



Operational policy 5.08 - Use of operating strategies in the water licensing process

Operational policy 5.08 –
Use of operating strategies in the water
licensing process

DWPF 5.08

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Summary

The Department of Water manages the state's water resources and grants access to those water resources through a licensing process under the *Rights in Water and Irrigation Act 1914*.

All water licences contain a set of terms and conditions detailing the licensee's responsibilities and specifying the volume of water that may be taken in any given year (the water entitlement or allocation). These conditions relate to managing the impacts of taking the water and reflect the level of management required for a particular water resource. However, as the use of our water resources is reaching sustainable limits, broader issues related to the taking and using of water must also be addressed.

In April 2010, the department reviewed the 2004 document Statewide policy no. 10: *Use of operating strategies in the water licensing process*. The revised document was published as Operational policy 5.08: *Use of operating strategies in the water licensing process*. This current version is an update of the April 2010 report and includes the addition of appendices with guideline formats for producing either a basic or detailed operating strategy. Although the format of operating strategies will be similar, the content is adaptable to the individual circumstances of developments.

The policy details which water licence applicants are likely to be required to develop operating strategies, how these will be part of the conditions of a water licence, the licensee's responsibilities in abiding by the commitments included in operating strategies and issues regarding the amendment of strategies, renewals and transfers.

The policy outlines the format and issues to be addressed in the operating strategy including:

- the water source(s) to be used
- the licensee's land use, water abstraction regime, and the methods and infrastructure used to abstract and distribute the water
- monitoring and reporting requirements
- methods used to manage impacts on the aquifer or the surface watercourse, the environment and other water users
- contingency plans, describing how the licensee will alter their operations to cope with unforeseen circumstances or mitigate adverse impacts resulting from the operation
- water efficiency measures employed.

All operating strategies are developed and implemented at the licensee's expense.

1 Policy statement

The Department of Water manages the impacts of accessing the state's water resources by placing appropriate terms and conditions in licences to take and use water, granted under section 5C of the *Rights in Water and Irrigation Act 1914*.

The department will require the development and implementation of operating strategies by the water licence applicant or licensee where it deems that:

- licence conditions alone cannot satisfactorily address all water resource management issues related to that particular licence
- the volume of water to be taken is significant
- the taking of the water needs to be closely managed to ensure any impacts on the aquifer, environmental values or other water users are quantifiable and remain acceptable
- the water resource being accessed requires stringent management
- water is abstracted from several sources or from a large number of bores, and requires careful management
- the taking of water by that particular licensee is critical for the well-being of the state and the community.

Operating strategies will supplement licence conditions. They will detail how the licensee will manage their operations in light of the broader water resource management issues associated with the impacts of taking and using the water.

Where operating strategies are deemed necessary, licences to take water will include a condition requiring licensees to comply with department approved operating strategies.

2 Background

2.1 Issue

Western Australia's development is dependent on the sustainable use of water resources, and the protection of water-dependent ecosystems. The Department of Water manages the state's water resources and grants access to those water resources through a water licensing process.

All water licences contain a set of standard terms and conditions detailing the licensee's responsibilities and specifying the volume of water that may be taken in any given year. These conditions reflect the level of management required. Some licences have requirements to monitor, manage and regularly report on any impacts the taking and using of water may have on the water resources, the environment and other water users.

As the use of the state's water resources approaches the sustainable limits, it is evident that a number of broader and critical issues, such as environmental impacts, need to be addressed to ensure our water resources are comprehensively and appropriately managed. These broader issues are generally site specific and may best be addressed with significant input from the licensee to develop unique conditions for their water licence (i.e. an operating strategy).

In 2010, the Department of Water reviewed the 2004 document Statewide policy no. 10: *Use of operating strategies in the water licensing process*. The revised document was published in April 2010 as Operational policy 5.08: *Use of operating strategies in the water licensing process*. This version is an update of the April 2010 report, in that it provides guidelines for the production of a basic or detailed operating strategy. The revision also includes an addendum form to complete when a change to the operating strategy is necessary during the term of the water licence.

An operating strategy is a document that describes the licensee's water use and abstraction regime, the water source(s) being accessed and any relevant outcomes which the licensee needs to achieve to manage impacts on other users and the environment. It includes a series of licensee's commitments, clearly defining the licensee's responsibilities for managing and monitoring the impacts of taking the water, and reporting requirements. These commitments become part of the licence conditions. Operating strategies are drafted by applicants seeking a licence to take and use water or by existing licensees, and are approved by the department.

Sufficient flexibility must be included in the operating strategy to allow the strategy to be amended and updated under certain conditions, to address unforeseen impacts on the environment, or the availability of additional information regarding the status of the water resources.

Licences will still include a number of general conditions such as the annual water entitlement, or their allocated share of the available water. Other conditions may state the department's right to direct the licensee to reduce the volume of water taken if undesirable impacts on the water resource or other users develop as a consequence of the licensee's water use.

Operating strategies have been successfully used as part of the water licensing process since 2004.

2.2 Intent

The intent of this policy is to effectively utilise the licensing process when granting access to the state's water resources to better manage the resources by:

- adopting a flexible approach to the production of a water resource operating strategy to satisfactorily address issues related to the taking of water from a particular water resource at a specific location
- increasing the licensee's awareness of their responsibilities and their participation in managing the water resources and specifically managing the impacts of taking and using water
- utilising the licensee's knowledge of the local area and their industry to address site specific and operational issues related to the taking and use of water
- support the principle of water conservation where water taken is used in an efficient and productive manner
- ensure licensees have considered risk and contingency options should water shortages or unexpected impacts from water abstraction occur.

2.3 Policy links

This policy has links to other strategic and operational policies of the department including:

- Statewide policy no. 9: *Water licensing, staged developments*, November 2003
- Statewide policy no. 11: *Management of unused water entitlements*, November 2003
- Strategic policy 5.03: *Metering the taking of water*, June 2009
- Operational policy 5.11: *Timely submission for required further information*, November 2009
- Operational policy 5.12: *Hydrogeological reporting associated with a groundwater well licence*, November 2009
- Operational policy 1.02: *Water efficiency plans*, November 2009

- Operational policy 5.05: *Giving an undertaking to grant a licence or a permit under the Rights in Water and Irrigation Act 1914*, May 2010

A separate hydrogeological report (including groundwater investigations and monitoring data) may be required as a prerequisite to the development of an operating strategy (refer Operational policy 5.12). Some sections of a hydrogeological report contain material that can contribute to parts of the operating strategy (e.g. monitoring).

An operating strategy will always contain a water use efficiency plan as described in Operational policy 1.02 (Department of Water 2009).

2.4 Legislation

The *Rights in Water and Irrigation Act 1914* establishes the legislative framework for managing and allocating water resources in Western Australia. Pursuant to this legislative regime, a person may require a licence under section 5C of the *Rights in Water and Irrigation Act 1914* in order to lawfully take water from an artesian well, a non-artesian well located within proclaimed groundwater areas and surface waters within proclaimed surface water areas. Water licences are not required for riparian use or where an exemption or relevant by-law applies.

The Department of Water is responsible for discharging the specific water resource management powers and functions set out in the *Rights in Water and Irrigation Act 1914*. As such, the grant or refusal to grant a water licence is at the discretion of the department.

Clause 15 of Schedule 1 of the *Rights in Water and Irrigation Act 1914* provides for the inclusion of terms, conditions and restrictions to licences. Conditions may also refer to attachments, or other documents (e.g. an operating strategy) that the licensee must abide by. In this manner, the operating strategy is linked to the water licence.

An operating strategy will be linked to a water licence by a licence condition referring to the commitments included in the operating strategy. These commitments are therefore considered to be conditions of the licence and require approval through the statutory licensing process. Commitments may be amended during the term of the licence (Appendix C). Licence conditions and commitments are subject to review provisions. However, until a licence amendment is approved, the licensee must adhere to the original conditions including commitments of an operating strategy.

Any breach of these commitments by the licensee will be considered a breach of the water licence condition.

3 Implementation

3.1 Application

This policy applies statewide, to all applicants and licensees (regardless of the nature of their legal structure) who are required to develop and implement an operating strategy, as a condition of being granted a water licence under the *Rights in Water and Irrigation Act 1914* to take and use either groundwater and/or surface water. This policy supersedes the earlier (April 2010) version of Operational policy 5.08.

Water allocation plans may provide additional details required in operating strategies in specific locations. Similarly, by-laws may supplement or in some cases over-ride these policy requirements for specific areas.

3.2 When operating strategies are likely to be required

The department may require the development of an operating strategy where one or more of the following circumstances are applicable:

- the requirements of the decision Table 1 in Section 3.5 of this policy are met
- the applicant is a licensed water service provider – an operating strategy will be required for each scheme operated, especially for those supplying potable water
- the applicant is proposing to operate multiple wellfields or take groundwater and surface water conjunctively (one operating strategy may be drafted to cover both licences – groundwater and surface water)
- the applicant is proposing to construct and operate a managed aquifer recharge scheme that involves groundwater injection and abstraction
- the applicant is proposing to construct very deep bores (more than 1 km) as part of geothermal heat exchange or power production
- there is a need to develop contingency plans particularly where the project is of state significance, depends on a reliable water supply, and the available information on the water resources being accessed is limited
- environmental water provisions have been set and the taking of water needs to be carefully managed to ensure they are not diminished
- where water allocation plans or by-laws include additional criteria requiring the development of operating strategies.

3.3 Notifying applicants of the need to prepare an operating strategy

New water licence applicants will be advised by the Department of Water if they are required to develop an operating strategy. In such cases, the development of an operating strategy and its approval by the department may be necessary prior to the department granting a water licence. The timeframes for drafting an operating strategy are discussed in the Department of Water Operational policy 5.11: *Timely submission for required further information* (2009).

If an operating strategy is required for an existing licensee, the department will contact the licensee and inform them of this requirement and request that they prepare and submit a draft operating strategy. A condition may be placed on the existing licence specifying the timeframe required to submit a draft operating strategy to the department as per Operational policy 5.11. Failure to comply with the department's requirement may jeopardise renewal of the licence upon expiry.

All costs associated with the production (or modification) of an operating strategy are to be borne by the licence applicant or existing licensee.

3.4 Identifying the management objectives

The licence applicant or licensee required to develop an operating strategy will first need to clearly identify the management objectives. These relate to the likely impacts of taking and using the water (generally identified in hydrogeological studies) and how these impacts must be managed.

For example, the taking of large volumes of water may result in reductions in water levels over a large area and impact the operations of other nearby water users. A management objective in this case may be to ensure water level reductions from the proposed taking of water must not adversely impact the operations of other nearby water users. If impacts were observed, the management response must also be identified (e.g. shut down bores, make good supply).

The identification of the management objectives is essential and will assist in the determination of the monitoring program required to assess whether these management objectives are being met, the identification of trigger levels that will necessitate action by the licensee, and reporting mechanisms.

3.5 Types of operating strategies

Appendices A and B outline the standard format to follow for the production of basic or detailed operating strategies respectively. The structure and contents of operating strategies will relate to the management objectives, and the issues to be addressed are adaptable to the individual circumstances of each development.

Depending on the types of issues to be addressed, the licence applicant or licensee may be required to develop either a basic or detailed operating strategy. The appendices provide a guide to assist licence applicants and licensees identify the issues they need to consider when drafting their operating strategy.

Generally, a basic operating strategy is appropriate where the development poses a low to medium risk of impacts to the water resource, other water users or the environment. For developments that may cause medium to high impacts on the water resource, other water users or the environment, a detailed operating strategy is required.

The factors considered in determining the type of operating strategy required are outlined below and are included in the decision table (Table 1) below. Policies included in water allocation plans for specific areas may over-ride this decision-making process in areas covered by that plan.

Volume of water to be taken

Abstraction or pumping of groundwater lowers the groundwater level around the bore. Likewise the taking of significant volumes of surface water has the potential to impact the natural flow of that particular watercourse. As the volume of water taken increases, the likely impacts usually increase. In the decision table (Table 1), higher points are assigned to larger volumes of water taken.

Level of allocation

The 'level of water allocation' or 'category of use' is a risk-based tool the department uses to determine the degree of management response required in a specific water resource management unit. The water allocation limit for licensed use is divided into four categories – C1 to C4. As the water allocated approaches the allocation limit, the management effort must be increased to ensure the potential risks to the water resource, the environment and existing water users are acceptable and manageable and local in nature.

Potential for impacting other water users

Taking groundwater will draw down the water level depending on aquifer characteristics and the volume and duration of pumping, and may affect other nearby groundwater users. Similarly, taking surface water is likely to impact on downstream users, especially if the proposal is to construct an in-stream dam. As the likelihood of affecting the operations of another user increases, the points assigned to the new proposal in the decision table increase.

Potential for impacting ecosystems

The taking of large volumes of either groundwater or surface water has the potential to impact on the flora and fauna of nearby ecosystems (e.g. in wetlands, streams or springs). The significance of these water-dependent ecosystems and the likelihood of

being impacted by the proposed taking of water should be considered when determining the issues to be addressed and the type of operating strategy to be developed. In the decision table, points are assigned corresponding to the likelihood of impacting on an ecosystem, by affecting the quality or quantity of water available to that ecosystem. As the likelihood of impacting an ecosystem increases, the points increase.

Existing salinity

The salinity of a water resource is a broad measure of the beneficial use or value of the resource. The community places a high value on maintaining the salinity of groundwater or surface water resources that are fresh and can be used for drinking purposes. Water of higher salinity has limited uses. Very saline water can generally only be used for industrial or mining purposes. In the decision table, points increase as water salinity declines (i.e. becomes fresher).

Table 1 Decision table for types of water resource management operating strategies

Volume of water to be taken (kL/year)	Level of allocation	Potential for impacting other users	Potential for impacting ecosystems	Existing salinity (milligrams per litre)
0–499 999 (0 points)	0 to <30% C1 (0 points)	Impacts unlikely (0 points)	Impacts unlikely (0 points)	Fresh <1500 mg/L (4 points)
500 000–2 000 000 (2 points)	30 to <70% C2 (1 point)	Impacts possible (2 points)	Impacts possible (2 points)	Brackish TDS 1501–5000 mg/L (2 points)
2 000 001–5 000 000 (5 points)	70 to <100% C3 (2 points)	Impacts likely (5 points)	Impacts likely (5 points)	Saline TDS 5001–50 000 mg/L (1 point)
5 000 001 and above (8 points)	100% and over C4 (3 points)			Hypersaline >50 000 mg/L (0 points)
Points assigned = a	Points assigned = b	Points assigned = c	Points assigned = d	Points assigned = e

Using Table 1

Points are assigned for each column in the table (i.e. volume, level allocation, potential impacts – users, ecosystem and salinity), and added to arrive at a score. The results from a hydrogeological study, if available (refer to Operational policy 5.12) will assist in populating this table.

Score (= a+b+c+d+e)

- 0–7 points Development of an operating strategy is unlikely to be required
- 8–12 points A basic operating strategy is likely to be required
- > 12 points Development of a detailed operating strategy is required

The decision table is only a guide and depending on the issues, licence applicants may be required to develop a detailed strategy even though the points assigned to

the proposal after using Table 1 suggest that only a basic operating strategy may be needed.

Water service providers will be required to develop either a basic or detailed operating strategy depending on additional issues such as the reliability of supply and whether any alternative supplies exist. For licences that operate groundwater and surface water schemes conjunctively, for managed aquifer recharge and geothermal schemes, or where there is a need to develop detailed contingency plans due to reliability of supply, a detailed operating strategy would generally be required.

3.6 Assessing and approving an operating strategy

A draft operating strategy prepared by the applicant shall be submitted to the regional offices of the Department of Water in paper copy or electronic mail. The department will assess the draft operating strategy submitted to ensure all relevant water resource management issues have been identified and addressed satisfactorily.

Appendices A and B detail the issues and the expected structure of a basic or detailed operating strategy. However, there may be cases, depending on the issues to be addressed, where the department may require an applicant or a licensee to develop an operating strategy different to these guidelines.

If the department determines that the information supplied in the operating strategy is insufficient, the strategy will be returned to the applicant for modification. Timeframes for resubmitting the strategy are provided in Operational policy 5.11: *Timely submissions of required further information*.

It is difficult to specify strict timeframes for assessing operating strategies due to the complexity of the strategies and the individual issues they may address. However, the department will endeavour to assess operating strategies as soon as practicable to ensure that applicants and licensees are not unduly disadvantaged.

Although only the department is able to assess and approve operating strategies and assess compliance with water licence conditions, approved operating strategies form part of the terms and conditions of a licence to take water and therefore may be available to the public, subject to Freedom of Information applications. Applicants or licensees drafting operating strategies must ensure that where possible strategies do not include commercially sensitive information.

Once the department is satisfied with the draft operating strategy and approves it, the applicant will be required to submit two signed hard copies and one digital copy (CD) of the approved operating strategy to the department. Both hard copies of the operating strategy are approved by signature from the appropriate department officer. One copy of the operating strategy signed by both the applicant and the department officer is returned to the applicant and the other copy is retained by the department. The water licence with the approved operating strategy should be retained by the licensee in a secure location.

When a licence is granted (following approval of the operating strategy) a condition will be placed on the licence requiring the licensee to comply with the commitments of the approved operating strategy. As the licensee's commitments are part of the licence conditions, care must be taken for the commitments not to contradict, or obscure other terms and conditions included in the licence.

An example of the licence condition which may be included on water licences subject to an operating strategy is:

The licensee shall comply with the commitments of the operating strategy, as prepared by the licensee and approved by the department on <date of approval> including any modifications to the strategy as approved during the term of the licence.

It should be noted that the wording of water licence conditions may vary from time to time.

3.7 Complying with the operating strategy

Licensees are required to manage the taking and use of water in accordance with the licence terms and conditions and any documents (such as an operating strategy) referred to in the licence conditions. Failure to comply with the commitments in an approved operating strategy will be considered to be a breach of the licence conditions and may render the licensee liable to prosecution.

To avoid this situation, if a licensee/agreement holder is not able to comply with any of the commitments in the operating strategy, or if limits have been exceeded (i.e. maximum pump rates, environmental conditions), these should be reported to the department immediately. In such cases, the licensee/agreement holder should describe the circumstances under which the commitments in the strategy could not be implemented.

If the situation is likely to continue, the licensee must undertake changes to their business operations as defined in the contingency planning section of their operating strategy, or request the operating strategy be amended. The department will determine whether the requested amendments are acceptable.

The licensee may also contact the department and request permission to take immediate and specific actions in response to an emergency situation, such as a potential dam breach. Although the department can be contacted by telephone, licensees must also inform the department in written form (either by electronic mail, letter or facsimile) to ensure there is documented evidence of any emergency responses undertaken by the licensee.

In most circumstances, licensees must regularly submit compliance reports to the department detailing how the licence terms and conditions and the commitments of the operating strategy have been adhered to. The department will endeavour to

assess any compliance reports associated with operating strategies or other licence terms and conditions as soon as practicable. These reports are sometimes referred to as annual/triennial monitoring reports (refer Operational policy 5.12).

Compliance reports must be submitted on time and satisfactorily address the requirements (conditions, commitments) associated with that particular licence. If a submitted compliance report is found to be unsatisfactory, the department will contact the licensee advising them that they are not currently in compliance with their licence conditions and specify any additional work that must be undertaken to satisfy the reporting commitments.

3.8 Amending an operating strategy

Operating strategies may need to be amended from time to time. Amendments are documented in an operating strategy amendment form (Appendix C). Reasons to amend an operating strategy include:

- the licence conditions or water entitlement have been amended
- the project, or the water abstraction rate or method has changed significantly from that which was originally planned (for example significantly more water of a certain quality is needed in mineral processing, requiring the relocation of some bores to access the better quality water)
- when water entitlements are partially or fully transferred or leased to another licensee
- monitoring has shown that the operation is having unintended impacts on the aquifer, the environment, or other users or that the impacts of taking the water are significantly different to those originally predicted
- the monitoring program or contingency plan needs to be updated to reflect current management practices or changes to management objectives
- additional monitoring and evaluation is required to better determine the impacts of taking the water
- new information on the status of the water resource indicates that changes are needed in the operating strategy (for example a re-evaluation of the sustainable limit of the aquifer)
- a water allocation plan requires existing licences with operating strategies to amend their strategies
- where the department, under exceptional circumstances such as a prolonged drought, issues a direction or requests or permits the licensee to take specific actions, overriding the operating strategy.

Amendments to an operating strategy are subject to the licensing process set out in the *Rights in Water and Irrigation Act 1914*. This process gives the department the

power to amend licence conditions (including the operating strategy), and provides the licensee with an opportunity to appeal against any amendments.

Following a review, where the department identifies a need to amend an operating strategy, the department will contact the licensee advising them of the required changes. The licensee may seek further clarification from the department before amending the operating strategy to include the changes requested.

The licensee can also request to amend the operating strategy, at any time. The department will need to be informed, in writing, of the reasons for amending the strategy and the proposed amendments. If the department considers the proposed amendments to be acceptable, the operating strategy will be changed to incorporate the requested amendments.

Any amendments will need to meet the department's resource management objectives and the requirements of any relevant policies, plans, or by-laws.

All amendments to an operating strategy are undertaken by the licensee at their own expense. The same approvals process applies as per section 3.6. Until the licence is changed to reflect the amended operating strategy, the licensee must continue to adhere to previous commitments.

3.9 Renewing licences with operating strategies

Water licences are generally granted for a term not exceeding 10 years. Before the time of licence expiry, the licensee must submit to the department an application to renew the licence. The licensee must also demonstrate to the department compliance with the terms and conditions of their licence, including the commitments of an approved operating strategy.

If the licensee has not complied with the terms and conditions of the licence including the commitments of an approved operating strategy, the department may take enforcement action depending on the significance of the breaches.

3.10 Transferring licences with operating strategies

Prior to the department approving a water transaction (trade, transfer or agreement) for another person to take the water, the licensee is required to demonstrate compliance with the conditions of their existing licence including where applicable, commitments of an operating strategy. The department may only approve transactions of compliant licences.

Where a licence with an operating strategy is either transferred to a new licensee or an agreement is drafted for another party to take the water, the licensee or agreement holder will be issued with a copy of the operating strategy associated with the original water licence.

The new licensee or agreement holder must update the administration section of the operating strategy (refer to Appendix A) to include the new contact details and return a signed copy to the department. The commitments outlined in the operating strategy will be considered to be in force unless the department approves any amendments to those commitments.

If a licensed allocation is only partly relinquished either through a trade or agreement, both parties will need to submit either a new (purchaser) or modified (original licensee) operating strategy.

In exceptional circumstances the department may consider a water licence transaction where the original licensee has not complied with all commitments of an operating strategy. Such a situation may arise where the original licensee demonstrates non-compliance due to circumstances beyond their control or where a trade or an agreement (i.e. move abstraction to a different location) would benefit water resource management (i.e. diminish environmental impacts). In such circumstances the proposed new licence holder will be required to produce a new operating strategy and have it approved by the department prior to the department's approval of the water licence transaction.

4 Review

This policy will be reviewed five years from the publication of this document. The policy may be reviewed sooner if significant changes (such as the introduction of new water management legislation or new water management initiatives) warrant some amendment of this policy.

Appendices

Appendix A Guideline for producing a basic water resource operating strategy associated with a water licence

Appendix B Guideline for producing a detailed water resource operating strategy associated with a water licence

Appendix C Addendum to a water resource operating strategy associated with a water licence issued by the Department of Water



Government of Western Australia
Department of Water

Appendix A

Guideline for producing a basic water resource operating strategy associated with a water licence

- The Department of Water may require the production of a water resource operating strategy in association with a water licence application: a ‘basic’ strategy for low-risk water-resource-impact developments and a detailed strategy for higher-risk projects.
- The report needs to be written in association with Operational policy 5.08: *Use of operating strategies in the water licensing process* (2011), and in the state’s north-west, the *Pilbara water in mining guideline* (2009).
- Simple and clear terms are to be used, minimising vague phrases such as ‘avoiding significant impacts’. Instead, present material that is measurable; for example, ‘bore pumping rates will be reviewed and modified according to Department of Water recommendations if water levels decline greater than one metre from the lowest historical recorded water level’.
- This document is a guideline and may not contain all the relevant issues needing to be addressed by a water licence applicant who is required to produce an operating strategy.
- Also, not all issues in this guideline may need to be addressed – contact your regional office of the Department of Water to discuss your requirements.
- Changes to an operating strategy during the term of the licence are covered by an addendum.

Name of water licence applicant/licensee

Name of development project or purpose:.....

Legal description and address of land where (a) water is taken, and (b) water is used (if different).....

.....

“I understand that the commitments given in the attached operating strategy will be a condition of an associated water licence if approved and that a breach of a commitment or any licence condition may be an infringement of the Rights in Water and Irrigation Act 1914”:

Signatures

Person legally responsible for water licence **Date**.....

printed name:

Approved by delegated authority Department of Water **Date**.....

printed name:

1. Administrative requirements

This section outlines the administrative arrangements necessary to ensure the strategy is adhered to.

- 1.1 List any other water licences already issued that are relevant to this operating strategy, otherwise write 'none'.
- 1.2 Does the water licence involve staged development? If so, please attach an account of anticipated water demand for each stage.
- 1.3 Has there been any investigation and reporting on the water source and/or environment involving the development? (e.g. a hydrogeological, hydrological or environmental report). If 'yes', attach brief summary.
- 1.4 Is your development within an area covered by a water resource management/allocation plan produced by the Department of Water? If yes, please review plan and determine if there are any specific water resource management issues you should address in an operating strategy.
- 1.5 Person/position responsible for implementing operating strategy and contact details including phone number and residential/postal address.
- 1.6 What are the reporting dates for the: (1) water use (metering) data¹ and (2) the operating strategy compliance report²?
- 1.7 On what date does the operating strategy require major review? (Normally this is three months before the expiry date of the water licence).³

¹ Water use data, normally obtained from regular (e.g. monthly) water meter readings, must be reported to the Department of Water within seven days of the end of the water year. The water year is defined as 12 months from the last day in the month from when the water licence was issued. Refer to Strategic policy 5.03: *Metering the taking of water* (2009).

² Annual reports on compliance with the conditions/commitments of the water licence and operating strategy should follow the reporting structure detailed in Operational policy 5.12: *Hydrogeological reporting associated with a groundwater well licence* (2009). Annual compliance reports are usually due within eight weeks of the end of the water year.

³ During the term of an operating strategy, any approved changes to the conditions/commitments of the water licence/operating strategy require the signatures of the licensee and Department of Water on an operating strategy addendum. The licensee and department are each to retain a copy of the signed addendum.

2. Water source description

Describe the water sources and abstraction methods. Include a table of bores, their type (production or monitoring), coordinates, elevation, depth and construction details, and any dams and their storage capacity. Some details may also appear in a hydrogeological report if one has been done for the development.

2.1 Water source(s) description:

(a) Groundwater:

Bore name production or monitoring	Location coordinates ⁴ Zone:		Aquifer name	Elevation ⁵ (mAHD)	Depth (m)		Construction details (bore logs to be provided to department)
	<u>northing</u>	<u>easting</u>			<u>total</u>	<u>screened</u>	
1.							
2.							

(b) Surface water:

Dam name	Location coordinates ⁴ Zone:		Name river/ stream	On- stream or off- stream	Elevation (mAHD)	Maximum depth (m) & capacity (m ³)	Construction details ⁶
	<u>northing</u>	<u>easting</u>					
1.							
2.							

Direct pumping from stream	Location coordinates ⁴	Pump capacity (litres/sec)	Description of river/stream (describe flow patterns, e.g. occasionally dries in summer)
1.			
2.			

2.2 Briefly describe the water distribution network including storages and pipelines (included on map in Section 7).

⁴ MGA coordinates in GDA94 datum coordinates – easting/northing/zone

⁵ Elevation in mAHD to top of casing (TOC). Also provide casing height above ground level in centimetres.

⁶ Include height of dam wall (m), spillway depth (m), and Yes/No: under wall bypass installed

3. Identifying and managing impacts

Identify and manage how the taking of water may have impacts/pose risks to the water resource, other water users and the local ecology. Section 3 has links to Section 7: *Contingency programs*.

- (a) List issues that must be closely managed (e.g. effects on the aquifer, water level in a nearby wetland, impact on a nearby water user, saline intrusion)
- (b) List the management objective/s (e.g. ensuring a nearby wetland does not dry as a result of pumping)
- (c) Detail how compliance with the management objective/s will be determined (usually from a monitoring program)
- (d) Describe the response when the management objective is threatened

For example:

(a) Issue	(b) Management objective	(c) Measurement	(d) Management response ⁷
<ul style="list-style-type: none"> · reliable water supply 	<ul style="list-style-type: none"> · have a supply of water totalling the water entitlement 	<ul style="list-style-type: none"> · water meters installed 	<ul style="list-style-type: none"> · reduce demand for water (e.g. water use efficiency, smaller area irrigated) · purchase water on the water market
<ul style="list-style-type: none"> · salinity 	<ul style="list-style-type: none"> · salinity of water used to be less than 1500 mg/L TDS 	<ul style="list-style-type: none"> · monitoring bore sampled monthly for salinity 	<ul style="list-style-type: none"> · reduce pumping rate in some bores · pump to storage tanks in winter, reduce pumping in summer
<ul style="list-style-type: none"> · other users 	<ul style="list-style-type: none"> · do not impact on neighbour's water availability 	<ul style="list-style-type: none"> · water levels measured monthly in monitoring bore between production bore and neighbour 	<ul style="list-style-type: none"> · reduce draw from bore(s) closest to neighbour · make good neighbour's supply
<ul style="list-style-type: none"> · wetland water level 	<ul style="list-style-type: none"> · wetland not to dry out due to abstraction 	<ul style="list-style-type: none"> · water levels measured monthly in wetland (depth board) and monitoring bore adjacent to wetland 	<ul style="list-style-type: none"> · hydrogeologist to examine wetland/groundwater level relationship due to abstraction. Abstraction to be modified accordingly.
<ul style="list-style-type: none"> · dewatering 	<ul style="list-style-type: none"> · keep watertable below specific level 	<ul style="list-style-type: none"> · water levels measured in monitoring bore 	<ul style="list-style-type: none"> · flooding: contact DoW for emergency approval for installation of additional production/dewatering bores
<ul style="list-style-type: none"> · vegetation 	<ul style="list-style-type: none"> · abstraction does not impact on the health of natural vegetation 	<ul style="list-style-type: none"> · vegetation surveys, watertable monitoring 	<ul style="list-style-type: none"> · ecologist to examine water abstraction/watertable/vegetation health relationships. Abstraction to be modified accordingly.

⁷ The implementation of a water management response where a breach of a management objective is at risk, must be discussed with the department BEFORE being implemented by the licensee.

4. Operating rules

The use of a water source or a number of water sources (i.e. a scheme) is governed by operating rules. These operating rules should be clearly defined.

Only fill in the tables relevant to your development.

4.1 For groundwater production bores and schemes

Bore name	Installed pumping capacity (litres/sec)	Annual abstraction (kL/year)	Operating protocols (e.g. is it a principal, secondary or a back-up bore)	Bore abstraction strategy (e.g. how does bore abstraction vary throughout the year, how will abstraction vary during the development lifetime)
1.				
2.				

4.2 For surface water sources and schemes

Dam ⁸ name	Annual abstraction (kL/year)	Minimum water storage level (m depth) to satisfy annual allocation (mAHD)	Seasonal pattern of water use (if water is to be taken during only winter or summer or throughout the year). If dam is filled by pumping from watercourse, describe operation.
1.			
2.			

Direct pumping from stream	Installed pumping capacity (m ³ /sec) and annual abstraction (kL/year)	Seasonal pattern of water production (if water is to be taken during only winter or summer or throughout the year)
1.		
2.		

4.3 Operating rules when multiple sources are used conjunctively (e.g. use of surface water and groundwater sources – under separate water licences): which source will be used under what circumstances.

⁸ Includes situation whereby water is pumped from a watercourse to an off-stream dam

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4.4 Specify situations where specific operating rules have been adopted to minimise potential detrimental impacts; for example, reduce abstraction from bores near wetlands during summer.

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5. Monitoring and reporting

Monitoring requirements vary depending on the management objectives, industry, volume of water taken, water resource used and location of the draw points. Discuss your requirements with your Department of Water regional office because some monitoring/measurements may not be necessary.

Results of the monitoring program are given to the department via annual reporting on compliance with licence conditions/commitments. Monitoring programs (complying with Australian standards – see Operational policy 5.12: *Hydrogeological reporting associated with a groundwater well licence (2009)*) – may be modified during the period of the water licence.

Compliance reports (also called ‘monitoring reports’) submitted by the licensee should contain a section with any recommended changes to the monitoring program for the department’s consideration. Changes to conditions/commitments in an operating strategy can be approved by an addendum to the operating strategy (see Appendix C of Operational policy 5.08).

5.1 List the purpose(s) of the water monitoring program (see Section 3: *Identifying and managing impacts* and any previous studies such as hydrogeological reports).

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5.2 Water use measurement⁹:

Draw point (either bore or surface water)	Description of meter installed (make, serial no., installation date ¹⁰)	Meter maintenance/ calibration schedule	Frequency of recording meter data (e.g. on the same day every month)
1.			
2.			

5.3 Water level monitoring¹¹:

Monitoring bore/ depth board	Location co-ordinates (MGAs)	Monitoring frequency (e.g. once a month)
1.		
2.		

5.4 Water quality monitoring (bores, dams, watercourse):

Name water quality sampling point (bore, dam, etc) ¹²	Sampling location co-ordinates (MGAs)	Parameter being monitored (e.g. salinity, pH)	Monitoring frequency (e.g. salinity every six months)
1.			
2.			

⁹ Refer to Strategic policy 5.03: *Metering the taking of water* (2009).

¹⁰ If details not yet known, provide with first annual compliance report.

¹¹ For groundwater this is normally done from a water level monitoring bore (not production bore). Surface water monitoring of water levels may involve readings from a depth board in a stream, dam or wetland.

¹² Ensure names are consistent with those used in Section 2 and identified on map in Section 7.

6. Contingency program

Contingency planning is a component of good business practice. For developments with a water use licence, contingency planning is important for reasons including being prepared to change water use operations to prevent a breach of a water licence condition or commitment.

Not all components of contingency programs will involve a breach of a water licence condition. For example, the issue of a water licence does not guarantee a reliable water supply. The licensee should therefore consider/plan for circumstances when there may be a shortfall in water supply – whether because of natural or mechanical reasons (e.g. bores fail to deliver required volume¹³ or a drought occurs). Mining operations should have a contingency program if there is a failure in maintaining a water supply for ore processing water needs etc.

Some management actions are determined from 'trigger points' that are most often determined from a monitoring program. Trigger points can represent a specific value (e.g. watertable declining more than 10 cm/year) that initiates a certain management response (e.g. have a water efficiency audit – investigate methods of reducing water demand). List all 'trigger points' and the corresponding contingency plan to implement.

6.1 Further discuss details given in Section 3: *Identifying and managing impacts* regarding what actions might be taken if a management response is not effective in limiting a detrimental impact/circumstance.¹⁴ Examples include: review water efficiency measures, reduce abstraction, revise management practices (may require an addendum to operating strategy) etc.

6.2 Contingency program for non-compliance of water licence terms and conditions including the commitments in this operating strategy¹⁵.

For example:

Issue: Water meter breaks down and commitment to submit monthly water use data may be breached.

Contingency program: Weekly check that water meters are working properly: have a spare water meter to replace a failed meter.

¹³ In the event that a water source fails (i.e. bore or dam), a replacement cannot be constructed until an application has been made to the Department of Water and subsequent approval given.

¹⁴ Some of details (e.g. reliable water supply) may not be water licence conditions/commitments.

¹⁵ The Department of Water must be informed immediately (i.e. within 14 days) of when the licensee is aware of circumstances that may require a change in management response – particularly the inability to comply with the terms, conditions and commitments of the water licence.

7. Associated maps

Maps to be attached to the operating strategy detailing all relevant information, including:

- Topographic features and nearby town and road names, location of wetlands and water-dependant ecosystems. Include nearby bores and dams of neighbours. Include a scale on the map.
- Location of all production and monitoring bores with an identification name/number (see Section 2). Include monitoring points (see Section 5).
- Location of dams or stream pumpback draw points labelled on map with an identification name/number (see Section 2). Include monitoring points (see Section 5).
- Locations where water is used (e.g. irrigation areas, processing plant).
- Water source protection areas (where applicable).

8. Water use efficiency

Every licensee must take appropriate measures to ensure water is used effectively and efficiently (e.g. program of leak detection, ensuring correct operation of infrastructure etc.). Water licence applicants should refer to the Department of Water's Operational policy 1.02: *Policy on water conservation/efficiency plans* (2009).

By addressing the section below, a water licence applicant may satisfy the Department of Water's requirement for producing a water conservation/efficiency plan. Contact your regional office of the department to discuss your situation.

8.1 Briefly describe the water use efficiency measures to be implemented (e.g. installation of trickle irrigation systems, reuse of water where possible and practicable, irrigation system to be computer controlled). Include a schedule of adoption of water use efficiency measures.

9. References

List of references, including any relevant documents including hydrogeological reports, company policies, EPA approved management plans etc.

10. Other

(as required by the Department of Water)

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11. Summary list of commitments

This section summarises the operating strategy. It should include a list of the licensee’s commitments to achieve the water resource management requirements. These commitments are part of the licence conditions and must therefore:

- be carefully worded to ensure the commitment is clear and easily understood
- avoid ambiguous terms (e.g. significant impact)
- commit to something that can be measured (quantifiable)
- be easily assessed for compliance in reporting, audits or surveys.

Contact your regional office of the Department of Water if clarification of appropriate commitments is required.

For example:

1. The licensee will comply with this operating strategy as a condition of Water Resource Licence No. (xxxxxx) for the taking of water from the (xxxxxxxxxxxxxxxx) Water Resource Management Area.
2. The licensee will carry out and report to the department on the following monitoring program:

Monitoring program (summary of Section 5)

<u>Parameter measured</u>	<u>Sampling site</u>	<u>Frequency</u>	<u>Time</u>
Water use (water meter)	Bores #	Monthly	First day of every month
Salinity	Bores #	Six-monthly	May, November
Water levels	Bores #	Six-monthly	May, November

3. The licensee shall inform the Department of Water of any likely breach in the commitments of this operating strategy within 14 days of the licensee being aware of the possible breach. This also includes the implementation of a contingency response.
4. An annual water use (metering) report and the compliance (monitoring) report will be submitted within seven days and 28 days of the end of the water year respectively, in formats described in Strategic policy 5.03 and Operational policy 5.12 respectively.
5. The operating strategy will be resubmitted to the Department of Water for review three months before the expiry date of the strategy.



Appendix B

Guideline for producing a detailed water resource operating strategy associated with a water licence

- The Department of Water may require the production of a water resource operating strategy in association with a water licence application: a ‘basic’ strategy for low-risk water-resource-impact developments and a detailed strategy for higher-risk projects.
- The report needs to be written in association with Operational policy 5.08: *Use of operating strategies in the water licensing process* (2011), and in the state’s north-west, the *Pilbara water in mining guideline* (2009).
- Simple and clear terms are to be used, minimising vague phrases such as ‘avoiding significant impacts’. Instead, present material that is measurable; for example, ‘bore pumping rates will be reviewed and modified according to Department of Water recommendations if water levels decline greater than one metre from the lowest historical recorded water level’.
- This document is a guideline and may not contain all the relevant issues needing to be addressed by a water licence applicant who is required to produce an operating strategy.
- Also, not all issues in this guideline may need to be addressed – contact your regional office of the Department of Water to discuss your requirements.
- Changes to an operating strategy during the term of the licence are covered by an addendum.

Name of water licence applicant/licensee

Name of development project or purpose:.....

Legal description and address of land where (a) water is taken, and (b) water is used (if different).....

.....

“I understand that the commitments given in the attached operating strategy will be a condition of an associated water licence if approved and that a breach of a commitment or any licence condition may be an infringement of the Rights in Water and Irrigation Act 1914”:

Signatures

Person legally responsible for water licence **Date**.....

printed name:

Approved by Department of Water delegated authority..... **Date**.....

printed name:

1. Administrative requirements

This section outlines the administrative arrangements necessary to ensure the strategy is adhered to.

- 1.1 List any other water licences already issued that are relevant to this operating strategy, otherwise write 'none'
- 1.2 Why does this development require a 'detailed' operating strategy? (Factors might include: requires a large water allocation, is in an environmentally sensitive area, is in an area of intense competition for water, is close to other water users, is a project of state significance etc.)
- 1.3 Does the water licence involve staged development? If so, please attach an account of anticipated water demand for each stage.
- 1.4 Has there been any investigation and reporting on the water source and/or environment involving the development? (e.g. a hydrogeological, hydrological or environmental report). If 'yes', attach brief summary.
- 1.5 Is your development within an area covered by a water resource management/allocation plan produced by the Department of Water? If yes, please review plan and determine if there are any specific water resource management issues you should address in an operating strategy.
- 1.6 Person/position responsible for implementing operating strategy and contact details including phone number and residential/ postal address.
- 1.7 What are the reporting dates for the: (1) water use (metering) data¹⁶ and (2) the operating strategy compliance report¹⁷?
- 1.8 On what date does the operating strategy require major review? (Normally this is three to six months before the expiry date of the water licence).¹⁸

¹⁶ Water use data, normally obtained from regular (e.g. monthly) water meter readings, must be reported to the Department of Water within seven days of the end of the water year. The water year is defined as 12 months from the last day in the month from when the water licence was issued. Refer to Strategic policy 5.03: *Metering the taking of water* (2009).

¹⁷ Annual reports on compliance with the conditions/commitments of the water licence and operating strategy should follow the reporting structure detailed in Operational policy 5.12: *Hydrogeological reporting associated with a groundwater well licence* (2009). Annual compliance reports are usually due within eight weeks of the end of the water year.

¹⁸ During the term of an operating strategy, any approved changes to the conditions/commitments of the water licence/operating strategy require the signatures of the licensee and Department of Water on an operating strategy addendum. The licensee and department are each to retain a copy of the signed addendum.

2. Water source description

Describe the water sources and abstraction methods. Include a table of bores, their type (production or monitoring), coordinates, elevation, depth and construction details, and any dams and their storage capacity. Some details may also appear in a hydrogeological report if one has been done for the development.

2.1 Water source(s) description:

2.1.1 Groundwater:

Provide bore details:

Bore name production or monitoring	Location coordinates ¹⁹ Zone:		Aquifer name	Elevation ²⁰ (mAHD)	Depth (m)		Construction details (bore logs to be provided to department)
	<u>northing</u>	<u>easting</u>			<u>total</u>	<u>screened</u>	
1.							
2.							

2.1.2 Surface water:

Provide surface water abstraction details:

Dam name	Location coordinates ⁴ Zone:		Name river/ stream	On- stream or off- stream	Elevation (mAHD)	Maximum depth (m) & capacity (m ³)	Construction details ²¹
	<u>northing</u>	<u>easting</u>					
1.							
2.							

Direct pumping from stream	Location coordinates ⁴	Pump capacity (litres/sec)	Description of river/stream (describe flow patterns, e.g. occasionally dries in summer)
1.			
2.			

2.2 Provide a detailed description of water distribution network including storages and pipelines (included on map in Section 8).

¹⁹ MGA coordinates in GDA94 datum coordinates – easting/northing/zone

²⁰ Elevation in mAHD to top of casing (TOC). Also provide casing height above ground level in centimetres.

²¹ include height of dam wall (m), spillway depth (m), and Yes/No: under wall bypass installed

3. Identifying and managing impacts

Identify and manage how the taking of water may have impacts/pose risks to the water resource, other water users and the local ecology. Section 3 has links to Section 7: *Contingency programs*.

- (a) List issues that must be closely managed (e.g. effects on the aquifer, water level in a nearby wetland, impact on a nearby water user, saline intrusion)
- (b) List the management objective/s (e.g. ensuring a nearby wetland does not dry as a result of pumping)
- (c) Detail how compliance with the management objective/s will be determined (usually from a monitoring program)
- (d) Describe the response when the management objective is threatened

For example:

(a) Issue	(b) Management objective	(c) Measurement	(d) Management response ²²
<ul style="list-style-type: none"> · reliable water supply 	<ul style="list-style-type: none"> · have a supply of water totalling the water entitlement 	<ul style="list-style-type: none"> · water meters installed 	<ul style="list-style-type: none"> · reduce demand for water (e.g. water use efficiency, smaller area irrigated) · purchase water on the water market
<ul style="list-style-type: none"> · salinity 	<ul style="list-style-type: none"> · salinity of water used to be less than 1,500 mg/L TDS 	<ul style="list-style-type: none"> · monitoring bore sampled monthly for salinity 	<ul style="list-style-type: none"> · reduce pumping rate in some bores · pump to storage tanks in winter, reduce pumping in summer
<ul style="list-style-type: none"> · other users 	<ul style="list-style-type: none"> · do not impact on neighbour's water availability 	<ul style="list-style-type: none"> · water levels measured monthly in monitoring bore between production bore and neighbour 	<ul style="list-style-type: none"> · reduce draw from bore(s) closest to neighbour · make good neighbour's supply
<ul style="list-style-type: none"> · wetland water level 	<ul style="list-style-type: none"> · wetland not to dry out due to abstraction 	<ul style="list-style-type: none"> · water levels measured monthly in wetland (depth board) and monitoring bore adjacent to wetland 	<ul style="list-style-type: none"> · hydrogeologist to examine wetland/groundwater level relationship due to abstraction. Abstraction to be modified accordingly.
<ul style="list-style-type: none"> · dewatering 	<ul style="list-style-type: none"> · keep water table below specific level 	<ul style="list-style-type: none"> · water levels measured in monitoring bore 	<ul style="list-style-type: none"> · flooding: contact the Department of Water for emergency approval for installation of additional production/dewatering bores
<ul style="list-style-type: none"> · vegetation 	<ul style="list-style-type: none"> · abstraction does not impact on the health of natural vegetation 	<ul style="list-style-type: none"> · vegetation surveys, watertable monitoring 	<ul style="list-style-type: none"> · ecologist to examine water abstraction/watertable/vegetation health relationships. Abstraction to be modified accordingly.

²² The implementation of a water management response where a breach of a management objective is at risk, must be discussed with the department BEFORE being implemented by the licensee

4. Operating rules

The use of a water source or a number of water sources (i.e. a scheme) is governed by operating rules. These operating rules should be clearly defined.

Only fill in the tables relevant to your development.

4.1 For groundwater production bores and schemes

Bore name	Installed pumping capacity (litres/sec)	Annual abstraction (kL/year)	Operating protocols (e.g. is it a principal, secondary or a back-up bore)	Bore abstraction strategy (e.g. how does bore abstraction vary throughout the year, how will abstraction vary during the development lifetime)
1.				
2.				

4.2 For surface water sources and schemes

Dam ²³ name	Annual abstraction (kL/year)	Minimum water storage level (m depth) to satisfy annual allocation (mAHD)	Seasonal pattern of water use (i.e. if water is to be taken during only winter or summer or throughout the year). If dam is filled by pumping from watercourse, describe operation.
1.			
2.			

Direct pumping from stream	Installed pumping capacity (m ³ /sec) and annual abstraction (kL/year)	Seasonal pattern of water production (if water is to be taken during only winter or summer or throughout the year)
1.		
2.		

²³ Includes situation whereby water is pumped from a watercourse to an off-stream dam

4.3 Operating rules when multiple sources are used conjunctively (e.g. use of surface water and groundwater sources – under separate water licences): which source will be used under what circumstances.

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4.4 Specify situations where specific operating rules have been adopted to minimise potential detrimental impacts; for example, reduce abstraction from bores near wetlands during summer, or release of surface water to satisfy environmental/social requirements.

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5. Monitoring and reporting

Monitoring requirements vary depending on the management objectives, industry, volume of water taken, water resource used and location of the draw points. Discuss your requirements with your Department of Water regional office because some monitoring/measurements may not be necessary.

Results of the monitoring program are given to the department via annual reporting on compliance with licence conditions/commitments. Monitoring programs (complying with Australian standards – see Operational policy 5.12: *Hydrogeological reporting associated with a groundwater well licence (2009)*) – may be modified during the period of the water licence.

Annual compliance reports (also called 'monitoring reports') submitted by the licensee should contain a section with any recommended changes to the monitoring program for the department's consideration. Changes to conditions/commitments in an operating strategy can be approved by an addendum to the operating strategy (see Appendix C of Operational policy 5.08).

5.1 List the purpose(s) of the water monitoring program (see Section 3: *Identifying and managing impacts* and any previous studies such as hydrogeological reports).

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5.2 Water use measurement²⁴:

Draw point (either bore or surface water)	Description of meter installed (make, serial no., installation date ²⁵)	Meter maintenance/ calibration schedule	Frequency of recording meter data (e.g. on the same day every month)
1.			
2.			

5.3 Water level monitoring²⁶ :

Monitoring bore/ depth board	Location co-ordinates (MGAs)	Monitoring frequency (e.g. once a month)
1.		
2.		

5.4 Water quality monitoring (bores, dams, watercourse):

Name water quality sampling point (bore, dam, etc) ²⁷	Sampling location coordinates (MGAs)	Parameter being monitored (e.g. salinity, pH)	Monitoring frequency (e.g. salinity every six months)
1.			
2.			

²⁴ Refer to Strategic policy 5.03: *Metering the taking of water* (2009).

²⁵ If details not yet known, provide with first annual compliance report.

²⁶ For groundwater this is normally done from a water level monitoring bore (not production bore). Surface water monitoring of water levels may involve readings from a depth board in a stream, dam or wetland.

²⁷ Ensure names are consistent with those used in Section 2 and identified on map in Section 8.

5.5 Environmental monitoring (e.g. vegetation, fauna):

- purpose of monitoring
- detailed description of methodology
- monitoring frequency and reporting details

6. Environmental impact management²⁸

6.1 The Minister for Environment has set environmental water management conditions (i.e. Ministerial conditions) on the water resource licence. [If not, go to 6.2]

- Provide details of environmental studies undertaken by the water licence applicant.
- List the Ministerial conditions and describe how the project's water resource management program will satisfy these conditions.

6.2 The Minister for Environment has not set environmental water management conditions on the water resource licence:

- Identify potential environmental impacts from water abstraction²⁹ and how operation of the water supply will minimise potential impacts (e.g. water level decline from abstraction may affect health of vegetation – minimise abstraction from bores close to vegetation in summer) (see Section 5.5). Include a description of any water-dependent ecosystems that could be impacted by your development's water abstraction.
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6.3 Identify potential impacts to existing water users from water abstraction and how water management will minimise potential impacts (e.g. groundwater: water level decline from abstraction may impact neighbour's bore – install monitoring bore between neighbour and own bore to monitor impact and reduce abstraction if necessary; surface water: dam bypass set at XXmAHD enables a minimum flow rate of XXm/sec). Illustrate locations of nearby users and monitoring bores, dam bypass, etc. on Section 8 map.

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²⁸ Some projects may also require review by the Environmental Protection Authority (EPA). To avoid delays in project approval(s), it is recommended the licence applicant discuss this issue with the Department of Water and/or the Department of Environment and Conservation before completing this section.

²⁹ Environmental impacts would normally have been already identified in a hydrogeological report required by the Department of Water in the assessment of a water licence application (refer to the department's Operational policy 5.12 (2009)). Normally an environmental consultant would be engaged at the licence applicant's expense to assess environmental impacts.

6.4 If surface water is taken, describe how downstream riparian use and environmental needs are considered.

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6.5 Where proposed water abstraction is from the same water resource being used for existing social activities, the water licence applicant may be required to investigate how their proposed water abstraction might impact on these existing activities (e.g. recreational fishing, canoeing etc.). Where potential impacts on social activities are established, describe how the proposed water abstraction will be managed to limit such impact(s).

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7. Contingency program

Contingency planning is a component of good business practice. For developments with a water use licence, contingency planning is important for reasons including being prepared to change water use operations to prevent a breach of a water licence condition or commitment.

Not all components of contingency programs will involve a breach of a water licence condition. For example, the issue of a water licence does not guarantee a reliable water supply. The licensee should therefore consider/plan for circumstances when there may be a shortfall in water supply – whether because of natural or mechanical reasons (e.g. bores fail to deliver required volume³⁰ or a drought occurs). Mining operations should have a contingency program if there is a failure in maintaining a water supply for ore processing water needs etc.

Some management actions are determined from ‘trigger points’ that are most often determined from a monitoring program. Trigger points can represent a specific value (e.g. watertable declining more than 10 cm/year) that initiates a certain management response (e.g. have a water efficiency audit – investigate methods of reducing water demand). A table may be used below to list trigger points, especially where there is a tiered structure to management responses.

An example of a tiered approach is when a certain salinity (e.g. 1500 mg/L TDS) is detected from water sampling - the 1st management response might be to reduce the pumping rate from a nearby bore while increasing pumping from a bore with lower salinity. If the bore with the reduced pumping rate does not show signs of recovery in 12 months, the 2nd response could be to cease all abstraction from that bore.

7.1 Further discuss details given in Section 3: *Identifying and managing impacts* regarding what actions might be taken if a management response is not effective in limiting a detrimental impact/circumstance.³¹ Examples include: review water efficiency measures, reduce abstraction, revise management practices (may require an addendum to operating strategy) etc.

³⁰ In the event that a water source fails (i.e. bore or dam), a replacement cannot be constructed until an application has been made to the Department of Water and subsequent approval given.

³¹ Some of details (e.g. reliable water supply) may not be water licence conditions/commitments.

7.2 Contingency program for non-compliance of water licence terms and conditions including the commitments in this operating strategy.³²

For example:

Issue: Water meter breaks down and commitment to submit monthly water use data may be breached.

Contingency program: Weekly check that water meters are working properly: have a spare water meter to replace a failed meter.

7.3 Drought and other circumstances of limited water supply (e.g. mechanical breakdown):

- Identify the trigger level for adopting contingency plan (e.g. dam level falls below xxxx mAHD, groundwater level drops below bore depth)
- Describe contingency plan:
 - e.g. low dam level: reduce water demand, buy water on the water market, cart water
 - e.g. bore failure: reduce water demand, use deeper stand-by bore, buy water on water market, drill deeper bore

7.4 Flooding (particularly relevant to mining operations):

- Identify the trigger level for adopting contingency plan (e.g. infrastructure damage to bore (well head), erosion of dam wall)
- Describe contingency plan:
 - e.g. bore infrastructure damage: cart water
 - e.g. dam wall failure: install in-stream pumps

7.5 Unexpected aquifer response (e.g. water levels dropping faster than expected):

- Identify trigger level for adopting contingency plan (e.g. watertable dropping 50cm per month)
- Describe contingency plan (e.g. reduce abstraction from some bores, increase from others)

7.6 Unexpected water quality trends (e.g. high nutrient levels, exceed ANZECC guidelines for drinking water quality):

- Identify trigger level for adopting contingency plan (e.g. algal blooms in dam)
- Describe contingency plan (e.g. install nutrient stripping basin (e.g. vegetation) upstream of dam inflow)

³² The Department of Water must be informed immediately (i.e. within 14 days) of when the licensee is aware of circumstances that may require a change in management response – particularly the inability to comply with the terms, conditions and commitments of the water licence.

7.7 Unexpected environmental impacts (e.g. vegetation impacts)

- Identify trigger level for adopting contingency plan (e.g. vegetation adjacent to a wetland shows signs of water deficiency stress)
- Describe contingency plan: (e.g. reduce abstraction from bores closest to wetland)

7.8 Other

8. Associated maps

Maps to be attached to the operating strategy detailing all relevant information, including:

- Topographic features and nearby town and road names, location of wetlands and water-dependant ecosystems. Include nearby bores and dams of neighbours. Include a scale on the map.
- Location of all production and monitoring bores with an identification name/number (see Section 2). Include monitoring points (see Section 5).
- Location of dams or stream pumpback draw points labelled on map with an identification name/number (see Section 2). Include monitoring points (see Section 5).
- Locations where water is used (e.g. irrigation areas, processing plant).
- Water source protection areas (where applicable).
- Water-dependent ecosystems described in Section 6.2 and nearby environmental protection areas (e.g. EPP conservation category wetlands).

9. Water use efficiency

Every licensee must take appropriate measures to ensure water is used effectively and efficiently (e.g. program of leak detection, ensuring correct operation of infrastructure etc.). Water licence applicants should refer to the Department of Water's Operational policy 1.02: *Policy on water conservation/efficiency plans* (2009).

By addressing the section below, a water licence applicant may satisfy the Department of Water's requirement for producing a water conservation/efficiency plan. Contact your regional office of the department to discuss your situation.

9.1 Provide a detailed description of the water use efficiency measures to be implemented (e.g. installation of trickle irrigation systems, reuse of water where possible and practicable, irrigation system to be computer controlled). Include a schedule of adoption of water use efficiency measures.

9.2 Discuss the potential for adoption of further water use efficiency measures.

10. References

List of references, including any relevant documents including hydrogeological reports, company policies, EPA approved management plans etc.

11. Other

(as required by the Department of Water)

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12. Summary list of commitments

This section summarises the operating strategy. It should include a list of the licensee's commitments to achieve the water resource management requirements. These commitments are part of the licence conditions and must therefore:

- be carefully worded to ensure the commitment is clear and easily understood
- avoid ambiguous terms (e.g. significant impact)
- commit to something that can be measured (quantifiable) and is enforceable
- be easily assessed for compliance in reporting, audits or surveys.

Contact your regional office of the Department of Water if clarification of appropriate commitments is required.

For example:

1. The licensee will comply with this operating strategy as a condition of Water Resource Licence No. (xxxxxx) for the taking of water from the (xxxxxxxxxxxxxxxx) Water Resource Management Area.
2. The licensee will carry out and report to the department on the following monitoring program:

Monitoring program (summary of Section 5)

<u>Parameter measured</u>	<u>Sampling site</u>	<u>Frequency</u>	<u>Time</u>
Water use (water meter)	Bores #	<i>Monthly</i>	<i>First day of every month</i>
Salinity	Bores #	<i>Six-monthly</i>	<i>May, November</i>
Water levels	Bores #	<i>Six-monthly</i>	<i>May, November</i>

3. The licensee shall inform the Department of Water of any likely breach in the commitments of this operating strategy within 14 days of the licensee being aware of the possible breach. This also includes the implementation of a contingency response.
4. An annual water use (metering) report and the compliance (monitoring) report will be submitted within seven days and 28 days of the end of the water year respectively, in formats described in Strategic policy 5.03 and Operational policy 5.12 respectively.
5. The operating strategy will be resubmitted to the Department of Water for review between three and six months before the expiry date of the strategy.



Appendix C

Addendum to a water resource operating strategy associated with a water licence issued by the Department of Water

Name of licensee:.....

This addendum applies to:

- Water resource licence number:.....
- The associated water resource operating strategy approved by the Department of Water on (date).....

Intent

The intent of this addendum is to formalise the licensee’s commitment to.....
.....[write general intent of addendum].....

Commitment(s)

The licensee will comply with the commitment to:
.....[write new commitment or change to existing commitment].....

Amending the addendum to the water resource operating strategy

The licensee may apply to amend this addendum at any time, to account for exceptional circumstances³³

Agreement

I acknowledge that compliance with the approved addendum to the operating strategy is a condition of holding a licence, as issued under Section 5C of the Rights in Water and Irrigation Act 1914, to take and use water and I hereby agree to implement the commitment(s) within this operating strategy addendum.

Signatures

Person legally responsible for water licence **Date**.....
printed name:

Approved by Department of Water delegated authority..... **Date**.....
printed name:

³³ Licensee must continue to abide by the existing condition/commitment until any change is approved by the Department of Water.

Glossary

agreement	A form of lease and occurs via the temporary assignment of a licensed entitlement, or part thereof, to another party. This second party is then able to operate under the licence for the period of the agreement. Usually under agreements the water is taken from a new location, requiring an assessment of the likely impacts. Also called a 'temporary transaction'.
allocation	The volume of water which has been allocated for use from a water resource each year.
allocation limit	The volume of water that can be harvested each year from a water resource with acceptable impacts.
environment	Living things, their physical, biological and social surrounding and interactions between all of these.
environmental value	Also known as beneficial uses, is a value or use of the environment or any element or segment of the environment which is conducive to public benefit, welfare, safety, health or aesthetic enjoyment and which requires protection from pollution sources.
environmental water provisions	The water volume that is provided to maintain the environment, including the social and cultural requirements, as a result of the water allocation decision-making process. Environmental water provisions take into account the ecological, social, cultural and economic impacts. They may meet in part or in full the ecological water requirements.
groundwater	The water that occurs in pore spaces and fractures in rocks beneath the ground surface.
trade	A permanent trade of a water entitlement to another person and the water will be taken from another location.
transfer	Where an entitlement is permanently transferred to another person but the water will be taken from the same location. An example of a transfer is when a licensee sells their property operation (e.g. a market garden) together with the water entitlement to another person who will continue with the operation.
water entitlement	The volume of water that can be harvested, under licence, each year from a water resource with acceptable impacts.

**water
entitlement
transaction**

The ability of a licence holder to trade, transfer, or form an agreement (i.e. transact) for all or part of the licensed entitlement, to be taken by another person. In most cases an exchange of a WET involves a monetary exchange although in some instances transfers may occur without recompense (e.g. a deceased estate).

References

ARMCANZ 2000, *Australian guidelines for water quality monitoring and reporting*, National Water Quality Management Strategy no. 7, Agriculture and Resource Management Council of Australia and New Zealand, Canberra, October.

Department of Water 2008, *Guidelines for water meter installation*, Allocation note, Department of Water, Perth.

—2008, *Licence conditions related to metering requirements*, Allocation note, Department of Water, Perth.

—2009, *Pilbara water in mining guideline*, WRAP no. 32, Department of Water, February.

—2009, Operational policy no. 1.02: *Water conservation/efficiency plans*, Department of Water, Perth, November.

—2009, Strategic policy no. 5.03: *Metering the taking of water*, Department of Water, Perth, June.

—2009, Operational policy no. 5.11: *Timely submission for required further information*, Department of Water, Perth, November.

—2009, Operational policy no. 5.12: *Hydrogeological reporting associated with a groundwater well licence*, Department of Water, Perth, November.

—2010, Operational policy no. 5.13: *Water entitlement transactions for Western Australia*, Department of Water, Perth, November.

Government of Western Australia, *Rights in Water and Irrigation Act 1914*, State Law Publisher, Perth.

—2003, *A state water strategy for WA - securing our water future*, Perth.

Water and Rivers Commission 2000, Statewide policy no. 3: *Policy statement on sharing water*, Water and Rivers Commission, Perth, May.

—2003, Statewide policy no. 9: *Water licensing, staged developments*, Water and Rivers Commission, Perth, November.

—Water and Rivers Commission 2003, Statewide policy no. 11: *Management of unused water entitlements*, Water and Rivers Commission, Perth, November.

Regional enquiries

Please direct any enquiries relating to the implementation of this policy or to management of water resources in the regions to the following regional offices:

Kimberley Region

27 Victoria Highway

Kununurra WA 6743

Telephone 08 9166 4100

Facsimile 08 9168 3174

Swan Avon Region

7 Ellam Street

Victoria Park WA 6100

Telephone 08 6250 8000

Facsimile 08 6250 8050

Pilbara Region

Lot 4608 Cherratta Road

Karratha WA 6714

Telephone 08 9144 2000

Facsimile 08 9144 2610

Kwinana Peel Region

107 Breakwater Parade

Mandurah WA 6210

Telephone 08 9550 4222

Facsimile 08 9581 4560

South Coast Region

5 Bevan Street

Albany WA 6330

Telephone 08 9842 5760

Facsimile 08 9842 1204

Mid West Gascoyne Region

94 Sanford Street

Geraldton WA 6530

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South West Region

35–39 McCombe Road

Halifax WA 6231

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