

## Recommendation on the accreditation of the Warrego–Paroo–Nebine Water Resource Plan

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### Recommendation

1. The Murray-Darling Basin Authority (the Authority) has assessed the proposed Warrego–Paroo–Nebine Water Resource Plan (proposed WRP) for the Warrego–Paroo–Nebine water resource plan area (WRP area), and is satisfied that it is consistent with the relevant Basin Plan (the *Basin Plan 2012* as adopted on 22 November 2012), including:
  - a. the requirements for water resource plans, and
  - b. the long-term annual diversion limits (SDLs) for the water resources of the water resource plan area.
2. On this basis the Authority recommends that the Minister accredit the proposed WRP.
3. Some key issues and background relating to the accreditation of this proposed WRP are set out below followed by the reasons that support the Authority's recommendation.

### Key Issues:

4. A water resource plan (WRP) must be consistent with 'the requirements for water resources plans' (s 55(2)(a) of the *Water Act 2007* (Cwlth) (the *Water Act* (Cwlth))). These are set out in Chapter 10 of the Basin Plan. The Authority has assessed the proposed WRP against each requirement in Chapter 10 and is satisfied that those requirements have been met. The Authority's detailed assessment in support of this conclusion, in relation to each requirement, is set out in this recommendations document.
5. A WRP must be consistent with 'any long-term annual diversion limit for the water resources of the water resource plan area (or for a particular part of those water resources) (s 55(2)(b) of the *Water Act* (Cwlth))). These limits are set by Chapter 6 of the Basin Plan. The Authority is satisfied that this requirement has been met. This is principally because the proposed WRP satisfies the requirements in Part 3 of Chapter 10 of the Basin Plan which set out how a WRP must incorporate and apply these limits. The Authority's detailed assessment of how the proposed WRP satisfies the requirements in Part 3 of Chapter 10 are set out below in relation to each requirement. The Authority notes that the proposed WRP has also been assessed as consistent with the long-term annual diversion limit for the WRP area on the assumption that the gap between the long-term average sustainable diversion limit (SDL) and baseline diversion limit (BDL) will be bridged by the Commonwealth by 1 July 2019.

6. The proposed WRP contains estimates of the BDL for the SDL resource units in the WRP area, which are different from the estimates set out in column 2 of Schedule 3 of the Basin Plan. During the preparation of the proposed WRP, better estimates of the BDL were made for take from watercourses, take under basic rights from watercourses, and take by runoff dams. These updated estimates are based on new and improved methods for estimating take by basic rights from watercourses and runoff dams, and improved hydrological models due to the availability of more monitoring information and the installation of new gauges in the WRP area. The Authority is satisfied that the updated BDL estimates are based on the best available information and reflect the level of development that is set out in the description in column 2 of Schedule 3 of the Basin Plan.
7. Queensland gave the proposed WRP to the Authority on 28 November 2016. Section 6.05(4) of the Basin Plan provides that the shared reduction amount will be calculated as at 31 December 2016. As the proposed WRP was submitted for accreditation prior to this date, the shared reduction amount (and therefore the SDL for each surface water SDL resource unit) could not be accounted for precisely. As a result, the proposed WRP contains a demonstration that the methods for determining annual permitted take will meet the BDL for each SDL resource unit when applied over the historical climate conditions. The proposed WRP also sets how the annual permitted take will be adjusted by the volume of held environmental water (HEW) so the method will give effect to the SDL from 1 July 2019. By adopting this approach, the Authority is satisfied that the proposed WRP includes a demonstration that the methods for annual permitted take meet the SDL.
8. Section 63(2) of the *Water Act (Cwlth)* requires that if a water resource plan area is adjacent to a water resource plan area in another Basin state, the proposed water resource plan must be prepared in consultation with that State. The WRP area is adjacent to water resource plan areas in New South Wales. The Authority is satisfied that the proposed WRP was prepared in consultation with New South Wales. This is demonstrated in the material put forward to meet the requirements in s 10.07, s 10.27, s 10.35, and s 10.41.
9. The proposed WRP states that provisions identified in the water resource plan should be interpreted consistently with the statutory context within which those provisions sit, and that the water resource plan is subject to the water trading rules in Chapter 12 of the Basin Plan. In assessing whether a particular water resource plan requirement has been met by the proposed WRP, the Authority has applied these interpretative principles.

## **Background**

10. Section 54(1) of the *Water Act (Cwlth)* provides that there is to be a WRP for each water resource plan area. This provision was modified by regulation 11A.03 of the *Water Regulations 2008 (Cwlth)*, which delays the requirement to have a water resource plan for the WRP area until 30 June 2016.
11. Section 55 of the *Water Act (Cwlth)* sets out the content requirements for a WRP. Section 55(1) requires a WRP to provide for the management of the water resources of the water resource plan area. Section 55(2) requires a WRP to be consistent with the Basin Plan, including the requirements for WRPs in Chapter 10 of the Basin Plan, and the long-term annual diversion limit for the water resources of the water resource plan area.

12. On 28 November 2016, Queensland gave the proposed WRP for the WRP area to the Authority, and requested that the Authority provide the proposed plan to the Minister for accreditation.
13. Section 63(3) of the *Water Act (Cwlth)* requires the Authority to: i) consider the proposed WRP; ii) prepare recommendations for the Minister on whether the proposed WRP should be accredited, and; iii) give the Minister the proposed WRP and the recommendations.
14. The proposed WRP is made up of a number of instruments and texts. These documents are listed in the Glossary of instruments and texts at the back of this recommendations document, and have been provided to the Minister. The key text put forward for accreditation is titled *Warrego-Paroo-Nebine Water Resource Plan (WPN WRP)*. This text incorporates by reference a number of other instruments and texts (or sections thereof) that form part of the proposed WRP. The index in Chapter 5 of the *WPN WRP* (the Index) clarifies what instruments and documents, or parts of instruments and documents, are part of the proposed WRP. This key text is supported by a package of 37 instruments and texts referred to in the Index, parts of which have been put forward for accreditation, and parts of which provide supporting information. As a result of the multiple documents involved, the proposed WRP is complex and it can be difficult to navigate through the content to determine whether particular requirements have been satisfied. The detailed recommendations in this document set out which of the instruments or texts have been put forward to meet each requirement.
15. Where a requirement has been clearly met by the proposed WRP, the recommendations set this out briefly. Where there is some ambiguity about the way a requirement has been met or whether a requirement has been met, the recommendations set out more detailed reasons why the Authority is satisfied that the proposed WRP meets that requirement.
16. Section 55(3) of the *Water Act (Cwlth)* requires that in determining whether the WRP is consistent with the Basin Plan, regard must be had to the legislative framework within which the WRP operates.
17. The *Water Act 2000 (Qld)* (*Water Act (Qld)*) provides the main legislative framework in Queensland within which the proposed WRP will operate. This framework includes processes for the making of water resource plans and resource operations plans that provide for the sustainable management of water resources. Water management and allocation decisions that are made under the *Water Act (Qld)* are also required to be made consistently with water resource plans and resource operations plans.
18. The *Water Resource (Warrego, Paroo, Bullo and Nebine) Plan 2016 (Queensland WRP)* and the *Warrego, Paroo, Bulloo and Nebine Resource Operations Plan (ROP)* have been made under the *Water Act (Qld)*, and cover the water resources of the WRP area. The *Water Regulations 2002 (Qld)* also support the operation of the *Water Act (Qld)*. These regulations set out processes for the allocation and sustainable management of water resources and the metering of water.
19. The *Environmental Protection (Water) Policy 2009 (Qld)* (2009 policy) made under the *Environmental Protection Act 1994 (Qld)*, and the *Healthy Waters Management Plan: Warrego, Paroo, Bulloo and Nebine (HWMP)* made under the 2009 policy, are relevant aspects of Queensland's legislative framework that deal with matters of water quality.

20. The proposed WRP incorporates provisions of the *Water Act (Qld)*, *Queensland WRP*, *ROP*, *Environmental Protection Act 1994 (Qld)* and the *HWMP* for the purposes of satisfying particular requirements in Chapter 10 of the Basin Plan. The proposed WRP indicates that provisions identified in the proposed WRP should be interpreted consistently with the statutory context within which those provision sit. Accordingly, where such provisions have been put forward for accreditation, the Authority has assessed whether those provisions are consistent with Chapter 10 of the Basin Plan, and the Basin Plan more generally having regard to the broader statutory context.
21. The *Water Supply (Safety and Reliability) Act 2008 (Qld)* is another relevant part of Queensland's legislative framework. It provides for the safety and reliability of water supply. The Authority has considered this part of the legislative framework as supporting evidence about the way water will be managed in the area during extreme events.
22. This document sets out why the Authority considers that the proposed WRP is consistent with the Basin Plan, and suitable for accreditation by the Minister. The document first sets out an assessment of whether the proposed WRP is consistent with each of the requirements in Chapter 10 of the Basin Plan. Second, it provides an assessment of whether the proposed WRP is consistent with other provisions of the Basin Plan.

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## Consistency with the requirements in Chapter 10 of the Basin Plan

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### Part 2—Identification of water resource plan area and other matters

#### **Section 10.02 – Identification of water resource plan area and water resources**

24. The Authority considers that the requirements in s 10.02 have been met by the proposed WRP. Section 10.02(1) requires a WRP to identify the water resource plan area and water resources to which it applies. The identification must be consistent with the descriptions set out in ss 10.02(2) and (3).

#### **Assessment**

25. The Index indicates that s 10.02 is satisfied by:
- a. *WPN WRP*: Explanatory note 2A.
26. Explanatory note 2A identifies:
- a. The WRP area by reference to the description of the Warrego–Paroo–Nebine WRP area set out in s 3.07 of the Basin Plan.
  - b. The water resources within the WRP area by reference to the description of those water resources set out in s 3.07 of the Basin Plan.

#### **Section 10.03 – Identification of SDL resource units and water resources**

27. The Authority considers that the requirements in s 10.03 have been met by the proposed WRP. Section 10.03(1) requires a WRP to identify the SDL resource units in the water resource plan area and water resources in those units. The identification must be consistent with the descriptions set out in ss 10.03(2) and (3).

#### **Assessment**

28. The Index indicates that s 10.03 is satisfied by:
- a. *WPN WRP*: Explanatory note 2B.
29. Explanatory note 2B identifies:
- a. The SDL resource units within the WRP area by reference to Schedules 2 (surface water) and 4 (groundwater) of the Basin Plan.
  - b. The water resources within each SDL resource unit by reference to ss 6.02 (surface water) and 6.03 (groundwater) of the Basin Plan.

#### **Section 10.04 – Form of water resource plan**

30. The Authority considers that the requirements in s 10.04 have been met by the proposed WRP. Section 10.04 requires the following:
- a. As the proposed WRP is constituted by two or more instruments and texts, s 10.04(1) states that ss 10.04(2) and (3) apply. Section 10.04(2) requires a WRP to identify the instruments and texts that constitute the WRP. Section 10.04(3) provides that if an

instrument or text applies only to some of the water resources of the water resource plan area, the WRP must identify the water resources, or the parts of the water resources, to which an instrument or text applies and an indicative map of those water resources.

- b. Section 10.04(4) requires a WRP to include a list that specifies (a) each requirement of Chapter 10 of the Basin Plan, (b) the part of the WRP which addresses each requirement, and (c) when these parts will cease to have effect or are to be reviewed.
- c. Section 10.04(5) requires a WRP to identify any material contained in the instruments or texts which constitute the WRP that is not part of the WRP.

### **Assessment**

- 31. The Index indicates that s 10.04 is satisfied by:
  - a. *WPN WRP*: Chapter 5 Index; Chapter 2, Figure 1 Map of Warrego–Paroo–Nebine surface water SDL resource units and Figure 2 Map of Warrego–Paroo–Nebine groundwater SDL resource units, and; Appendix A Instruments and texts that constitute the Water Resource Plan.
- 32. For s 10.04(2), Appendix A of the *WPN WRP* identifies the instruments and texts constituting the WRP, including the version number or date of publication of the instrument or text and the type of instrument or text.
- 33. For s 10.04(3), Appendix A of the *WPN WRP* identifies the water resources to which the instrument or text applies and Figures 1 and 2 of Chapter 2 provide indicative maps for the purposes of identifying the water resources of the WRP area.
- 34. For s 10.04(4)(a) and (b), the Chapter 5 Index identifies:
  - a. each section in Chapter 10 of the Basin Plan and the requirement specified in that section of the Basin Plan, and
  - b. the part of the instrument or text constituting the proposed WRP that addresses that requirement.
- 35. For s 10.04(4)(c), Appendix A identifies the end date of the instrument or texts (i.e. when those instruments or text cease to have effect) or proposed review dates for those instruments or texts.
- 36. For s 10.04(5), the note to the table in the Chapter 5 Index provides that if any sections of instruments or texts put forward for accreditation are not explicitly identified in the relevant table, those sections do not form part of the WRP. By doing this, the Authority is satisfied that the requirement in s 10.04(4) has been met by the proposed WRP.

### **Section 10.05 – Regard to other water resources**

- 37. The Authority considers that the requirements in s 10.05 have been met by the proposed WRP. Section 10.05 requires a WRP to be prepared having regard to the management and use of any water resources which have a significant hydrological connection to the water resources of the water resource plan area, and describe how this requirement was complied with.

## Assessment

38. The Index indicates that s 10.05 is satisfied by:
- a. *Environmental Assessment Report–Stage 2*: Chapter 2 Hydrology and water resource development of the plan area.
  - b. *Queensland WRP*: Section 10(2)(c) Outcomes for water in plan area, Section 19 Decision to not increase amount of water taken, and; Schedule 4 Environmental flow objectives and performance indicators.
  - c. *WPN WRP*: Explanatory notes 2C and 2D, and; Chapter 5.7.
  - d. *Sediments above the Great Artesian Basin: Groundwater background paper*: Chapter 3 Groundwater condition.
  - e. *St George Alluvium: Groundwater background paper*: Chapter 2 Shallow alluvium.
  - f. *Warrego Alluvium: Groundwater background paper*: Chapter 3 Groundwater condition.
  - g. *Intergovernment Agreement for the Paroo River between New South Wales and Queensland*, 18th July 2003.

*Water resources that have a significant hydrological connection to surface water in the water resource plan area*

39. Chapter 2 of the *Environmental Assessment Report–Stage 2* indicates that the surface water resources of the Intersecting Streams water resource plan area (SW13) are the only water resources that have a significant hydrological connection to the surface water resources of the WRP area. There are no significant connections between surface water in the WRP area and any groundwater resources.
40. Explanatory note 2D describes how regard was had to the management and use of surface water connections between the surface water SDL resource units of the WRP area and the Intersecting Streams water resource plan area. This involved undertaking consultation with New South Wales and relevant stakeholders about the management and use of those water resources. As a consequence of that consultation, performance indicators for days in low flow periods were added to the *Queensland WRP* (see Schedule 4).
41. The Authority also noted that decisions that would increase the average volume of water taken in the WRP area (which would in turn affect flows into NSW) are prohibited (s 19 of the *Queensland WRP*).
42. The provisions put forward for s 10.05 are also intended to achieve the outcomes for the allocation and management of water in a way that is consistent with water sharing agreements and commitments between Queensland and New South Wales (see s 10(2)(c) of the *Queensland WRP* and *Intergovernment Agreement for the Paroo River between New South Wales and Queensland*).

*Water resources that have a significant hydrological connection to groundwater in the water resource plan area*

43. The Groundwater background papers listed at paragraph 38 identify the groundwater resources that have significant hydrological connections to the water resources of the WRP

area. Explanatory note 2D summarises the significant connections to NSW water resource plan areas. These documents indicate that:

- a. The St George Alluvium groundwater system is a groundwater system that underlies three water resource plan areas in Queensland (namely: the Condamine–Balonne, Moonie and Warrego–Paroo–Nebine water resource plan areas), and the New South Wales Great Artesian Basin Shallow water resource plan area. To the extent that the St George Alluvium in the Warrego–Paroo–Nebine water resource plan area extends into these water resource plan areas, there is a significant hydrological connection.
- b. The Sediments above the Great Artesian Basin is a groundwater system that also underlies all four water resource plan areas in Queensland and the New South Wales Great Artesian Basin Shallow water resource plan area. The Sediments above the Great Artesian Basin is a discontinuous groundwater system, and as such, it is generally unknown which parts of the system have significant hydrological connections to the Warrego–Paroo–Nebine water resource plan area. Nevertheless, Queensland has indicated that the management arrangements in the four Queensland WRPs that cover the Sediments above the Great Artesian Basin (these WRPs are still to be made) will have the effect of managing these resources as a single groundwater resource. To the extent that the Sediments above the Great Artesian Basin extends into the Condamine–Balonne, Moonie, Border Rivers, and New South Wales Great Artesian Basin Shallow water resource plan areas, it is treated as having a significant hydrological connection to the Warrego–Paroo–Nebine water resource plan area.
- c. The Warrego Alluvium system is a groundwater system that covers the Warrego–Paroo–Nebine and the New South Wales Great Artesian Basin Shallow water resource plan areas. In this way the Warrego Alluvium, in so far as it extends into the New South Wales Great Artesian Basin Shallow, has a significant hydrological connection to the Warrego–Paroo–Nebine water resource plan area.

44. Explanatory Note 2D and the Groundwater background papers describe how regard was had to the management and use of these groundwater resources. These texts indicate that:

- a. For the connected groundwater systems that have low risks and low levels of take (i.e. the Warrego Alluvium and Sediments above the Great Artesian Basin groundwater systems), to maintain this level of risk, the volume of groundwater entitlements that can be issued in the WRP area is limited to a volume that is less than the SDL. This manages the uncertainty about how these aquifers will respond to higher levels of take.
- b. For the St George Alluvium groundwater system, levels of take are higher and there are greater risks arising from the management and use of the St George Alluvium in the neighbouring water resource plan area (Condamine–Balonne), particularly if there is a growth in take. Given this risk, the proposed WRP limits growth in take for this resource unit through the combination of sections 19 and 29 of the *Queensland WRP* (noting that the proposed WRP also does not set aside any unallocated water for the St George Alluvium groundwater system).

### **Section 10.06 – Matters relating to requirements of Chapter**

45. The Authority considers that the requirements in s 10.06 have been met by the proposed WRP. Section 10.06 requires a WRP to specify the person responsible for each matter that Chapter 10 requires to be dealt with in a WRP, including identifying the person responsible for undertaking any measure or action that the WRP requires to be undertaken.

#### **Assessment**

46. The Index indicates that s 10.06 is satisfied by:
- a. *WPN WRP*: Appendix A Instruments and texts that constitute the Water Resource Plan, and; Explanatory note 2E.
47. Appendix A identifies a person responsible for administering matters under the instruments and texts listed as addressing Basin Plan requirements.
48. Footnote 1 of Appendix A states that unless otherwise stated in the proposed WRP, the person identified in the column titled 'Responsible person' is also responsible for undertaking a measure or action identified in an instrument or text.
49. Explanatory note 2E includes a reading down clause that is similar to s 1.09 of the Basin Plan. This note expressly provides for obligations that are imposed on a Basin State only by the WRP to be read down so that they are within Commonwealth power.

### **Section 10.07 – Consultation to be demonstrated**

50. The Authority considers that the requirements in s 10.07 have been met by the proposed WRP. Section 10.07 requires a WRP to include a description of the consultation that was undertaken in relation to the plan, if any, before the State gave the plan to the Authority under s 63(1) of the Act.

#### **Assessment**

51. The Index indicates that s 10.07 is satisfied by:
- a. *Consultation report*.
  - b. *Cultural Assessment*: Chapter 2 Getting Aboriginal voices into water planning, Chapter 3 The importance of water to Aboriginal people in the Warrego, Paroo, Bulloo and Nebine catchments.
  - c. *Aboriginal values and uses report*: Chapter 4 Objectives and outcomes based on Aboriginal values and uses.
  - d. *HWMP*: Section 4 Consultation.
  - e. *Implementation Review Report*: Chapter 5 Consultation; Chapter 6 Proposed key directions for the new draft water resource plan and resource operations plan.
  - f. *WPN WRP*: Explanatory note 2F.
52. The consultation undertaken as part of the preparation of the WRP has been comprehensively described in the documents and text put forward for the purposes of this requirement. This includes describing the consultation processes, identifying the stakeholders consulted, setting out the key issues raised, and how these issues have been

addressed in the WRP. Accordingly, the Authority is satisfied that the proposed WRP includes the description required by s 10.07(1).

53. The proposed WRP has not been amended in accordance with section 65 of the *Water Act 2007* (Cwth). Subsection 10.07(2) is therefore not applicable to the accreditation of the proposed WRP.

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## Part 3—Incorporation and application of long-term annual diversion limit

### ***Section 10.08 – Water access rights must be identified***

54. The Authority considers that the requirements in s 10.08 have been met by the proposed WRP. Section 10.08(1) requires a WRP to identify: (a) each form of take from each SDL resource unit in the water resource plan area; (b) any classes of water access rights that apply to those forms of take, and; (c) the characteristics of each class of right, including, where appropriate, the number of rights and any conditions on the exercise of the rights. Section 10.08(2) requires a WRP to require a holder of a water access right to comply with the conditions of that right.

### **Assessment**

55. The Index indicates that s 10.08 is satisfied by:
- a. *Water Accounting Methods Report*: Chapter 2 Queensland's water access rights and Chapter 3 Water access rights in the plan area.
  - b. *Water Act 2000 (Qld)*: Section 808 Unauthorised taking, supplying or interfering with water and Section 812 Contravening conditions of water entitlement, seasonal water assignment notice or water permit.

### *Section 10.08(1) – Identification of forms of take, classes of rights and characteristics of rights*

56. Chapter 3 of the *Water Accounting Methods Report* includes a number of tables that identify each form of take from each SDL resource unit, the classes of water access rights that apply to those forms of take and the characteristics of those classes of right, including, where appropriate, the number of rights and any conditions on the exercise of the rights. The Authority's assessment of this requirement was undertaken on the assumption that this document has identified all relevant forms of take, classes of water access rights, and characteristics of those rights. On this basis, when read with the discussion provided in Chapter 2 of that report, the Authority considers that Chapter 3 satisfies the requirement in s 10.08(1).

### *Section 10.08(2) – Holder of a water access right to comply with conditions of that right*

57. Sections 808 and 812 of the *Water Act 2000 (Qld)* have been put forward for the purposes of satisfying this requirement.
58. The Authority is satisfied that s 812 of the *Water Act 2000 (Qld)* contributes to meeting the requirement in s 10.10. The provision operates to require the holder of a water allocation, interim water allocation, water licence, seasonal water assignment notice or water permit to comply with the conditions of those water access rights by making it an offence, under Queensland law, to contravene the conditions of those rights.
59. Section 808 of the *Water Act 2000 (Qld)* also contributes to meeting the requirement in s 10.10. Sections 808(1) and (2) make it an offence, under Queensland law, for a person to take or supply, or interfere with, water unless authorised to do so under the Act or under certain State or Territory laws. The Authority is satisfied that these provisions ensure that those holders only take water in the manner authorised and in this way operate to require

the holders of those rights to comply with the conditions of those rights (i.e. to take water in the way authorised). Section 808(3) provides that the holder of a metered entitlement must not take water under the entitlement other than through an approved meter. In this way, s 808(3) requires the holder of a metered entitlement to comply with this condition.

### **Section 10.09 – Identification of planned environmental water and register of held environmental water**

60. The Authority considers that the requirements in s 10.09 have been met by the proposed WRP. Section 10.09(1) requires a WRP to identify the planned environmental water in the water resource plan area and associated rules and arrangements relating to that water. Section 10.09(2) requires a WRP to provide for the establishment and maintenance of a register of certain matters relating to held environmental water in the water resource plan area, in accordance with a number of conditions. Section 10.09(3) sets out an alternative way to satisfy s 10.09(2).

### **Assessment**

61. The Index indicates that s 10.09 is satisfied by:

- a. *Water Act 2000* (Qld): Section 808 Unauthorised taking, supplying or interfering with water and Section 812 Contravening conditions of water entitlement, seasonal water assignment notice or water permit.
- b. *Queensland WRP*: Section 19 Decision not to increase amount of water taken, and Section 20 Decisions to be consistent with objectives.
- c. *ROP*: Section 30 Announced period; Section 34 Change of location, and; Section 36 Seasonal water assignment rules.
- d. *WPN WRP*: Explanatory notes 3A, 3B and 3C.

62. Explanatory note 3B identifies planned environmental water as the remaining share of the water resource that is not in the consumptive water share (i.e. permitted to be taken under the *Water Act 2000* (Qld), *Queensland WRP* and *ROP*). The provisions of the *Water Act 2000* (Qld), *Queensland WRP* and *ROP* defining the 'consumptive water share' (and ensuring that take is maintained within that share) have also been specifically identified for s 10.09. Explanatory note 3B also make it clear that the rules and arrangements associated with planned environmental water are those that are specified for the purposes of s 10.28. Accordingly, the Authority is satisfied that the requirement in s 10.09(1) has been met by the proposed WRP.

63. Explanatory note 3C states that the Commonwealth Environmental Water Holder (CEWH) is currently the only holder of HEW in the WRP area. It notes that the CEWH maintains an ongoing record of its holdings of HEW that meets the requirements of s 10.09(2), located at: <https://www.environment.gov.au/water/cewo/portfolio-mgt/holdings-catchment>. Explanatory note 3C indicates that this record of HEW will be the register of HEW for the WRP. Explanatory note 3C also indicates that if HEW in addition to that held by the CEWH is identified during the life of the WRP, the chief executive will establish and maintain a register that it will publish at [www.dnrm.qld.gov.au](http://www.dnrm.qld.gov.au) that will record all the HEW in the WRP area in

accordance with s 10.09(2), or identify a register of HEW that does this. Accordingly, the Authority is satisfied that the requirement in s 10.09(2) has been met by the proposed WRP.

### **Section 10.10 – Annual determinations of water permitted to be taken**

64. The Authority considers that the requirements in s 10.10 have been met by the proposed WRP. These requirements and the Authority's assessment are set out below.

#### **Assessment**

65. The Index indicates that s 10.10 is satisfied by:

- a. *Water Accounting Methods Report*: Chapter 4.2.2 Take that is not measured - basic rights from groundwater; Chapter 5 Methods – annual permitted take (s.10.10); Chapter 6.2 Annual actual take by floodplain harvesting; Chapter 6.3 Annual actual take by runoff dams (including basic rights), and; Appendix B Method for estimating take from watercourses under basic rights.
- b. *Hydrological modelling reports: Warrego River, Paroo Creek, and Nebine Creek*.

Note: The *Hydrological modelling reports* reference the model runs used to determine the annual permitted take for relevant forms of take in the WRP area. The *Water Accounting Methods Report* sets out how these models are applied to determine the maximum quantity of water that the plan permits to be taken for consumptive use during a water accounting period.

#### *Sections 10.10(1), (2) and (3) – Method for determining annual permitted take*

66. Section 10.10(1) provides that for each SDL resource unit in a water resource plan area, and for each form of take, the WRP must set out the method for determining the maximum quantity of water that the plan permits to be taken for consumptive use during a water accounting period (the method for annual permitted take). The purpose of this method is to provide a mechanism for determining the annual expression of the SDL against which the operation of the WRP will be assessed on a yearly basis (i.e. as part of the method for determining compliance with the SDL set out in Part 4 of Chapter 6 of the Basin Plan, which compares annual actual take to annual permitted take). This can be contrasted with the rules for s 10.11 which are intended, as far as is practicable, to ensure that the quantity of water actually taken does not exceed the annual permitted take that is determined using the s 10.10(1) method.

67. The parts of the *Water Accounting Methods Report* described above in paragraph 65.a above set out methods for annual permitted take. The Authority is satisfied that these methods meet the requirement in s 10.10(1). In this respect, the Authority notes the following:

- a. A method is provided for each form of take in each SDL resource unit.
  - i. However, there is no method for net take by commercial plantations. Chapter 4.2.2 of the *Water Accounting Methods Report* states that there are no commercial plantations in the WRP area. Chapter 5.5 of the *Water Accounting Methods Report* states that it is unlikely that any such commercial plantations will be established in the WRP area during the life of the proposed WRP. Chapter 5.5 also states that a risk assessment will be conducted prior to the expiry of the

*Queensland WRP*, and an appropriate method to quantify net take by commercial plantations will be developed if there is a risk of increase in net take by commercial plantations. The Authority considers that it is appropriate not to include a method for s 10.10 in these circumstances.

- ii. Where the method provided includes a model (i.e. as described in *Hydrological modelling reports*) the Authority has undertaken a technical assessment of the model and is satisfied that the model is based on the best available information and adequately informs the method for determining annual permitted take from watercourses. However, the Authority notes that the data availability in the WRP area limits the model calibration and results in high model uncertainty.

b. Each method determines a maximum quantity of water that the plan permits to be taken.

c. Each method covers water that is permitted to be taken for consumptive use.

- i. Appendix A of the *Water Accounting Methods Report* lists take for certain purposes that are authorised under the *Water Act 2000* (Qld). For example, take for firefighting, emergency situations, and traditional activities or cultural purposes. Take referred to in Appendix A that is not for 'consumptive use' within the meaning of the *Water Act 2007* (Clwth) has not been dealt with by the methods put forward for s 10.10 (e.g. the methods do not cover take for firefighting). This is consistent with the requirement in s 10.10 which is only concerned with take for 'consumptive use.' Other take referred to in Appendix A that may be capable of being considered to be for 'consumptive use' (e.g. take for camping purposes and watering travelling stock) has not been included in the methods on the basis that the estimation of the limited volumes of use would have a very high margin of error and be unreliable for accounting purposes. In light of the circumstances of the WRP area, the Authority considers that this approach is consistent with the requirement in s 10.10(1).

68. For s 10.10(2), the Authority is satisfied that each method for annual permitted take outlined in the *Water Accounting Methods Report* (ss 5.1 to 5.6) is designed to be applied after the end of the relevant water accounting period, having regard to the water resources available during the period. In coming to this conclusion the Authority notes the following:

- a. For the methods in Chapter 5.4 Permitted take under basic rights from a watercourse, and Chapter 5.6.2 Basic rights from groundwater, it is assumed that water availability from these resources does not vary greatly from year to year. Accordingly, availability of the water resources in a water accounting period is considered to be constant when setting the maximum quantity of water that can be taken. Consequently, the methods determine that the annual permitted take for these forms of take are the long-term annual averages each year. The Authority is satisfied that this approach has appropriate regard to the water resources available in the water accounting period.
- b. The method in Chapter 5.3 Permitted take by runoff dams (including take under basic rights) uses the estimated volume of dam capacity in the catchments and a demand/opportunity factor to determine annual permitted take, which is the same method used for determining the long-term annual average take. While this results in

the same annual permitted take volume each year, given the limited information available and the low risks posed by this form of take, the Authority is satisfied that this approach has appropriate regard to the water resources available.

69. Section 10.10(3)(a) requires that the methods for annual permitted take set out for s 10.10(1) account for the matters in s 10.12(1). Chapter 5.7 of the *Water Accounting Methods Report* outlines how the methods used to determine annual permitted take account for the matters required by s 10.12. The Authority is satisfied that the methods for s 10.10 do account for the matters listed in s 10.12. This is discussed in more detail below in the discussion about s 10.12.
70. Section 10.10(3)(b) requires the methods for annual permitted take set out for s 10.10(1) to be consistent with the other provisions of the WRP. Chapter 5 of the *Water Accounting Methods Report* asserts that the methods used are consistent with the other provisions of the proposed WRP. The Authority has undertaken an assessment of the operation of the proposed WRP and is satisfied that all of the methods are consistent with the other provisions of the proposed WRP. In this respect the Authority notes the following:
- a. Methods have been provided for each form of take and cover the classes of water access rights that are covered by the proposed WRP. This enables a comparison to be undertaken of the take that the proposed WRP allows, particularly under the rules put forward for s 10.11, against the permitted take determined using the methods.
  - b. The Authority is satisfied the methods, including those that involve modelling, are the best available methods given the circumstances of the WRP area.
71. The Authority notes that some of the methods put forward for accreditation provide that annual permitted take is determined in the same way as annual actual take for s 10.15 (i.e. methods for floodplain harvesting, runoff dams, and basic rights from a watercourse and groundwater). The Authority considers that in light of the nature of these forms of take in the context of the WRP area, this approach is consistent with the requirement in s 10.10. In this respect, the Authority notes there is much uncertainty surrounding the determination of annual permitted take for these forms of take. Also, other approaches involving the application of different methods for actual and permitted take could produce vastly inaccurate and meaningless results or could result in outcomes that may undermine the Authority's assessment of the operation of the proposed WRP in relation to other forms of take that involve a higher degree of accuracy and importance (e.g. permitted and actual take from a watercourse).

*Sections 10.10(4) and (5) – Demonstration of method meeting the SDL for the SDL resource unit*

72. The Authority is satisfied that Chapter 5.8 of the *Water Accounting Methods Report* includes a demonstration that the method relates to the SDL of each resource unit in such a way that, if applied over a repeat of the historical climate conditions, it would result in meeting the SDL for the resource unit.

*Surface water*

73. The SDL for surface water for each resource unit in the WRP area is not known at the time of making this recommendation. This is because the SDL for each SDL resource unit depends on the determination of the shared reduction amount, in accordance with s 6.05(4)

of the Basin Plan (and the shared reduction amount will not be known until 31 December 2016).

74. Nevertheless, even though the SDL is unknown, the Authority is satisfied that plan sets out a demonstration that the method relates to the SDL of each resource unit in such a way that, if applied over a repeat of the historical climate conditions, it would result in meeting the SDL for the resource unit (whatever that SDL turns out to be). This is because:
- a. the demonstration shows that, applied over the historical climate conditions, the methods combined determine a maximum quantity of water that may be taken for consumptive use that equals the BDL for each SDL resource unit. The Authority is satisfied, after undertaking a technical analysis of the demonstration, that the methods achieve this outcome
  - b. Appendix C of the *Water Accounting Methods Report* then provides for the deduction from the BDL of the quantity of HEW required to achieve the SDL, when it takes effect on 1 July 2019. The quantity of HEW required to achieve the SDL will not be conclusively known until 31 December 2016, when the shared reduction amount is calculated. Nevertheless, by adopting this approach and assuming the Commonwealth's commitment to bridge the gap by 30 June 2019 will be achieved, the Authority is satisfied that the proposed WRP includes a demonstration that the methods meet the SDL for s 10.10(4).
75. In concluding that the demonstration is consistent with s 10.10(4), the Authority notes that:
- a. The demonstration assumes that take under water permits from a watercourse over the historical climate conditions is zero GL/year in each surface water SDL resource unit. Water permits are short-term authorities to take water from a particular location, for a stated period and for specified activities (s 241 of the *Water Act 2000* (Qld)). There are generally small numbers of water permits in use each year and the number of permits will vary from year to year. Historically the volumes issued under such permits have been very low. Therefore, the Authority is satisfied that assuming a long-term average take by water permits from a watercourse of zero GL/year is reasonable.
  - b. The method for s 10.10(1) for determining annual permitted take by floodplain harvesting includes a component for water licences but recognises that there are no water licences. Consequently, the demonstration shows that the maximum quantity of water permitted to be taken by floodplain harvesting under water licences is zero.
  - c. There is no method for s 10.10(1) for net take by commercial plantations. The proposed WRP limits net take by commercial plantations to the level specified for the BDL in Schedule 3 of the Basin Plan. The BDL for net take by commercial plantations is estimated to be zero. Consequently, the demonstration shows that net take by commercial plantations is zero.
  - d. For take by floodplain harvesting, the method has been applied over a shorter time period (2004/05 to 2014/15) that does not coincide with the historical climate conditions. The reason for this is that this is the best available information for long-term annual permitted take over the historical climate conditions. Given the circumstances

of the WRP area and the available information, the Authority is satisfied that this approach is consistent with s 10.10(4).

#### *Groundwater*

76. For the groundwater SDL resource units of the WRP area, the SDLs are as follows:
- a. Sediments above the Great Artesian Basin: Warrego–Paroo–Nebine SDL resource unit — 99.2GL per year.
  - b. St George Alluvium: Warrego–Paroo–Nebine SDL resource unit — 24.6GL per year.
  - c. Warrego Alluvium SDL resource unit — 10.2 GL per year.
77. For each of the groundwater SDL resource units in the WRP area, the demonstration shows that the method results in the determination of annual permitted take that is significantly lower than the SDL. In this respect, the Authority notes that the demonstration shows that the methods result in the following levels of take from groundwater over a repeat of the historical climate conditions:
- a. Sediments above the Great Artesian Basin: Warrego–Paroo–Nebine SDL resource unit — 8.8GL per year.
  - b. St George Alluvium: Warrego–Paroo–Nebine SDL resource unit — 0.1GL per year.
  - c. Warrego Alluvium SDL resource unit — 2.7GL per year.
78. The Authority is satisfied that a demonstration that shows that the method results in a level of take that is less than the SDL is consistent with s 10.10(4). In this respect, the Authority considers that it is open to a State, if it so chooses, to present a WRP for accreditation that effectively results in the operation of the WRP being against a limit that is more stringent than the SDL.

#### *Section 10.10(5) – s 23B amendment*

79. Section 10.10(5) does not apply until an amendment is made to the Basin Plan under s 23B of the *Water Act 2007* (Cwlth), so it is not applicable to the accreditation of the proposed WRP.

#### **Section 10.11 – Rules for take, including water allocation rules**

80. The Authority considers that the requirements in s 10.11 have been met by the proposed WRP. Section 10.11 requires a water resource plan to include rules that ensure, as far as practicable, that the quantity of water actually taken from each SDL resource unit for consumptive use in a water accounting period, beginning on or after 1 July 2019, does not (after making any adjustments for the disposal or acquisition of HEW) exceed the unit's annual permitted take for the period. A WRP may also provide for less water to be taken (s 10.11(2)).

#### **Assessment**

81. The Index identifies that s 10.11 is satisfied by:
- a. *Queensland WRP*: Section 19 Decision not to increase amount of water taken; Section 23 Reserve volumes; Section 25 Limitation on taking or interfering with water; Section

26 Limitation on taking overland flow water, and; Section 29 Limitation on taking or interfering with groundwater.

- b. *ROP*: Chapter 2 Cunnamulla Water Supply Scheme, Part 2 Water sharing rules; Chapter 3 Rules for supplemented water allocations, Part 1 Water sharing and data collection rules for the Upper and Lower Warrego water management areas.

82. The Authority has undertaken an assessment of the operation of the rules in relation to groundwater and surface water beginning on 1 July 2019, and is of the view the requirement in s 10.11 has been met for the reasons that follow. In undertaking this analysis, the Authority has had regard to the statutory context within which those rules operate. This is because the rules put forward for accreditation for s 10.11 require the chief executive to exercise their functions and powers in accordance with those rules, within this statutory context, which relevantly includes:

- a. Chapter 2 of the *Water Act 2000* (Qld), which establishes a system for the planning, allocation and use of water, including the establishment of water access rights allocations, and
- b. ss 808 and 812 of this Act, which create offences for interfering with water without authority to do so, or contravening the conditions of a water entitlement, assignment or permit.

#### *Surface water*

83. The Authority is satisfied that the rules of the proposed WRP will ensure, as far as practicable, that water that is taken from a surface water SDL resource unit for consumptive use in a water accounting period will not exceed the unit's annual permitted take by<sup>1</sup>:

- a. limiting management decisions that increase the average volume of water that may be taken under the proposed WRP and setting reserve volumes (ss 19 and 23 of the *Queensland WRP*)
- b. limiting the taking of overland flow water in the WRP area (s 26 of the *Queensland WRP*), which is relevant to limiting take by runoff dams (excluding take under basic rights) and floodplain harvesting
- c. setting out water allocation and sharing rules for Cunnamulla Water Supply Scheme (Chapter 2 of the *ROP*), and
- d. establishing allocation and sharing rules for unsupplemented water allocations in the WRP area (Chapter 3 of the *ROP*).

84. In effect, these rules maintain the levels of development that is described in the BDL for the SDL resource units of the WRP area. In this way, the proposed WRP ensures that the amount of water taken for consumptive use will not exceed the BDL. The Commonwealth can then acquire the volume of HEW necessary to meet the SDL.

85. The Authority also notes that there is a risk, at full utilisation, of actual take exceeding permitted take in circumstances where increased opportunities for extraction by downstream

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<sup>1</sup> See also the limits for s 10.13 of the Basin Plan.

users arise as a result of HEW being left in the system. However, the Authority is satisfied that the proposed WRP still, as far as practicable, limits actual take to annual permitted take. This is because the Authority interprets s 30 of the *ROP* when read with s 19 of the *Queensland WRP* to require announced periods for unsupplemented water allocations to be made in a way that does not result in an increase to the average volume of water taken under the rules of the proposed WRP. In addition, the Authority notes that the levels of actual take in the WRP area are well below full utilisation so there is a low risk of increased opportunities for extraction by downstream users arise as a result of HEW being left in the system during the life of the proposed WRP.

86. Finally, in making its assessment, the Authority notes that by 1 July 2019 any gap between the BDL and SDL is intended to be closed by the Commonwealth's acquisition of HEW.

#### *Groundwater*

87. The Authority considers that the rules of the proposed WRP will ensure, as far as practicable, that water that is taken from a groundwater SDL resource unit for consumptive use in a water accounting period will not exceed the unit's annual permitted take (noting that the annual permitted take provided for in the proposed WRP reflects a limit that is far below the SDL). In this respect, the Authority notes the proposed WRP operates to:
- a. limit management decisions that increase the total nominal entitlement for taking groundwater in the WRP area (s 19 of the *Queensland WRP*)
  - b. set the average annual volume of unallocated water (reserve volumes) for water entitlements to take in the WRP area (s 23 of the *Queensland WRP*). The reserve volumes for the Sediments above the Great Artesian Basin: Warrego-Paroo-Nebine and the Warrego Alluvium are set well below the long-term average sustainable diversion limit for these SDL resource units. No reserve volumes have been put aside for extraction from the St George Alluvium
  - c. limiting a person's ability to take or interfere with groundwater (s 29(1) of the *Queensland WRP*), and
  - d. prohibiting a person from taking or interfering with groundwater from the St George Alluvium (deep) groundwater management area (which forms part of the St George Alluvium: Warrego-Paroo-Nebine SDL resource unit) (s 29(2) of the *Queensland WRP*).

#### **Section 10.12 – Matters relating to accounting for water**

88. The Authority considers that the requirements in s 10.12 have been met by the proposed WRP. Section 10.12 sets out various matters that must be accounted for in the methods for determining the maximum quantity of water the plan permits to be taken for consumptive use during a water accounting period (s 10.10(1)). These matters and the Authority's assessment of the methods is set out in the sections below.

## Assessment

89. The Index indicates that s 10.12 is satisfied by:

- a. *Water Accounting Methods Report*: Chapter 5.7 Matters relating to accounting for water. This Chapter sets out how the various matters listed in s 10.12 are accounted for.

### *Section 10.12(1)(a) – All forms of take accounted for*

90. The Authority is satisfied that methods specified for s 10.10(1) for determining annual permitted take (in Chapter 5 of the *Water Accounting Methods Report*) account for all forms of take from each of the SDL resource units in the WRP area, and all classes of water access right for those forms of take.

### *Section 10.12(1)(b) and (c) – Carry over and return flows*

91. The proposed WRP does not provide for water allocations that are determined in one water accounting period and used in another. In addition, return flows in the WRP area are not accounted for due to their low volumes. Accordingly, the Authority considers that it is unnecessary for the method to account for these matters.

### *Section 10.12(1)(d) – Trade of water access rights*

92. Trade of water access rights is not applicable for groundwater sources in this WRP area, as there are no groundwater access rights of a kind that are able to be traded under Queensland State water management law.

93. The *Water Accounting Methods* report (Chapter 5.7.4) provides that the trading of surface water into or out of a SDL resource unit is not permitted. In addition, surface water trades within an SDL resource unit are assessed to ensure that there is no net increase in take and no negative impacts on the environmental flow objectives stated in the *Queensland WRP* (e.g. that may potentially arise from changes in location of take within an SDL resource unit).

94. Section 10.12(3) of the Basin Plan requires that, when accounting for water trade under s 10.12(1)(d), a WRP must account for the disposal and acquisition of HEW separately and in such a way that does not affect the method for annual permitted take under s 10.10. The *Water Accounting Methods Report* (Chapter 5.7.4 and Appendix C) ensures that annual permitted take is the amount that would result to achieve the SDL as at 1 July 2019 notwithstanding the acquisition or disposal of HEW. Accordingly, the Authority is satisfied that the accounting is consistent with the requirement in s 10.12(3), as it applies to s 10.12(1)(d). In addition, Appendix C sets out how any permanent or temporary disposal or acquisition of HEW will be accounted for after 1 July 2019. This information can be used to make the adjustment required by s 6.12(1)(a).

### *Section 10.12(1)(e) – Significant hydrological connection*

95. The significant hydrological connections to water resources in the SDL resource units of the WRP area and the ways they have been accounted for in the method for s 10.10(1) are summarised as follows:

### *Surface water*

96. The proposed WRP indicates that there are no surface water resources outside an SDL resource unit that could impact on the water permitted to be taken in the SDL resource units of the WRP area (i.e. there are no inflows from other surface water resources). The Authority is satisfied that this is the case, and therefore there is no need for the method to account for such connections.
97. The Authority notes that other parts of the proposed WRP identify a connection to the Intersecting Streams SDL resource unit in NSW, and provides for mean annual flows of a specified proportion of pre-development flows to this downstream SDL resource unit. The preservation of these downstream flows is reflected in the limit imposed on the long-term annual average quantity of water that may be taken for consumptive use from the water resources of the WRP area. The Authority is satisfied the method for s 10.10(1) is consistent with this limit.

### *Groundwater*

98. The water resources of the St George Alluvium: Warrego–Paroo–Nebine (GS63) SDL resource unit have significant hydrological connections to the following SDL resource units: the St George Alluvium: Condamine-Balonne (shallow) (GS61); the St George Alluvium: Condamine-Balonne (deep) (GS61), and; the St George Alluvium: Moonie (GS62). These connections are accounted for by limiting take from the St George Alluvium: Warrego–Paroo–Nebine (GS63) to the levels provided for in the proposed WRP, which are less than the SDL for that SDL resource unit. This lower level of take has been imposed because take in the connected St George Alluvium: Condamine-Balonne (deep) is already at its sustainable limit. This limitation is in turn reflected in the method for s 10.10(1).
99. Proportionally small areas of the Warrego Alluvium, the St George Alluvium and the Sediments above the Great Artesian Basin also extend into the NSW Great Artesian Basin Warrego Shallow (GS35) and the NSW Great Artesian Basin Central Shallow (GS36) SDL resource units. These connections are accounted for by setting a long-term average limit on take that is much lower than the SDLs for these SDL resource units. This minimises the risk that the connected water resources are affected by this hydrological connection. This limitation is in turn reflected in the method for s 10.10(1).

### *Section 10.12(1)(f) – Changes in the way water is taken or held*

100. Chapter 5.7.6 of the *Water Accounting Methods Report* indicates that the methods for annual permitted take are not changed by the way water is taken or held. The Authority understand that this is because the methods assume full utilisation of entitlements, and entitlement holders are free to take and hold water in accordance with the conditions on their entitlements. In addition, the Authority notes that for other water access rights (i.e. not water entitlements), the nature of those rights is such that there are no changes in the way water is taken or held that require a change in the method for annual permitted take (e.g. take by runoff dams and under basic rights).
101. The Authority notes that Chapter 5.7.6 also refers to other matters for s 10.12(1)(f). However, the Authority considers that these matters are not relevant to addressing this requirement.

*Section 10.12(1)(g) – Growth-in-use*

102. The Integrated Quantity and Quality Models (IQQM) used in Queensland assume full utilisation of water allocations when determining annual permitted take. As such, changes over time in the extent to which water allocations are utilised do not impact on the methods for determining annual permitted take.

*Section 10.12(1)(h) – Water resourced from the Great Artesian Basin and released into a Basin water resource*

103. The proposed WRP states that no water sourced from the Great Artesian Basin is released into a Basin water resource. Accordingly, there is no water that needs to be accounted for to meet s 10.12(1)(h).

*Section 10.12(1)(i) – Managed aquifer recharge*

104. The proposed WRP asserts that there are no water resources in the WRP area that are used for managed aquifer recharge. The Authority is satisfied that this is the case. Accordingly, the Authority is of the view that there is no water that needs to be accounted for to satisfy the requirement in s 10.12(1)(i).

*Section 10.12(2) – Accounting for other matters*

105. The proposed WRP accounts for unallocated water as another matter under s 10.12(2). Unallocated water is water that may be taken following the issue of additional water access rights for that water. Unallocated water is accounted for in the method for determining annual permitted take by assuming that unallocated water will be fully utilised for consumptive use.

**Section 10.13 – Limits on certain forms of take**

106. The Authority considers that the requirements in s 10.13 have been met by the proposed WRP. Section 10.13 requires a WRP to limit the long-term annual average take for consumptive use by basic rights, runoff dams, and net take by commercial plantations from a surface water SDL resource unit to 2009 levels (i.e. levels specified in column 2 of Schedule 3 of the Basin Plan for those forms of take). However, a WRP can provide for an increase in these forms of take provided that certain conditions set out in s 10.13(2) are satisfied.

**Assessment**

107. The Index indicates that s 10.13 is satisfied by:

- a. *Queensland WRP*: Section 26 Limitation on taking overland flow water–Act s 20(2)(b).
- b. *Water Accounting Methods Report*: Chapter 5.3 Permitted take by runoff dams (including take under basic rights), Chapter 5.4 Permitted take under basic rights from a watercourse, and Chapter 5.5 Permitted net take by commercial plantations.

108. The proposed WRP limits the long-term annual average quantity of water that can be taken from a surface water SDL resource unit for consumptive use by take under basic rights, take by runoff dams and net take by commercial plantations to 2009 levels in the following ways:

- a. Section 26 of the *Queensland WRP* limits growth in take by runoff dams for purposes other than basic rights by preventing overland flow works built after 2001 to be used for purposes other than those permitted under Section 26 of the *Queensland WRP*.
  - b. Chapters 5.3, 5.4 and 5.5 of the *Water Accounting Methods Report* specify that take by runoff dams under basic rights, take from watercourses under basic rights, and net take by commercial plantations is limited to the level specified in Items 1, 2 and 3 in column 2 of Schedule 3 of the Basin Plan for the Paroo, Warrego and Nebine SDL resource units respectively.
109. Queensland does not propose to use s 10.13(2) to increase the long-term annual average take of water under basic rights, take by runoff dams or net take by commercial plantations. As such, s 10.13(2) is not applicable to the proposed WRP.

**Section 10.14 – Effects, and potential effects, on water resources of the water resource plan area**

110. The Authority considers that the requirements in s 10.14 have been met by the proposed WRP. Section 10.14 requires a WRP to identify the effect, or potential effect, if any, of certain kinds of groundwater take on the use and management of the water resources of the water resource plan area. The kinds of groundwater take identified in s 10.10(1)(a) and (b) are:
- a. taking of groundwater that is not a Basin water resource resulting in water being removed from a groundwater SDL resource unit in the water resource plan area because of a pre-existing hydrological connection or a hydrological connection created by the process of taking that groundwater, and
  - b. taking of groundwater that is not a Basin water resource resulting in water that would otherwise flow directly or indirectly into an SDL resource unit in the water resource plan area no longer flowing into that unit.

**Assessment**

111. The Index indicates that s 10.14 is satisfied by:
- a. *St George Alluvium: Groundwater background paper*: Chapter 1 General Information and Chapter 3 Deep Alluvium.
  - b. *Warrego Alluvium: Groundwater background paper*: Chapter 3 Groundwater condition.
  - c. *Sediments above the Great Artesian Basin: Groundwater background paper*: Chapter 3 Groundwater condition.
112. The documents set out at paragraph 111 indicate that the kinds of groundwater take identified in s 10.14(1)(a) and (b) will not have an effect, or potential effect, on the use and management of the water resources of the WRP area. These documents assess all the groundwater SDL resource units in the WRP area as having limited connections to groundwater that is not a Basin water resource, either through recharge or discharge processes. Accordingly, water extraction from groundwater that is not a Basin water resource is unlikely to result in water being removed from Basin water resources, or to

reduce direct or indirect flows to Basin water resources. These assessments are summarised as follows:

- a. Chapter 2.1 of the *St George Alluvium: Groundwater background paper* notes there are no significant connections between the St George Alluvium (shallow) and surface water or other groundwater, and recharge occurs through direct infiltration and leakage from rivers in the WRP area. Chapter 3.1 states that as the St George Alluvium (deep) is semi-confined to confined, making discharge unlikely, and recharge is attributed to flows from the shallow aquifer, with a limited amount from rivers in the north of the plan area.
- b. Chapter 2.2 of the *Warrego Alluvium groundwater background paper* notes there is little interaction between the Warrego Alluvium and underlying aquifers, while Chapter 3.1 states that recharge to the aquifer is primarily through rainfall infiltration and stream losses from the Warrego River.
- c. Chapter 3.2 of the *Sediments above the Great Artesian Basin Groundwater background paper* suggests that due to the discontinuous nature of the formations of the aquifer, there is no significant connection with other surface or groundwater resources.

113. The Authority is of the view that the conclusion that there are no connections that would effect, or have the potential to effect, the use and management of the water resources of the WRP area is consistent with the available information. As such, the Authority is satisfied that the requirement in s 10.14(1) has been met.
114. In light of the conclusion reached in relation to s 10.14(1), the proposed WRP is not required to satisfy s 10.14(2) of the Basin Plan. This is because the requirement in s 10.14(2) only applies if a WRP identifies an effect, or potential effect of the kind referred to in s 10.14(1). As noted above, no such effect, or potential effect, has been identified.

### **Section 10.15 – Determination of actual take must be specified**

115. The Authority considers that the requirements in s 10.15 have been met by the proposed WRP. Section 10.15 requires a WRP to set out how the quantity of water actually taken for consumptive use by each form of take from each SDL resource unit will be determined after the end of the water accounting period using the best information available.

### **Assessment**

116. The Index indicates that s 10.15 is satisfied by:
- a. *Water Accounting Methods Report*: Chapter 6 Methods—Annual actual take, Chapter 4.2.2 Take that is not measured, Appendix B Method for estimating take from watercourses under basic rights.

### **Analysis**

117. The Authority is satisfied that the proposed WRP is consistent with s 10.15 for the following reasons:
- a. The proposed WRP sets out how actual take will be determined for each form of take from each SDL resource unit.

- i. For surface water, Chapter 6 of the *Water Accounting Methods Report* provides that the annual actual take will be estimated using a formula that sums the actual take for each form of surface water take. If there is more than one class of water access right for a form of take, the estimate of actual take for that form of take involves summing the applicable estimated or measured take for each class of water access right that applies to that form of take.
- ii. The proposed WRP does not specify how take by commercial plantations will be determined. However, the limit imposed by the proposed WRP for the purposes of s 10.13 means that no net take by commercial plantations will be allowed during the life of the proposed WRP. On this basis, the Authority has taken the view that the failure to specify how actual take by this form of take will be determined does not give rise to an inconsistency with s 10.15 of the Basin Plan.
- b. Actual take for each form of take will be determined after the end of a water accounting period.
- c. Actual take for each form of take will be determined using the best available information at the time.
  - i. For take by run off dams (including take under basic rights), take under basic rights from a watercourse and take under basic rights from groundwater, annual actual take is estimated to be equal to long-term annual average take (it is also the same as is used in the method for annual permitted take). The Authority is satisfied that, for these forms of take, the use of long term annual average take for annual actual take involves the use of the best information available at the time. This is because these long-term annual averages are based on the best available information of historical use and, going forward, the Authority does not anticipate that there will be any significant changes to demand by these forms of take.

118. Where the determination of actual take is an estimate, the Authority has undertaken a technical assessment of the proposed estimation methods and has concluded that the estimation methods are consistent with the method in s 10.10(1) that relates to that form of take. In this way, the proposed WRP is consistent with s 10.15(3) of the Basin Plan. In coming to this conclusion, the Authority notes that:

- a. For take by run off dams (including take under basic rights), take under basic rights from a watercourse and take under basic rights from groundwater, the method used for s 10.15(3) is the same as the method used for s 10.10(1). As noted above, in the context of the Authority's assessment of annual permitted take, there are good reasons for annual actual take and annual permitted take being determined in the same manner for forms of take that involve less accurate methods (e.g. it reduces the risk of less accurate methods for estimating annual actual take affecting the ability to determine compliance for forms of take that are determined more accurately).
- b. For groundwater, there are no groundwater entitlements in the SDL resource units in the WRP area that are metered. Accordingly, Chapter 6.6 of the *Water Accounting Methods Report* provides that annual actual take is estimated as the total annual volumetric entitlement for the classes of water access rights that apply to take from

groundwater. The Authority is satisfied that this is consistent with the method for s 10.10(1), which is also based on volumetric entitlement.

119. Chapter 6.7 of the *Water Accounting Methods Report* provides that the water that is actually taken will include HEW that is disposed of and used in the SDL resource unit for consumptive take. Such water will be measured in accordance with Chapter 6.1 of the *Water Accounting Methods Report*. The Authority considers that this approach is consistent with s 10.15(4)(a).
120. Chapter 6.8 of the *Water Accounting Methods Report* provides that no water sourced from the Great Artesian Basin is released into and taken from a Basin water resource in the WRP area. Therefore, the Authority is satisfied that the requirement in s 10.15(4)(b) does not apply.

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## Part 4—The sustainable use and management of water resources

### Section 10.16 – Sustainable use and management of water resources

121. There is no requirement in s 10.16.

### Section 10.17 – Priority environmental assets and priority ecosystem functions

122. The Authority considers that the requirements in s 10.17 have been met by the proposed WRP. Section 10.17(1) requires a WRP to be prepared having regard to whether it is necessary for the WRP to include rules which ensure that the operation of the plan does not compromise the meeting of environmental watering requirements of priority environmental assets and ecosystem functions. Section 10.17(2) also requires that regard must be had to certain matters for s 10.17(1). Section 10.17(3) requires that if the outcome of the requirement in subsection (1) is that such rules are necessary, the WRP must include those rules.

#### Assessment

123. The Index indicates that s 10.17 is satisfied by:

- a. *Queensland WRP*: Section 11 Ecological outcomes; Chapter 4 Objectives and performance indicators; Chapter 5 Strategies for achieving outcomes; Schedule 4 Environmental flow objectives and performance indicators, and Schedule 5 Reserves for granting unallocated water.
- b. *Environmental Assessment Report – Stage 2*: Chapter 5 Results.
- c. *Risk assessment of insufficient water available for the environment*: Chapter 5 Results and discussion; Appendices 1 – 3 Risk registers.
- d. *Implementation Review Report*: Chapter 4 Assessment of plan outcomes.
- e. *Overview report*: Appendix B, Section 6 Addressing the recommendations of technical assessments in the draft plans - Table C3.
- f. *WPN WRP*: Explanatory notes 4A, 4B and 4C.
- g. *ROP*: Chapter 2 Cunnamulla Water Supply Scheme; Chapter 3 Rules for unsupplemented water allocations; Chapter 4, Part 1 Dealing with water licence applications; Chapter 4, Part 2 Granting water licences for taking overland flow; Chapter 5 Monitoring and reporting.

Note: The LTWP has also been provided for information in relation to the requirements of this section, but is not submitted for accreditation.

124. Assessments of the performance of previous Queensland statutory plans, contained in the review reports listed in paragraph 123 above, were considered in the development of the proposed WRP. Rules recommended in these reports were adopted where appropriate. A summary of these assessments and the consideration of the recommended rules in the review reports is as follows:

- a. The *Implementation Review Report*: reviewed the performance of the previous *Water Resource (Warrego, Paroo, Bulloo and Nebine) Plan (2003)*. Chapter 4 and

Attachment 2 of the *Implementation Review Report* describes the assessment of the outcomes of the 2003 water resource plan and resource operation plan. Overall, the operation of the previous Queensland statutory plans were found to pose a low risk of compromising environmental watering requirements of priority environmental assets and priority ecosystem functions in the WRP area. Explanatory note 4A states that due to the low risk identified in this review, the focus of the proposed WRP is to maintain and refine the rules established in the previous plan.

- b. The *Environmental Assessment Report – Stage 2* considered the risks to the priority environmental assets and ecosystem functions in the WRP area if insufficient water were available to the environment, as a result of the operation of the previous Queensland statutory plans. This review recommended a number of actions to mitigate the identified increases in risk, or to enable future investigation of currently unassessed risks. Section 6 of Appendix B of the *Overview report* sets out further information about how these recommendations were considered in the preparation of the proposed WRP. This included considering how to refine existing rules (e.g. cease to pump waterhole depth threshold) or prioritise monitoring programs to enable unassessed risks to be investigated.

125. The Authority is satisfied that in preparing the proposed WRP regard was had to the need for rules which prescribe the times, places and rates at which water is permitted to be taken, as required in s 10.17(2)(a)). In this respect, the Authority notes the following:

- a. The *Environmental Assessment Report – Stage 2* considered the risks of insufficient water being available to the environment arising from the operation of the previous Queensland statutory plans, including risks to priority environmental assets and ecosystem functions. These assets and functions included flow spawning fish, migratory fish, floodplain vegetation and wetlands, waterholes as refugia, and river forming processes. The assessment of these assets and functions considered aspects of the flow regime critically linked to their long term viability, including: location, timing, magnitude, duration frequency, habitat features and water quality attributes where relevant.
- b. Overall, the assessment identified low risk to surface water priority environmental assets and ecosystem functions from water resource management activities in the WRP area. However in some instances, assets and functions have increased risk profiles because:
  - i. the provision of hydrologic conditions that support them has been impacted under the full entitlement flow scenario used in the assessment (which reflects the full use of existing entitlements with current resource operation plan rules), or
  - ii. they could not be comprehensively assessed because of insufficient information.
- c. Section 6 of Appendix B of the *Overview report* sets out how rules were considered to address these risks, and concluded that a modified cease to pump waterhole depth rule is necessary for s 10.17.

126. The Authority is satisfied that in preparing the proposed WRP regard was had to whether it is necessary to include rules to prescribe how water resources in the WRP area must be

managed and used, as required by s 10.17(2)(b). In this respect the Authority notes the following:

- a. Explanatory note 4B notes that the review of the previous Queensland statutory plans found that the operation of the plans resulted in a low risk of compromising environmental watering requirements. As such, existing rules are maintained in the proposed WRP to manage the water resources and ensure environmental water requirements are not compromised. Some minor improvements to these rules have been made, such as the modified cease to pump waterhole depth rule.
- b. Section 6 of Appendix B in the *Overview report* contains a response to recommendations for new or changed rules arising from technical assessments of the rules in the existing resource operations plan. These recommendations are relevant to achieving the flow requirements of environmental assets and ecosystem functions. The rules that were considered included the operating rules for the Cunnamulla Water Supply Scheme, and the water sharing rules for unsupplemented water. The review recommended:
  - i. that a rule be included to require releases from Allan Tannock Weir to be of equivalent duration and rate of rise and fall to inflow events, and
  - ii. an additional criterion be included under the Announced Period water sharing rules in the resource operations plan, to reduce the risk of migratory fish stranding.
- c. As part of demonstrating the way regard was had to whether these rules are necessary, Section 6 of Appendix B in the: *Overview report* notes that fish strandings are understood to be related to the height of a road culvert below the weir, and due to dry conditions and the need to maintain water levels in the weir, a rule has not been included in the proposed WRP. Similarly, further hydrological analysis is required before a rule for the water sharing rules for unsupplemented water can be derived. Regard was also had to the low level of water resource development and low risk of impacts to migratory fish. Given the information described above, Queensland considered that the addition of a rule is unnecessary. The Authority is satisfied that regard was had to whether the rules were necessary.

127. The rules identified for s 10.17(1) and (2) as being necessary to ensure that the operation of the proposed WRP plan does not compromise the meeting of environmental watering requirements are those described in paragraphs 123.a and 123.g and above, and as such are included in the proposed WRP as required by s 10.17(3).

### ***Section 10.18 – Priority environmental assets dependent on groundwater***

128. The Authority considers that the requirements in s 10.18 have been met by the proposed WRP. Section 10.18 required the WRP to be prepared having regard to whether it is necessary for the WRP to include rules which ensure that, for priority environmental assets and priority ecosystem functions that depend on groundwater, the operation of the plan does not compromise the meeting of environmental watering requirements. Section 10.18(2) also requires that regard must be had to various matters when considering whether it is necessary for the WRP to include such rules. Section 10.18(3) requires that if the outcome

of the requirement in subsection (1) is that such rules are necessary, the WRP must include those rules.

### **Assessment**

129. The Index indicates that s 10.18 is satisfied by:

- a. *WPN WRP*: Explanatory note 4D.
- b. *CSIRO and SKM Report*: Chapter 1.9 Sediments above the Great Artesian Basin: Warrego–Paroo–Nebine (GS72); Chapter 1.10 Warrego Alluvium (GS78), and; Chapter 1.13 St George Alluvium Warrego–Paroo–Nebine (GS75).
- c. *Environmental Assessment Report – Stage 1*: Chapter 3.3 Groundwater dependent ecological assets.

130. Explanatory note 4D states that there are no priority environmental assets or priority ecosystem functions that are dependent on groundwater identified in the WRP area. As a result no rules are necessary. Based on the available information in the *CSIRO and SKM Report* and the *Environmental Assessment Report - Stage 1*, the Authority is satisfied that this conclusion is accurate, and is therefore of the view that it is not necessary to include rules of the kind referred to in s 10.18 (3).

### **Section 10.19 – Groundwater and surface water connections**

131. The Authority considers that the requirements in s 10.19 have been met by the proposed WRP. Section 10.19 requires a WRP to be prepared having regard to whether it is necessary for the proposed WRP to include rules which ensure that, for groundwater that has a significant hydrological connection to surface water, the operation of the plan does not compromise the meeting of environmental watering requirements. Section 10.19(2) also requires that regard must be had to a number of matters when considering whether it is necessary for the WRP to include such rules. Section 10.19(3) requires that if the outcome of the requirement in subsection (1) is that such rules are necessary, the WRP must include those rules.

### **Assessment**

132. The Index indicates that s 10.19 is satisfied by:

- a. *Sediments above the Great Artesian Basin groundwater background paper*: Chapter 3 Groundwater condition.
- b. *St George Alluvium groundwater background paper*: Chapter 2 Shallow alluvium.
- c. *Warrego Alluvium groundwater background paper*: Chapter 3 Groundwater condition.
- d. *WPN WRP*: Explanatory note 4E.

133. The groundwater background papers for each groundwater source in the WRP area identify no known significant hydrological connections between groundwater and surface water in the WRP area. Specifically:

- a. Chapter 3.2 of the *Sediments above the Great Artesian Basin groundwater background paper* suggests that due to the discontinuous nature of the formations of the aquifer, there is no significant connection with surface water resources.
  - b. Chapter 2.1 of the *St George Alluvium groundwater background paper* notes there are no significant connections between the St George Alluvium (shallow) and surface water. Section 3.1 states that as the St George Alluvium (deep) is semi-confined to confined, discharge into surface waters is unlikely.
  - c. Chapter 3.1 of the *Warrego Alluvium groundwater background paper* describes some connectivity between the Warrego River and Warrego Alluvium. However, Queensland have concluded this connection to not be significant. Based on the available information, The Authority agrees with this conclusion.
134. Consistently with the above conclusions, Explanatory note 4E indicates that it is not necessary to include rules in the proposed WRP to ensure that the operation of the plan does not compromise the meeting of relevant environmental watering requirements. On the available information, the Authority is satisfied that this conclusion is accurate, and is therefore of the view that it is not necessary to include rules of the kind referred to in s 10.19 (3).

### **Section 10.20 – Productive base of groundwater**

135. The Authority considers that the requirements in s 10.20 have been met by the proposed WRP. Section 10.20 requires a WRP to be prepared having regard to whether it is necessary for the WRP to include rules which ensure that:
- a. there is no structural damage to the aquifer arising from take within the SDL, and
  - b. hydraulic relationships and properties between groundwater and surface water systems, between groundwater systems, and within groundwater systems are maintained.
136. Section 10.20(2) also requires that regard must be had to a number of matters when considering whether it is necessary for the WRP to include such rules. Section 10.20(3) requires that if the outcome of the requirement in subsection (1) is that such rules are necessary, the WRP must include those rules.

### **Assessment**

137. The Index indicates that s 10.20 is satisfied by:
- a. *Risk assessment of insufficient water available for surface water and groundwater users*: Chapter 5 Results.
  - b. *WPN WRP*: Explanatory notes 4F and 4G.
  - c. *Queensland WRP*: Sections 19 Decision to not increase amount of water taken, 23 Reserve volumes and 29 Limitation on taking or interfering with groundwater–Act, s 20(2)(c), and Schedule 5 Reserves for granting unallocated water.
138. The *Risk assessment of insufficient water available for surface water and groundwater users* considered risks relating to growth in take or interception of groundwater, which could result

in structural damage to the aquifer or changes to hydraulic properties and relationships. This risk assessment identified for the most part that the risks arising from growth in take were low. The low levels of extraction permitted from each aquifer, as indicated in Schedule 5 of the *Queensland WRP*, were considered to result in a low risk of structural damage to the aquifer and changes in hydraulic properties and relationships; therefore additional rules were not considered necessary to address this risk. The exception was the risk of growth in take of groundwater for irrigation and non-mining purposes in the St George Alluvium (deep), which was identified as a high risk.

139. Chapter 5 of the *Risk assessment of insufficient water available for surface water and groundwater users* identifies a connection between the St George Alluvium: Warrego–Paroo–Nebine (GS63) and the St George Alluvium (deep): Condamine–Balonne (GS61). Explanatory note 4E suggests that it was considered necessary to include rules to limit take from the St George Alluvium (deep): Warrego–Paroo–Nebine to ensure the hydraulic relationships within the St George Alluvium (deep) aquifer are maintained.
140. The Authority considers that the proposed WRP has been prepared having regard to the matters required by s 10.20(2) of the Basin Plan. The way that the proposed WRP has been prepared having regard to these matters is set out in Explanatory note 4F.
141. The rules identified as being necessary for s 10.20(1) and (2) are those described in paragraph 137.c, and as such are included in the proposed WRP as required by s 10.20(3).

### **Section 10.21 – Environmental outcomes relating to groundwater**

142. The Authority considers that the requirements in s 10.21 have been met by the proposed WRP. That is, whether it is necessary for the proposed WRP to include rules to prevent elevated levels of salinity and other types of water quality degradation within a groundwater SDL resource unit. Section 10.21(2) also requires that regard must be had to a number of matters when considering whether it is necessary for the WRP to include rules. Section 10.21(3) requires that if the outcome of the requirement in subsection (1) is that such rules are necessary, the WRP must include those rules.

### **Assessment**

143. The Index indicates that s10.21 is satisfied by:
  - a. *HWMP*: Section 8 Risk assessment of water being of a quality unsuitable for use.
  - b. *WPN WRP*: Explanatory note 4H and 4I.
  - c. *Queensland WRP*: Sections 19 Decision to not increase amount of water taken, 23 Reserve volumes and 29 Limitation on taking or interfering with groundwater—Act, s 20(2)(c), and Schedule 5 Reserves for granting unallocated water.
144. The risk assessment in Section 8 of the *HWMP* considered risks arising from salinity and other types of water quality degradation in groundwater SDL resource units in the WRP area. This risk assessment identified a medium risk for elevated levels of salinity due to possible increases in take in the St George Alluvium (deep). The elevated levels of salinity would result from infiltration of saline waters from the surrounding St George Alluvium shallow aquifer and the Great Artesian Basin. All other risks to water quality degradation

were identified as low. Given the medium level risk of elevated salinity in the St George Alluvium (deep), Explanatory note 4H states that a measure has been included in the proposed WRP to address this risk.

145. The Authority considers that the proposed WRP has been prepared having regard to the matters required by s 10.21(2) of the Basin Plan. The way that the proposed WRP has been prepared having regard to these matters is set out in Explanatory note 4H.
146. The rules identified as being necessary for s 10.20(1) and (2) are those described in paragraph 143.c, and as such are included in the proposed WRP as required by s 10.21(3).

### **Section 10.22 – Description of how requirements have been met**

147. The Authority considers that the requirements in s 10.22 have been met by the proposed WRP. Section 10.22 provides that a WRP must:
  - a. describe what was done to comply with the requirements in Part 4 of the Basin Plan, and
  - b. if a risk of a kind referred to in s 10.41(1) has been identified in relation to the water resources of the water resource plan area—explain why rules addressing the risk have or have not been included in the WRP for s 10.22(b).

### **Assessment**

148. The Index indicates that s 10.22 is satisfied by:
  - a. *WPN WRP*: Explanatory note 4J.
149. Explanatory note 4J includes a short description of the way that the requirements in Part 4 have been met, namely through risk assessments, environmental assessments, consultation, and development of statutory rules based on these assessments. In addition, the content provided for ss 10.17–21 and Part 9 (particularly s 10.43) in the Index describe in more detail what was done to comply with those requirements.
150. The Authority is satisfied that the requirement in s 10.22(b) has been met. In this respect, the Authority notes:
  - a. Explanatory note 4J suggests that all risks identified for s 10.41(1) were assessed as having a low level of risk, with the exception of the moderate (medium) risk to the salinity and high risk to the productive base of the St George Alluvium (deep).
  - b. There are additional medium, high and very high risks that were identified for the purposes of s10.41(1) in relation to water quality (elevated levels of suspended matter and deposited sediment and dissolved oxygen outside natural (ambient) ranges). These have not been directly addressed in s10.22 (i.e. there is no explanation in s 10.22 about why rules addressing these risks have not been included in the plan). However, Explanatory note 4J does refer to other provisions in the proposed WRP that explain why rules addressing these risks have not been included (i.e. to address the requirements of s 10.33 and s 10.43). There, Queensland has explained that these water quality risks can only be effectively dealt with through land management rather than water management. In light of this, the Authority is satisfied that the proposed

WRP included an explanation of why rules addressing these risks have not been included in the proposed WRP.

- c. With regard to surface water, the discussion relating to s 10.17 suggests that the risks assessed as having a low level of risk were being effectively managed by existing surface water related rules in the *Water Resource (Warrego, Paroo, Bulloo and Nebine) Plan 2003* and the *Warrego, Paroo, Bulloo and Nebine resource operations plan (2006)*. These rules will be continued in the *Queensland WRP* and the *ROP* (as amended February 2016), which are part of the proposed WRP. However, some minor refinements to the existing surface water related rules have been included in the proposed WRP to better manage certain risks that have been assessed as having a low level of risk, such as requiring cease to pump waterhole depth rules in some circumstances to protect environmental watering requirements.
- d. With regard to groundwater, the WRP explains that rules to limit take from the St George Alluvium (deep) have been included to address risks relating to the productive capacity of the aquifer and salinity intrusion. These rules are identified in the assessments for ss 10.20 and 10.21 above. The Authority notes that these rules also manage the risks in relation to groundwater that have been assessed as having low level of risk.

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## Part 5—Interception activities

### Section 10.23 – Listing types of interception activity

151. The Authority considers that the requirements in s 10.23 have been met by the proposed WRP. These requirements are as follows:
- a. Section 10.23(1) provides that a WRP must, having regard to the risk identification and assessment conducted for s 10.41, specify whether there are any types of interception activity in the water resource plan area which have the potential to have a significant impact on (whether on an activity-by-activity basis, or cumulatively):
    - i. the water resources of the water resource plan area, or
    - ii. water resources which are hydrologically connected to the water resources of the water resource plan area
  - b. Section 10.23(2) requires such interception activities to be listed in the WRP. Section 10.23(3) requires that in determining whether a type of interception activity is of the kind covered by s 10.23(1), regard must be had to certain matters.

### Assessment

152. The Index indicates that s 10.23 is satisfied by:
- a. *Risk assessment of insufficient water available for surface water and groundwater users*: Section 5.2.4 Growth in surface water interception (including stock and domestic, plantation and land rehabilitation, and Section 5.3.3 Interception of through flow from CSG and mining activity and growth in groundwater take for mining purposes.
  - b. *WPN WRP*: Explanatory note 5A.
153. The risk assessment conducted for s 10.41, presented in Section 5 of the *Risk assessment of insufficient water available for surface water and groundwater users*, identified no interception activities in the WRP area with the potential to have a significant impact on water resources in the WRP area or any water resources which are hydrologically connected to the water resources of the WRP area. This is on the basis that there is a low risk of an increase in interception activities in the WRP area. On the available information, the Authority is satisfied that this conclusion is accurate.
154. Given that no relevant interception activities have been identified, Explanatory note 5A has indicated that it is not necessary to include a list for s 10.23(2). The Authority agrees with this conclusion.
155. Section 10.23(3) requires that for the purpose of determining whether a type of interception activity is of the kind referred to in s 10.23(1), regard must be had to certain matters. While not required to be identified in the Index for the purposes of s 10.23, the Authority notes that the following content sets out how regard was had to the matters identified in s 10.23(3):
- a. For s 10.23(3)(a), the location of interception activities in the WRP area are discussed in relation to each risk factor of the risk assessment in Chapter 5 of the *Risk*

*assessment of insufficient water available for surface water and groundwater users report.*

- b. For s 10.23(3)(b), the impact of interception activities on the availability of the water resources were considered as risk factors in the risk assessment for water users, as noted in Chapter 3 of the *Risk assessment of insufficient water available for surface water and groundwater users report*.
- c. For s 10.23(3)(c), projected growth is considered in the assessment for each relevant risk, as set out in Chapter 3, Sections 3.1 and 3.2, and; Chapter 5 Results and Discussion *Risk assessment of insufficient water available for surface water and groundwater users report*.

### **Section – 10.24 Monitoring impact of interception activities**

156. The Authority considers that the requirements in s 10.24 have been met by the proposed WRP. Section 10.24 provides that, if a WRP includes a list of the kind referred to in s 10.23(2), the WRP must set out, in respect of each types of interception activity listed, a process for monitoring the impact of that type of activity on a number of matters.

#### **Assessment**

157. The Index indicates that s 10.24 is satisfied by:

- a. *WPN WRP*: Explanatory note 5B.

158. The requirement in s 10.24 only applies if a WRP includes a list of interception activities of the kind referred to in s 10.23(2). In light of the conclusion reached under s 10.23(1) (i.e. no interception activities of the kind provided for by s 10.23 are specified in the proposed WRP), the proposed WRP has not included a list of the kind required by s 10.23(2). The Authority supports the conclusion of Explanatory note 5B, that the proposed WRP is not required to set out processes for monitoring the impact of interception activities for s 10.24.

### **Section 10.25 – Actions to be taken**

159. The Authority considers that the requirements in s 10.25 have been met by the proposed WRP. Section 10.25 requires a WRP to identify actions that will be taken in the event that monitoring under s 10.24 shows that certain impacts have occurred after the commencement of the WRP.

#### **Assessment**

160. Section 10.25 requires a WRP to identify actions that will be taken in the event that monitoring under s 10.24 shows that certain things listed in s 10.25(1)(a) to (c) have occurred. Consistently with the conclusion reached for s 10.23, the proposed WRP does not include any monitoring for s 10.24. While no material has been put forward for this requirement, given there will be no monitoring for s 10.24, the requirement in s 10.25 does not apply.

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## Part 6—Planning for environmental watering

### Section 10.26 – Planning for environmental watering

161. The Authority considers that the requirements in s 10.26 have been met by the proposed WRP. Section 10.26(1) requires a WRP to provide for environmental watering to occur in a way that is consistent with the environmental watering plan (Basin Plan Chapter 8) and the Basin-wide environmental watering strategy, and contributing to the achievement of the objectives in Part 2 of Chapter 8 of the Basin Plan. Section 10.26(2) also requires that the WRP be prepared having regard to the most recent version of the long-term watering plan, and the views of local communities, including bodies established by a Basin State that express community views in relation to environmental watering.

#### Assessment

162. The Index indicates that s 10.26 is satisfied by:

- a. *Queensland WRP*: Section 8 Nodes; Section 11 Ecological outcomes; Section 15 Environmental flow objectives and performance indicators; Chapter 5 Strategies for achieving outcomes; Schedule 3 Nodes, and; Schedule 4 Environmental flow objectives and performance indicators.
- b. *WPN WRP*: Explanatory note 6A and 6B.
- c. *ROP*: Chapter 2 Cunnamulla Water Supply Scheme; Chapter 3 Rules for unsupplemented water allocations; Chapter 4 Water licences, and; Chapter 5 Monitoring and reporting.
- d. *LTWP*: Chapter 2 Background; Chapter 3 Queensland's approach to the long-term watering plan; Chapter 6 Consultation, operational constraints and co-operative arrangements.
- e. *Consultation report*.

Note: The *Environmental risk assessment for selected ecological assets* has also been provided for information in relation to the requirements of this section, but is not submitted for accreditation.

#### Assessment

163. The Authority is satisfied that the material in the proposed WRP meets the requirements of s 10.26(1)(a). In coming to this conclusion the Authority notes the following:

- a. Section 11 of the *Queensland WRP* identifies the priority environmental assets and ecosystem functions for the WRP area. These are the same as the priority environmental assets and ecosystem functions identified in the *LTWP*.
- b. The *LTWP* sets out how the identification of these assets and functions and their watering requirements align with the environmental watering plan and the Basin-wide environmental watering strategy (Appendix 3 and Table 5 in Chapter 7).
- c. The operation of the *Queensland WRP* provides for the environmental watering requirements of assets and functions and therefore the watering requirements identified in the *LTWP*. Accordingly, the Authority is of the view that the proposed WRP

provides for environmental watering to occur in a way that is consistent with s 10.26(1)(a).

164. The Authority notes that the environmental watering needs of waterbirds have not been addressed separately in the *LTWP*. Queensland has indicated that this is because the environmental watering needs of waterbirds are considered and provided for indirectly by the proposed WRP providing for the watering needs of important bird breeding habitat (i.e. the floodplain vegetation and wetland systems assets). Consideration of the environmental watering needs of fish has also primarily focused on migratory fish, which results in limited consideration being provided in the *LTWP* to non-migratory fish. Nevertheless, the Authority is satisfied that overall the proposed WRP provides for environmental watering to occur consistently with the Basin-wide environmental watering strategy.
165. For s 10.26(1)(b), the Authority is satisfied that the proposed WRP contributes to the achievement of the objectives in Part 2 of Chapter 8 of the Basin Plan, noting that there is limited capacity to provide for the delivery of environmental flows given the WRP area covers unregulated river systems. Queensland's rules-based approach to environmental watering does this by:
- a. ensuring the water resource development does not increase beyond the levels set by the plans, by preventing decisions being made that would increase the average volume of surface water or the nominal entitlement of groundwater taken under the plan (*Queensland WRP*: s 19)
  - b. ensuring decisions must be consistent with the environmental flow objectives (*Queensland WRP*: s 20), which cover a range of flow components from no flow to floodplain inundation (*Queensland WRP*: s 15 and Schedule 4)
  - c. mimicking the natural flow regimes over the full range of flows (including cease-to-flow, low flows, medium and high flows) to maintain important channel-forming and ecological functions (*Queensland WRP*: s 15 and Schedule 4)
  - d. maintaining the natural variability of flow from year to year, recognising intermittent streams which are characterised by long periods of no or low flow (*Queensland WRP*: s 15 and Schedule 4)
  - e. including rules and conditions on licences and entitlements (see Chapters 2, 3, 4 and 5 of the *ROP*), the proposed WRP protects environmental flows and flow dependent environmental assets and ecosystem functions.
166. For, s 10.26(2)(a), the Authority is satisfied that regard was had to the most recent version of the long-term watering plan in the development of the proposed WRP. The *LTWP* was prepared at the same time as the proposed WRP, and draws links between instruments within the proposed WRP and the requirements for the *LTWP*. Chapter 7 of the *LTWP* sets out how the plan was developed in accordance with the requirements for long-term watering plans in Division 3, Part 4, Chapter 8 of the Basin Plan.
167. For s 10.26(2)(b), the Authority is satisfied that regard was had to the views of local communities in relation to environmental watering, including bodies established by a Basin State, in the development of the proposed WRP. The *Consultation report* demonstrates how regard was had to these views by documenting the consultation process undertaken by

Queensland, identifying the stakeholders that were involved (including NSW and CEWH), summarising the issues that were raised, and describing how these issues were considered in finalising the *Queensland WRP*.

### **Section 10.27 – Enabling environmental watering between connected water resources**

168. The Authority considers that the requirements in s 10.27 have been met by the proposed WRP. Section 10.27 provides that if there are two water resource plan areas that contain surface water and there is a surface water connection between the two areas, the WRP must provide for the co-ordination of environmental watering between the two areas. As noted in relation to s 10.05, there are surface water connections between the Warrego–Paroo–Nebine and Intersecting Streams water resource plan areas.

#### **Assessment**

169. The Index indicates that s 10.27 is satisfied by:

- a. *Consultation report*: Chapter 1 Introduction; Chapter 2 Consultations and submissions, and; Chapter 4 Other changes made.
- b. *LTWP*: Chapter 6 Consultation, operational constraints and co-operative arrangements.
- c. *WPN WRP*: Explanatory note 6C.

170. Chapter 6 of the *LTWP* indicates that due to the unregulated nature of the catchments, there are limited opportunities for the coordination of the delivery of environmental water, and these mainly consist of consulting on the preparation of the *LTWP*. Explanatory note 6C also indicates that as part of setting annual environmental watering priorities, consultation is undertaken with NSW, the Commonwealth Environmental Water Office and SunWater to identify opportunities for the coordination of environmental watering. In light of these considerations, the Authority is satisfied that the requirement in s 10.27 has been met.

### **Section 10.28 – No net reduction in the protection of planned environmental water**

171. The Authority considers that the requirements in s 10.28 have been met by the proposed WRP. Section 10.28 provides that the WRP must ensure that there is no net reduction in the protection of planned environmental water from the protection provided for under State water management law immediately before the commencement of the Basin Plan.

#### **Assessment**

172. The Index indicates that s 10.28 is satisfied by:

- a. *Queensland WRP*: Section 11 Ecological outcomes; Chapter 5 Strategies for achieving outcomes, and; Section 15 Environmental flow objectives and performance indicators.
- b. *WPN WRP*: Explanatory note 6D and 6E.
- c. *ROP*: Chapter 2 Cunnamulla Water Supply Scheme; Chapter 3 Rules for unsupplemented water allocations, and; Chapter 4 Water licences.

- d. *Water Act 2000 (Qld)*: Sections 808 Unauthorised taking, supplying or interfering with water, and 812 Contravening conditions of water entitlement, seasonal water assignment notice or water permit.
173. The Authority has undertaken an assessment of the protection of planned environmental water. This assessment is set out in the following paragraphs.
174. The assessment of whether there has been any net reduction in the protection of planned environmental water requires a comparison to be made between the protection of planned environmental water offered by the proposed WRP against the protection of that water provided for by State water management law immediately before the commencement of the Basin Plan.
175. Immediately before the commencement of the Basin Plan, the *Water Resource (Warrego, Paroo, Bulloo and Nebine) Plan (2003 WRP)* and *Warrego, Paroo, Bulloo and Nebine Resource Operations Plan 2006 (2006 ROP)* principally regulated the use of water in the WRP area. Planned environmental water was not expressly identified in the 2003 WRP and 2006 ROP, however, like the proposed WRP, the Authority takes the view that it is reasonable to proceed on the basis that the planned environmental water for the 2003 WRP and 2006 ROP can be identified as the remaining share of the water resource that was not in the consumptive water share (but excluding HEW).
176. Appendix B of the *WPN WRP* sets out a comparison of the key rules and arrangements for planned environmental water contained in the 2003 WRP and 2006 ROP with those included in the *Queensland WRP*. Queensland's assessment includes a description of the change, if any, in the level of protection to planned environmental water as a result of these rule changes. The Authority agrees with this assessment that there has been no reduction in this level of protection and notes, in particular, the following:
- a. Explanatory note 3B of the proposed WRP now explicitly identifies planned environmental water as the remaining share of the water resource that was not in the consumptive water share. By expressly identifying the planned environmental water in the WRP area, the Authority considers that the proposed WRP provides more certainty about the application of the proposed WRP to that water.
  - b. Section 19 of the *Queensland WRP* operates to preclude any increase to the average volume of surface water or the nominal entitlement of groundwater taken under the plan. By ensuring that there is no increase to the quantity of water that has been allocated to the consumptive share when compared with the levels that existed immediately before the commencement of the Basin Plan, the Authority is satisfied that the proposed WRP operates to protect the quantity of planned environmental water in the WRP area going forward.
  - c. The 2003 WRP gave effect to substantially different environmental flow objectives and associated performance indicators to the objectives and indicators specified in s 15 (by reference to Schedule 4) of the *Queensland WRP*. However, the *Overview report* suggests that the new suite of performance indicators and environmental flow objectives are more appropriate for the purposes of protecting environmental flows in the WRP area and reflect ten years of improvements in the scientific understanding of the interaction between water planning and environmental water. On the available

information, the Authority agrees with this assessment and is accordingly of the view that the change in the environmental flow objectives and associated performance indicators does not result in a net reduction in the protection of planned environmental water.

- d. The protection of groundwater that is planned environmental water has improved compared to that provided under State water management law immediately before the commencement of the Basin Plan. The *Queensland WRP* now includes limits on the volume of groundwater entitlement that can be issued (s 23 and Schedule 5), and provides limitations on taking and interfering with groundwater (s 29). These protections did not exist in the 2003 WRP or the *Water Act 2000 (Qld)*.
- e. Section 62 of the 2006 ROP (about the way water was released from Alan Tannock Weir to minimise adverse environmental impacts) was removed as it was a state-wide generic provision that was reviewed as being ineffective for the single-pipe outlet works in Alan Tannock Weir. The Authority is satisfied with Queensland's assessment that the removal of this provision does not reduce the level of protection of planned environmental water.

177. Other rules of the proposed WRP that operate to protect planned environmental water in the WRP area include the following:

- a. Section 20 of the *Queensland WRP* provides that certain decisions made under the *Water Act 2000 (Qld)* (relating to the allocation and management of water) must be consistent with the environmental flow objectives.
- b. Water sharing rules in Chapter 3 and Water licence conditions in Chapter 4 of the *ROP*, and ss 808 and 812 of the *Water Act 2000 (Qld)*, which contribute to ensuring that planned environmental water is not subject to unauthorised extraction.

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## **Part 7—Water Quality Objectives**

### ***Section 10.29 – Water resource plan to include WQM Plan***

178. The Authority considers that the requirements in s 10.29 have been met by the proposed WRP. Section 10.29 requires a WRP to include a water quality management plan (WQM Plan). It also requires the WQM Plan to be made in accordance with Part 7 of Chapter 10.

#### **Assessment**

179. The Index indicates that s 10.29 is satisfied by:

a. *WPN WRP*: Explanatory note 7A.

180. Explanatory note 7A identifies the parts of the proposed WRP that have been put forward to satisfy the requirements in ss 10.30 to 10.35 as the WQM Plan for s 10.29 of the Basin Plan. As such, the Authority is satisfied that the proposed WRP includes a WQM Plan as required by s 10.29 of the Basin Plan.

181. The Authority is also of the view that the WQM Plan has been made in accordance with Part 7 of Chapter 10. The Authority's reasons for this conclusion are set out in more detailed in relation to the specific requirements in ss 10.30 to 10.35.

### ***Section 10.30 – WQM Plan to identify key causes of water quality degradation***

182. The Authority considers that the requirements in s 10.30 have been met by the proposed WRP. Section 10.30 requires a WRP to identify the causes, or likely causes of water quality degradation in the water resource plan area, having regard to the key causes of water quality degradation identified in Part 2 of Chapter 9 and set out in Schedule 10 of the Basin Plan.

#### **Assessment**

183. The Index indicates that s 10.30 is satisfied by:

a. *HWMP*: Section 7 Key causes of water quality degradation.

184. The Authority is satisfied that Section 7 of the HWMP identifies the causes or likely causes of water quality degradation for s 10.30(1) of the Basin Plan. The Authority is also satisfied that Section 7 demonstrates that these causes of degradation have been identified having regard to the key causes identified in the Basin Plan under Part 2 of Chapter 9 and set out in Schedule 10.

### ***Section 10.31 – Measures addressing risks arising from water quality degradation***

185. The Authority considers that the requirements in s 10.31 have been met by the proposed WRP. Section 10.31 applies if a risk of a kind mentioned in s 10.41(2)(d) has been identified in relation to the water resources of the water resource plan area. In these circumstances the WQM Plan must explain why measures addressing the risk have or have not been included in the WRP.

## Assessment

186. The Index indicates that s 10.31 is satisfied by:
- a. *WPN WRP*: Explanatory note 7B.
187. Explanatory note 7B lists the risks arising from elevated levels of salinity or other types of water quality degradation that were identified for s 10.41(2)(d). Risks that were identified as having a medium or higher level of risk include:
- a. Risk 1: Elevated levels of suspended matter and deposited sediment – very high risk in the Paroo basin and high risk in the Warrego and Nebine basins
  - b. Risk 2: Dissolved oxygen outside natural (ambient) ranges – medium risk in the Paroo basin
  - c. Risk 3: Elevated levels of salinity – medium risk in the St George Alluvium (Deep).
188. Explanatory note 7B also describes criteria that were used by Queensland to determine whether or not to include a measure for addressing risks assessed as having a medium or higher level of risk. The note provides that a measure will be included if:
- a. the relevant water quality and salinity target values that relate to the risk are identified in Section 11 of the *HWMP*
  - b. the measure is an action within the scope of the management of water resources under the *Water Act 2007* (Cwlth) and *Water Act 2000* (Qld), and
  - c. the measures are fit-for-purpose and cost effective.
189. Explanatory note 7B states that measures to address Risks 1 and 2 were not included in the WQM Plan for accreditation for the purposes of s 10.31, as the sources of these risks are related to land management.
190. Explanatory note 7B states that a measure to address Risk 3 was included in the WQM Plan for accreditation, as the measure was consistent with the criteria listed above, and did not conflict with other policies or targets.
191. Explanatory note 7B states that measures to address the low risks identified in the WRP area were not included in the WQM Plan for accreditation, as such measures could not be undertaken cost-effectively and would not be fit-for-purpose for the WRP area.

### **Section 10.32 – WQM Plan to identify water quality target values**

192. The Authority considers that the requirements in s 10.32 have been met by the proposed WRP. Section 10.32(1) requires a WQM Plan to identify the water quality target values for the water resource plan area. The water target values are those set out in s 10.32(2), or better value identified in accordance with s 10.32(3). Alternative water quality target values to those provided for by s 10.32(2) and (3) may also be specified provided the conditions in s 10.32(4)(a) to (d) have been satisfied.

## Assessment

193. The Index indicates that s 10.32 is satisfied by:

- a. *HWMP*: Chapter 11 Water quality target values, Tables 24A, 25A, 26A and 29A, and; Table 70 – provision 1.
- b. *WPN WRP*: Explanatory note 7C and Appendices C1, C2 and C3.

194. The water quality target values are identified in tables 24A, 25A, 26A, 29A, and 70 in the *HWMP*, thus meeting the requirement of s 10.32(1). The Authority's assessment of these targets against the requirements of s 10.32 is set out in the sections below.

### *Section s 10.32(2)(a) – Targets for fresh water-dependent ecosystems*

195. Subject to ss 10.32(3) and (4), s 10.32(2)(a) provides that the water quality target values for fresh water-dependent ecosystems are the applicable target values referred to in s 9.16.

196. The table in Chapter 5.7 of the *WPN WRP* states that the Basin Plan water quality targets for freshwater dependent ecosystems (s 9.16 of the Basin Plan) were adopted as follows:

- a. For Declared Ramsar wetlands:
  - i. streams and rivers: Dissolved oxygen, pH, salinity, temperature, pesticides, heavy metals and other toxic contaminants (*HWMP*: Table 29A)
  - ii. lakes and wetlands: Dissolved oxygen, salinity, temperature, pesticides, heavy metals and other toxic contaminants (*HWMP*: Table 29A)
- b. For Other water-dependent ecosystems: Dissolved oxygen, salinity, temperature (*HWMP*: Tables 24A, 25A and 26A).

197. Appendices C2 and C3 of the *WPN WRP* outline how water quality target values for fresh water dependent ecosystems have been developed for Queensland Murray-Darling Basin water types, mapped at a sub-catchment level. Appendices C2 and C3 note that in some cases the Basin Plan water quality targets for freshwater dependent ecosystems (s 9.16 of the Basin Plan) were considered inappropriate, as they were developed at a spatial scale that does not reflect the variation in local water types in the WRP area. Where no data was available at a finer spatial scale in relation to the water quality target values for fresh water-dependent ecosystems, the proposed WRP adopts the water quality target values referred to in s 9.16. Where data on water quality was available at a finer spatial scale, water quality target values that differ from those that are referred to in s 9.16 were developed. These different target values are assessed against the requirements of ss 10.32(3) and (4) in the following paragraphs.

198. Section 10.32(3) requires objectively determined actual values to be adopted as the water quality target value, if the actual value is better than the target value identified in s 10.32(2). Where data was available at a finer spatial scale, objectively determined target values that reflect local conditions were developed for the proposed WRP. Appendix C2 of the *WPN WRP* outlines how these water quality targets were developed, and the objectively determined actual values of water quality characteristics identified as representing better target values for s 10.32(3) are highlighted in blue in Tables 1 and 2 of Appendix C1. These better target values are summarised as follows:

- a. For declared Ramsar wetlands (Streams and rivers): the 50th percentile values for Total Phosphorous and Total Nitrogen represented a lower value than the corresponding target value in the Basin Plan.
  - b. For declared Ramsar wetlands (Lakes and wetlands): the 50th percentile values for Total Nitrogen for a number of lakes represented a lower value than the corresponding target value in the Basin Plan.
  - c. For fresh water-dependent ecosystems (other than declared Ramsar wetlands): values for a number of parameters represented a lower value than corresponding target values in the Basin Plan for the majority of sub-catchment scale sites recognised in the proposed WRP.
  - d. For fresh water-dependent ecosystems (other than declared Ramsar wetlands): in the Mid Warrego, Lower Warrego and Lower Paroo sub-catchments, base flow and high flow data has been included for Turbidity, Total Phosphorous and Total Nitrogen, and the base flow values represent a lower value than the corresponding target values in the Basin Plan.
199. Based on the available information, the Authority is satisfied that these objectively determined water quality targets are better target values than the corresponding target values for fresh water-dependent ecosystems referred to in s 9.16 of the Basin Plan.
200. Section 10.32(4) enables a WRP to specify alternative water quality target values, if a number of conditions are met. Where data was available at a finer spatial scale, Queensland developed alternative target values that reflect local conditions. Appendix C3 of the *WPN WRP* outlines how these alternative water quality targets were developed, and the target values for s 10.32(4) are highlighted in orange in Tables 1 and 2. of Appendix C1. These alternative target values are summarised as follows:
- a. For declared Ramsar wetlands (Streams and rivers): 20th, 50th and 80th percentile values were available for Turbidity, Total Phosphorus, and Total Nitrogen.
  - b. For declared Ramsar wetlands (Lakes and wetlands): 20th, 50th and 80th percentile values were available for Turbidity, Total Phosphorus, Total Nitrogen and pH for the majority of lakes in the WRP area.
  - c. For Lake Wyara: the proposed target value for pH is higher than the corresponding target value in the Basin Plan.
  - d. For fresh water-dependent ecosystems (other than declared Ramsar wetlands): A small number of target values for various parameters are higher than the corresponding target value in the Basin Plan.
  - e. For fresh water-dependent ecosystems (other than declared Ramsar wetlands): In the Mid Warrego and Lower Warrego sub-catchments, base flow and high flow data has been included for Turbidity, Total Phosphorous and Total Nitrogen, with high flow values representing a higher value than the corresponding target values in the Basin Plan.

201. The Authority is satisfied that the alternative water quality target values in the proposed WRP meet the conditions required in ss 10.32(4)(a) to (d), as outlined in the following paragraphs.
202. Appendix C3 of the *WPN WRP* suggests that the alternative values provide better consistency with the water quality objectives in Part 3 of Chapter 9 of the Basin Plan because they have been developed at a finer spatial scale using local data collection. The Authority considers that the alternative target values better achieve the water quality objectives in Part 3 of Chapter 9 and is therefore satisfied that the alternative values meet the condition in s 10.32(4)(a).
203. Appendix C3 states that the alternative target values were developed following the frameworks outlined in the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC, 2000) which is reflected in the *Queensland Water Quality Guidelines*. Appendix C3 (by reference to Appendix 2 of the *HWMP*) also describes how these alternative values were derived in more detail. In light of this description, the Authority considers that the alternative water quality target values meet the condition in s 10.32(4)(b).
204. Appendix C3 also describes how the alternative targets meet all of the condition in s 10.32(4)(c) (noting that it is only necessary to satisfy one of these conditions), namely:
- a. Where local data was available, target values for 20th, 50th and 80th percentiles, or values for base and high flows provide the ability to manage the full range of water quality conditions at the local scale, and ensure no deterioration of the existing water quality range. The Authority is satisfied that these targets provide a better level of protection than the single targets set for the same parameters in Basin Plan under s 9.16, and therefore meets the condition in s 10.32(4)(c)(i).
  - b. The Basin Plan defined only two water target application zones in the WRP area, while the Queensland Water Quality Technical Panel identified 12 local water types. Given this, the proposed WRP maintains that the water quality target application zones defined by the Basin Plan are at a scale too coarse to achieve the objectives to protect and restore water-dependent ecosystems, ecosystem functions, and climate resilience in the WRP area. As such, where local data is available at a finer scale, the proposed WRP sets targets which are more appropriate targets to the local water quality conditions, and enable management actions to be determined which will be more effective in meeting the relevant objectives in Part 3 of Chapter 9 of the Basin Plan. The Authority is satisfied that this meets the condition in s 10.32(4)(c)(ii).
  - c. Also due to the coarse spatial scale, the Basin Plan target values did not take into account the diversity of local water quality conditions, and as a result some of the target values set unachievable or unrealistic benchmarks for some water quality indicators. This results in water quality targets that potentially offer insufficient protection for the local aquatic ecosystem or impose constraints to managing water quality, due to an inappropriate standard for the local area. The Authority is satisfied that this meets the condition in s 10.32(4)(c)(iii).
205. In addition to the reasons outlined in paragraph 204, under the water quality framework of the ANZECC 2000 guidelines, local water quality targets hold higher precedence over regional, state or national targets. Local water quality targets for fresh water-dependent

ecosystems are critical for appropriate economic and environmental management, as the direct application of default regional, state or national water quality targets often do not reflect local water types or water quality characteristics. In light of these considerations, the Authority is satisfied that the alternative water quality target values included in WQM Plan of the proposed WRP satisfy the terms of s 10.32(4)(c).

206. For a water resource that is covered by a WRP area of another Basin State, an alternative water quality target value must be developed in consultation with the other Basin State. Appendix C3 of the *WPN WRP* sets out how consultation with NSW in the development of the alternative water quality target values was conducted, and how their feedback was considered in the adoption of water quality target values. Appendix C3 notes that the alternative water quality target values establish and protect the existing water quality, and therefore do not lead to a deterioration of current water quality flowing across the border to NSW. The Authority is satisfied that the requirements for s 10.32(4)(d) have been met.

*Section 10.32(2)(b) – Targets for irrigation water*

207. For s 10.32(2)(b), the Authority is satisfied that the proposed WRP is not required to identify the water quality target values set out in s 9.17 for irrigation water. Section 9.17 of the Basin Plan provides that the target values for irrigation water apply at sites in the Murray-Darling Basin where water is extracted by an irrigation infrastructure operator for the purposes of irrigation. Explanatory note 7C makes it clear that there is currently no water extracted by any irrigation infrastructure operator for the purposes of irrigation in the WRP area. The Authority agrees with this assessment, and notes that due to nature of the WRP area and the low levels of development, it is unlikely that water service infrastructure will be constructed in the future.

*Section 10.32(2)(c) – Targets for water used for recreational purposes*

208. The Authority is satisfied that the proposed WRP identifies the water quality target values for water used for recreational purposes consistently with the requirement in s 10.32(2)(c), which provides that the water quality targets are the values set out in s 9.18 of the Basin Plan. Table 70 – provision 1 of the *HWMP* adopts the water quality targets set out in s 9.18.

**Section 10.33 – WQM Plan to identify measures**

209. The Authority considers that the requirements in s 10.33 have been met by the proposed WRP. Section 10.33(1) requires a WRM Plan to specify measures to be undertaken in, or in relation to, the water resources of the water resource plan area that contribute to the achievement of the objectives listed in s 10.33(1)(a) to (e), unless there are no such measures that can be undertaken cost-effectively. The measures must be prepared having regard to the matters listed in s 10.33(2), and s 10.33(3) indicates that the measures may include land management measures.

**Assessment**

210. The Index indicates that s 10.33 is satisfied by:
- a. *WPN WRP*: Appendix D1 Measures that contribute to the achievement of objectives.

211. For s 10.33(1), Appendix D1 sets out the measures that will contribute to the achievement of the objectives set out in s 10.33(1). The Authority is satisfied that the measures have been put forward for each objective and that the measures will contribute to the achievement of the objectives identified.
212. For s 10.33(2)(a), Appendix D1 describes how each of the measures identified for s 10.33(1) have been prepared having regard to the causes of water quality degradation identified in s 10.30. The Authority is satisfied that the measures have been prepared having regard to these matters.
213. For s 10.33(2)(b) Appendix D1 describes how each of the measures was prepared having regard to the target values identified in accordance with s 10.32. The Authority is satisfied that the measures have been prepared having regard to these matters.
214. For s 10.33(2)(c), Appendix D1 describes how each measure was prepared having regard to the targets in Division 4 of Part 4 of Chapter 9 of the Basin Plan. The Authority is satisfied that the measures have been prepared having regard to these matters.

### ***Section 10.34 – WQM Plan to identify locations of targets for irrigation water***

215. The Authority considers that the requirements in s 10.34 have been met by the proposed WRP. Section 10.34 requires the WQM Plan to identify the sites in the water resource plan area at which the target values for irrigation water apply. The target values for irrigation water apply at sites in the Basin where 'water is extracted by an irrigation infrastructure operation for the purposes of irrigation' (see s 9.17(2)).

#### **Assessment**

216. The Index indicates that s 10.35 is satisfied by:
- a. *WPN WRP*: Explanatory note 7D.
217. Explanatory note 7D states that there are no sites in the WRP area where an irrigation infrastructure operation extracts water for the purposes of irrigation. The Authority agrees with this assessment. Therefore, there are no locations that can be identified for s 10.34.

### ***Section 10.35 – Impact of WQM Plan on another Basin State***

218. The Authority considers that the requirements in s 10.35 have been met by the proposed WRP. Section 10.35 provides that the measures specified in the WQM Plan must be developed having regard to:
- a. the impact those measures (including the absence of adequate measures) may have on the ability of another Basin State to meet water quality targets, and
  - b. any adverse impacts those measures may have on Basin water resources in the other Basin State.

#### **Assessment**

219. The Index indicates that s 10.35 is satisfied by:
- a. *HWMP*: Section 13 Impact on New South Wales water resources, and Section 4.7 Consultation with the New South Wales Government.

220. Sections 13 and 4.7 of the *HWMP* set out how the NSW Department of Primary Industries was consulted on the water quality target values, the impact of the measures contained in the proposed WQM Plan on the ability for NSW to meet water quality targets, and any adverse impacts of those measures on NSW water resources. Section 13 sets out NSW's feedback on the Queensland WQM Plan, and notes that the implementation of the WQM Plan in the proposed WRP would minimise cross-border water quality impacts.

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## **Part 8—Trade of water access rights**

221. The requirements in Part 8 do not apply to this WRP, for the reasons set out below. Accordingly, the Authority considers that the requirements in Part 8 have been met by the proposed WRP.
222. Section 10.36 provides that the requirements in Part 8 do not apply to water access rights of a kind that are not able to be traded under State water management law.
223. Explanatory notes 8A, 8B and 8C of the *WPN WRP* indicate that in relation to groundwater in the WRP area there are currently no water access rights that are able to be traded under Queensland State water management law. The Authority agrees with this assessment. Accordingly, the requirements in Part 8 do not apply.
224. The Authority notes that if future demand for trade in water access rights to groundwater in the WRP area resulted in a change to State water management law to allow such trade to occur, this would also require the accredited WRP to be amended to ensure consistency with the relevant requirements in Part 8 of Chapter 10.

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## Part 9—Approaches to addressing risks to water resources

### **Section 10.41 – Risk identification and assessment methodology**

225. The Authority considers that the requirements in s 10.41 have been met by the proposed WRP. The requirements of this section and the Authority's assessment of the proposed WRP against these requirements are set out below.

#### **Assessment**

226. The Index indicates that s 10.41 is satisfied by:

- a. *Risk assessment and threat prioritisation: Bulloo, Paroo, Warrego and Nebine catchments*: chapters titled 'Methods and Results.'
- b. *Risk assessment of insufficient water for the environment*: Chapter 3 Scope of risk assessment; Chapter 4 Risk assessment process; Chapter 5 Results, and; Appendices 1-4 Risk registers.
- c. *Risk assessment of insufficient water for surface water and groundwater users*: Chapter 3 Scope of risk assessment; Chapter 4 Risk assessment process; Chapter 5 Results, and; Appendices 1-8 Risk registers.
- d. *WPN WRP*: Explanatory note 9A.
- e. *HWMP*: Section 8 Risk assessment of water being of a quality unsuitable for use, and; Appendix 5 Warrego, Paroo, Bulloo and Nebine Water Quality Risk Assessment Methodology.
- f. *Environmental Assessment Report – Stage 2*: Chapter 1 Introduction; Chapter 4 Methods for assessing the effectiveness of the water resource plan; and Chapter 5 Results.

#### *Sections 10.41(1), (2) and (3) – Preparation of WRP having regard to risks*

227. Section 10.41(1) of the Basin Plan requires a WRP to be prepared having regard to the current and future risks to the condition and continued availability of the water resources of the water resource plan area. These identified risk are required to be listed for s 10.41(4) (see discussion below).

228. Where a specific provision of Chapter 10 has required consideration of a risk identified for s 10.41, the Authority is satisfied that the proposed WRP has been prepared having regard to that risk. More generally, the Authority is satisfied that the proposed WRP has been prepared having regard to the current and future risks to the condition and continued availability of the water resources of the WRP area. This is demonstrated through each of the documents listed above. This includes consideration of the effectiveness of existing management arrangements. The proposed WRP has been prepared having regard to the risks identified in the risk assessments by:

- a. for risks that have a low level of risk, maintaining existing management arrangements,  
or

- b. for risks that have a level of risk of medium or higher, including measures in the WRP to address those risks.

229. Current risks were considered in all of the risk assessment documents.

230. The *Environmental Assessment Report – Stage 2 and Risk assessment and threat prioritisation: Bulloo, Paroo, Warrego and Nebine catchments* consider risks arising from full development of water resources compared to pre-development conditions. In this way these documents consider the future risks over the period between current levels of water extraction and full development. The remaining risk assessment documents explicitly consider risks over the ten-year life of the WRP, although the risks identified are also relevant beyond this timeframe.

231. Consideration of the specific risks identified in s 10.41(2) is demonstrated in the following documents:

- a. For s 10.41(2)(a), risks to the capacity to meet environmental watering requirements have been addressed by the *Risk assessment and threat prioritisation: Bulloo, Paroo, Warrego and Nebine catchments*, *Risk assessment of insufficient water for the environment*, *Risk assessment of insufficient water for surface water and groundwater users*, *Environmental Assessment Report – Stage 2* and *HWMP*.
- b. For s 10.41(2)(b), risks arising from the matters referred to in s 10.20(1) have been addressed in Explanatory note 9A.
- c. For s 10.41(2)(c), risks arising from potential interception activities have been addressed in the *Risk assessment of insufficient water for surface water and groundwater users*.
- d. For s 10.41(2)(d), risks arising from elevated levels of salinity or other types of water quality degradation have been addressed in the *HWMP*.

232. Section 10.41(3)(a) requires the WRP to have regard to the risks identified in s 4.02 of the Basin Plan. The *Risk assessment of insufficient water for the environment*, *Risk assessment of insufficient water for surface water and groundwater users* and *HWMP* specifically considered these risks.

233. The Authority has not issued guidelines in relation to risk identification and risk assessment. Accordingly, the requirement in s 10.41(3)(b) to have regard to such guidelines does not apply.

#### *Sections 10.41(4), (5) and (6) – Listing, assigning and defining the level of risks*

234. Sections 10.41(4), (5) and (6) require the WRP to list the risks identified for the purposes of s 10.41(1), to assess each risk and to define the level of risk of each risk.

235. For s 10.41(4), the proposed WRP lists the risks identified in s 10.41(1) in the following sections of the documents put forward for accreditation:

- a. Chapter 5 Results, Table 6. Final prioritisation and risk scores for threats in the *Risk assessment and threat prioritisation: Bulloo, Paroo, Warrego and Nebine catchments*.
- b. Appendix 1 Warrego catchment surface water and groundwater risk register, Appendix 2 Paroo catchment surface water and groundwater risk register, and

Appendix 3 Nebine catchment surface water and groundwater risk register of the *Risk assessment of insufficient water for the environment*.

- c. 6.1 Appendix 1 Warrego catchment surface water risk register, 6.2 Appendix 2 Paroo catchment surface water risk register, 6.3 Appendix 3 Nebine catchment surface water risk register, 6.5 Appendix 5 Warrego alluvium risk register, 6.6 Appendix 6 Sediments above the GAB (WPBN), 6.7 Appendix 7 St George alluvium (shallow) and 6.8 Appendix 8 St George alluvium (deep) of the *Risk assessment of insufficient water for surface water and groundwater users*.
- d. Section 8 Risk assessment of water being of a quality unsuitable for use Table 14: Risk assessment of water being of a quality unsuitable for use in the Warrego, Paroo, Bulloo and Nebine drainage basins—Summary of the *HWMP*.
- e. Chapter 5 Results, Table 5: Summary of risks to ecological assets of the Warrego catchment, their link to hydrology and modelled risk in comparison to predevelopment, Table 6: Ecological assets modelled in the Paroo catchment, their link to hydrology and modelled risk in comparison to pre-development, and Table 9: Ecological assets modelled in the Nebine catchment, their link to hydrology and modelled risk in comparison to pre-development of the *Environmental Assessment Report – Stage 2*.

236. Each risk that has been identified in these documents has been assessed, and therefore meets the requirement in s 10.41(5).

237. As a consequence of this assessment, a level of risk in accordance with the categories set out in s 10.41(6) has been defined for each risk. The Authority is satisfied that the 'level of risk' in each case was determined by considering the combination of consequences and their likelihood consistently with *AS/NZS ISO 31000:2009: Risk Management – Principles and Guidelines* (see also s 10.40 definition of 'level of risk'). The Authority notes the following in relation to the levels of risk:

- a. For the *Environmental Assessment Report – Stage 2*, some risks were expressed as proportional deviation from pre-development risks where no threshold of concern could be determined. This approach results in additional categories for defining risk in accordance with s 10.41(6)(d), and is considered suitable for defining the level of risk where an objective measure of the level of risk cannot be determined. The risks that were defined using these additional categories were also considered at a larger spatial scale in the *Risk assessment of insufficient water for the environment*, which defined the level of risk consistently with the definitions in *AS/NZS ISO 31000:2009: Risk Management – Principles and Guidelines*.
- b. The *HWMP* also included an additional risk rating of 'very high'. This approach is supported by s 10.41(6)(d).
- c. The remaining risk assessment documents used ratings of low, medium and high when defining risks, and employed systematic approaches to defining the level of risk.
- d. In some cases, the term 'moderate' is used in place of the term 'medium'. This approach is supported by s 10.41(6)(d).

*Section 10.41(7) – Data and methods used*

238. Section 10.41(7) requires a WRP to describe the data and methods used to identify and assess risks. The Authority is of the view that the proposed WRP satisfies this requirement, as each risk assessment document sets out the method that has been used to identify and assess risks, and the data the risk assessment was based on. A summary of the data and methods used is as follows:

- a. The *Risk assessment of insufficient water for the environment*, *Risk assessment of insufficient water for surface water and groundwater users* and *HWMP* assess risks using methods consistent with the *AS/NZS ISO 31000:2009: Risk Management – Principles and Guidelines* to assess risks.
- b. The *Risk assessment and threat prioritisation: Bulloo, Paroo, Warrego and Nebine catchments* uses a qualitative risk assessment method that considers the likelihood of changes and their ecological consequences.
- c. The *Environmental Assessment Report – Stage 2* uses an eco-hydraulic modelling method, based on the principles of ecological risk assessment (ERA) to assess the risk to aquatic ecosystem components, processes, and services from the WRP area.
- d. The data used to identify and assess risks are identified in the context of the particular risk assessment and range from monitoring data and models through to expert judgement.

*Section 10.41(8) – Describing quantified uncertainties*

239. Section 10.41(8) requires a WRP to describe any quantified uncertainties in the level of risk attributed to each risk, including the results of any sensitivity analysis. The Authority is satisfied the proposed WRP meets this requirement for the following reasons:

- a. Confidence scores (a measure of the quantified uncertainties in the level of risk) were provided for each risk in the *Risk assessment of insufficient water for the environment*, *Risk assessment of insufficient water for surface water and groundwater users*, and *HWMP*. These documents also provide information about the basis for the confidence scores. Confidence scoring has been applied to both the likelihood and consequence rankings for a risk, and scores were determined based on the level of scientific evidence or information available, applicability to the reporting area, and level of expertise.
- b. Sensitivity analysis has not been undertaken so the requirement in s 10.41(8) to include the results of any sensitivity analysis does not apply.

**Section 10.42 – Description of risks**

240. The Authority considers that the requirements in s 10.42 have been met by the proposed WRP. Section 10.42 requires a WRP to describe each risk identified in accordance with s 10.41(6) as having a medium or higher level of risk, and the factors contributing to those risks.

## Assessment

241. The Index indicates that s 10.42 is satisfied by:

- a. *Risk assessment of insufficient water for surface water and groundwater users:* Chapter 5 Results.
- b. *Risk assessment of insufficient water for the environment:* Chapter 5 Results.
- c. *HWMP:* Section 8.3 Risk assessment results (Risks 1, 2 and 3), and Appendix 5, Attachment 1 Water Quality Risk Assessment Workshop Comments and Analysis.

242. For s 10.42(a), the proposed WRP includes the following description of each risk which is identified as having a medium or higher level of risk:

- a. Growth in take of groundwater for irrigation and non-mining purposes in the St George Alluvium (deep) — high level of risk.
- b. Lowering of groundwater levels in the St George Alluvium which may impact on groundwater dependent terrestrial vegetation — medium level of risk.
- c. Elevated levels of suspended matter and deposited sediment:
  - i. for the Paroo surface waters — very high level of risk; and
  - ii. for the Warrego and Nebine surface waters — high level of risk.
- d. Dissolved oxygen outside natural (ambient) ranges for the Paroo surface waters — medium level of risk.
- e. Elevated levels of salinity in the St George Alluvium (deep) — medium level of risk.

243. For s 10.42(b), the proposed WRP includes the following description of the factors contributing to the risks rated as medium or higher. These factors have been described in:

- a. Chapter 5.1 of the *Risk assessment of insufficient water for the environment*
- b. Chapter 5.1 of the *Risk assessment of insufficient water for surface water and groundwater users*
- c. Appendix 5, Attachment 1 of the *HWMP*.

244. In light of the foregoing, the Authority is satisfied that the proposed WRP satisfies the requirement in s 10.42.

### **Section 10.43 – Strategies for addressing risks**

245. The Authority considers that the requirements in s 10.43 have been met by the proposed WRP. Section 10.43(1) requires that, for a risk defined as having a medium or higher level of risk for s 10.41(6), a WRP must either:

- a. describe a strategy for the management of that risk in a manner commensurate with the level of risk, or
- b. explain why the risk cannot be addressed by the WRP in a manner commensurate with the level of risk.

246. Section 10.43(2) requires that if a WRP identifies a risk which relates to a matter dealt with by a requirement in another Part of Chapter 10, the strategy must take account of that requirement. Section 10.43(3) requires a WRP to be prepared having regard to the strategies listed in s 4.03(3) of the Basin Plan, or any guideline published by the Authority.

### Assessment

247. The Index indicates that s 10.43 is satisfied by:

- a. *Queensland WRP*: Section 19 Decision to not increase amount of water taken, Section 29(2) Limitation on taking or interfering with groundwater and Schedule 5 Reserves for granting unallocated water.
- b. *WPN WRP*: Explanatory note 9B and 9C, and Appendix D1 Measures that contribute to the achievement of objectives.

248. The risks defined as having a medium or higher level of risk for s 10.41(6) are listed in the discussion about s 10.42 above.

249. The strategy for the management of the St George Alluvium and St George Alluvium (deep) to address the risks to those water resources is to provide no reserve volumes in the St George Alluvium: Warrego–Paroo–Nebine SDL resource unit (s 19 and Schedule 5 of the *Queensland WRP*). Certain limitations have also been placed on the taking of groundwater from the St George Alluvium (deep) (section 29(2) of the *Queensland WRP*). In addition, the strategies as they relate to risks to water quality also include the measures listed in Appendix D1. The Authority considers that these strategies are commensurate with the identified level of risk for the relevant risks. This is because the level of risk for those risks is directly related to increases in take from the SDL resource unit and by not allowing any further take the strategy is proportionate to address the level of risk identified.

250. Appendix D1 of the *WPN WRP* has been identified as the strategy to address the following risks that have been identified for s 10.42(a):

- a. elevated levels of suspended matter and deposited sediment for the Paroo surface waters and for the Warrego and Nebine surface waters
- b. dissolved oxygen outside natural (ambient) ranges for the Paroo surface waters.

251. These risks were identified as arising due to land management, and therefore Queensland has indicated that the most appropriate measures identified to address these risks are land use management actions. These measures have been identified in the WQM Plan, but not put forward for accreditation as measures or strategies to address the risks for the purposes of s10.31 or s 10.43. Queensland has also suggested that no measures have been included in the WQM Plan to address these risks on the basis that the sources of the risks are related to land management practices.

252. Nevertheless, the Authority considers that the measures identified in Item 1 of the table in Appendix D1 of the *WPN WRP* sets out a strategy that addresses the water quality risks identified above. This is because the establishment of Environmental Values and Water Quality Objectives under the Queensland *Environmental Protection (Water) Policy 2009* will be used to inform statutory and non-statutory planning and decision-making, and Appendix D1 sets out further detail about the kinds of actions this may entail.

253. The management strategies to address the risks to the St George Alluvium and St George Alluvium (deep) water resources takes into account the requirements in ss 10.11, 10.20, 10.21 and 10.33, as required by s 10.43(2). This is because the strategies identified for s 10.43 have also been used to address these related requirements.
254. Explanatory note 9C provides a brief supporting statement indicating the manner in which the WRP was prepared having regard to the strategies in s 4.03(3). On this basis, the Authority is satisfied that the proposed WRP has been prepared having regard to these strategies, as required by s 10.43(3)(a).
255. As no guidelines have been published by the Authority in accordance with s 4.04, the requirement in s 10.43(3)(b) to have regard to such guidelines does not apply.

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## Part 10—Measuring and monitoring

### **Section 10.44 – Information relating to measuring take – water access entitlements**

256. The Authority considers that the requirements in s 10.44 have been met by the proposed WRP. Section 10.44 requires a WRP to include certain information in relation to each class of water access right relating to the water resources of the water resource plan area. That information is the best estimates of the total long-term annual average quantity of water taken that is measured (s 10.44(a)) and that is not measured (s 10.44(b)) and how those quantities are calculated (s 10.44(c)).

#### **Assessment**

257. The Index indicates that s 10.44 is satisfied by:

- a. *Water Accounting Methods Report*: Chapter 4 Information relating to measuring take, Chapter 6.2 Annual actual take by floodplain harvesting, and Appendix B Method for estimating take from watercourses under basic rights.
- b. *Parsons Brickerhoff 2011*: Methodology for estimating the take of groundwater for stock and domestic purposes in the Queensland Murray-Darling Basin.

258. Chapter 4.1 of the *Water Accounting Methods Report* details, for each class of water access right in the WRP area:

- a. the best estimate of the total long term average annual take for each SDL resource unit that is measured (s 10.44(a)), and
- b. the best estimate of the total long term average annual take for each SDL resource unit that is not measured (s 10.44(b)).

259. Chapter 4.2 of the *Water Accounting Methods Report* sets out how the long term average annual take is calculated, including methods for both measured and estimated take (s 10.44(c)).

260. For the purposes of s 10.44(c), further detail about some of the methods for determining the long-term annual average quantity of water that is not measured are included in:

- a. Chapter 6.2 and Appendix B of the *Water Accounting Methods Report* (for take by floodplain harvesting and take from watercourses under basic rights respectively), and
- b. *Parsons Brinkerhoff 2011* (for take under basic rights from groundwater).

261. Agreed standards for determining take that is measured are yet to be developed by Basin States and the Commonwealth. Therefore, the requirement in s 10.44(d) is not applicable.

262. On the basis of the information provided above, the Authority is satisfied that the proposed WRP meets the requirements of s 10.44.

### **Section 10.45 – Supporting measuring**

263. The Authority considers that the proposed WRP meets the requirements set out in s 10.45 of the Basin Plan. Section 10.45 requires a WRP to specify measures for maintaining, and if practicable, improving the proportion of the take that is measured in the water resource plan

area (s 10.45(1)(a)) and the standard to which take is measured (s 10.45(1)(b)). The WRP must also specify the timeframe for implementing these measures (s 10.45(2)).

### Assessment

264. The Index indicates that s 10.45 is satisfied by:

- a. *Water Act 2000* (Qld): Section 808(3) Unauthorised taking, supplying or interfering with water.
- b. *WPN WRP*: Explanatory notes 10A and 10B.
- c. *Water Regulation 2002* (Qld): Part 7 Metering and Schedule, 15A Metered entitlements.
- d. *ROP*: Section 10 Metering.
- e. *Queensland interim water meter standard for non-urban metering*.

265. The Authority is satisfied that the proposed WRP meets the requirement in s 10.45(1)(a) to specify the measures to maintain the proportion of take that is measured. Obligations relevant to meeting this requirement are contained in:

- a. Section 808 of the *Water Act 2000* (Qld), which makes it an offence to take water under authority of a metered entitlement without an approved meter
- b. Part 7 and Schedule 15A of the *Water Regulations 2002* (Qld) which contain obligations to meter entitlements in the WRP area (except for those for stock and domestic use and water entitlements to take supplemented water), and
- c. Section 10 of the *ROP*, which imposes an obligation on the resource operations licence holder to meter the taking of water under all water allocations and seasonal water assignments managed under their resource operations licence.

266. The supporting information for s 10.45 in the Index states that all groundwater licences and a number of small surface water licences are not metered, however due to the small volumes involved and the difficulty in metering diversion channels in the WRP area, there is no intention to meter these forms of take. In this way, the proposed WRP indicates that for these forms of take it is not practicable to improve the proportion of take that is measured.

267. The standard to which the take is measured is specified in the *Queensland interim water meter standard for non-urban metering*. This document maintains the standard to which take is measured, and improves standards as it applies to meters installed from 1 January 2013. The Authority is satisfied that this meets the requirement in s 10.45(1)(b).

268. Explanatory note 10B states that the measures to maintain the proportion of take that is measured in the WRP area have already been enacted in Queensland law. Accordingly, the ongoing implementation of these measures will involve the ongoing application of that law, for the life of the WRP. The Authority is satisfied that this meets the requirement in s 10.45(2).

### **Section 10.46 – Monitoring water resources**

269. The Authority considers that the requirements in s 10.46 have been met by the proposed WRP. Section 10.46 requires a WRP to specify the monitoring of the water resources of the water resource plan area that will be done to enable the Basin State to fulfil its reporting obligations under s 13.14 of the Basin Plan.

#### **Assessment**

270. The Index indicates that s 10.46 is satisfied by:

- a. *WPN WRP*: Appendix E Relationships between monitoring of water resources and reporting under section 13.14.
- b. *ROP*: Chapter 5 Monitoring and reporting.

271. Appendix E specifies the water resource monitoring that will be done to enable the Basin State to fulfil its reporting obligations under s 13.14.

272. The monitoring set out in Appendix E will enable Queensland to fulfil its monitoring obligations under Matters 8, 9, 12 and 19 of Schedule 12. This includes monitoring that will be undertaken in accordance with Chapter 5 of the *ROP*.

273. Appendix E also specifies the monitoring that will be done for the remaining matters in Schedule 12 on which Queensland is required to report. For these remaining matters, the monitoring undertaken for 8, 9, 12 and 19 will be used.

274. In light of the above, the Authority is satisfied that the proposed WRP meets the requirement in s 10.46.

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## **Part 11—Reviews of water resource plans**

### ***Section 10.47 – Review of water resource plans***

275. The Authority considers that the requirements in s 10.47 have been met by the proposed WRP. Section 10.47 provides that if a review of the plan (or part of the plan) is undertaken, the WRP must require the report of the review to be given to the Authority within 30 days after the report is completed.

#### **Assessment**

276. The Index indicates that s 10.47 is satisfied by:

a. *WPN WRP*: Explanatory note 11A.

277. Explanatory note 11A commits to providing the report of any review of the WRP, or part thereof, to the Authority with 30 days of the completion of the report.

### ***Section 10.48 – Amendment of water resource plan***

278. The Authority considers that the requirements in s 10.48 have been met by the proposed WRP. Section 10.48 requires a Basin State to give the reasons for an amendment to a WRP to the Authority in circumstances where the Basin State proposes an amendment to the WRP.

#### **Assessment**

279. The Index indicates that s 10.48 is satisfied by:

a. *WPN WRP*: Explanatory note 11B.

280. Explanatory note 11B commits to providing reasons to the Authority for any amendments to the WRP arising from a review of the plan or part thereof.

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## Part 12—Information used to prepare water resource plan

### **Section 10.49 – Best available information**

281. The Authority considers that the requirements in s 10.49 have been met by the proposed WRP. Section 10.49 requires that a WRP must be based on the best available information (s 10.49(1)) and requires the WRP to describe the significant sources of information on which the water resource plan is based (s 10.49(2)).

#### **Assessment**

282. The Index indicates that s 10.49 is satisfied by:

- a. *WPN WRP*: Appendix F Significant sources of information used to prepare this Water Resource Plan.

283. Appendix F lists the significant sources of information on which the proposed WRP is based, provides a description of and references to this information, and in doing so satisfies the requirement in s 10.49(2).

284. Appendix F also explains why these sources are considered the best available. The Authority has reviewed information described in Appendix F as well as other information that was used to prepare the proposed WRP and is satisfied that the proposed WRP is based on the best available information as required by s 10.49(1).

### **Section 10.50 – Methods used to develop water resource plan**

285. The Authority considers that the requirements in s 10.50 have been met by the proposed WRP. Section 10.50 requires a WRP to identify any significant method, model or tool that has been used to develop the WRP.

#### **Assessment**

286. The Index indicates that s 10.50 is satisfied by:

- a. *WPN WRP*: Appendix G Significant methods used to develop water resource plan.
- b. *Overview report*: Appendix B.

287. Appendix G identifies the models and methods used in the development of the plan, outlines how these were refined and improved to provide information required for the development of the plan, and describes why these models and methods are the best available.

288. Appendix B of the *Overview report* summarises the key technical assessments undertaken to prepare the proposed WRP, namely hydrologic, social-economic, cultural, environmental, and risk assessments.

289. The Authority is satisfied that the proposed WRP identifies the significant methods, models and tools that have been used to develop the proposed WRP, and therefore meets the requirement in s 10.50.

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## Part 13—Extreme events

### **Section 10.51 – Measures in response to extreme events**

290. The Authority considers that the requirements in s 10.51 have been met by the proposed WRP. These requirements and the assessment of whether the proposed WRP addresses those requirements are described below.

#### **Assessment**

291. The Index indicates that s 10.51 is satisfied by:

- a. *Water Act 2000* (Qld): Division 2 Restrictions for emergencies and water shortages (Sections 22 to 25); Section 39 Minister must first prepare a statement of proposals; Section 46 Content of draft water resource plans; Section 47 Matters the Minister must consider when preparing draft water resource plan; Sections 53 – 54 Periodic reports and accountability matters; and Section 55 When water resource plans may be amended or replaced.
- b. *WPN WRP*: Explanatory notes 13A, 13B, 13C and 13D.
- c. *ROP*: Section 18 Storing and releasing water for stock and domestic purposes; and, Chapter 2 Part 2 Water sharing rules.
- d. *Environmental Protection Act 1994* (Qld): Chapter 8 Part 3C Offences relating to water contamination; Chapter 7 Part 1 Environmental duties (Section 319), and; Chapter 7 Environmental management Part 5B Clean-up notices.
- e. *Queensland WRP*: Section 32 Minister’s report on plan—Act, s 53.

#### *Section 10.51(1) – Describing how water resources will be managed during extreme events*

292. Section 10.51(1) requires a WRP to describe how the water resources of the water resource plan area will be managed during the extreme events described in ss 10.51(1)(a), (b) and (c).

293. For an extreme dry period, referred to in s 10.51(1)(a), the proposed WRP provides that the water resources of the WRP area will be managed in accordance with:

- a. Sections 22 to 25 of the *Water Act 2000* (Qld), and
- b. Section 18 Storing and releasing water for stock and domestic purposes, and Chapter 2, Part 2 Water sharing rules of the *ROP*.

294. For a water quality event of an intensity, magnitude and duration that is sufficient to render water toxic or unusable for established local uses and values, as referred to in s 10.51(1)(b), the proposed WRP provides that the water resources will be managed in accordance with:

- a. Chapter 8, Part 3C Offences relating to water contamination, Chapter 7, Part 1 s 319 Environmental duties and Part 5B Clean-up notices of the *Environmental Protection Act 1994* (Qld), and
- b. Division 2 of Part 2 of Chapter 2 Restrictions for emergencies and water shortages, Sections 22 to 25 of the *Water Act 2000* (Qld).

295. No description has been included for s 10.51(1)(c) on the basis that there have been no events in the WRP area that have resulted in the suspension of a statutory regional water plan in the past 50 years. The Authority interprets the requirement in s 10.51(1)(c) as only applying if there has been such an event in the WRP area. Accordingly, the Authority is satisfied that the proposed WRP is consistent with s 10.51(1)(c).
296. The Authority is satisfied that the proposed WRP has described how the water resources of the WRP area will be managed during extreme events of the kind set out in ss 10.51(1)(a), (b) and (c).

*Section 10.51(2) – Measures to meet critical human water needs*

297. Section 10.51(2) provides that if an extreme event of the kind covered by s 10.51(1) would compromise a Basin State's ability to meet critical human water needs in the water resource plan area, the WRP must set out measures to meet critical human water needs during such an event.
298. Division 2 of Part 2 of Chapter 2 of the *Water Act 2000* (Qld) has been put forward to satisfy s 10.51(2). Broadly, this division includes various powers to limit or prohibit the taking of water in certain events including by preparing water supply emergency declarations and water supply emergency regulations that may override the operation of a resource operations plan, resource operations licence or interim resource operations licence. The Authority is satisfied that the events that trigger the application of these powers are events of a type that are listed in ss 10.51(1)(a) and (b) of the Basin Plan.
299. Queensland has also indicated that there is a low risk that extreme events will compromise the ability to provide water for critical human needs in the WRP area, as town water supplies and stock and domestic water are sourced from the Great Artesian Basin (a non-Basin water resource).
300. In light of the foregoing, the Authority is satisfied that the requirement in s 10.51(2) has been met.

*Section 10.51(3) – Consideration to whether water resources should be managed differently*

301. Section 10.51(3) requires a WRP to provide that, if new scientific information suggests a change in the likelihood of an extreme event of the kind listed in s 10.51(1) occurring, consideration must be given to whether, as a result of this new information, the water resources should be managed differently.
302. Sections 39, 46, 47, 53, 54 and 55 of the *Water Act 2000* (Qld) have been put forward to satisfy s 10.51(3) of the Basin Plan. Section 32 of the *Queensland WRP* has also been put forward to satisfy this requirement.
303. The provisions put forward by Queensland are aspects of the planning framework relating to the preparation and review of water resource plans. While these provisions do not expressly require consideration to be given to whether the water resources should be managed differently in light of the specific kind of information referred to in s 10.51(3), the planning framework set out in the provisions provides for the consideration of best scientific information, and the Authority is satisfied that this would include new scientific information. This appears to encompass information of the kind covered by s 10.51(3). On this basis, the

Authority is satisfied that the planning process provides a framework within which consideration will be given to the information referred to in s 10.51(3) and whether it is necessary for the water resources of a WRP area to be managed differently.

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## Part 14—Indigenous values and uses

304. In accordance with the note at the beginning of Part 14 of Chapter 10, the Authority has consulted with relevant Indigenous organisations in relation to whether the requirements of this part have been met. The assessment undertaken by the Traditional Owner Advice Committee established by the Northern Basin Aboriginal Nations has been provided separately to inform the accreditation decision.

### **Section 10.52 – Objectives and outcomes based on indigenous values and uses**

305. The Authority considers that the requirements in s 10.52 have been met by the proposed WRP. These requirements and the Authority's assessment of whether the proposed WRP meets those requirements are set out below.

#### **Assessment**

306. The Index indicates that s 10.52 is satisfied by:

- a. *Aboriginal values and uses report*: Section 4.1 Objectives of Aboriginal people; Section 4.2 Outcomes for water management desired by Aboriginal people; Section 4.3 Aboriginal values and uses of water; Section 7 Protection of Aboriginal values and uses, and; Attachment 2 Summary of identified Aboriginal values and uses in the WPBN plan area.
- b. *HWMP*: Section 3.2.5 Objective and outcome for Aboriginal cultural, spiritual and ceremonial values and uses of water; Section 4.5 Consultation with Aboriginal Nations, Section 5 Social, economic, cultural and environmental values and uses, Tables 7, 8 and 9 and mapped in Figures 12 and 13, and; Section 10 Opportunities to strengthen the protection of Aboriginal values and uses of water.
- c. *Consultation Summary Report: HWMP*: Section 5 Consultation with Aboriginal Nations.
- d. *Queensland WRP*: Section 12 Economic outcomes; Section 13 Indigenous outcomes; Section 14 Social outcomes; Section 15 Environmental flow objectives and performance indicators; Section 20 Decisions to be consistent with objectives; Section 21 Assessing impact of decisions; Section 22 Purpose for which unallocated water may be granted; Section 23 Reserve volumes; Section 24 Process for granting unallocated water; and Schedule 6 Dictionary.
- e. *The Water Act 2000 (Qld)*: Section 20B Aboriginal cultural, spiritual and ceremonial values and uses.
- f. *Cultural Assessment*: Chapter 3 The importance of water to Aboriginal people in the Warrego, Paroo, Bulloo and Nebine catchments; Chapter 5 Supporting Aboriginal values and uses of water in the Warrego, Paroo, Bulloo and Nebine catchments; and Chapter 6 Development of the new water resource plan.
- g. *Overview report*: Appendix B, Section 3 Cultural assessment.
- h. *Implementation Review Report*: Section 4.4 Socioeconomic assessment, and; Section 4.5 Cultural assessment.

*Section 10.52(1) and (2) – Identifying objectives and outcomes*

307. Section 10.52(1)(a) requires a WRP to identify the objectives of Indigenous people in relation to managing the water resources of the water resource plan area. Section 10.52(1)(b) requires a WRP to identify the outcomes for the management of the water resources of the water resource plan area that are desired by Indigenous people. In identifying these matters regard must be had to the Indigenous values and uses determined in accordance with s 10.52(2).
308. Objectives for s 10.52(1)(a) are set out in the *Warrego, Paroo, Bulloo and Nebine water resource plan and resource operations plan: Aboriginal values and uses report, HWMP, and Consultation Summary Report: HWMP*. The objectives outlined in these documents are to:
- a. Help Traditional Owners to achieve their economic and social aspirations, as referred to in the *Queensland WRP*.
  - b. Recognise cultural flows in water planning and management.
  - c. Protect the availability of water for cultural, ceremonial and spiritual uses.
  - d. Protect water quantity, quality and flow regimes of waterholes, wetlands, rivers and springs to preserve cultural value.
  - e. Protect sites, flora and fauna of cultural significance.
  - f. Ensure the suitability of water to support the identified cultural, spiritual and ceremonial values and uses of waters across the South West region.
309. Outcomes for s 10.52(1)(b) are set out in the *Aboriginal values and uses report, Queensland WRP, Water Act 2000 (Qld), and HWMP*. The outcomes outlined in these documents are:
- a. Availability of water for Traditional Owners who are dependent on water resources in the WRP area to achieve their economic and social aspirations.
  - b. Maintenance of flows of water that support water-related cultural and recreational values of the Traditional Owners.
  - c. South West region water resources remain fit for purpose in relation to cultural, spiritual and ceremonial values and uses of water.
310. The Authority is satisfied that the following documents demonstrate that in identifying the objectives and outcomes for s 10.52(1), regard was had to the Indigenous values and Indigenous uses determined through consultation as required by s 10.52(2):
- a. *Aboriginal values and uses report*: Section 4.3 Aboriginal values and uses of water, and Attachment 2 Summary of identified Aboriginal values and uses in the WPBN plan area.
  - b. *HWMP*: Section 4.5 Consultation with Aboriginal Nations, Section 5 Social, economic, cultural and environmental values and uses, Tables 7, 8 and 9 and mapped in Figures 12 and 13.
  - c. *Consultation Summary Report: HWMP*: Section 5 Consultation with Aboriginal Nations.
  - d. *Cultural Assessment*: Chapter 3 The importance of water to Aboriginal people in the Warrego, Paroo, Bulloo and Nebine catchments, Chapter 5 Supporting Aboriginal

values and uses of water in the Warrego, Paroo, Bulloo and Nebine catchments, and; Chapter 6 Development of the new water resource plan.

- e. *Overview report*: Appendix B, Section 3 Cultural assessment.
- f. *Implementation Review Report*: Section 4.4 Socioeconomic assessment, and; 4.5 Cultural assessment.

**Section 10.52(3) – Opportunities to strengthen the protection of Indigenous values and Indigenous uses**

311. Section 10.52(3) provides that a person or body preparing a WRP may identify opportunities to strengthen the protection of Indigenous values and uses, and if identified, those opportunities must be specified in the WRP.

312. Such opportunities were identified in the following documents:

- a. *Aboriginal values and uses report*: Section 4.3.15 Risks to identified values and uses and Section 7 Protection of Aboriginal values and uses.
- b. *HWMP*: Section 10 Opportunities to strengthen the protection of Aboriginal values and uses of water.
- c. *Queensland WRP*: Section 12 Economic outcomes; Section 13 Indigenous outcomes; and Section 14 Social outcomes.

313. The opportunities identified in the *Aboriginal values and uses report* relate to how the water planning process can be used to strengthen the protection of Aboriginal values and uses. The opportunities identified in the *HWMP* are related to the protection of water quality and aquatic ecosystems, and these opportunities will be used to guide future projects in the South West Queensland Region. Sections 12, 13 and 14 of the *Queensland WRP* set out economic, Indigenous and social outcomes for water in the plan area. These sections do not explicitly identify opportunities to strengthen protection of Aboriginal values and uses, however the Authority notes that the outcomes for the plan area that are identified in sections 12, 13 and 14 have the effect of strengthening the protection of Aboriginal values and uses compared to the previous version of the plan.

**Section 10.53 – Consultation and preparation of water resource plan**

314. The Authority considers that the requirements in s 10.53 have been met by the proposed WRP. Section 10.53 requires a WRP to be prepared having regard to the views of relevant Indigenous organisations with respect to matters identified under s 10.52(1) and the matters listed in ss 10.53(1)(a) to (f).

**Assessment**

315. The Index indicates that s 10.53 is satisfied by:

- a. *Aboriginal values and uses report*: Sections 4.3.15 Risks to identified values and uses, and; Section 5 Consultation with Aboriginal people in preparation of the water resource plan.
- b. *Cultural Assessment*: Chapter 2 Getting Aboriginal voices into water planning; Section 3.12 Native title claims and Indigenous land use arrangements; Section 3.13 Initial

consultation; Chapter 5 Supporting Aboriginal values and uses of water in the Warrego, Paroo, Bulloo and Nebine catchments, and; Section 8 Attachments.

- c. *Overview report*: Section 3.3.8 Providing for traditional owner values, and; Appendix B Technical assessments.
- d. *Implementation Review Report*: Section 5.3 Aboriginal groups, and; Chapter 6 Proposed key directions for the new draft water resource plan and resource operations plan.
- e. *HWMP*: Section 4.5 Consultation with Aboriginal Nations, and; Section 10 Opportunities to strengthen the protection of Aboriginal values and uses of water.
- f. *Consultation Summary Report: HWMP*: Chapter 5 Consultation with Aboriginal Nations.

316. The Authority is satisfied that the view of relevant Indigenous organisations have been sought as required by s 10.53(1). For the WRP area the views of the Northern Basin Aboriginal Nations (NBAN), South West Natural Resource Management (South West NRM) and the Far South West Aboriginal Natural Resource Management Group (Aboriginal NRM) were sought with respect to the matters identified in s 10.52 and the matters listed in ss 10.53(1)(a) to (f). These groups included members of the Bidjara, Budjiti, Gunggari (Kungarri), Kooma (Guwamu), Kullilli, Kunja, Mardigan, Murrawarri and Mandandanji Nations.
317. The Mandandanji Nation was identified in the MDBA map endorsed by NBAN that shows the Aboriginal Nations for each WRP area. In further consultation it was noted by Traditional Owners that Mandandanji's interest was in the Condamine-Balonne water resource plan area, and no comments were received from the Mandandanji Nation on the WRP area.
318. The documents identified as addressing the requirements of s 10.53 set out information about the multiple rounds of consultation undertaken during the development of the proposed WRP to provide opportunities for relevant Indigenous organisations to express their views about the matters identified under s 10.52 and the matters listed in s 10.53(1)(a) to (f). The various consultation processes that informed the development of the proposed WRP are summarised and described in Chapter 5 of the *Aboriginal values and uses report*, and Section 4.5 of the *HWMP*.
319. Several of the documents set out the way that the proposed WRP was prepared having regard to these views. These include:
- a. Section 3.3.8 of the *Overview report*, which sets out changes to the *Water Act 2000* (Qld) to enable an Aboriginal party to take or interfere with water for traditional activities or cultural purposes without the need for an entitlement, and the ability for traditional owners to access unallocated water set aside for 'community purpose' in each catchment to be used for economic ventures.
  - b. Section 5 of the *Cultural assessment*, which sets out the ways that the proposed WRP supports Aboriginal values and uses of water, as identified through a number of methods including consultation with relevant Indigenous organisations.

- c. Table C3 in Appendix B of the *Overview report*, which lists Indigenous outcomes which were identified in consultation with Traditional Owners, and describes how they were taken into account in the proposed WRP. The outcomes include availability of water for Traditional Owners to achieve economic and social aspirations, and the maintenance of flows to support water related aesthetic, cultural and recreational values of Traditional Owners.
  - d. Section 4.5 of the *HWMP*, which identifies an additional outcome –that water resources remain fit for purpose in relation to cultural, spiritual and ceremonial values and uses of water– and describes the consultation that was conducted to have regard to the views of Traditional Owners regarding this outcome.
320. While not put forward for accreditation, Figure 1 in Section 4 of the *Aboriginal values and uses report* summarises the provisions included in the proposed WRP which give effect to the Indigenous outcomes and objectives. These include the following:
- a. Section 20B of the *Water Act* (Qld) enables Aboriginal people to take or interfere with water for traditional activities or cultural purposes without the need for an entitlement.
  - b. Section 22, and Schedules 4 and 6 of the *Queensland WRP* enable unallocated water to be granted for Indigenous purposes in the WRP area.
  - c. Sections 11 and Schedule 4 of the *Queensland WRP* provide water for environmental flows to maintain natural flow regimes, while the *LTWP* provides for priority environmental assets and ecosystem function to be maintained or improved. Consultation with Traditional Owners identified the strong links between ecosystem health and a number of Indigenous values and uses. As such, provision of water to maintain environmental flows will also contribute to the achievement of Indigenous outcomes and objectives related to ecosystem health.
  - d. The WQM Plan that forms a part of the proposed WRP (required under Part 7 of Chapter 10 in the Basin Plan) identifies a number of water quality targets and measures to achieve those targets. As noted above, due to the strong links between Indigenous values and uses and ecosystem health, the management of water resources to meet the water quality targets will contribute to related Indigenous outcomes and objectives.
321. As the proposed WRP demonstrates that the views of relevant Indigenous organisations were considered on the matters identified in s 10.52(1) and listed in s 10.53(1)(a) to (f) throughout the development of the proposed WRP, and the proposed WRP sets out the ways that the views of relevant Indigenous organisations influenced the content of the proposed WRP, the Authority is satisfied that regard was had to the view of relevant Indigenous organisations in the preparation of the proposed WRP.

### **Section 10.54 – Cultural flows**

322. The Authority considers that the requirements in s 10.54 have been met by the proposed WRP. Section 10.54 requires a WRP to be prepared having regard to the views of Indigenous people with regard to cultural flows.

## Assessment

323. The Index indicates that s 10.54 is satisfied by:
- a. *Aboriginal values and uses report*: Chapter 6 Cultural flows.
  - b. *Cultural Assessment*: Chapter 4 Discussion on cultural flows.
324. Chapter 2 of the *Water Act 2000* (Qld) includes statutory responsibilities for advancing the sustainable management and efficient use of water in water planning, which includes recognising the interests of Aboriginal and Torres Strait Islander people and their connection with the landscape.
325. Chapter 6 of the *Aboriginal values and uses report* and Chapter 4 of the *Cultural assessment* outline how Queensland had regard to the views of Indigenous people on cultural flows in preparing the proposed WRP. The *Aboriginal values and uses report* states that discussions about the importance of cultural flows occurred with NBAN during the review of the previous statutory plans. The *Aboriginal values and uses report* also notes that the *Water Act 2000* (Qld) enables Aboriginal people to take or interfere with water for traditional activities or cultural purposes without the need for an entitlement. The Authority also notes that Section 22, and Schedules 4 and 6 of the Queensland WRP enable unallocated water to be granted for Indigenous purposes in the WRP area. Indigenous purpose means a use for the purpose of helping an Indigenous community achieve its economic and social aspirations.
326. More broadly, the consultation undertaken with Indigenous people during the preparation of the proposed WRP sought their views on Indigenous values and Indigenous uses of water, which can be supported by cultural flows. Section 15 of the *Queensland WRP* has recognised these values by:
- a. including Indigenous outcomes relating to the availability of water for traditional owners dependent on water resources in the WRP area to achieve their economic and social aspirations, and
  - b. maintaining flows that support water-related aesthetic, cultural and recreational values in the WRP area, including the cultural values of the traditional owners of the WRP area.

## **Section 10.55 – Retention of current protection**

327. The Authority considers that the requirements in s 10.55 have been met by the proposed WRP. Section 10.55 requires a WRP to provide at least the same level of protection of Indigenous values and Indigenous uses as provided in the previous transitional plan for the water resource plan area.

## Assessment

328. The Index indicates that s 10.55 is satisfied by:
- a. *Queensland WRP*: Section 13 Indigenous outcomes; Section 22 Purpose for which unallocated water may be granted; Section 23 Reserve volumes, and; Section 24 Process for granting unallocated water.

- b. *Water Act 2000* (Qld): Section 20B Aboriginal and Torres Strait Islander parties.
  - c. *ROP*: Section 13 Addressing water resource plan outcomes; Attachment 5 Links between this plan and the *Water Resource (Warrego, Paroo, Bulloo and Nebine) Plan 2016*.
329. There is currently no transitional or interim WRP for the WRP area. However, immediately before the commencement of the *Queensland WRP* the *Water Resource (Warrego, Paroo, Bulloo and Nebine) Plan 2003* (as at 27 September 2013) was a transitional plan for the WRP area. That transitional plan was repealed when it was replaced by the *Queensland WRP*. The Authority has taken the view that when assessing whether the proposed WRP offers at least the same level of protection of Indigenous values and Indigenous uses, that assessment must be made against the *Water Resource (Warrego, Paroo, Bullo and Nebine) Plan 2003* (as at 27 September 2013).
330. The Authority is satisfied that the proposed WRP includes increased levels of protection for Indigenous values and Indigenous uses in the WRP area. This is because the plan:
- a. includes separate Indigenous outcomes for the first time (s 13 of the *Queensland WRP* and s 13 of the *ROP*)
  - b. allows for water entitlements from the reserves of unallocated water to be made available for indigenous purposes, including groundwater resources in ss 22, 23 and 24 of the *Queensland WRP* (Indigenous purpose is defined in the plan as a use for the purpose of helping an Indigenous community achieve its economic and social aspirations), and
  - c. provides traditional owners with the authority to take water for traditional activities or cultural purposes (s 20B of the *Water Act 2000* (Qld)).
331. The Authority also notes that, more generally, the provisions of the *Queensland WRP* and *ROP* that have been included in the proposed WRP provide at least the same level of protection of Indigenous values and uses by:
- a. maintaining or improving the protection of many of the identified Aboriginal values and uses of water that are linked to waterholes, rivers, wetlands and culturally significant animal and plant species, and are dependent on the protection of the near natural flow regime, and
  - b. managing subartesian groundwater resources under the Queensland statutory plans for the first time, which will contribute to the protection of Aboriginal values and uses that depend on groundwater, such as springs.

## **Consistency with other Chapters of the Basin Plan**

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332. The Authority adopts the general position that if a proposed WRP is consistent with the requirements in Chapter 10 of the Basin Plan it will generally be consistent with the remaining Chapters of the Basin Plan. This position recognises the close connections between the requirements in Chapter 10 and the other parts of the Basin Plan. Despite this, to satisfy itself that the proposed WRP is consistent with all parts of the Basin Plan, the Authority has undertaken the following assessment of the proposed WRP against the remaining chapters of the Basin Plan.

### ***Chapter 1—Introduction***

333. This Chapter sets out preliminary matters relating to the Basin Plan, the structure of the Basin Plan, interpretation provisions, including various definitions and construction provisions, and requirements relating to the entering into implementation obligations. The Authority considers that the proposed WRP is not inconsistent with these general provisions.

### ***Chapter 2—Basin water resources and the context of their use***

334. This Chapter sets out a description of the Basin water resources and the context in which those resources are used. The Authority considers that the proposed WRP is not inconsistent with this description.

### ***Chapter 3—Water resource plan areas and water accounting periods***

335. This Chapter identifies the particular areas that are to be water resource plan areas and the periods that are to be the water accounting periods for each of those water resource plan areas. For s 10.02, the proposed WRP identifies the water resource plan areas and the water resources consistently with this Chapter. The water accounting periods for the proposed WRP align with the water accounting periods in the Basin Plan (i.e. 1 July to 30 June). Therefore, the Authority considers that the proposed WRP is not inconsistent with this Chapter.

### ***Chapter 4—Identification and management of risks to Basin water resources***

336. This Chapter sets out risks to the condition, or continued availability, of Basin water resources and strategies to manage, or address, those risks. For s 10.41 of the Basin Plan, the risks identified in the proposed WRP have been identified having regard to the risks identified in s 4.02 of the Basin Plan. For s 10.43 of the Basin Plan, the proposed WRP has been prepared having regard to the strategies listed in s 4.03(3) of the Basin Plan. No guidelines have been prepared for s 4.04 of the Basin Plan. In light of the foregoing considerations, the Authority considers that the proposed WRP is not inconsistent with this Chapter.

## **Chapter 5—Management objectives and outcomes to be achieved by the Basin Plan**

337. This Chapter sets out the management objectives and outcomes to be achieved by the Basin Plan. The Authority considers that the proposed WRP is not inconsistent with these objectives and outcomes. In this respect, the Authority notes more generally that:
- a. The proposed WRP identifies water dependent ecosystems and ecosystem functions of those systems consistently with Chapter 8 of the Basin Plan. The WRP includes rules and measures in relation to these water dependent ecosystems and ecosystem functions that are consistent with the objectives in s 5.03(1) and which contribute to the outcome in s 5.03(2).
  - b. The water quality management plan in the proposed WRP identifies measures and targets for water quality that are consistent with those set out in Chapter 9 of the Basin Plan. The measures and targets in the proposed WRP are therefore consistent with the objective in s 5.04(1) and contribute to the outcome in s 5.04(2).
  - c. The proposed WRP is able to meet the long-term sustainable diversion limits on take which are consistent with Chapter 6 of the Basin Plan, once the Commonwealth has recovered the water required to meet the SDL. Therefore, the operation of the proposed WRP is consistent with the objective in s 5.05(1) and contributes towards the outcomes in s 5.05(2).
  - d. The objective and outcome for the operation of the SDL adjustment mechanism in s 5.06 is not relevant to this plan as, at this time, no adjustment has been made to the SDLs for the SDL resource units that are covered by this plan.
  - e. The proposed WRP includes rules relating to water trading which are not inconsistent with the requirements for restrictions on trade set out in Chapter 12 of the Basin Plan. These rules are therefore consistent with the objectives in s 5.07(1) and contribute towards the outcome in s 5.07(2).

## **Chapter 6—Water that can be taken**

338. This Chapter sets out the long-term average sustainable diversion limits for each SDL resource unit, the method for determining compliance with those limits and how risks are allocated.
339. The Authority is satisfied that the proposed WRP is consistent with the long-term average sustainable diversion limits that apply to the SDL resource units of the water resource plan area (s 55(2)(b) of the *Water Act* (Cwlth)). This is principally because the Authority is satisfied that the proposed WRP has met the requirements in Part 3 of Chapter 10, which set out how a WRP must incorporate and apply this limit. In this respect, as noted in the context of assessing whether the proposed WRP is consistent with Chapter 10, the Authority notes that it is satisfied that:
- a. the proposed WRP includes a method for s 10.10 that has been demonstrated to produce an annual permitted take, applied over the historical climate conditions, that meets the long-term average sustainable diversion limits, and

- b. the proposed WRP includes rules for s 10.11 that ensure, as far as practicable, that actual take does not exceed permitted take.
340. In addition, the Authority is satisfied that the proposed WRP is consistent with the compliance method in Chapter 6. In this respect, the Authority notes:
- a. the method for s 10.10 generates the annual permitted take that is used in the method for SDL compliance under Chapter 6, and
  - b. the proposed WRP also sets out how the quantity of water actually taken for consumptive use, by each form of take, will be determined at the end of a water accounting period, consistent with s 10.15 of the Basin Plan. This generates the annual actual take that is used in the method for SDL compliance under Chapter 6.
341. While the Commonwealth is responsible for the reliability impacts that are covered by s 6.13, the proposed WRP assumes that the Commonwealth's share of the reduction in the diversion limit will be recovered by Commonwealth acquisition of water, rather than the reduction of water allocations. Accordingly, no risk assignment provisions in the Water Act (Cwlth) will be triggered.
342. The Authority has undertaken an assessment of the proposed WRP and is satisfied that there are no reliability impacts of this kind specified in s 6.14.
343. Therefore, the Authority considers that there is nothing in the proposed WRP that is inconsistent with Chapter 6 of the Basin Plan.

### ***Chapter 7—Adjustment of SDLs***

344. This Chapter details a process for adjusting the SDLs of certain surface water SDL resource units. The Authority considers that the proposed WRP is not inconsistent with this Chapter.

### ***Chapter 8—Environmental watering plan***

345. This Chapter sets out the environmental watering plan. For s 10.26 of the Basin Plan the Authority considers that the proposed WRP is consistent with the environmental watering plan, the Basin-wide environmental watering strategy and contributes to the achievement of the objectives in Part 2 of this Chapter. The Authority is also of the view that for s 10.27 of the Basin Plan the proposed WRP provides for the coordination of environmental watering between connected water resources and for s 10.28 of the Basin Plan the proposed WRP does not result in a net reduction in the protection of planned environmental water. The Authority considers that the proposed WRP is not inconsistent with Chapter 8 of the Basin Plan.

### ***Chapter 9—Water quality and salinity management plan***

346. This Chapter sets out the water quality and salinity management plan. This plan sets out the key causes of water quality degradation in the Murray-Darling Basin, water quality objectives for Basin water resources and water quality targets. The proposed WRP includes a WQM Plan that is consistent with the requirements in Part 7 of Chapter 10 of the Basin Plan. The WQM Plan identifies, for s 10.30 of the Basin Plan, causes of water quality degradation in

the WRP area having regard to the key causes of water quality degradation identified in Part 2 of Chapter 9. The WQM Plan identifies, for s 10.32 of the Basin Plan, water quality target values that are consistent with the targets in Part 4 of Chapter 9. The WQM Plan also identifies, for s 10.33 of the Basin Plan, measures that contribute towards the achievement of the objectives in Part 3 of Chapter 9. The Authority considers that the proposed WRP is not inconsistent with Chapter 9 of the Basin Plan.

### ***Chapter 11—Critical human water needs***

347. This Chapter is only relevant to water resource plans which cover part of the River Murray System, as defined in s 86A(3) of the *Water Act 2007* (Cwlth). The water resources that are covered by the proposed WRP plan are not part of the River Murray System. Accordingly, the Authority considers that the proposed WRP is not inconsistent with Chapter 11 of the Basin Plan.

### ***Chapter 12—Water trading rules***

348. This Chapter sets out specific rules relating to water trading. The Authority takes the view that if a proposed WRP is inconsistent with these rules, it will not be possible for the Authority to recommend accreditation of the proposed WRP. The proposed WRP is stated to expressly operate subject to Chapter 12 of the Basin Plan (see the Index in Chapter 5 of the *WPN WRP*). As such, in the Authority's view the proposed WRP is not inconsistent with this Chapter.

### ***Chapter 13—Program for monitoring and evaluating the effectiveness of the Basin Plan***

349. This Chapter sets out the program for monitoring and evaluating the effectiveness of the Basin Plan. The proposed WRP specifies the monitoring of the water resources of the water resource plan area that will be done to enable Queensland to fulfil its reporting obligations under s 13.14 of the Basin Plan. The Authority considers the proposed WRP is not inconsistent with this Chapter.

## Glossary of instruments and texts

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The following documents or parts of these documents constitute the proposed Warrego–Paroo–Nebine WRP.

The shortened titles have been used throughout this Recommendations document.

The document titled *Warrego–Paroo–Nebine Water Resource Plan* is the key document of the proposed Warrego–Paroo–Nebine WRP. Chapter 5 of this document sets out the parts of instruments or texts which address each requirement of Chapter 10 of the Basin Plan, and refers to the content of the document as ‘This Index.’

Shortened title	Document reference
<i>WPN WRP</i>	Department of Natural Resources and Mines (DNRM), 2016. <i>Warrego–Paroo–Nebine Water Resource Plan</i> – as at November 2016. (This is also referred to as This index in the Chapter 5 Index in WPN WRP).
<i>The Index</i>	Chapter 5 of the WPN WRP.
<i>Queensland WRP</i>	State of Queensland, 2016. <i>Water Resource (Warrego, Paroo, Bulloo and Nebine) Plan 2016</i> – as at 12 February 2016
<i>ROP</i>	State of Queensland, 2016. <i>Warrego, Paroo, Bulloo and Nebine Resource Operations Plan</i> – as at February 2016
<i>Water Accounting Methods Report</i>	Department of Natural Resources and Mines (DNRM), 2016. <i>Water Accounting Methods Report for Warrego-Paroo-Nebine Water Resource Plan</i> – as at November 2016
<i>HWMP</i>	Department of Environment and Heritage Protection (DEHP), 2016. <i>Healthy Waters Management Plan: Warrego, Paroo, Bulloo and Nebine basins</i> – as at February 2016
<i>LTWP</i>	Department of Natural Resources and Mines (DNRM), 2016. <i>Long Term Watering Plan for the Warrego–Paroo–Nebine Catchment</i> – as at January 2016
<i>Overview report</i>	Department of Natural Resources and Mines (DNRM), 2014. <i>Warrego, Paroo, Bulloo and Nebine draft Water Resource Plan and amended resource operations plan: Overview report</i> – as at September 2014
<i>Implementation Review Report</i>	Department of Natural Resources and Mines (DNRM), 2013. <i>Implementation review report: Warrego, Paroo, Bulloo and Nebine Water Resource Plan and Resource Operations Plan</i> – as at November 2013
<i>Consultation Report</i>	Department of Natural Resources and Mines (DNRM), 2016. <i>Warrego, Paroo, Bulloo and Nebine water resource plan and amended resource operations plan: Consultation report</i> – as at February 2016
<i>Cultural Assessment</i>	Department of Natural Resources and Mines (DNRM), 2014. <i>Warrego, Paroo, Bulloo and Nebine water resource plan and amended resource operations plan: Cultural Assessment</i> – as at April 2014

<i>Aboriginal values and uses report</i>	Department of Natural Resources and Mines (DNRM), 2016. <i>Warrego, Paroo, Bulloo and Nebine water resource plan and resource operations plan: Aboriginal values and uses</i> – as at January 2016
<i>Consultation Summary Report: HWMP</i>	Department of Environment and Heritage Protection (DEHP), 2016. <i>Consultation Summary Report: Healthy Water Management Plan for the Warrego, Paroo, Bulloo and Nebine Basins</i> – as at February 2016
<i>Environmental Assessment Report–Stage 2</i>	Department of Science, Information, Technology, Innovation and the Arts (DSITIA), 2013. <i>Review of Water Resource (Warrego, Paroo, Bulloo and Nebine) Plan 2003 and Resource Operations Plan: Environmental Assessment Report–Stage 2</i> – October 2013
<i>Risk assessment of insufficient water available for surface and groundwater users</i>	Department of Natural Resources and Mines (DNRM), 2016. <i>Warrego, Paroo, Bulloo and Nebine Water Resource Plan review: Risk assessment of insufficient water available for surface and groundwater users</i> – as at February 2016
<i>Risk Assessment of Insufficient Water Available for the Environment</i>	Department of Natural Resources and Mines (DNRM), 2016. <i>Warrego, Paroo, Bulloo and Nebine Water Resource Plan Review: Risk assessment of insufficient water available for the environment</i> – as at February 2016
<i>Risk assessment and threat prioritisation: Bulloo, Paroo, Warrego and Nebine catchments</i>	Department of Science, Information, Technology, Innovation and the Arts (DSITIA), 2012. <i>Risk assessment and threat prioritisation: Bulloo, Paroo, Warrego and Nebine catchments: Stream and Estuary Assessment Program</i> – as at June 2012
<i>Environmental risk assessment for selected ecological assets</i>	Department of Science, Information, Technology, Innovation and the Arts (DSITIA), 2013. <i>Review of Water Resource (Warrego, Paroo, Bulloo and Nebine) Plan 2003 and Resource Operations Plan: Environmental risk assessment for selected ecological assets</i> – October 2013
<i>CSIRO and SKM Report</i>	Commonwealth Scientific and Industrial Research Organisation and Sinclair Knight Merz, 2010. <i>Sustainable Extraction Limits Derived from the Recharge Risk Assessment Method – Queensland: Report to the Murray-Darling Basin Authority</i> – December 2010
<i>Parsons Brinckerhoff 2011</i>	Parsons Brinckerhoff Australia Pty Limited (PB), 2011. <i>Queensland Murray Darling Basin, Report to Department of Environment and Resource Management: Methodology for estimating the take of groundwater for stock and domestic purposes in the Queensland Murray Darling Basin, Report to Department of Environmental and Resource Management</i> – December 2011

<i>Sediments above the Great Artesian Basin: Groundwater background paper</i>	Department of Natural Resources and Mines (DNRM), 2016. <i>Sediments above the Great Artesian Basin: Groundwater background paper</i> – as at February 2016
<i>St George Alluvium: Groundwater background paper</i>	Department of Natural Resources and Mines (DNRM), 2016. <i>St George Alluvium: Groundwater background paper</i> – as at February 2016
<i>Warrego Alluvium: Groundwater background paper</i>	Department of Natural Resources and Mines (DNRM), 2016. <i>Warrego Alluvium: Groundwater background paper</i> – as at February 2016
<i>Intergovernment Agreement for the Paroo River between New South Wales and Queensland</i>	<i>Intergovernment Agreement for the Paroo River between New South Wales and Queensland</i> – as at July 2003
<i>Hydrological modelling reports</i>	Department of Science, Information, Technology, Innovation and the Arts (DSITIA), 2016. <i>Warrego River: Warrego River Model Results to Support Basin Plan Requirements</i> – as at January 2016 <i>Paroo Creek: Paroo Creek Model Results to Support Basin Plan Requirements</i> – as at January 2016 <i>Nebine Creek: Nebine Creek Model Results to Support Basin Plan Requirements</i> – as at January 2016
<i>Water Act 2000 (Qld)</i>	<i>Water Act 2000 (Qld)</i> – as at 2 October 2015
<i>Water Regulation 2002 (Qld)</i>	<i>Water Regulation 2002 (Qld)</i> – as at 1 December 2015
<i>Environmental Protection Act 1994 (Qld)</i>	<i>Environmental Protection Act 1994 (Qld)</i> – as at 2 October 2015
<i>Queensland Interim Water Meter Standard for Non-urban Metering</i>	Department of Natural Resources and Mines (DNRM), 2014. <i>Queensland Interim Water Meter Standard for Non-urban Metering</i> – November 2014