Community Feedback Report from the Southern Basins & Musgrave Prescribed Wells Areas WAP

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Community Consultation Summary

Significant consultation, research, investigation and policy development was undertaken prior to and during the development of the Water Allocation Plan for Southern Basins and Musgrave Prescribed Wells Areas.

A formal consultation period was held from 23rd March 2015 to 12th June 2015. During this time the Board hosted two open house forums, four stakeholder meetings and held a number of additional meetings with key stakeholders.

Following this, twenty-two formal feedback submissions were received from nineteen individuals. Over 200 individual comments were received.

The range of feedback received through the formal consultation period can be summarised in the dot points below:

- Readability of the document, highlighting its complexity
- Suggested content changes – ranging from identifying minor spelling mistakes, through to providing suggested text to improve some areas of the document
- Possible impacts on red gum populations, catchments and groundwater dependent ecosystems that are adjacent to (or outside of) Prescribed Wells Areas
- Greater clarification needed in regard to triggers, the 1993 reference levels and how allocations are calculated
- Concerns over the changes in risk ratings for particular PWAs and how risk assessments have been determined
- Lack of reference/recognition of the National Water Initiative
- Lack of reference/recognition of the Parliamentary Inquiry
- Water supply and demand concerns
- Implications of exploration and mining on water supply
- Impacts of rainfall variations across PWAs
- MERI plan – comments in regard to it being included in the WAP or suggested monitoring that should be considered.

The Board is appreciative of the time the community spent reviewing the document and providing feedback, and this has proven valuable in assisting us to make final amendments to the WAP.

Details of each submission can be found in the table below:

Submission #	Comments/Submission Summary	Response	Changes to the WAP
1	Page 26/27 - Find the figures put forward for recharge zones not believable. All the basins on LEP, the recharge is in the range of 6 to 35 except Uley South. This supposedly has a recharge of 129. Ten times the recharge of adjoining basins, in the vicinity. The calcareous soils are similar, the rainfall is similar. Why the large difference.	The recharge rate (and the associated calculation of resource capacity) for the Uley South Public Water Supply consumptive pool has been based on peer-reviewed science (Ordens *et al*. 2011). The estimated recharge rate for the Uley South consumptive pool is 129 mm per year, and the rationale for this estimate is discussed in the *Additional Science Support for the Eyre Peninsula Water Allocation Plan* (Stewart 2013) – see pages 21 and 22.	No changes made
1	Uley Wanilla East basin - why is the Uley basin water table falling at the same rate, with no extraction taking place as the adjoining Uley Wanilla basin that has historical extraction. The surface outflows dried up long ago, so where is the water table disappearing to? A recognition of major interconnection of basins would be a start.	The investigation by Zulfic *et al.* 2007 - *Uley Basin Groundwater Modelling Project Volume 2: Groundwater Flow Model* (DWLBC Report 2007/04) identified a hydraulic connection between Uley South and adjacent lenses through the Tertiary sands aquifer. The investigation includes estimated flowrate into and out of the Tertiary sands aquifer. Water levels in the Southern Basins Prescribed Wells Area are largely driven by recharge. Previously, Uley Wanilla had high extraction rates that caused a decline in water levels, however extraction has now significantly reduced, which is allowing water levels to recover. The exact reason why surface outflows have reduced is unknown, and it may be caused by the decline in recharge to Southern Basins lens over recent history, however further investigation would be required to confirm exact reason.	No changes made
1	GDEs and water resources adjacent to Southern Basins PWA - Greenpatch creek is not even highlighted in this draft. It is the only permanently flowing creek part way & with colonies of galaxias. Eventually flowing in to the PWA. Dams that take 11 inches of runoff to fill, totally obstruct the water course, after this occurs 43ML are extracted for an irrigation dam. Downstream of this, Board has installed a monitoring device to record flow rates, stating it has an insufficient affect on recharge to the PWA.	Greenpatch creek is not within the scope of the Water Allocation Plan as it is not a prescribed water resource. Management options for Greenpatch creek and other non-prescribed water resources are being considered as part of the development of the new regional NRM plan. The Board will consult on the draft NRM plan later this year.	Text included in WAP regarding adjacent catchments.
1	Parliamentary Enquiry - 12 recommendations - After two years of submissions from EP public highlighting their concerns the Minister, after recommendations from his advisors, has adopted only 3, with 3 more only partially being adopted and six rejected. If the Minister would not adopt recommendations from a Parliamentary enquiry I see little chance of these public meetings	The Parliamentary Inquiry was a separate process to the development of the Water Allocation Plan. Your comment is however acknowledged.	No changes required

	achieving changes to this draft to improve the management of our surface and groundwater resources.		
2	Page 63 - Figure 22. Increase GDE to include Tulka - near 'Flinders Well; sedges; southern emu wrens (before 2001 fire) may still be in the area. Nearby bird hyde in National Park (Pt Lincoln) where a variety of birds can be found depending on the time of the year. Springs in the sea along Tulka esplanade near no.3 - no.7 Tulka West also	The ecosystem adjacent to Tulka has been included as an environmental asset (e.g. groundwater dependent ecosystem) in the WAP. An environmental protection zone has been established around the ecosystem.	Environmental protection zone established around Tulka's groundwater dependent ecosystem.
2	Little Swamp - not on map - Water came down through Greenpatch in to Little Swamp, overflowed through Duck ponds and flooded out at Tulka. Which has not happened since 1983 because of dams at Greenpatch. There are red gums at gum flat in SA Water land which were supplied water by this flooding water, sink holes, small caves also replenished the basins. Creek lines near Tulka the red gums have died.	Environmental protection zones have been established for Little Swamp and the downstream ecosystems (see figure 34 on page 77 of WAP). These environmental protection zones protect groundwater resources from authorized take from prescribed wells. It is worthwhile to note that environmental protection zones do not control dam development, but the Water Affecting Activity (WAA) policies of the Eyre Peninsula NRM Board do control dam development. However these WAA policies cannot be applied retrospectively. It is possible that there has been a decline in recharge to the Lincoln North management area due to dam development within the Little Swamp catchment. The Impact of farm dams on streamflow in the Big Swamp and Little Swamp catchments report (DWLBC Report 2009/26) found dams to have a low-to-moderate impact on stream flow. The report did however note data limitations to validate groundwater and surface water interactions. Data limitations include no monitoring data in Lincoln North management area to confirm recharge rates. To rectify the situation, the Department of Environment, Water and Natural Resources installed seven monitoring wells in 2016, which will now enable groundwater levels to be monitored regularly and assist determine recharge rates. This forthcoming data will be useful for any future investigation to ascertain the potential impacts of dams on recharge processes, versus the impacts of low annual rainfall on groundwater recharge.	Environmental protection zone established around Little Swamp and downstream ecosystem.

2	SKM Page 97 - there is a recommendation for Board to design an environmental monitoring program. Has the board done this? Is it in progress? This needs to be in place so monitoring can commence with WAP	The updated Monitoring, Evaluation, Reporting and Improvement (MERI) plan includes details around the monitoring and evaluation of groundwater dependent ecosystems. The updated MERI Plan is available on Natural Resources Eyre Peninsula's website at http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave	No changes required
2	Water protection zones (not included in draft) - This area is under the care of Councils, included in document. What expertise has Councils? They have to hire a hydrologist with planning. Surely this is not their core business. Water should come under this document. It is water that runs off the land in to the water supply of all, could be polluted? This recharges our basins and lenses. Also should this area be enlarged?	A water protection zone is a planning tool that sits within a Council's development plan. Its purpose is to manage land use and development as per the *Development Act 1993*. The water protection zone within District Council of Lower Eyre Peninsula is for the purpose of protecting Southern Basins Prescribed Wells Area from run-off contamination by retaining land use as primary production purposes. While DCLEP may have limited water expertise, they are required to consult both the Environmental Protection Authority and the Department of Environment, Water and Natural Resources should they want to make changes to the current water protection zone. This consultation process is a statutory requirement under the Development Act 1993, and provides adequate safeguard against inappropriate land use or development. The WAP did not include water protection zone as it is managed under a different legislation and plan.	No changes made
2	Brackish water/recycled water - will brackish water be for GDE only? Environment needs fresh water also. Recycled water could be used more but not included in GDE. Rain water should be included in all developments. EPA will not allow rainwater in schools to be used as drinking water.	Groundwater Dependent Ecosystems (GDEs) have evolved to function over a range of groundwater salinities. Many will access fresh water when available, and then survive on brackish water until a fresh water is available. Red gum communities are an example of this, and several strands of red gums have been identified as environmental assets (e.g. GDEs) in the WAP. The WAP sets out the rules for managing groundwater take from the Southern Basins and Musgrave Prescribed Wells Areas, and includes provisions to allocate water to the environment. It cannot regulate or advocate for the development of alternative water supplies. For further information on alternative water supplies please visit Natural Resources Eyre Peninsula's website at http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/managing-water-resources	Taken as a comment. No changes required

2	GDE - 60 - 40? 70 - 30? Depending on requirements. Basins and lens are in a sad state. The environment is missing out - who will be monitoring - hopefully independent from government influences.	A risk assessment process was undertaken to determine the share to be allocated between the environment and consumptive use. This process identified consumptive pools that had a greater risk to the environment or consumptive use. If a greater risk was identified for the environment, the 60:40 allocation rule was retained. Whereas if a greater risk was identified for maintaining a water supply (e.g. Uley South's role as a public water supply), a higher portion was allocated to consumptive use (e.g. 30:70). A copy of the report used to inform this risk assessment is available at http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave Following consultation on the draft WAP, DEWNR commissioned modelling to evaluate the risk assessment and associated allocation between the environment and consumptive use for Uley South. The modelling resulted in the allocation for the environment increasing from 30% to 48.5% for Uley South. Monitoring of groundwater dependent ecosystems and water levels will be undertaken by the Department, Environment, Water and Natural Resources. Details of the monitoring programs are outlined in the MERI plan, see http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave.	Amended the shares to be allocated between the environment and consumptive use.
3	3.3.5 Marine Discharges - expand this section to make it uniform with descriptive detail provided in 3.3.1 and 3.3.4 for Groundwater Dependent Ecosystems (GDEs). Mr Saunders provided suggested text outlining the value and vulnerability of this area.	Thank you for your provided text and suggestions. Section 3.3.5 Marine Discharges has been greatly improved using your input.	Section 3.3.5 amended to reflect provided suggestions
3	5.1 Saturated Quaternary Limestone Management Areas - alter the 60/40 rule for the Coffin A lens to 70/30 in favour of the environmental requirement so that there is no increase in extraction for consumptive demand over that specified in the present WAP	The 60/40 rule has been retained for Coffin Bay A, yet the recharge rates has been revised based on your feedback and similar feedback received on the draft WAP about environmental requirements. The recalculated recharge rate has changed the recharge rate from 29 mm per year to 25 mm per year for the Coffin Bay A consumptive pool. This has the effect of recovering 16 ML for the environment, while no additional water is available for consumptive use.	Recharge rate for Coffin Bay A consumptive pool revised.

3	6.1.1 Trigger levels - Establish trigger levels that reflect the depth of freshwater in the Coffin A lens in relation to its marine interface. Make it clear that these are temporary trigger levels that will eventually be replaced by trigger levels dependent directly upon the estimated volume of fresh water delivered to Kellidie Bay from the Coffin A lens.	SA Water have recently sonded wells within Coffin Bay A consumptive pool, and determined the depth of fresh water in the Coffin Bay A lens. The depth of fresh water extends below the 0 m AHD, which is the lower storage trigger for Coffin Bay A. Therefore the WAP contains precautionary approach to the lower storage trigger. However annual monitoring of the sea water interface will be undertaken at Coffin Bay to detect any change in depth of salinity. Triggers may need to be varied if the salinity level changes significantly.	No change made.
3	MERI Plan - make provision in the WAP for inclusion within it of the MERI Plan	The Monitoring, Evaluation, Reporting and Improvement (MERI) plan has remained a standalone document, yet the Monitoring and Evaluation chapter in the WAP has been refined. The updated MERI Plan is available on Natural Resources Eyre Peninsula's website. http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave	Monitoring and Evaluation chapter of the WAP refined.
3	Expand Appendix 1 of the MERI to include monitoring of the marine environment of Kellidie Bay. Regular assessments of the seagrass and microalgae of Kellidie Bay will give vital information on the health of the system.	The freshwater discharges to Kellidie Bay is of interest to a large group of the community. Currently there is limited knowledge about the marine ecosystems that depend on the freshwater discharges from Coffin Bay A. We continue to liaise with stakeholders and other agencies to advance the required research and monitoring for Kellidie Bay's ecosystems. However ongoing financial constraints remain a significant barrier to advancing this.	No change made.
4	A buffer zone should be provided around Big Swamp and the wetlands it encompasses, to ensure the survival of many fauna, flora, birdlife and invertebrates.	An environmental protection zone has been assigned for Big Swamp and the downstream red gum community (see figure 34 on page 77 for details). This environmental protection zone is a buffer zone that protects environmental assets from the authorised taking of water.	Environmental Protection Zone assigned to Big Swamp and the downstream red gum community
4	Re figure 27 page 84 - if the level of storage reduces beyond the upper storage trigger what guarantee is there that the wetlands around Big Swamp would not be affected and biodiversity and habitats be destroyed beyond recovery? Consumptive pool levels should not be allowed to fall below or continue to be used below the "upper storage trigger" in the southern basins - thereby maintaining the diversity and habitat of the environmental ecosystem.	The new WAP can reduce or stop extractions if storage levels of a consumptive pool reach below the mid storage trigger or lower storage trigger. The mid storage trigger is designed to progressively reduce allocations prior to reaching the lower trigger. While the low trigger will prevent allocations for consumptive use. These triggers are to maintain the diversity and habitat of the groundwater dependent ecosystem. The lower storage trigger is considered appropriate to protect Big Swamp's wetlands as water levels experienced in 2008 and 2009 for Uley North's consumptive pool would be below the lower storage trigger, and thus no allocations from this pool would be allowed.	No change made.

4	Any future mining ventures should not be granted any water allocations or licenses at all within any of the water basins or prescribed wells areas in the WAP	Where mining occurs within the Southern Basins or Musgrave Prescribed Wells Areas, and groundwater is to be extracted for processing or dewatering, a water license will be required. The water license will be assessed against the principles of the WAP. Please see Section 7 of the WAP for details of the principles that apply. For further information about how mining and prescribed water resources interact, please see http://www.minerals.statedevelopment.sa.gov.au/__data/assets/pdf_file/0009/251937/Water_for_mining_inSA.pdf	No change made.
5	Some things are good in the draft WAP like measuring the actual level of storage in the basins but this should include saline testing - there's plenty of water down there and most of it is saline.	Yes, salinity monitoring is a key component of the Monitoring, Evaluation, Reporting and Improvement (MERI) plan. The MERI plan is available on Natural Resources Eyre Peninsula's website http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave	No change required
5	Page 13, 1.3.3 "These declines are commonly observed in systems where no extraction from wells is occurring" - disagree with the inference that there is no connection between the lenses owing to the following statements: "There is evidence through chemistry that the southern and northern basins within the Southern Basins PWA are connected due to dolomite being present in the Uley Wanilla, below the Uley Wanilla formation. Magnesium traces have been picked up in town water supply bores which suggests that there is water coming through the tertiary sand aquifer from the northern basins: Uley Wanilla, and Uley East" Report to Natural Resources Committee May 2013. In the technical report: Science support for the Musgrave and Southern Basins Prescribed Wells Areas Water Allocation Plan 2012/15 it states: "Significant discharge from quaternary limestone aquifer occurs towards the southern boundaries of Uley East and Uley Wanilla lenses to the underlying Tertiary sands (Evans et al 2209b)" and "Within the Uley South Basin, groundwater levels suggest there is potential for upward	An additional section has been included in the WAP to discuss the influences of rainfall and extraction on water levels for several lenses of the Southern Basins and Musgrave Prescribed Wells Areas. This section does not however discuss the role of connectivity on water levels as there is limited information available. It is however worthwhile to note that the investigation by Zulfic et al. 2007 - Uley Basin Groundwater Modelling Project Volume 2: Groundwater Flow Model (DWLBC Report 2007/04), which investigated the hydraulic connection between Uley South and adjacent lenses through the Tertiary sands aquifer. The investigation included estimated flowrates into and out of the Tertiary sands aquifer; along with estimated drawdown impacts to Uley East and Uley Wanilla as a result of extraction from Uley South. This investigation did however acknowledge data and information gaps in regards to inter-aquifer leakage.	Included information on the impact of extraction on water levels in Section 1.5

	leakage from the underlying tertiary sands aquifer into the quaternary limestone aquifer" (Harrington et al 2006). In other words, water in Uley East is discharging down to the tertiary sands (where the clay aquitard is absent) and then upward leakage occurs, water flows up (where the clay aquitard is absent) to the quaternary limestone of Uley South, so wouldn't extractions from Uley South be contributing to the decline in water in Uley East?		
5	Which statement is correct? Page 14 states: Historical rainfall data indicates above and below average trends may persist for up to 25 years" yet in the Technical Report it states "furthermore, Evans et al (2009) indicates that above or below average rainfall trends have historically lasted up to 10 years"	It is unsure which report you cite as the Monitoring review: Conceptualisation and status reporting- Musgrave PWA status report 2009 by the Evans et al. 2009, states above or below average rainfall trends can last up to 25 years.	No change required

5	Page 25, 2.2.1.2 Recharge rate - the proposed level of extraction of around 5720 ML/Yr is 792ML more than the metered usage for 2013/14 and higher than metered usages for 2012/13, 2011/12 and 2010/11 - Why is there an increase in level of extraction? In the WAP the proposed 5720ML/YR level of extraction is achieved by taking 30% off of the recharge to go to the environment (leaving it with just 30%) and giving it to consumption 70% (Refer to page 69 Table 14)	A risk assessment process was undertaken to determine the share to be allocated between the environment and consumptive use. This process identified consumptive pools that had a greater risk to the environment or consumptive use. If a greater risk was identified for the environment, the 60:40 allocation rule was retained. Whereas if a greater risk was identified for maintaining a water supply (e.g. Uley South's role as a public water supply), a higher portion was allocated to consumptive use (e.g. 30:70). A copy of the report used to inform this risk assessment is available at http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave Following consultation on the draft WAP, DEWNR commissioned modelling to evaluate the risk assessment and associated allocation between the environment and consumptive use for Uley South. The modelling resulted in the allocation for the environment increasing from 30% to 48.5% for Uley South. The maximum volume available for public water supply in Uley South is 7,250 ML per year. This volume is less than the previous WAP which was 8,000 ML per year. It is worthwhile to note that extraction from this consumptive pool has averaged approximately 5,000 ML per year over the last five years due to declining demand.	Amended the shares to be allocated between the environment and consumptive use.
5	Page 31 - 2.3 Creation of additional consumptive pools - is this a set up to accommodate Lincoln Minerals water access entitlement?	The new WAP allows any person or organization to create a new consumptive pool if they prove to the satisfaction of the Minister that there is an additional groundwater resource within a prescribed wells area. It is recommended that you read principles 5 to 7 on page 105 for the conditions that apply to create a new consumptive pool.	No change required.

5	Page 30 2.2.3.2 Basement Management area - SKM Scoping Study states '90% and 50% of recharge to the tertiary and basement aquifers is provided to maintain aquifer pressures and meet needs of GDEs" There is a Water access entitlement for mining hanging over this aquifer, and the WAP states that there is a nominal amount available to meet future Ministers authorisations. Is the amount for future mining and how will this affect the aquifer pressures?	SKM's scoping study did recommend that 90% and 50% of recharged be reserved for Tertiary sand aquifer and basement aquifer. However there is limited information on what the recharge rates are for these aquifers, which subsequently makes it difficult to determine recharge amount. The limited information on the recharge rates for the Tertiary sand aquifer and basement aquifer has required the WAP not to specify recharge rates. The nominal amount for the Minister's authorizations are reserved for firefighting and road making purposes only. The nominal amount is five Megalitres per year from the Tertiary sand aquifer and the basement aquifer. The maximum volume available for licensed demand for the basement aquifer in Southern Basins PWA is 455 ML per year. There is no licensed demand from the Tertiary sand aquifer. It is worthwhile to note that the issuing of a water license for the basement aquifer was a result of an appeal by the involved company at the Environment, Resources and Development Court. Water levels will be monitored as a part of the MERI plan. There are observation well each for the Tertiary sand aquifer and basement aquifer, which are located adjacent to the Uley East consumptive pool and the involved company's mineral exploration area.	No change required.

5	Page 30 2.2.3 Quaternary Lincoln North Management area - "licensee have had difficulties accessing the water resource due to water level declines" and "it is thought that these water level declines are driven by significant period of below average rainfall and diminished recharge". Could the diminished recharge also be the result of the dams put on the head waters of Greenpatch creek in 1990? It has been observed for some time that water does not flow down Greenpatch creek until 275mm (11 inches) of rain has fallen. Has 275mm/yr (11 inches) been taken off the recharge calculation for the Lincoln Basin? Wouldn't expanding the boundaries of the PWA help solve this problem? The Uley Basin receives recharge not only from the rainfall directly over the basin, but also from outside the PWA Boundary via run off from uplands to the north. Shouldn't the prescribed wells area include this catchment?	It is possible that there has been a decline in recharge to the Lincoln North management area due to dam development within the Little Swamp catchment. The Impact of farm dams on streamflow in the Big Swamp and Little Swamp catchments report (DWLBC Report 2009/26) found dams to have a low-to-moderate impact on stream flow. The report did however note data limitations to validate groundwater and surface water interactions. Data limitations include no monitoring data in Lincoln North management area to confirm recharge rates. To rectify the situation, the Department of Environment, Water and Natural Resources installed seven monitoring wells in 2016, which will now enable groundwater levels to be monitored regularly and assist determine recharge rates. This forthcoming data will be useful for any future investigation to ascertain the potential impacts of dams on recharge processes, versus the impacts of low annual rainfall on groundwater recharge. Expanding the boundaries of the prescribed wells area to include upper catchments would not have any influence on managing recharge, as a PWA and the associated WAP can only manage water take from a prescribed well. The Eyre Peninsula NRM Board does however have a Water Affecting Activity policy to manage dam development. This policy has been in place since 2006 and applies for all new dams in the Little Swamp and Big Swamp catchments. It is worthwhile to note that this policy cannot be applied retrospectively.	Text included to explain any likely impact on recharge to Lincoln North due to dams (section 2.2.3.3).
5	Page 35, 3.3.1 Wetlands - its states "those wetlands that depend on catchment water and are thought to be disconnected from the quaternary aquifer, such as Big Swamp and Little Swamp (SKM 2009), were not considered to be GDEs and thus are not considered to be current environmental values for the purpose of this plan." I strongly disagree with not giving Big Swamp and Little Swamp environmental values in the current WAP. On the grounds that: "There are several inland wetland areas on the EP that are listed in the Directory of Important Wetlands for SA. These include Big Swamp, Little Swamp, Sleaford Mere, Lake Newland and Lake Hamilton" - Wetland Inventory EP (Seaman 2002). (*Please refer to letter for other references in regard to Big Swamp, as well as other GDEs that the readers feels*	Several studies have indicated that Big Swamp and Little Swamp are endpoint drainage systems (Harrington et al. 2006; Alcorn 2009; SKM 2010), consequently the wetlands are not considered to be groundwater dependent ecosystems. These wetlands are however important habitats, as such environmental protection zones have been applied to Big Swamp and Little Swamp (see figure 34 on page 77 of WAP). These environmental protection zones protect groundwater resources from authorized take from prescribed wells.	Environmental Protection zones included around Big Swamp and Little Swamp

	has been excluded including collapsed sinkholes, tussock grasslands and facultative phretophytes)		
5	Page 67, 5.1.13 the risk matrix - "Management areas with high accessibility risk and low environmental risk requires a high proportion allocated to users (consumptive demand) to mitigate risks" I understand this to mean that the social and economic risk of not providing enough water overrides the risk to the basins of over extraction. I do not agree with the allocation of Uley South recharge as 30% for environment and 70% for consumptive demand. Since 2004 Uley South lens alone is being required to supply bigger and bigger volumes of the allocated water. In this WAP it has reached around 95%. In 2007 Uley South provided around 70% of the reticulated water *(reference cited in response).* In 2010/11 Uley South provided on average 85% of reticulated water *(reference cited in response).* From 2015 onwards Uley South will provide 95% of the reticulated water *(WAP page 71, 5.1.2.2)*. This emphasises the risk to Uley South - The risk matrix should be at least 50% consumptive and 50% environment. Otherwise the risk of not being able to provide water for critical human needs and or the risk to the resource - turning saline, is simply put off for another year until the annual review. *(further reference included in the response).* Why has the sustainable 60% environment and 40% consumption of the previous WAP been altered to 30% environment and 70% consumption in this WAP?	A risk assessment process was undertaken to determine the share to be allocated between the environment and consumptive use. This process identified consumptive pools that had a greater risk to the environment or consumptive use. If a greater risk was identified for the environment, the 60:40 allocation rule was retained. Whereas if a greater risk was identified for maintaining a water supply (e.g. Uley South's role as a public water supply), a higher portion was allocated to consumptive use (e.g. 30:70). A copy of the report used to inform this risk assessment is available at http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave Following consultation on the draft WAP, DEWNR commissioned modelling to evaluate the risk assessment and associated allocation between the environment and consumptive use for Uley South. The modelling resulted in the allocation for the environment increasing from 30% to 48.5% for Uley South.	Amended the shares to be allocated between the environment and consumptive use.

5	Page 79 - 5.4.4 Mining industry - "Demand for water from mining sector in Eyre Peninsula is expected to increase in the future, and mining operations can require significant volumes of water" - 5.4.1 Public Water Supply - " Mining may also source some of their water needs for production purposes from Public Water Supply" "Lincoln Minerals Limited proposed to extract up to 20GL of water each year for dewatering." "There is considerable uncertainty about the impact of such extractions for dewatering on salinity and storage, although it was agreed that some impact was likely" SKM A risk based approach to determining consumptive and aquifer maintenance pools, March 2014. This should be rated as a huge risk to the environment.	Managing potential risks associated with future mining and their access to water will be guided by the Water for Good policy. Specifically it will be guided by Action 48 which states that "Mining ventures to provide their own water supplies within the sustainable framework of natural resources management planning, and regional water demand and supply plans." For further information see: http://www.minerals.statedevelopment.sa.gov.au/__data/assets/pdf_file/0009/251937/Water_for_mining_inSA.pdf Where mining occurs within a Prescribed Wells Area and groundwater is extracted for processing or dewatering, a license will be required to extract groundwater, and the license will be assessed against the principles of the WAP.	No change required.
5	In 2015, in this WAP, 95% of total extractions are expected to come from Uley South and that basin can only provide the allocated 5720ML/Yr if it gets the bigger share of the annual recharge i.e. 70% consumption and 30% environment. Given the fragile natures of the quaternary limestone aquifer, and that seawater intrusion could occur abruptly, and that the recharge allocation has been reversed from 60% environment and 40% consumption in the last WAP, to 30% environment and 70% consumption in this WAP, perhaps the mid storage level trigger should become the lower storage level trigger already. Perhaps the following statement should be triggered - "if demand and supply projections indicate a gap is likely to exist within 5 years or less, the Minister will establish an independent planning process to consider management or supply options"	As discussed above, the percentages for consumptive use and environment for Uley South were amended from 70% : 30% to 51.5% : 48.15%, as a result of community consultation and modelling. No change was however made to the suggested mid or lower trigger levels. The trigger level graphs now include 2015 storage levels. For the Uley South consumptive pool the 2015 storage level is 93%, while the upper trigger level is 90%. Should storage levels fall below the 90%, allocations will be reduced in accordance with Table 22 of the WAP (see page 99). It is worthwhile to note that storage levels and associated allocations will be based on April's monitoring reading. The seawater interface is to be monitored for the Uley South consumptive pool as per the MERI Plan. The independent planning process is directly connected to the Eyre Peninsula Demand and Supply Statement. Monitored storage levels and associated allocations will inform the statement's water supply projections. The statement will continue to be updated annually to ensure region's water security is closely monitored and communicated.	Amended the percentage shares for the environment and consumptive use for Uley South consumptive pool.
6	The draft WAP was presented in two separate documents, the draft WAP and the MERI Plan. These need to be incorporated into one document that can be read as a continuous, comprehensive and integrated plan.	The Monitoring, Evaluation, Reporting and Improvement plan has been completed. A Guide to the WAP has also been developed. Both are available on the NREP website.	MERI will remain a standalone document with a summary outlined in the monitoring chapter of the WAP. A Guide to the WAP has also been developed.

6	The completed single document must be worked so as to be readable and comprehended by most people without extra explanations being necessary. Alternatively, a separate new document produced of shorter length be produced that can be read by all, with specific references to the various section of the reworked, larger single WAP.	Natural Resources Eyre Peninsula have created a Guide to the WAP which will assist the community in understanding the information and policies outlined in the WAP.	Guide to the WAP has been developed and is available on the NREP website.
6	The reworked single WAP must include specific reference to the NWI acknowledging that the WAP (I) intends to 'Complete the return of all currently over allocated or overused systems to environmentally sustainable levels of extraction" (page 4) (ii) recognizes the "connectivity between surface and groundwater resources and connected systems managed as a single resource" (page 4) (iii) requires that water is to be made available for environmental needs within relevant water plans, and such is "to be given statutory recognition for consumptive use and be fully accounted for" (page 7) and (iv) any impact on water availability resulting from climate change will be carried by the licensees (page 8, section 48).	The objectives of the National Water Initiative are addressed throughout the document even though it is not explicitly stated in the text the objective and how it was met. Text has been included to reflect the parts of the WAP that meet the objectives of the NWI.	Additional text included in WAP.
6	The text for re reworked WAP needs to acknowledge the NRM Act by referring consistently to "ecological sustainability" and not just 'Sustainability." The term sustainability already has too many definitions attached to it and in this context it is proper to refer to ecological sustainability.	The Objects (Chapter. 2, Section 7) of the NRM Act refers to 'ecologically sustainable development' which is defined as "the use, conservation, development and enhancement of natural resources in a way, and at a rate, that will enable people and communities to provide for their economic, social and physical wellbeing while - (a) sustaining the potential of natural resources to meet the reasonably foreseeable needs of future generations; and (b) safeguarding the life-supporting capacities of natural resources; and (c) avoiding, remedying or mitigating any adverse effects of activities on natural resources." Sections of the WAP have been amended to reflect the term ecologically sustainable development.	WAP reworded, where applicable, to ecologically sustainable development.
6	The new WAP needs to acknowledge that it needs to comply with the Native Vegetation Act which requires water extraction activities not to interfere with native vegetation.	Advice has been sought from the Native Vegetation Unit and no changes required.	No changes required.
6	If the re-worked WAP is to have any community credibility, it will need to acknowledge that Polda Basin has been, or will shortly be, taken off line and no longer available for the reticulated supply system.	SA Water have surrendered their licences which exist within the new Polda Consumptive Pool (in addition to their licence for Kappawanta - Sheringa Consumptive Pool). Polda Consumptive Pool is reserved for non-public water supply purposes only.	Polda Consumptive Pool is reserved for non-public water supply purposes only.

6	The reworked WAP should contain an “Introduction the WAP" that places it in context, especially the period from 2000 to present, during which the present WAP has been operating. This should refer to changes in basin levels and the change in conditions of various GDEs.	The WAP does not provide great detail on historic trends in water levels and extractions as this information is available in other documents. However, in order to provide a complete picture for people new to the water resources of EP, a more comprehensive introduction which discusses the history of the basins (e.g. when new basins came on line, historic use, historic water levels, historic rainfall trends etc.) has been included	Introduction includes further historic information on the basins
6	In the section dealing with GDEs, there needs to be a diagram with native vegetation growing on a relatively flat surface accompanied by three different water levels: one just above the surface showing the vegetation in a 'swamp' situation; the second level below the surface but still within reach of the roots of the native vegetation; and the third level below the reach of the roots. This should be used to explain the actual and possible effects of over-extraction on these types of GDEs.	A new diagram has been created in section 4.2.3 discussing buffers (environmental protection zones) around GDEs.	Model included in section 4.2.3 to show how buffers and consumptive limits will protect GDEs
6	Various parts of the present draft WAP need to be expanded to explain what they mean including (a) the designation of the consumptive pools in to fresh and brackish and how that was done (b) the location of the trigger points in relation to the 1993 (sustainable) reference level, the present water storage level, and the historic water level i.e. the best estimate of the water level at the time extraction for the public supply commence; (c) what the 129cm recharge for Uley South means in terms of changes in water levels, and how this level was selected compared with the recharge rates that vary over the whole of Uley South basin from 47-129mm/yr.	(a) This is described in point 22 on page 24 of Stewart et al (2012). The brackish area in many cases is an area of unknown salinity due to limited monitoring. It is not necessarily brackish but a conservative approach was taken in line with the precautionary principle. (b) Graphs have been created to indicate trigger levels which include the current level of storage and the level of storage that would have been observed in 1973. (c) The recharge rate (and the associated calculation of resource capacity) for the Uley South PWS consumptive pool has been based on peer-reviewed science that has been published in an international scientific journal (Ordens et al. 2012). The estimated recharge rate for the Uley South consumptive pool is 129 mm/y and the rationale for using this estimate is discussed on page 22 in Stewart (2013).	Text included around lenses and brackish area to describe that in many cases outside of the lens salinity is unknown and has been declared brackish in line with the precautionary principle. New figures included with 1973 and 2015 levels of storage in place of Figures 29 - 36. Stewart (2013) has been referred to in section 2.2.1.2.
6	The section dealing with the proposed change of the environment/consumptive ratio from its present 60/40 level to 30/70 be deleted. Until there is scientific information to the contrary the ratio to remain at 60/40 for the Uley South basin.	A risk-assessment based process was used to determine the share of groundwater to be set aside for the environment, as outlined in the Risk Management Policy and Guidelines for Water Allocation Plans (DEWNR 2012) below. Following consultation on the draft WAP, DEWNR commissioned further modelling of the Uley South groundwater system to evaluate the likely impact of different rates of groundwater extraction on water levels. The proportion of groundwater set aside for the environment was increased from 30% to 48.5% as a result of this latest modelling. https://www.waterconnect.sa.gov.au/Content/Publications/DEWNR/Risk%20	WAP updated with modelling results.

		Management%20Policy%20and%20Guidelines%20for%20Water%20Allocation%20Plans.pdf	
6	A pipeline was recently constructed from Coffin Bay to Uley Wanilla basin costing approx. $4million. Its purpose, how any water taken to Coffin Bay will impact on potable supply and constraints imposed on its use, all need to be presented.	Once water is removed from the aquifer under a licence and allocation, the licensee responsible for determining how that water is to be used (as long as it is in line with what is specified on the licence). Therefore this recommended change is out of scope of the WAP. Any questions about SA Water infrastructure and future planning should be referred to SA Water.	No change to be made.
6	Details as to how the groundwater dependent ecosystems (GDEs) will be selected and monitored to be included, along with identifying who will be responsible for it being done.	This content is included in the MERI Plan	Included in MERI plan.
6	At some point or two graphs showing the relation between effective rainfall and changes in storage water level in a sample bores (or a basin), especially in the period 2000-2014, need to be included in the reworked WAP.	The relationship between the pluviometer and nested piezometer data in both Polda and Uley South has been included in Section 1.3.3.1 of the WAP. These data are limited to the period over which the loggers have been working and will not show significant long term trends.	Figures for Polda and Uley South included in section 1.3.3.1 correlating the rainfall and water level response.
6	The new WAP will need to contain details as to all the minimum number of bores that will be monitored during its life along with their listing, location on a map, frequency of monitoring and data to be collected. It will be necessary for the selected bores to cover the whole of the basins, including those that held water in the past for it to be regarded as being appropriately comprehensive. Responsibility for this being done will need to identified in the WAP.	Details of monitoring included in MERI Plan	Details of monitoring wells have been included in Appendix 2 of the MERI plan

6	The present Draft WAP contains references to mining. A separate section should be written discussing present controls on mining, how much potable water has been made available for mining exploration, details as to where the water is coming from for the graphite mine near Sleaford, and some indication of the limits that should be placed on mining in a PWA.	Water for Good Action 48 states that "Mining ventures to provide their own water supplies within the sustainable framework of natural resources management planning, and regional water demand and supply plans." Where mining occurs within a Prescribed Wells Area and groundwater is extracted for processing or dewatering, a license to extract groundwater in line with the principles of the WAP is required, unless authorised separately or specifically exempted. For further information see: http://www.minerals.statedevelopment.sa.gov.au/__data/assets/pdf_file/0009/251937/Water_for_mining_inSA.pdf	No changes required.
7	Continuous monitoring of representative bores across the lenses is of utmost importance and must be carried out regularly for both quantity and quality because this is essentially what underpins the entire plan. In relation to the MERI plan we think it is just as valid being in conjunction with the WAP as being a part of the WAP and our current understanding is that it is a very comprehensive and well thought out document.	Agree and an updated Monitoring, Evaluation, Reporting and Improvement (MERI) plan has been completed to guide continuous monitoring for the WAP. A copy of the MERI plan is available on the website http://www.naturalresources.sa.gov.au/eyrepeninsula	Taken as a comment. No changes required
7	MERI Plan - pages 39-40 GDE Monitoring site selection - Musgrave (a) Bellevue red gum woodland/mount wedges - this needs to be included. (b) Bramfield - as the closest red gum/melaleuca assemblage to SA Waters Elliston township water supply bores, the gums located on the properties of F Slater and D Potter should also be monitored. SA Water foot valves are essentially in the deepest part of the Bramfield lens which means it can continue to draw before any noticeable effect is seen directly at its pump site. Upstream however could be a very different matter.	Thank you for the suggestion for red gum monitoring sites, and they have been included as a groundwater dependent ecosystem in the updated MERI plan.	No change made to WAP, yet the MERI Plan has been updated to include red gum monitoring at Bellevue and Bramfield.
7	Bulldozing vegetation from recharge areas - this is a retrograde and appalling idea. Whilst it is clear vegetation and age assemblages of vegetation undoubtedly affect both groundwater and surface water quantities and qualities such an idea is a sledgehammer solution and is to be deplored. Instead notice should be taken of the first Australians land management practices and possible adopt a regime of patchwork burning to create a similar park like effect to portions of the landscape of the Southern Basins. This would	The process of bulldozing vegetation to enhance recharge is not a recommended practice and the WAP does not propose such things. Patchwork burning is beyond the scope of the WAP.	Taken as a comment. No changes required

	necessitate much more science and study but is a considerably more subtle and a far more natural process which could accommodate both wildlife habitat and potentially more infiltration of rainfall - especially under any adverse climate influences.		
8	As we go to the end of June, we face the situation that Winter is here and that there are as yet no creeks running on EP. What does this mean? And where are we heading as far as the supply of water is concerned on EP? Look at the amazing situation as presented by the following summary (1) Tod Reservoir - closed off; (2) Robinson Basin - closed off; (3) Polda Basin - closed off; (4) Uley Wanilla - extremely low; (5) Uley South - down to 4,500ML from 7,500ML; and (6) Lincoln Basin - closed. Even though we can say that everything is under control, we also have a severe situation of other smaller aquifers closed or closing down.	The WAP now provides greater historical context of water supply on the Eyre Peninsula, including previous use of the basins and their cessation. This history has required the new WAP to design tighter controls for the management of prescribed wells areas, and the addition of the trigger level approach is of particular importance. This approach enables water allocations to be adjusted annually based on monitored water levels. This approach will provide a greater level of control for sustainable extraction from the Southern Basins and Musgrave PWA. It is worthwhile to note that the available water for public water supply purposes from Uley South is 7,266 ML. SA Water in recent year has not require their full water allocation due to reduced demand from the region.	Introduction amended to include greater historical context.

8	Recharge to me is the most important factor in water catchment management on EP. But on top of that - monitoring of the basins is the major factor that we have to face. To me, the WAP has failed to address this situation. The WAP must indicate either directly on how much money is to be spent each year, or indirectly on where it is to be spent and how frequently.	Ongoing monitoring will be fundamental to the implementation of the WAP, as future allocations rely on the monitoring data. An updated Monitoring, Evaluation, Reporting and Improvement (MERI) plan has been completed to guide this, which is available on Natural Resources Eyre Peninsula's website at http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave Details on expenditure on monitoring activities will not be disclosed, nevertheless there is strong commitment to undertake. Updated recharge rates have been used to calculate the resource capacity for each consumptive pool. Details on how these recharge rates are calculated are shown in Appendix 1 of the Supporting Documentation for the Amendment of the Water Allocation Plan for the Southern Basins and Musgrave PWAs (Stewart 2015). See link for document http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave It is worthwhile to note that recharge rates will no longer be used to calculate allocations under the new WAP. Instead, allocations will be based on changes to storage levels in each consumptive pool. Storage levels will be monitored every quarter, and April's monitoring activities will be used to determine the storage level and associated allocation for the year. Monitoring recharge cannot be measured directly, however rainfall intensity will now be measured to improve the understanding of rainfall and recharge relationships. Further details of this are provided in the MERI plan.	Taken as a comment, no changes required
8	Polda Basin should never have been so over-extracted that it had to be closed down. The fact that it did was because of bad management. Why did this happen? When one considers the electronic devices available to those pumping water, all I can say is they were either asleep or very lax.	It is agreed that the past management of the Polda Basin is less than ideal. It has required a series of actions to address the situation, and the notice of prohibition on extraction highlights the seriousness of late interventions. The new WAP has included triggers for adjusting allocations, which are based on the storage levels which will be monitored annually. This approach is to avoid any repeat of the Polda Basin.	Taken as a comment, no changes required
8	To me personally this WAP is the most important water management tool for EP that has ever been produced.	Agree, and the WAP's implementation is critical for the region.	Taken as a comment, no changes required

9	Question 1 - Are you prepared to add this section "*stock and domestic requirements and for commitments of any commercial, industrial, recreation and environmental users - established at the time of the proclamation*" in to the Draft WAP section 1.1.2?	The existing statement in section 1.1.2 is correct, as the proclamation of the Musgrave and Southern Basins Prescribed Wells Areas was undertaken to conserve water resources for stock and domestic use, existing irrigation, and existing and future public water supply. Once the area was proclaimed all wells became prescribed and licenses were required for many purposes including irrigation, public water supply and others. Licenses were not required for stock and domestic use or environmental water. This does not imply that water for stock and domestic or environmental purposes is less important or given a lower priority. It is worthwhile to note that environmental water is accounted for first, then stock and domestic, and then remaining water is allocated to licensed water users.	No change made.
9	Question 2 - Can you please provide the evidence that the quaternary is up to a million years old, the tertiary is 30-40 million old, the Jurassic 150-200 million years old and the Proterozoic up to 2,000 million years old as stated in Section 1.3.1 of the draft WAP?	The standard convention of geological science has been followed using the Geology of South Australia Bulletin 54 reference books produced by Drexel and Priess in 1995. Multiple methods are used to estimate the age of geological formations and these typically include specialised studies such as: geochronology (e.g. radiometric dating; luminescence dating), sedimentology, stratigraphy, igneous and metamorphic petrology, structural geology, tectonics, seismology, geophysics, palaeontology and palaeoecology.	No change required.
9	Question 3 - Do the Government Agencies and the Minister intend to uphold God's law (God sets the rules for mankind) as required the Minister Oath or promote the lie of evolution?	Your spiritual beliefs are acknowledged, however your question is beyond the scope of the WAP.	No change required.
9	Question 4 - If only about 10% of rainfall reaches the aquifer and gives an average annual recharge of about 57.4mm, why is the current recharge 155mm, nearly 3 times as much?	The recharge rate for the Uley South Public Water Supply consumptive pool has been based on peer-reviewed science (Ordens *et al*. 2011). The estimated recharge rate for the Uley South consumptive pool is 129 mm per year, and the rationale for this estimate is discussed in the *Additional Science Support for the Eyre Peninsula Water Allocation Plan* (Stewart 2013) – see pages 21 and 22.	No change required.

9	Question 5 - When will we be provided with a copy of the Polda Red Gums report by Jason Vanlaarhoven?	No report has been written, however a rapid assessment of tree health at Polda was undertaken in July 2011 by Kerri Muller as a training exercise for regional staff. The results of this assessment are attached. It is worthwhile to note that the assessment was only a preliminary snapshot, and further investigation is required. Monitoring of some red gum communities' health is occuring as a part of the implementation of the Monitoring, Evaluation, Reporting and Improvement (MERI) Plan. Sites for red gum monitoring include Bellevue, Bramfield and Polda for the Musgrave Prescribed Wells Area. The MERI plan is available on Natural Resources Eyre Peninsula's website at http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave	No change required, yet results of rapid tree health assessment provided as an attachment to this letter.
9	Question 6 - Can the EPNRM find out how close native title is coming to fruition and reconsider including it?	Native Title matters are outside the scope of the WAP. However you can search for the latest information on the National Native Title Tribunal website at http://www.nntt.gov.au/searchRegApps/NativeTitleClaims/Pages/default.aspx. Claimant groups in your area include Nauo and Wirangu 2.	No change required.
9	Question 7 - Does the government agencies intend to establish clear pathways to return all systems on the Eyre Peninsula to environmentally sustainable levels as required in clause 5 of the NWI?	The new WAP includes a trigger level approach that enables water allocations to be adjusted annually based on monitored water levels. The trigger level approach includes three levels of triggers, which allows extraction to be reduced or cease if storage levels fall below defined storage levels (please refer to Section 6.1 of the WAP for greater details). This approach will allow extractions to be environmentally sustainable for the Southern Basins and Musgrave Prescribed Wells Areas.	No change required.
9	Question 8 - Does the EPNRM intend to include precisely, with all workings, calculations on how the annual and recent recharge rates are worked out in Plain English because very few people if any can work out where these figures come from?	Recharge rates for all consumptive pools except Uley South are calculated by the Water Table fluctuation method. Details on how these recharge rates are calculated are shown in Appendix 1 of the Supporting Documentation for the Amendment of the Water Allocation Plan for the Southern Basins and Musgrave PWAs (Stewart 2015). See link for document http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave The recharge rate for the Uley South Public Water Supply consumptive pool has been based on peer-reviewed science (Ordens et al. 2011). The rationale for this estimate is discussed in the Additional Science Support for the Eyre Peninsula Water Allocation Plan (Stewart 2013) – see pages 21 and 22.	No change required.

9	Question 9 - We recently read that only 7 bores are used in Uley South for hydrograph method and one is identified in the Tertiary Layer and there was a recommendation to spread it over the entire basin. Can you identify these 7 bores (or bores used for the hydrograph method) and provide the Bore numbers?	It is important to note that the Hydrograph method has how been superseded. The new WAP calculates recharge rates (expect Uley South) by the Water Table Fluctuation method. Bores to be used to determine recharge rates are detailed in Appendix 1 and 2 of the *Supporting Documentation for the Amendment of the Water Allocation Plan for the Southern Basins and Musgrave PWAs (Stewart 2015).*	No change required.
9	Question 10 - Can you please provide all the calculations and figures that were used to work out the 'average annual recharge rate" since the start of the WAP? (theoretically they should be at your fingertips)	Previous calculations for average annual recharge rate will not be provided as this request is beyond the scope of the statutory consultation of the draft WAP. Details of the new methodology to calculate recharge are however available in *Supporting Documentation for the Amendment of the Water Allocation Plan for the Southern Basins and Musgrave PWAs (Stewart 2015)*.	No change required.
10	Robinson basin and the Penong water sources were previously prescribed resources, but neither are mentioned. Why?	Although these resources have been used for public water supply purposes, they were never prescribed under the Natural Resources Management Act 2004 or preceding legislations. Therefore, they are not mentioned in the WAP as they are not prescribed resources and do not fall within the scope of the WAP.	No change required.
10	Uley South basin should have the same environmental percentage as all other basins; i.e., 60% Environment, 40% other users.	A risk assessment process was undertaken to determine the share to be allocated between the environment and consumptive use. This process identified consumptive pools that had a greater risk to the environment or consumptive use. If a greater risk was identified for the environment, the 60:40 allocation rule was retained. Whereas if a greater risk was identified for maintaining a water supply (e.g. Uley South's role as a public water supply), a higher portion was allocated to consumptive use (e.g. 30:70). A copy of the report used to inform this risk assessment is available at http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave Following consultation on the draft WAP, DEWNR commissioned modelling to evaluate the risk assessment and associated allocation between the environment and consumptive use for Uley South. The modelling resulted in the allocation for the environment increasing from 30% to 48.5% for Uley South.	Amended the shares to be allocated between the environment and consumptive use for Uley South.
10	The national water initiative is not mentioned anywhere, why not?	Additional text has been included to reflect the National Water Initiative. However no specific text is included to explicitly state how the objectives of the NWI are met.	National Water Initiative has been referenced in the WAP

10	No mention of alternative water sources; e.g., desal, Tod reservoir, Warramboo mine desal water.	A Water Allocation Plan sets out the rules for managing the take and use of prescribed water resources only. It cannot regulate or advocate for the development of alternative water supplies. For further information on alternative water supplies please visit Natural Resources Eyre Peninsula's website at http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/managing-water-resources	No change required.
10	P 57; buffer zones, not well enough described, leaves such things as cones of depression open to interpretation.	The assumptions and description of the equations which determine these buffer distances is discussed in *Additional Science Support for the Eyre Peninsula Water Allocation Plan (*Stewart 2013). This document provides details about how the buffers were determined.	No change required.
10	Enforcement & compliance; no real indication of how it might be managed.	Enforcement and compliance matters are specified in the *Natural Resources Management Act 2004*. Conditions of authorizations will be outlined on a water license.	No change required.
10	There should be something called an "implementation plan", so as to show objectives will be met.	Thank you for your suggestion, and an implementation plan has been developed to guide implementation of the WAP. The Department of Environment, Water and Natural Resources in partnership with the Eyre Peninsula Natural Resources Management Board are responsible for the delivery of the implementation plan.	No change required.
10	P 36; too many "appears" on this page, and others! It either is, or isn't, but these terms are legal "outs", not scientifically based. Looks bad when those who should know "appear" not to! If you don't know, don't put it in. Also, Lake Hamilton is nearly 10m above sea level. Water won't run uphill.	The term 'appears' is commonly used in scientific writing when there is the lack of definitive evidence to support a claim. The reference to tidal channels enabling connection to the ocean comes from Semenuik and Semenuik (2007) which a community member said was based on surface water salinity measurements taken when in the field with the Semenuiks. This has not been verified and now appears to be in conflict with the landholder's view. A change has been made to the text regarding Hamilton Wetland Group to state 'Fresh surface water from the eastern and western limestone ridges discharges into the lake from multiple sources, predominately two large springs at the northern end. There are also saline springs on the western side of the lake that have salinities in the order of 2-3 times sea water concentration (Nosworthy pers. comm.).'	The reference to Semenuik now includes a statement from (Nosworthy pers. comm.) to show that there is some doubt about the origin of the surface water salinity

10	The 1970's were the highest recorded basin levels, what we considered "Normal". By 1993, levels were a great deal lower. It is simple to use the 1975 level as a baseline for a full, healthy system. Why 1993?	The WAP now compares 1993 water levels to earlier water levels, as 1973 levels have been added to the trigger storage level graphs. There are technical limitations with using 1975 data as past monitoring activities are not aligned with current monitoring. In addition, many of the older wells are no longer in operation, which makes it problematic to compare historic water levels to current water levels. Whereas, the monitoring data from 1993 aligns with current monitoring activities.	Include storage level for 1973 in trigger storage level graphs.
10	I haven't actually sighted the "MERI" plan, it appears to be still on the drawing board. How can a plan be accepted for use, when the act requires it to be hand in hand with the MERI? The Monitoring section (in the WAP) appears to be weak, and unclear as to its actions / intent.	Text regarding monitoring for the WAP has been improved, and an updated Monitoring, Evaluation, Reporting and Improvement plan has been completed. MERI plan is available on Natural Resources Eyre Peninsula's website at http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave	Monitoring text improved, and MERI plan updated.
11	1.1.1 - Objectives - additional wording proposed - "Allocate water for licensed consumptive purposes, including public water supply, ***agriculture, horticulture and mining,*** in a manner that allows for the long-term viability of the water resource"	Accepted suggestion	Amended objective 1 to include other uses of water in addition to public water supply.
11	1.1.2 - Para 1 - public water supply on EP now also includes water from River Murray.	The text refers to groundwater being the principal source for public water supply, yet acknowledges River Murray being used elsewhere on the Eyre Peninsula (but not within the prescribed wells areas).	No change required
11	1.2.1 - Figure 1 - add Port Lincoln airport weather station and Big Swamp, Coffin Bay rainfall stations (see Monitoring report).	Accepted suggestion	Other rainfall stations added to figures 1 and 2
11	1.3.1 - Table 1 - suggestion to add Early Proterozoic and Archean periods to table (information provided)	Accepted suggestion	Amended table 1 to reflect information provided

11	1.3.2.4. 1st line - spelling mistake - Should be Hutchison Group - not Hutchinson Group. Suggested wording - "The ***Hutchison*** Group comprises a basal quartzite sequence, which is overlain by carbonate, banded iron formation, *amphibolite and schist (all of which are subject to mineral exploration). The Hutchison Group has been metamorphosed to upper amphibolite to granulite facies and so is now comprised of crystalline rocks of mainly very low permeability. However, during the Tertiary weathering process, local solution cavities have formed near surface in some of the carbonate rocks (marble and calcsilicate gneiss). Schist, quartzite and quartz---feldspar---mica gneiss do not naturally form solution cavities. Rocks of the Lincoln Complex and Sleaford Complex consist of mainly very low permeability granite, granite gneiss and amphibolite." Although there is limited data, hydrochemical evidence indicates that Basement groundwater is generally older than 35 years (maybe older than 1 000 years), and salinities range between 500 and 8 000 mg/L. The basement is variably weathered to a low permeability saprolitic clay to a depth of up to 50m and is locally overlain by thin Tertiary ferricrete and gravel. Sparse watertable elevations within the Basement aquifer of the Southern Basins area indicate that groundwater movement is predominantly in a southerly to south-westerly direction."*	Some of the suggested text has been included, however some of it was omitted as it was too technical to include in the WAP. Reason for this is it needs to be accessible to a range of audiences including the general public.	Some amendments made to reflect information provided
11	1.3.3.4 Recharge to the basement aquifer is likely to occur in areas where basement rocks are exposed at or close to the ground surface <suggest add in **(e.g. In the hills around Greenpatch or north of Big Swamp)**	Accepted suggestion	Text amended to reflect information provided
11	2.1 The Management Areas should be scientifically/geologically defined (maybe including a 500m buffer) especially if they are to be used to restrict new well permits (e.g. In the public water supply areas). Questioning extent of MA's - large areas n-w of Uley South lens, east of Uley East A & B & btw Uley South &	Management areas have been based on cadastral boundaries and the saturated extent of the consumptive pool. Cadastral boundaries were chosen as the clearest way to administer permits such as well construction permits. The saturated extent of the consumptive pool represents the maximum known historical extent of the consumptive pool, which is likely to provide the extent of the consumptive pool over the lifetime of the WAP (e.g. next ten years).	No change made

	Lincoln South lens that are incorporated into the MAs yet Quaternary aquifer is unsaturated.		
11	Suggested new info on Basement Recharge - based on their studies 2.2.3 Basement aquifer recharge is likely to be by a combination of sources: - Infiltration of rainfall from areas of outcropping basement rocks mainly from the northeast moving downslope and southwest along strike within favourable bedrock rock units such as weathered marble and calcsilicate gneiss; - Infiltration of rainfall, albeit very slowly, by seepage through the Quaternary Limestone aquifer (whether it is saturated or unsaturated), Tertiary sediments (if and where present) and saprolite clay; or - Infiltration by seepage, albeit very slowly, through the saprolite and then southeast or northwest along fractures in the bedrock. The predominate fracture patterns recognised from detailed aeromagnetic interpretation are Now-SE oriented. Note even though fractures would extend to considerable depths within the basement, they are likely to be only open in the upper approximate 150m interval below ground level. Below that level, transmissivity of groundwater along fractures would be very low.	Thank you for the information, however the existing summary of recharge processes for the basement aquifer was retained.	No changes made
11	3.3.2 Red Gum Forests The stand of red gums immediately south of Big Swamp could be considered a baseflow GDE. While it is supported to a large extent by seasonal “overflow” from Big Swamp (i.e. surface water runoff not groundwater), that overflow goes into the Quaternary Limestone aquifer on which the red gums grow. In summer and dry sseaons where there is little or no “overflow” from Big	The red gums downstream of Big Swamp have been included as an environmental asset (e.g. groundwater dependent ecosystem), and an environmental protection zone has been assigned to protect them from authorized water take.	Big Swamp’s red gums have been included as an environmental asset,

	Swamp, the red gums may rely on water in the aquifer even though it is quite saline.		
11	4.2.2 Absence of Tertiary Clay Aquitard Fig 20 is not accurate & there is a lot of confusion between 'Tertiary Clay' aquitard and 'saprolite clay' developed on top of basement. Suggested new info based on their understanding It is our experience throughout the area immediately east of the Uley East A and B that there is an extensive thick layer of saprolitic clay developed on top of the basement (even through little or no clay is shown on Fig 20 in this areas!!). The saprolitic clay is commonly in the order of 2-30m thick but can be up to 60m thick and very often has a hard impermeable ferricrete "cap" about 1-2m thick developed on top of it. Together, these two units form a significant aquitard. They are not Tertiary clay sediments as found in the Wanilla Basin but rather comprise of regolith formed by in situ weathering and alteration of basement lithologies to an impermeable saprolitic clay. Laboratory permeability analysis of core indicates that saprolite permeability is in the range 10-09 m/s to 10-07 m/s.	Yes there is the presence of saprolitic clay to the east of Uley East A and B. This saprolitic clay was not included in the figure as it is not a Tertiary clay. It is worthwhile to note that Principles 33 and 34(d) allow for saprolitic clay to be considered as a confining layer. If a confining layer's presence is proven to the satisfaction of the Minister, water take may be allowed.	No change made
11	4.2.2 The WAP states the best available science (Stewart 2013), however the model is for the life of the WAP & not planned to be updated for 10 years. With ongoing drilling of more water wells, mineral drill holes etc., there is potential for this model to be updated regularly over the duration of the WAP. Can GIS layers be provided online?	Providing updated GIS layer or figure for absence of clay layer is not intended to occur throughout the life of the WAP. New drilling information may be provided by the proponent as evidence for the presence of a confining layer as per principles 33 and 34(d) of the WAP. The associated numerical model will not be updated throughout the life of the WAP, as it is will be used for storage comparisons between years. This comparison requires the model to retain the same input data for the aquifers and aquitard (e.g. thickness and base level) throughout the next ten years. Any change to the model would skew the results and this needs to be avoided.	No change required

11	5.1.1.1 Defining risk "Ground water is used widely across the PWAs of Eyre Peninsula and provides a critical source of water for drinking, stock, recreation, <suggest adding mining> and industrial use …"	Mining has been included in the text.	Mining included in text for section 5.1.1.1
11	5.3.2.1.4 Southern basins PWA licensed demand pg75 text suggestion Lincoln Minerals has been granted licenses to extract up to 435ML/a from the Basement aquifer in an area of unsaturated Quaternary Limestone aquifer in order to dewater a proposed iron ore mine. While that project has been stalled by a recession in the iron ore industry, a small previously licensed amount (up to 1 ML/a) has been extracted for mineral exploration purposes. Valence Industries has an operating graphite mine at Uley and it is likely that it will require groundwater for mineral processing in the immediate short term and a license for mine dewatering in the future. Though now inactive, there are existing Mining Leases near Coffin Bay for mine calcarenite from the Quaternary Limestone Formation.	Thank you for the suggestion, however this level of detail about specific licensees is not required for the WAP.	No change made
11	5.4.4 Mining Industry In addition to the demand for water in the mining industry for mineral processing, dust suppression etc., there is likely to be demand for licenses to extract groundwater to dewater potential mines. Re-injection of some or all of this water back into the aquifer system should be taken into consideration such that only the amount retained is classified a consumptive demand/use.	Injection of extracted groundwater for subsequent recovery and use is permissible (up to 100% of injected water may be recovered). However, this water needs to be recovered from the same aquifer from which it was injected.	No change required.
11	6.4 Water Access Entitlements Principle 15: clarified - E.g. water licenses for mining activities should be valid for the life of the exploration license, mineral claim, mining lease or retention lease & all subsequent renewals and/or replacement Els, MCs, MLs, RLs	Your comment is correct as the water license is valid for the duration of the mining or petroleum lease or license.	Refined wording for Principle 15 and 17.

11	7.1.2 Location of a Well Principle 29(c): Fig 20 is not accurate & is based on very limited & subjective info including poor geological logs. We would strongly dispute "clay absence" in certain areas - EG where it is based on one or two isolated drill holes without a complete geologist's log. Total drilling in the SBPWA prior to LML mineral exploration was some 1445 drill holes for approximately 38,000m. LML has drilled about 360 drill holes from 35,000m & can say that 100% of its holes intersected saprolitic clay of variable thickness - yet over much of the exploration drilling area, the model (fig 20) shows Tertiary clay absent. LML drill logs and data were provided to DEWNR for use. However, it seems that only a few is located older exploration drill holes from the 1980's were utilized to create Fig 20. The geological logs of those older holds recorded the hard chips or original pre-saprolitic lithology (i.e. the stratigraphic unit) so therefore the interpretation of those logs as clay absent was wrong. It emphasizes the importance of keeping complete records of drilling, not only stratigraphic units but also alteration and regolith, and the importance of keeping representative drill chips.	Correct saprolitic clay is present to the east of Uley East A and B. However this area of saprolitic clay was not included in Figure 20 as it is not Tertiary clay. DEWNR is appreciative of the drilling data and information provided by Lincoln Minerals Limited.	No changes made
11	7.1.4 Discharging Water into a Well Principle 39: Discharging water sourced from a different aquifer to the receiving aquifer should be able to be used as an offset against the prescribed allocation for the source aquifer (e.g. if 500 ML/a is extracted from the Basement aquifer but 300 ML/a is re-injected into the Quaternary Limestone aquifer, then that 300 ML/a should be allocable offset against the amount extracted from the Basement in the current water year not the following year(s)). We would also argue that the full amount of recharge should be allowable offset.	Recharge credits as a result of injecting water into an aquifer are not intended to be an offset scheme or “balance” out extracted water from injected water. Rather they are specifically intended to allow a proponent to recover the full amount of water injected into a particular aquifer. It is worthwhile to note that recharge credits can only be used for the consumptive pool for which they were granted. It is further worthwhile to note that recharging an aquifer by water from a different aquifer can only be undertaken if approved by the Minister. It is suggested that you read principle 40 for the conditions that apply for transferring water from one aquifer to another.	No change required.
11	8 Monitoring & Evaluation Intro - last paragraph - include dot points to cover Tertiary & Basement aquifers, salinity mapping and open depths of wells.	The terms of “measuring and assessing hydrogeological” infers to Quaternary, Tertiary and basement aquifers in the prescribed wells areas. There are several sites within the Southern Basins PWAs that will be monitored for water level and salinity.	No change required.

11	2.2 Monitoring Strategy (from MERI plan) Dot points 2 & 4 are NOT monitoring questions - they are outcomes based on monitoring results	Agree, and the Monitoring, Evaluation, Reporting and Improvement (MERI) plan has been amended to reflect comments.	Chapter 8 of the WAP modified, along with the MERI plan.
11	2.3 Monitoring activities This should also include establishing more & maintaining existing monitoring wells to give a broader geographic spread (ref Fig 4) & to include not only Quaternary aquifer but also Tertiary & Basement aquifers. First dot point 6 is not monitoring but an outcome. Need for groundwater level AND salinity monitoring for same network of wells.	Establishing additional monitoring wells to cover a greater geographical area, along with monitoring wells for the Tertiary and basement aquifers would be ideal. However financial constraints prevent this occurring, nevertheless the monitoring network for Southern Basins PWA is fit for purpose, and will provide sufficient data to support the implementation of the WAP and associated MERI plan. Agree with you comment regarding dot point six, and the MERI plan has been amended Seventy percent of monitoring wells in the Southern Basins PWA's monitoring network will monitor water level and salinity. The updated MERI plan is available on the Board's website http://www.naturalresources.sa.gov.au/eyrepeninsula/home	No change required to the WAP, yet the MERI plan has been amended.
11	3.3 Salinity Monitoring Should be more frequent than every 2 years - surely it relatively easy to gets salinity measurements at the same time as water levels are measured.	Salinity is to be measured annually, and will occur in conjunction with water level monitoring.	No change required to the WAP, yet the MERI plan has been amended.
11	3.4 Groundwater Extraction Licensed uses also include mining. We believe landowner surveys should be conducted regularly to more accurately determine stock numbers and water use. This would also form an additional dot point in Section 5.	Agreed, licensed use includes mining and the MERI plan has been amended. Stock and domestic use is not managed under the WAP, therefore we are unable to justify monitoring stock numbers via landholder surveys.	No change required to the WAP, yet the MERI plan has been amended.
11	6. Data Gaps Recommend install of more monitoring wells to give broader geographic spread across the whole SBPWA & including Tertiary/Basement aquifer wells.	Establishing additional monitoring wells to address data gaps is currently constrained by available resources. Should funding become available these data gaps may be addressed.	No change required.

11	Additional Comments Drilling in the SBPWA or MPWA Pr] Can it be a requirement that any new water well drilling in a PWA submit it's drill cuttings to DEWNR or EPNRM as a permanent geological record? A water well requires a water sample if intersected but a "dry" drill hole also holds important geological info. It is pertinent when models are based on this info - trouble when needing review and validation - no records. Drillers Logs, we regard as very unreliable - not to be used as a basis for geological/hydrogeological models - not trained in interpretation obs. 1445 drill holes in SBPWA only 266 of these have drillers logs and 510 had a lithology log. 2/3 have no or incomplete geological information. Water well permitting - any new well in a PWA requires keeping drill chips from either each drill rod (based on 3 metre lengths) or a sample every one metre. These samples are collected and placed in chip trays (20 m segmented trays) for submission to DEWNR or EPNRM for ultimate geological logging. The drillers logs can then become an observation log to note colour or perceived geological changes. Why is it that Class One drillers are drilling in the SBPWA? The SBPWA contains more than one aquifer therefore precluding Class One driller from drilling in the PWA unless they are specifically precluded from drilling through the Bridgewater Formation.	It is possible to attach conditions to a well construction permit, which could including the requirement to provide strata samples. This is currently not practiced in the Southern Basins or Musgrave PWAs. Enabling this to occur would require staff at DEWNR to log these chip trays and entry this data into SA Geodata. Currently there is insufficient human resources available to undertake this task. Class One drillers are entitled to drill within the Southern Basins and Musgrave PWAs provided they do not penetrate a confining layer or drill into two aquifers.	No change required.

11	Consumptive Pools In relation to landowners in the SBPWA – we recommend comprehensive landowner survey of all those who use groundwater for stock & domestic use to provide estimates of their groundwater usage, any known historical wells and their current and predicted stocking rates. Surely, since these figures are important yet only estimated in the WAP, this should be a requirement of landowners in the SBPWA. How do we account for the numbers of native animals accessing stock water? The number of kangaroos in this region is quite large. Table 17 displays the Uley East B Lens have a stock demand rate of 0.07 ML, yet we currently stock our property with over 500 sheep and lambs along with some 300+ kangaroos and emus. That rate would imply a minimum 1.8 ML /a without fauna. Larger properties in the PWA that are likely to run the majority of stock in the SBPWA – if a targeted landowner survey was undertaken a more accurate measure may be applied about actual stock numbers and future predictions.	Your concerns about unaccounted water use via stock and native animals are acknowledged. However accounting for these water uses is beyond the scope of the WAP, as the WAP does not manage these unlicensed uses. Consequently we are unable to justify undertaking landholder surveys.	No change required.
12	The draft WAP has failed to convince the public that it will address the previous miss-management of the basins and surface water because it tries to cover up what has happened in the past.	The WAP now includes greater historical context of the Southern Basins and Musgrave Prescribed Wells Areas. The introduction discusses the history of the basins including when extraction commenced, historic levels of extraction, past water levels, and rainfall trends.	Introduction provides further historical context of the basins
12	Trigger levels are a good start to addressing the situation, but historic water levels prior to the public water supply starting e.g. 1962 or earlier are not recognised as the baseline. Baseline should be historic levels not 1993.	There are technical limitations with using monitoring data from 1962 or prior to 1962, as many of the older wells are no longer in operation, which makes it problematic to compare historic water levels to current water levels. Whereas, the monitoring data from 1993 aligns with current monitoring activities. The WAP now compares 1993 water levels to earlier water levels, as 1973 levels have been added to the trigger storage level graphs.	Level of storage in 1973 included on trigger storage level graphs

12	Drying of water holes in Uley South prior to pumping occurring is due to the pumping that was occurring in Uley Wanilla that reduced flow to Uley South.	Unfortunately there is limited information available to determine exactly what led to the drying of the water holes in Uley South. Historic water levels indicate no known hydraulic connection through the Quaternary aquifers of the Uley Wanilla and Uley South. This can be seen in Figure 12 in *Additional Science Support for the Eyre Peninsula Water Allocation Plan* (Stewart 2013). The hydraulic boundaries outlined in this figure represent the highest water level measured for each observation well in the Southern Basins PWA. The figure shows a clear disconnect between Uley Wanilla and Uley South through the Quaternary aquifer. There would however been an indirect connection through the Tertiary aquifer.	Text included about water holes that use to exist in Uley South in the introduction of the WAP
12	Why has the recharge area for Uley Wanilla reduced from the previous WAP to this WAP?	The previous WAP used a different methodology for determining recharge area as it looked at the vegetation extent, soil type and the topography. Whereas the new WAP only considers the extent of the fresh water lens as the recharge area. This has resulted in the recharge area for Uley Wanilla changing from 37 KM^2 to 14.33 KM^2.	No changes made
12	Past over extraction of Uley Wanilla should preclude any further extraction by the Draft WAP until there has been significant recovery.	Over the past 15 years, extraction from Uley Wanilla has been averaging approximately 150 ML per year (6% of the historical maximum annual extraction). Water levels have been recovering in Uley Wanilla as result of reduced extraction, and above average annual rainfall over the last 5 years. The upper storage trigger was raised to 88% (equivalent to 2015 levels) in response to community concerns. This new upper storage trigger means that if storage levels fall below 2015 levels, the portion available for licensed use will also decrease.	Upper storage trigger for Uley Wanilla raised to 88%
12	Disbandment of the Community Consultative Committees has resulted in the Board rushing the draft WAP through consultation.	The Board undertook a comprehensive consultation process during the statutory consultation of the WAP to allow adequate community consultation. Your concern about the cessation of the Community Consultative Committee is however acknowledged.	No changes made
13	We commend the Board on the development of the new WAP noting that it sets out the framework to achieve long term sustainability of the groundwater resources.	Thank you for your support.	No change required.
13	Consideration should be given to extending the wetland groups in Table 8 to include the ecosystem along Black Swan Lane and extending to Big Swamp, and protection for the 78 ha of red gums present.	An environmental protection zone has been assigned for Big Swamp and the downstream red gum community (see figure 34 on page 77 for details). This environmental protection zone is a buffer zone that protects environmental assets from the authorised taking of water.	Environmental Protection Zone assigned to Big Swamp and the downstream red gum community

14	The WAP has a strong emphasis on the use, quantity and maintenance of groundwater dependent ecosystems. Whilst the WAP addresses the depletion of the resource, GDE's and salinity it does not appear to address other important aspects of groundwater quality such as the use of agricultural chemicals, site contamination from industry and disposal of waste, all of which have the potential to impact on groundwater quality. Given the objective of "minimise risks to groundwater quality" there should be an expanded examination of water quality in the WAP.	The WAP is written in accordance with the *Natural Resources Management Act 2004*, and the primary purpose is to sustainably allocate prescribed water resources between licensees and the environment. The NRM Act does not include any instrument to regulate groundwater quality that may result from contamination, agricultural runoff, etc. The objective 'minimise risks to groundwater quality' was designed to specifically address salinity impacts as a result of taking of groundwater. The objective has been amended to provide greater clarity. The Eyre Peninsula Natural Resources Management Board are keen to continue to partner with DEWNR and the EPA to address other water quality issues where appropriate.	Objective 'minimise risks to groundwater quality' changed to 'minimise the risks to groundwater salinity from the authorised taking of water'.
15	The outcome of the Flinders University assessment of the change from 60/40 environment/consumption ration to the 30/70 proposed in the Draft WAP.	Following consultation on the draft WAP, DEWNR has commissioned further modelling of the Uley South groundwater system to evaluate the likely impact of different rates of groundwater extraction on water levels. The proportion of groundwater set aside for the environment was increased from 30% to 48.5% as a result of this latest modelling.	WAP amended with results from modelling.
15	There should be a commitment in the WAP to commence recharging of the basins from which extractions have been made in the past, of the order of 1% per year of the change in storage level between when extraction commenced for that basin and the present storage level	While this would be a fantastic goal it is something the WAP alone cannot achieve. The storage levels will be dependent on extractions and natural discharges and recharge. The WAP can only manage groundwater extractions. Extractions will be reduced if storage is reduced below trigger threshold values. However, if a prolonged period of below average rainfall is observed, storage would be likely to continue to decline until recharge increased, even if all extraction were to be ceased.	No change required.
15	A clear indication of the proposed trigger levels for the various aquifers in relation to the present level, the 1993 reference level and the estimated historic level when extraction commenced	In order to demonstrate the historic water levels, graphs have been created which show the 1973 storage levels (a reasonably wet year when water levels were generally very high) alongside the 1993 level and the storage triggers. Additionally, the 2015 storage levels are shown on the storage graph.	New graphs with 1973 storage and 2015 level of storage included in WAP
15	More detail on specific bores to be monitored (location, aquifer, frequency, parameters). May require additional bores to be added.	Details provided in MERI Plan	Details provided in MERI Plan.
15	Specific details of the intended monitoring of the GDEs, maps showing extent of past and present distribution, indication of who has the responsibility for monitoring.	Details provided in MERI Plan.	Details provided in MERI Plan.
16	We support the careful and consultative preparation of the Water Allocation Plan as the basis for managing on-	Thank you for your support	No change required.

	going water allocation from the prescribed areas, with water recognised as an important and scarce resource		
16	We note that extensive consultation occurred prior to this draft being released, and also that full consensus on the best approach or future policy for water allocation may not be reached	Thank you for your support	No change required.
16	We note the previous engagement and exposure undertaken on the Annual Water Demand Statement, which is now one source of information for the WAP, together with significant other NRM science and analysis	Thank you for your support	No change required.
16	We support the use of a risk management approach to reflect the precautionary principle, including allocation of significant water resource for environmental needs recognising regional landscapes	Thank you for your support	No change required.
16	The background, methodology and basic policy reflected in the draft Plan appear to be sound	Thank you for your support	No change required.
16	The resources and knowledge base available to Council do not enable interrogation or challenge to the science-based outputs of the draft Plan, and we rely on the work of EPNRM and its specialist consultants to translate the policy principles into sustainable decision-making based on reliable data	Taken as a comment.	No change required.
16	Support for the approach is contingent on the annual monitoring of the lenses to ensure up-to-date knowledge is driving the decisions on the consumptive pool and the allocation volumes.	Allocations from the Southern Basins and Musgrave Prescribed Wells Areas will be based on the monitoring of groundwater levels and the trigger storage levels (see section 6.1.1). This approach will allow allocation decisions to be based on up-to-date knowledge whilst within the constraints of the water resources. Groundwater level monitoring is detailed in the Monitoring, Evaluation, Reporting and Improvement Plan which is available on the website. http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave	No change made

17	All over allocated basins must be returned to sustainable extraction levels as soon as possible. Basins should be restored to a quarter full before any more extraction is undertaken.	The new WAP includes a trigger level approach that enables water allocations to be adjusted annually based on monitored water levels. The trigger level approach includes three levels of triggers, which allows extraction to be reduced or cease if storage levels fall below defined storage levels (please refer to Section 6.1 of the WAP for greater details). This approach will allow extractions to be environmentally sustainable for the Southern Basins and Musgrave Prescribed Wells Areas.	No change required.
17	The public needs effective water accounting, need to know how much water there is (independent water audit), where it is, who has control of it, who is using it and what it is being used for in order to support confidence about the amount of water being delivered, traded, extracted and managed for environmental and other public benefits.	An independent water audit is not intended, yet the WAP outlines how much water there is (Section 2), where it is and what it is being used for (Section 5). Specific details of individual licensees (e.g. who is using it) is confidential and the Minister is not at liberty to disclose this information to the public. However a pie chart is included in subsection 5.1.2.2 to detail combined licensed use for each consumptive pool. The supporting Monitoring, Evaluation, Reporting and Improvement (MERI) plan will allow for ongoing accounting of the Southern Basins and Musgrave Prescribed Wells Areas. The MERI plan will support the implementation of the WAP's trigger level approach (amongst other monitoring and evaluation activities). Fundamental to this approach is the collection of monitoring data to determine annual storage levels for allocations, which is to occur every April. The MERI plan is available for download on the Natural Resources Eyre Peninsula's website at http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave.	Pie charts of licensed use included for each consumptive pool in section 5.1.2.2
18	Constant monitoring and collection of data is essential to ensure sustainable management, modelling techniques are useful but must be constantly updated as regular, raw baseline data is collected and applied.	Agree, and the updated Monitoring, Evaluation, Reporting and Improvement (MERI) plan provides monitoring details including groundwater level and salinity monitoring, and groundwater dependent ecosystem (GDE) monitoring. Data collected from these monitoring activities will be used to evaluate how the WAP is meeting its objectives. The MERI plan is available on Natural Resources Eyre Peninsula's website at http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave. It is worthwhile to note that the annual allocations will be determined with the assistance of a groundwater numerical model and annual water level data.	No change required, as taken as a comment.

18	There is segmentation of ecosystems that are in and out of the PWAs. These systems are interactive and reliant upon the groundwater systems in sensitive hydrogeological areas not just in the identified PWAs but regionally.	Legislative requirements of the Natural Resources Management Act 2004 along with the proclaimed areas dictate the scope of the WAP. This has resulted in the area of interest being exclusively for the Southern Basins and Musgrave Prescribed Wells Areas PWA; and the ecosystems within the PWA boundary that have a groundwater relationship being the focal ecosystems. The new WAP does however include Big and Little Swamps as environmental assets, and have assigned an environmental protection zone around them to protect them from authorized take of groundwater.	No change required, as taken as a comment.
18	The interpretation of the large amount of technical data collected in recent years must be independently reviewed	All technical documents released by the Department of Environment, Water and Natural Resources are reviewed externally by independent peer reviewers. Scientific literature describing the hydrogeology of the Eyre Peninsula underwent extensive independent scientific review during the Natural Resources Committee Inquiry into the Eyre Peninsula Water Supply (2012-13).	No change required, as taken as a comment.
18	Hydraulic conductivity has an incredibly large range of possibilities and must not be ignored.	Agree, and this is especially important for the limestone karstic systems like those seen on the Eyre Peninsula. In the cases where the hydraulic parameters were used (i.e. buffer distances), the range of parameters were considered based on the published literature. Following the precautionary principle, the 'worst case' was taken as the parameter to be used e.g. the lowest transmissivity and the lowest specific yield resulting in the larger buffer distance.	No change required, as taken as a comment.
18	There must be a capacity to review and update (the WAP) as new understanding and data becomes available.	The WAP is required to be reviewed 10 years after its adoption as per the Natural Resources Management Act 2004. The Eyre Peninsula NRM Board have also decided they will undertake a mid-term review after 5 years of operation; and if amendments are required, the WAP will be revised. It is worthwhile to note that allocations will be assessed annually. This assessment will compare water storage levels against trigger levels (see section 6.1 for greater details).	No change required, as taken as a comment.
18	Continuation of community consultation and workshops to understand groundwater is encouraged.	In the past, the Eyre Peninsula NRM Board have provided 'ABCs of Groundwater' courses to the community. However at this point in time there are no plans to establish a community consultation group(s) or conduct workshops. In this absence, community members are encouraged to contact Natural Resources Eyre Peninsula staff about their questions regarding the WAP or groundwater. Natural Resources Eyre Peninsula have also recently prepared A Guide to the Water Allocation Plan for Southern Basins and Musgrave Prescribed Wells Areas. This document is to assist the community understand the information and policies presented in the WAP.	No change required, as taken as a comment.

18	With an entire community, region of industries and the environment reliant on the sustainable management of one water resource, we must consider and begin to plan for water resources, back up systems or water saving technologies that could reduce the reliance we have on one very sensitive system	Many facets of managing water resources on the Eyre Peninsula are not encompassed by the WAP including water security. Some of the matters relating to water security are discussed on Natural Resources Eyre Peninsula's website at http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/managing-water-resources/water-security. In addition, the Eyre Peninsula Demand and Supply Statement provides a projection of when the region's water demand may exceed available supply. This statement is updated annually, and see website link for the latest information http://www.environment.sa.gov.au/managing-natural-resources/water-use/water-planning/regional-demand-and-supply-statements	No change required, as taken as a comment.
18	Inclusion of Wetland Research Association Inc. submission for consideration	Unfortunately the submission from the Wetland Research Association Inc. was received late and as such could not be formally accepted as a part of the statutory consultation process.	No change required.
18	Big and Little Swamp should be researched and investigated to provide underpinning knowledge for the future.	Agree, and increasing the understanding of Big Swamp and Little Swamp and their connection to the groundwater of the Southern Basins Prescribed Wells Areas is important area of research. Advancing this research is largely constrained by available financial and human resources. It is important to note that the red gums downstream of Big Swamp have been included as a site for the groundwater dependent ecosystem monitoring. See MERI plan for details.	No change required to the WAP. Big Swamp's red gums have been included as a site for the groundwater dependent ecosystem monitoring.
19	The credibility of the Draft WAP will depend very much on identifying past and present problems and then explaining how they will be managed.	The WAP now includes greater historical context of the Southern Basins and Musgrave Prescribed Wells Areas. The introduction discusses the history of the basins including when extraction commenced, historic levels of extraction, past water levels, and rainfall trends. The inclusion of the trigger level approach will now allow for allocations to be reduced or cease if storage levels (e.g. monitored water levels) fall below defined triggers. This will assist consumptive pools experiencing lower storage levels return to higher levels of storage.	Introduction provides further historical context of the basins
19	The intention of the Draft WAP should be to reverse the decline of the basins by starting to manage them so that recharge occurs over the next 10 years.	The intent of the WAP is to balance the needs of consumptive use and environment by managing extractions from the Southern Basins and Musgrave Prescribed Wells Areas. The trigger level approach may assist in reversing a decline in a consumptive pool that is subject to extraction impacts; or reduce the rate of storage decline for instances when a consumptive pool is experiencing prolonged decline in recharge.	No change made

19	Suggest that the 1993 reference level be named Sustainable Reference Level: and defined as: the water level in the basin that is being used to increase the sustainability of the basin.	Thank you for the suggestion, yet the 1993 reference level is not specifically intended to increase the consumptive pool's sustainability. Rather the 1993 reference level is a baseline to compare storage levels form year to year; and the associated trigger levels will be used to adjust allocations based on monitored storage level. It is worthwhile to note that the trigger graphs in the WAP have been modified to include the 1973 storage level and the 2015 storage level so the current and historic levels can be observed in relation to the specified triggers and the 1993 reference level.	No change made
19	A binding contract of some sort (with SA Water) to be signed that spells out the bores to be monitored, the feature to be monitored, the frequency of the monitoring, and that all information gained will be made available to the community as soon as practicable.	Principle 35 of the WAP allows for licensees such as SA Water who extract more than 100 ML per year to complete an 'annual water use report' as a part of their water license requirements. This principle may require the licensee to monitor water levels and salinity at the points of extraction.	No change made
19	The National Water Initiative to be included along with its requirements.	The National Water Initiative is now referenced throughout the document. Please note that the text does not explicitly state how each objective is meet, rather it outlines relevant parts of the WAP that meet specific objectives of the NWI.	NWI referenced throughout the WAP.
19	The monitoring requirements to be included in the WAP.	An overview of monitoring arrangements has been included in the WAP, while details of the monitoring arrangements are outlined in the Monitoring, Evaluation, Reporting and Improvement (MERI) plan. The MERI Plan is available on Natural Resources Eyre Peninsula's website at: http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave	Included additional monitoring details in Section 8.
19	The description and basis for identifying and describing the area of the "brackish" water to be clarified. The possible uses and non-uses of brackish water need to be identified and included.	The term "brackish" was used in many cases as a conservative approach where there was limited salinity data. Rather than assuming it as fresh it is defined as brackish when it may not be. This was not explicitly stated in the draft WAP, but has since been amended. Further details on the approach to define fresh or brackish areas is available on pages 21 to 24 in Science Support for the Musgrave and Southern Basins Prescribed Wells Areas Water Allocation Plan - (Technical Report 2012/15 by Stewart et al. 2012). Licensed use of brackish consumptive pools is included Tables 20 and 21, while non-uses of brackish have not been identified.	Text included in Section 2.2.1.1 about the approach to determine extent of the fresh water lenses and brackish areas.

19	The location of the "tipping points" to be identified for each basin.	The WAP has not included tipping points, as no specific investigation was undertaken to identify threshold(s) where the groundwater resources and dependent ecosystems may permanently change as a result of crossing a threshold (e.g. tipping point). Instead the WAP has retained the use of trigger level approach, as it allows allocations to be adjusted or cease based on monitored storage levels. This approach allows for responsive management of groundwater resources. It is worthwhile to note that significant work was undertaken to determine individual trigger levels for each consumptive pool. This information is contained within Additional Science Support for the Eyre Peninsula Water Allocation Plan (Technical Report 2013/19 Stewart 2013).	No change required.
19	All the bores selected for monitoring to be identified AND placed on a map showing their location in relation to fresh and "brackish" water in each basin.	Appendix 2 of the MERI plan shows location of all monitoring wells in Southern Basins and Musgrave PWA. The maps show monitoring wells location within the fresh water lens and brackish areas. The MERI Plan is available on Natural Resources Eyre Peninsula's website at: http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave	No change to the WAP, yet maps of monitoring wells have been included in Appendix 2 of the MERI Plan.
19	The issue of how recharge is calculated, and how often for each basin, needs careful and detailed explanation.	Recharge rates for all consumptive pools except Uley South are calculated by the Water Table fluctuation method. Details on how these recharge rates are calculated are shown in Appendix 1 of the Supporting Documentation for the Amendment of the Water Allocation Plan for the Southern Basins and Musgrave PWAs (Stewart 2015). See link for document http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave The recharge rate for the Uley South Public Water Supply consumptive pool has been based on peer-reviewed science (Ordens et al. 2011). The rationale for this estimate is discussed in the Additional Science Support for the Eyre Peninsula Water Allocation Plan (Stewart 2013) – see pages 21 and 22. It is worthwhile to note that recharge rates for the new WAP have been used to calculate the resource capacity for each of the consumptive pools. Recharge rates will no longer be used to calculate annual allocations as per the previous WAP.	No change required.
19	A statement to the effect that any "climate change" producing a decrease in availability of groundwater will be carried by the licensees and not the basins.	The availability of groundwater for licensed use will reduce or cease if the consumptive pool's storage level is below a defined trigger level. Reduced recharge from climate change or future drought are likely instances when storage levels may fall below the trigger levels. Adjusted allocations as result	No change made

		of reduced storage levels will apply to all water licensees, and not the environment.	
19	There is no scarcity of potable water on EP! (page 2)	Compared with other areas of South Australia there is a scarcity of potable water for parts of the Eyre Peninsula. This includes very limited potable surface water; while potable groundwater is largely limited to the prescribed wells areas and minor groundwater lenses scattered across the region. Rainwater is obviously available to those who have rainwater tanks, yet supply is constrained by annual rainfall and individual storage capacity. Consequently the statement regarding scarcity has been retained.	No change made
19	The conditions imposed by the Draft WAP will be enforced, and those entrusted to do that will be required to do so.	Conditions (where applicable) will be specified within an individual water license. Conditions can be applied to Site Use Approvals, Water Resource Works Approvals and Water Affecting Activing Permits at the discretion of the Minister or the Minister's delegate. The consequences for breaching these conditions are outlined in the Natural Resources Management Act 2004. An example of potential breach includes the penalty for taking water in excess of an annual allocation.	No change required.
19	At some point, "rainfall" figures will need to be converted into "effective" rainfall figures AND then correlated to changes in storage water levels. Any lack of correlation can be initially ascribed to "leakage" and used to calculate some sort of environment/consumption ratio. (see page 14).	Section 1.3.3.1 of the WAP now shows the relationship between the rainfall and changes in storage level. The section includes graphs that plot water level and rainfall intensity for Uley South and Polda. This relationship was generated from rainfall intensity monitoring (e.g. pluviometers), and telemetry based monitoring wells. It is worthwhile to note that data from these monitoring devices are recorded hourly, and directly reported on the WaterConnect website, see https://www.waterconnect.sa.gov.au/Systems/RTWD/Pages/Default.aspx for further details. As data accumulates from these monitoring devices there will be the ability to improve knowledge about effective rainfall (or recharge) and changes in storage levels, which may further contribute to improved knowledge about aquifer dynamics such as leakage.	Included section 1.3.3.1 correlating rainfall and water level response
19	Polda will need to be officially taken out of the system (see SA Water).	The Polda consumptive pool will remain within the Musgrave Prescribed Wells Area, despite SA Water surrendering their license from the consumptive pool. Retaining Polda is at the request of other licensees in the Polda consumptive pool. Water is to be allocated to these remaining licensees in accordance with the WAP and any other current notice published under the Natural Resources Management Act 2004.	Tables amended in the WAP to reflect SA Water's withdrawal from Musgrave PWA consumptive pools.

19	Native vegetation is part of the basin environment. There must be no clearance of native veg. to increase recharge in the PWAs.	Clearing native vegetation to allegedly enhance recharge is not a recommended practice, and the WAP does not propose such things.	No changes required.
19	Figures showing groundwater trends in various bores MUST be accompanied by a map showing the location of the bores AND where the local rainfall was recorded.	Agree, and the WAP has included section 1.5 which contains locations of monitoring wells and rainfall stations; along with graphs of groundwater and rainfall trends.	Maps of rainfall stations and monitoring wells are included in Section 1.5 of the WAP.
19	If the predicted impact of "climate change" is correct (page 16) - all the more reason to commence recharge of basins as soon as possible.	The WAP does not directly intend to recharge the consumptive pools as storage levels are influenced by natural processes such as leakage, discharge and rainfall. However the WAP does manage extractions, and the associated trigger level approach will be responsive to any future reduction in recharge from climate change. Specifically it will be able to slow the rate of decline in storage levels by reducing or ceasing allocations for licensed use if storage levels fall below the defined triggers levels.	No change required.
19	Meeting the demands for water (from the reticulated system) on a continuing basis can only be allowed if it is done in an ecologically sustainable manner. (page 17)	Agree, and the trigger level approach will facilitate sustainable extraction for public water supply purposes (and other purposes) by annually comparing monitored storage level against trigger levels. Should storage levels fall below defined trigger levels, allocations will be reduced or cease.	No change required.
19	To be fair to the people on EP and as a basic educational move, I think there will need to be a fairly lengthy, easy to read version of the WAP. This can come about by a revision of the present one OR by writing another version.	Agree, and Natural Resources Eyre Peninsula have created a Guide to the Water Allocation Plan - Southern Basins and Musgrave Prescribed Wells Area. This document will assist the community understand the information and policies outlined in the WAP. The guide is available on Natural Resources Eyre Peninsula's website: http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave	No change made to WAP, yet a Guide to the WAP has been developed.
19	Section 2.2.1 makes no mention of having to provide water from the resource capacity to start recharging the basins. (page 25).	Section 2.2.1 is for the purpose of outlining the approach to calculate the resource capacity for each consumptive pool. The section is not for the purpose of specifying amounts of water for "recharging the basins".	No change required.
19	There are WDEs that are declining and dying now - there is no acknowledgement of this and no mention of any action aimed at restoring them.	The WAP now includes a summary of a community member's observations about declining groundwater dependent ecosystems of Uley South and Lake Pillie (see section 1.5.7). Monitoring of groundwater dependent ecosystems including Lake Pillie will be undertaken to determine the effectiveness of the WAP management arrangements. See MERI plan for further details.	Included section 1.5.7 about observed declines of groundwater dependent ecosystems.

19	The Risk Matrix is non-scientific and is out of keeping with the rest of the document. If this is the best that can be done then leave the environment/ consumption ratio at 60/40 until more measurements can be taken and a real ratio calculated. It is premature to apply this matrix to Uley South. Its use will be opposed until better evidence is available.	A risk assessment process was undertaken to determine the share to be allocated between the environment and consumptive use. This process identified consumptive pools that had a greater risk to the environment or consumptive use. If a greater risk was identified for the environment, the 60:40 allocation rule was retained. Whereas if a greater risk was identified for maintaining a water supply (e.g. Uley South's role as a public water supply), a higher portion was allocated to consumptive use (e.g. 30:70). A copy of the report used to inform this risk assessment is available at http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave Following consultation on the draft WAP, DEWNR commissioned modelling to evaluate the risk assessment and associated allocation between the environment and consumptive use for Uley South. The modelling resulted in the allocation for the environment increasing from 30% to 48.5% for Uley South.	Amended the percentages to be allocated between the environment and consumptive use.
19	Table 17 will need to be discussed column by column at some stage to eliminate the anomalies.	Further information has been provided in Section 5.1 and associated subsections. Additional information has also been provided in the Guide to the Water Allocation Plan - Southern Basins and Musgrave Prescribed Wells Area. See website for the guide http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave	Included additional information in Section 5.1.
19	The accuracy and usefulness of the Demand and Supply Statements will need to be established. Its present optimism is at odds with the reality of the state of our basins (page 78).	The Eyre Peninsula Demand and Supply Statements provide a projection of when demand will exceed available water supply. Future versions of the statement will reflect the science and policies that underpin the new WAP. This will include statement's water supply projections being informed by monitored storage levels and associated allocations. The statement will continue to be updated annually to ensure region's water security is closely monitored and communicated.	No change required.
19	The Draft WAP makes no mention of the need to be made of alternative sources of water as a back up to the reticulated supply. Such measures may not please SA Water (i.e. the Government) but they need to be mentioned for the sake of the future of the region.	A Water Allocation Plan sets out the rules for managing the take and use of prescribed water resources only. It cannot regulate or advocate for the development of alternative water supplies. For further information on alternative water supplies please visit Natural Resources Eyre Peninsula's website at http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/managing-water-resources	No change required.

19	The whole section of Chapter 6 will need to be dealt with at a workshop with significant local expertise available to assess the reality of what is written here. At no stage is the placement of the trigger levels explained in relation to the present storage level and, for example, the seawater level for Coffin Bay A lens. Table 17 claims that the "maximum volume of water available for licensed use for Uley Wanilla public supply is 201 ML This contradicts the facts of the situation as indicated by SA Water. Can anyone actually explain how this happens??	The trigger level graphs (now Figures 43 to 50) have been amended to include a historical high period of storage (1973) and the current level of storage (2015). These additional reference points aim to clarify where current storage sits relative to historical highs, as well as show where current levels sit in regards to the defined trigger levels. No workshop is planned to discuss triggers levels at this point in time. Additional information about how trigger levels were determined can be found in Additional Science Support for the Eyre Peninsula Water Allocation Plan (Stewart 2013).	Figures 43 to 50 amended to include reference storage levels for 1973 and 2015.
19	5.4 Future Demand for Water section is far from convincing. The future demand for water can be decreased in a moment if the price of water increases! Landholders are already taking matters into their own hands and securing their own supply of water. What is need in the Draft WAP is a separate section dealing with mining - well away from potable supplies to the community and discussed in full, including the notion that mining in a PWA can only proceed with permission from both Houses of Parliament	Economic theory supports your comment that increasing the cost of water it will decrease water demand. This is a possible scenario that could affect future demand. However section 5.4 has not included the increased cost scenario, as it is considered beyond the scope of the WAP. Section 5.4 does however acknowledge the uncertainties about future demand for public water supply. No section has been included in the WAP to “deal with mining”, as this not the purpose of the WAP. Future mining projects and their access to water will be guided by the Water for Good policy. Specifically it will be guided by Action 48 which states that “Mining ventures to provide their own water supplies within the sustainable framework of natural resources management planning, and regional water demand and supply plans.” For further information see: http://www.minerals.statedevelopment.sa.gov.au/__data/assets/pdf_file/0009/251937/Water_for_mining_inSA.pdf Where mining occurs within a Prescribed Wells Area and groundwater is extracted for processing or dewatering, a license will be required to extract groundwater, and the license will be assessed against the principles of the WAP. See Section 6 and 7 for further details. It is also suggested you refer to the Mining Act 1971 and the Department of State Development’s website for further information on the approval processes and regulations associated with the mining sectors. Website address is http://minerals.statedevelopment.sa.gov.au/home	No change made.
20	pg 7 - the Quaternary limestone aquifer whilst highly karstic is generally consolidated	Rephrased sentence 3 on page 7 to "The Bridgewater Formation varies from consolidated to unconsolidated across the formation with many karstic features."	Sentence rephrased

20	pg 14 - Rainfall: Additional information on the impact on rainfall on water level in Coffin Bay A and Uley South is provided in Somaratne 2014	Thank you for the notification of additional information.	No change made.
20	pg 25 - Recharge: SA Water's calculations for recharge concur with the average provided in the WAP. Somaratne 2015 concluded that the conventional chloride mass balance method for recharge calculations was inappropriate in karst systems like Uley South which is dominated by point recharge. Methods for determining the suitability of various recharge methods for different recharge situations has been developed in Somaratne et al 2014	The water table fluctuation method has been used to determine recharge estimates for the WAP.	No change required.
20	pg 25 - Public Water Supply: Assigning of management areas for PWS purposes is an important step, recognising the role these water sources play in securing the future of Eyre Peninsula's reticulated water supply	Taken as a comment.	No change required.
20	pg 31 - Additional consumptive pools: The flexibility provided by the draft WAP to allow for access to additional water, subject to appropriate investigations into the sustainability of the resource, is supported. It avoids the need, in such situations, for major reviews of the WAP, while facilitating appropriate development of the water resources.	Taken as a comment.	No change required.
20	pg 55 - Seawater interface: SA Water's recent salinity sonding of coastal monitoring bores continues to show stability in the sea water interface in Uley South	Taken as a comment.	No change required.
20	pg 56 - Tertiary Clay Absence buffers: Protecting the Quaternary aquifer is an important step, recognising the role these water sources play in securing the future of Eyre Peninsula's reticulated water supply	Taken as a comment.	No change required.
20	pg 58: Groundwater discharges: a study to determine the volume of fresh water discharged into Coffin Bay and its role in the ecology of the system would be welcomed.	Taken as a comment.	No change required.
20	pg 65 - Risk Assessment: The risk assessment approach undertaken by SKM as part of the WAP follows a similar process adopted in other States (NSW, WA)	Taken as a comment.	No change required.

20	pg 71 - SA Water demands: while demand from the PWS system continues to be relatively low, SA Water remains vigilant to potential increases. The Water Conservation Measures remain in place across all of South Australia to encourage sensible use of the water supply	Taken as a comment.	No change required.
20	pg 73 - licensed demands: SA Water holds the vast majority of the water allocations under the WAP, with golf courses and horticulture as the next main water users. The region has been active in developing opportunities to replace potable water with reuse or stormwater	Taken as a comment.	No change required.
20	Fig 18 - It should be noted that SA water has surrendered its full allocation from Polda, Polda North and Kappawanta	Noted	WAP and tables modified to reflect the surrender of SA Water license
20	The trigger levels in areas of interest to SA Water appear to be rational. It is acknowledged that when the water level (storage) falls below the lower storage trigger all water is reserved for the environment. There are potential social implications which may come into play if these triggers are reached. There should be capacity in the WAP to reassess the suitability of these triggers. Consideration should also be given to maintaining a low level of allocation for critical human needs, beyond the lower storage trigger, in recognition of the significant social value that these resources hold. Based on the scenario modelling the Bramfield allocation would be nil for one year and unable to supply the township of Elliston. Given SA Water only uses 5% of its allocation in this area, this suggests that other extractions in the consumptive pool are too high or that the lower storage trigger is unnecessarily high and should be reconsidered. If there are no other indicators of aquifer stress, beyond water level, then it is suggested that the lowest storage trigger is increased to allow continued access to 5% of the full allocation. As has been the case in the River Murray, consideration should also be given to prioritising access to a reduced consumptive pool, such that critical human needs can continue to be supplied.	The lower storage trigger for Bramfield was set at the storage level that was observed when water levels were at their lowest historical level of the scenario testing period which occurred in 2008. However given that storage levels are set at the consumptive pool level rather than per lens the lower storage trigger for the Bramfield consumptive pool takes into account both the storage level for the Bramfield and Talia lenses. Currently the lower storage trigger is set at 72% of the storage compared to the reference storage of 1993, however the storage trigger for the Bramfield lens alone is 69% of the storage compared to the reference storage of 1993. It is reasonable to adjust the lower storage trigger to match the lower storage trigger for Bramfield given that all licensees are located within the Bramfield area. However a conservative approach has been taken and the lower storage trigger will be set to 71% of the storage compared to the reference storage of 1993, this allows licensees to take 10% of their water access entitlement if water levels reach those observed during the peak of the drought. Additionally the NRM Act (2004) Section 128 provides a mechanism to ensure water is available for critical human needs.	Lower storage trigger for the Bramfield consumptive pool changed to 71%.

20	pg 105 Somarante et al 2013 (http://dx.doi.org/10.4236/jwarp.2013.512124) shows the links between aquifers based on water chemistry, which confirms both anecdotal evidence from long term residents and previous scientific studies. Further studies into the broader hydrogeology of the lower EP, taking into account surface water inputs and interactions with the basement and sedimentary aquifers is welcomed. The studies can be used to review the extent of the PWAs.	Taken as a comment.	No change required.
21	Very difficult to read and comprehend, requiring going backwards and forwards between sections to follow the flow of the document. Consider rewording some of the sections as well as considering the order in which some items are presented	A Guide to the Water Allocation Plan - Southern Basins and Musgrave Prescribed Wells Area has been created to assist readers' understand the WAP. The guide is available on Natural Resources Eyre Peninsula's website http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave	No change made to the WAP, yet have created a guide to the WAP.
21	No where in the document is it stated that it is a statutory document and is required under the NRM Act to be followed. Consider adding: The Water Allocation Plan is a Statutory Document and as such is required to be followed under the NRM Act 2004. Failure to follow the WAP may result in prosecution.	Text has been included in section 1.1. to outline that the WAP is a document under the Natural Resources Management Act 2004.	Section 1.1. amended.
21	NRM Act 2004, Chapter 2, Part 2 Section 9 (1) A person must act reasonably in relation to the management of natural resources within the state. (2) in determining what is reasonable for the purposes of subsection 1, regard must be had, amongst other things, to the Objects of the Act and to - (a) the need to act responsibly in relation to the management of natural resources, and the potential impact of a failure to comply with the relevant duty.	It should be noted that prosecution is a last resort and can only occur where the NRM Act 2004 makes provisions for it, such as breaching conditions on an authorization.	
21	Parts of the NRM Act should be included in the WAP : NRM Act 2004 - Chapter 2, Part 1 - Objects, Section 7,(1)(c) provides for the protection and management of catchments and the sustainable use of land and water resources and, insofar as is reasonably practicable, seeks to enhance and restore or rehabilitate land and water resources that have been degraded; and (3)(b) If there	Thank you for your suggestion, however no specific text was included. The WAP has been prepared to be consistent with the NRM Act 2004.	No change made

	are threats of serious or irreversible damage to natural resources, lack of full scientific certainty should not be used as a reason for postponing measure to prevent environmental degradation.		
21	Continuing to rely on the historical documents that constantly claim climate change, use falsified rainfall data etc. has lead to the issues we are now facing. Peer review may be the appropriate way for scientists but there needs to be a public peer review of those people whom are directly affected by the document in hand. Many of these "peer reviewed" documents are self-serving and have essentially lead to the issues of the lenses being decimated.	Your perspective is acknowledged, and should you wish to discuss this please direct your questions to staff of Natural Resources Eyre Peninsula.	No change required
21	Pg 1. 1.1: WAP needs a quick reference guide. A person has to read the whole document then try to interpret exactly what this is supposed to mean. A section that states clearly what are the provisions of the WAP that need to be taken into account by ALL persons/agencies.	No reference guide was included into the introduction, however the Guide to the Water Allocation Plan - Southern Basins and Musgrave Prescribed Wells Area will assist readers' interpret the WAP. Sections 6.2 and 7.1 now specifies that the principles all licensees.	Amended section 6.2 and 7.1
21	pg 1 Objectives: there is no identification of "what happens if this is not met" our projections are that this will come up short of meeting these aims. It would be beneficial if there was a section that identified points of interjection (not just after 5 years) that prompt a complete change in the "plan" if there is sound evidence (scientific and or anecdotal) to suggest that there is a change. Concern is that if a change is occurring it may take a long time before the actually change is made and this could deteriorate the lenses even more.	The Monitoring, Evaluation, Reporting and Improvement (MERI) plan outlines the questions and process to evaluate the extent of achieving the WAP's objectives. The MERI plan is available at http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave Included in the MERI plan is a commitment to undertake a mid-term review after 5 years of implementation. This is in addition to the statutory requirement to review the WAP after 10 years of implementation. The MERI Plan also outlines arrangements to monitor storage levels, which will be used to adjust allocations if storage level fall below a defined trigger level. This approach aims to prevent deterioration of a consumptive pool by reducing extraction based on monitored storage levels.	No change required.

		Should any significant issues arise during the implementation of the WAP, it can be addressed as part of the 5 year review. If more urgent interventions are required there are means under the Natural Resources Management Act 2004 to issue a Notice of Prohibition, or make an amendment as per section 81(1) of NRM Act 2004.	
21	The WAP does not discuss the 1000mg/L salinity threshold for freshwater lenses, nor does it emphasis the need to monitor the changes to a current freshwater lens. Specific information on the lenses should be included in the WAP along with the historical change in the lenses	Good suggestion, and section 2.2.1.1 now discusses the approach to define freshwater lenses. Further details are also available on pages 21 to 24 in Science Support for the Musgrave and Southern Basins Prescribed Wells Areas Water Allocation Plan - (Technical Report 2012/15 by Stewart et al. 2012). Salinity monitoring is mentioned in section 8.2.1 of the WAP, and detailed in section 4.2 of the MERI plan. Section of 1.5 has been included in the WAP to show trends and discuss historical changes to some freshwater lens. This section focuses on historical water levels, extraction and rainfall, but does not address salinity trends.	Amended text for section 2.2.1.1; and included new section 1.5.
21	Concern of the intermittent use of various rainfall stations in the Southern Basins. Rainfall varies depending on which station is used - possibility of skewing data. There are significant years of missing data 1999, 2002-2010, 2013, 2014. Rainfall stations should be identified on maps. Purpose for which the station is going to be used needs to be described. Clearly describe which rainfall stations will be used when allocating for public water supply and other licenced use. Concern of the intermittent use of various rainfall stations in Musgrave. Rainfall varies depending on which station is used - possibility of skewing data. Rainfall at Bramfield is not indicative of rainfall in Polda. Rainfall stations should be identified on maps. Purpose for which the station is going to be used needs to be described. Clearly describe which rainfall stations will be used when allocating for public water supply and other licenced use. Comment needs to be made about the vast differences in rainfall over the whole PWA.	The new WAP does not use rainfall data (and associated long-term average recharge rates) to inform allocations. Instead the new WAP uses storage levels and the trigger level approach to set allocations. Details of the trigger level approach are discussed in section 6.1 of the WAP, and supporting monitoring arrangements are discussed in section 8.3 of the WAP. Rainfall stations have been located on maps in Section 1.5. This section shows the location of rainfall stations in relation to monitoring wells that are used to generate rainfall and water level trends. The section also discusses the relationship between rainfall, extraction and water levels. It is worthwhile to note that the Department of Environment, Water and Natural Resources have established a remote monitoring network to monitor rainfall and water levels for Southern Basins and Musgrave PWA. Data from this network are recorded hourly, and directly reported on the WaterConnect website, see https://www.waterconnect.sa.gov.au/Systems/RTWD/Pages/Default.aspx for further details.	Rainfall station locations have been identified on maps in section 1.5 of the WAP.

21	A lot of the data in the WAP is reliant on past papers which is of concern as there are too many items to be read to be able to understand the WAP. Concern that the documents relied upon only tell one side of the story - there is quite an emphasis on the parts of a document that support what the agencies want but not necessarily what the community want or what the environment needs.	The WAP aims to balance economic, social and environmental demands on the Southern Basins and Musgrave Prescribed Wells Areas. To balance these demands a significant number of investigations were undertaken including independently peer reviewed science. These investigations are referenced in the WAP to show the science and evidence that underpin the WAP. Consultation activities for the draft WAP provided the opportunity to refine the WAP's content with community input. This has resulted refining some sections of the WAP to reflect the community's wants; as well as including relevant anecdotal evidence.	No change required.
21	The WAP states that most recharge is from direct infiltration and not inflow from adjoining basins or other aquifers. Historically the lenses were fuller and therefore were actually linked or providing some connectivity to another lens, these lenses were therefore dependent on each other as well as rainfall. The WAP lacks this historical data. text could be added stating "historical data indicates that when lenses were full, groundwater was able to discharge to the surface, the ocean and into adjoining lenses. Connectivity has decreased with the decrease in the groundwater level this creating individual lenses that are now more vulnerable and reliant on the localised rainfall for recharge". Comment on localised rainfall is more evidence that the rainfall data must be accurate and identified. If the lenses are reliant on the rainfall for effective recharge then we have to be more cautious about the amount of recharge that is identified for allocation.	Thank you for your suggested text, yet it was not included in the WAP as there is limited evidence to support your full claim. The WAP does however now include greater historical data regarding rainfall, extraction and water levels (see section 1.5). Graphs are provided to show water level trends as a result of rainfall and/or extraction impacts. The section does not discuss the role of connectivity as there is limited information about this. It is worthwhile to note that the investigation by Zulfic et al. 2007 - Uley Basin Groundwater Modelling Project Volume 2: Groundwater Flow Model (DWLBC Report 2007/04), modelled the hydraulic connection between Uley South and adjacent lenses through the Tertiary sands aquifer. The investigation included estimated flowrates into and out of the Tertiary sands aquifer, yet acknowledged data and information gaps regarding inter-aquifer leakage. It is important to note that rainfall and the associated long-term average recharge will no longer be used for allocations under the new WAP. See earlier response for details of the new approach.	Included historical data in section 1.5
21	The comment "Human activities can also contribute to these processes, through managed aquifer recharge schemes or extraction by pumping from wells" could be construed as being only landholders that extract from wells, whilst the public water supply also comes from wells many people don't recognise SA Water as 'human' but rather as 'agency' or 'government'. Could change words to "Human activities can also contribute to these processes, through managed aquifer recharge schemes,	It is agreed that this sentence may be misconstrued. Consequently the text has been amended to specifically identify public water supply as a human activity.	Text for Section 1.3.3 amended.

	extraction by pumping from wells and public water supply"		
21	pg 13. 1.3.3.1 - quaternary aquifer recharge: first paragraph. This whole graph is controversial to those at Polda. You could inlay the pumping from Polda over this same graph and come up with the same changes to the groundwater lenses. This only goes to support the climate change theory but fails to support other factors including extraction. Take it out and don't use it or add in the extraction rates as well. Make a comment in the paragraph that show that the same applies to extraction as it does to climate change. Be fair about the information that is being provided to the public so they can make their own decisions.	Section 1.3.3 has been amended to include extraction as driver to influence water levels. While section 1.5 has been included to provide specific examples of water level trends for the following lenses: Polda, Bramfield, Uley South, Uley Wanilla, Lincoln South and Coffin Bay. The examples include rainfall and extraction data that allow individuals to interpret changes to water levels.	Amended text for section 1.3.3, and included section 1.5
21	pg 14. 1.3.3.1 - quaternary aquifer recharge: "there is no evidence of regional scale lateral inflows." Historically there was interconnection of lenses and this has changed with a decrease in groundwater levels. Need to identify that "Currently there is no evidence of regional scale lateral inflow, however, historically there has been"	The WAP has retained the statement “there is no evidence of regional scale lateral inflows from other nearby aquifers outside the prescribed areas” (emphasis added) for the Quaternary aquifer. This added emphasis is important to note as the statement is not trying to dispute localised or previous connectivity but rather highlight no evidence of inflows from outside the PWA for the Quaternary aquifer.	No change made.
21	There is no comment on the learnings, successes or failings of the current WAPs management. The WAP should be transparent and comment about the difficulties of the current WAP and how the needed to be changed in order to provide the best outcome for the lenses. This also gives opportunity to say "previous WAPs monitored XXXX and data has shown this will need to continue". The current WAP did allow for an adaptive management approach despite a 10 year rolling average if it was monitored correctly and that allocations were not just given in contradiction to the criteria for allocation section.	The previous water allocation plans for the Southern Basins PWA (2000) and Musgrave PWA (2001) were reviewed in 2006 by the Eyre Peninsula NRM Board. These reviews identified a number of scientific and policy gaps, which lead to a series of investigations. Findings from these investigations have underpinned the new WAP. The 2006 review findings were not included in the new WAP as they are documented in the review reports.	No change made.

21	It is understood that there is a school of thought that the current WAP was based on a 10 year rolling average and this was some of the reason why the allocations were not reduced earlier. There has also been some comment that SA Water need some level of forward planning and hence need some stability into the actual volume of water they will have for a few years to come. How will this statement of varying amount of water available annually actually play out? What will be the criteria for this and will this actually happen for SA Water? Having clear criteria for this in the provisions section i.e. in the event that XXX occurs and groundwater levels reach xxx the minister will reduce allocations to xxx. It is assumed the trigger points may be the contributing factor here and maybe this needs to be added into the WAP at this point to indicate that.	The previous WAP based annual allocations on a ten year rolling average of recharge. This approach has been superseded in the new WAP by a more responsive approach based on monitored water levels. This will involve water levels being monitored in April, and this data will then be fed into the groundwater numerical model to determine the storage level of the consumptive pool. Storage levels will then be compared against the relevant trigger level to determine what percentage is available for licensed use (e.g. allocation). It is suggested you read sections 6.1 and 8.3 for further details. All water licensees of a consumptive pool will be subject to the same reduction in allocations.	Refined text in section 6.1 and 8.3
21	Pg 17, capacity of the groundwater resources. The WAP does comment on the demands for the resource but fails to recognise the ability to access that groundwater. There needs to be recognition that users may not have the access to the groundwater they are dependent on and that this is acknowledged and that the objectives will be to attempt to remedy this over the life of the plan. i.e. stock and domestic use or needs is identified but it is not acknowledged that the declining state of the lenses has resulted in those users (1st environ, 2nd s&d) not being able to access this water. This goes back to the objectives of existing users of groundwater.	The risk assessment in section 5.1, recognizes and assesses a water user's accessibility risk. This risk assessment was conducted on a consumptive pool basis rather than individual basis. A copy of the report used to inform this risk assessment is available at http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave The WAP has not included your suggested objective. Rather it has retained the objective to 'minimize the impact of authorized taking of water on existing users'. This was retained as the WAP can only manage extraction from a prescribed well. It cannot control factors such as reductions in recharge from prolonged drought which could reduce a water user's access to groundwater.	No change made.
21	There is concern that the consumptive pool and the use of the consumptive pool may result in there being an over estimation of the amount of water available for use/extraction. Why is a consumptive pool from outside the freshwater lens required? The extraction for public water is supposed to be in line with WHO requirements and has specific guidelines to the quality. If we have always used the 1000 mg/L threshold for freshwater lenses for GDEs, S&D and extraction then why are we	Estimating the resource capacity is a statutory requirement under Section 76(4)(d) of the Natural Resources Management Act 2004. Including estimates for the volume of brackish consumptive pools was not an attempt to overestimate the resource capacity. Rather they were included as there are licensed and non-licensed water users in these areas, and therefore there is a need to manage take from brackish consumptive pools. Estimates of the brackish consumptive pool's volume were also required as they are generally connected to an adjacent fresh water consumptive pool. Managing	No change required.

	now needing to calculate what may be in the consumptive pool for such a large area.	this localized connection requires an estimate of the resource capacity and amount of take. The approach to delineate fresh water and brackish consumptive pools is available on pages 21 to 24 in Science Support for the Musgrave and Southern Basins Prescribed Wells Areas Water Allocation Plan - (Technical Report 2012/15 by Stewart et al. 2012). In regards to the World Health Organization's water quality standards, this is matter for SA Water as it is their responsibility to deliver water within certain water quality standards.	
21	Why not just call them management areas rather than consumptive pools. The map on page 21 shows these areas. But then on Page 28 the map shows a lot of areas that is neither freshwater nor brackish – therefore has no water but is not consistent. If the data relied upon is in Stewart 2013 then this should be included in the WAP rather than referring to another document - particularly the previous historical saturated areas.	There is a difference between the terms consumptive pool and management area, as consumptive pool refers to the volume, whereas the management area refers to geographical area. The map on page 21 of the draft WAP showed the managements areas (e.g. geographical), whereas the map on page 28 showed the outline of the consumptive pool. It is worthwhile to note that the management areas have been based on cadastral boundaries and the maximum saturated extent of the consumptive pool. Cadastral boundaries were chosen as the clearest way to administer permits such as well construction permits. While the maximum saturated extent represents the maximum known historical extent of the consumptive pool.	No change made.
21	Pg 24, recharge calculation. This again raises concern about the language used. The aquifer is generally the freshwater lenses but in this case it is the brackish and the freshwater lens that is being used as the total area of recharge. Agree that this is an estimate as there is no calculation as to what is considered effective recharge. Language needs to be consistent. Is the freshwater lens a lens or an aquifer? Is the aquifer the management area or the consumptive pool? Is brackish a lens or aquifer or neither? A comment should be made at this point about the fact that just because an area x recharge rate gives an approximate recharge rate, it does not mean you can use this for allocations.	It is acknowledged that the WAP contains complicated language, and efforts have been directed towards developing a Guide to the Water Allocation Plan in an attempt to increase accessibility of the WAP. It is also suggested that you refer to the definitions for clarification on the use of each of your cited terms. It is worthwhile to note that the resource capacity refers to the volume that is recharged annually to the Quaternary aquifers' consumptive pools. It is not the amount available for allocation. Allocations will be influenced by percentage available for consumptive use (see table 17 page 84), and the storage level and the corresponding trigger level (see section 6.1).	No change made, yet created a guide to the WAP.

21	the comment "this conservative approach does not require any water to be taken from storage" implies that there is scope to take water from storage which is in contradiction to the objectives of the Act/WAP, water is only to be allocated as a portion of the recharge allowing of the storage water to not be affected in any way" The groundwater resource cannot be mined, this needs to be made very explicit.	The comment - "this conservative approach does not require any water to be taken from storage" has been removed from the WAP. No specific comment was included in regards to your suggestion explicating stating 'groundwater resources cannot be mined', as the existing objectives of the WAP cover the intent of your suggestion.	Section 2.2.1 amended
21	There is significant concern about the rate of rainfall that has been used for recharge. There is no indication as to where the information comes from for the government gazette for the recharge rates. In particular for the Polda area the rainfall is different in Polda to Bramfield, Terre winds cannot be used as the rainfall station as it is not on the lens. There needs to be a statement of which BOM stations will be used to calculate rainfall that will go in the government gazette. Modelling can not be used as is an ineffective prediction as the wap clearly states it is the precipitation that falls on the lens.	As previously stated recharge rates will no longer be used to calculate allocations under the new WAP. Instead, allocations will be based on annual changes in storage levels for each consumptive pool and the corresponding trigger level. Refer to Section 6.1 of the WAP for details of the new approach.	No change required
21	It is contradictory in section 2.2.3.3 to state that the current extractions are unlikely to be having a detrimental affect and then state that licensees are having trouble accessing water. Wouldn't it be possible given section 1.3.2.1 that the drawdown from the southern basins is resulting in the discharge from this area being more than the recharge. Depending on which rainfall data is used, some data indicate there has not been a reduction in rainfall over the recent years so its potentially not due to reduced recharge.	The influence of discharge and recharge processes on water levels in the Lincoln North consumptive pool is largely unknown. To rectify this situation, the Department of Environment, Water and Natural Resources installed seven monitoring wells in 2016, which will now enable groundwater levels to be monitored regularly. This forthcoming data will be useful for any future investigations to better understand discharge and recharge processes.	No change made to WAP, yet MERI plan will monitor Lincoln North
21	The creation of new consumptive pools is at the discretion of the Minister but the Minister only knows what the agencies tell him/her. Due diligence to the existing users needs to be added: 1st environment, 2nd s&d, 3rd current licensees. There should be an inclusion of landholders in the area identified as the secondary users and then consultation with licensees. Council should hold a public consultation period for review and rejection before a decision is made. This WAP must	The WAP's principle 6 (page 105) outlines what the Minister will consider when creating a new consumptive pool. Specifically principle 6b requires confirmation that a new consumptive pool "will not adversely affect the reliability of supply or the quality of water accessed by existing users of water from any other consumptive pool." It is likely that a pump test will be undertaken to confirm any potential impact on existing water users, groundwater dependent ecosystems or the groundwater resource.	Amended section 2.3.

	outline clearly what provisions the Minister must take into account in this matter so that it is clear and transparent or at least the minimum that is required. As per above, an open consultation should be held to ensure that existing users are not affected as per the objectives of this WAP.	No provisions have included for public consultation when there is a proposal to create a new consumptive pool. It is however possible that future proposals may warrant the need to undertake voluntary public consultation.	
21	section 2.4 pg 31/32. The flow of information in this section is confusing and it requires flicking between sections to understand what is going on. Tables 3 and 4 have the resource capacities but then it requires reading sections 5.1.1 and 5.1.2 and section 6 to understand what is happening. This section tells nothing about how the annual calculation is made so delete from here and put somewhere else.	A Guide to Water Allocation Plan - Southern Basins and Musgrave PWA has been developed to assist understand the WAP. It is suggested you read sections 6.1.3 and 8.3 of the WAP to further understand how annual allocations will be determined using the trigger level approach and monitored storage levels.	No change made to the WAP, created a WAP guide.
21	section 3.1 "whilst the environment may have set water requirements….these may be different to what is provided…under the plan" Why?? Section 3.1.1 states that the Act defines environmental water requirements as those "….that must be met in order to sustain the ecological values of ecosystems that depend on the water resource.." The reasoning behind the requirements vs. what is provided needs to be explained with justification otherwise it goes against the Act. There would be capacity here to link with the Native Veg Act and what it says about EWRs. NRM Act 2004 - chapter 2, part 1 section 7 (3)(b) "If there are threats of serious or irreversible damage to natural resources, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation"	Section 3.5 states that the Environmental Water Provisions are equal to Environmental Water Requirements, and they both aim to maintain groundwater dependent ecosystems to a low level of risk. Environmental protection zones and consumptive use limits via the trigger level approach have been developed to minimise this risk. It is worthwhile to note that EWPs do not go against the Natural Resources Management Act 2004. Rather EWP guide how much water can be allocated at any given time to the environment whilst also considering the water needs of existing users' and socio-economic impacts. Therefore the use of EWP is about balancing environmental, social and economic needs.	No change made
21	"EWPs do not aim to return the groundwater dependent ecosystems to a 'pristine' or pre-European or historic condition but rather maintain the current condition…" Most would agree pre-European wouldn't be feasible but why just maintain at current levels rather than improve. It also appears there is an attempt to hide the past by not attempting to at least try to remedy practices that lead to the impacted GDEs. The extraction limits that have been set should be reduced to see if	There is great merit in improving the condition of groundwater dependent ecosystems (GDEs), however the WAP has limited control in achieving this outcome as the WAP only controls extraction. It cannot control natural influences such as prolonged low rainfall, which would impact the condition of GDEs regardless of extraction. Subsequently, the WAP has focused on minimizing impacts to GDEs by creating environmental protection zones that buffer GDEs from future extraction (see section 4.2.3). Conceptual models have been included to illustrate the role of buffers on extraction.	Conceptual models included in section 4.2.3

	there is a positive impact on GDEs. If recharge is reduced then this is required anyway. The environment is the first user of the resource and this needs to be clearly documented in this WAP and then accounted for	The WAP has also specified the percentage of the resource capacity to the environment including GDEs (see the “non-consumptive demand” column in tables 20 & 21 on pages 91 & 92). Monitoring arrangements have also been specified in the MERI plan to monitor the condition of GDEs. These measures are to ensure the environment’s needs are accounted for, and regularly monitored.	
21	Wetland groups. Pg 36-37 there are references to supporting aquifers but they are not documented can the names of the aquifers be described. As discussed in a previous submission are they aquifers or lenses - consistent language required.	The aquifer to support the specified wetlands is the Quaternary Limestone aquifer. The section now specifies which consumptive pool supports the specific wetland. The term lens is only used in reference to determine the recharge areas in the WAP, aquifer is used in other cases to describe the physical resource.	Amended section 3.3.1 to specify the Quaternary aquifer supports the wetland and which consumptive pool the wetland is within.
21	Phreatophytes. There is no identification of red gums as a group of GDEs with intrinsic value. Red Gums should be included in the list of GDEs for monitoring as part of the MERI plan.	The red gum communities of Big Swamp, Polda, Bramfield and Bellevue have now been identified in the WAP as phreatophytes. Environmental protection zones has been assigned for these phreatophytes (see figures 34 & 35 on pages 77 & 35). These environmental protection zones provide a buffer from authorised take of water. Appendix 1 of the MERI plan specifies monitoring arrangements for groundwater water dependent ecosystems including phreatophytes.	Environmental protection zones assigned to specific red gum communities in figure 34 & 35.
21	pg 42, section 3.3.6 talks about the need to allow for the natural discharges to occur to allow for GDEs and marine environments yet the earlier section 3.1.2 states the plan is not about making the GDEs better but maintaining them. This is contradictory. Surely by allowing a little more for the environment meets this requirement more than maintaining the status quo. NRM Act 2004 - chapter 2, part 1 section 7 (3)(b) "If there are threats of serious or irreversible damage to natural resources, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation" surely this should be a reason to be a little more cautious with the environment.	Allowing for discharges to marine environments by assigning percentages for non-consumptive demand and specifying trigger levels is about maintaining groundwater dependent ecosystems such as Kellidie Bay and Tulka. It is not attempt to improve them.	No change required

21	It is noted that red gums will be monitored but there is no reference to this in the MERI. Landholders have raised concerns over many years about the decline of the red gums particularly near Polda and this should be acknowledged. This needs to be updated in the MERI.	The updated MERI plan (appendix 1) now specifies arrangements for monitoring red gum communities including Polda. The MERI plan is available at http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave	No change made to WAP, yet have updated the MERI plan.
21	Pg 44, section 3.4 states "the biota have adapted to survive some periods where water availability is lower than optimal, but the combination of future climate impacts and groundwater extraction may exceed their tolerances" This is the whole purpose of the WAP in relation to ensuring the environment isn't affected. If there is a chance this may occur then the precautionary approach should be adopted. Reduced rainfall can not be predicted nor calculated but extraction can be reduced from the beginning to allow for more aquifer storage and therefore more natural discharge for these GDEs.	The WAP's purposes in relation to GDEs is to minimize impacts from extraction. This is reflected in one of the WAP's objectives, which states to 'minimise the impact of the authorised taking of water on groundwater dependent ecosystems'. In response to your precautionary approach comment, the following italicized text was added "the biota have adapted to survive some periods where water availability is lower than optimal, but the combination of future climate impacts and groundwater extraction may exceed their tolerances if too much groundwater is extracted and/or if groundwater is extracted too close to the groundwater dependent ecosystems to maintain them at a low level of risk." This addition is sets the scene for WAP's polices including the environmental protection zones and trigger level approach. The trigger level approach will facilitate reductions in allocations for licensed use if reduced rainfall causes declines in storage levels below specified trigger levels. This measure will reduce the impact of reduced rainfall on GDEs.	Section 3.4. amended
21	Pg 53, section 3.4.3.1, as per previous submission red gums should be included in the MERI	The updated MERI plan (appendix 1) now specifies arrangements for monitoring red gum communities including Polda. The MERI plan is available at http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave	No change made to WAP, yet have updated the MERI plan.
21	Pg 53, section 3.4.3.5. There is clear evidence that the aquifers need to be maintained to allow for natural discharge, more should be allowed for the environment rather than taking a guess at what might be needed.	The maintenance of aquifers to support GDEs and manage the seawater intrusion are key intentions of the WAP. To maintain aquifers a percentages of the annual resource capacities have been specifically assigned for this purpose (see table 17 on page 84 for percentages). The percentages adopted were informed by a risk assessment and later numerical modelling.	No change made

21	Pg 54, Section 3.5. comment "the levels of consumptive use in this plan, even at full usage of water on licence are unlikely to significantly impact on water availability or water quality for identified GDEs" This is contradictory to section 3.4 which states that the current levels are for maintenance only and may be affected by low rainfall/recharge and extraction. There is a need to be consistent with each section of the WAP. If in doubt use precautionary approach so that the GDES are not affected as they are the 1st users.	Section 3.4 has been amended to improve clarity and state the intent is to maintain GDEs at a low level of risk.	Amended section 3.4
21	Pg 57 section 4.2.2 refers to Stewart (2013), there is too much reliance on other documents, the information should be included in the WAP. Also provides better accountability to the information contained in the WAP.	Including all referenced material within the WAP would make the document substantially larger and more complex. It was decided to avoid this, yet provide more specific page references (where possible) for two key reference documents of Stewart 2013 and Stewart et al. 2012. Other supporting references have been made available on the Natural Resources Eyre Peninsula's website - http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave	Specific page references included for Stewart 2013 and Stewart et al. 2012 where possible.
21	Pg 66, defining accessibility risk. The accessibility risk is higher if not enough groundwater is allocated for use or there is no alternative, a lower accessibility risk is identified when there is an alternate water supply. This	The accessibility risk assessment allowed a consumptive pool that has an alternative water supply to be assigned a lower accessibility risk, and thus allocate more water to the environment. For the Uley South consumptive pool, which is generally the source of the alternative water supply, a higher accessibility risk was assigned. This resulted in more water allocated for consumptive use, and less water allocated to the environment for the Uley South.	No change required.
21	Seems to be robbing Peter to pay Paul. In most areas of the EP, the alternate water supply is from an SA Water pipeline which is from another groundwater resource.	The accessibility risk assessment is not attempt to "rob Peter to pay Paul", but rather recognize the consumptive pools that have higher reliance on them to supply water for the region's farms, towns and businesses. For the Uley South, it was assessed that the accessibility risks from social and economic demands were greater than the environmental risks. Table 17 on page 84 outlines the adopted allocation percentages. This table was informed by the risk assessment and later modelling.	

21	Pg 67 defining environmental risk. It appears confusing that Uley south would be given a low risk factor for environmental given the potential for sea water intrusion and the significant impact this would have on the public water supply. It appears this should be maintained at the same as the current rate given the water levels have historically declined therefore surely the amount of recharge is not meeting the consumptive demand. The 60/40 should apply here still.	The WAP specifies the objective “minimise the risk of seawater intrusion due to the taking of authorised water in coastal aquifers.” Following consultation on the draft WAP, DEWNR commissioned further modelling of the Uley South to evaluate the likely impact of different rates of groundwater extraction on water levels. This modelling resulted in increasing the percentage for the environment from 30% to 48.5%.	Amended allocation percentages for the Uley South consumptive pool.
21	pg 70, section 5.1.2.1 comment "there is unlikely to be significant changes to land use, increases in stock numbers……" Much of the change in stock numbers is due to a lack of available groundwater that was historically easily accessible and that grain prices are up. If grain prices drop landholders will be looking to increase stock numbers as an alternative income. Acknowledgement of the reasons for the change in practices but also noting that should the numbers increase, access to groundwater for S&D will increase significantly as well as the consumptive demand on SA Water supply who have previously advised that if stock numbers increase they could not meet this demand.	The text in section 5.1.2.1 was amended to reflect that the stock estimates are based on current data but are subject to changes in commodity prices.	Section 5.1.2.1 amended
21	pg 71. estimating domestic water use. Comment "It is likely that additional water supplies such as mains and rainwater would be available to compliment the groundwater supply" This is on the assumption that the source of SA Water is not from the same consumptive pool as the groundwater that is being used for S&D. Need to clarify that taking from the same resources for S&D as well as public water supply is not a form of future proofing domestic supply needs.	The assumption is that majority of the reticulated supply for the Eyre Peninsula is sourced from the Uley South consumptive pool, and this pool has no domestic extractions.	No change made
21	The excess water is based on the total consumptive pool but does not take out the unsaturated area within the management area. It also assumes that this excess water is accessible. It is concerning that the calculations include unsaturated areas and brackish water to define what is excess. i.e. Polda states there is 1182 ML excess water available per annum but this is all to the west of the lens but all extractions in this pool occur in the lens.	Following consultation of the draft WAP, the amount of excess water for the Polda consumptive pool was reduced from 1182 ML to 10 ML. This change is a result of increasing the percentage for the environment from 60% to 97%. This change was discussed with relevant landholders at the community consultation meetings.	Amended the amount of excess water to 10 ML for the Polda consumptive pool.

	This gives a false sense of what is actually available in light of the prohibition that has been in place there should be some consideration to reworking this section.	It is worthwhile to note that the resource capacity calculation for the consumptive pools does not include any unsaturated areas, it only includes the fresh lens areas and brackish areas.	
21	Pg 78 section 5.4. "If the demand and supply projections indicate a gap is likely to exist within 5 years or less, the Minister will establish an independent planning process to consider management or supply options" There is already conflicting data regarding the timeframes of when the water of EP will likely be "Safe". SA Water documents and DEWNR documents state different projections. Which information will be used as the defining date to indicate this? Who will present this information to the minister for consideration? Who will be on the IP and why? All this needs to be stated in the WAP.	The Eyre Peninsula Demand and Supply Statements are updated annually. Changes to annual input data such as regional demand of public water supply or available supply has changed between iterations of the statement, which has subsequently changed the projection of when demand is expected to exceed supply. The number of iterations may be a source of this conflicting data. To find out the latest projection please refer to latest Demand and Supply Statement at http://www.environment.sa.gov.au/managing-natural-resources/water-use/water-planning/regional-demand-and-supply-statements The Department of Environment, Water and Natural Resources as a delegate of the Minister are responsible for maintaining the Demand and Supply Statements. The independent planning process associated with the Demand and Supply Statements, is a separate process to the WAP. Therefore your requested details have not been included in the WAP. Membership details for the independent planning process are likely to be released when the five year trigger point is reached.	No change required.
21	Pg 80, This whole section is disrespectful to those landholders whom are at risk of or whom have been asked to leave the land due to no value in it when there is no access to water. Financially banks will not lend to a landholder whom relies solely on SA Water (at a huge cost) to run stock. There is no ability to drought proof if there is no access to groundwater. Landholders in the Polda area have already been asked to put their properties on the market as they re unable to meet loan repayments due to decreased income through lack of water. Suggested text provided in submission	Section 5.4.5 has been amended to reflect some of your comments, but not all of your comments.	Amended section 5.4.5

21	Pg 82, Consumptive pools. The language in this section (variable component etc.) is too confusing and there is too many other documents that are required to be read to try to understand this. This needs to be a WAP that the people understand and this doesn't make for easy reading or understanding let alone how this is then applied in the decision making process.	A Guide to the Water Allocation Plan - Southern Basins and Musgrave Prescribed Wells Area has been prepared to explain terms used in the WAP. It is suggested you read sections 5 and 8 of this guide to further understand the terms used in association with consumptive pool. The guide is available at http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave	No change made to the WAP, yet created a guide to the WAP.
21	Pg 83, on figure 26 identify the triggers according to the risk or condition of the consumptive pool. I.e. add good condition in the section from the upper storage trigger to ground level, Low risk from mid to upper triggers, moderate risk from low to mid triggers and high risk from base of aquifer to lower storage trigger.	This is a very good suggestion, and risk descriptors have now been included in this figure (now labelled figure 39 on page 96). Descriptors include Good Condition, Low Risk, Moderate Risk and High Risk.	Figure 39 amended.
21	pg 83-88. As the lenses are currently separated (i.e. Polda East A and B and Polda central) are they going to be considered independently or as a whole given they are usually connected but decreasing groundwater has separated them? Whilst this may be implied it needs to be written clearly how this needs to be interpreted.	Any lens that is within a particular consumptive pool is treated in the same manner. For example, the Polda consumption pool includes: Polda, Tinline, Talia East, Polda Brackish, and Polda East A and B; and the trigger levels and the associated allocations apply for the whole consumptive pool.	Table 21 & 24 amended to remove SA Water from Polda consumptive pool.
21	Need to acknowledge that SA Water will be written out of Polda and reserve the consumptive pool for irrigation purposes only, such that SA Water cant pump even if water levels recover.	Tables 21 and 24 of the finalized WAP now reflect that the Polda consumptive pool is no longer for public water supply purposes. Sections 5.1.1.5.3 and 5.1.2.2.2 reflect SA Water's license surrender and the reduction in excess water to 10 ML.	Text in sections 5.1.1.5.3 and 5.1.2.2.2 amended
21	pg 96 - 6.5 and 7.3: Clarify that existing users are also required to fulfil all parts of the WAP, no exemptions.	Sections 6.2 and 7.1 now specify that the principles apply to all water licensees.	Section 6.2 and 7.1 amended
21	pg 96 - 6.5: The Minister may issue WAE for Excess Water (subject to market based mechanism). Unfairness. Money that SA Water could use to access 'excess water' is costed to the tax payers plus it will not allow for the protection of the environment that could benefit from having that excess water for natural discharge purposes.	Principle 22 (formerly principle 21) of the WAP is consistent with Section 147(2) of the NRM Act 2004 which states "The Minister may, if the Minister thinks fit, issue licences with respect to a particular water resource, or part of a water resource, on the basis of applications submitted to the Minister under procedures determined by the Minister as being appropriate in the relevant circumstances (including procedures that require applications to be submitted as tenders or furnished as part of an auction process)".	No change required

		Furthermore, Section 147(7) states that "The Minister may, if the licence is being issued under procedures that require the payment of a fee or purchase price with respect to the licence, require the relevant payment before granting a water licence".	
21	pg 103 - 7.2: Section is incomplete. WAP cannot be adopted unless this section is open to the same consultation process that the rest of the WAP has under gone.	The Natural Resources Management (General) Regulation 2005 was amended on 1st July 2016, which allows a Water Allocation Plan to specify that a site use approval is not required as per Section 20AA(1)(b). Subsequently principle 42 (formerly principle 40) is now valid, and a site use approvals is not required for the Southern Basins and Musgrave PWA. No additional consultation process is required as the draft WAP specified that the regulation was being drafted, and that should the regulation pass the wording should read as follows.	No change required
21	pg 106 - 8.2.2: Table 22 does not include Polda East A and Polda East B.	Table 25 (formerly table 22) does not include Polda East A and B as these lenses are too small to be used to determine the consumptive pool's annual storage level. Instead storage levels for these lenses and other lenses in the Polda consumptive pool will be determined by upscaling monitored storage levels in the Polda lens. Further details on this approach are provided on page 53 in Additional Science Support for the Eyre Peninsula Water Allocation Plan (Stewart 2013).	No change required.
21	pg110 8.2.2: The level of storage for Uley East A was 61.59 in 2013 but if the average of the management area of Uley north is used, the storage amount is 83.97. Danger of over allocations of the lenses. Given there is no agreement or statement in the WAP as to which lenses are inter connected - if they stand alone, they should be managed alone.	Uley North is the only consumptive pool where this is a large difference in storage levels between lenses. While the difference in storage level is not ideal, the specified trigger levels for the Uley North consumptive pool are likely to be able to manage this difference and any associated risk with over-allocation. It is important to note that the 2015 storage level for Uley North is 87.43%, which is below the upper storage trigger level (90%) and just above the mid storage trigger level (86%). This means allocations are reduced at the start of the new WAP for the Uley North consumptive pool; and should storage levels further decline the allocations will be further reduced in accordance with Table 22 (page 99 of the WAP). Water level monitoring for the Uley East A lens will also regularly check if the specified trigger levels are adequate to prevent undesired decline in water levels. Adjustments to the triggers levels will be undertaken should undesired water level decline occur.	No change made.

		It is worthwhile to note that the investigation by Zulfic et al. 2007 - Uley Basin Groundwater Modelling Project Volume 2: Groundwater Flow Model (DWLBC Report 2007/04) investigated the pre-development interconnection between Uley South, Uley Wanilla and Uley East. This investigation found identified interconnection through the Tertiary sands aquifer.	
21	MERI is an unfinished document - complete and send out for public consultation.	The MERI plan has been completed and is now available on the website at http://www.naturalresources.sa.gov.au/eyrepeninsula/land-and-water/water-allocation-plan-new/supporting-documents-southern-basin-musgrave	No change made to WAP, yet updated the MERI plan
21	A lot of the info contained in the WAP is repeated in the MERI. Combine the two documents to make for easier read.	The MERI plan and WAP have been retained as two separate documents. The MERI plan and Section 8 of the WAP has been refined to increase cohesion between the documents.	Refined Section 8 of the WAP, and updated the MERI Plan.
21	Failing to have the MERI plan included in the WAP indicates that there is a loophole so that monitoring etc. does not need to be followed. A significant learning for the current WAP for not following the monitoring requirements.	Monitoring requirements for the WAP are specified in the updated MERI plan.	No change required
21	MERI needs to be completed before it can have proper public consultations. Finalise it and sent it out for comment.	The MERI plan has been completed and is available on the website.	No change required.
21	Language needs to be consistent throughout MERI and WAP i.e. are they wells or bores? Are they lenses or aquifers?	Bore' has been renamed to 'well' in the MERI plan in order to be consistent with the NRM Act 2004 and the WAP. An aquifer is the saturated portion of a geological feature, whereas a freshwater lens is the portion of water in that aquifer which is delineated by the 1000 mg/L isohaline.	Term 'bore' changed to 'well' in MERI Plan

		Both terms aquifer and lens are used in the WAP in different contexts and are defined in the glossary of the WAP.	
21	Page 8 Fig 2 Monitoring activities # 4- Measure or est groundwater extraction for consumptive purposes. Don't estimate. There should be enough monitoring sites to get accurate figures for extraction. If there is a need to estimate the S&D usage, the WAP has already defined what the amount will be so there is no need for another estimate. If the est. refers to S&D put a note at the bottom of the diagram to indicate that the amounts used for S&D are XXX as per the WAP.	Licensed extractions such as irrigation and public water supply are metered, and the meters are read annually after the end of a water year (after June 30). The estimation is for stock and domestic use, as these water uses are not metered and subsequently require an estimation to be made. These estimates are included in section 5.1.2.1 of the WAP. Figure 2 of the MERI plan has been amended to better reflect what is metered and what is estimated.	Amended Figure 2 of MERI plan
21	pg 8 Fig 2 Evaluation Quests (whole sections) Asking if something has been successful but does not define what success looks like. Is 100% success or is 50% ok or 10%? Is it that the water levels remain even or better that the year before? Is it that the salinity remains stable or reduces from the year before. Be clearer. This will make reporting easier. It will allow the public to actively see what is expected of the agencies involved and able to contribute to conversation about how this can be made even better the following yr.	The updated MERI plan has included seven evaluation questions that will be used to determine the success of the WAP. These evaluation questions are linked to the objectives of the WAP. Please refer to section 3 of the MERI plan for details. Figure 2 of the MERI plan shows the links between evaluation questions and the corresponding monitoring and reporting arrangements.	Updated evaluation questions in the MERI plan
21	pg 10 Sect 2.3 It does not state which sites will be doing the bit of monitoring. 1) Monitoring groundwater levels at a number of sites (? Which sites - not all of them otherwise it would be written as being all of them). 2) Monitoring groundwater salinity levels at a number of sites (which sites??). Add a list in the MERI section of the WAP that lists exactly which monitoring bore will be doing what part of the monitoring for transparency.	Appendix 2 of the updated MERI plan now shows the location of monitoring wells to monitor groundwater level and salinity.	Included a map of monitoring wells in Appendix 2 of MERI plan.

21	pg 11 Sect 3.1 Prioritisation of groundwater resources and GDE's. The baseline condition of priority GDE's is not fully addressed, and will need to be part of MERI plan. This needs to be finalised before the doc can be approved. Cannot be sections (particularly in relation to the environment and GDE's) that are not fully assessed or at least a benchmark set. NRM Act 2014 Chap 2, Pt 1, Sect 7(3)(b) If there are threats of serious or irreversible damage to natural resources, lack of full scientific certainty should not be used as a reason for postponing measure to prevent enviro degradation. Needs to be a starting point included and it needs to be a conservation approach. Written benchmark are not made on an annual basis, that changes be implemented immediately as per Act section above.	Appendix 1 of the updated MERI plan now includes monitoring details of the priority groundwater dependent ecosystems, and the approach to determine baseline condition.	Included priority GDEs in MERI plan.
21	pg 12, fig 3 Suggesting to leave the graph out. This is a controversial graph that can also be used to show that extraction has affected the groundwater levels. If it is to be included then extraction levels of those sites where extraction exists should be included. Needs a comment that historically there was interconnectivity of these lenses and it cannot be 100% stated that the lenses that were not extracted from for licenced use, were not affected by the reductions of inflow from lateral sources.	The figure was removed from the MERI plan. The figure was replaced in the WAP with multiple figures which show rainfall trends, water level trends and historic extraction for specific groundwater resources (see section 1.5 of WAP for details).	Figure 3 removed from MERI plan
21	pg 14 Sect 3.3 Groundwater salinity monitoring. Fig 3 is rainfall deviation and not of wells that would be used for monitoring, Figs 4 & 5 are the one that is being referred to. Why every 3 years? what is the justification for 3 years. Which wells specifically will be used for this. Not just plotted on a map (which is good) but also include the list of the names of the wells.	Section 4.2 has been updated in the MERI Plan. Salinity monitoring is to occur annually, and locations and names of monitoring wells are included in Appendix 2 of the MERI plan.	Amended section 4.2 and appendix 2 of MERI plan.
21	pg 15, Sec 3.3 Groundwater salinity monitoring - Salinity in productions bores from which significant volumes are extracted can vary rapidly. Over extraction from production bores can disturb stratification in an aquifer causing upward coning of higher salinity water into production zones. Why is there not monthly monitoring on the production bores as per current WAP? What	Principle 35 of the WAP allows for licensees who extract more than 100 ML per year to complete an 'annual water use report' as a part of their water license requirements. This principle may require the licensee to monitor water levels and salinity at the point(s) of extraction.	Amended section 4.3 of MERI plan.

	interval of monitoring is there for these production bores? It is still monthly, which are the specific production bores that will be monitored? What is considered 'significant volumes'? Salinity levels needs to be at the point of extraction as per current WAP and not a composite of a number of bores of a mix (SA Water was providing DEWNR with a report that was a composite of the extracted salinity of both Bore 7 & the Trench. This masked how bad the salinity was at the trench until the water levels dropped to a point they could no longer use the trench). Misleading info that needs to be specifically stated. Needs also to state the volume specifically.		
21	pg 16 sect 3.5 - Climate parameters. The number of rainfall stations and their locations provide for a reliable estimate of the rainfall falling on the recharge areas of the various consumptive pools. This does not, however, provide the exact amount of rainfall that is falling on the land above the recharge areas. As per previous submissions and using Polda as an example, the lateral flow is from East to West towards the sea. Majority of consumptive pool is to the West of the Polda lens, hence if the rainfall is significant in the consumptive pool area, it will actually travel away from the Polda lens and not recharge it. The only rainfall that which falls on the land above the lens. Needs to be a commitment that the rainfall is not an estimate & that the rainfall data that is used to assign the allocations is not from the consumptive pools but from the land above the lens itself. Consumptive pool data will give a regional perspective but cannot be relied upon for allocations.	As mentioned in previous comments, recharge rates for the new WAP have only been used to calculate the resource capacity. Recharge rates will no longer be used to calculate annual allocations as per the previous WAP.	No change required.
21	pg 17 sect 4 - Groundwater level data will be collected by the responsible agency in accordance with the operating procedures documented in the WAP, implementation plan, and stored on the central … database. Who is the responsible agency? What are the op procedures as this has not been provided to the public for consultation? What is the WAP implementation plan? This has not been provided for	Section 5 of the updated MERI plan specifies data management arrangements, while Section 7 specifies responsibilities to implement the MERI plan. Included in section 7 is an outline of the implementation plan, which is to guide operational activities of the MERI plan.	No change required.

	public consultation nor is it documented in the WAP as a part that needs to be considered? Is the WAP implementation plan part of the provisions the Minister needs to take into account before allocating licences? Issue around lack of clarify of who is the responsible Agency. Is the MERI plan not considered the operation procedures for the WAP? This needs to be provided before the WAP can be adopted otherwise the WAP is an incomplete document.		
21	pg 18, sec 5 - Community Engagement. How is community comment or request going to be included or weighted as far as importance is concerned? Keep this in but be more specific about how this is to be used or supported.	Licensees and other key stakeholders will be surveyed biennially to determine whether the community believes the WAP has been successful in meeting its objectives. Section 3 of the MERI plan provides a specific evaluation question to guide this community survey.	Amended section 3 of the MERI plan.
21	pg 18, sec 6 - Data Gaps. What are the 'opportunities' to seek further investigation? If this is reliant on funding then this is a concern that there will not be an increase in funding and therefore the gaps will remain. There needs to be a plan within the plan as to how these data gaps are going to be either dealt with or closed. If there are gaps in the data then the cautious approach needs to be taken which may require that not allocations are allowed in the areas with no or limited info.	Uncertainty and data gaps are common and widespread in hydrogeology. Uncertainty is reduced through ongoing scientific research and investigation. The WAP was based on the best available science and employs the precautionary approach. Additional investment in addressing data gaps could be considered when there is available resources or a need to address a data gap.	No change required
21	pg 22, GDE Monitoring Program Scope. In order to start answering these questions a minimum commitment to this monitoring program may be up to five years to adequately capture varying biological and climatic conditions. Monitoring should be for the life of the plan and not just a commitment for 5 yrs. There is not enough decision about what is going to happen rather there is a lot of "this should be or could be or may be". Make a decision and document it. If there are areas of being unsure if this is going to be enough, then build in a benchmark so that the issues don't remain for the life of the plant - the MERI is for a continuous improvement but unless a starting point is documented the plan is useless and cannot answer your original evaluation questions.	Five year commitment is stated to start answering the outlined questions. After five years of monitoring, the data will be analyzed to check if the monitoring approach is adequate or if changes are required. To avoid any doubt the MERI plan is for the lifetime of WAP. However the described techniques of the MERI plan may be adjusted should be improved techniques be discovered for GDE monitoring.	No change required.

21	pg 23 GDE study populations. Page 40 GDE monitoring site selection in Musgrave. There is no mention of Polda Red Gum population. Include this population.	Polda red gum have been included as GDE monitoring site. See Appendix 1 of the MERI plan.	Polda red gums included as a GDE monitoring site.
21	pg 27 A rationale for site selection. This MERI plan sets out a range of criteria created for the purpose for developing an objective and transparent site prioritisation for a monitoring program. Disagreed. The MERI plan makes a lot of suggestions and comments regarding things that could or should happen but there is limited actual decision making. A monitoring plan cannot be mediocre. In needs to be clear and concise & have a rationale for that decision. Rework the whole document - to be qualitative decisions: Who does what. When they do it. Why is this timeframe the best option? What are they monitoring for? Why is this important to monitor for it. Who will do the monitoring? What will they do with the information? Who is monitoring the results as a whole? How is this to be reported to the Minister, other agencies and the community?	The MERI plan has been amended to improve clarity, as well as specifying responsibilities and timelines (see section 7 of MERI plan). Section 3 outlines the evaluation questions that will guide “what” and “why” monitoring occurs. Reporting arrangements are shown in figure 2.	Amended text throughout MERI plan.
21	pg 28 Design and monitoring protocols for GDE sampling units and subsamples. First paragraph. Disagreed. There are parts of Evan's work that also state that over extraction occurred in Polda. This is always left out of any document that the agencies provide. Evans is coy by then claiming that "it is believed this is now remedied", however he never offers any proof the over-extraction is actually remedied. The current state of Polda is clear that there is, and has been an issue. 1975/76 was the highest rate of extraction on Polda by SA Water but this is not acknowledged and it is always put down to climate change. There has never been any natural discharge of 3-5m in a 12 month period in any aquifer as per pg 14 of the draft WAP. This statement is therefore false and misleading. Do not place the high level of commentary of climate change as being the reason for the decline of water levels particularly in the MPWA. It is	The MERI plan has been amended to reflect that extraction can impact GDEs. The WAP now includes greater historical context regarding Polda and past extraction (see sections 1.4 and 1.5.5 of WAP).	Amended text in Appendix 1 of MERI plan Included sections 1.4 and 1.5.5 into the WAP

	not disputed that climate change may have contributed but if the current WAP was followed, decisions could have been made to cease the extractions earlier to allow for potential remediation of the lens rather that allowing it to get to such a state. Despite low rainfall in the last few years, there has been an incline in water level and this still shows that natural discharge. This could be considered proof that extraction is the issue. Suggest this section is reworded so that it includes all sides of the situation. Do not use false or misleading info in any of these documents (this point was noted at one of the Elliston stakeholder meetings).		
21	pg 38 Revisit frequency, second paragraph. The paragraph commences by noting that the manual water level recorded is necessary with monthly sampling considered ideal. Then it states that quarterly is suggested (3 monthly) then the paragraph finishes by saying Frequency should never be less than twice per year (6 monthly). Inconsistency in the document and no decisions will lead to nothing being done. Make a decision - monthly, as this is ideal. There is too much of a difference between monthly monitoring and 6 monthly.	The draft MERI when released was a working document and the frequency of monitoring had yet been decided. The updated MERI now specifies the frequency of the monitoring activities.	Monitoring frequency is specified in MERI plan.
21	pg 39 3-Phreatophytes. Again it is stated that ideally monitoring is twice yearly but then states "if only one sampling event is possible". Last comment is "five yearly samples for changes in density would be a minimum useful re-visit frequency". Make the decision. Is this just for a particular part of the monitoring or is there a suggestion that the twice yearly above is now out to 5 years?	The draft MERI when released was a working document and the frequency of monitoring had yet been decided. The updated MERI now specifies the frequency of the monitoring activities.	Monitoring frequency is specified in MERI plan.
21	pg 41 GDE data storage. As such it is vital that one person will be responsible for coordinating the annual surveillance program … Data … will need to be stored and maintained by a single nominated person (e.g. NREP monitoring, evaluation and reporting officer). Does this positions currently exist or will it exist if this WAP and MERI plan are adopted? What is the likelihood of the funding being available for this position for the life of	Noted. The Eyre Peninsula NRM Board and Natural Resources Eyre Peninsula are now in the proceeding with implementation arrangements including setting staff responsibilities. Funding arrangements to sustain the WAP's monitoring activities will be a part of the Board's next three yearly Business Plan.	No change required

	this plan. Need to have a safeguard that if the funding is pulled that this work will still continue and this needs to be documented so everyone knows what is expected and what will happen.		
21	pg 42 GDE data analysis and interpretation. Perhaps the most importance point to recognise in the monitoring program design is that data collection and the development of understanding must be considered during the design phase. What is the design phase of the monitoring program? I thought the MERI was the monitoring program? When will the monitoring program be determined and by whom? Again there seems to be an additional document that needs to be written so that the MERI plan can be completed. By my count there is : - The WAP itself and about 20 subdocuments you need to read to understand it . - The MERI plan - The WAP Implementation Plan. - The design phase document of the monitoring program. - The monitoring program.	This sentence outlines that the design of a monitoring program must be aware of the intended analysis to ensure that the monitoring activities collect the necessary data to analyze what's actually happening. The MERI plan is the monitoring program, and it guides monitoring for GDEs and the associated groundwater resources. Operational details of monitoring activities may however need to be documented as need arises. The MERI plan was developed by staff from Department of Environment, Water and Natural Resources, and they will be responsible for its implementation. Your comment regarding the number of documents to read to understand the WAP is acknowledged; and your commitment to read them is appreciated.	No change made
21	pg 43, GDE data analysis and interpretation. Soil moisture monitoring during periods when watertable are low and climatic stresses highest may ultimately dictate whether a given plant function group can persist at a site or not. Do we want plant function groups to persist in current sites or just end up wherever? What is the goal for the environment in order to measure the success? This could be one of the monitoring and evaluation questions in the MERI plan. Have the current plant function groups remained in those sites or have they migrated elsewhere?	Soil moisture monitoring will increase the understanding about storage levels affect on sustaining current GDEs. This information will be useful for later evaluation of the WAP's policies. The objectives associated with the environmental water requirements for GDEs include: 1. A watering regime that will promote self-sustaining populations of groundwater dependent flora and fauna that currently exist within the area 2. The watering regime will reduce the likelihood of future degradation of assets and increase their resilience to future low rainfall periods 3. The current spatial distribution of groundwater dependent flora and fauna will be maintained. These objectives are from section 3.4 of WAP. So in response to your first question and inline objective 3, the aim is to allow plants to persist in their current location. Changes such as migration will be monitored for the specified GDEs in the MERI plan.	No change made.

22	The relevant divisions of the Department of State Development have reviewed the Draft WAP and there are no significant policy issues of concern for the agency.	Taken as a comment.	No change required