

The Regulatory Environment

Purpose of this Paper

This paper describes the current regulatory framework that governs petroleum resource development, including hydraulic fracture stimulation (fracking) for unconventional gas. It is intended to facilitate the consideration of the adequacy of regulation and any critique of how it might be improved to better minimise risk to the environment should hydraulic fracture stimulation be considered in the future.

Petroleum and Geothermal Energy Resources (Hydraulic Fracturing) Regulations 2017

On 5th September 2017, the State Government banned hydraulic fracture stimulation in the Perth Metropolitan, Peel and South-West regions, and put in place a moratorium for the rest of the State.

On 8th December 2017, the State Government gazetted the Petroleum and Geothermal Energy Resources (Hydraulic Fracturing) Regulations 2017. These regulations provide for a permanent ban in the Perth Metropolitan, Peel and South-West regions, and a moratorium for the rest of the State until 30th June 2020.

A whole of Government Approach

The process for obtaining a licence to conduct petroleum activities is very complex and involves many steps. A range of State Government agencies, principally the Department of Mines, Industry Regulation and Safety (DMIRS), regulate a variety of elements with respect to shale and tight oil and gas developments (along with all other oil and gas developments in State jurisdiction) under legislative powers relevant to each agency.

These agencies' roles include conducting detailed environmental impact assessments where activities may result in significant environmental impacts, providing licences to extract water, protecting drinking water, and protecting aboriginal heritage and governing land access.

A whole of Government approach is a key element in the development of the State's mineral and petroleum resources. This means that the public sector agencies work collaboratively across portfolios to achieve an integrated response to the development of these resources. This responsibility applies at every stage of resource development, from assessment and approval of development proposal, regulation of resource projects and monitoring for compliance, to decommissioning and rehabilitation.

The Government of Western Australia published '*A guide to the regulatory framework for Shale and Tight Gas in Western Australia - A whole of government approach*' in 2015. This can be found [here](#)

Statutory Framework

The extraction and development of petroleum resources including conventional petroleum, shale or tight oil and gas is regulated under legislation administered by DMIRS and other agencies.

The regulatory framework rests on five key principles:

- Transparent, effective and risk-based regulation;
- Whole-of-government approach;
- Consistent State and Commonwealth Government objectives;
- Effective engagement with stakeholders, particularly local communities; and
- Compliance and enforcement, which is one of the key pillars of the role of the DMIRS.

Department of Mines, Industry Regulation and Safety

DMIRS is the lead agency responsible for the regulation of onshore, and some offshore petroleum activities in Western Australia. The key statutes, administered by DMIRS relating to shale and tight oil and gas, are:

- *Petroleum and Geothermal Energy Resources Act 1967* (PGERA)
- *Petroleum (Submerged Lands) Act 1982* (PSLA)
- *Petroleum Pipelines Act 1969* (PPA)

These Acts (together the **Petroleum Acts**) and the regulations made under them create a framework under which the Minister for Mines and Petroleum grants a range of titles in relation to petroleum (which includes oil and gas), such as:

- exploration permits, special prospecting authorities and retention leases, which authorise exploration for petroleum;
- access authorities and production licences, which authorise the recovery of petroleum;
- drilling reservations, which authorise drilling for petroleum; and
- pipeline licences, which authorise the construction and operation of petroleum pipelines.

One of these titles is required in order to carry out any petroleum exploration or recovery activities. DMIRS maintains a publicly available register of these titles on its website which can be viewed [here](#)

In assessing an application for an exploration permit or drilling reservation, the Minister or his delegate will consider technical matters and publicly available criteria relating to the

applicant, geological evaluation of the resource and exploration rationale, and the proposed management of environmental impacts, native title, heritage and land access.

After the grant of a petroleum title, an operator may also require further approvals from DMIRS and other government agencies (discussed below) before commencing its activities.

Land Access

The *Petroleum and Geothermal Energy Resources Act 1967* places certain restrictions on access to private land by petroleum title holders. Certain types of private land contained in a title may only be accessed with the prior written consent of the owner or trustee of the land.

Compensation must be paid to the owner or occupier, or a neighbouring owner or occupier, where their property is damaged or they are deprived of possession of their land. The amount of compensation may be agreed, in which case it is usually a confidential matter between the landowner or occupier and the details will not be provided to DMIRS.

The title holder must not commence any operations on private land unless the required amount of compensation has been paid or an agreement has been reached with the owner or occupier.

Additional processes and rights to compensation may apply if the area is subject to a native title claim under the *Native Title Act 1993* (Cth).

Petroleum Environmental Regulations

The regulations made under the Petroleum Acts, deal with environment, safety and well integrity issues. Environmental Plans covering these matters must be submitted for assessment and approved by the Minister for Mines and Petroleum prior to any petroleum activity being undertaken.

The objects of the *Petroleum and Geothermal Energy Resources (Environment) Regulations 2012* and the *Petroleum (Submerged Lands) (Environment) Regulations 2012* and *Petroleum Pipelines (Environment) Regulations 2012* (together the Petroleum Environment Regulations) are to ensure that any petroleum, geothermal or pipeline activity carried out in the State is:

(a) carried out in a manner consistent with the principles of ecologically sustainable development; and

(b) carried out in accordance with an environment plan that:

(i) demonstrates that the environmental impacts and environmental risks of the activity will be reduced to as low as is reasonably practicable;

(ii) has appropriate environmental performance objectives and environmental performance standards; and

(iii) has appropriate measurement criteria for determining whether those objectives and standards have been met.

Environmental Plans

An Environment Plan must include the following information:

- (a) a comprehensive description of the proposed activity, including location, details of construction and layout, description of operational details and information relevant to environment impacts;
- (b) details and evaluation of environmental impacts and risks of the activity;
- (c) environmental performance objectives, environmental performance standards, and measurement criteria for these objectives and standards;
- (d) description of legislative requirements, international conventions or agreements or codes of practice that apply to the activity and are relevant to its environmental management;
- (e) an implementation strategy, which must:
 - include measures to ensure the objectives and standards set by the Environment Plan will be met;
 - identify specific systems, practices and procedures to ensure that the environmental impacts and risks are continuously reduced to as low as is reasonably practicable, and the objectives and standards will be met;
 - establish a clear chain of command, and ensure employees and contractors comply with the Environment Plan;
 - provide for monitoring of compliance and management of non-compliance, particularly in relation to specified emissions and discharges;
 - where the activity involves injection or re-injection of water recovered from a reservoir into wells, specify the maximum permissible concentration of petroleum in the water;
 - include details of any chemicals or other substances that may be in, or added to, any treatment fluids to be used for the purposes of drilling or hydraulic fracturing or otherwise introduced into a well, reservoir or subsurface;
 - include an oil spill contingency plan; and
 - provide for appropriate consultation with relevant authorities and other relevant interested persons or organisations;
- (f) arrangements for monitoring and recording information to enable the Minister to determine whether the Environment Plan has been complied with;
- (g) a statement of the operator's corporate environmental policy;

- (h) a report on all consultations between the operator and relevant authorities and other relevant interested persons and organisations in the course of developing the environment plan; and
- (i) a list of all incidents that are classified as reportable incidents in relation to the activity.

Before approving an Environment Plan, the Minister or his delegate must be reasonably satisfied that the Environment Plan:

- (a) is appropriate for the nature and scale of the activity;
- (b) demonstrates that the environmental impacts and environmental risks of the activity will continuously be reduced to as low as is reasonably practicable;
- (c) demonstrates that the environmental impacts and environmental risks of the activity will be of an acceptable level;
- (d) provides for appropriate environmental performance objectives, environmental performance standards and measurement criteria;
- (e) includes an appropriate implementation strategy and monitoring, recording and reporting arrangements;
- (f) demonstrates that there has been an appropriate level of consultation with relevant authorities and interested persons and organisations; and
- (g) complies with Division 3, which sets out the information required to be included in an Environment Plan.

When the Environment Plan is approved by the Minister, it becomes legally binding and the operator is required to comply with its provisions. The consequences of breaching the Environment Plan can include directions from the Minister, withdrawal of approval for the Environmental Plan, prosecution or cancellation of the petroleum title.

The requirements under the PGER Environment Regulations and an approved Environment Plan are in addition to any applicable requirements under the Environmental Protection Act 1986 (EP Act) or the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act) (discussed further below).

Field Management Plans

The *Petroleum and Geothermal Energy Resources (Resource Management and Administration) Regulations 2015* and the *Petroleum (Submerged Lands) (Resource Management and Administration) Regulations 2015* (together the Resource Management Regulations) require a licensee to have a Field Management Plan approved by the Minister before recovering petroleum in its licence area.

Once approved, a Field Management Plan provides a description of the life cycle of the petroleum project covered by the Production Licence and how the project will be managed by the operator. It covers all stages of the production phase from pre-commissioning,

commissioning, start-up and recovery operations to decommissioning. It also covers all the anticipated facilities located on the surface (such as production and storage facilities).

Information contained in the Field Management Plan typically includes, amongst other things:

- The number and type of wells to be drilled and their locations;
- A description of the subsurface geology, including rock properties and fluid pressures;
- estimated production over time, including the maximum rate of recovery from the petroleum field;
- details of how produced fluids and wastes will be monitored and managed; and
- decommissioning and rehabilitation processes, including surface facilities, following completion of resource extraction.

The Field Management Plan must be revised and approved as a result of any major changes to the project. Non-compliance with an approved Field Management Plan can result in directions, prosecution or cancellation of the petroleum title.

Well Management Plans

The Resource Management Regulations also require an operator to have a Well Management Plan approved by the Minister before undertaking a well activity in a title area.

The objective of a Well Management Plan is to ensure that the well activity is managed in accordance with sound engineering principles, codes, standards and specifications and consistently with good oil-field practice.

A Well Management Plan must contain:

- (a) details of the proposed wells and each well activity, including location and proposed timetable for each activity;
- (b) an explanation of philosophy of, and criteria for, the design, construction, operational activity and management of the well; and the possible production or injection activities of the well, showing that each well activity will be carried out in accordance with sound engineering principles, codes, standards and specifications and, if the activity relates to the exploration for or recovery of petroleum, good oil-field practice.
- (c) performance objectives and measurement criteria;
- (d) an explanation of how the title holder will identify, monitor, mitigate and otherwise deal with a well integrity hazard and a significant increase in an existing risk for the well, including the possibility of continuing a well activity for the purpose of dealing with the well integrity hazard or the risk;

- (e) details of chemicals and other substances that may be in, or added to, treatment materials to be used for the purposes of drilling or hydraulic fracturing undertaken in the course of each well activity, introduced into a well or underground formation or otherwise used in the course of each well activity;
- (f) the proposed total volume and composition of fluids and other materials to be used in the course of each well activity, returned fluids, and produced formation materials, including the proposed management of the fluid and materials;
- (g) details of how and when the title holder will notify or report to the Minister on well activities, well integrity hazards, significant increases in risks and other relevant matters, and the record-keeping process for this information;
- (h) a list of the principal Australian and international standards that apply in relation to each well activity and plant used in connection with each well activity; and
- (i) in relation to drilling activity, technical information such as proposed depth, path, and description of the equipment to be used, amongst other things.

The title must submit a revised Well Management Plan for approval if any of the following occur:

- (a) a change in the understanding of the geology or underground formation that may have a significant impact on the integrity of a well or a well activity to which the approved well management plan relates;
- (b) the occurrence or potential occurrence of a significant new detrimental risk to or effect on the integrity of a well or a well activity to which the approved well management plan relates; or
- (c) a significant increase in a detrimental risk to or effect on the integrity of a well or a well activity to which the approved well management plan relates.

Once approved, a Well Management Plan is binding and failure to comply with a requirement in the plan is an offence. Non-compliance can result in directions, withdrawal of approval for the Well Management Plan, prosecution or cancellation of the petroleum title.

The Resource Management Regulations also create a general offence for a title holder who fails to control a well integrity hazard identified in a Well Management Plan or an existing risk to the well which has significantly increased.

Safety Management Systems

The *Petroleum and Geothermal Energy Resources (Management of Safety) Regulations 2012* require a Safety Management System to be force in, and complied with, in relation to any onshore petroleum operation.

The Safety Management System must contain:

- (a) a description of the operation; and

- (b) acknowledgment of the duties that various persons have in relation to the operation;
- (c) a detailed explanation of how the operator proposes to:
 - (i) meet its obligations; and
 - (ii) ascertain whether other persons meet their obligations, to the extent that it is practicable for the operator to do so, including details of the systems and procedures to be used for those purposes.
- (d) a detailed explanation of how compliance with the safety management system would be measured, evaluated and maintained;
- (e) a detailed explanation of how the safety management system would be reviewed;
- (f) a risk assessment for the operation that identifies potential hazards, assessment of the risk of each hazard, and measures to reduce risk to a level that is as low as is reasonably practicable;
- (g) a system for ongoing and systematic management of hazards and safety; and
- (h) means for implementation, and the ongoing and systematic improvement of the Safety Management System.

Non-compliance with a Safety Management System can result in directions, improvement notices, prohibition notices, cease activity instructions, fines and cancellation of the petroleum title.

Environmental Protection Authority

The Environmental Protection Authority (EPA) is an independent statutory authority established under the provisions of the EP Act. One of EPA's primary roles is to conduct environmental impact assessments, which involves assessing proposals which are likely, if implemented, to have a significant effect on the environment.

The EPA makes recommendations to the Minister for Environment, who consults and reaches an agreement with other relevant decision-making authorities on whether the proposal should be implemented, and if so, whether any conditions should be imposed on its implementation.

The role and processes of the EPA aim to protect the Western Australian environment, incorporating the following key elements:

- Independence - The EPA is an independent board comprising of five members appointed by the Governor on the recommendation of the Minister for Environment. The EPA is independent, in that it is not subject to direction by the Minister.
- Transparency - All recommendations made by the EPA to the Minister for Environment are made public in the EPA's Report and Recommendations.

- Public involvement - Providing opportunities for public participation is an integral part of environmental impact assessment in Western Australia. The EPA publishes all documents open for public comment on its consultation hub.

A decision-making authority must refer a significant proposal to the EPA for assessment, and a proponent or any other person may refer a significant proposal.

The EPA's *Statement of Principles, Factors and Objectives* (2016) describes matters that the EPA considers in determining whether a proposal is likely to have a potentially significant impact. These include:

- values, sensitivity and quality of the environment that is likely to be impacted;
- extent (intensity, duration, magnitude and geographic footprint) of the likely impacts;
- consequence of the likely impacts (or change);
- resilience of the environment to cope with the impacts or change;
- cumulative impact with other projects;
- connections and interactions between parts of the environment to inform a holistic view of impacts to the whole environment;
- level of confidence in the prediction of impacts and the success of proposed mitigation; and
- public interest about the likely effect of the proposal, if implemented, on the environment, and public information that informs the EPA's assessment.

In determining whether the impact of a proposal will be significant, the EPA also considers each of the environmental factors identified in its *Statement of Principles, Factors and Objectives*, and whether the proposal likely to meet the objective set by the EPA for that factor. For example, the EPA's objective for the factor 'Inland Waters Environmental Quality' is to maintain the quality of groundwater and surface water, so that environmental values are protected.

After receiving a referral, the EPA decides if the proposal should be assessed and, if so, the level of assessment.

If a proposal is not assessed, the EPA may give advice to the proponent or any other relevant person or decision-making authority, but that advice is not binding.

Once the EPA decides to assess a proposal, no other decision-makers can issue approvals in relation to the proposal until the EPA has completed its assessment and an implementation agreement or decision has been made.

The EPA has a wide discretion under s. 40 of the EP Act to determine information required for its assessment and the level of public review to be provided. The most common levels of assessment are:

- Referral information;

Environmental review – no public review; and

- Public environmental review (PER).

In deciding the level of assessment requirements, and whether public review is required, the EPA considers:

- the level of information provided in the referral and other documents;
- the number and complexity of preliminary key environmental factors relevant to the proposal;
- whether it is a common type of proposal where there is an established condition-setting framework; and
- the level of public interest about the proposal.

The EPA completes its assessment by providing a report to the Minister for Environment which sets out what the EPA considers to be the key environmental factors in relation to the proposal, and its recommendations as to whether the proposal may be implemented and on what conditions.

Any person, including members of the public and the proponent, can appeal against the content of the EPA's report and the recommendations contained in it.

After the EPA has reported, and after any appeals have been determined, the Minister for Environment consults and reaches agreement with relevant decision-making authorities on whether the proposal may be implemented. If an agreement is reached that the proposal may be implemented, a Ministerial Statement is issued which sets out the conditions that the proponent must adhere to.

Department of Water and Environmental Regulation

Water Regulation

In Western Australia, access to water is regulated by the Department of Water and Environmental Regulation (DWER) under the *Rights in Water and Irrigation Act 1914* (RIWI Act).

DWER also provides advice on petroleum proposals where they may pose a significant risk to water resources; and on petroleum exploration and development proposals located in proclaimed public drinking water source areas. This ensures a whole of Government approach to the management of petroleum activities occurring in, or likely to impact upon, water resources.

Most water for petroleum activities is sourced from underground aquifers relatively close to the surface. Non-potable water can be used for hydraulic fracture stimulation, including water with salinity equivalent to seawater, which may be available in deeper aquifers.

To construct a water bore, a construction licence is required. To take water from a proclaimed groundwater or surface water area, a licence to take water must be issued by

DWER. This licence allows a licence holder to take water from a watercourse, wetland or underground source in accordance with a set of terms and conditions issued by DWER. As most of the State is proclaimed for either ground and/or surface water, a project involving hydraulic fracture stimulation in such an area requires a licence to abstract a specified volume of water.

New licences will only be issued where the water allocation limit has not been reached, thereby protecting existing users and the environment. This process addresses the issue of cumulative impacts of water use in a particular area. In fully allocated areas, water could possibly be obtained by the discovery of new groundwater resources, and also trucking or trading with existing water licence holders, as specified in DWER's Trading Policy.

DWER also identifies, proclaims and manages Public Drinking Water Source Areas (PDWSAs) to protect the quality of water sourced by drinking service providers. Drinking Water Source Protection Plans have been developed by DWER to identify the potential risks to water quality and public health in a PDWSA and how these are managed.

Permits to interfere with the bed and banks of a watercourse or wetland follow assessment of any activity or work that may disturb, destroy or interfere with the bed and banks or flow of a watercourse within a proclaimed surface water resource. DWER may refuse to issue a permit if the activity cannot be made acceptable to DWER. Where issued, permits may bind operators to certain conditions and restrictions.

Environmental Regulation

DWER also regulates contaminated sites, clearing of native vegetation, controlled waste, and the licensing of prescribed premises under Part V of the EP Act.

Some shale and tight oil and gas activities may require a works approval and/or licence under Part V of the EP Act. Premises on which more than 5000 tonnes per year of crude oil, natural gas or condensate is extracted and treated or separated to produce stabilized crude oil, purified natural gas or liquefied hydrocarbon gases are "prescribed premises" under the Environmental Protection Regulations 1987.

The EP Act requires a person or occupier to hold a works approval in order to carry out any works that cause a premise to become a prescribed premise. A licence is needed to authorise any emissions from a prescribed premise. Emissions include noise, odour, electromagnetic radiation and discharge of waste. Waste includes liquid, solid, gaseous and radioactive matter that is discharged to the environment.

DWER also administers provisions for the clearing of native vegetation. Some exemptions from the requirement to obtain a clearing permit are available in relation to petroleum activities. Where a permit is required, the CEO under the EP Act has delegated the power to determine applications for clearing permits relating to petroleum activities regulated under the Petroleum Acts to DMIRS.

DWER also regulates the transportation of controlled waste on roads in Western Australia through the Environmental Protection (Controlled Waste) Regulations 2004. The regulations provide for the licensing of carriers, drivers, and vehicles involved in transporting controlled

waste in order to ensure that controlled waste is safely transported to an approved licensed waste facility for disposal.

Department of Biodiversity, Conservation and Attractions

The Department of Biodiversity, Conservation and Attractions (DBCA) manages many areas of land under the *Conservation and Land Management Act 1984* (CALM Act), some of which are national parks, nature reserves and other natural areas to conserve and protect Western Australia's native flora and fauna. The department also provides advice to regulatory agencies in relation to these natural areas and administers regulations potentially relevant to shale and tight oil and gas projects under the following legislation:

- *Conservation and Land Management Act 1984*
- *Wildlife Conservation Act 1950*
- *Biodiversity Conservation Act 2016*

Operators of shale or tight oil and gas projects are subject to regulations under these Acts through licences and permits issued in relation to protected plants and animals and activities undertaken on lands and waters managed under the CALM Act.

Written consent of the Minister for Environment is required to 'take' (disturb in any way through direct or indirect means) flora that is declared as rare flora. DBCA and the Minister for Environment will seek to minimise the impact on declared rare flora to provide for its conservation. The habitat of declared rare flora is expected to be avoided.

Fauna gazetted by the Minister for Environment as threatened fauna are specially protected. Licence applications to take (disturb or interact in any way) are assessed by DCBA with the objective of ensuring the conservation of the species. The habitat of threatened fauna is expected to be avoided.

Ecological communities defined and declared by the Commonwealth Minister for Environment under the EPBC Act as Threatened Ecological Communities are regarded as being of specific conservation value. The conservation of threatened ecological communities is included in environmental impact assessment under Part IV and V of the EP Act. Threatened ecological communities should be avoided.

Department of Planning, Lands and Heritage

Aboriginal Heritage

The Department of Planning, Lands and Heritage (DPLH) administers the *Aboriginal Heritage Act 1972* (AH Act).

Section 17 of the AH Act makes it an offence to excavate, destroy, damage, conceal or in any way alter any Aboriginal site unless with the authorisation of the Registrar or consent of the Minister for Aboriginal Affairs.

The State Government's Aboriginal Heritage Due Diligence Guidelines (2013), provide guidance on the obligations of the AH Act and how risks in relation to aboriginal heritage

may be managed. This may involve detailed consultations with Traditional Owners or native title parties in affected areas and where appropriate, the completion of site identification or avoidance surveys and heritage surveys.

If an impact to an aboriginal heritage site is unavoidable, consent of the Minister for Aboriginal Affairs for the activity must be obtained under section 18 of the AH Act. Failure to comply with any conditions imposed on the Minister's consent is an offence.

The Commonwealth *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* also applies. Under this Act, declarations can be sought from the Commonwealth Minister for Environment to preserve and protect from injury or desecration, objects of particular cultural significance to Aboriginal and Torres Strait Islander people.

Planning and Local Government

The Western Australian Planning Commission (WAPC) is the statutory authority with state-wide responsibility for urban, rural and regional land-use planning and land development matters. WAPC responds to the strategic direction of Government and is responsible for the strategic planning of the State.

WAPC operates with the support of the DPLH, which provides professional and technical expertise, administrative services, and resources to advise WAPC and implement its decisions. In this partnership WAPC has responsibility for decision-making and a significant level of funding while DPLH provides the administrative and technical advice.

Local governments are involved in planning for local communities by ensuring appropriate planning controls exist for land use and development. They do this by, among other things, preparing and administering their local planning schemes and strategies.

Local planning schemes contain planning controls such as designation of appropriate land-uses, residential densities and development standards. Local governments must base their planning decisions on the provisions and controls in their local planning scheme.

All local government planning schemes and policies are required to be consistent with State Government planning objectives and requirements. Proponents should consult local governments to determine if exploration and/or operation requires development approval under their relevant local planning scheme.

State Planning Policies (SPPs), which are specifically provided for in the *Planning and Development Act 2005*, are required to be prepared and kept under review by WAPC.

SPPs can be subject or location specific, and are generally used for the following purposes:

- To assist WAPC in its decision-making with respect to the subdivision of land and development approval under region schemes; and
- To provide guidance to local government on the matters they need to take into account in preparing local planning schemes.

Local government is required to have due regard to SPPs in preparing or amending a local planning scheme and the Minister for Planning may order a local government to amend its scheme to be consistent with a SPP.

In some instances, legislation overrides planning legislation. An example of this is for State Agreement Act. A State Agreement Act is a contract between the Government of Western Australia and a proponent of a major resource project, which are ratified by an Act of State Parliament. They specify the rights, obligations, terms and conditions for development of the project and establish a framework for ongoing relations and cooperation between the State and the project proponent. For more than 50 years, State Agreements have been used by successive Western Australian governments to foster major developments, including mineral, petroleum, wood processing and related downstream processing projects, together with associated infrastructure investments. Such projects require long-term certainty and extensive or complex land tenure and are often located in relatively remote areas of the State requiring significant infrastructure development.

Department of Health

The Department of Health (DoH) provides advice on petroleum exploration and development proposals where there is a potential health risk to the public or there is significant public interest related to health concerns.

The regulation of Naturally Occurring Radioactive Materials (NORMs) associated with the petroleum industry is managed through the Radiological Council.

The *Health Act 1911* provides protection for public drinking water supplies. It also provides protection from pollution for any water supply or catchment area, including any river, stream, watercourse, creek, swamp, water hole, well, tank, lake, or reservoir containing water intended or available for human consumption. The local government or the Executive Director Public Health can direct the closure of a water supply that is considered to be polluted. As with any industry, shale and tight oil and gas operators must comply with all relevant legislation.

Referral to the Australian Department of Environment and Energy

Commonwealth legislation also regulates the development of shale and tight oil and gas projects. The EPBC Act applies where a proposed exploration or development action is likely to have a significant impact on a Matter of National Environmental Significance (MNES).

The Australian Government, through the Department of Environment and Energy (DoEE), is required to assess any action that has the potential to have a significant impact on MNES. MNES are defined under the EPBC Act and include:

- World Heritage properties;
- National Heritage places;
- wetlands of international importance (Ramsar wetlands);
- listed threatened species or ecological communities;

- migratory species protected under international agreements;
- the environment where nuclear actions are involved (including uranium mines); and
- a water resource.

Western Australia has more than 10 wetlands protected under the Ramsar Convention, which aims to halt the worldwide loss of wetlands and to ensure wise use and management conserves those wetlands that remain. If an onshore petroleum activity is proposed that could impact one of these wetlands, the operator needs to refer the action to DoEE and obtain approval prior to commencing any activities, in addition to any approvals from State agencies.

Similarly, if an operator proposes onshore petroleum activities in a National Heritage place, such as the Dampier Archipelago/Burrup Peninsula or the West Kimberley National Heritage Area, the action needs to be referred to DoEE and appropriate Commonwealth approvals need to be obtained before activities could start.

Overview of Western Australian legislation relevant to the shale and tight oil and gas industry

Agency	Role	Legislation
WESTERN AUSTRALIA		
Department of Mines and Petroleum (DMIRS)	<p>DMIRS is the State's lead agency in regulating minerals and energy resources in Western Australia and ensuring that safety, health, and environmental standards are of the highest standard and are consistent with relevant State and Commonwealth legislation, regulation and policies.</p> <p>The department has a role in the provision of geoscientific information on minerals and energy resources, administering the collection of royalties and management of an equitable and secure titles system for the mining, petroleum and geothermal industries.</p> <p>The department is committed to educating the community about resource development and regulation in WA and ensuring the responsible development of the resources industry to maximise the economic and social return to all Western Australians.</p> <ul style="list-style-type: none"> • Safety Regulation: regulation of all safety obligations associated with the petroleum operation including the health and safety of workers. Regulated through the operator's submission of a Safety Management System and Safety Case. • Environment Regulation: regulation of all potential environmental impacts as a result of the petroleum activity i.e. impacts on land, air, water, the subsurface, flora and fauna. Regulated through the operator's submission of an EP for each activity at each stage, bringing together and identifying all environmental impacts, risk mitigation measures and implementation strategies. • Native Vegetation Clearing: certain powers under Part V Division 2 of the <i>Environmental Protection Act 1986</i> for regulation of the clearing of native vegetation for petroleum activities as provided for by delegation. • Resource Management and Administration: regulation of the technical aspects/operation of petroleum activities, ensuring they comply with international standards and best practice. Regulated through applications for exploration surveys and wells and various management plans governing these activities. 	<p><i>Petroleum and Geothermal Energy Resources Act 1967</i></p> <p><i>Petroleum Pipelines Act 1969</i></p> <p><i>Environmental Protection Act 1986</i> (Delegated Authority for native vegetation clearing)</p> <p><i>Petroleum (Submerged Lands) Act 1982</i></p> <p><i>Dangerous Goods Safety Act 2004</i></p> <p><i>Occupational Safety and Health Act 1984</i></p>
Department of Water and Environment Regulation (DWER)	<p>DWER has the primary responsibility for conserving, protecting, managing and assessing water resources and planning for the use of water resources under the <i>Water Agencies (Powers) Act 1984</i>, as well as the regulation of water resources, pollution, unreasonable emissions, environmental harm and clearing of native vegetation, assessment and classification of contaminated sites based on risks to the community and the environment, and management of waste to promote the efficient use of resources and prevent environmental harm.</p> <p>Specifically:</p> <ul style="list-style-type: none"> • The <i>Rights in Water Irrigation Act 1914</i> provides for a licensing system to take water and construct water wells in proclaimed areas from artesian sources; and a permit system for activities that may damage, obstruct or interfere with water flow or the beds and banks or watercourses and wetlands in proclaimed rivers, surface water management areas and irrigation districts. 	<p><i>Environmental Protection Act 1986</i></p> <p><i>Contaminated Sites Act 2003</i></p> <p><i>Waste Avoidance and Resource Recovery Act 2007</i></p> <p><i>Rights in Water and Irrigation Act 1914</i></p> <p><i>Metropolitan Water Supply, Sewerage and Drainage Act</i></p>

	<ul style="list-style-type: none"> • The <i>Country Areas Water Supply Act 1947</i> and <i>Metropolitan Water Supply, Sewerage and Drainage Act 1909</i> and associated by-laws protect public drinking water sources. • The <i>Country Areas Water Supply Act 1947</i> and the <i>Country Areas Water Supply (Clearing Licence) Regulations 1981</i> provide for a licensing system for the clearing of vegetation in the Denmark River, Harris River Dam, Mundaring Weir, Wellington Dam and Warren River catchment areas and the Kent River Water Reserve. This licensing system applies when there is an exemption under the <i>Environmental Protection (Clearing of Native Vegetation) Regulations 2004</i>. • The <i>Waterways Conservation Act 1976</i> provides for a licensing system for dredging, reclamation, dewatering, drainage, excavation and construction activities in the Albany waterways, Avon River, Wilson Inlet, Peel–Harvey estuaries and Leschenault Inlet management areas. • The regulation of activities with potential impacts on the environment through works approvals and licences for premises prescribed under Schedule 1 of the <i>Environmental Protection Regulations 1987</i> to prevent unacceptable risks to the environment and public health. • The development and implementation of policies and strategies that promote environmental outcomes. • Reducing the environmental impact of waste. 	<p>1909</p> <p><i>Country Areas Water Supply Act 1947</i></p> <p><i>Water Agencies (Powers) Act 1984</i></p> <p><i>Waterways Conservation Act 1976</i></p>
<p>Department of Biodiversity, Conservation and Attractions (DBCAs)</p>	<p>DCBA has primary responsibility for managing the State’s national parks, marine parks, State forests and other reserves that cover a total area of more than 27 million hectares; for conserving and protecting native animals and plants; and for managing many aspects of the access to and use of the State’s wildlife and natural areas.</p> <p>DCBA also provides support to the Marine Parks Reserves Authority and the Conservation Commission (which, under proposed amendments to the <i>Conservation and Land Management Act 1984</i>, will be amalgamated to form the Conservation and Parks Commission).</p>	<p><i>Conservation and Land Management Act 1984</i></p> <p><i>Wildlife Conservation Act 1950</i></p> <p><i>Biodiversity Conservation Act 2016</i></p>
<p>Environmental Protection Authority (EPA)</p>	<p>EPA is an independent authority established by the <i>Environmental Protection Act 1986</i>, under which the EPA is to: ‘use its best endeavours –</p> <p>a) to protect the environment; and b) to prevent, control and abate pollution and environmental harm.’</p> <p>EPA’s functions include:</p> <ul style="list-style-type: none"> • conducting environmental impact assessments • preparing statutory policies for environmental protection • preparing and publishing guidelines for managing environmental impacts • providing strategic advice to the Minister for Environment. 	<p><i>Environmental Protection Act 1986</i></p>
<p>Department of Health (DoH)</p>	<p>DoH provides a number of functions to support the delivery of health services across the State including the area of public health. This activity encompasses the regulation of the quality of drinking water in Western Australia, in addition to providing advice about potential environmental hazards impacting health.</p>	<p><i>Health Act 1911</i></p>

Radiological Council	<p>The Radiological Council is an independent statutory authority appointed under the <i>Radiation Safety Act 1975</i> in Western Australia to assist the Minister for Health to protect public health and to maintain safe practices in the use of radiation. The Act regulates the keeping and use of radioactive substances, irradiating apparatus and certain electronic products.</p> <p>Registration and licensing are the principal means by which the use of radiation is regulated; the officers of the Radiological Council also provide radiation health advice.</p>	<i>Radiation Safety Act 1975</i>
Department of Aboriginal Affairs (DAA)	<p>DAA is responsible for developing strategic policy to guide and inform service delivery to Aboriginal people; coordinate service delivery to Aboriginal Western Australians through chairing and supporting the Aboriginal Affairs Coordinating Committee; preserve and protect Aboriginal heritage by supporting the work of the Aboriginal Cultural and Material Committee; and support the Aboriginal Lands Trust in the management of lands held by the Trust in accordance with wishes of people of Aboriginal descent.</p>	<p><i>Aboriginal Heritage Act 1972</i></p> <p><i>Aboriginal Affairs Planning Authority Act 1972</i></p>
Department of Planning, Lands and Heritage (DPLH)	<p>DPLH is Western Australia's lead land use planning agency and provides professional and technical expertise and assists in the development and implementation of land use plans and policies across the State.</p> <p>The <i>Planning and Development Act 2005</i> provides statutory powers to the Western Australian Planning Commission and the Minister, as well as establishes the statutory force of local planning schemes administered by Local Governments.</p>	<i>Planning and Development Act 2005</i>
COMMONWEALTH		
Department of the Environment and Energy	<p>Conducts an environmental impact assessment of actions likely to have an impact on matters of national environmental significance as defined in the Act.</p>	<i>Environment Protection and Biodiversity Conservation Act 1999</i>