-watering, a coal washing facility, a rail line and some office buildings.

In assessing whether the water trigger applies to the action, the CMC should consider the impacts on water resources from the mine void, the storage dam and the coal washing facility.

If a referral is made, incorporating all aspects of the operations, and the action is determined to be a controlled action (that is, a significant impact on a water resource is likely), we will assess the impacts on water resources of the whole of the action, including the rail line and office buildings.

Example 2 – Separate referral for associated infrastructure

The CMC operates an existing coal mine approved for operation under the EPBC Act. After one year of operation, they have submitted a separate referral to build new water pipelines and a water holding facility, having been approved for an annual water allocation from a nearby dam. CMC indicates in their referral that they do not believe this action should be referred under the water trigger because the water will not be used in the extraction of coal. However, because the water will be used for cleaning tools used in the extraction of coal, and for dust suppression resulting from extraction, these activities are likely to be considered integral to the extraction of coal.

Therefore, the proposal is likely to be characterised as a 'large coal mining development' for the purposes of the water trigger.

Example 3 – Associated infrastructure that is less likely to have the water trigger applied

A CSG company is operating an approved CSG field and is now proposing to construct infrastructure to support an associated research and education centre at the approved field. As these activities are not integral to CSG extraction, it is unlikely that any part of the action would fall within the water trigger controlling provisions.

However, any activity associated with the new infrastructure will need to be assessed for its potential significant impact on a protected matter.

2.6 Expansions or modifications

An expansion or modification to existing facilities may be within the definition of 'unconventional gas development' or 'large coal mining development' if the expansion or modification involves unconventional gas production or coal mining activities which are likely to have a significant impact on a water resource. Whether a particular action can be described as involving unconventional gas development or a large coal mining development will be determined based on whether that action is so closely associated with unconventional gas production or the mining of coal as to be integral to it.

See chapter 3.2.1 for further detail on determining whether the water trigger may apply to an expansion or modification.

A referral may still be required if the action is likely to have a significant impact on any other matter of national environmental significance.

3 Exemptions from the water trigger

3.1 Overview

The water trigger will not apply to a person taking an action involving an unconventional gas development or large coal mining development which has a significant impact on a water resource if the action is exempt under the Amendment Act, Further Amendment Act or the broader exemptions in the EPBC Act.

The Amendment Act, which introduced the water trigger as applicable to CSG developments and large coal mining developments, allows certain actions which were approved or undertaken before it commenced to continue without further EPBC Act approval in relation to the water trigger.

The Further Amendment Act, which expanded the water trigger's application to any type of unconventional gas development, provides that actions at certain stages of the assessment process when this Act commenced can also continue without further EPBC Act approval in relation to the water trigger.

That is, if:

- an action is exempt from the water trigger as a result of the operation of the Amendment Act; or
- an action is exempt from the water trigger as a result of the operation of the Further Amendment Act

the water trigger does not apply and there is no need for assessment or approval under the EPBC Act regarding impacts on water resources, even if the action would have a significant impact on a water resource. In addition, taking the action would not constitute an offence under the EPBC Act.

Further details are in Chapter 3.1.

Please note that the provisions of the Amendment Act and Further Amendment Act only provide an exemption from requirements relating to the water trigger. They do not negate the need for assessment and approval that may be required for any other relevant matter of national environmental significance. Broader exemptions from the EPBC Act (including the water trigger) are contained in Part 4 of the EPBC Act.

Where an action is exempt under other provisions of the EPBC Act, including Part 4 and s 160(2), there is no need for assessment and approval in relation to any matter of national environmental significance. Taking the action would not constitute an offence under the EPBC Act.

3.1.1 Exemptions under the Amendment Act

Item 22 of the Amendment Act contains exemptions for actions in the following circumstances:

- immediately before 22 June 2013, the action was approved by the minister under Part 9 of the EPBC Act;
- immediately before 22 June 2013, the minister decided under Part 7 of the EPBC Act that the action was not a controlled action or not a controlled action if taken in a particular manner (and the action is taken in that manner);
- immediately before 22 June 2013, the relevant person had been notified of a proposed approval decision under the EPBC Act in relation to the action and the minister had received advice from the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC) on the action (noting that the IESC primarily provides scientific advice to decision makers on the impact that CSG and large coal mining development may have on Australia's water resources);
- immediately before 13 March 2013, both
  - the action was not required to be assessed and approved under the EPBC Act; and
  - a state or territory minister had received advice from the IESC on the action.
- before 22 June 2013, the action held a prior authorisation.[1]

Note that only one of these exemptions need be established for an exemption to apply. See Appendix A for further guidance on prior authorisation exemptions.

[1] An action held prior authorisation if the action involves CSG development or large coal mining development; and before 22 June 2023, the action was authorised by a specific environmental authorisation; and immediately before 22 June 2023, no further environmental authorisation was necessary to allow the action to be taken lawfully; and at the time the action is taken, the specific environmental authorisation continues to be in force.

3.1.2 Exemptions under the Further Amendment Act

Item 26 of the Further Amendment Act contains exemptions from the amended scope of the water trigger which apply to projects at certain stages of the referral and assessment process. The original water trigger may still apply in some cases.

Actions taken on or after 15 December 2023 are exempt from the amendments if:

1. immediately before 15 December 2023, a decision had been made to approve the taking of the action under Part 9 of the EPBC Act.

2. immediately before 15 December 2023, a decision had been made that the action is not a controlled action under s 75 of the EPBC Act.

3. immediately before 15 December 2023, a decision had been made that the action is not a controlled action under s 75 of the EPBC Act as it is to be taken in a particular manner (and the action is taken in that manner).

4. immediately before 15 December 2023:
    a. a decision had been made that the action is a controlled action under s 75 of the EPBC Act; and
    b. the minister has not yet decided whether or not to approve the taking of the action; and
    c. the person proposing to take the action and designated proponent have been informed of the minister's proposed decision about whether or not to approve the taking of the action under s 131AA of the EPBC Act; and
    d. if applicable, the Independent Scientific Committee on Unconventional Gas Development and Large Coal Mining Development has been obtained.

5. the action:
    a. involves unconventional gas development (but does not involve the extraction of CSG); and
    b. the unconventional gas development was in production[2] before 15 December 2023; and
    c. immediately before 15 December 2023:

[2] A development is in production if the development is extracting or producing gas commercially, and in accordance with the laws of the Commonwealth and of any State or Territory that apply in relation to the development.

i. the action was authorised by a petroleum production authorisation[3]; and
ii. the action was not contravening part 3 of the EPBC Act; and

d. the action continues to be authorised by the petroleum production authorisation.

6. the action:
   a. involves unconventional gas development (but does not involve the extraction of CSG); and
   b. immediately before 15 December 2023:
      i. the action was not contravening part 3 of the EPBC Act; and
      ii. either extraction and production of gas by the development had permanently ceased or post-production had permanently ceased.

3.1.3 Other exemptions under the EPBC Act

The EPBC Act also establishes exemptions for actions where:

- Part 4 of the EPBC Act allows a person to take the action without approval under Part 9
- the action is an action described in section 160(2) of the EPBC Act (actions whose authorisation is subject to a special Commonwealth environmental authorisation process).

See Appendix B for further guidance on the general exemptions under the EPBC Act.

3.2 When exemptions may not apply

The exemptions under the Amendment Act and Further Amendment Act may not apply if the action being undertaken is substantially different from the action that was originally authorised or otherwise exempt.

Whether the action being undertaken is substantially the same as the action that was originally authorised or otherwise exempt will depend on:

- the purpose of the action
- the nature of the activities being undertaken
- the significant impacts that occur as a result of the action.

[3] A petroleum production authorisation is a licence, permit, or other authority granted under a law of the Commonwealth or a State or Territory, that authorises the extraction of petroleum for commercial production. However, it does not include a lease or licence that is primarily for the purpose of reservation, retention or exploration

An expansion or modification that substantially changes the unconventional gas production or extraction of coal may no longer be covered by an exemption (see chapter 3.2.1 on expansions and modifications for further information).

Where an authorisation allows a particular action to occur at a particular intensity, and the action occurs at a lower intensity, the action will be covered by the specific environmental authorisation. For example, if an approval (a 'specific environmental authorisation') is given to extract 10 million tonnes of coal annually but the activity only extracts 8 million tonnes, then the activity will continue to be within the scope of the specific authorisation.

3.2.1 Expansions and modifications

If a referral for a proposed expansion or modification to a project does not involve unconventional gas production or extraction of coal, or activities integral to those processes, then the water trigger is unlikely to apply. Subject to this qualification, if an expansion or modification involves activities that are likely to have a significant impact on a water resource, the water trigger may apply (see Example 4). Note however that where an expansion or modification is referred as part of a broader action that involves unconventional gas production or the extraction of coal or activities integral to those processes, the water trigger may apply to the expansion or modification.

In the case of a proposal to intensify the unconventional gas production or extraction of coal beyond that authorised by existing approvals, the water trigger may apply to the whole of the project, including existing approved extractive activities, if the impacts of the intensification cannot be identified separately from the existing extractive activities (see Example 5). If a proposal raises this issue, further advice should be sought from us.

3.2.2 Examples

Example 4 – Expansion of extractive activities

Gas Company has an authorisation for, and is already operating, Gas Field D which currently involves 1,000 wells. Gas Company proposes to increase the extraction from Gas Field D, by developing an additional 300 wells.

As the action involves unconventional gas production, the water trigger may be applied if there are likely to be significant impacts on a water resource.

If the action is determined to be a controlled action and the impacts of the additional 300 wells can be distinguished from the existing operations, the water trigger will apply only to the expansion (that is, the additional 300 wells). The existing operations may be taken into account in considering cumulative impacts; however, a new approval for the existing operations will not be required. Gas Company will be able to continue operating the existing 1,000 wells while the expansion involving the additional 300 wells is being assessed.

Example 5 – Intensification of extractive activities

Coal Mining Company (CMC) is currently authorised under their state approval to mine coal from Coal Mine C at a rate of 10 million tonnes per annum (Mtpa). After commencing operation, CMC finds that they are in fact able to extract coal at a rate of 13 Mtpa, without increasing the size or footprint of the mine void. They are therefore seeking an amendment to their approval to allow extraction at a faster rate, while maintaining the same mine footprint.

As the action involves extraction of coal, and the impacts of the intensification cannot be identified separately from the existing extractive activities, the water trigger may be applied if there are likely to be significant impacts on a water resource.

If the action is determined to be a controlled action, the water trigger will apply to the whole of the activities (that is, the total extraction of 13 Mtpa). CMC can continue to mine at the rate of 10 Mtpa while the intensified action is assessed, provided the original state approval remains in place.

4 Significant impact criteria

4.1 Introduction

The significant impact criteria, set out on the following pages, are intended to assist in determining whether the impacts on a water resource from a proposed action involving unconventional gas development or a large coal mining development are likely to be significant, and therefore whether the action will require referral, assessment and approval.

These criteria are intended as a guide. If you are still unsure whether an action involving unconventional gas development or large coal mining development is likely to have a significant impact on a water resource, you should refer the action to us for a decision on whether assessment and approval is required.

The particular facts and circumstances of a proposed action will need to be considered in determining whether that action is likely to have a significant impact on a water resource. For example, the timing of water discharges into the system could make an impact more or less significant (see chapter 4.5.2).

The significance of an impact may also depend upon the context of other developments: an apparently small impact may still be a significant impact if there are substantial cumulative effects, factoring in existing and reasonably foreseeable prospective actions (see chapter 4.5.1)

4.1.1 What is a significant impact?

A ‘significant impact’ is an impact which is important, notable, or of consequence, having regard to its context or intensity (Booth v Bosworth, 2001). Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the water resource, which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts. All these factors should be considered when determining whether an action is likely to have a significant impact. The Significant Impact Guidelines 1.1: Matters of National Environmental Significance contain more information about assessing the significance of impacts on protected matters. The Glossary provides more clarity on what is considered to be a water resource.

4.1.2 When is a significant impact likely?

To be ‘likely’, it is not necessary for there to be a greater than 50% chance of a significant impact; it is sufficient if there is a real or not remote chance or possibility of a significant impact on a water resource (Booth v Bosworth, 2001).

4.1.3 The precautionary principle

Under section 391 of the EPBC Act, the minister must take into consideration the precautionary principle when deciding whether an action is a controlled action. This principle states that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

In some cases relating to unconventional gas developments and large coal mining developments the potential impacts of an action may be uncertain, because baseline information is unavailable. For example, information may not be available about connectivity and flows between different systems.

Where limited information is available on which to make an assessment of the impacts of a particular action, we recommend referring the action so that potential issues can be assessed, if necessary, through the EPBC Act assessment process.

4.1.4 Avoidance and mitigation measures

Avoidance and mitigation measures may be used to reduce potential adverse impacts on a water resource. Such measures may include the construction of 'protective mechanisms' for water resources, such as low permeability barriers to avoid interaction with groundwater flows, and surface water diversion which is immaterial to catchment drainage patterns. Where properly and reliably implemented, such measures may avoid significant impacts on a water resource.

4.1.5 Beneficial impacts

An action may have both adverse and beneficial impacts on a water resource; however, under the EPBC Act only adverse impacts are relevant when determining whether the action should be referred. For example, the following beneficial impacts are not relevant to a referral decision:

- supply of water to towns for drinking water
- supply of water for irrigation
- on-supply of excess water to other mines.

However, if there are likely to be adverse impacts associated with these activities, such impacts should be considered in determining whether the action is likely to have a significant impact on a water resource.

It is important to note that beneficial impacts differ from avoidance and mitigation measures in that the beneficial impacts are not measures designed to reduce potential adverse impacts on a water resource.

4.2 General criteria

An action is likely to have a significant impact on a water resource if there is a real or not remote chance or possibility that it will directly or indirectly result in a change to:

- the hydrology of a water resource
- the water quality of a water resource

that is of sufficient scale or intensity as to reduce the current or future utility of the water resource for third party users, including environmental and other public benefit outcomes, or to create a material risk of such reduction in utility occurring.

4.2.1 Value of a water resource

It is important to consider the value of the water resource in determining whether the impacts of a proposed action on a water resource are likely to be significant. The key factor that will be relevant in determining the value of a water resource will be its utility for all third party uses, including environmental and other public benefit outcomes (see Example 6). Such outcomes include:

- provisioning services (for example, use by other industries and use as drinking water)
- regulating services (such as the climate regulation or the stabilisation of coastal systems)
- cultural services (including recreation and tourism, science and education)
- supporting services (for example, maintenance of ecosystem function).

The ecosystem function of a water resource includes the ecosystem components, processes and benefits or services that characterise the water resource, including support for the biological diversity or species composition of the water resource.

If there is evidence, based on data, modelling and engagement with potentially affected stakeholders, that the action would not materially affect (either by increasing or decreasing) the availability and quality of water for all third-party users, including environmental and other public benefit outcomes and including at a future time or in another place, then the likelihood of the action having a significant impact may be reduced.

4.2.2 Example

Example 6 – Large coal mine that would have a significant impact on a water resource

Coal Mining Company is developing a new coal mine which will include an open-cut mine void, railroad tracks and roads for a transport corridor and water management infrastructure, including storage dams for mine affected water. The proposed mine site is located in a large catchment with one large river and several smaller tributaries intersecting the site. The catchment is low lying and subject to periodic flooding. The nearby river supports a high degree of biological diversity and is an important water resource for a number of industries downstream of the action (including agriculture).

The extraction activities that are part of Coal Mining Company's proposed operation are likely to impact on nearby water resources as a result of mine affected water releases, and the nearby river supports existing third party uses. Therefore, there may be significant impacts on a water resource, and the action is likely to require referral.

4.3 Guidance on changes to hydrological characteristics

A significant impact on the hydrological characteristics of a water resource may occur where there are, as a result of the action:

- changes in the water quantity, including the timing of variations in water quantity

- changes in the integrity of hydrological or hydrogeological connections, including structural damage (for example, large scale subsidence)
- changes in the area or extent of a water resource.

where these changes are of sufficient scale or intensity as to significantly reduce the current or future utility of the water resource for third party users, including environmental and other public benefit outcomes.

The following aspects may need to be considered when assessing changes in hydrological characteristics:

- flow regimes (volume, timing, duration and frequency of surface water flows)
- recharge rates to groundwater
- aquifer pressure or pressure relationships between aquifers
- groundwater table and potentiometric surface levels
- groundwater-surface water interactions
- river-floodplain connectivity
- inter-aquifer connectivity
- coastal processes including changes to sediment movement or accretion, water circulation patterns, permanent alterations in tidal patterns, or substantial changes to water flows or water quality in estuaries.

Unless you can establish otherwise, we will assume that there is a connection between surface water and groundwater. You should also consider the potential impact of drilling, excavating or hydraulic stimulation on connectivity between surface water and groundwater, and whether this is likely to impact on the hydrology of the system beyond the life of the proposed action.

4.3.1 State water resource plans

The National Water Initiative (NWI) is the national blueprint for water reform, agreed in 2004 by the Council of Australian Governments. Through the NWI, governments across Australia agreed on actions to achieve a more cohesive national approach to the way Australia manages, measures, plans for, prices, and trades water. One of the key elements of the NWI is a framework for water access entitlements and planning.

You may obtain entitlements to extract water under a state water plan which has been prepared in accordance with the requirements of the NWI.

If you can demonstrate that all of the water used by a proposed action is authorised through such entitlements, the action is less likely to require a referral due to significant impacts on the hydrological characteristics of a water resource.

However, there may be situations where the water used by you in a particular location at a given time exceeds the environmentally sustainable level of extraction for that location, or for another

hydrologically connected location. In these cases, the action is more likely to have a significant impact on a water resource.

It is important to note that the impact on water resources from the disposal or release of extracted water and from changes to the physical environment will need to be considered separately from any consideration of the entitlements held. The relevance of state water quality management plans is discussed in chapter 4.4.

4.4 Guidance on changes to water quality

A significant impact on a water resource may occur where, as a result of the action:

- there is a risk that the ability to achieve relevant local or regional water quality objectives would be materially compromised, and as a result the action:
  - creates risks to human or animal health or to the condition of the natural environment as a result of the change in water quality
  - substantially reduces the amount of water available for human consumptive uses or for other uses, including environmental uses, which are dependent on water of the appropriate quality
  - causes persistent organic chemicals, heavy metals, salt or other potentially harmful substances to accumulate in the environment
  - seriously affects the habitat or lifecycle of a native species dependent on a water resource, or
  - causes the establishment of an invasive species (or the spread of an existing invasive species) that is harmful to the ecosystem function of the water resource, or
- there is a significant worsening of local water quality (where current local water quality is superior to local or regional water quality objectives), or
- high quality water is released into an ecosystem which is adapted to a lower quality of water.

For water-dependent ecosystems, a significant impact is likely if the predicted change in water quality is greater than that required for 'moderately to slightly disturbed' systems as described in the relevant local or regional water quality objectives (as listed in the Australian Water Quality Guidelines). Note that other thresholds may apply where changes in water quality may impact on other matters of national environmental significance, such as threatened species or ecological communities.

Local or regional water quality objectives may include:

- for locations within the Murray Darling Basin, the water quality targets of the Murray Darling Basin Plan
- for Queensland, other than the Murray Darling Basin, the Queensland Water Quality Guidelines 2009
- for Victoria, other than the Murray Darling Basin, the State Environment Protection Policy (Waters of Victoria)

- for South Australia, other than the Murray Darling Basin, the Environment Protection (Water Quality) Policy 2015

Other water quality objectives can be found in the 'Australian and New Zealand Guidelines for Fresh and Marine Water Quality', outlined in the National Water Quality Management Strategy.

Where an action may impact on a water resource for which there are no relevant local or regional water quality objectives, you may propose water quality objectives for the impacted water resource in accordance with the appropriate guidelines under the *National Water Quality Management Strategy* and in consultation with a relevant local authority. Relevant guidelines may include:

- Australian and New Zealand Guidelines for Fresh and Marine Water Quality
- Guidelines for groundwater protection
- Australian drinking water guidelines
- Australian Guidelines for Water Recycling: Managed Aquifer Recharge.

You may also influence water quality within a surface water catchment or groundwater resource under the provisions of a state water quality management plan (for example, a salinity trading scheme). Where water quality impacts from an action are managed through a management scheme that accounts for all other third party uses, including at a future time or another place, compliance with such management schemes may reduce the likelihood of a significant impact on a water resource.

4.5 Other important considerations

4.5.1 Cumulative impacts

The definitions of unconventional gas development and large coal mining development refer to the action having a significant impact 'when considered with other developments, whether past, present or reasonably foreseeable developments'. This means that a significant impact on water resources may be caused by one unconventional gas development or large coal mining development, or the cumulative impact of other developments in the area.

The consideration of cumulative impacts is not limited to impacts from unconventional gas development and large coal mining development, nor is it limited to the immediate project area or only those developments that occur upstream from the proposed action. Cumulative impacts should be considered at the local, aquifer or catchment, and regional scale.

The term 'cumulative impacts' refers to the impacts of a number of different actions or other broader influences on a matter of national environmental significance which, when considered together, have a greater impact on that matter than each action or broader influence considered individually. Therefore, in considering whether an action has, or is likely to have, a significant impact, the seriousness or intensity of the relevant impacts should be considered in context.

This context may include existing developments that have an impact on particular water resources, reasonably foreseeable developments which may have an impact on particular water resources and/or the overall development of a region. Therefore, there is more potential for the impact of an

action to be significant where the system is pristine, or where a number of existing or proposed developments are or will impacting a water resource, resulting in a cumulative impact.

At the referral stage, cumulative impacts should be assessed qualitatively on the basis of potential risks, and only existing and reasonably foreseeable future uses should be considered (see chapter 4.6 on information and data requirements for further information).

4.5.2 Timing

The significance of impacts must be assessed in both the short and the long term. Given the length of time that impacts may take to become observable in groundwater systems, the 'long term' may be beyond the life of the action.

The timing of particular actions may also increase or decrease the significance of an action's impacts. For example, steady water releases changing an ephemeral watercourse or intermittently flooded wetland into a continuous flow or permanent wetland would be likely to increase the significance of an action's impacts. Releasing water during a flood event within, or marginally outside water quality guidelines and for a short period may be less likely to be significant.

4.5.3 Scale

The significance of impacts on a water resource should be considered on each of a local, aquifer or catchment, and regional scale (including in connected or potentially connected hydrological systems). For example, extracting water from a confined aquifer may have no effect on the local groundwater table in an overlying unconfined aquifer, or on surface water flow. However, if at some distance the drawn-down confined aquifer approaches the surface and becomes unconfined such that it connects to more shallow aquifers or surface water systems, or is accessed more readily as a water resource, there may be important regional scale impacts to surface water flows and the water table associated with the localised development.

Small scale development may be less likely to have a significant impact on a water resource. For example, exploration, appraisal and pilot developments, due to their scale and short duration of activity may be less likely to have a significant impact on a water resource.

4.6 Information and data requirements

The level of information and data provided to us at the referral stage should be sufficient to allow a decision to be made as to whether an action is a 'controlled action' under the EPBC Act. Where the minister decides that an action requires assessment and approval, additional, more detailed information and data may be required to fully assess the impacts of the action.

Information provided at the referral stage should include:

- the characteristics of the potentially impacted water resource(s)
- known baseline conditions of the water resource(s), existing third party uses, environmental and other public benefit uses
- reasonably foreseeable future use of the water resource(s)

- the likely impact of the action on the water resource(s), including consideration of impacts in the context of existing impacts
- proposed avoidance, monitoring and mitigation measures
- the alignment of the action with any relevant water resource and/or water quality plans.

The level of detail and information included in a referral to us would also reflect the proponent's approvals strategy. For example, where a proponent is seeking a 'not controlled action' or 'not controlled action – particular manner' decision under the EPBC Act, the level of information and detail relating to the action, its impacts (including consideration of cumulative impacts) and proposed mitigation measures should be sufficient to satisfy the minister that all likely impacts have been considered and (where appropriate) quantified, and that action will not have a significant impact on a water resource. If the information is not sufficient to enable the minister to make a decision, we may make additional requests for more information.

5 The referral, assessment and approval process

5.1 Referral process

If after undertaking a self-assessment you conclude that their action is likely to have a significant impact on a matter of national environmental significance, or if they are unsure, they must refer the action to the minister. Substantial penalties may apply for taking an action that has, will have or is likely to have a significant impact on a matter of national environmental significance without approval.

If you are new to the EPBC Act process, or require further information, our Step-by-step guide to the referral and assessment process provides detail about the EPBC Act and how it may apply to your project.

After receiving a referral, the minister will decide whether the action is likely to have a significant impact on a matter of national environmental significance:

- if the minister decides that the action is likely to have a significant impact on a matter of national environmental significance, then the action requires approval under the EPBC Act (it is a controlled action)
- if the minister decides that the action is not likely to have a significant impact on a matter of national environmental significance, then the action does not require approval under the EPBC Act (it is a not controlled action)
- if the minister decides that the action would have clearly unacceptable impacts on a matter of national environmental significance, then the action will be refused

The minister may also decide that an action is not likely to have a significant impact on a matter of national environmental significance, and does not require approval under the EPBC Act, because it will be taken in a 'particular manner'. However, the action must be undertaken in a way that is consistent with the manner specified in this decision, or penalties apply.

The minister is generally required to make a binding decision on whether an action requires approval within 20 business days of receiving a referral. If the minister's decision is that an action does not require approval, a person will not contravene the Act if the action is taken in accordance with that decision.

5.2 Assessment and approval process

If the minister decides that an action requires approval, then an environmental assessment of the action must be carried out. If a bilateral agreement is in place, the action may be assessed by the state or territory in which the action is to be undertaken, using the processes accredited under the bilateral agreement. If a ministerial declaration is in place accrediting another Australian Government assessment process, the action may be assessed by the process accredited under that declaration.

Otherwise, the assessment will be undertaken by one of a range of assessment approaches outlined under the EPBC Act. An environmental assessment report will then be prepared.

Proponents should consult with relevant First Nations Traditional Owners as early as possible when undertaking an action. Traditional Owners are those with cultural authority to speak for the area of the proposed action. Engagement with Traditional Owners could occur through a representative body agreed by the Traditional Owners such as a Prescribed Body Corporate, Native Title Representative Body or land council. This engagement:

- is expected to be tailored and respectful to the interests of Traditional Owners
- can assist you to determine significant impacts of your actions, particularly in relation to potential harm to the environment and/or cultural heritage*
- can help you to undertake your action in a more inclusive way
- may enable you to incorporate First Nations' perspectives and traditional knowledge into planning to better protect and manage the environment, and conserve and use Australia's biodiversity in a sustainable way.

*An application for the protection of First Nations cultural heritage, including on matters not protected under the EPBC Act, can be made by any Aboriginal or Torres Strait Islander person under the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984*. Further information is available under the DCCEEW website: Aboriginal and Torres Strait Islander Heritage Protection Act 1984 - General Guide and Application Form - DCCEEW

First Nations people include communities, groups and individuals who identify as Aboriginal and/or Torres Strait Islander descent.

Proponents are also encouraged to consult:

The Interim Engaging with First Nations People and Communities on Assessments and Approvals under the *Environment Protection and Biodiversity Conservation Act 1999*

Under the EPBC Act the minister must seek and consider the advice of the Independent Expert Scientific Committee on Unconventional Gas Development and Large Coal Mining Development (IESC) before deciding whether or not to approve a proposed unconventional gas development or large coal mining development that may have a significant impact on a water resource.

After considering the environmental assessment report and advice of the IESC, the minister decides whether to approve the action, and what conditions (if any) to impose.

Assessments will rely as much as possible on information that has already been collected in any existing state or territory assessment processes, to ensure assessments proceed efficiently.

Regardless of whether approval is required under the EPBC Act, separate environmental assessment and approval may also be required under state/territory and/or local government legislation.

6 Further information

- Exemptions from requiring assessment and approval under the EPBC Act
- National Water Quality Management Strategy
- Atlas of groundwater dependent ecosystems
- Independent Expert Scientific Committee on Unconventional Gas Development and Large Coal Mining Development

Glossary

Term	Definition
Action	A project, development, undertaking, activity, or series of activities, or an alteration to any of those things. The terms 'project', 'development', 'undertaking' and 'activity' have their ordinary meaning in the context of the EPBC Act.
Affected area	The area likely to be affected by the action. This includes the project site and any additional areas likely to be affected, either directly or indirectly.
Decommissioning	Begins with the cessation of production, when infrastructure, plant and equipment are isolated from services such as power and water. Commonly includes the removal (deconstruction or demolition) of unwanted plant and equipment. Individual facilities may be decommissioned and removed if no longer required, while mining and processing operations continue.
Environment	1) ecosystems and their constituent parts, including people and communities 2) natural and physical resources 3) the qualities and characteristics of locations, places and areas 4) heritage values of places

Term	Definition
	5) the social, economic and cultural aspects of a thing mentioned in paragraph (1), (2), (3) or (4).
Environmentally sustainable level of extraction	The level of water extraction from a particular system which, if exceeded, would compromise key environmental assets, or ecosystem functions and the productive base of the resource (National Water Commission 2004).
Groundwater	• water occurring naturally below ground level (whether in an aquifer or otherwise); or • water occurring at a place below ground that has been pumped, diverted or released to that place for the purpose of being stored there; but does not include water held in underground tanks, pipes or other works (*Water Act 2007)*.
Lake	• a natural lake, pond or lagoon (whether modified or not) • includes a part of such a lake, pond or lagoon (*Water Act 2007)*.
Local or regional water quality objectives	A set of numbers or guidelines which satisfy all of the environmental and other public benefit outcomes associated with the water resource, and are contained within a relevant plan which sets out the proposed water quality objectives and the implications of adopting them for particular catchments, coastal waters or aquifers (Australian and New Zealand Environment and Conservation Council 1998).
Minister	The Australian Government Environment Minister.
Not a controlled action – particular manner decision	A decision by the minister under s 75 of the EPBC Act that an action is not a controlled action under the EPBC Act if it is taken in a particular manner. The minister's notice of the decision includes a description of the prescribed particular manner. Section 77A of the EPBC Act prohibits a person from taking the action in a way that is inconsistent with the manner prescribed in the notice.
Significant impact	An impact which is important, notable, or of consequence, having regard to its context or intensity.
Surface water	• water in a watercourse, lake or wetland • any water flowing over or lying on land – after having precipitated naturally; or – after having risen to the surface naturally from underground (*Water Act 2007)*
Utility	The use of a water resource for any third party use, including environmental and other public benefit outcomes.
Watercourse	• a river, creek or other natural watercourse (whether modified or not) in which water is contained or flows (whether permanently or from time to time) and includes: – a dam or reservoir that collects water flowing in a watercourse – a lake or wetland through which water flows – a channel into which the water of a watercourse has been diverted – part of a watercourse – an estuary through which water flows (*Water Act 2007).*
Water-dependent ecosystem	A surface water ecosystem or a groundwater ecosystem, and its natural components and processes, that depends on periodic or sustained inundation, waterlogging or significant inputs of water for its ecological integrity and includes an ecosystem associated with: • a wetland • a stream and its floodplain

Term	Definition
	• a lake or a body of water (whether fresh or saline) • a salt marsh • an estuary • a karst system • a groundwater system • a reference to a water-dependent ecosystem includes a reference to the biodiversity of the ecosystem (*Water Act 2007)*.
Water plan	A statutory plan for surface and/or groundwater systems, consistent with the Regional Natural Resource Management Plans, developed in consultation with all relevant stakeholders on the basis of best scientific and socio-economic assessment, to provide secure ecological outcomes and resource security for users (National Water Commission 2004)
Water resource	• surface water or groundwater • a watercourse, lake, wetland or aquifer (whether or not it currently has water in it); and includes all aspects of the water resource (including water, organisms and other components and ecosystems that contribute to the physical state and environmental value of the water resource) (*Water Act 2007)*.
Wetland	The same meaning as in the Ramsar Convention (*Water Act 2007)* which is: 'areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed 6 metres.'

References

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Australian Government (2016) *Leading Practice Sustainable Development Program for the Mining Industry* https://www.industry.gov.au/sites/default/files/2019-05/lpsdp-mine-closure-handbook-english.pdf

Australian and New Zealand Environment and Conservation Council (1998) National Water Quality Management Strategy – implementation guidelines

Booth v Bosworth [2001] FCA 1453, approved in VicForests v Friends of Leadbeater's Possum Inc [2021] FCAFC 66

National Water Commission (2004) Intergovernmental agreement on a National Water Initiative