Water Act 1989

Groundwater Licensing Guidelines
Applications by a Regional Urban Water Authority

I, John Thwaites, as Minister administering the Water Act 1989 (Act), issue these Guidelines for the purposes of clause 4 of the instrument of delegation signed by me as Minister administering the Act on 2 May 2003.

1. CITATION

These Guidelines may be cited as Groundwater-Regional Urban Water Authority Licensing Guidelines.

2. CONTEXT & BACKGROUND

The Authorities are responsible for issuing groundwater licences and bore construction licences under Parts 4 and 5 of the Act as a delegate of the Minister. They are also responsible for ensuring compliance with licence conditions and the relevant provisions of the Act and regulations and manage access to groundwater in times of shortage.

The Secretary, as delegate of the Minister, oversees state water allocation and water planning, and provides advice to the Minister. The Secretary also reviews applications for groundwater licences for urban water supply that have been referred by the Authorities as required as a condition of their delegated responsibilities.

Regional Urban Water Authorities are responsible for supplying water within their water districts. They engage in planning and operational programs to ensure quality and quantity of supply. In respect of proposals to extract groundwater Regional Urban Water Authorities provide information on water needs, groundwater resource feasibility and potential impacts of groundwater extraction under the proposal. If the groundwater licence is issued, then Urban Water Authorities are also responsible for monitoring the impacts of the extraction and undertaking reviews and reporting in accordance with licence conditions.

3. OBJECTIVE OF THE GUIDELINES

The objective of these Guidelines is to specify a process for issuing of bore construction licences and groundwater licences for urban water supplies.

Groundwater may be the best urban water supply option when surface water sources are depleted or quality deteriorated. Groundwater may be used as an alternative or supplementary supply to surface water. Mixing poor quality groundwater with surface water or desalination may also be an option to enable urban water supplies to be extended during drought.

Regional urban water authorities are seeking new groundwater supplies as consequence of the dry conditions.

Under the Act a regional urban water authority wishing to extract groundwater for urban supply must obtain a groundwater licence. In considering a licence application the appropriate rural water authority must, under section 40 of the Act, take into account such matters as:

- the existing and projected availability of groundwater in the area;
- any adverse effects that the allocation or use of the water is likely to have on:
  - existing users of the water;
  - a waterway or an aquifer;
- the need to protect the environment.

These Guidelines set out a process to enable Rural Water Authorities to respond effectively to applications by regional urban water authorities to obtain access to groundwater for emergency urban water supply and/or aquifer testing while satisfying the requirements of the Act.

4. COMMENCEMENT

These Guidelines come into operation on the day on which they are issued.

5. DEFINITIONS & INTERPRETATION

In these Guidelines:

a) The shaded text boxes are provided for background information only.

b) "Act" means the *Water Act* 1989;

"Authority" means the Grampians Wimmera Mallee Water Authority, Goulburn-Murray Rural Water Authority or Gippsland and Southern Rural Water Authority;

"aquifer" has the same meaning as in the Act, namely a geological structure or formation or an artificial landfill permeated or capable of being permeated permanently or intermittently with water;

"bore" has the same meaning as in the Act, namely any bore or well or any artificially constructed underground cavity, used or to be used for the purpose of extraction of groundwater, groundwater observation, drainage and desalination of land, disposal of matter or recharge of the aquifer;

"bore construction licence" means a licence to construct a bore, issued under section 67(1)(b) of the Act;

"groundwater licence" means a licence to take and use groundwater issued under section 51(1) (b) of the Act;

"Minister" means the Minister administering the Act;

"production bore" means a bore used or capable of being used for the extraction of groundwater for urban water supply;

"Secretary" means the Secretary of the Department of Sustainability and Environment;

"Regional Urban Water Authority" has the same meaning as a Regional Urban Water Authority under the *Water Industry Act 1994.*

"waterway" has the same meaning as the Act, namely a river, creek, stream, or water course, or a natural channel in which water regularly flows, a lake, lagoon swamp or marsh.

6. APPLICATION OF GUIDELINES

These Guidelines apply to an application for:

a) a groundwater licence for the purposes of urban water supply;

b) the transfer of a groundwater licence to a regional urban water authority made under section 62 of the Act for the purposes of urban water supply; and

c) a bore construction licence in respect of a bore proposed to be constructed and used in conjunction with an existing groundwater licence for the purposes of urban water supply;

These Guidelines do not apply to an application for:

a) a bore construction licence to replace an existing production bore if the new production bore will be used to extract groundwater from the same aquifer as the existing bore and is within 200 metres of it;

b) a groundwater licence for urban water supply that replaces an existing licence and authorises a lesser volume of groundwater to be taken and used.

7. PROCESS

The Authority will adopt the following staged process for considering applications for groundwater licences and bore construction licences to meet the needs for urban water supply.

Stage 1 – Investigation and production testing
Any bore construction licence issued for any investigation bore, production testing bore or production bore shall include conditions in accordance with Appendix 1 as appropriate.

If a pumping test is required, other than pumping to develop the bore, the Authority shall authorise a pumping test subject to the conditions in Appendix 2.

The Regional Urban Water Authority undertakes a water resource plan. If groundwater is identified as a potential urban water supply option approval from the Secretary to proceed with the proposal must be sought.

The Regional Urban Water Authority shall undertake preliminary investigations including preliminary resource assessment, drilling and a pumping test. The Authority shall issue a bore construction licence and when a pumping test is required conditions relating to the pumping test.

Stage 2 - Groundwater Assessment and licence approval
Prior to determining an application for a groundwater licence the Authority must obtain a Groundwater Assessment Report from the applicant in accordance with the requirements in Appendix 3.

After determining the groundwater licence application, the Authority must advise the Secretary in writing of the Authority's decision and submit to the Secretary copies of the:

a) Groundwater Assessment Report;

b) Authority's review of Groundwater Assessment Report;

c) Authority's considerations of section 40 of the Act; and

d) Authority's decision on granting the licence and proposed licence conditions.

In determining the term of the groundwater licence the Authority should take into account the needs of the Regional Urban Water Authority together with known and potential impacts on other authorised users, waterways, aquifers and the environment. The Authority should not issue a licence to meet emergency water supply needs for a period greater than five years. Every groundwater licence should be subject to standard conditions as detailed in Appendix 4 and any other condition considered appropriate.

The Regional Urban Water Authority is responsible for preparing the Groundwater Assessment Report. The primary objective of the Groundwater Assessment Report is to provide technical information. Applications for large groundwater extraction volumes or where there is potential for adverse impacts will require more information.

The Groundwater Assessment Report is submitted to the Authority and is the key document used in considering the groundwater licence application and the licence conditions. Completion of a Groundwater Assessment Report does not guarantee a groundwater licence.

The Authority determines the groundwater licence application and seeks approval of the Secretary. The groundwater licence conditions are subject to the standard conditions including the requirement to make good any undue impact that the extraction may have on existing users, as well as metering and monitoring and review.

Grampians Wimmera Mallee Water Authority has responsibilities for urban water supply and also the delegated responsibilities for bore construction licensing and groundwater licensing. Consequently, if the Authority wishes to make an application for a bore construction licence or groundwater licence it must be made to the Minister or to any other Authority approved by the Minister to receive an application.

Stage 3 – Operation Plan Review

The Authority shall review the annual operation report (as submitted by the Regional Urban Water Authority) and provide a copy of the review report on the completeness of the report to the Secretary by the end of November of that year.

The Regional Urban Water Authority is responsible for the design and construction of the production bore(s) and the monitoring program.

A standard licence condition requires the licensee to prepare an annual operation report relating to works and monitoring and submit it to the Authority and the Secretary by the end of September of that year. This will enable confirmation that the conditions of the licence have been adhered to in relation to the construction of works and monitoring and to ensure that a review of the impacts of groundwater extraction has been undertaken.

Stage 4 – Groundwater Licence Review

The Authority shall consider the renewal of the groundwater licence six months prior to the expiry of the licence if the licensee makes application to renew the licence.

In considering an application to renew the groundwater licence the Authority must obtain a Review report from the licensee and confirm that the report contains the topics relevant to the type of licence conditions as detailed in Appendix 4.

After determining the application to renew, the Authority must advise the Secretary in writing of the Authority's decision and submit to the Secretary copies of the:

a) Groundwater Review Report;

b) Authority's review of Groundwater Review Report;

c) Authority's considerations of section 40 of the Act; and

d) Authority's decision on renewing the licence and proposed licence conditions.

The Regional Urban Water Authority is responsible for preparing the Review report. The primary objective of this report is to provide a comprehensive review of the data collected from which to determine the future operating arrangements prior to the expiry of the short term licence (1-5 years). Licences can only be amended on renewal or by application by the licence holder. Large

groundwater extraction volumes will require more detail in the review report compared to a small extraction volume.

Future operating arrangements may be expressed as conditions on the groundwater licence issued by the Minister (or delegate, the Authority) or as conditions of a Bulk Entitlement for groundwater as issued by the Minister.

The review findings may enable increased allocation and extraction. Alternatively in cases where undesirable impacts are found conditions may be applied to minimise and manage these.

Dated

JOHN THWAITES
Minister administering the **Water Act 1989**

Appendix 1

Bore Construction Licence Conditions

Conditions for investigation bores or production testing bores

1) Within 14 days after the completion of the bore the licensee must provide the Authority with:
   a) a geological log describing the profile at 2-metre intervals and any significant change in lithology;
   b) downhole geophysical logs if the method of drilling permits;
   c) bore location coordinates in GDA94 with an accuracy of at least ±5 metres;
   d) details of an elevation survey of the bore in mAHD with an accuracy of at least ±0.5 metres; and
   e) full chemical analysis of a water sample taken from the bore.

Conditions for production bores

2) Within 14 days after the completion of the bore the licensee must provide the Authority with:
   a) a geological log describing the profile at 2-metre intervals and any significant change in lithology;
   b) downhole geophysical logs if the method of drilling permits;
   c) bore location coordinates in GDA94 with an accuracy of at least ±5 metres;
   d) details of an elevation survey of the bore in mAHD with an accuracy of at least ±0.5 metres;
   e) a diagram showing the bore construction, including features such as the position of seals, packers, screens, grouting, diameter etc; and
   f) a photograph of the bore showing headworks and the immediate surrounds of the bore; and
   g) full chemical analysis of a water sample taken from the bore.

Standard bore construction conditions must be attached to all bore construction licences.

Appendix 2

Groundwater Licence Conditions for Production Testing Bores

1) Site selection

a) Disposal of the pumped discharge, including laying of pipelines must be undertaken in accordance with the requirements of any approval authority or body and with the concurrence of any affected landholder.

b) The discharge point shall be selected to minimise the impact to the environment and exclude the possibility of recharging the aquifer being tested.

2) Type of Pumping Test

a) The pumping test regime shall be designed by a qualified hydrogeologist or engineer.

b) The procedures for analysis and reporting pumping tests shall comply with *Australian Standard* "Test Pumping of Water Wells – AS 2368 – 1990.".

c) The type of pumping test, minimum duration and standard monitoring requirements for each licence application volume is detailed in Table 1.

Table 1

	Level 1 **Licence application** **< 100 ML/yr**	**Level 2** **Licence application** **100 – 400 ML/yr**	**Level 3** **Licence application** **> 400 ML/yr**
Pumping test type and duration	Step test including recovery – at least 4 steps of, at least, 50 mins each. Constant rate test – pumping for at least 3 days followed by period of recovery.	Step test including recovery – at least 4 steps of, at least, 50 mins each. Constant rate test – pumping for at least 7 days followed by period of recovery.	Step test including recovery – at least 4 steps of more than 100 mins each. Constant rate test – pumping for at least 14 days followed by period of recovery.
Pumping test observations	Flow rate from the pumping bore Water level in the pumping and observation bore Field EC and temp in the pumping bore	Flow rate from the pumping bore Water level in the pumping and all observation bores installed in the drilling program Field EC and temp in the pumping bore	Flow rate from the pumping bore Water level in the pumping and all observation bores installed in the drilling program Field EC and temp in the pumping bore Water levels in any other investigation/observation bores within 2000m.

c) The frequency of the water level observations shall be carried out according to the intervals as defined in Table 2.

Table 2

Time since start of pumping/ recovery	Monitoring time intervals
0 – 1 mins	0.5 min
1 – 4 mins	1 min
4 – 10 mins	2 min
10 – 30 mins	5 min
30 – 90 mins	15 min
90 mins – 8 hrs	30 min
8 hrs – 24 hrs	1 hr
24 hrs – 48 hrs	2 hr
48 hrs – shutdown	4hr

d) Discharge rate shall be measured frequently.

3) Pumping test data

A report on the pumping test must be submitted to the Authority and must include:

a) Data obtained from the test in the format detailed in Annexes 1-3 AS 2368-1990;

b) Analysis of the tests and determination of hydraulic parameters T and S;

c) Plot of calculated drawdown curve against distance from the proposed production bore; and

d) A table of measured and calculated drawdowns for:

i. nearby bores constructed in the same or interconnected aquifer; and

ii. the aquifer in the vicinity of nearby perennial streams or wetland where such streams may be hydraulically connected to the aquifer.

The primary objective of a pumping test is to quantity the aquifer parameters including transmissivity, hydraulic conductivity, storativity and specific yield. Where there is an overlying aquifer the pumping test must be conducted to allow assessment of the input of the overlying aquifer as well as the aquifer being developed.

Sites within a designated National Park or those close to high value environmental features may have constraints imposed on test operations. It is important that the proposed works are discussed with the responsible authorities before operations commence.

Additional monitoring points may be required depending on the level of extraction, complexity of the hydrogeology, proximity to surface water features and ecosystems potentially dependent on groundwater. This may include:

- Monitoring water levels in nearby investigation bores, levels in bores of surrounding groundwater users and groundwater levels adjacent surface water features;
- Monitoring water levels in nested sites; and
- Water sample at start and end of pumping test for laboratory analysis.

Other factors to be considered include:

- Extractions from surrounding groundwater bores - these need to be taken into account in the analysis. Arrangements should be made with nearby bore owners to cease pumping one to two days before and during the pumping test, including the recovery phase;
- Changes in atmospheric pressures – the impact of barometric pressure fluctuations can be become quite significant when observation bores fluctuate by less than about 0.1m during a test and hence, atmospheric pressure should be logged during the test;
- Rainfall events – recharge during the test could impact on the results;
- Tidal influence on water levels if the site is near the ocean;
- Discharges from springs or to surface water features; and

- Impact of/on nearby surface water features or ecosystems that may be dependent on groundwater.

Appendix 3

Contents of the Groundwater Assessment Report

	Level 1 **Licence application** **< 100 ML/yr**	**Level 2** **Licence application** **100 – 400 ML/yr**	**Level 3** **Licence application** **> 400 ML/yr**
Study Area	1 km radius from production site	3 km radius from production site	10km radius or if within a groundwater management area the whole area, which ever is greater

Part 1 Hydro stratigraphy characteristics and setting	Site location map, identifying land use, topography, surface water	Site location map, identifying land use, topography, surface water	Site location map, identifying land use, topography, climate, surface water and temporal trends (land use, climate, surface water)
	Current groundwater management arrangements for the area (permissible consumptive volumes, groundwater management plans)	Current groundwater management arrangements for the area (permissible consumptive volumes, groundwater management plans)	Current groundwater management arrangements for the area (permissible consumptive volumes, groundwater management plans)
	Hydraulic conductivity and storage parameters of target aquifer – summary of pumping test report	Stratigraphy, location and types of aquifer, aquitards, aquifer composition	Stratigraphy, location and types of aquifer, aquitards, aquifer composition
		Hydraulic conductivity and storage parameters of aquifer(s) – pumping test report	Hydraulic conductivity and storage parameters of aquifer(s) – pumping test report
Part 2 Groundwater characteristics	Potentiometric level at site	Potentiometric surface maps	Potentiometric surface maps and temporal trends
	Groundwater salinity at site	Groundwater salinity maps	Groundwater salinity maps and temporal trends
	Pumping bore locations – licensed allocations and domestic and stock bores	Pumping bore locations – licensed allocations and domestic and stock bores	Pumping bore locations – licensed allocations and domestic and stock bores. Temporal trends in allocation and extractions
Part 3 Groundwater flow process and rates (volumes)		Recharge area, mechanisms and rates	Recharge area, mechanisms and rates
		Discharge areas, mechanism and rates	Discharge areas, mechanism and rates
		Throughflow rates, interaquifer flow, volume in store and residence times.	Throughflow rates, interaquifer flow, volume in store and residence times.
Part 4 Proposed groundwater extraction, prediction and assessment of impacts	Conceptual design - Number and location of extraction bores - Depth and design of extraction bores and proposed yields and timing of extraction.	Conceptual design - Number and location of extraction bores - Depth and design of extraction bores and proposed yields and timing of extraction.	Conceptual design - Number and location of extraction bores - Depth and design of extraction bores and proposed yields and timing of extraction.

	Assessment of changes in water level and/or aquifer storage – short term and long term (1 month, 6 month, 1 year, 5 year, 25 year and 50 year timeframe) using an analytical model (i.e. steady state).	Assessment of changes in water level and/or aquifer storage – short term and long term (1 month, 6 month, 1 year, 5 year, 25 year and 50 year timeframe) using an analytical model (i.e. steady state).	Assessment of changes in water level and/or aquifer storage – short term and long term (1 month, 6 month, 1 year, 5 year, 25 year and 50 year timeframe) using an analytical model i.e. steady state) or numerical model.
	Discussion of potential impact of water levels and significance of these on; - existing groundwater users; - waterways - water dependent ecosystems - salt water intrusion	Discussion of potential impact of water levels and significance of these on; - existing groundwater users; - waterways - water dependent ecosystems - salt water intrusion	Discussion of potential impact of water levels and significance of these on; - existing groundwater users; - waterways - water dependent ecosystems - salt water intrusion
			Discussion of potential impact of water quality change.
Part 5 Proposed Works	Schedule of Works	Schedule of Works	Schedule of Works
	Metering and Monitoring program	Metering and Monitoring program	Metering and Monitoring program
	Review of metering and monitoring	Hydrogeological review of data	Hydrogeological review of data
	Impact mitigation strategy	Impact mitigation strategy	Impact mitigation strategy
Appendices	Pumping Test Report	Pumping Test Report	Pumping Test Report

Documenting Data Gaps, Uncertainties and Assumptions

All data gaps, sources of uncertainty and assumptions must be documented as part of the initial conceptual model development. Uncertainties could be associated with aquifer parameters, model fluxes (i.e. recharge rates), or a lack of understanding of groundwater surface water interaction processes. Where possible these uncertainties should be quantitatively estimated, otherwise a qualitative description should be provided

Part 1 describes the general characteristics of the study area for which the proposal is being developed and the nature of the aquifer(s). This will include information on the nature of the hydrological features such as rock types that make up the individual aquifers and aquitards, and the likely nature of flow through these units (including the likely importance of flow through fractures). Hydraulic conductivity and storage parameters as determined from pumping test.

Part 2 describes the groundwater resource. For larger volume licence applications this will involve potentiometric surface and groundwater salinity for all of the relevant aquifers. It will also present data on locations of all observation and pumping bores within the region (domestic & stock as well as irrigation and commercial). For large licence applications information on past and present rates of water use, historical changes in groundwater level and groundwater salinity over time should be documented, so far as the data permits, and any trends in these parameters should be assessed and compared with groundwater use and climatic data.

Part 3 describes the groundwater flow processes for larger licence applications. This needs to include point and diffuse recharge, discharge to streams, rivers and the ocean as well as groundwater use by vegetation and throughflow across groundwater management area boundaries. Rates of groundwater pumping also need to be quantified, and these should include estimates of groundwater extraction from domestic and stock bores as well as from any unmetered bores. Rates of leakage between aquifers will sometimes be important, and should be quantified where they are likely to be significant. Sometimes it is useful to determine the volumes of groundwater in store and the residence time. Groundwater volume is store provides important information on the robustness of the groundwater systems to pumping or susceptibility of groundwater supplies to short term changes in recharge, such as might occur during periods of drought.

Part 4 identifies the impacts posed by groundwater extraction. Impacts should be considered in terms of

future changes in water level and aquifer storage, and for larger groundwater licence applications changes in groundwater quality and salinity. Because prediction is not an exact science, these predictions should be provided as a range and incorporate an assessment of uncertainty. Depending on the area under consideration, this might include impacts on other groundwater users, surface waters and groundwater-dependent vegetation.

Decisions on the volumes of groundwater that will be permitted to be extracted will usually be based upon the acceptability of these impacts and the uncertainty of the assessments. At all stages of the process, data obtained using different methods needs to be checked for consistency and methods used for hydrogeological assessments should be fully described and documented. This is the first essential component of transparency in groundwater licence decision-making.

Part 5 identifies the future work program. These should be aimed at monitoring various threats or reducing uncertainty of capability or potential impacts.

Further information on Guidelines is provided by "Groundwater Assessment Guidelines" Peter G Cook and Tamie R Weaver, Nov 2006.

Appendix 4

Standard Groundwater Licence Conditions – Short term Licence (1 – 5 years)

Insert standard words of authorisation eg This Licence authorises XXX (the licensee) to take and use groundwater in accordance with the conditions contained in the First and Second Schedules

FIRST SCHEDULE

1.	Type of use for which water is to be taken.	**Urban Water Supply.**
2.	Maximum volume of water that may be taken in any year	
3.	Maximum volume of water that may be taken in any day.	
5.	Bores from which water may be taken	***Bores to be added during the period of the licence, subject to normal bore construction licensing requirements.***

SECOND SCHEDULE

1. METERING

1.1. General

The licensee must install meters to meter the volume of groundwater extracted from all bores listed in the First Schedule to the standards set from time to time by the Authority.

1.2. Metering

For all bores listed in the First Schedule, the licensee must:

(a) record the volume of water taken each day; and

(b) record the meter readings, and daily and weekly-metered extraction on a database within 7 days after taking those readings.

1.3. Maintenance

The licensee must, with respect to the meters referred to in this clause:

(a) inspect their condition whenever they are read;

(b) maintain them in good condition;

(c) recalibrate them periodically and whenever there is reason to believe that a reading may be inaccurate;

(d) replace them if damaged; and

(e) record all work done on the meters in the database and submit a summary of the work done on the meters to the Authority at quarterly intervals.

2. REGIONAL WATER LEVEL MONITORING PROGRAM

2.1. Development of a Monitoring Program

The licensee must develop a Regional Water Level Monitoring Program to ensure the impacts of the taking of water under this Licence on water levels are identified, monitored and recorded.

2.2. Reporting on the Monitoring Program

The licensee must, by 1 September each year, provide the Authority with a report on the program containing:

(a) all water levels recorded under this clause for the preceding year;

(b) a plot of bore hydrographs containing all recorded water levels for each bore listed in the program;
(c) a map of residual drawdown for the preceding year;
(d) details of any bore failure determined from the inspection of headwork condition under this clause or assessment of abnormal water level readings under this clause during the preceding year;
(e) details of any issues arising from the monitoring results, including significant variations to predicted trends, and associated recommendations.
Water Level Monitoring Program.

3. PROTECTION OF SURFACE WATER AND RIVERINE ENVIRONMENTS

3.1. Development of an Environment Protection Program

If required by the Authority, the licensee must develop an Environment Protection Program addressing the protection of surface water and riverine environments that may be affected by the taking of water under this Licence.

3.2. Scope of the Environment Protection Program

The program must:
(a) evaluate the risks posed to these surface water and riverine environments; and
(b) specify the requirements of the licensee in order to ensure the protection of the long-term sustainability of these systems when water is taken under this Licence.

3.3. Reporting on the Environment Protection Program

The licensee must, by 1 September each year, provide the Authority with a report on the program that lists the surface water and riverine environments that may be affected by the taking of water under this Licence;

4. GROUNDWATER SALINITY PROTECTION

4.1. Development of the Groundwater Salinity Protection Program

If required by the Authority, the licensee must develop a Groundwater Salinity Protection Program addressing the protection of groundwater from salinity impacts arising from the taking of water under this Licence.

4.2. Scope of the Groundwater Salinity Protection Program

The program must:
(a) evaluate the risks of salinity impacts to aquifers in the area as a result of the taking of water under this Licence; and
(b) specify the requirements of the licensee in order to ensure the protection of the long-term sustainability of these systems when water is taken under this Licence.

4.3. Reporting on the Salinity Program

The licensee must, by 1 September each year, provide the Authority with a report on the program that must specify the salinity impacts that may be incurred by the taking of water under this Licence.

5. COMPENSATION OF OTHER AUTHORISED WATER USERS

5.1. If taking water under this licence materially and adversely affects any existing authorised user of water the Licensee must compensate that person by either providing:
(a) an alternative water supply at the cost of the Licensee; or
(b) financial compensation in a manner agreed between the parties.

5.2. The licensee must not materially affect any existing authorised user of water until compensation arrangements are put in place.

5.3. The licensee must advise the Authority of the persons to whom compensation has been made.

6. PROCEDURAL REQUIREMENTS FOR PROGRAMS

6.1. Additional Information

Within 30 days of receiving a report on a program referred to in clauses 2.3, 3.3 and 4.3 the Authority may request additional information from the Licensee and the Licensee must provide the additional information within 60 days of receiving a request.

6.2. Modification to Programs

(a) The licensee with the approval of the Authority may modify the programs referred to in Clauses 1, 2 and 3; and

(b) If the Authority, at any time, considers that a program referred to in Clauses 1, 2 and 3 is deficient, the Authority may require the licensee to modify the program accordingly.

7. TECHNICAL APPRAISAL

7.1. Hydrogeological Model

The licensee must, within XX months after the issue of this Licence:

(a) construct and calibrate a multi-layer hydrogeological numerical model of the groundwater system in accordance with the Murray Darling Basin Commission Groundwater Flow Modelling Guideline, November 2000; and

(b) commission a review, by a person(s) approved by the Authority, of the model's construction, calibration and reporting.

7.2. Review

(a) The licensee must, within XX months after the issue of this Licence, prepare a report that:

(i) reviews the behaviour of the groundwater system from the commencement of this Licence until 30 June XXXX;

(ii) summarises and interprets scenario tests conducted using the hydrogeological model;

(iii) assesses the sustainable yield for the aquifer from which groundwater is taken under this Licence; and

(iv) recommends parameters for the future taking of groundwater under this Licence that will ensure the protection of the long-term sustainability of the groundwater.

(b) In preparing the report, the licensee must comply with any technical and procedural guidelines provided by the Authority.

8. OTHER

8.1. Definitions

In this Licence:

"Act" means the Water Act 1989

"Authority" means the XXXX Rural Water Authority

"domestic and stock use" has the same meaning as in section 3 of the Act

"year" means a period of 12 months commencing 1 July.

8.2. Good Practice

(a) The licensee must implement the requirements of this Licence in accordance with contemporary industry standards, protocols and regulatory requirements.

(b) Where this Licence requires the licensee to undertake an action on an annual, quarterly, weekly or other periodic basis, it must program and undertake the action so that as far as reasonably possible a regular and evenly-spaced pattern is achieved.

8.3. Pollution

The licensee must not pollute any groundwater through the spillage of fuel or lubricant or any other matter used in connection with works and appliances.

8.4. Charges

The licensee must pay the following charges under this Licence when requested by the Authority:

(a) the standard fee, if any, set by the Authority for a licence under section 51 of the Act to take and use groundwater;

(b) the standard fee, if any, set by the Authority for a licence under section 67 of the Act to operate works to take and use groundwater; and

8.5. Notice of Pumping

If required by the Authority, the licensee must give three days notice of its intention to take groundwater under this Licence.

8.6. Further Information

If required by the Authority, the licensee must provide to the Authority within 14 days such further information as reasonably required to demonstrate that the licensee is complying with the requirements of this Licence.

NOTES

Renewal of Licence

To facilitate the renewal of this Licence, the licensee should no later than 15 months prior to the expiry of this Licence:

a. advise the Authority whether it intends to apply for renewal of the Licence and the nature of the renewal that is likely to be sought; and

b. request the Authority to advise on the form and manner to be used in applying for renewal of the Licence and the information to be contained in the application.