Guidelines for the Development of Bulk Entitlement Metering Programs

Approved by the Minister for Water

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Victoria
The Place To Be

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1. Introduction – the policy and legislative framework

Through its White Paper *Our Water Our Future*, the Victorian Government has committed to a comprehensive, integrated approach to using water wisely. This approach ensures Victoria will continue to have healthy water resources that support growing communities and a thriving economy. As demand for water increases, the resource must be managed with a high degree of accountability for both its management and use. This requires:

- improved resource monitoring;
- appropriate levels of monitoring of water use; and
- greater public access to information.

Our Water Our Future encourages transparency and disclosure of information about water resource management.

Bulk Water Entitlements (BEs), issued under Section 42 of the *Water Act 1989* (the Act), define the rights of BE holders to water resources and provide associated conditions and obligations. Section 43 of the Act provides that an Order granted under Part 4, Division 1 of the Act may specify the following in relation to an entitlement:

> *s.43(h) a requirement that the Authority carry out at its own expense a metering program approved by the Minister for the purpose of providing the Minister with the type of information specified in the Order at the times and in the form and manner specified in the Order;*

This requirement generally is reflected in Bulk Entitlement Orders as:

> *The Authority, must propose to the Minister, within 12 months of the date of this Order, a metering program…*

and

> *The Minister may -*
>
> *(c) require the Authority -*
>
> *(1) to review the program approved by the Minister if, in the Minister's opinion, it is, at any time, no longer appropriate; and*
>
> *(2) to propose an amended program to the Minister.*

Typically the metering program clause of a Bulk Entitlement Order specifies that the program is *"for the purpose of assessing whether or not the BE holder complies with this bulk entitlement"*.

The metering program is an essential business tool for each water corporation in assessing its compliance with its legal obligations.

Information gathered through metering programs is also essential to other government programs and other entities. These *metering-related obligations* are also contained in the BE Orders.

Other government initiatives in Victoria include:

- Victorian Water Accounts;
- State Groundwater Monitoring Program; and
- Victorian Water Register.

Intergovernmental initiatives include:

- National Water Initiative (NWI) project to develop a national framework for non-urban water metering;
- Murray Darling Basin Water Accounts and Murray Darling Basin cap compliance reporting;
- future Murray Darling Basin Plan; and
- Commonwealth Water Industry Regulations 2008 requirements for water information to be provided to the Bureau of Meteorology.

A common thread of these initiatives is better management of water resources (including transparency in compliance with BE obligations). They also extend and improve public disclosure and access to information relating to water resource use and management.

These *Guidelines for the Development of Bulk Entitlement Metering Programs* provide both general and specific guidance for the preparation of metering programs needed by water corporations for their BEs. The Guidelines will also be used to assess programs prior to Ministerial approval.

The Guidelines will assist BE holders to develop metering programs that explain how information obtained from the program will be used to determine compliance with obligations.

They instruct each BE holder to prepare one metering program to cover all BEs held. The program should describe metering arrangements and business strategies for all BE obligations that apply to the holder.

The Guidelines take into account issues raised in consultation with BE holders.

Nothing contained in the Guidelines is intended to alter the primary responsibility of BE holders to meet any specific obligations imposed by a BE Order.

2. Obligations contained in Bulk Entitlements

2.1. Metering obligations

While most BEs contain similar metering and reporting obligations, some BEs contain obligations which differ significantly because of the nature of the entitlement, the complexity of the water supply system and specific requirements for consumptive and environmental use.

Typical obligations relating to a metering program may include the requirement for a BE holder to:

- propose to the Minister, within 12 months of the BE issue date, a metering program (both individually and jointly where two BE holders are referred to in a single BE) to determine one or more of the following:
  - the amount of water taken by the BE holder;
  - all water returned to waterways;
  - the flow into, and volume stored in, storages; and
  - passing flows;
- operate, maintain and periodically calibrate metering equipment and/or regularly check and revise ratings curves;
- keep records of all work undertaken to operate, maintain and calibrate metering equipment;

- provide details of agreements for measuring or calculating stream flows;
- test metering equipment in accordance with relevant standards (although no standards are referenced in the BEs or any of the explanatory notes);
- implement the metering program; and
- bear the cost of the metering program.

Typically the metering program clause in the Act specifies that these requirements are *"for the purpose of assessing whether or not the BE holder complies with this bulk entitlement"*. These Guidelines have been written to reflect this requirement.

2.2. Metering-related obligations

Beyond metering clauses, each BE has a number of obligations that must be addressed by metering programs. These include, but are not limited to, obligations for reporting, sharing of data and associated administrative arrangements that rely on metering information. Further detail regarding reporting obligations is provided in the next section.

2.2.1. Reporting obligations

BE holders are required to report annually on the taking of water under each BE held. The Minister and/or the Resource Manager as specified in the BE, may also require the BE holder to report more regularly on specific matters. BE holders are generally obliged to respond to any request from the Minister within 14 days.

Typically, BEs specify that the holder may be required to report on any of the following matters:

- the daily and annual amount of water taken under the BE;
- the amount and location of water taken under the BE at any works of the BE holder other than that explicitly specified in the BE;
- the amount of water returned and subsequently either taken, traded or both;
- the daily and annual passing flows;
- the amount of water contributed to environmental flows, uses or reserves;
- any change made to the security of supply and the annual entitlement; and
- any failure by the BE holder to comply with any provision of the BE.

A BE may also require reporting of the daily and annual potentiometric levels of an aquifer and monitoring of other impacts.

2.2.2. Data requirements of other parties

Some BEs also require that reported information meets the needs of Resource Managers, Storage Operators and Distributors (channel system operators).

This is of particular importance in ensuring that Resource Managers are able to fulfil their roles and responsibilities as specified in the BE and associated instrument of appointment. Generally the BEs specify the role of the Resource Managers as undertaking all or any of the following:

- prepare relevant Basin Water Accounts;
- monitor whether BE holders comply with the conditions of their BE;
- investigate and mediate disputes between BE holders;

- investigate and deal with significant unauthorised uses of water; and
- supervise the qualification of any rights to water made by the Minister during periods of declared water shortage under Section 13 of the Act.

Each of the explicit obligations relating to reporting requirements detailed above were considered in developing the Guidelines.

3. Purpose of these Guidelines

The purpose of the Guidelines is to assist BE holders in:

- preparing metering programs that provide a clear explanation of how the BE holder intends to undertake metering, measurement and reporting of bulk water resource management activities, thus demonstrating compliance with all relevant BE obligations;
- ensuring that the technology, methodology and approach to metering and the standards applied to each individual metering point are clearly documented; and
- ensuring that information and data from the metering program is fit for purpose, i.e. it can be relied upon to assess compliance with relevant BE obligations and used for public reporting of relevant water resource management activities.

4. Definition of metering

In the context of these Guidelines, the definition of metering is:

> *Use of a device or estimation methodology giving an output proportional to quantities of water contained in, passing and/or flowing into or out of a storage, pipe, channel, waterway or aquifer.*[1]

Under this definition, the term "metering" includes all forms of meters recognised by the water industry, plus other measurement tools or estimation techniques that are used for making intermittent or continuous readings of water levels in pipes or storages. The guidance components of these Guidelines also apply to alternative measurement tools or processes that may not comply with the technical definition of a water meter.

5. Purpose of metering programs

Typically, the metering program clause of a Bulk Entitlement Order specifies that the program is "*for the purpose of assessing whether or not the BE holder complies with this bulk entitlement*." The BE holder should be able to use the program to satisfy itself of its compliance and to demonstrate compliance to others by providing the types of information specified in the Order. Therefore metering programs must be capable of providing information and data of adequate quality (precision, accuracy, timeliness and reliability) to meet relevant BE obligations.

6. Application of the Guidelines

These Guidelines apply to all BE holders where the BE specifies the preparation of a metering program. This includes BEs for environmental purposes. In some BEs the term "metering plan" has been used. For the purpose of these Guidelines, "plan" is interpreted to mean "program".

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[1] Adjusted from: http://www.nrm.qld.gov.au/water/use/pdf/metering_policy_jun05.pdf

Where a BE holder is obliged to prepare more than one metering program, the preparation of one "comprehensive" program is recommended. The information contained in any comprehensive program should cover all BEs held, specify all obligations and describe the metering arrangements and associated business strategies for all obligations relevant to BEs.

7. Preparation, approval, implementation and review

7.1. Timelines for preparation and review

The BEs set out the timelines and associated obligations for the implementation of metering programs. Generally programs must be prepared within 12 months of a BE being issued. Once the program is approved by the Minister a BE holder must, at its own cost and in accordance with any guidelines issued from time to time by the Minister, implement and maintain it.

As a matter of good governance, BE holders should regularly review their metering programs to ensure they continue to comply and remain current. Where significant changes to the metering arrangements, water system or entitlement occur, the Board of the BE holder must propose an amended program to the Minister for approval.

Water businesses may determine when reviews are conducted, for example at five year intervals or in correlation with other regulatory obligations such as the preparation of Water Plans.

The Minister or the Resource Manager may require the BE holder to report on all or any type of information specified in the BE. Regular review of the program will assist a BE holder in responding to any reporting request by the Minister or Resource Manager within any specified from or timeframe.

7.2. Ministerial approval

Bulk entitlements typically include a requirement that a metering program be submitted to the Minister for Water for approval. Section 43(h) of the Act outlines that this requirement can be included in a bulk entitlement order. The Department of Sustainability and Environment will set out a process for the submission, assessment, and Ministerial approval of metering programs.

7.3. Board endorsement of programs

Metering programs must be endorsed by the BE holder's board (or equivalent) prior to submission to the Minister.

7.4. Metering program implementation and reporting

BEs require that metering programs are implemented and, typically, that BE holders bear their costs. The status of the metering program (for example whether it has been endorsed by the board, approved by the Minister, or is under review) and the implementation of the metering program should be reported annually by the BE holder in their Annual Report.

8. Guidelines

The following sections provide background information on each item to be addressed in a metering program:

- why they are important;
- what information is required; and
- suggestions on a suitable format and presentation.

All items in this section are listed in the self-audit checklist in Appendix A.

To facilitate the preparation and administration of metering programs it is recommended that one program be prepared by each BE holder, covering all BEs held that contain an obligation to prepare a metering program.

8.1. Step 1: List all bulk entitlements

The first step in preparing a metering program is to create a table listing all current BEs, including information identifying:

- the BE holder submitting the program;
- the exact title appearing on the BE Order;
- the date the Order was published in the Government Gazette;
- the date of amendment, if any;
- the water supply system and/or aquifer to which the Order refers;
- the BE holder (or "authority") name shown in the Order;
- the reporting river basin and/or groundwater management area to which the Order pertains;
- the Resource Manager, if relevant and appointed;
- the Storage Operator, if relevant; and
- the Distributor (operator of channel system), if relevant.

Given the length of the Order titles, it will be useful to identify each individual BE with a BE ID that is unique to the program. This BE ID should be used consistently throughout the program. The Department of Sustainability and Environment may set out a standard number system for BE IDs to avoid duplication across the State.

8.2. Step 2: Identify BE obligations

The second step is to identify the relevant obligations contained within each BE and create a table individually listing each along with its key characteristics. Section 2 *Obligations contained in Bulk Entitlements* should be read to assist in identifying relevant obligations. BEs generally contain at least five key classes of metering and monitoring obligations associated with surface water systems:

- diversion of water from a waterway or storage through a closed conduit or open channel;
- passing flow at a point in a river or flow into a storage;
- storage level or volume of water in a storage;

- return flow discharging to a waterway, water body or wetland; and
- contribution to environmental reserve.

Furthermore, BEs may include the following types of metering and monitoring obligations in relation to groundwater systems:

- extraction of groundwater from an aquifer via a bore;
- potentiometric levels in an aquifer;
- monitoring of groundwater dependent ecosytems; and
- contribution to environmental reserve.

In most cases, this information can be transcribed into the table directly from the BE. The effect of any amendments to BE obligations should also be explicitly identified. Each obligation should be identified with an *Obligation ID* that is unique to the metering program. This *Obligation ID* should be used consistently throughout the program. The Department of Sustainability and Environment may set out a standard number system for *Obligation ID*s to ensure consistency across the State.

8.3. Step 3: Identify locations of BE obligations

The location of each compliance point and any related metering installation should be specified in tabular form as:

- *Obligation ID*, using exactly the same identifier and format contained in the summary list of obligations above;
- *Compliance Point ID* and a description of the type of compliance point and its location;
- *Metering ID* or *Bore ID* and a description of the metering device/measurement method including the type of device, any relevant device identification number (eg. Bore ID as issued through a bore construction licence), and how the device is used to measure the relevant BE obligation and compliance point/s. (See Step 4 below for detail);
- Geocentric Datum of Australia (GDA94) co-ordinates (latitude and longitude) and elevation (Australian Height Datum) if available; and
- Current VicRoads Map Reference.

Metering IDs, Bore IDs and *Compliance Point IDs* should be unique to the program and used consistently throughout.

Maps or schematic representations of the BE holder's water supply system and region must also be included in the metering program to provide context.

Given the geographic coverage of most BE holders' activities, the following hierarchy of schematic diagrams/maps is proposed:

- overall area of activities of the BE holder;
- area of individual, physically separate water supply arrangements showing all relevant BEs; and
- detailed schematic/map showing compliance point locations and metering/measurement device locations for each individual BE. (Compliance points include any point described in a BE obligation that has a location, for example specified points, alternative extraction points, diversion points, discharge points, passing flow points, storage locations or bore locations. As these types of compliance points have a location, they are able to be indicated on a map.)

Maps should contain a legend that identifies:

- any symbols used to identify each compliance point (and type of compliance point); and
- any symbols used to identify each metering/measurement device (and type of metering/measurement device).

8.4. Step 4: Describe individual measurement arrangements

8.4.1. Individual measurement points

Measurement arrangements differ across BE holders and sites. A description of the arrangement at each site should be included in the table above to assist understanding of the metering approach taken by the BE holder.

The description should include the following details:

- If the site involves flow measurement for diversion or delivery purposes at a single point:
  - type of measurement, e.g. flow in closed pressurised pipe, open channel or partially filled pipe;
  - type of primary measurement device. (A measurement system usually consists of a primary element, which is that part of the system that creates what is sensed and measured by a secondary element. For example, weirs and flumes are primary elements and a staff gauge is a secondary element);
  - type of secondary measurement device;
  - annual average volume specified in BE (ML/annum); and
  - general description of measurement site.
- If the site involves streamflow measurement:
  - type of measurement, e.g. hydraulic structure or stage – discharge relationship;
  - type of stage measurement device, e.g. ultrasonic, float, gauge board etc;
  - annual average flow in the waterway at the site (ML/annum); and
  - general description of measurement site.
- If the site involves storage volumes:
  - type of measurement, e.g. level/volume , inflow/outflow etc;
  - type of stage measurement device/s, e.g. ultrasonic, float, gauge board etc, including details of devices/approaches for measurement of precipitation, evaporation and seepage (if appropriate);
  - capacity of the storage; and
  - general description of measurement site.
- If the obligation involves an aggregation of multiple sites:
  - the number of metering points involved; and
  - description of the type of metering arrangement.
- If the site involves aquifer potentiometric level:
  - type of measurement, e.g. level, pressure;

- type of measurement device/s, e.g. float, electric tape, datalogger, pressure gauge;
- trigger potentiometric levels specified in the BE; and
- general description of measurement site.

- For all forms of measurement, the reasons why the particular method of measurement is used (e.g. physical constraints, economic considerations, legacy measurement etc) should be described. Where measurement at a given point is estimated from readings at other locations, details of the estimation method, assumptions, calculations, rating curves for streamflow etc should be included.

8.4.2. Meter reading arrangements

A thorough outline of arrangements for meter readings should be included in metering programs to assist an independent understanding of the metering process. This should include:

- arrangements for meter reading, e.g. own staff (identified by Department/Branch), contractor (identified by name on contract);
- measurement recording frequency, e.g. continuous, every five minutes, hourly, daily, weekly;
- recording method, e.g. manual, analog-graphical or digital, data recorded at site or transmitted to central hub via telemetry or dial up;
- reading frequency of the measurement record, e.g. daily, three day average, weekly, monthly, annual, etc;
- description of meter reading information storage, e.g. manual record, spreadsheet, database, etc;
- description of the BE holder's quality assurance system for meter reading and storage particularly in relation to missed readings or lost data; and
- if relevant, description of the contractor's quality assurance system for meter reading and storage particularly in relation to missed readings or lost data.

8.4.3. Accuracy and calibration

Accuracy is the degree of conformance of a measurement to the true value. Calibration is the process used to check or adjust the output of a measuring device so that it measures within its accuracy constraints. Metering accuracy and calibration are key to demonstrating compliance with the BE holders' obligations.

The metering program must:

- provide sufficient information to convey the accuracy of metering and calibration; and
- explain the process employed by the BE holders to gain confidence in the accuracy of outputs.

If accuracy estimation and/or calibration are performed by a contractor, it remains the BE holder's responsibility to include full details in the program, including any details of manufacturer's specifications, "acceptable practice" or other standards. Where a contractor is engaged, details should be sourced from the contractor and included in the program.

If any voluntary or compulsory standards apply to metering they should be identified in the metering program. This includes any proposed national metering standards that may be introduced in the future. (For example, a draft national framework has been prepared as part of the National Water Initiative

which outlines a quality assurance process relating to the selection, installation, operation and maintenance of non-urban meters – "Draft National Framework for Non-urban Water Metering").

Accuracy

For all meters, information on accuracy should include:

- theoretical or laboratory measurement accuracy over the full operating range (as a per cent of full scale, e.g. ± 2.5%);
- estimated accuracy in the field (as a per cent of maximum value, e.g. ± 2.5% or ± 5%) at minimum and maximum expected reading;
- the method of estimating meter accuracy in the field; and
- any other relevant details.

If accuracy in the field cannot be determined, sufficient detail is required to explain how the meter readings and compliance with BE obligations are interpreted.

Calibration

Information on calibration should include:

- whether the measurement device is periodically calibrated and if so, how frequently;
- details of the standard or procedure used for calibration (international, national, manufacturer's, BE holder's, contractor's etc);
- identification of which parts of the metering installation are calibrated (primary, secondary elements);
- the name of the organisation that undertakes the calibration;
- details of the qualifications and credentials of the organisation and individual who calibrates the meter;
- details of criteria used to determine acceptance of the calibration;
- actions that will be undertaken when out of calibration; and
- details of any other field tests undertaken to maintain accuracy and repeatability of measurement (e.g. test of the working order and integrity of electronics, dimensions of the device).

Metering programs that describe existing metering installations would benefit from inclusion of a historical summary of past calibration procedures, frequency and outcomes.

The ISO 9001 (International Standard for Quality Management Systems) suggests that measurement equipment be calibrated at prescribed intervals, and that a Calibration Log record the following information:

- equipment type;
- equipment identifier;
- location;
- frequency of checks;
- check method;

- acceptance criteria; and
- action to be taken when out of calibration.

8.5. Step 5: Describe data management

The program should describe the system and processes used to validate, manage, store and retrieve metering data and information.

Sufficient detail should be provided to assist an independent understanding of how data-related risks are mitigated.

8.6. Step 6: Managing risks to accurate measurement

Every metering process is at risk of inaccurate metering through failures of maintenance, measuring, reporting, calibration or data storage.

To ensure compliance with BE obligations, evaluation of these risks by or on behalf of the BE holder must be outlined. Sufficient detail must be provided so an understanding can be gained of the risk assessment process and outcomes.

Assessments or documentation can be attached to the metering program.

8.6.1. Meter maintenance

The condition of meters and measurement devices deteriorates over time due to wear and tear.

The metering program should provide information that describes:

- the process and frequency of inspecting of measurement devices and sites to assess their conditiion;
- the maintenance and replacement practices; and
- the justification for this maintenance approach.

8.6.2. Back-up system

To ensure quality assurance and compliance with BE holder obligations, BE holders should have developed a system to back-up their current metering system in case of failure or disruption.

These systems should be described in sufficient detail to enable an independent understanding of the back-up procedure.

If back-up meters are not considered necessary, the BE holder should explain why this is so. Describe the policies, practices and procedures that would be implemented to address failure of a metering arrangement.

8.6.3. Quality assurance

BE holders are not required to hold formal quality assurance accreditation that applies to preparation of metering programs. However, accreditation with an externally certified and audited code of practice for systems management will help demonstrate that quality of output relating to metering processes can be maintained. Such accreditation typically relates to systems including data management, record-keeping, client relationships, employee training, organisation of work practices and procedures, and monitoring systems.

Where accreditation exists with ISO 9000 QMS or other, the BE holder should provide:

- details of accreditation;
- date of previous external audit;
- name of external auditor who performed the audit;
- details of any identified non-compliance with the code of practice; and
- actions taken to address any non-compliance.

Where formal accreditation is absent, the BE holder is required to identify and describe the policies, practices and procedures that have been implemented to assure the reliability of outcomes from the metering program.

8.7. Step 7: Determining compliance

Accuracy limits, variations in flow over different time periods and calibration of metering processes are significant issues to be addressed in demonstration of BE compliance. This is particularly the case where a BE specifies minimum passing flows as a pre-condition for extraction of water for consumptive use, but also applies to all metering processes.

BE holders should have in place a procedure to determine compliance with relevant BE obligations.

The metering program developed from these Guidelines will include a table of all BE obligations and the means used to measure each. When implementing the program, showing measured performance against each obligation in this table will provide a simple means of tracking compliance and assist annual reporting.

Each metering program should contain sufficient information to enable understanding of any compliance interpretation issues. Where there are issues open to interpretation, BE holders should describe the policies, practices and procedures used to determine compliance. For example, explain how accuracy limits, flow variations and variations in calibration of metering are addressed in assessing compliance.

8.7.1. Metering program link with relevant obligations

As noted in the introduction to these Guidelines, there is a direct link between the metering program and reporting, data sharing and other information obligations specified in BEs.

The program should include an explanation of how the BE holder will use metering information to fulfil the reporting, data sharing and other information obligations.

8.7.2. Information-sharing and stakeholder consultation

Information-sharing with other entities and consultation with relevant stakeholders is required under specific circumstances in some BEs. For example, where a party other than the BE holder is involved in metering under the BE, a joint metering program is required. As a part of this process, consultation with the relevant stakeholders is an obligation of the BE. Furthermore, environmental measures in BEs such as passing flow obligations may require consultation with relevant environmental stakeholders.

Where a BE stipulates this information-sharing or stakeholder consultation, a metering program should:

- outline all obligations to share information with other bodies; and
- describe all relevant processes for information-sharing.

8.8. Improving metering arrangements over time

Where a BE holder has identified gaps or potential inadequacies in current metering practices, the following should be included in the program:

- an explanation of how the gaps/inadequacies were detected; and
- a description of proposed changes to improve any aspect of the current metering system.

This could relate to aspects such as actual metering, recording, storage or reporting. The information should include:

- reference to existing meter or system;
- explanation of shortcoming the improvements seek to overcome;
- outline of actions for installing new sites and upgrading existing sites, including details of expected outcomes (such as new accuracy levels);
- estimated costs of implementing changes;
- a "schedule of works" with timeframe in which the changes are expected to take place; and
- explanation of how changes will improve compliance.

The appropriateness and cost-effectiveness of metering processes can only be assessed on a case-specific basis. The level of accuracy delivered by any particular metering installation will, most likely, reflect available technology.

Where the BE holder considers relatively inaccurate metering processes to be a result of commercially unviable alternatives, this should be outlined in full. It should include:

- reference to the current process and metering accuracy;
- details of technically viable alternatives that would improve on existing metering arrangements;
- estimates of cost implications for improvements;
- estimated expected change in accuracy;
- volumes of water affected by potential changes; and where possible; and
- estimates of the benefits that would be derived from implementing improvement.

Metering programs should be reviewed at least every five years to assess the impact over time where water supply systems or metering arrangements are changed or upgraded.

Glossary of terms

Act: means *Water Act 1989.*

Aquifer potentiometric level: means the elevation of the water level in a bore relative to an agreed datum (eg. Australian Height Datum). For confined aquifers, where a pressure is measured (for conversion to an elevation or otherwise), the measurement of pressure is considered metering.

Basin Water Accounts: means an annual report required by the Minister on compliance by entitlement holders and licensees with the terms of their bulk entitlements or licences.

Bulk Entitlement (BE): means a right to water held by water and other authorities defined in the Act. A BE defines the amount of water that an authority and/or the environment is entitled to from a waterway.

Bulk Entitlement holder (BE holder): means a person holding a bulk entitlement under the Act.

Bulk Entitlement Order (BE Order): refers to an order granting an entitlement under Part 4 Division 1 of the Act. The Order may specify matters outlined in section 43 of the Act.

Bulk transfer system operator: means the authority responsible for operating and maintaining the bulk transfer system referred to in the relevant BE.

Catchment Management Authority (CMA)*:* means an authority within the meaning of the *Catchment and Land Management Act 1994*.

Compliance point: any point that is described in a BE obligation that has a location, for example specified points, alternative extraction points, diversion points, discharge points, passing flow points, storage locations or bore locations. As these types of compliance points have a location, they are able to be indicated on a map.

Distributor: means a person who operates and maintains a channel system referred to in the relevant BE.

Environment: means surroundings in which an organisation operates including air, water, land, natural resources, flora, fauna, humans and their interdependence.

Environmental flow: means the streamflow released from the waterway downstream of a water storage to maintain appropriate environmental conditions in a waterway.

Environmental Water Reserve: means the share of water resources set aside to maintain the environmental values of a water system and other water services which are dependent on the environmental condition of the system.

Essential Services Commission (ESC): means the Essential Services Commission established under the *Essential Services Commission Act 2001*.

Fit for purpose: means information or data obtained from a BE holder's metering program that can be used, unaltered, to demonstrate compliance with Bulk Entitlement obligations and included in standard Government and industry reports.

Good water industry practice: means the exercise of that degree of skill, diligence, prudence and foresight that reasonably would be expected from a significant proportion of operators whose facilities form part of the water supply system for the storage, transport or supply of water. Facilities are operated under conditions comparable to those applicable to the relevant facility and are operated consistent with applicable regulatory instruments, reliability, safety and environmental protection. The

determination of comparable conditions in the relevant facility takes into account factors such as its relative size, duty, age and technological status and the applicable regulatory instruments.

Headworks system: means dams, weirs and associated works used for the harvest and supply of water.

Minister: means the Minister administering the *Water Act 1989*.

Minister for Environment: means the Minister administering the *Conservation, Forests and Lands Act 1987.*

Resource Manager: means any person appointed by the Minister under Section 43A(b) of the Act under the terms and conditions specified in the instrument of appointment.

River basin: means the land which a river and its tributaries drain.

Storage Operator: means any person appointed by the Minister to operate the headworks system, to manage or measure the flow of the waterway, or to do all or any of these things.

Water businesses: means water corporations established or re-constructed under Division 1 of Part 6 of the Act and holders of a water or sewerage licence issued under the *Water Industry Act 1994* (Melbourne metropolitan water licensees).

Water balance: means a statement of the water flows in a given area and time period, in which the sum of the outflows from the area equals the sum of the inflows less the water accumulated in the area.

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Appendix

Self-audit checklist