Natural Resources
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BUSINESS AND OPERATIONAL PLAN 2017/18-2019/2020

South Australian Arid Lands Natural Resources Management Board

REGIONAL NRM PLAN (VOLUME 2)

APPENDIX 1: WATER AFFECTING ACTIVITIES POLICY

Australian Government

Government of South Australia
South Australian Arid Lands Natural Resources Management Board

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1 Introduction

The landscapes and ecosystems of the SA Arid Lands Natural Resources Management (NRM) region are relatively intact compared with other regions of the State. The region's semi-arid to arid climate and highly variable rainfall means water resources, and their management, are critical to maintaining the health and integrity of the plants, animals, ecosystems and people that rely on them. There are a range of activities undertaken within the SA Arid Lands NRM boundary that have the potential to affect the condition, persistence and connectivity of water resources.

There are a number of mechanisms available to the SA Arid Lands NRM Board (the Board) to use to assist in preventing impacts to water resources. One of the mechanisms is through the *Natural Resources Management Act 2004* (the Act) as it provides for regulatory control of activities that affect water resources. The primary instrument for this regulation is through a water planning framework, which includes this policy, a permit assessment process, education and support.

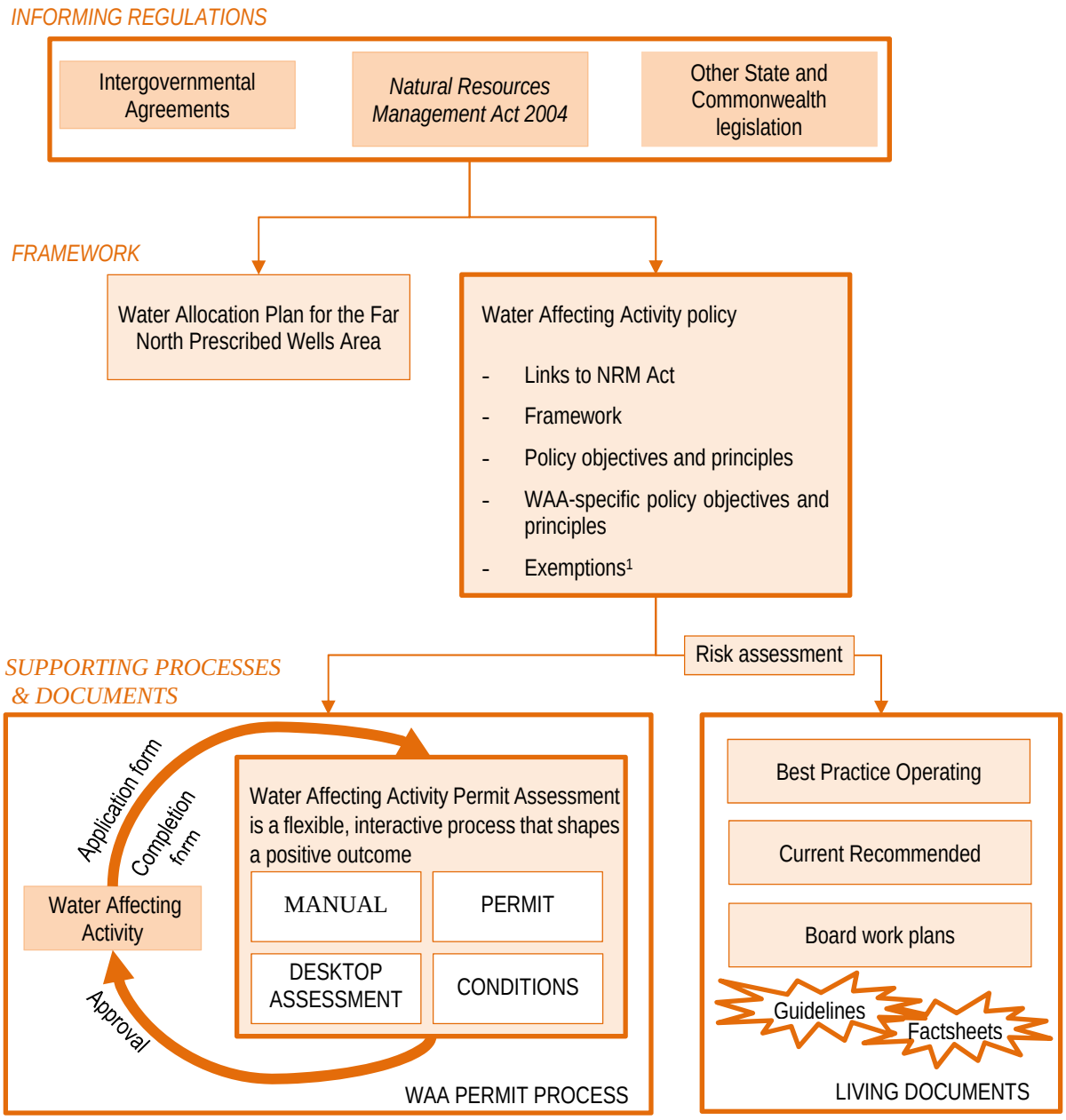
This Water Affecting Activity Policy aims to regulate water affecting activities to ensure the sustainable use of water resources and protection of natural ecosystems, cultural and social values, and provide balanced support for the development of community and economic activities.

The objectives and principles outlined in this policy are intended to inform and guide those who may need to apply for a Water Affecting Activity Permit, and the relevant authority when determining whether to grant or refuse a Water Affecting Activity permit.

2 Regional water planning framework

The Board and the Minister have clearly delineated responsibilities for the managing activities that may impact water resources and ensuring the protection of those resources under Chapter 7 of the Act. The process around how water resources are managed in the SA Arid Lands Region, is shown in the water policy and planning framework (Fig. 1).

The policy framework guides the implementation of Chapter 7 – Part 2 of the Act for the purposes of the SA Arid Lands Regional Natural Resources Management Plan. Section 75(3)(k) of the Act requires the Board to set out the matters that should be taken into account when the relevant authority exercises its power to grant or refuse a permit under Chapter 7 Part 2 of the Act. The conditions under which the relevant authority will grant or refuse a permit is outlined in either the Regional NRM Plan or the Far North Prescribed Wells Area Water Allocation Plan (WAP). The WAA policies outlined in this document set out the activities that will require a permit in the SA Arid Lands Region. The objectives and principles apply for the whole SA Arid Lands Region, except where specifically identified or exempted. The principles of the Water Allocation Plan for the Far North Prescribed Wells Area take precedence over the principles of the Water Affecting Activity policy framework in the Regional NRM Plan if there is any conflict in their intent.



[1]Exemptions, include general exemptions sourced from the Act and WAA-specific exemptions specified by the Board policy (general). Exemptions based on Board policy and CRPs.

Fig. 1 Summary WAA Policy and Planning framework and supporting documents

2.1 Water Affecting Activity policy

Water Affecting Activities are activities that may impact the condition of a water resource, water dependent ecosystems or water users. Water Affecting Activities examples include constructing dams or road crossings over a water course; drilling a well or draining water into a watercourse or lake. A Water Affecting Activity permit is used to manage the potential impacts from these and other activities. A permit assessment process is in place to determine if a permit will be issued and the permit provides permission for an activity to be undertaken, with or without conditions and may include ongoing maintenance requirements.

To meet its obligation, the SA Arid Lands NRM Board manages and protects water resources through the Water Affecting Activity Policy, supporting processes (e.g. Best Practice Operating Procedures) and providing a mechanism to assess activities for which a permit is required under section 127(5) that are identified in the SA Arid Lands NRM Plan in accordance with Section 127(3)(e).

The Board has determined that a number of activities require additional controls in order to protect and better manage the regions water resources by: ensuring sustainable use of water resources; ensuring equity among existing water users; existing heritage and cultural value is maintained and ensure long-term integrity of ecological functions and water dependent ecosystems. The Board is of the view that it is not necessary or practicable to require a permit for all activities under section 127(5) of the Act and acknowledge that some activities are managed under other legislation (e.g. *Development Act 1993)*.

2.2 Water allocation plans

The SA Arid Lands NRM Board is required to prepare and maintain a Water Allocation Plan for any prescribed resources in the region (Section 76). A water allocation plan (WAP) is a legal document that sets out the rules for managing the take and use of prescribed water resources to ensure sustainability. The WAP ensures environmental needs are accounted for when determining the water available for consumptive purposes, how the water will be allocated and what activities are permitted with that water.

Within the SA Arid Lands, there is only one prescribed area (Fig. 2). The Far North Prescribed Wells Area WAP is a separate volume of the NRM plan designed to achieve responsible use of groundwater, eliminate wasteful practices and ensure ecosystem health and clarify the rights and responsibilities of users of the Great Artesian Basin and other groundwater resources in the Prescribed Wells Area.

Further information on the Far North Prescribed Wells Area WAP can be obtained from: http://www.naturalresources.sa.gov.au/aridlands/water/water-allocation-plan.

2.3 Murray-Darling Basin Management Zone

In 2007 the Australian Government passed the *Water Act 2007* (Water Act) to make provision for the management of the water resources of the Murray-Darling Basin and to make provision for other matters of national interest in relation to water. The Murray-Darling Basin Authority (MDBA) subsequently prepared the *Basin Plan 2012* to manage the water resources of the Basin including setting sustainable diversion limits on the amount of water that can be used for consumptive purposes for both groundwater and surface water for each water resource in the Basin.

The Basin Plan is a legislative instrument designed to provide a coordinated approach to water use across the Murray-Darling Basin's four states and the Australian Capital Territory. It aims to achieve a balance between the environmental, social and economic considerations by limiting water use to sustainable levels. The Water Act defines the extent of the Murray-Darling Basin area and divides the Basin into Water Resource Plan (WRP) areas. Each of the water resources within the WRP area has a defined sustainable diversion limit (SDL) that requires management to ensure ongoing sustainability of the Basin.

The SA Murray Region WRP includes part of the SA Arid Lands NRM Region and the water resources in this area are included as part of the SA Murray groundwater SDL unit (GS6) and the South Australian Non-prescribed Areas surface water SDL unit (SS10). The area of the SA Arid Lands NRM region that forms part of the SA Murray Region WRP will be defined as the "Murray-Darling Basin Management Zone" (Fig. 2). All Water Affecting Activities within the Murray-Darling Basin Management Zone are required to be consistent with the Basin Plan.

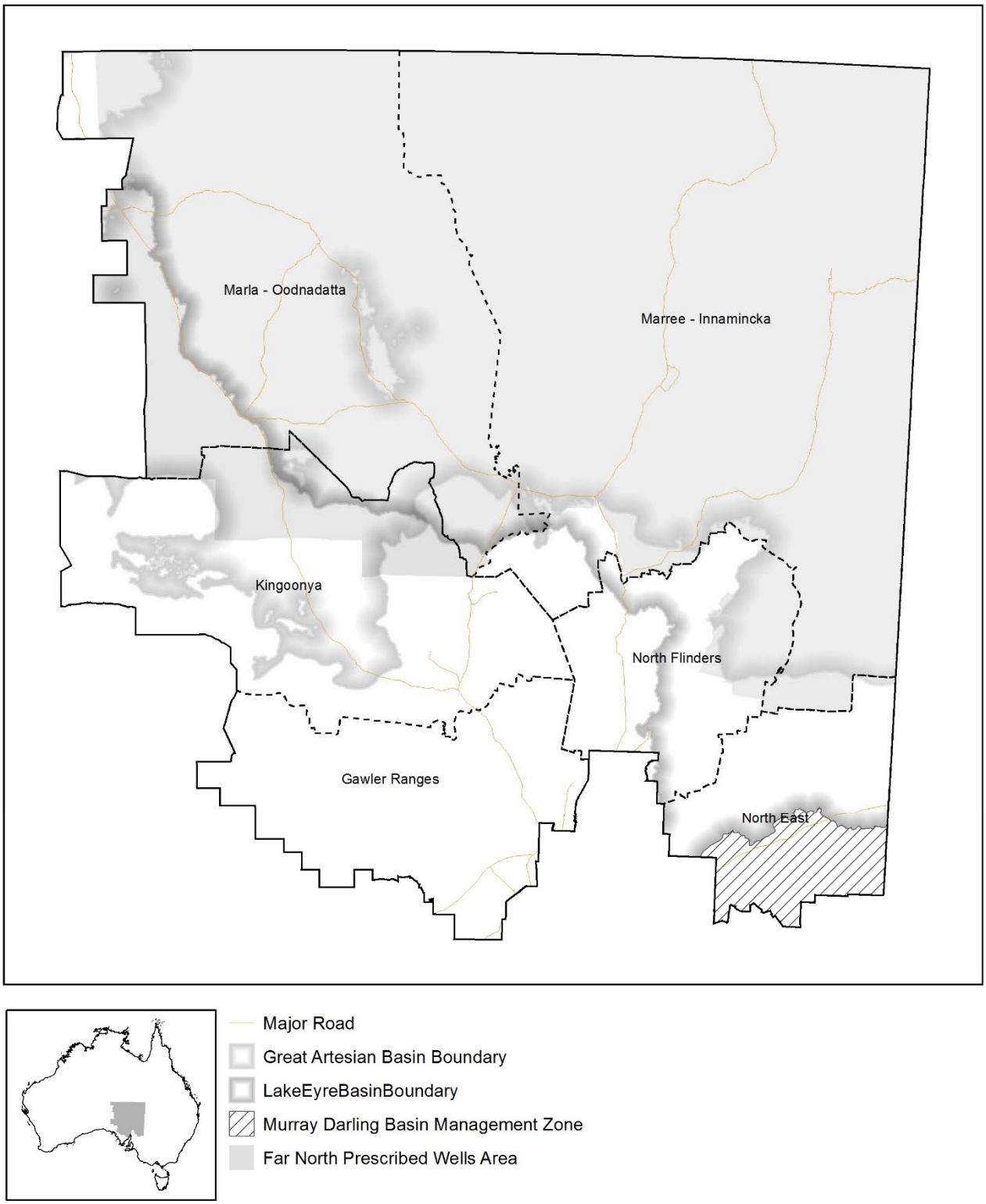


Fig. 2. The SA Arid Lands NRM Region showing the extent of the Lake Eyre Basin, Great Artesian Basin, Far North Prescribed Wells Area, Murray-Darling Basin, and Murray-Darling Basin Management Zone.

3 Whole-of-region Water Affecting Activity objectives and principles

The whole-of-region objectives and principles support the management of the region's water resources by establishing the framework for the implementation of the water affecting activity policy. The whole-of-region objectives and principles provide guidence for decision-making for all permit applications.

All permit application assessments will take into account these general objectives and principles as the basic requirements that must be met before a permit is granted subject to any activity specific requirements.

It is important to be aware that, in addition to requiring a permit for the activities set out in Table 1, a person must act reasonably in relation to the management of natural resources within the region (Section 9 of the Act) to ensure that water resources are protected and managed.

The Board will work with the community to raise awareness and improve people's understanding of water resources in the region, as well as monitor the effect of activities that do not require a permit on the water resources of the region.

The following objectives and principles apply to all Water Affecting Activities throughout the SA Arid Lands NRM region.

3.1 Objectives

i. Preserve or enhance water quality across the region.

ii. Promote water use within sustainable limits to support users and water dependent ecosystems.

iii. Preserve water dependent species, communities and ecosystems.

iv. Preserve ecological processes and services (e.g. ability of natural systems to restore or maintain water quality) at local and regional levels.

v. Protect water resources that support important cultural, heritage and social values in the landscape.

vi. Ensure infrastructure and activities do not impact water reources.

vii. Maintain persistence and connectivity of natural flow regimes.

3.2 Principles

Based on a risk management approach, a permit may be granted by the relevant authority where the activity can be demonstrated to:

a. Not compromise the quality of water resources.

b. Promote the sustainable use of water.

c. Avoid impacting or disturbing areas of high ecological value and avoid unacceptable levels of risk to aquatic ecosystems.

d. Minimise the impact of activities on the geomorphic characteristics, natural flow regime and function of hydraulic processes. In particular avoid changes to persistence, connectivity and water quality.

e. Support the equitable use of and access to water.

f. Avoid or protect areas identified to be priority or significant cultural, heritage or social value.

g. Incorporate monitoring of potential impacts from the activities undertaken (where appropriate).

h. Protect authorised devices or activities designed for scientific purposes.

i. Design activity to account for natural changes in flow, rainfall and evaporation and potential changes into the future.

j. Ensure that water-related infrastructure is fit for purpose and does not cause any adverse impacts.

4 Water Affecting Activity-specific objectives and principles

In addition to the whole-of-region objectives and principles, the relevant authority will consider the following objectives and principles specific to managing water affecting activities when determining whether to approve or refuse a permit. Permit applications will be assessed on their merit, in collaboration with the applicant, and in light of best practice operating procedures and current recommended practices.

4.1 Managing wells

Wells, or bores as they are more commonly referred to, are used to access all groundwater resources. A permit is required for the drilling, plugging, backfilling or sealing of a well and the repairing, replacing or altering the casing, lining or screen of a well, pursuant to Section 127(3)(a) and (b) of the Act.

The relevant authority for the activities referred to in sections 127(3)(a) and (b) is the Minister for Sustainability, Environment and Conservation. This means that an application to undertake any of these activities will need to be made to the Minister or his delegate.

The following objectives and principles apply to all activities relating to managing wells in the SA Arid Lands NRM region.

Objectives

- To protect the quality of underground water resources by preventing or minimising impacts from pollution and other contaminants.
- To protect the quantity of underground water resources by minimising undue depletion and wastage.
- To ensure wells are constructed to the appropriate well construction standards to ensure they access the target aquifer or aquifers.
- To protect sensitive aquatic biota and water-dependent ecosystems and protect their natural resilience.
- To protect the integrity of underground water resources and the interactions of connected water resources.
- To protect sites of cultural, heritage and social amenity value.
- To ensure the structure is constructed and maintained for the purpose it was intended.

Principles

The following matters should be taken into account by the Minister when determining whether to grant or refuse a permit for an activity under section 127(3)(a) and (b) of the Act.

1. The siting of non-intensive stock or domestic wells must have no detrimental effect on any other operational well or permanent or semi-permanent pool, spring or flowing stream.
2. The construction, maintenance and management of wells must not adversely affect the hydrological processes between aquifers or connected surface water resources.
3. The construction and maintenance of wells must not degrade naturally occurring water dependent ecosystems.
4. The construction and maintenance of wells must not adversely impact processes dependent on system connectedness (e.g. the migration of aquatic biota).
5. The equipment, materials and methods used to drill, repair, replace, alter or maintain a well, shall not adversely affect the groundwater quality or introduce contaminants.
6. Activities shall not have an unacceptable detrimental impact on cultural, heritage or social values.
7. Well construction must be in accordance with the specifications or related policy as provided by the Relevant Authority.
8. Where a well will intersect multiple aquifers, an impervious seal must be installed and maintained to prevent leakage between the aquifers.
9. Wells shall be fitted with *headworks*, suited to the underground water temperature and pressure, and equipped in such a way to control flow and monitor the natural flow of water over the lifetime of the well.
10. Groundwater extracted during the installation of a well (including to test the integrity of materials) shall be minimised to ensure water is not wasted.
11. Wells and headworks must be maintained in an appropriate condition to perform their intended function without wastage or leakage.
12. Wells that are no longer operational, or new wells not intended to be operational, shall be decommissioned and back-filled in accordance with well specifications with minimal impact on the environment.
13. Mineral wells can be convereted into water wells in accordance with approved water well contruction standards.

4.2 Draining or discharging into wells

A permit is required to drain or discharge water directly or indirectly into a well, pursuant to Section 127(3)(c) of the Act.

The relevant authority for the activities referred to in sections 127(3)(c) is the Minister for Sustainability, Environment and Conservation. This means that an application to undertake any of these activities will need to be made to the Minister or his delegate. The Minister will grant or refuse the application and take into account the provisions of this plan when considering any application.

The following objectives and principles apply to all activities relating to draining or discharging into wells in the SA Arid Lands NRM region.

Objectives

- To protect the quality of underground water resources by preventing or minimising impacts from pollution and other contaminants.
- To protect sensitive aquatic biota and water-dependent ecosystems and avoid changes to persistence, connectivity and water quality.
- To protect the integrity of underground water resources and the interactions of connected water resources.
- To avoid adversely affecting the capacity of natural systems to recover.

Principles

The following matters should be taken into account by the Minister when determining whether to grant or refuse a permit for an activity under section 127(3)(c) of the Act.

14. Water that is drained or discharged into a well must comply with the *Environmental Protection Act 1993* and any associated policy, including the Environment Protection (Water Quality) Policy 2015.
15. A permit to drain or discharge water into a well will not be issued unless a risk assessment is undertaken to the satisfaction of the Minister. This risk assessment must be consistent with the National Water Quality Management Strategy – Australian Guidelines for Water Recycling: Managing Health & Environmental Risks, Phase 2, 2009 and other related documents current at the time, and include:

    a. an investigation into the suitability of the draining or discharging site, including but not limited to tests for transmissivity, maximum injection pressures and calculated likely impacts on the integrity of the well and confining layers, and impacts of potentiometric head changes to other underground water users.

    b. an appropriate operation or management plan demonstrating that operational procedures and monitoring regime are in place to protect the integrity of the aquifer, minimise the wastage of water and protect the discharge site on an ongoing basis.

    c. a water quality assessment which identifies hazards in the source water.

    d. a report on the consequences and impacts to the native underground water resource where the water quality characteristics (salinity and chemistry composition) of the water to be discharge differs to that of the native underground water.

16. For the purposes of Principle 15, the relevant concentrations, levels or amounts shall be measured in sufficient representative samples from the water to be drained or discharged, and obtained from, or as near as possible, to the proposed point of injection.
17. Further to Principle 15b, continuation of draining and discharge is dependent on an annual report that addresses the impacts to the native underground water at the draining or discharge site.
18. The draining or discharging of water directly or indirectly into a well shall not adversely affect the groundwater quality or introduce contaminants.
19. The draining or discharging of water directly or indirectly into a well must not degrade dependent ecosystems.
20. The draining or discharging of water directly or indirectly into a well must not impact processes dependent on system connectedness (e.g. the migration of aquatic biota).
21. Draining or discharging water directly or indirectly into a well must not adversely affect the hydrological processes between aquifers or connected surface water resources.
22. The draining or discharging of water directly or indirectly into a well must not detrimentally affect the ability of other persons to lawfully take groundwater.

Exemptions

Exemptions relevant to this Water Affecting Activity Are as follows:

- Water that is drained or discharged into a well only by means of gravity is exempt from meeting the requirements of Principle 15a.
- Roof run-off (surface water) captured in a closed system and then drained or discharged into a well is exempt from Principle 15b.

4.3 Managing diversions

A permit is required for the erection, construction, modification enlargement or removal of a dam, wall or other structure or the use of a pump that will collect or divert, or collects or diverts, water flowing in a watercourse that is not prescribed or flowing over any other land that is not in a surface water prescribed area pursuant to Section 127(5)(a).

Water affecting activities generally refer to dams and structures that capture or store water. These structures are often constructed across watercourses or drainage paths where they inhibit all flow until the dam is filled before water spills over and can flow further downstream (on-stream dams). Off-streams dams use different mechanisms to extract water

from a watercourse and allows the capture of water a different times or flows rates, unlike on-stream dams that capture all flow until full.

The relevant authority for the activities referred to in sections 127(5)(a) is the Board. This means that an application to undertake any of these activities may need to be made to the Board and the Board will take into account the provisions of this policy when considering to grant or refuse a permit.

For more information on exemptions relevant to this Water Affecting Activity, refer to Section 5.2 of this policy. In addition dams where the dam capacity exceeds 5 megalitres or has a finished height greater than 3 metres above the natural surface of the ground is generally considered development and approval is required under the *Development Act 1993* and a development application must be submitted to the relevant authority for assessment. In addition the development of new dams in previously un-watered areas may require approval under the *Native Vegetation Act 1993* and the *Pastoral Land Management and Conservation Act 1989* for native vegetation removal by grazing.

The following objectives and principles apply to all activities relating to managing dams in the SA Arid Lands NRM region.

Objectives

The following objectives apply to the erection, construction, modification enlargement or removal of a dam, wall or other structure that will collect or divert, or collects or diverts, water flowing in a watercourse that is not prescribed or flowing over any other land that is not in a surface water prescribed area pursuant to Section 127(5)(a).

- To protect surface water flows.
- To protect the quality of water resources by preventing or minimising impacts from pollution and other contaminants.
- To protect the quantity of water resources by minimising undue depletion and wastage.
- To protect sensitive aquatic biota and water-dependent ecosystems.
- To protect the habitat and refugial value provided by native riparian vegetation and manage potential threats posed by weeds.
- To protect the localised ecological processes supported by water-dependent species, communities and ecosystems.
- To protect interactions between connected water resources at the regional-scale, including by ensuring the system has the capacity to deliver environmental water requirements.
- To avoid adversely affecting the capacity of natural systems to recover.
- To prevent the destruction of watercourses and lake bed, banks or habitat.
- To support equitable access to water and protect the needs of downstream users.
- To protect sites of cultural, heritage and social amenity value.

- To ensure the structure will be constructed and maintained for the purpose it was intented.

Principles

23. A permit is required to construct, enlarge, modify or remove a dam capable of storing more than 10 ML of water, excluding in the Murray-Darling Basin Management Zone where a permit is required to construct, enlarge, modify or remove a dam of any size.
24. Dams, walls or other structures shall be designed and constructed to avoid having a detrimental impact on water quality or introduce contaminants.
25. Dams, walls or other structures shall be designed and constructed to minimise evaporation, water loss and prevent seepage to groundwater.
26. The siting, construction or removal of dams, walls or other structures should not adversely degrade dependent ecosystems.
27. The siting, construction or removal of dams, walls or other structures should not impact processes dependent on system connectedness (e.g. the migration of aquatic biota).
28. Dams, walls or other structures must not be located in, or immediately upstream or downstream, of areas that are ecologically sensitive or known to provide critical refuge to aquatic biota (e.g. permanent waterholes).
29. The construction and maintenance of dams, walls or other structures shall minimise the destruction of riparian vegetation, including vegetation providing significant habitat for wildlife.
30. The siting, construction or removal of dams, walls or other structures should minimise the risk of erosion (including bed or bank instability, or sedimentation).
31. Dams, walls or other structures must not have a detrimental effect on the natural state and function of watercourses, lakes or floodplains.
32. The siting, construction or removal of dams, walls or other structures should not adversely affect the ability of other persons to lawfully take surface water.
33. Activities shall not have a detrimental impact on cultural, heritage or social value.
34. A dam, wall or other structure in must not be constructed or enlarged in the Murray-Darling Basin Management Zone if that activity would cause the total volume of dam capacity in that zone to exceed the Murray-Darling Basin Management Zone limit ('allowable limit') of 10200 ML.
35. For the purposes of principle 34 the dams and their capacities in the Murray-Darling Basin Management Zone considered to exist prior to 30th June 2009 is given in Topography Water Bodies dataset Number 902 archived by the Department for Environment, Water and Natural Resources for the purposes of Basin Plan compliance.
36. Construction should not commence when there is water present within the watercourse.

37. The removal of a dam, wall or other structure requires the natural ground level be reinstated and the topsoil and vegetation stabilised to limit impacts on the downstream environment.

Exemptions

A permit is not required for the following diversion activities:

- Structures authorised for the specific purpose of measuring streamflow.
- If a dam that has been washed away or received damage and the sole purpose is to repair or reinstate the original dam to the same capacity.
- If the replacement dam is constructed in the same location as the original dam or on part of the same property that is hydrologically continuous with the original dam on the property.
- Desilting of a dam where
    - The process of desilting involves only the removal of unconsolidated material deposited since construction of the dam or material deposited since the dam was previously desilted.
    - The desilting does not increase the maximum holding capacity of the dam by deepening or enlarging the dam.
    - Reasonable measures are taken to prevent erosion and damage to any watercourse, lakes or floodplains.
    - Any material excavated from the dam is not deposited within a watercourse, lake or floodplain of a watercourse.
    - Appropriate measures are taken to minimize impacts to water quality from the desilting.
- If removal is for an off-stream dam providing there is no adverse effect on the hydrological connectivity of the watercourse and the dam to be removed is not located within the Murray-Darling Basin Management Zone.

4.4 Managing infrastructure

A permit is required for the erection, construction or placement of any buildings or structures, pursuant to Section 127(5)(b) of the Act.

Infrastructure generally refers to built or man-made structures placed in a watercourse, lake or floodplain, which may direct water, including creek crossings, bridges, culverts, gabions and levee banks.

The relevant authority for the activities referred to in sections 127(5)(b) is the Board. This means that an application to undertake any of these activities will need to be made to the Board and the Board will take into account the provisions of this policy when considering to grant or refuse a permit.

For more information on exemptions relevant to this Water Affecting Activity, refer to Section 5.2 of this policy.

The following objectives and principles apply to all activities relating to managing infrastructure placed in a watercourse, lake or floodplain in the SA Arid Lands NRM Board region.

Objectives

- To protect surface water flows.
- To protect the quality of water resources by preventing or minimising impacts from pollution and other contaminants.
- To protect the quantity of water resources by minimising undue depletion and wastage.
- To protect sensitive aquatic biota and water-dependent ecosystems.
- To protect the habitat and refugial value provided by native riparian vegetation and manage potential threats posed by weeds.
- To protect the localised ecological processes supported by water-dependent species, communities and ecosystems.
- To protect the integrity of surface water resources and the interactions of connected water resources.
- To protect interactions between connected water resources at the regional-scale, including by ensuring the system has the capacity to deliver environmental water requirements.
- To avoid adversely affecting the capacity of natural systems to recover.
- To prevent the destruction of watercourses and lake bed, banks or habitat.
- To support equitable access to water and protect the needs of downstream users.
- To protect sites of cultural, heritage and social amenity value.
- To ensure the structure will be constructed and maintained for the purpose it was intended.

Principles

38. A permit is a required if the activity prevents the passage of low flow in a watercourse, for all situations in a lake, and in a floodplain of a water course if the activity could lead to a diversion of >10ML during one flow event.
39. A structure must not be located in, or immediately upstream or downstream, of areas that are ecologically sensitive or known to provide critical refuge to aquatic biota (e.g. permanent waterholes).
40. The erection, construction or placement of a structure shall avoid having a detrimental impact on water quality or introduce contaminants.

41. The erection, construction or placement of a structure shall maintain the geomorphic and hydrological characteristics of the drainage line, including the natural timing and duration of flows and connectivity between persistent pools of water.

42. The erection, construction or placement of any structure in a watercourse or floodplain should not adversely degrade dependent ecosystems.

43. The erection, construction or placement of any structure in a watercourse or floodplain should not impact processes dependent on system connectedness (e.g. the migration of aquatic biota).

44. The erection, construction or placement of any structure in a watercourse or floodplain shall minimise the destruction of riparian vegetation, including vegetation providing significant habitat for wildlife.

45. The erection, construction or placement of any structure in a watercourse or floodplain should minimise the risk of erosion (including bed or bank instability, or sedimentation).

46. The erection, construction or placement of any structure in a watercourse or floodplain must not detrimentally affect the ability of other persons to lawfully take surface water.

47. The erection, construction or placement of any structure must not have a detrimental impact on cultural, historical or social values and amenities.

48. A structure must ensure a low level of risk to the natural state and function of watercourses, lakes or floodplains.

49. A permit is required in the Murray-Darling Basin Management Zone if the erection, construction or placement of any structure will divert any water away from the watercourse or lake and prevent that water from returning.

50. For the purposes of principle 49, where the erection, construction or placement of a structure prevents water from returning to the watercourse or lake, the structure will be considered to be a dam and assessed against the principles in section 4.3.

51. The erection, construction or placement of any structure in a watercourse or on a floodplain must incorporate a low flow bypass to ensure the provision of environmental water requirements to areas downstream, excluding those authorised structures for the specific purpose of measuring stream flow.

52. To accommodate increased variability of rainfall and flow events, a one-in-200-year flood level shall be taken into account when designing and selecting suitable locations for structures.

53. Activities should avoid being undertaken when there is water present in the watercourse, lake or floodplain.

54. Structures must be maintained in an appropriate condition to perform their intended function.

55. Upon completion of the subject works, the bed and banks of the watercourse must be restored to their natural level and geomorphology.

Exemptions

A permit is not required where:

- The building or structure will be erected, constructed or placed no less than 40 metres from the edge of a watercourse and the building or structure does not take water or is not associated with the taking of water.
- The structure is authorised for the specific purpose of measuring stream flow, or for managing water flow to assist with maintenance, rehabilitation or restoration of locally Indigenous water-dependent ecosystems, habitats, communities or species.
- Levees or channels will diverted water directly from rock faces, and there is no significant downstream catchment, water use or users that would otherwise be affected by the diversion, except in the Murray-Darling Basin Management Zone where a permit is required.
- Contour banks which are designed to slow water across the landscape to protect soils from erosion, as long as:
  - Water is not unnecessarily diverted away from a watercourse.
  - Water is not permanently collected.
  - Contour banks are not likely to have an adverse impact on water dependant ecosystems.
  - Contours are constructed according to best practice.
  - The natural geomorphology is reinstated and top soil is compacted and graded to match existing adjacent surface levels after erosion mitigation activities.

4.5 Managing discharge

A permit is required to drain or discharge water directly or indirectly into a watercourse or lake, pursuant to Section 127(5)(c) of the Act.

Activities for drainage and dischage of water include managing storm water through redirecting, detaining or retaining water in a watercourse or lake or by pumping water from a well or pipesystem to a watercourse or lake. The drainage or discharge of water may also require an appproval under the *Environment Protection Act 1993.*

The relevant authority for the activities referred to in sections 127(5)(c) is the Board. This means that an application to undertake any of these activities will need to be made to the Board and the Board will take into account the provisions of this policy when considering to grant or refuse a permit.

For more information on exemptions relevant to this Water Affecting Activity, refer to Section 5.2 of this policy.

The following objectives and principles apply to all activities relating to managing drainage or discharge into a watercourse or lake in the SA Arid Lands NRM region. In addition, requirements under the Environment Protection (Water Quality) Policy 2015 should be considered.

Objectives

- To protect the quality of water resources by preventing or minimising impacts from pollution and other contaminants.
- To protect the quantity of water resources by minimising undue depletion and wastage.
- To protect sensitive aquatic biota and water-dependent ecosystems.
- To protect the localised ecological processes supported by water-dependent species, communities and ecosystems.
- To protect the integrity of surface water resources and the interactions of connected water resources.
- To avoid adversely affecting the capacity of natural systems to recover.
- To prevent the destruction of watercourses and lake bed, banks or habitat.
- To protect sites of cultural, heritage and social amenity value.
- To ensure the structure is constructed and maintained for the purpose it was intended.

Principles

56. A permit is required if the volume discharged or drained exceeds 1ML in total.
57. The quality of water that is drained or discharged into a watercourse or lake must not have a detrimental impact on aquatic biota or introduce contaminants.
58. Water discharged or drained into a watercourse or lake must be done at an appropriate location and rate to protect the natural geomorphology and hydrology of the watercourse.
59. The draining and discharge of water into a watercourse or lake must not degrade dependent ecosystems.
60. The draining and discharge of water into a watercourse or lake must not impact processes dependent on system connectedness (e.g. the migration of aquatic biota).
61. The draining and discharge of water must not have a detrimental effect on the natural state and function of watercourses, lakes or floodplains.
62. The draining and discharge of water must not be occur in, or immediately upstream or downstream, of areas that are ecologically sensitive or known to provide critical refuge to aquatic biota (e.g. permanent waterholes).
63. Draining or discharging water directly or indirectly into a watercourse or lake shall minimise the destruction of riparian vegetation, including vegetation providing significant habitat for wildlife.
64. Water may only be drained or discharged into a watercourse or lake where protective measures have been provided to minimise erosion (e.g. installation of a detention basins to allow sediments to settle before water is discharged).
65. Draining or discharging water directly or indirectly into a watercourse or lake must not have a detrimental impact on cultural, historical or social values and amenities.

66. Any structures or measures for managing erosion must be maintained according to their design and function.

Exemptions

A permit is not required where:

- The volume of water drained or discharged is less than 1ML per year.

4.6 Managing obstructions

A permit is required to deposit or place an object or solid material, obstruct a watercourse or lake in any other manner, or deposit or place an object or solid material to cotrol flooding pursuant to Section 127(5)(d), (e) and (f) of the Act.

Obstructions include activities such as plantings, dumping material (i.e. rubbish, plant debris), depositing soil, temporary access channels or erosion mitigation activities (i.e. rock rip rap). Some of the activities listed may also require approval under other Acts or maybe in breach of that Act, please refer to relevant authority before undertaking any activity.

The relevant authority for the activities referred to in sections 127(5)(d), (e) and (f) is the Board. This means that an application to undertake any of these activities will need to be made to the Board and the Board will take into account the provisions of this policy when considering to grant or refuse a permit.

For more information on exemptions relevant to this Water Affecting Activity, refer to Section 5.2 of this policy.

The following objectives and principles apply to all activities relating to managing obstructions on a floodplain or near the bank of a watercourse or shore of a lake or depositing or placing an object or solid material in a watercourse or lake in the SA Arid Lands NRM Board region.

Objectives

- To protect surface waterflows.
- To protect the quality of water resources by preventing or minimising impacts from pollution and other contaminants.
- To protect the quantity of water resources by minimising undue depletion and wastage.
- To protect sensitive aquatic biota and water-dependent ecosystems.
- To protect the habitat and refugial value provided by native riparian vegetation and manage potential threats posed by weeds.
- To protect the localised ecological processes supported by water-dependent species, communities and ecosystems.
- To protect the integrity of surface water resources and the interactions of connected water resources.

- To protect interactions between connected water resources at the regional-scale, including by ensuring the system has the capacity to deliver environmental water requirements.
- To avoid adversely affecting the capacity of natural systems to recover.
- To prevent the destruction of watercourses and lake bed, banks or habitat.
- To protect sites of cultural, heritage and social amenity value.
- To ensure the structure will be constructed and maintained for the purpose it was intended.

Principles

67. A permit is required to deposit or place an object or solid material (Including the construction of roads, tacks, or levee banks), to control flooding on the floodplain of a watercourse near the bank or shore of a lake, if it will divert greater than 10ML of water from its natural course during one flow event.
68. A permit is required for the depositing or placing of an object or solid material in a watercourse or any other obstruction in a watercouse if the depositing, placing of an object, solid material or any other obstruction prevents the passage of low flow.
69. A permit is required for the depositing or placing an object or solid material in a lake or any other obstruction in lake.
70. A permit may only be granted to deposit or place an object or solid material in a watercourse or lake where the activity involves the following:
    a. the construction of an erosion control structure (for example a rock chute or rip rap),
    b. a device or structure used to extract or regulate water flowing in a watercourse, for example a diversion weir, or
    c. an activity required for scientific purposes, for example flow measuring devices.
71. A permit is required in the Murray-Darling Basin Management Zone if the structure will divert any water away from the watercourse or lake and prevent that water from returning.
72. For the purposes of principle 71, where a structure prevents water from returning to the watercourse or lake, the structure will be considered to be creating a dam and assessed against principle 34.
73. Depositing or placing an object or solid material shall not adversely affect the water quality or introduce contaminants and must comply with the *Environmental Protection Act 1993* and any associated policy, including the Environment Protection (Water Quality) Policy 2015.
74. Depositing or placing an object or solid material must maintain the geomorphic and hydrological characteristics of the drainage line, including the natural timing and duration of flows and connectivity between persistent pools of water.

75. Depositing or placing an object or solid material in a watercourse or lake that may obstruct surface water flow should take account of historical information in relation to surface water flow.
76. Depositing or placing an object or solid material must not degrade dependent ecosystems.
77. Depositing or placing an object or solid material must not impact processes dependent on system connectedness (e.g. the migration of aquatic biota).
78. Objects or solid material must not be deposited or placed in, or immediately upstream or downstream, of areas that are ecologically sensitive or known to provide critical refuge to aquatic biota (e.g. permanent waterholes).
79. Objects or solid material must not have a detrimental effect on the natural state and function of watercourses, lakes or floodplains.
80. Any object or solid material to be used in the control or prevention of erosion must be designed with consideration of minimising the risk of erosion across the local- and catchment-scale hydrological processes.
81. Structures placed in a watercourse, including to mitigate erosion, should minimise the destruction of riparian vegetation, including vegetation providing significant habitat for wildlife.
82. Activities shall not have a detrimental impact on cultural, heritage or social value.
83. Activities should avoid being undertaken when there is water present in the watercourse, lake or floodplain.
84. Depositing or placing an object must incorporate design features or include a device that returns or bypasses water up to the appropriate threshold flow rate to ensure the provision of environmental water requirements to areas downstream.
85. Structures must be maintained in an appropriate condition to perform their intended function.

Exemptions

A permit is not required where:

- Where the proposed activity involves a non-polluting object or solid material that occupies less than 5 percent of the cross section of a watercourse.
- Where the obstruction is authorised for the specific purpose of measuring stream flow, or for managing water flow to assist with maintenance, rehabilitation or restoration of locally Indigenous water-dependent ecosystems, habitats, communities or species.
- Where the depositing or placing an object or solid material to control flooding on the floodplain of a watercourse or near the bank or shore of a lake will divert less than 10 ML of water from its natural course during one flow event.
- Where appropriate measures are used to mitigate erosion when depositing or placing an object or solid material to control flooding.

4.7 Removing rock, sand or soil

Approval is required to excavate or remove rock, sand or soil, pursuant to Section 127(5)(h) of the Act.

Activities involving the removal of sand, soil or rocks include uses for road construction, brickmaking or commercial or home garden developments.

The relevant authority for the activities referred to in sections 127(5) (h) is the Board. This means that an application to undertake any of these activities will need to be made to the Board and the Board will take into account the provisions of this policy when considering to grant or refuse a permit.

For more information on exemptions relevant to this Water Affecting Activity, refer to Section 5.2 of this policy.

The following objectives and principles apply to all activities relating to managing rock, sand or soil in a floodplain, watercourse, lake, waterhole or rockhole in the SA Arid Lands NRM Board region.

Objectives

- To protect the quality of water resources by preventing or minimising impacts from pollution and other contaminants.
- To protect the quantity of water resources by minimising undue depletion and wastage.
- To protect sensitive aquatic biota and water-dependent ecosystems.
- To protect the habitat and refugial value provided by native riparian vegetation and manage potential threats posed by weeds.
- To protect the localised ecological processes supported by water-dependent species, communities and ecosystems.
- To protect the integrity of surface water resources and the interactions of connected water resources.
- To avoid adversely affecting the capacity of natural systems to recover.
- To prevent the destruction of watercourses and lake bed, banks or habitat.
- To support equitable access to water and protect the needs of downstream users.
- To protect sites of cultural, heritage and social amenity value.

Principles

86. A permit is required if rock, sand or soil is excavated or removed from the floodplain of a watercourse and greater than 10 megalitres of water is diverted from its natural watercourse in one flow event, except for the Murray-Darling Basin Management Zone.

87. A permit is required in the Murray-Darling Basin Management Zone if any water is impeded or diverted away from a watercourse or lake and the excavation or removal of rock, sand and soil prevents the water from returning to the natural watercourse or lake.

88. A permit is required to excavate or remove rock, sand or soil from a watercourse or lake if the activity significantly alters the geomorphology of the area from which the material is taken.

89. Excavating or removing rock, sand or soil shall not adversely affect the water quality or introduce contaminants.

90. Rock, sand or soil must not be excavated from in, or immediately upstream or downstream, areas that are ecologically sensitive or known to provide critical refuge to aquatic biota (e.g. permanent waterholes, rockholes).

91. Excavating or removing rock, sand or soil from a watercourse or lake or the floodplain must maintain the geomorphic and hydrological characteristics of the drainage line, including the natural timing and duration of flows and connectivity between persistent pools of water.

92. Excavating or removing rock, sand or soil must not have a detrimental effect on the natural state and function of watercourses, lakes or floodplains.

93. Excavating or removing rock, sand or soil must not alter the natural capacity of the watercourse, lake or floodplain to capture water.

94. Excavating or removing rock, sand or soil should minimise the destruction of riparian vegetation, including vegetation providing significant habitat for wildlife.

95. Excavating or removing rock, sand or soil must not degrade dependent ecosystems.

96. Excavating or removing rock, sand or soil must not impact processes dependent on system connectedness (e.g. the migration of aquatic biota).

97. Excavating or removing rock, sand or soil should minimise the risk of erosion (including bed or bank instability, or sedimentation).

98. Excavating or removing rock, sand or soil from a watercourse or lake or the floodplain must not affect the ability of other persons to lawfully take surface water.

99. Excavating or removing rock, sand or soil from a watercourse, lake or floodplain must not have a detrimental impact on cultural, historical or social values and amenities.

100. Activities should avoid being undertaken when there is water present in the watercourse, lake or floodplain.

Exemptions

A permit is not required where:

- Less than 2 cubic metres of material is removed in any 1 year period from a watercourse.
- If it diverts or impedes under 10ML from its natural watercourse from one flood event.
- It involves the cleaning of rockholes in accordance with aboriginal tradition.
- The material removed is unconsolidated and does not cause damage to the bed or banks of the watercourse.

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4.8 Managing water take in the SA Arid Lands region

Subject to Section 127(2) of the Act,. a person must not take water from a watercourse, lake or well that is not prescribed or take surface water from land that is not in a surface water prescribed area in contravention of an NRM plan that applies in relation the that water.

This section of the policy is aimed at protecting the non-prescribed surface water resources of the SA Arid Lands Region.

For information on the requirements for prescribed water resources, refer to the Water Allocation Plan for the Far North Prescribed Wells Area 2009.

The Board has determined that all new water take for the regions non-prescribed water resources within the region requires additional controls and the following objectives and principles apply to all activities relating to all new water take in the SA Arid Lands NRM Board region.

Objectives

- To ensure that the volume of water taken from the surface water resources of the region does not exceed the sustainability of the resources.
- To manage the risk of water take to water dependent ecosystems, species and processes (services) and water quality.
- To ensure the extent and duration of flooding and connectivity of the system, especially during low flows is maintained.
- To avoid negative impacts on existing users.
- To monitor water take within the region.
- To ensure unplanned or incremental impacts from multiple activities located along or within the same watercourse, water body or catchment does no impact the system in the long-term.
- To protect the social, cultural and amenity values across the region.

Principles

101. Water take from a watercourse or lake shall not adversely impact any of the following:
    a. Naturally occurring quality of the water resource, including shallow ground water supplies.
    b. Water dependent ecosystems and their environmental water requirements.
    c. The ability of downstream or neighboring water users to access and use the resource.
    d. Beneficial groundwater recharge.
    e. Low flows.
102. Surface water and watercourse water, whether permanent or ephemeral, may only be taken where:
    a. the proponent can demonstrate that alternative water sources are not available or are not suitable for the intended purpose; and
    b. extraction occurs on a rising flow where the rate exceeds flood level of 1 in 25 year ARI or where flows have reached critical refugia and key wetland sites identified in the water take restrictions map (Figure 4); and
    c. the maximum daily extraction rate does not exceed 1 megalitre per day and the total take does not exceed 15 megalitres per year; and
    d. Water has not ceased to flow between connected water bodies.
103. The proponent may be required to develop and maintain a monitoring and reporting plan approved by the Board that will include a record of water take from the approved site (volume, timing and cumulative volume) and daily discharge/flow rate at an approved site near the point of extraction.
104. Activities shall not have a detrimental impact on cultural, heritage or social value.

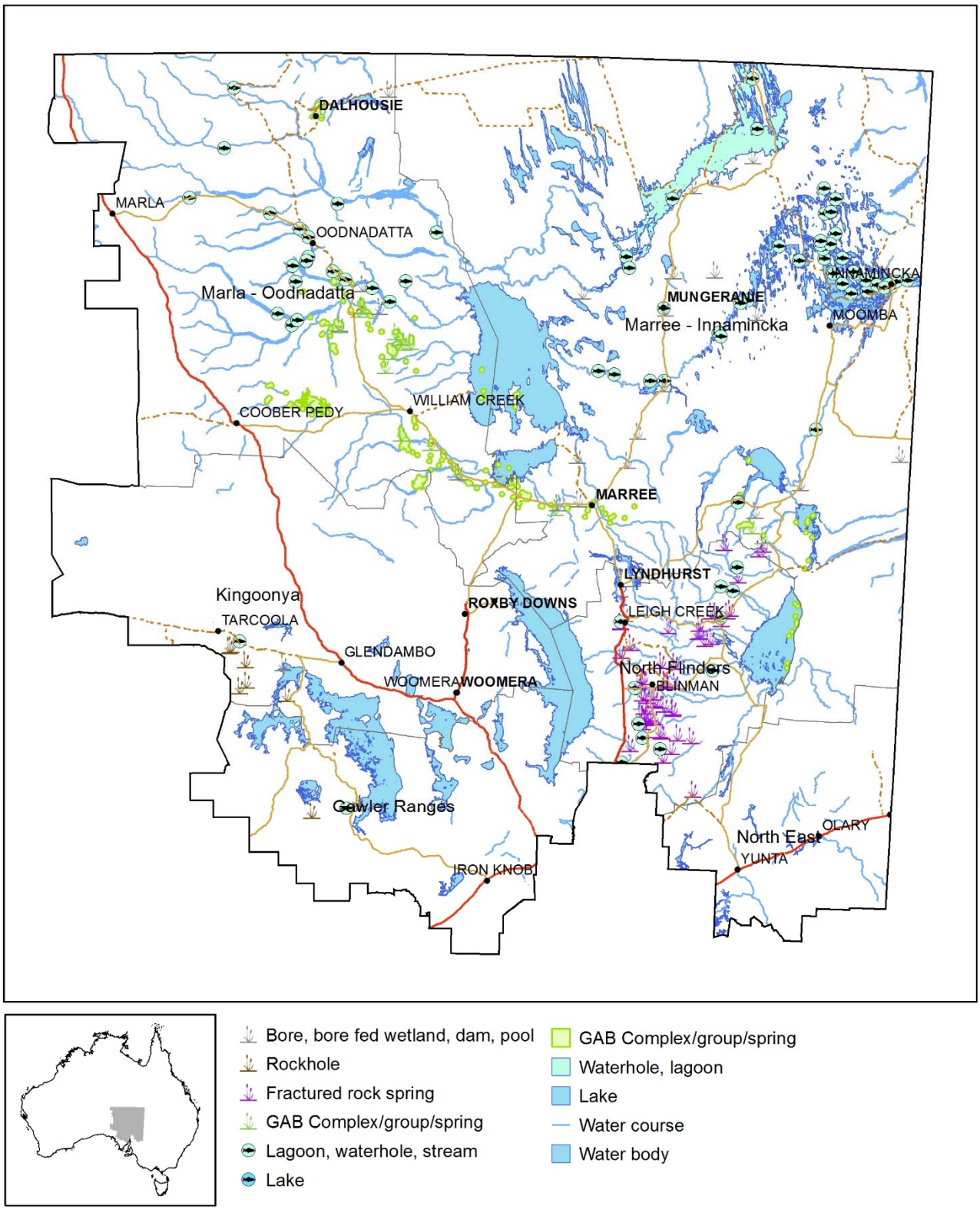

Fig. 3. Water resources recorded from within the SA Arid Lands NRM Boundary.

For the location of current water resources, contact SA Arid Lands NRM.

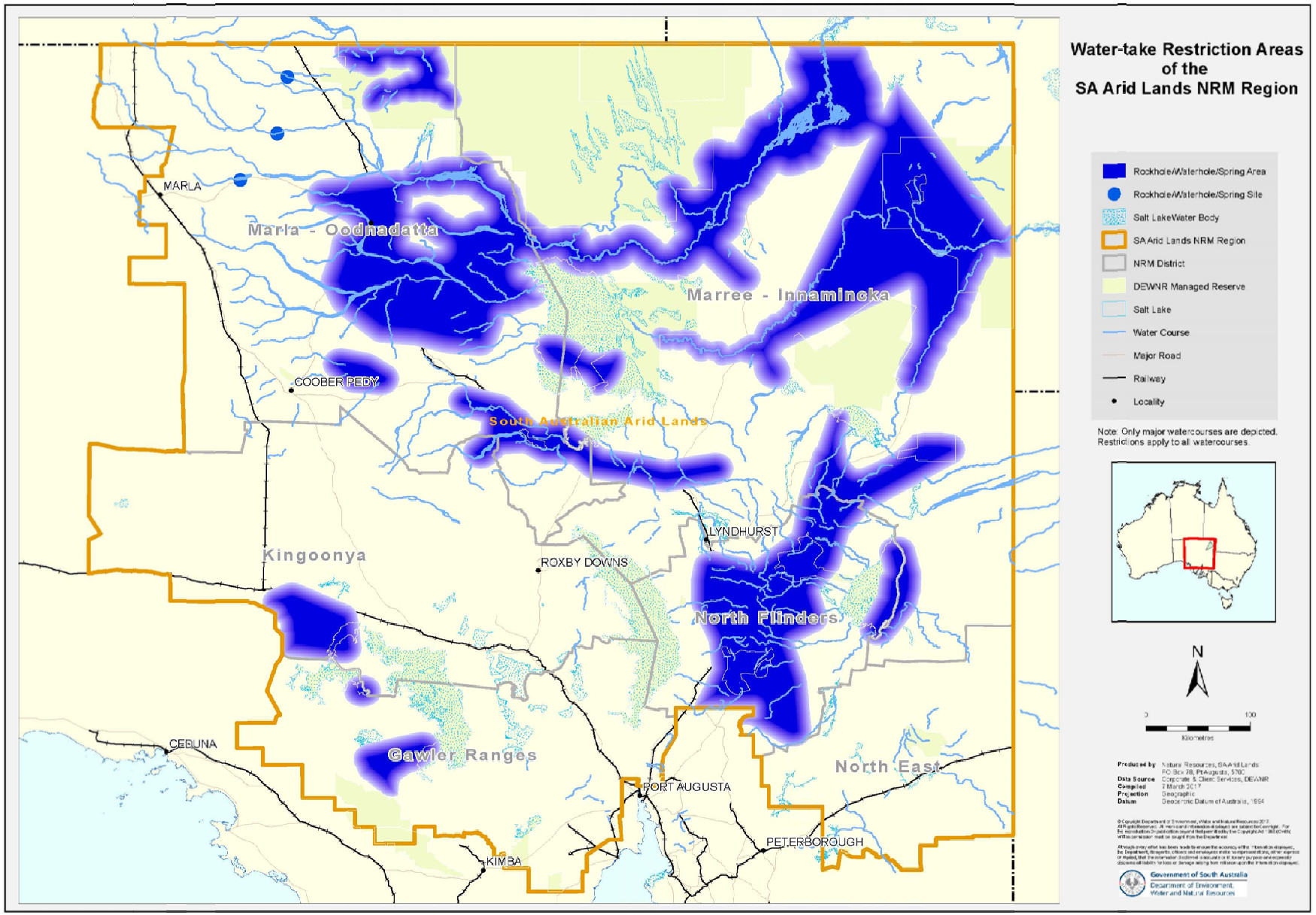
Water-take Restriction Areas of the SA Arid Lands NRM Region
Rockhole/Waterhole/Spring Area
Rockhole/Waterhole/Spring Site
Salt Lake/Water Body
SA Arid Lands NRM Region
NRM District
DEWNR Managed Reserve
Salt Lake
Water Course
Major Road
Railway
Locality
Note: Only major watercourses are depicted. Restrictions apply to all watercourses.
MARLA
Marla - Oodnadatta
Marree - Innamincka
COOBER PEDY
South Australian Arid Lands
LYNDHURST
Kingoonya
ROXBY DOWNS
North Flinders
CEDUNA
Gawler Ranges
North East
PORT AUGUSTA
PETERBOROUGH
KIMBA
N
Kilometres
Government of South Australia
Department of Environment, Water and Natural Resources

Fig. 4. Water-take restriction areas of the SA Arid Lands NRM region

5 WAA permit application and assessment process

The principle instrument/tool used to implement the Water Affecting Activity Policy for the SA Arid Lands NRM Board, is the WAA permit application and assessment process. This process is guided by the whole-of-region and WAA-specific objective and principles, is flexible, and is designed to engage with the applicant in order to tailor a positive outcome for both parties.

Permits are required to undertake certain Water Affecting Activities identified in the SA Arid Lands NRM Plan (summarised in Table 1). Any Water Affecting Activity undertaken before this policy was adopted still does not require a permit, however, a WAA permit is required for a new activity or to modify an existing activity.

The permit application system and assessment process has been established to ensure permit applications are assessed consistently and objectively, and based on merit whilst cosidering the relevant requirements specified in legislation, policies, agreements and guidelines.

To ensure South Australia meets its responsibilties under the Commonwealth Basin Plan 2012, all WAA permits for the Murray-Darling Basin Management Zone, in particular those for dam development, will be tracked against the sustainable diversion limit (SDL) for the South Australian Murray Region. The SDL places a restriction on the amount of water that can be taken from each SDL resource unit identified by the Basin Plan. As the SA Murray Region includes a large proportion of the SA Murray-Darling Basin NRM region and parts of the South East NRM region and the SA Arid Lands Region, the SDL has been apportioned across the three regions through a memorandum of understanding (MoU) between the SA Arid Lands NRM Board, the SA Murray Darling Basin NRM Board and the South East NRM Board. In determining whether a permit will be granted or refused the Board will refer to the MoU and any relevant procedures in making a determination.

The permit assessment process will have regard to the cultural, social and spiritual values and uses of waters resources and the potential risk to these values and uses by the proposed activity/ies. The process is supported by appropriate procedures to enable any comments received from *Native Title Act 1993* notifications to be fully considered and where relevant accounted for before a permit determination is made.

To determine whether a water affecting activity requires a permit, see Figure 5. Any person unsure of whether an activity that they are undertaking is considered a " Water Affecting Activity" under the Act should contact the Department of Environment Water and Natural Resources for further advice.

More information regarding permits is provided in the Act, Section 135 and public notification is not required for any water affecting activity permit application.

5.1 Principles for permit assessment and determination

This section sets out the matters that the SA Arid Lands Natural Resources Management Board will consider when granting or refusing a Water Affecting Activity permit.

To determine a Water Affecting Activities Permit, applications will:

- Be assessed against the whole-of-region and Water Affecting Activity-specific objective and principles for the entire SA Arid Lands Natural Resources Management Region as defined in Figure 2, unless a principle specifically defines an area for its application.
- Be assessed following a transparent and equitable process based on the merit of the application and supplementary information provided.
- Involve a risk-based assessment approach.
- Request an applicant to undertake an investigation or further investigations if in the opinion of the relevant authority the applicant has provided insufficient information to assess the permit application.

Once granted,

- The works are required to be carried out within 12 months from the date of approval, unless the permit states otherwise, and in accordance with the application submitted and if there are any alterations to the proposed activities the Board must be notified and permission obtained in writing prior to commencement of the activity.
- The relevant authority may change or extend the expiry date of a permit if the proponent requests in writing for a change or extension of the expiry date.
- Permits are not transferable between activities or parties.
- The relevant authority may request the permit holder to apply for a new permit if in the opinion of the delegate the change or extension of the expiry date will have an adverse impact to water users, water dependent ecosystems or water resources as deemed by the relevant authority.
- A Water Affecting Activity permit may be varied or revoked by the relevant authority where the permit holder has failed to comply with conditions specified on the permit.

Conditions on the permit may include:

- Monitoring the activity for a period of time and in the form specified by the permit.
- Notification of the completion of the Water Affecting Activity to the SA Arid Lands NRM Board.
- Specific conditions determined by the assessment process to ensure the activity meets the objectives and principles outlined in the Water Affecting Activity Policy.

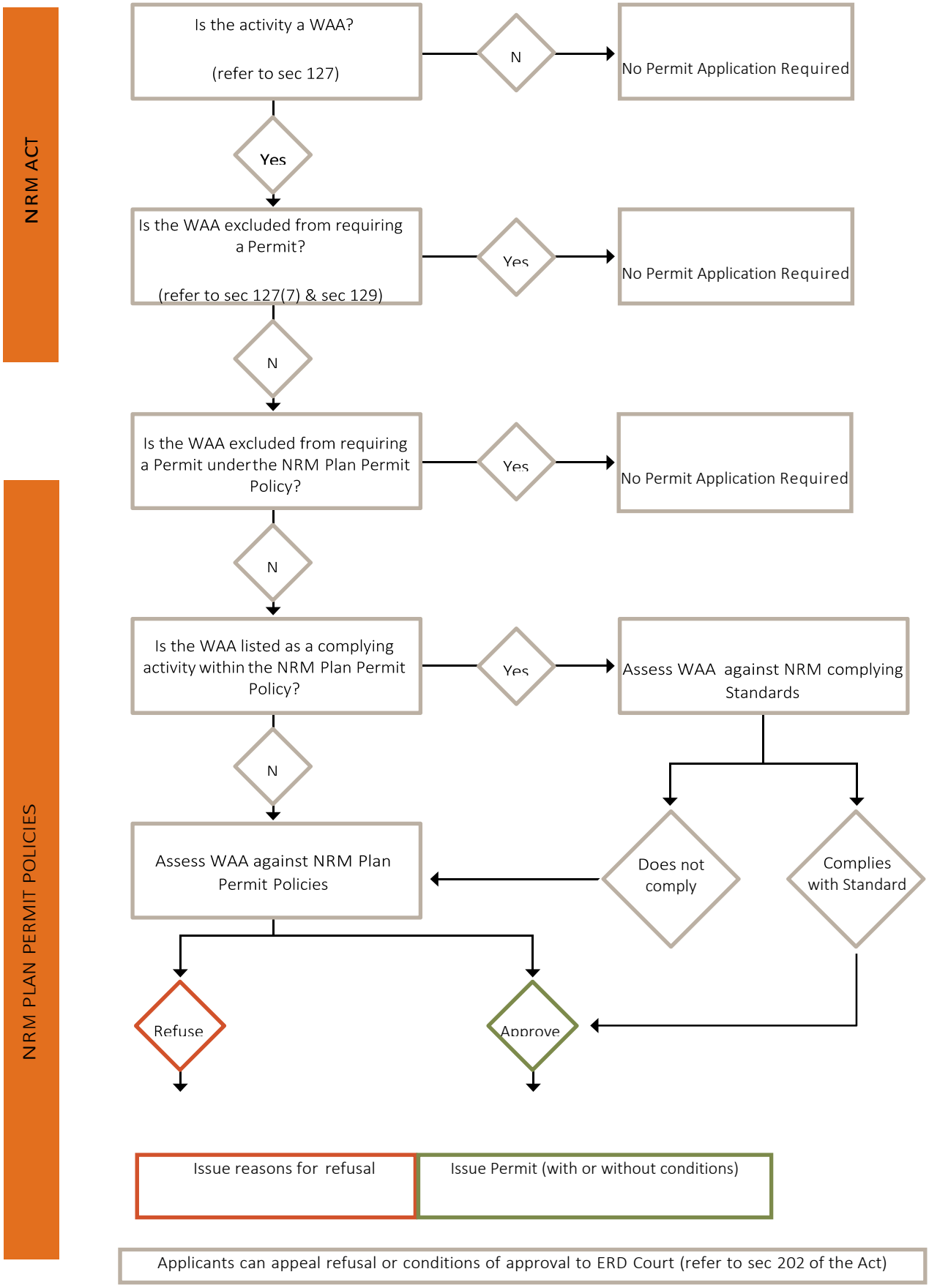

Fig. 5 Water Affecting Activities permit decision-making process

5.2 Activities that do not require a permit or are exempt

A permit is not required to undertake the activities set out in Section 129 of the *NRM Act 2004*. This includes certain activities which are required or authorised under the *Development Act 1993*, *Environment Protection Act 1993*, *Native Vegetation Act 1991,* and the *Pastoral Land Management and Conservation Act 1989*. For example, dams that are approved under the *Development Act 1993* or watering points approved in a Water Point Development Plan under the *Pastoral Land Management and Conservation Act 1989* do not require a water affecting activity permit.

An applicant may also be exempt from obtaining a permit where they follow Current Recommended Practices (CRPs).

Best Practice Operating Procedure (BPOP)

The Board has determined a process for granting a single WAA permit that allows a person to undertake a range of specified WAAs at multiple locations using the same operating procedure. A BPOP permit may be granted when the named person follows the process presented below:

1. The person provides a BPOP in relation to a proposed range of WAAs to the Board that contains the following:

    a) A risk assessment that allows the objective self assessment of whether the BPOP permit applies or if a separate WAA permit or permits are required.

    b) A procedure or procedures that will be followed when undertaking a specified WAA.

2. The Board grants a BPOP permit that includes the following conditions:

    a) The applicant must provide to the Board sufficient details about the nature of the WAA, the location of the WAA, the risk assessment score and what procedures will be followed.

    b) The Board must issue wtitten approval on whether each of the described WAAs can be undertaken under the BPOP permit or if a separtate WAA Permit or permits will be required.

    c) The WAA must be undertaken in accordance with the BPOP permit.

A BPOP permit streamlines the assessment and administration processes for a specified range of WAAs. A BPOP permit is valid from the date of issue until this plan is amended or replaced, or for a shorter period of time as specified by the Board.

The agreement may be cancelled by the Board, where the applicant no longer complies with the BPOP endorsed by the Board, or for any other reason or circumstance the Board thinks fit.

The Board may refuse to approve an agreement to an applicant who is perceived to have contravened or failed to comply with a BPOPs or for any other reason the Board thinks fit.

Current Recommended Practice (CRP)

In addition to Best Practice Operating Procedures (BPOPs), the Board may define minimum standards in Current Recommended Practice (CRP) for activities found to have a low risk of affecting the condition, persistence and connectivity of water resources. CRPs are approved procedures endorsed by the Board that exempt a person from requiring a WAA permit for an activity that would otherwise require a permit.

A Current Recommended Practice (CRP) sets out what the Board consideres to be the most appropriate approach, methodology and/or design for undertaking particular Water Affecting Activities pursuant to Section 127 of the Act. In addition, a CRP may clarify the standards required to fulfill the specific duty pursuant to Section 133 of the Act.

Prior to commencing a Water Affecting Activity, a person is required to ensure that the Water Affecting Activity they are planning to undertake does not require a permit and will be undertaken in accordance with a CRP.

A list of approved CRPs will be published on the Board's website as they become available.

Provision of financial or other assistance by the Board

Applicants are exempt from requiring a Water Affecting Activity permit where the Board is the relevant authority for that activity and where the proposed activities are supported by the Board, through financial assistance or any other form of signficant assistance, pursuant to Section 31 and 42 or Section 127(7) of the Act. In addition applicants are exempt if the activity is required as part of an approved work plan under the Act or as a requirement under Chapter 9 or Section 129(1)(d) of the Act.

5.3 Compliance

Section 127(6)(a) of the NRM Act 2004 provides that it is an offence to undertake activities listed under Section 127(1), (2), (3), or (5a) without a permit.

If a Water Affecting Activity is undertaken without a permit and there is a requirement for a permit or an activity is conducted in breach of the permit conditions, the relevant authority can issue a notice to rectify the works. The relevant authority will seek voluntary compliance, where appropriate, with the relevant parties involved to rectify the works. If voluntary compliance is not successful the issue may become a compliance matter involving legal proceedings and penalties. Where the Board is the relevant authority please refer to the SA Arid Lands NRM Board's Compliance Policy and Procedure.

6 Review of Water Affecting Activity policy

In order to ensure the sustainable implementation of Water Affecting Activities, this policy will be reviewed every 3 years. For more information, refer to Appendix 2.

7 Glossary

Aquatic biota and ecosystems	All organisms that live in water at a particular locality and ecosystems located in a water body.
Aquifer	An underground layer of rock or sediment that holds water and allows water to percolate through.
Authorised structure	A structure authorised by the Board, a local government authority, or Minister
Average Recurrence Interval (ARI)	Average recurrence interval is the return period of a defined storm event with a defined magnitude of total rainfall.
Biodiversity	The variety of life forms represented by plants, animals and other organisms and micro-organisms, the genes that they contain, and the ecosystems and ecosystem processes of which they form a part
Bund	A wall built for the purpose of preventing water from entering or leaving a defined area or point.
Catchment	An area of land determined by topographic features where water is collected by the natural landscape and all rain and runoff flows to a creek, river, lake or into the groundwater system.
Cease-to-flow	The water level below which a waterhole no longer spills water downstream
Channel	includes a drain,, gutter or pipe, or part of a channel
Confined aquifer or artesian aquifer	Water that is confined underground with enough pressure to cause it to rise above the level where it is encountered such that when a well penetrates the aquifer water will raise to the ground surface without the need for pumping, for example the Great Artesian Basin (GAB).
Connectivity	In relation to aquatic ecosystems refers to connections between and within aquatic ecosystems such as rivers and streams. It can include the hydrology, ecology, genetics and geological processes.
Construct	includes erect, repair, excavate, reduce, alter or enlarge
Contaminants	May include, but are not limited to, nutrients, metals, biological organisms, temperature, dissolved oxygen, colour, turbidity, suspended sediments, leachate, hydrocarbons and litter.
Contour Bank	Banks that intercept water before it concentrates and starts to cause erosion, and direct or channels flow safely to a stable outlet
Dam	A catching or on-stream dam refers to a dam, wall or other structure placed on or constructed across a watercourse or drainage path for the purpose of holding back and storing the natural flow of that watercourse or surface water flowing along that drainage path. A Holding, turkeys nest or off-stream dam refers to a dam, wall or other structure that is not constructed across a watercourse or drainage path and is designed to hold water diverted, or pumped, from a watercourse, a drainage path or aquifer, or from another source. Off-stream dams may capture a limited volume of surface water from the catchment above the dam, but may not take an amount of surface water, from the catchment above the dam, in excess of 5% of its total volume.
Desilting	The removal of unconsolidated material deposited in a dam since construction, or material deposited in the dam was previously desilted.

Detention Basin	Sometimes called "holding ponds" or retarding basins they protect against flooding by regulating the rate, volume and quality of water discharged after a rain event. They temporarily store water for a limited period of time to enable a controlled release of water downstream after the event.
Detrimental affect	An activity that causes or is likely to cause temporary or permanent damage or harm to water quality, aquatic life or ecosystem health
Dewatering	Taking water from an aquifer or lake for the purpose of lowering the water level of the aquifer or lake in order to obtain dry access to an underground area that would otherwise be saturated or partially saturated with water.
Diversion structure	A physical infrastructure that is able to redirect the flow of a watercourse or a lake to a defined point and includes a water flow control device and channel or pump and associated infrastructure.
Drainage path	The path that surface water naturally flows along over land.
Ecologically sensitive area	Unique and naturally occurring groups of plants and animals and their interaction with their non-living environment that is susceptible to changes, for example endemic species restricted to a narrow geographical range or a species rated due to a range of threats.
Environmental flows	Periods or patterns of inundation, or drying, or watercourse (river, creek) flows allocated or provided for the maintenance of water dependent ecosystems.
Environmental water requirements	Water requirements that must be met to sustain the ecological values of water dependent ecosystems including their processes and biodiversity.
Floodplain	As per the *Natural Resources Management Act 2004 (SA).*
Geomorphology or Geomorphic characteristics	Refers to the study of the topographic and bathymetric features created by physical, chemical or biological processes operating at or near the Earth's surface. Features of a landform or landscape including but not limited to bed and banks of a watercourse, floodplain of a watercourse or lake, cliffs, soils, rocks or other mineral forms. .
Ground water dependent ecosystem (GDE)	an ecosystem that requires access to ground water, on a permanent or intermittent basis, to meet all or some of its water requirements to maintain the community of plants and animals, and the geological processes and ecosystem services they provides, for example Great Artesian Basin Springs (GAB Springs) or mound springs.
Groundwater	Is the water that filters below the earths' surface and is held in rock, gravel or sand or water that is pumped, diverted or released into a well for storage underground.
Groundwater discharge	Is the natural discharge of groundwater to the surface, usually seen as springs or soaks and can be found in river beds or lakes.
Groundwater recharge	The process whereby water below the land surface is replenished by either direct infiltration of rainfall or by leakage from surface water bodies like streams or lakes
Habitat	The physical place or type of site where an organism, species or population naturally occurs together with the characteristics and conditions that render it suitable to meet the lifecycle needs of that organism, species or population
Headworks	A non-leaking assembly or mechanism installed on top of a well, between the well casing and water delivery to control and monitor flows.
Hydrology	The branch of science investigating the movement and quality of water across the landscape.
Impede	To delay or prevent or retard in movement or progress by means of obstruction or hindrance
Infrastructure	As per the *Natural Resources Management Act 2004 (SA)*
Lake	As per the *Natural Resources Management Act 2004 (SA*). In addition Great Artesian Basin (GAB) Springs and associated wetlands fall within the definition of "lake" as well as salt beds, clay pans and temporary waterholes situated along creek beds

Low flows	Naturally occurring, regular, small flow events that are a critical part of the annual water pattern of a catchment.
Megalitre (ML)	One Million Litres, (1 000 000 litres)
Modify	Includes any activity to replace, add, remove or make any other adjustments to the configuration or set-up of water related infrastructure so that is intended function is changed.
Native Title Holder	The person or person who hold, or claim to hold, the native title in relation to the lands and waters according to their traditional laws and customs.
Native underground water	Water occurring naturally below ground level that exists in the relevant aquifer absent of any such water drained or discharged to that aquifer by artificial means.
Natural flow regime	The magnitude, duration, frequency and seasonality of flows that would exist if no diversion or storage of water occurred.
Natural hydrological systems	The natural flow regime applicable to a particular watercourse or aquatic ecosystem as it varies by seasonal and more episodic climatic events (e.g. periodic severe flooding or drought).
Playa lake	A lake with no outlet and act as a collection area/s for surface water flows and discharge zones for groundwater flows.
Prescribed water resource	A water resource prescribed through legislation to enable the water resource to be sustainably managed and provide security for all water users now and into the future.
Proponent	An applicant for a permit or a person who puts forward a proposal in relation to an activity.
Protective Measures	Including but are not limited to rip raps, rock chutes, detention or retention basins, litter traps and treatment of water
Receiving waters	The location or site (watercourse, lake) into which water is being discharged or directed
Relevant Authority	Is an organization or person appointed as the relevant authority by the Act and has the power to act or order others to act such as granting of a permit or the setting of conditions
Retention Basin	Used to manage water runoff to prevent flooding, downstream erosion and improve water quality through the incorporation of a permanent pool of water in its design. Similar to a detention basin that temporarily stores water after a rainfall event
Rip Rap	Graded rock placed on the bed or banks of a watercourse
Riparian	The area adjacent to watercourse or lake that influences and is influenced by hydrological processes and includes bed, bank and floodplain of watercourse or lake.
Resilience	The capacity of a system to absorb disturbance and remain in the same state, essentially retaining the same function, structure and feedbacks.
Rock Chute	An engineered structure designed to control the bed grade of a watercourse
Rockhole	A place where water is permanently or for extended periods collected irrespective of how the water got there initially.
Runoff	water flowing over land after a rain event
Salina	An area, such as a salt flat, in which deposits of crystalline salts are formed or found. A body of water containing high concentrations of salt.
Springs and soaks	Under the *Natural Resources Management Act 2004 (SA)* soaks and springs, including Great Artesian Basin springs and associated wetlands fall within the definition of a "Lake". They can be permanent or temporary expressions of groundwater where there is sufficient pressure to move water to the surface.
Stormwater	Is surface water that is contained in infrastructure established for the purposes of storm water management.

Structure relating to a lake or watercourse	A built or constructed feature including but not limited to a ford, causeway, culvert, fence, jetty, weir, retaining wall or bridge.
Sufficient representative samples	Suitable samples, collected with equipment appropriate for the substance, material or characteristic to be measured and taken at suitable locations and times to accurately represent the quality of the relevant water.
Surface water	As per the *Natural Resources Management Act 2004 (SA).*
Sustainable diversion limits (SDL)	An environmentally sustainable level of water use or 'take", that is the amount of water that can be taken for consumptive uses whilst ensuring there is enough water to maintain healthy catchments and groundwater systems.
Sustainable limits	Comprises the use, conservation, development and enhancement or natural resources in a way, and at a rate that will enable people and communities to provide for their economic social and physical well-being while sustaining the potential of natural resources to meet the reasonably foreseeable needs of future generations and safeguarding the life-supporting capacities of natural resources and avoiding, remedying or mitigating any adverse effects of activities on natural resources (State NRM Plan).
To take water from a water resource	Includes: • To take water by pumping or syphoning the water; • To stop, impede or divert the flow of water over land(whether in a watercourse or not) for the purpose of collecting the water • To stop, impede or divert the flow of water in any stormwater infrastructure for the purpose of collecting the water, or to extract any water from stormwater infrastructure; • To divert the flow of water in a watercourse from the watercourse; • To release the water from a lake; • To permit water to flow under natural pressure from a well;
Water Affecting Activity (WAA)	Activities that may impact the condition of a water resource, water dependent ecosystems or water users as defined under Section 127 of the *Natural Resources Management Act 2004 (SA).*
Water Allocation Plan (WAP)	A legal document that sets out the rules for managing the take and use of prescribed water resources to ensure sustainability of the resource.
Water dependent ecosystems	Those parts of the environment or areas where animals or plants and the associated ecological processes are dependent on water, whether intermittent or permanent or flowing or standing or above or below ground, to survive and maintain the ecological processes. The in-stream areas of rivers, riparian vegetation, springs, wetlands, floodplains, estuaries and lakes are all water-dependent ecosystems.
Water Quality	The physical, chemical and biological characteristics of water and any changes to these characteristics that affect the quality of a body of water and can result in harmful effects on any living thing that drinks, uses or lives in and around the body of water.
Water Resource Plan (WRP)	Documents that set out how water will be managed in an area.
Water resources	A watercourse or lake, surface water, underground water, storm water and effluent defined as per the *Natural Resources Management Act 2004 (SA).*
Watercourse	As per the *Natural Resources Management Act 2004 (SA).*
Waterhole	Means a body of water that is a natural collection point in a drainage area, which retains water after flow for an extended period. Under the *Natural Resources Management Act 2004 (SA)* a waterhole falls within the definition of a "lake".
Well	A deep hole or shaft sunk into the earth to obtain water (also referred to as a 'bore')
Operational well	A well that has been used within the last 10 years (also referred to as an 'operational bore').
Wetland	As per the *Natural Resources Management Act 2004 (SA).*

Note: For the purposes of the policy care has been exercised in the use of the term lake in Water Affecting Activities as extensive areas of the region, where cyclical flooding occurs, may fall within the definition of 'wetland" and therefore considered a lake for the purposes of the *NRM Act.*

8 Appendix 1. Water Resources of the SA Arid Lands

Water resources in the region are uniquely different from the common perception of rivers, creeks and lakes. The region is semi-arid to arid with highly variable episodic rainfall that has shaped the natural process and created the distinctive arid landscapes of the region. The characteristic episodic wet and dry cycles, often with prolonged dry periods (bust) broken by high intensity rains (boom) means rivers and creeks (watercourses) are ephemeral, unregulated and mostly undeveloped and consist of braided channels, waterholes and broad areas of floodplains along with scattered ephemeral salt lakes. High evaporation rates and variability in the scale and frequency of rainfall events means most waterholes are semi-permanent to temporary, holding water from a few months to a few years, with only a few permanent surface water resources of variable water quality across the region.

Kati Thanda- Lake Eyre is one of the largest playa or terminal lakes in the world and part of an internally draining river system covering about one sixth of Australia. Watercourses draining from the Macumba, Arckaringa and Neales Rivers in the west are normally dry but capable of carrying large volumes of water during times of flood and dissecting the breakaways to the Diamantina River, Cooper Creek and other rivers from central Queensland in the north east that are more likely to cause massive flooding and fill Kati Thanda-Lake Eyre after heavy rainfall events.

In the Gawler Ranges and along the western side of the Northern Flinders Ranges there are no true riverine systems and drainage of the area is limited resulting in many large Salinas or salt lakes. In the Northern Flinders through to the North East District rivers and creeks flow episodically in response to rainfall with some associated waterholes. The maintenance and retention of relatively unregulated natural flow patterns, high and low flows, is critical for maintaining the ecological functioning and health of the river systems and waterholes.

Groundwater underlies most the region but is highly variable in quality and quantity and is the result of depositional environments from over 600million years ago to the present, that have formed a variety of complex, deep and shallow, aquifers. The main four types present in the region are sedimentary basins; fractured rock; palaeochannels and surficial aquifers. The most well known aquifer is the GAB and the sustainable use and management of the GAB and other groundwater resources within the Far North Prescribed Wells Area are controlled through the WAP. For groundwater resources that are not within the boundary of the Far North Prescribed Wells Area it is important to ensure extraction is sustainable, groundwater dependent ecosystems are protected and water quality is maintained.

Across the region there are a number of springs and soaks that are the surface water expression of groundwater and include the Great Artesian Basin (GAB) Springs which have immense cultural and environmental importance and springs associated with ranges across the region, in particular the Flinders Ranges.

9 Appendix 2. Review of policy process

To ensure the range of Water Affecting Activities undertaken across the region do not impact the condition (quality), persistence (availability, quantity) and connectivity (flow dynamics, distribution) of water resources, the SAAL Board recommends the Water Affecting Activities Policy is reviewed to ensure:

- New information is incorporated, regarding:
    - accumulative effects from multiple activities at, or connected to, a site,
    - natural fluctuations in water quality,
    - natural hydrology of arid watercourses (e.g. timing, duration and frequency of flow),
    - the limits of sustainable use,
    - environmental water requirements of hydrological systems and water-dependent ecosystems,
    - methods that reduce risk of harm to public and private assets
- The improved efficiency of the policy framework (e.g. through developing a risk assessment for common Water Affecting Activities in the region, and if appropriate, BPOPs and CRPs), and
- The currency of objectives and principles in the SA Arid Lands NRM Water Affecting Activities Policy.

In addition the permit assessment process shall be reviewed upon completion of the policy review as it supports the SA Arid Lands NRM Board WAA Policy. For further information on the assessment and review process please refer to WAA Permit Assessment Procedure.