| | |
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| **Email address** | [redacted] |
| **Name of respondent** | [redacted] |
| **Address** | [redacted] |
| **Contact phone number** | [redacted] |
| **Are you an individual or representing an organisation?** | Organisation |
| **Organisation or Business Details** | |
| **Name of Organisation** | Water Resources Drilling |
| **Who are you representing?** | Water related industry |
| **Draft Lachlan Alluvium Water Resource Plan** | |

Feedback on Draft Lachlan Alluvial Water Resource Plan

The issue I would like to raise with the draft Lachlan Alluvial Water Resource Plan is the introduction of a 250 metre rule for more detailed assessment and or exclusion of drilling a water bore.
The Department of Industry has not provided any documentation as to why a large distance of 250 metres is required from every Septic tank and that there is a high risk of contamination from every Septic tank in the Lachlan Valley
This is demonstrated by:
The original discussion paper for the water resource plan did not mention that septic tanks are a contamination source.
The recently released documentation provides background information on water quantity data such as water levels and groundwater usage. In contrast there is no data available to demonstrate that groundwater quality is an issue and that contamination is occurring from the hundreds and possibly thousands of stock and domestic bores that are currently within 250 metres of a septic tank
The Department of Industry has provided a fact sheet titled: Water Resource Plan Assessing Groundwater Applications
In terms of assessment of consumptive use of groundwater and interference between Irrigation bores and other bores this factsheet is a very good useful document. But the word contamination is not mentioned. One cursory reference to water quality is all that is mentioned.
This sums up the groundwater contamination policy in NSW is in its infancy and is not much more than an 'idealistic thought bubble' at this stage for many areas of New South Wales.
Other issues that the Department has not considered in the 250 metre septic tank rule

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| **After reading the Water Resource Plan Body, please indicate any general suggestions to improve the WRP Body:** | 1) Bore licence conditions refer to a septic tanks or sewage disposal system. The licence should refer to the effluent disposal area which is generally over large area to avoid concentrated effluent leaking in one area and allowing the soil to break down the bacteria. In sandy soils nitrates and bacteria and viruses can infiltrate deeper into the profile but these are the areas that the licence and water sharing plan should concentrate on.<br>2) Not considered hydraulic loading of septic effluent systems. That is the density of septic systems in an area. The 250 metre distance rule (or less) may apply in lifestyle blocks < 4 acres near a town with a shallow aquifer but on large properties with one septic tank is highly unlikely to cause a problem<br>3) The Department is assuming every bore owner uses the water for potable use. Majority of Stock and Domestic bores are used for Stock water and or watering the lawn or garden. Very few are used for potable use often due to the salinity level of the groundwater being too high.<br>4) The rule that allows a bore to be drilled within 250 metres after a Department Hydrogeologist assess the application and puts in a condition that the top 20 metres is grouted is hard to understand the logic in practical terms.<br><br>IF a septic tank or its effluent tranches were to leak they would leak through either sandy soils or through clays with preferential pathways (cracks vertically to the aquifer)<br><br>It is highly unlikely the effluent would travel up to 250 metres laterally and then run down the bore annulus and contaminate the aquifer.<br><br>The Question is asked what is a condition of grouting the top 20 metre annulus achieving.<br><br>5) A septic effluent system has a dedicated area where the effluent is disposed of via evapotranspiration trenches and depending on soil type and design they can be 50 to 100 metres long.<br><br>The Department has only identified the 250 metre is from the septic tank this needs clarification.<br><br>6) Why has The Department not addressed or written to the many thousands of stock and domestic licenced owners and made them aware that they are at risk from using the groundwater if it truly is a risk to their health?<br>7) Secondly Why has the Department not advised existing bore owners that they may not be able to replace the bore if it is near a 250 metre of a septic tank.<br>8) Can the Department assure grouting these bore owners that by simply grouting the annulus will make the bore safe from any Health issues?<br><br>Solutions to this proposed rule are<br><br>1) Firstly, change the condition to 50 metres a more practical workable distance for landholders and drillers to work from. |

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| | 2) The Department make it a mandatory requirement bore owners obtain a NATA Registered Water Quality analysis for a Stock and Domestic bore on a bore that are within 250 metres of a Septic tank that is used form domestic purposes (not for stock watering or Irrigation)<br>3) The Department identify areas of high hydraulic loading from Septic Tanks where a more rigorous approval system for bores is required.<br>4) Consult the Drilling industry and bore owners of domestic bores, to make this a more workable policy then is currently proposed.<br>5) Undertake an Education Program for bore owners current and future and Drillers and Septic tank installers of the risk of contamination when using groundwater near Septic tanks,<br><br>Greg Brereton<br>Managing Director<br>Water Resources Drilling. |
| **Response to chapter 6: Water Quality Management** | |
| **Do you have any comments on the identified risks to water quality?** | The draft plan has not provided any data to prove there are risks to groundwater quality from Septic tanks |
| **Do you have any comments on the strategies to mitigate risks to water quality?** | Yes see my submission at start of this submission |
| **Response to chapter 7: Measuring and monitoring** | |
| **Do you have any comments on the proposed monitoring, reporting and evaluation plan?** | A program to monitor groundwater quality is required to measure impact Septic tans have on groundwater in the lachlan valley |
| **Further responses to Schedules and Appendices** | |
| **Do you have any other comments on Schedule F - Water Quality Management Plan** | Needs to provide evidence that water quality from Septic tanks leaking is impacting on groundwater quality in the Lachlan Valley |
| **Additional Information** | |
| **I give permission for my submission to be publicly available on the Department of** | Yes |

## Industry website

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|---|---|
| **Email address** | [redacted] |
| **Name of respondent** | [redacted] |
| **Address** | [redacted] |
| **Contact phone number** | [redacted] |
| **Are you an individual or representing an organisation?** | Organisation |
| **Organisation or Business Details** | |
| **Name of Organisation** | Namoi Water |
| **Who are you representing?** | Peak representative organisation |
| **Peak Representative Organisations** | |
| **Who do you represent?** | Irrigators |
| **Draft Lachlan Alluvium Water Resource Plan** | |
| **After reading the Water Resource Plan Body, please indicate any general suggestions to improve the WRP Body:** | Whilst it is recognised that "templates" for regulatory instruments have been used in the past, the importance of the review component of the Water Sharing Plans has been a missed opportunity in the process of developing Water Resource Plans. In terms of the WRP the lack of process to undertake reviews of recharge estimates, updated hydrogeological modelling and more generally the use of methodologies covering range of WRP issues has not been adequately presented to the Groundwater All SAP or local communities for comment prior to public exhibition. We note that whilst the department might well undertake consultation it is our experience that once a plan is on public exhibition changes made are usually minor in nature reducing the communities input and support for the plan and the planning process.<br><br>The departments lack of resourcing of the commitments made in the WSP process in terms of numerical modelling and reviews committed to in the previous reform over 14 year combined with the reduction in reporting to the community outputs of monitoring/status reports has eroded confidence in the department.<br><br>The WRP process has been under resourced in terms of experienced and supported planning and policy staff. This has had a detrimental impact on the review of Water Sharing plans and development of WRP's.<br><br>Current policy staff have been over taxed in terms of the effort |

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| | required to develop plans to the stage of public exhibition. This is despite significant funding from the Commonwealth to DPI Water and as a result the outputs of this process has been rushed and the commitments made at the All SAP for Groundwater have not been addressed due to the resulting time limitations associated with the lack of resources, experienced planners and monitoring and evaluation.<br><br>One of the aims of the planners was to improve the readability of the Water Sharing plan language and this is supported. This however is more complex in the WRP which requires cross referencing with a number of external documents. |
| **Response per WRP chapter** | |
| **Do you have any comments on the objectives in the WRP and the WSP?** | The vision and objectives are supported however we note that the previous plans referenced sustainable sharing of the groundwater resources that ensured supply of quality groundwater for the social and economic benefit of people. We would suggest this vision is more relevant than the version within the new Water Sharing Plan. In regard to the ordering of the points in the plan and the review of the section and subsection as a whole context we would be concerned if the vision/objectives included any change in the priority of sharing to achieve the above vision which was agreed to by the community in the previous plan.<br><br>We do not support objective (1) as it is currently written in terms of reference to Groundwater Dependent Ecosystems. The GDE in appendix 3 are not Ground trothed with physical confirmation of presence of GDE. We ask that the Note reflect that the GDE in Appendix 3 are possible or potential but NOT ACTUAL and further that a clear process is included so the burden of impact from the lack of certainty is not borne by consumptive water users. |
| **Do you have any comments on the consultation process undertaken?** | The economic objectives need to be measurable and based on the current trade rules and criteria subsection (b) and (c) are restricted. This restriction is translated in the number of applications that are discouraged or withdrawn prior to their determination which does not allow the collected data to reflect the impact of the current rules which remove flexibility of originally intended trade provisions. The current assessment of local impact has not included any new information in terms of saturated thickness of soil classifications and the model used is extremely conservative approach resulting in many cases unnecessary restrictions. |
| **Response to chapter 3: Risks to water resources** | |
| | Risk-based management using ‘cause/threat/impact’ is a commonly used groundwater management approach. The risk of impact is a function of the ‘likelihood’ of a cause and threat occurring, and the ‘consequence’ of the impact on the receptor. The receptors area considered for current and future uses and users. These risk categories are not absolute risk, but are |

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| **Do you have any comments on the risks identified in this chapter?** | relative risks when compared with other zones in the Murray-Darling Basin (MDB). This approach results in fundamental practical problems that lead to risk mitigation that is unnecessary.<br>1. DPI Water state the assessment risk categories are not 'absolute' risk, but are 'relative' risk; yet later in the document the discussion about mitigation talks in terms of the assessment findings being absolute. Discussion in the document needs to be broadened out to make this point clear, that the progression of 'high' risk as a priority for further assessment is okay but more detail is required on the 'medium' to 'high' risks as the solutions propose rule changes based on information that is acknowledged as not being absolute. The data/evidence to support the assessment has not been provided for, that is, the 'high' risk as a risk pathway is not realistic nor based on measured data. The risk assessment does not talk in terms of intermediate steps between risk assessment and mitigation.<br>2. There will always be 'medium' and 'high' risk zones as they are assessed relative to each other. These zones may not in fact require the level of scrutiny they will receive as they may not pose an absolute risk to consumptive and water access licence users and the environment. However, because the relative risk ranking approach states a zone(s) risk may be relatively higher than other zones then these 'medium' and 'high' risk zones may be exposed to the possibility of further entitlement reductions which is not equitable.<br>3. The risk analysis is based on broad categorisation of zones/areas which is extremely concerning in the risk assessment. 'Groundwater source' scale datasets are used when assessing risk to the receptors. I believe this will lead to entire zones being considered as 'medium' and 'high' risk of impact on a receptor, where as in fact the risk is only a portion of a zone is at risk to a particular receptor. DPI Water has stated the exception is for the 'environment' receptor which uses river reach scale (instream ecological values) or a vegetation patch scale for GDEs.<br>4. The 'groundwater source' scale datasets rely on appropriate groundwater numerical models to determine current and future impacts on receptors for each zone. However, has the Numerical Model has been through a peer review process? Has the numerical model been presented to the community.<br>5. We have found for other models there is a lack of actual data for the groundwater numerical models, especially groundwater – surface water connectivity studies which is essential for this type of risk analysis.<br><br>In summary Risks are looked at a 'groundwater source' scale. This could lead to risk mitigating strategies resulting in changes to management options being proposed at a resource scale which are not necessarily required if there are zones within a resource area. Risks are relative not absolute. Therefore there will always be a 'medium' and 'high' risk in this type of risk assessment. The methodology has resulted in an overstatement within the risk assessment based on the methodology used - in particular the risk outcomes in groundwater sources is overstated purely because there is a high volume of extraction or large number of users. |

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| **Do you have any comments on the strategies to manage the risks identified?** | We request the risk assessment methodology reflects the risk in the aquifer itself rather than utilising a relative measure. |
| **Response to chapter 4: Environmental water, cultural groundwater and sustainable management** | |
| **Do you have any comments on the protection of environmental water?** | The current approach adopted by the MDBA in relation to PEW will prevent further changes and flexibility to water sharing arrangements in NSW in the future. NSW legislation provides that PEW is specified by specific rules within a plan. The Basin plan provides that all water above SDL is PEW this is a significant shift in approach to the NSW Water Management Act 2000 framework. We do not support the MDBA interpretation of the PEW effectiveness is required to any change made to timing of access. Whilst this does not affect groundwater in this version of the Water Sharing Plan it could potentially effect access in the future. |
| **Do you have any comments on groundwater dependent ecosystems and their protection?** | The current reference to GDE must accurately reflect the position communicated at the Groundwater All SAP that is that current mapping is of possible and potential GDE not proven. Whilst significant effort was made to utilise new information this has not been ground-trothed and as such there is a significant risk to water users in the assessment of new/replacement bores and trades above existing provisions. The burden of proving the existence of a GDE that is mapped should rest with the department to determine the physical existence of the GDE and it's reliance/connection to the groundwater resource. There is a paucity of information regarding reliance of GDE on groundwater particularly connectivity with surface water systems. The impact of current wording of the plan suggests that GDE's are mapped as being in existence. Unless the evidence-base is ground-truthed, water users should not be impacted, and GDE identification should be removed. DoI-Water has yet to undertake an investigation into GDEs to improve the certainty of the evidence-base (improve knowledge gaps, validate existing data and quantify the degree of reliance GDEs have on groundwater) as such there should be an amendment to the GDE provisions in the WRP accordingly. |
| **Response to chapter 5: Take for consumptive use** | |
| **Do you have any comments on extreme event management and the incident response guide?** | In the past Critical Water Panels included a broad range of community stakeholders. We have recently been through a process in the Namoi where the department convened a "department" only CWP resulting in poor outcomes in relation to understanding of the physical system and the capacity to achieve reasonable outcomes was impacted. The CWP will only work if the community is engaged. The recent Namoi example should be a cautionary tale for government of the high risks when there is a lack of local knowledge and experience in water |

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| | management systems is excluded from engagement in the practical solutions to water shortages in extreme events. |
| **Response to chapter 7: Measuring and monitoring** | |
| **Do you have any comments on the measuring and monitoring of water resources?** | The proposed method for determining Annual Permitted take (APT) in the Lower Lachlan is the variable method of the rainfall relationship model (with the annual extraction limit method being used in the Upper Lachlan and Belubula).<br><br>At the ALL SAP for groundwater it was agreed that a range of options would be tested and the data from the 6 large allivual systems would be provided to stakeholders to assess and provide feedback on. This has not be completed by the department and leaves a significant gap in the understanding of the methodology chosen and potential impacts. Whilst this may be relevant for the Lachlan after looking at the detailed assessment we do not consider this provides support for this concept to be consistently applied across the remaining systems.<br><br>The rainfall relationship mode is untested, and until there is transparency in the impacts of the model across regions then we consider this model has risks associated with it's use state wide. The method for determining APT must be valley-specific and determined based on consultation with local stakeholders.<br><br>Important considerations for the rainfall relation model as per the Lachlan valleys feedback to other water user groups;<br><br>Underlying crop type<br><br>The irrigation sector is constantly evolving. Some areas (including the Lower Lachlan) are experiencing changes to the underlying crop type, which directly influences the demand (volume and seasonality/timing) for water. For example, in the Lower Lachlan there is a move away from seasonal cropping towards permanent plantings, such as almonds. This means that demand for water will not fluctuate as significantly as in the past, and irrigators will require greater continuity in water extraction. Thus, it is expected that water demand will become increasingly decoupled from rainfall. The relationship between rainfall and water demand must be a key consideration in choosing to adopt this model.<br><br>Distribution of rainfall<br><br>The areas covered under WRPs are large, and rainfall may vary considerably within one WRP. In the Lower Lachlan, modelling is based off annual rainfall at Hillston which is not representative of the variable rainfall across the area. Within the Lachlan and if this model is to be replicated in other valleys, consideration must be given to: rainfall variability and distribution within the WRP area; where rainfall is measured; how many measuring points are required; the timing and seasonality of rainfall; the ability (physical and regulatory) to capture rainfall; and long-term |

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| | rainfall trends.<br><br>Caution is needed in the use of historical data for future projections<br><br>Under Schedule I, Table 4 (“Application of the variable permitted take method for take from groundwater in the Lower Lachlan Alluvium SDL resource unit over a historical climate conditions”) the Permitted Take is calculated as the average Permitted Take based on a 114 year period of rainfall at Hillston (mm) from the water years 1895-96 to 2008-09. The data shows that the average cumulative permitted take over that nominated historic period equals that portion of the SDL attributable to take from groundwater in Lower Lachlan Alluvium SDL resource unit (108 GL). This approach is not appropriate in valleys experiencing change in the underlying crop type, or future rainfall patterns.<br><br>A process to explain compliance triggers is needed under the rainfall relation model.<br><br>It is concerning that the processes and triggers for compliance issues under this model are inadequately developed. Water license holders need the certainty of knowing from the beginning what happens if there is a compliance breach (e.g. a review is requested). The use of groundwater when rainfall conditions are low may push a user over a compliance trigger unknowingly. A provision for a review period is needed along with a clear process for communicating the associated compliance triggers annually if this method is used in the Lachlan.<br><br>Since usage pattern is unique to each valley, the method to determine SDL compliance must be based on the specific needs of each valley. Whilst the rainfall relation model may be appropriate in this instance,.<br><br>DoI-Water should consult with local stakeholders in each groundwater source on the appropriateness of the rainfall relation model in that area to ensure the model captures local circumstances (e.g. underlying crop type and rainfall variability). This model should be subject to review at the conclusion of the WSP. Although we would die of shock if a review was actually completed as required within a planning period. |
| **Do you have any comments on the monitoring of groundwater resources and dependent ecosystems?** | Before you monitor them you should ground-troth them. |
| **Response to chapter 8: Information used to prepare the WRP** | |
| | If the data used to develop the WRP for the Lachlan is anything like the Namoi we request the report on the Peer review of the numerical model is provided to stakeholders as part of this consultation process. Further the confidence levels within data |

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| | sets used to inform the risk assessment was an issue raised at the time of their release and to date this has still not been addressed. |
| **Do you have any comments on chapter 8?** | Although we would say well done to Vanessa and the whole team, this has been a difficult process to manage late into the process and within short timeframes. Fortunately most of the technical capacity of the Groundwater team was untouched in the restructures it has taken a lot of time and commitment from the current staff to produce WRP and Water Sharing plans (albeit without any real changes) and whilst there is continued disappointment the reviews of the first plans has not been completed we recognise the resource constraints associated with the monitoring and evaluation programs contributed to this issue. Look forward to some of the issues and comments we have made (particularly GDE referencing) being addressed in the review of the plan feedback. Well done all. |
| **Additional Information** | |
| **I give permission for my submission to be publicly available on the Department of Industry website** | Yes |

NSWIC
NEW SOUTH WALES IRRIGATORS' COUNCIL

[redacted]

# SUBMISSION

# Draft Lachlan Alluvium Water Resource Plan

November 2018

**Member Organisations:** Barwon-Darling Water, Bega Cheese Ltd., Border Rivers Food & Fibre, Coleambally Irrigation Co-Operative Ltd., Cotton Australia, Dairy Connect, Gwydir Valley Irrigators Association Inc., Hunter Valley Water Users Association, Lachlan Valley Water, Macquarie River Food & Fibre, Murray Irrigation Ltd., Murray Valley Private Diverters Inc., Murrumbidgee Groundwater Inc., Murrumbidgee Irrigation Ltd., Murrumbidgee Private Irrigators Inc., Murrumbidgee Valley Food and Fibre Association, Namoi Water, NSW Farmers' Association, Ricegrowers' Association of Australia Inc., Richmond Wilson Combined Water Users' Association, Southern Riverina Irrigators, South Western Water Users', West Corurgan Private Irrigation District, Western Murray Irrigation Ltd., Wine Grapes Marketing Board, Yanko Creek and Tributaries Advisory Council.

## Introduction

The NSW Irrigators' Council (NSWIC) is the peak body representing irrigators and the irrigation industry in NSW. Our Members include valley water user associations, food and fibre groups, irrigation corporations and commodity groups from the rice, cotton, dairy and horticultural industries. Through our members, NSWIC represents 12,000 water access licence holders in NSW who access regulated, unregulated and groundwater systems.

NSWIC engages in advocacy and policy development on behalf of the irrigation sector. As an apolitical entity, the Council provides advice to all stakeholders and decision makers.

This submission represents the views of the Members of NSWIC with respect to the draft Lachlan Alluvium Water Resource Plan. However, each member reserves the right to independent policy on issues that directly relate to their areas of operation, expertise or any other issues that they deem relevant.

## Overview

NSWIC welcomes the Draft Lachlan Alluvium Water Resource Plan (WRP) as part of the first tranche of WRPs in NSW to be released for public consultation. NSWIC acknowledges that the development of WRPs is a key commitment of the NSW Government's obligations under the Murray-Darling Basin Plan. This submission includes the viewpoints of both those in the Lachlan area who are directly impacted by this WRP, but also irrigators from across NSW potentially subject to the precedence or influence of this WRP. The focus of this submission will be on state-wide implications of this WRP.

WRPs are to outline how each region aims to achieve community, environmental, economic and cultural outcomes, but also ensure that state water management rules meet Basin Plan objectives. Thus, WRPs have important considerations at both a regional and state-wide level. The Basin Plan 2012 (Chapter 10) outlines the requirements for WRPs. The WRP must comply with Chapter 10 requirements for it to be accredited under Part 2 Division 2 of the *Water Act 2007 (Cth)*. This includes compliance with the Sustainable Diversion Limit (SDL), water trade rules, planning for environmental watering, water quality objectives, measuring and monitoring, and arrangements for extreme weather events. Whilst Water Sharing Plans remain as the key regulatory instrument, WRPs are of critical importance to irrigators and the irrigation industry as they also underlie operations and practices, and have potentially large economic and social impacts.

## Submission

In this submission, we focus on the areas of most concern to our members, both in the Lachlan Valley and state-wide.

The overarching recommendation of this submission is that while NSWIC acknowledges the need for consistency in approach across the state, the methods, processes, standards and thresholds of one WRP should not be replicated inflexibly between valleys, as the issues, context and requirements of each valley are context-specific. Whilst there is neatness in applying a consistent methodology or format, extreme care must be taken to ensure that the methods are the most effective and beneficial, particularly in relation to water users. NSWIC strongly encourages DoI-Water to undertake an increased level of public participation in decision-making at a local level, and consult with local groundwater licence holders across the state to develop the most suitable practices for each area. This approach acknowledges that each aquifer and groundwater source (and usage of that resource) is unique, and values the local practical and operation knowledge held within these areas.

Based on this overarching recommendation, the key issues raised by NSWIC in this submission are:

1. Improved readability is needed to ensure clarity and reduced likelihood of misinterpretation
2. The risk assessment methodology may lead to inaccurate calculations of risk
3. Further studies into Groundwater Dependent Ecosystems are needed
4. The rainfall relation model may not be appropriate in all areas
5. Water users must be consulted if there are any impacts from ongoing consultation with Indigenous nations on the ability of entitlement holders to utilise their entitlements.
6. Basic Landholder Rights require clarification
7. Overallocation and Supplementary License Triggers must be tailored
8. Greater community participation is required, particularly in relation to Extreme Events Policy.

*1. Improved readability is needed to ensure clarity and reduced likelihood of misinterpretation*

To read this WRP requires extensive cross-referencing across a portfolio of relatively complex documents. NSWIC is concerned that this complexity will make it difficult for stakeholders to be cognisant of all requirements in the WRP. Although Water Sharing Plans are the main document governing licence holders in the management and utilisation of their entitlements, it is reasonable that all stakeholders should be able to readily understand and access information in a WRP. This would ensure there is comprehension, clarity and accessibility of the requirements of the WRP across stakeholders.

The complexity of the portfolio of documents also broadens the scope for interpretation. Since the purpose of the WRP is to provide definitive rules and plans, there is concern that large scope for interpretation may create uncertainty and confusion.

Whilst it is acknowledged that documents of this kind are inherently complex in nature, greater consideration is needed to simplify the format and availability of information to be accessible. NSWIC is concerned that the WRP as it currently stands appears overwhelming and confronting. NSWIC acknowledge, and appreciate, that the intention of the Fact Sheets and FAQs was to address this issue of readability. We encourage DoI-Water to continue

developing these fact sheets, but to also focus on readability of the WRP itself. As primary principles of any WRPs, NSWIC submits that WRPs should be communicated in a manner where it is able to be effectively, easily and clearly understood by water users.

> **Recommendation:** Where ever possible reduce the complexity of the WRP and provide additional explanatory materials for stakeholders. To reduce complexity, NSWIC encourages DoI-Water to consolidate multiple documents by incorporating sections of key supporting documents into the WRP where length of text permits, or provide hyperlinks to more easily guide the reader. Explanatory materials should be plain English, and prioritise key principles of accessibility, clarity, comprehension and simplicity.

*2. The risk assessment methodology may lead to inaccurate calculations of risk*

The methodology for risk assessment used in the Lachlan Alluvium WRP may lead to overstated assessments of risks. This is because:

- The approach to categorising consequences in the risk assessment methodology (as low, medium and high) based on percentiles means that there will automatically be groundwater sources considered in the high category.
- The consequence rating is determined on a state-wide basis rather than the particular groundwater area.
- The metrics are based on the number of users and the volume of extraction. As a result, larger groundwater sources will likely fall within the high consequence rating category regardless of the actual risk in the aquifer itself.

The result of using this methodology for risk assessment is that the risk outcomes in some groundwater sources will be over-stated simply because there is a higher volume of extraction or larger number of users. We acknowledge that the risk treatment pathway outlined in the Consolidated Risk Tables (p. ii – xiii, Risk Assessment for the Lachlan Alluvium Water Resource Plan Area) does take into account the management rules applied in the Water Sharing Plan to ameliorate the risk and that in the cases where the risk outcome is classified as High, the residual risk is identified as High – tolerable.

> **Recommendation:** Amend the risk assessment methodology to reflect risk in the aquifer itself, using absolute rather than relative measures. Develop the most appropriate risk assessment methodology based on local recommendations.

*3. Further studies into Groundwater Dependent Ecosystems are needed*

NSWIC requests that all policy decisions regarding Groundwater Dependent Ecosystems (GDE) must be made through an evidence-based process, with evidence being appropriately reviewed, ground-truthed, and knowledge gaps filled.

NSWIC also requests clarification with regard to 'high priority' GDEs[1] compared to GDEs. This terminology is used in both the WRP and the proposed WSP but is not consistent. GDEs are

[1] Example - DRAFT Water Sharing Plan for the Lachlan Alluvial Groundwater Sources 2019, S9(2)(a)

defined and mapped, but there is no definition of 'high priority' GDEs. The inclusion of this terminology implies that there are some GDEs that are more important than others and get treated with a higher priority than others. If this is not the case, the term 'high priority' needs to be removed from all documents and only reference GDEs as defined in the dictionary and as identified in the attached map schedule.

Greater certainty in the methodology underpinning identification of GDEs is required before this method can be used to predict whether groundwater extraction poses any risk to a GDE which is not managed by the existing WSP rules.

Historically, provisions for further studies and reviews of recharge have been included in Water Sharing Plans but have not been completed. This has resulted in policy creep where the status quo has been maintained without justification. Consequently, any water greater than the extraction limit has become Planned Environmental Water by default.

The risk for water users is that if the Department does not undertake reviews (as have been committed to in the past) insufficient information is known about GDEs to be able to determine how GDE management should interact with water users. Specifically, the degree of reliance of GDEs and which specific aquifer system that GDE depend upon, are crucial pieces of information in order to best manage both the GDE and water usage. **The result of delaying reviews is that a precautionary approach is taken which does not pay equal caution to the potential social or economic impacts of the rules of groundwater extraction.**

NSWIC recommends that the WRP should facilitate further reviews to:

- Improve knowledge gaps
- Validate existing data
- Quantify the degree of reliance

**Unless the evidence-base is ground-truthed, water users should not be impacted, and GDE identification should be removed.** NSWIC is respectful that if water extraction is proven to have a significant impact on groundwater, then water extraction rules will need to be amended. However, the onus to prove whether groundwater extraction poses any risk to a GDE should be on government agencies. Precautionary action should only be an interim measure whilst sufficient information can be captured. The longevity of this issue creates concern that precautionary principles may lead to policy creep where policies lack a robust methodology, and consequently have unreasoned social and economic impacts. Decisions made primarily based on vegetation mapping which are not ground-truthed are insufficient. Further reviews are urgently needed to better understand the nature and magnitude of the linkages between groundwater extraction and GDEs.

> **Recommendation:** DoI-Water undertake an investigation into GDEs to improve the certainty of the evidence-base (improve knowledge gaps, validate existing data and quantify the degree of reliance GDEs have on groundwater) within the timeframe of the WSP to be implemented in 2019, and amend GDE provisions in the WRP accordingly.

*4. The rainfall relation model for SDL compliance may not be appropriate in all areas*

The proposed method for determining Annual Permitted take (APT) in the Lower Lachlan is the variable method of using the rainfall relationship model (with the annual extraction limit method being used in the Upper Lachlan and Belubula). NSWIC feels this is a logical proposal in some instances as many people (particularly in the Lachlan) use surface and groundwater conjunctively. However, this model is new and relatively untested, and may not be suitable to be applied to other valleys given that we are witnessing significant changes in the irrigation sector in some valleys. For this reason, **NSWIC does not endorse replicating this method to other valleys,** as consistency of methodology is not as important as ensuring accuracy and appropriateness of the method in each case. For future WRPs, NSWIC recommends that the method for determining APT must be valley-specific and determined based on consultation with local stakeholders.

The important considerations for this model, both within the Lachlan and if adopted in other areas of NSW, are outlined below.

*Underlying crop type*

The irrigation sector is constantly evolving. Some areas (including the Lower Lachlan) are experiencing changes to the underlying crop type, which directly influences the demand (volume and seasonality/timing) for water. For example, in the Lower Lachlan there is a move away from seasonal cropping towards permanent plantings, such as almonds. This means that demand for water will not fluctuate as significantly as in the past, and irrigators will require greater continuity in water extraction. Thus, it is expected that water demand will become increasingly decoupled from rainfall. The relationship between rainfall and water demand must be a key consideration in choosing to adopt this model.

*Distribution of rainfall*

The areas covered under WRPs are large, and rainfall may vary considerably within one WRP. In the Lower Lachlan, modelling is based on annual rainfall at Hillston which is not representative of the variable rainfall across the area. Within the Lachlan and if this model is to be replicated in other valleys, consideration must be given to: rainfall variability and distribution within the WRP area; where rainfall is measured; how many measuring points are required; the timing and seasonality of rainfall; the ability (physical and regulatory) to capture rainfall; and long-term rainfall trends.

*Caution is needed in the use of historical data for future projections*

Under Schedule I, Table 4 ("*Application of the variable permitted take method for take from groundwater in the Lower Lachlan Alluvium SDL resource unit over a historical climate conditions*") the Permitted Take is calculated as the average Permitted Take based on a 114 year period of rainfall at Hillston (mm) from the water years 1895-96 to 2008-09. The data shows that the average cumulative permitted take over that nominated historic period equals that portion of the SDL attributable to take from groundwater in Lower Lachlan Alluvium SDL resource unit (108 GL). This approach may

not be appropriate in valleys experiencing change in the underlying crop type, or future rainfall patterns until further data has been collected and analysed.

*A process to explain compliance triggers is needed under the rainfall relation model*

NSWIC has concerns that the processes and triggers for compliance issues under this model are inadequately developed. Water license holders need the certainty of knowing from the beginning what happens if there is a compliance breach (e.g. a review is requested). The use of groundwater when rainfall conditions are low may push a user over a compliance trigger unknowingly. NSWIC requests that compliance triggers and processes be outlined.

*A provision for a review period is needed*

A provision is required for a review of the rainfall relation method at a predetermined point in time. DoI-Water should reserve the right to amend this method if it is found to be ineffective when implemented. Flexibility must be retained to discontinue this model beyond 2029 if circumstances require.

NSWIC is concerned that the data for the rainfall relation method for all valleys was not provided during the Groundwater SAP meetings, and that DoI did not meet commitments to provide state-wide analysis. This does not allow stakeholders to have a clear understanding of the impact of this aspect of the proposal. NSWIC and Members strongly requests that stakeholders are provided with all available information at the earliest possible opportunity to best be involved in decision making, and to be able to share the local and operational knowledge of how polices will function on ground.

Since usage pattern is unique to each valley, the method to determine SDL compliance must be based on the specific needs of each valley. Whilst the rainfall relation model may be appropriate in this instance, **NSWIC does not endorse replicating this model across NSW**. Whilst NSWIC acknowledges that there is neatness in having a consistent methodology, this would not be beneficial. NSWIC advise that flexibility is needed.

**Recommendation:** DoI-Water should consult with local stakeholders in each groundwater source on the appropriateness of the rainfall relation model in that area to ensure the model captures local circumstances (e.g. underlying crop type and rainfall variability). This model should be subject to review at the conclusion of the WSP. NSWIC suggests that when a new untested methodology of this kind is implemented, that a complimentary tested methodology is simultaneously implemented to provide a control measure to evaluate the accuracy of a new methodology.

*5. Water users must be consulted if there are any impacts from ongoing consultation with Indigenous nations on the ability of entitlement holders to utilise their entitlements.*

NSWIC welcomes and respects the consultation with Indigenous people and organisations as part of the development of WRPs. NSWIC understands that consultation with Indigenous

stakeholders is ongoing. If this consultation results in the development of any new proposals which may impact the rights or ability of water access entitlement holders to utilise their entitlements, then there must be further consultation with license holders before any new provisions are developed.

**Recommendation:** License holders should be consulted with if there is to be any further changes to the rights or ability of water access entitlement holders to utilise their entitlements.

*6. Basic Landholder Rights require clarification*

NSWIC members seek clarification on whether the definition of basic landholder rights has been changed. Clarification is needed as to whether stock and domestic rights are recognised under basic landholder rights. Clarification is also needed for the definition of "reasonable use". DoI-Water has advised that as long as a property overlays the groundwater source, the property owner is entitled to utilise groundwater as a basic landholder rights even if the bore isn't located on the property. NSWIC requests clarification of this.

**Recommendation:** Clarification is needed on basic landholder rights.

*7. Managing compliance with WSP and Basin Plan use limits*

There are two main options for addressing non-compliance with either the WSP long term average annual extraction limit, or the Basin Plan SDL, which in the Lachlan WSP are outlined in Part 6, section 30:

1. Allocate water to all licenses and then reduce the allowable water account debit to limit usage
    - This would benefit the more active users, but also allows all licence holders the capacity to use or trade a known volume of their entitlement.
2. Reduce the available water determination (allocation) to all licences
    - This would disadvantage more active users, particularly in groundwater areas where there is significant over-allocation, such as the Upper Lachlan where entitlement is approximately 2x the use limit, because it would need to allow for carryover, and would assume that all allocation would be tradeable. In these circumstances the AWD would need to be very significantly reduced to ensure compliance with the use limit.

The position of NSWIC is that there should be no more than minimal impact, and the method should be guided by the recommendation of each groundwater source authority. The method to address overallocation must be valley specific and formed on the basis of local expertise. NSWIC offers to assist in seeking local expertise.

*8. Greater community participation is required, particularly in relation to Extreme Events Policy*

NSWIC firmly believes that the continual reduction in stakeholder involvement is becoming a critical issue, which risks the loss of valuable practical and operational knowledge that is integral to sustainable management of water resources.

> **Recommendation:** Greater stakeholder participation in decision making, such as by requirements for representation on advisory panels to ensure practical and local knowledge resources are utilised. The WRP should include a clear process for how Critical Water Panels should be established, how they should operate, what transparency requirements are needed, and what communications and reporting are required.

**Conclusion**

NSWIC welcomes the Draft Lachlan Alluvium Water Resource Plan. NSWIC requests that DoI-Water respond to the aforementioned issues. It is crucial that flexibility is maintained between valleys, and that local expertise is best utilised in decision-making. NSWIC is happy to work with DoI-Water on any of the above issues.

[redacted]

6 November 2018

[redacted]

PARRAMATTA NSW 2150

Dear Rachel,

**Submission in response to Draft Lachlan Alluvium Water Resource Plan**

WaterNSW is responsible for supplying the State's bulk water needs, operating the State's river systems and the bulk water supply system for Greater Sydney. We service approximately 46,000 customers as a one-stop shop for matters including licences and approvals, water allocation trades, water licence trades and water resource information.

The development of the Draft Lachlan Alluvium Water Resource Plan represents the first of many such plans to be released further to the requirements of the Basin Plan 2012 for accreditation under the *Water Act 2007*. We look forward to commenting on each of these draft plans upon their release.

Since 2017 WaterNSW has worked closely with the NSW Government's Water Reform Task Force to provide expert input into the Water Reform Action Plan, including most recently the metering regulations and corresponding framework. As those regulations are due to commence 1 December 2018 we **recommend** that the final Lachlan Alluvium Water Resource Plan is reviewed to ensure consistency with those regulations where appropriate. We also **recommend** identifying where sections of the relevant legislation have not yet commenced (for example, section 101A of the *Water Management Act 2000*).

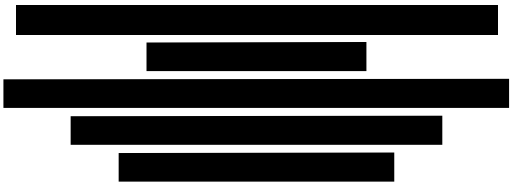
Similarly, it is prudent to accurately identify the roles and responsibilities of water agencies. WaterNSW does not meter or verify metered water take (contrary to the language of section 5.3.2 at page 42 and Schedule I, section 1.1 at page 76). Rather, where use is metered, WaterNSW bills water use according to the metered data, and the Natural Resources Access Regulator undertakes compliance and enforcement monitoring. We **recommend** the language in both of these sections is amended to accurately describe WaterNSW's functions in this water resource.

WaterNSW continues to support outcomes-based water resource plans that show functional separation of the market participants and reduce market complexity to facilitate a modern, efficient, effective and responsive water market that is understood by all participants.

Yours sincerely

[redacted]

Chief Executive Officer



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Monday 5 November 2018

**Comments on Draft Lachlan Alluvium Water Resource Plan**

The Inland Rivers Network ("IRN") is a coalition of environment groups and individuals that has been advocating for healthy rivers, wetlands and groundwater in the Murray-Darling Basin since 1991.

IRN welcomes the opportunity to provide comments on the Draft Lachlan Alluvium Water Resource Plan (draft WRP).

We note that this draft WRP is a pilot for the roll out of the other nine alluvium WRPs to be developed in NSW.

**Background**

IRN submitted substantial comments to the Status and Issues Paper on the Lachlan Alluvium released in early 2017.

One of the key concerns we outlined was the permanent drawdown of the Lower and Upper Lachlan Alluvium over the 10 years of extraction under the current water sharing plan rules.

A permanent drop of over 24 metres in some areas of the Upper Lachlan and 6 metres in the Lower Lachlan is a significant issue that has not been addressed in the development of the WRP. This permanent loss of water in the aquifers is a reduction of planned environmental water that has not been addressed.

The decision that '*groundwater levels can stabilise at a lower level under a new pumping equilibrium'*[1] has not been explained in the draft WRP.

The draft WRP is based primarily on attempting to match water sharing plan rules with the requirements of the Basin Plan without recognising that groundwater levels have declined already from the pre-development levels.

The draft WRP states that '*The long-term average annual extraction limits specified in the WSP represents a fraction of this water in these groundwater sources'*.[2] However, this does not explain why there has been a permanent drawdown of the water levels in the aquifers caused by over-extraction.

The fact that the Sustainable Diversion Limit (SDL) in the Basin Plan for the Lachlan Alluvium is equal to the Long-term Annual Average Extraction Limit (LTAAEL) in the water sharing plan requires a strong set of management rules to prevent further permanent drawdown of the groundwater sources and loss of planned environmental water.

**Proposed Rule Changes**

1. Variable rule

IRN objects to the proposed variable rule for the Lower Lachlan. This locks in the 20% limit of change to the SDL as a right.

It also paves the way for further permanent drawdown of the aquifer.

The draft WRP claims that rules in the water sharing plan will manage high and medium risks in the Alluvium[3]. However, permanent drawdown of the water source is a direct reduction in planned environmental water.

This risk will not be managed through the implementation of the 'variable' rule in the Lower Lachlan Alluvium.

This rule change has major implications on the availability of planned environmental water to support Groundwater Dependent Ecosystems during dry times.

This proposed rule will not manage the risk of climate change. If there are an increasing number of dry years, the extraction of SDL plus 20% take will become more the norm than the exception.

It has been stated that there is low connectivity between the Lower Lachlan and surface water.

*'The greater depth to the regional water table in the Lower Lachlan Alluvium results in the Lachlan River and its tributaries being largely hydraulically disconnected from the groundwater for much of their reaches.'*[4]

Therefore, the variation of pumping levels between wet years and dry years has no direct relationship to the impact of regular over-extraction of the Alluvium. The Alluvium is not likely to be well recharged during wet years because of its depth and hydraulic disconnect from surface flows.

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[1] DPI Water February 2017 Lachlan Alluvium Water Resource Plan *Status and Issues Paper* p 19
[2] Lachlan Alluvium Water Resource Plan p30
[3] Ibid p 28 Table 3-2
[4] Ibid p 22

This rule relates entirely to irrigator behaviour between wet and dry years and has no role in managing risk or protecting planned environmental water in the Lower Lachlan Alluvium.

We note that the Water Quality Management Plan has an objective to limit seasonal drawdown in high risk areas. [5] We do not support the risk assessment result that the Upper and Lower Lachlan Alluvium have a medium risk of poor water quality.

The application of the variable rule in the Lower Lachlan is likely to increase that risk.

The accompanying fact sheet on the relationship between water resource plan and water sharing plan states that for the Lower Lachlan '*The annual permitted take volume will not be more than 120% or less than 80% of the sustainable diversion limit.*'[6]

The fact sheet also states that: '*Non-compliance with the long-term average annual extraction limit occurs when this calculated average annual extraction exceeds the long-term average annual extraction limit by (either) 5% in the Lower Lachlan groundwater source.'*[7]

There is no apparent discussion in the draft WRP about the relationship between the SDL non-compliance and the LTAAEL non-compliance or how this may relate to the variable rule.

2. Removal of protection of recharge

IRN does not support the proposed rule change for the protection of planned environmental water. The protection of recharge inflows to alluvial aquifers was a subject of great importance when the first water sharing plans were being developed.

The fact that the Lower and Upper Lachlan Alluvium have both been impacted by a permanent drop in water levels heightens the importance of protecting recharge.

The actual volume of planned environmental water has already decreased in these groundwater systems. The timing of the availability of planned environmental water is critical during dry periods and the protection of a percentage of recharge is an important factor in protecting the integrity and water levels in alluvial aquifer systems.

3. Increase in time period for LTAAEL compliance

IRN does not support the proposal to increase the time period over which compliance to the LTAAEL is assessed from three years to five years in the Lower Lachlan to provide consistency across water sources.

This is particularly concerning in light of the proposed variable rule.

IRN considers that consistency of compliance to LTAAEL should be a three year rolling average across all water sources.

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[5] Ibid Table 6-1 p 53
[6] Lachlan Alluvium Water Resource Plan Fact Sheet. *Relationship between the water resource plan and water sharing plan* p 2
[7] Ibid

This will give much greater assurance that planned environmental water is protected.

We do not support the Department of Industry proposal that LTAAEL compliance be standardised to a five-year rolling average period in all Murray–Darling Basin water sharing plans.[8]

This should be standardised to a three-year rolling average period.

**Conclusion**

IRN does not consider that the draft WRP will meet the requirements of the Basin Plan.

The proposed changes to water sharing plan rules will not protect planned environmental water, achieve management of risk, or improve water quality.

For more information please contact:

[redacted]

[redacted] Frequently Asked Questions Fact Sheet p 2