

# Western Davenport Ti Tree Water Advisory Committee

## Minutes - Meeting #03

Meeting date: Wed 27 to Thurs 28 April 2022      Start time: 12.30pm

Location: Teams meeting (video) and Alice Springs meeting room

### Meeting Summary

- An updated natural water balance for the Western Davenport plan area was provided by the Department. The revised approach accounts for the water previously identified in the 'regolith'. Further information regarding model outputs and model uncertainty were also provided to the Committee.
- A summary of the Committee's Western Davenport plan review advice was presented.
- The Committee considered proposed objectives for the new Western Davenport plan, providing advice on their suitability and on appropriate measures of success.
- The Committee considered proposed refinements to the GDE limits of acceptable change (the GDE Guideline) and highlighted the need for culturally significant sites to be considered in these arrangements. The Committee will continue to review and advise on the implications of these changes when it considers the complete draft of the new water allocation plan.
- The Department presented information on the process and logic for determining the Estimated Sustainable Yield (ESY) for the new Western Davenport plan.
- The Committee plans to hold its next meeting (Meeting #04) in late July and hopes to include a field trip to the Western Davenport region.

### Summary of Recommendations and Actions

Recommendations from Meeting #03	
3.1	The Committee endorses the minutes of Meeting #02 and recommends they be published on the DEPWS website.
3.2	The Department considers producing a version of the water balance paper for the public record that clarifies terms, certainty in water balance volumes and differences in approaches between the current and future water allocation plans.
3.3	Aboriginal perspectives should inform the measures of success for all proposed objectives, but especially objectives 3 and 4. The Committee considers an Aboriginal Reference Group would be a good forum for this input.
3.4	Cultural values and significant sites should in some way be considered in the refined limits of acceptable change for the new Western Davenport plan.

Actions from Meeting #03	
3.1	The Department to prepare two versions of member bios - one with mobile numbers for members only and a second with email contact details (no phone) for web publication.

3.2	Nick Ashburner to circulate independent analyses commissioned by the Central Land Council regarding Western Davenport groundwater modelling.
3.3	Committee members to contact the Water Planning and Engagement team about opportunities for community engagement and ideas for useful information resources. Agency staff to contact Nick Ashburner and Jade Kudrenko regarding potential communication opportunities.
3.4	The Water Planning team to liaise with the CLC (Nick Ashburner) to ensure the proposal for consideration of cultural values in the limits of acceptable change arrangements is appropriately captured in the meeting minutes.
3.5	The Department to finalise dates and logistics for Meeting #04 as soon as possible.

## Meeting Record

### Item 1 Acknowledgement of country

The Chair opened the meeting and provided an acknowledgement of country: “We respectfully acknowledge the past and present Traditional Custodians of the land on which we are meeting today and the land which is to be spoken about during this meeting”.

### Item 2 Opening and welcome

Chair welcomed members, proxies and observers, and opened the meeting at 12.30pm.

### Item 3. Attendance and confirmation of agenda

Attendance and apologies were noted. A quorum was reached, including the proxies in attendance.

Members present	Method	Apologies	Department staff	Method
Andrew Johnson (Chairperson)	Meeting room	Paul Burke	Amy Dysart	Meeting room
Annette D’Emden	Online	Paul McLaughlin	Simon Cruikshank (Day 1)	Online
Jade Kudrenko	Meeting room	Roy Chisholm	Clare Taylor	Meeting room
Steve Morton	Meeting room	Peter Donohoe	Michelle Rodrigo	Meeting room
<b>Proxies</b>		Barbara Shaw	Adrian Costar (Day 1)	Online
Kate Peake (for Paul Burke)	Online		Dale Cobban (Day 1)	Online
Nick Ashburner (for Peter Donohoe)	Meeting room		Hannah Groves (Day 1)	Online
<b>Observers</b>			John Wischusen	Meeting room
Michael Liddle (Day 1)	Meeting room		John Gaynor	Meeting room
			Alaric Fisher (Day 2)	Online
			<b>Meeting Secretariat</b>	
			Isadora Salviano	Online

The agenda was confirmed with some extra time allocated to Item 7 for discussion of the regolith/natural water balance meeting paper.

### Item 4. Declaration of interests

No new declarations of interest were made. The Chair noted the ongoing relevance of the declaration made by member, Jade Kudrenko, at Meeting 2.

### Item 5. Nominated meeting evaluators

The Chair called for volunteers to evaluate the meeting, using the checklist.

Day 1 – Jade Kudrenko

Day 2 – Annette D’Emden

**Item 6. Endorsement of Meeting #02 minutes**

It was noted that the Department had circulated the draft minutes for out-of-session review and that feedback and suggested amendments had been addressed. On that basis the final draft minutes of Meeting #02 were considered and adopted.

**Recommendation 3.1:** The Committee endorsed the minutes of Meeting #02 and recommended they be published on the DEPWS website.

**Item 7. Actions & business arising**

<b>Actions from Meeting #01</b>		<b>Status</b>
1.10	Members to send vaccination status to the Chair, Andrew Johnson, or to the Department (as per correspondence) if they have not already done so.	Partially complete
1.11	Department to contact members to confirm bio and preferred contact details	Complete – bios published online; bios with contact details emailed to members 07/04/22
<b>Actions from Meeting #02</b>		
2.1	The department to arrange publication of the approved Meeting #01 minutes on the <a href="#">DEPWS Committee webpage</a>	Complete
2.2	The department will provide members with links to several technical reports: 1) <a href="#">2018 Western Davenport model report</a> ; 2) Independent model uncertainty analysis report (when it is published); 3) Western Davenport water quality (salinity) report (when it is published).	Partially complete – all published reports have been provided
2.3	The department will provide the Committee with information about the role of the regolith and how that will be addressed in the next water allocation plan and the next update of the model.	Complete - refer meeting paper and Meeting #03 agenda item 7
2.4	The department will provide the Committee with information about how the ESY, GDEs and limits to change are considered in the model.	Complete – refer Meeting #03 agenda items 7 & 19
2.5	The department will provide examples of the outputs of the model, including how risks and uncertainty associated with the outputs are flagged.	Complete - refer Meeting #03 agenda item 7
2.6	The department will provide a list of Western Davenport monitoring bores to the Committee with a link to the NT Water Data Portal	Complete - emailed to committee 07/04/22, noting some data is yet to be published.
2.7	The department to provide a breakdown of entitlements and actual water use by sector/beneficial use.	Complete - refer Meeting #03 agenda item 7
2.8	The department to provide a response to the question on notice regarding mechanisms for identifying and avoiding impacts in shallow (<5m below ground) groundwater areas.	Complete - refer Meeting #03 Agenda Item 18
2.9	Department to circulate the Western Davenport Mapping the Future Biodiversity Report	Not complete – Dept to circulate after Meeting #03
2.10	Department to circulate the GDE mapping methodology paper once it is published.	Complete – link emailed to Committee 07/04/22
2.11	Department to prepare an overview paper addressing issues raised around the regolith and model outputs, which is preferably addressed as an out-of-session teleconference prior to Meeting #03.	Complete – paper emailed to Committee 13/04/22; also addressed in Meeting #03 agenda item 7
2.12	Committee members to email any interim comments on the plan review to the water planning team before the next meeting.	Complete - no comments received

2.13	The Department to make the slide presentations available to committee members.	Completed – emailed to committee 04/04/22
2.14	All members to consider opportunities for engagement with their sectors and contact the department to discuss.	Ongoing – refer meeting #03 agenda item 7 & 10
2.15	Members to contact the water planning team with any availability/event information that might impact a late June meeting, and the department will email suggested dates, avoiding school holidays and CLC meetings where possible.	Partially complete – refer Meeting #03 agenda item 21

### Discussion of business arising

The department informed the Committee through presentation and various matters were discussed to clarify:

#### A. Entitlements and actual water use by sector/beneficial use (Action 2.7)

The Water Planner presented a breakdown of groundwater entitlements and actual use by beneficial use for the Western Davenport Water Control District. The Department (Exec Director) provided information about the frequency of spot checks (quarterly), improvements in water use reporting through the new My Meter App; and closer monitoring of non-compliance. The committee noted that intensive demand management programs in 2018 and 2019 may have contributed to reduced usage figures for public water supplies in these years.

#### B. Modelling and Monitoring (Action 2.5)

The Executive Director outlined the capacity and quality of the Western Davenport model and model outputs, including hydrogeological cross-sections and depth to groundwater mapping, and noted that the model is well-calibrated where observation data is available. Department staff also noted that the reliability of the model to accurately predict significant drawdown cannot be tested until such drawdown occurs. The Committee discussed the challenges of accounting for climate change in modelling given the uncertainty of future climate in the arid zone, especially rainfall, and the importance of adaptive management. The Chair summarised the discussion, noting the Committee's strong view regarding an effective monitoring system for early detection of potential impacts, and support for model improvements to increase confidence in model outputs across all management zones.

Nick Ashburner (proxy) offered to table an independent analysis commissioned by the Central Land Council regarding the predictive uncertainty of the Western Davenport model and . The Chair accepted the CLC's offer to provide the reports.

Members suggested that the Department consider use of the model to predict outcomes/impacts under a worse-case scenario i.e. maximum extraction under a worse -case rainfall scenario.

#### C. Regolith paper (Actions 2.3. & 2.11.)

The Chair noted that the natural water balance paper, which explained how the former "regolith" component was incorporated into the overall water balance, had been circulated to members and that no comments or clarification questions were received out-of-session. The Chair invited comments from members, and invited staff from Water Assessment Branch (Director of Water Assessment and Senior Modeller) to speak to key elements of the paper. Information was provided to clarify the definition and usage of the term 'regolith' and the rationale for not using the term in the new Western Davenport water allocation plan on the basis that the regolith is considered to be a portion (upper part) of total aquifer storage. The Committee noted that this term has created significant confusion and contention and requested clarification on whether the revised definition will result in greater reliability and precision in modelled outputs and assessments. The Committee suggested the preparation of a clear, plain English summary of the water balance paper (using visual/graphical

format), that can go on the public record. The Senior Modeller summarised the natural water balance information provided in the paper, clarifying that there is a high degree of confidence in the figures (all averages) which represent the basic inflow, outflow and storage parameters of the three management zones. The ability of the model to confidently predict significant drawdown will be tested as drawdown occurs.

**Recommendation 3.2.** The Department considers producing a version of the water balance paper for the public record that clarifies terms including that the “regolith” component is part of the total aquifer storage, provides certainty in water balance volumes and differences in approaches between the current and proposed water allocation plans.

#### D. Committee member bios (Action 1.11)

Members raised concerns about potential misuse of personal phone numbers if they were made publicly available and recommended that phone contact details be removed from information published online, but that inclusion of email addresses was necessary. A version containing phone contact details will be provided to members only.

**Action 3.1.** The Department to prepare two versions of member bios - one with mobile numbers for members only and a second with email contact details (no phone) for web publication.

### Item 8. Correspondence in/out

Correspondence IN – COVID vaccination requirements

The Chair highlighted the direction from the Department that all members must be tripled vaccinated to attend Committee meetings in person.

Correspondence OUT - none

### Item 9. Revisit Plan timeline - Overview Day 1 and 2

The Water Planner presented information about the schedule for development of the new Western Davenport water allocation plan and an overview of the agenda and anticipated outcomes of Meeting #03.

Committee noted that the overall timeline for preparation of the new plan is ambitious and that it may be necessary to extend the finalisation of the plan.

### Item 10. Discussion: Communication and engagement to support Plan development

Due to time constraints, this item was largely deferred. It was discussed briefly at the end of Day 2. The Chair again encouraged members and proxies to discuss possible community engagement opportunities, methods, content, format and information resources with the Water Planning and Engagement team. Nick Ashburner and Jade Kudrenko indicated a willingness to progress some opportunities. Agency staff indicates a willingness to meet with Nick and Jade regarding potential communication opportunities out of session.

**Action 3.2:** Committee members to contact the Water Planning and Engagement team about opportunities for community engagement and ideas for useful information resources. Agency staff to contact Nick Ashburner and Jade Kudrenko regarding potential communication opportunities.


### Item 11. Information: Update on Western Davenport plan review findings

**What we've heard from the Committee:**

**1. ESY and its determination**

The new Plan/WRD needs to:


- Have a solid understanding of the amount of water that is available and that has been allocated, and the implications of this for existing values
- Use a precautionary approach to review the ESY
- Build stakeholder understanding of the approach used to determine the ESY for the Plan

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**2. Values and trade-offs**

The new Plan/WRD needs to:


- Demonstrate how allocating water from a public resource benefits the public
- Be based on a better understanding of economic development and where it may take place, as well as the difference between economic activity and economic benefit and how to determine both
- Be explicit about the method used to assess trade-offs and how these are applied
- Establish a process for assessing and protecting values especially cultural values within license applications
- Be explicit about mechanisms used to determine and manage any risks associated with the Plan

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**3. Monitoring, compliance and adaptive management**

The new Plan/WRD needs to:


- Better articulate how adaptive management will track and ensure compliance
- Ensure robust, transparent and timely monitoring, evaluation and feedback loops
- Clarify responsibility of licence holders/users to monitor, and address concerns of how the department will use the information - establish a system to use, check and evaluate monitoring data
- Be clear and transparent about how the monitoring data will be used to determine impacts and triggers
- Better address risks and facilitate a fast learning cycle

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**4. Community confidence**

The new Plan/WRD needs to:

- Be honest and upfront to build trust in water allocation processes
- Build community trust, not in the model or other technical areas, but in how they are applied
- Measure success by when
  - there is a balance between development and protection of environmental and cultural values and
  - trade-offs are acceptable and accepted
  - when communications from the department align with communications from non-government organisations etc.

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The Water Planner recapped the review process and the next steps, and presented a summary of the Committee's review of the current plan so far (see slides below), including comment about how the new Western Davenport plan will incorporate the advice outlined.

Key discussion points:

- A robust monitoring and adaptive management program is critical – to do it well requires time and investment.
- A monitoring program alone is inadequate – a precautionary approach to allocation is also required.
- Monitoring provides information about whether the system is tracking within stated precautionary parameters and should provide early detection before situation becomes critical.
- Good data is needed to understand recharge processes and their implications for the estimated sustainable yield (ESY). The new water allocation plan should describe a process for expanding the knowledge base over the next 5 years to support the scientific underpinnings of ESY determinations.
- Several licence application decisions are on hold until the new plan is declared. It was noted that a number of jurisdictions have addressed the issues of seasonal changes in water availability and over-allocation and there are mechanisms that can be adopted if this becomes necessary in future plans. The Executive Director added that a mechanism similar to Annual Announced Allocations used in the Top End could be applied to the Western Davenport plan area to manage any potential future misalignment between climate trends affecting water availability, existing entitlements, water use and ESY settings. Water licences are fixed term rather than perpetual, and



larger licences (eg. >500 ML) can include additional licence conditions with specific management triggers under a staged development plan.

- Department staff advised that monitoring the resource under a staged extraction regime can provide much needed information about aquifer performance and enable further calibration and improvement of the model which can be addressed in subsequent plans.

### Item 13. Discussion/Workshop: Finalising objectives for new Western Davenport plan

#### Meeting Paper: Western Davenport Water Allocation Plan Finalising Plan Objectives (For Advice)

Proposed high level objectives for the new plan were considered.

The Committee identified the use of the term 'significant' in proposed objectives 2 and 3 as requiring further clarification as to its intent. The Executive Director indicated that the term 'significant' was used as a 'place holder' to align the Plan with other relevant NT legislation eg. the Environment Protection Act and Aboriginal Areas Protection Authority (AAPA) Act, and noted that this may require further consideration at the appropriate time.

#### Discussion re overarching principles and objectives:

Discussion related to Committee advice provided at Meeting #02 regarding potentially:

- defining terms like 'ecologically sustainable regional economic development' or consider some over-arching principles for the new plan, and
- defining the social and economic benefits that will arise as a result of achieving the objectives

Members and the Department agreed it was important to be consistent with related NT legislation, especially the Environmental Protection Act, to define terms like 'significant' and 'ecologically sustainable development' for the water allocation plan. The Executive Director also clarified that water plans also need to be consistent with work currently underway to define 'cultural values' under the Environment Protection Act.

Members discussed the appropriateness of the term 'ecologically sustainable' in the context of the Water Act and the legislative purpose of a water allocation plan, and advised that careful consideration should be given to its meaning and intended outcomes. It was noted that the Committee's Terms of Reference refer to a responsibility to advise the department about water allocation 'within ecological constraints'.

Members suggested that if the term 'sustainable development' is used in plan objectives it should be associated with a timeframe such as 100 years as they wanted a clear picture of long term cumulative impacts (social, cultural, economic and environmental), it was considered that it may take at least that long for development to occur, and to account for time lags for impacts to manifest in GDEs. Several members also asked "how long could water be extracted at current full entitlements without affecting ecological values?"

A future Aboriginal Reference Group may have a role in defining what success looks like for each plan objective. Committee discussed potential improvements to the Aboriginal Water Reserve policy to better recognise traditional economic development values eg. subsistence hunting and wild harvest. It was noted that Aboriginal communities often undertake these activities to provide food which offsets the cost of store purchased food. In addition, these items often have significant cultural development values which are difficult to quantify financially.

#### Workshop discussion – what does success look like?

The Committee workshopped proposed objectives 1, 3, 4 and 5 with regard to what success looks like for each objective. Objective 2 was not workshopped due to time constraints.

**Proposed Objective 1.** Secure water of sufficient quantity and quality for future public water supply and rural stock and domestic purposes

(Note this objective was covered on Day 2, but is reported in the Day 1 minutes with other objectives for clarity)

Success looks like...

- Water quality does not decline
- Water is used efficiently for fit-for-purpose/best value purpose
- Demand management programs are in place
- Best practice stock watering measures are avoiding impacts on GDEs
- Contamination of surface and groundwater is prevented

**Proposed Objective 2.** Meet the environmental water requirements of significant water dependent ecosystems

Not workshopped directly – refer to discussion on limits of acceptable change at Items 17 & 18.

**Proposed Objective 3.** Protect significant Aboriginal and other cultural values associated with water

Suggested amendments:

- remove (or better define) the term 'significant' from this objective

Success looks like...

- A robust process is in place to protect culturally important sites and values and there are clearly defined requirements and triggers in the water licence application process to demonstrate protection
- Government agencies collaborate to ensure a robust and effective process to protect values
- People have confidence in the process

Committee advised that the Aboriginal Reference Group (once established) should develop the parameters for success under this objective.

Steps towards achieving this objective include a trigger in the Limits of Acceptable Change and the development of a licence application flow chart to show the points in the approvals process where cultural values are assessed.

The Committee discussed the implementation of this objective, including how acceptable levels of impact to cultural values are best determined; a general desire to allow no damage to cultural values; and the need for a culturally appropriate process for identifying cultural sites and impact from groundwater drawdown. The Executive Director clarified that a water allocation plan and water licencing processes can only influence the water-related health of a cultural site.

**Proposed Objective 4.** Provide access to water to support local Aboriginal economic development aspirations

Suggested amendments:

- drop the term 'economic' and add the term 'aspirations' to capture the broader use of water for culture and drinking, and better recognise traditional economic development values such as subsistence hunting and wild harvest.

Success looks like...

- Aboriginal people are confident in decisions about the Aboriginal Water Reserve (AWR)
- Aboriginal people are confident in decisions about the water allocation plan



- Two way education is supported around what economic development of water could look like, opportunities etc.

Steps towards achieving this objective include finalisation of an agreed AWR consent process.

**Proposed Objective 5.** Provide access to water to support sustainable ~~regional-economic~~ development for regional benefit

Suggested amendments:

- drop the term 'economic' from the objective statement and add the term 'regional benefit'

Success looks like...

- Diverse economic activity
- Expanded regional economic development over 20-30 years with monitoring of ESY
- Developments have a social licence/ publically endorsed benefit
- Developments provide jobs/local/regional employment (not FIFO) for local/regional benefit
- Water is used for social development
- Water allocations are managed adaptively for sustainability/sustainable yield over at least 50 years
- Progress processes to help people adapt to water-related developments (tbc)
- Developments pay for water
- Developments return dividends to the region/public
- Water is used efficiently and for fit-for-purpose/best value uses

General discussion on proposed objectives:

The Committee briefly discussed the merits of combining or separating particular objectives in the context of what they are each trying to achieve. General agreement that proposed objectives 3 and 4 should remain separate. There was general support for distinguishing objectives by their beneficial use, rather than to have multiple beneficial uses represented under a single objective. The Department advised that the order of proposed objectives from 1 to 5 is consistent with the current hierarchy of allocation to beneficial uses.

The Committee identified a tension within the Aboriginal Water Reserve policy which is geared towards economic benefit but that the benefits of this policy may also be cultural or social in nature not necessarily financial. A member also noted a risk to the AWR in the event that the ESY is reduced at any point in the future. The Chair suggested that broader issues around the representation of cultural economic benefit in the AWR policy could be addressed in a future policy review with input from the Aboriginal Reference Group.

The Committee discussed an apparent lack of education about cultural views of development, of potential opportunities for Aboriginal economic development, and how science and traditional knowledge can work together to determine safe levels of groundwater use; this includes bringing identity and tradition together with development aspirations. The Committee was advised that the CLC has commenced work with Aboriginal people in this area and are producing culturally appropriate education materials.

A suggestion was tabled regarding reform of rural stock and domestic use in line with the regulatory and management requirements applied to water users in all other sectors.

**Recommendation 3.3:** Aboriginal perspectives should inform the measures of success for all proposed objectives, but especially objectives 3 and 4. The Committee considers an Aboriginal Reference Group would be a good forum for this input.

*Note: Item 13 continued on Day 2, but for simplicity, the entire session has been kept together and recorded as minutes of Day 1.*

#### **Item 14. Day 1 Wrap up**

The Chair summarised the discussions and actions from Day 1.

#### **Item 15. Day 1 meeting evaluation**

The nominated member conducted an evaluation of Day 1 proceedings, using the meeting evaluation checklist. The evaluation was mostly positive, save the criteria '*Members and advisors arrived/called in on time and stayed until the end of the meeting*', which was not fully met.

The Chair closed Day 1 of the meeting at 5pm.

#### **Item 16. Recap of Day 1**

The Chair welcomed everyone to Day 2 of the meeting.

The Chair summarised the proceedings of Day 1 and invited members to clarify any issues or provide comments. Nothing specific was identified or would be addressed later in the meeting.

#### **Item 17. Presentation: Overview of the Limits to change**

Meeting Paper: Limits of Acceptable Change – Overview Paper (For Noting)

An overview of the concepts of Limits of Acceptable Change and their application to water allocations plans was provided by the Water Planner. This covered how Limits of Acceptable Change are used to inform the establishment of estimated sustainable yield settings, assess water licence applications, compliance, adaptive management and monitoring.

#### **Item 18. Discussion/Workshop: GDE Limits of acceptable change for the new Western Davenport**

Meeting Paper: Western Davenport Water Allocation Plan - Limits of Acceptable Change (For Advice)

The Chair invited the Executive Director of Fauna and Flora (Alaric Fisher) to discuss the Western Davenport Limits of Acceptable Change to Groundwater Dependent Ecosystems (GDEs) Guideline (published early 2020). He first presented the results of a 'Mapping the Future' project which used remote sensing techniques combined with field verification to produce a predictive map of GDEs in a part of the Central Plains management zone. The project showed that GDEs were far more extensive than previously understood, especially where the groundwater table is within 15m of the land surface. It identified important thresholds for vegetation in shallow groundwater (up to 10 m below ground level) and vegetation characteristics associated with very shallow groundwater (0-5m below ground level).

Mr Fisher advised that the Guideline (including revised limits of acceptable change) represents an improvement to the limits of acceptable change contained in the 2018 water allocation plan. The revised limits in the Guideline respond to new scientific understanding of GDEs and recognise the significance of shallow groundwater systems (0-10 m below ground) and the need to protect species diversity across different landforms. He explained that the application of a 70% threshold for protection of GDEs is based on research from southeast Australia and the Top End Daly River region.

#### Discussion

The Chair invited questions. Members sought clarification on a number of topics. The discussion is summarised below.

- The extent of GDEs in the Western Davenport study area is much larger than previously thought. GDEs here are also likely to be quite unique compared to other arid zones, noting however, that comprehensive mapping of shallow groundwater systems is not available for the broader arid region, except in the Ti Tree region where GDEs have been studied.

- The Guideline has been developed with a focus on the Central Plains area as this is where development is occurring and most likely to occur
- Members noted that the development of new knowledge of GDEs seems to be disassociated with the rate of water development on the Western Davenports. The Department noted that virtually any extraction will have an impact on GDEs because they occur across the plan area and that the Guideline tries to find a balance between protecting GDEs and allowing some level of development.
- Members expressed concern about the appropriateness of allowing 30% loss of GDEs, especially while the extent of GDE mapping is so limited. Clarification provided by the Department that this threshold is modelled on similar arrangements for land clearing in the Top End/Daly River region and adopted for the Western Davenports in the absence of specific guidance for the arid zone.
- The Department supports special consideration for protecting GDEs in very shallow 0-5m depth to groundwater systems in revising the limits of acceptable change, noting that work is needed to better identify any vegetation communities that are Inundation Dependent Ecosystems (IDEs) rather than groundwater dependent. The Department also highlighted the proposed 25% maximum decline in depth to water table criterion to protect GDEs in the 10 - 15m depth to groundwater zone.
- Members asked how the Guideline is to be applied as knowledge of GDEs improves. The Department clarified that it will be extending the mapping of GDEs to cover at least the Central Plains management zone because this is the area of development focus. This mapping will be fairly straightforward, unless GDEs are shown to occur in a different landform, as this would require further field verification. Extending the mapping into the Davenport Ranges and Southern Ranges management zones will take more time as it requires new field validation sites and the underlying geological systems and aquifers are quite different (eg fractured rock systems).
- The Department acknowledged the challenge and importance of accounting for the cumulative effects of extraction on GDEs, including the need for GDE condition monitoring. Members reiterated the need for community confidence in the commitment of government to monitoring and adaptive management programs.
- The Department clarified the process for assessing GDE impacts and compliance with the Guideline, explaining that an applicant for a water licence must provide modelling of the drawdown characteristics of the development over time and identify where exceedance of the limits of acceptable change occurs during the period of the proposed licence. Exceedance is deemed to occur if any one of the limits is exceeded at any point in time during the modelling period. If exceedance occurs, then an assessment is made of whether this affects less or more than 30% of GDEs within each landform and within a property (two scales).
- The Department clarified that proponents are responsible for assessing potential GDE impact via modelling and field verification which the Department will evaluate.
- The Department advised that the timespan for modelling should extend out to until the model can determine that the spatial extent of impact on GDEs has stabilised, for example using 5 or 10 year windows that extend past project planning horizons and account for capital invested etc. Members expressed concern that the longer term and cumulative impacts on GDEs may be missed if impact assessment is focussed on the shorter term period of a proposed licence.
- The Department clarified that drawdown modelling and field monitoring enables timely detection of whether drawdown is occurring as predicted, so the department can intervene fairly quickly. The Committee acknowledged the role that staged licensing plays in this area.
- The Department clarified that the Guideline is designed to encourage location of borefields in deeper aquifers where drawdown is less likely to impact GDEs.
- The Department clarified that the refinements proposed for the limits of acceptable change in the new plan will improve protections for GDEs, and that it is necessary to maintain a maximum threshold

(30%) of allowable GDE impact in order to achieve all of the plan objectives equally. GDEs impacted as a result of proposed land clearing are included in the 30% threshold assessment.

- Members raised questions about the reliability of proponent and department led predictive modelling and monitoring of impacts to GDEs. The Department clarified the scaling of requirements for proponents depending on the size of the proposed licence. It was noted that the Department provides more assistance with modelling and impact assessment to smaller scale proponents (<500ML) to provide a level of confidence in any decision. Large scale licence holder are required to install their own monitoring bores, which complement the network of agency-monitored bores. The Department is currently adding a suite of new shallow monitoring bores to the network. Compliance checks are stricter for larger licences and further improvements are currently underway.
- The Committee discussed at length the need for the development of limits of acceptable change for the protection of cultural values. It was suggested that the plan and limits of acceptable change should at least include a requirement for proponents to consider the potential occurrence of culturally important places and a referral to the Central Land Council, so that the values can be considered in impact assessments. Members support some kind of trigger or agreed process so that cultural values can be included in modelling the limits of acceptable change. The Executive Director Water Resources indicated that the Department, led by the Environment Division, is working on a process ([NT EPA "draft guidance for environmental factors: cultural and heritage"](#)) to guide how cultural values can be appropriately identified and assessed for development impact.
- Members discussed the need for clear communication of the drawdown effect of a potential water development so that Aboriginal people can make an informed assessment about the impact on cultural values. A clear process for how potential impacts on cultural sites which are GDE related can be modelled, and how adjustments can be negotiated to mitigate impacts, is also needed.
- Members considered whether the need to balance access to groundwater for potable water supplies with the protection of GDEs may create a risk for the viability of regional/remote communities. Some members suggested this decision should rest with the affected Aboriginal people and that the new or subsequent plans (given the background investigations or negotiation of appropriate processes required) could enable this level of community decision-making.
- Members raised concerns about the potential misalignment between arrangements that allow 30% loss of GDEs under the Water Act and environmental protections afforded under other legislation, namely the NT Environment Protection Act.



The Committee noted that the Department indicated that it will use the tabled "limits of acceptable change" papers and the Committee's comments as the basis for refinements in the new water allocation plan. Committee further noted that it will next see the refined limits of acceptable change policy arrangements when the draft plan is made available to the Committee for feedback.

**Action 3.3:** The Water Planning team will liaise with the CLC (Nick Ashburner) to ensure the proposal for consideration of cultural values in the limits of acceptable change arrangements is appropriately captured in the meeting minutes.

**Recommendation 3.4:** Cultural values and significant cultural sites should in some way be considered in the refined limits of acceptable change for the new Western Davenport plan. If this is not possible a process should be identified to enable their inclusion in future limits of acceptable change.

## Item 19. Information: ESY process overview

The Water Planner presented information on the basis for defining the estimated sustainable yield, including updated definitions, logic, steps and process. Two slides from the presentation are provided below.

<p><b>ESY basis</b></p> <p>ESY definition</p> <ul style="list-style-type: none"> <li>the amount of water that can be allocated from the water resource to support declared beneficial uses without compromising key cultural and environmental values, or ecosystem functions or the productive base of the resource or declared water quality standards, criteria or objectives</li> <li>this definition effectively equates the ESY to the consumptive pool (with a nominal allocation to environment to meet legislative requirements) and is determined separately to, and after, the non-consumptive pool has been estimated</li> <li>this definition has been applied to all water allocation plans declared in the NT after 2018</li> </ul> 	<p><b>ESY logic process WD</b></p> <table border="0"> <tr> <td style="vertical-align: top;"> <p><b>Water modelling</b></p> <ol style="list-style-type: none"> <li>Establish groundwater model</li> <li>Simulate natural conditions at each model node (SC0)</li> <li>Simulate current extraction conditions (SC1) and formulate other extraction scenarios (SC2, SC3) to test the extent to which different scenarios meet or exceed the limits of change</li> </ol> </td> <td style="vertical-align: middle; text-align: center;"> <p>←</p> <p>↔</p> </td> <td style="vertical-align: top;"> <p><b>Water planning</b></p> <ol style="list-style-type: none"> <li>Confirm the values of the groundwater resource</li> <li>Refine high level objectives &amp; indicators</li> <li>Refine limits of change to maintain agreed values</li> <li>Provide locations of agreed values (these become model 'nodes')</li> <li>Examine modelled outputs to understand the impacts of extraction scenarios on agreed values</li> <li>Land on "best fit" scenario</li> <li>Determine Estimated Sustainable Yield</li> </ol> </td> </tr> </table> 	<p><b>Water modelling</b></p> <ol style="list-style-type: none"> <li>Establish groundwater model</li> <li>Simulate natural conditions at each model node (SC0)</li> <li>Simulate current extraction conditions (SC1) and formulate other extraction scenarios (SC2, SC3) to test the extent to which different scenarios meet or exceed the limits of change</li> </ol>	<p>←</p> <p>↔</p>	<p><b>Water planning</b></p> <ol style="list-style-type: none"> <li>Confirm the values of the groundwater resource</li> <li>Refine high level objectives &amp; indicators</li> <li>Refine limits of change to maintain agreed values</li> <li>Provide locations of agreed values (these become model 'nodes')</li> <li>Examine modelled outputs to understand the impacts of extraction scenarios on agreed values</li> <li>Land on "best fit" scenario</li> <li>Determine Estimated Sustainable Yield</li> </ol>
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The Chair invited questions or clarifications. Discussion is summarised below:

- The Department confirmed that the Committee will discuss ESY settings for the new plan at the next meeting (Meeting #04).
- ESY settings for the new plan will be proposed for Committee consideration, including the rationale, modelling and analysis behind the proposed ESY. The Department indicated it would present a single proposal to the Committee for their feedback rather than multiple options so as to avoid confusion.
- Committee indicated they would like further explanation of how and why the new 2022 water balance is different to the water balance in the current plan. The Department noted this for attention at the next meeting.

### Item 20. Other Business

The Executive Director presented a proposed new structure for water allocation plans that is currently under consideration within the Department. The new layout seeks to improve clarity and readability of plans by separating the content into three separate documents covering background information, regulatory and management requirements (the rules), and the implementation and operational functions of a plan. These changes are being considered in response to issues raised by the community, including Water Advisory Committees, about the current structure and readability of water allocation plans. The new Western Davenport plan may follow this revised structure.

The Executive Director noted that the Department is developing a template and process for water resource status reporting, and that a greater focus will be placed on effective plan implementation (including adaptive management) going forward.

The Committee noted that a renewed focus on plan implementation means that future plan review processes can be conducted effectively. The Committee encouraged the Department to support data accessibility and assessment on an annual basis.

### Item 21. Future Meetings

Revised dates for Meeting #04 to be considered – week of 18th or 25th July, instead of late June.

Meeting will likely combine a meeting in Alice Springs, plus a field trip to the Western Davenport region so members can familiarise themselves with water allocation and use issues such as GDE values, cultural

values, public water supply, agricultural use, drilling and monitoring bores. The Committee expressed a strong interest in visiting the region.

Availability of accommodation (Wauchope or Tennant Creek) may be a limiting factor for the field trip.

**Action 3.4:** Department to finalise dates and logistics for Meeting #04 as soon as possible.

## **Item 22. Day 2 Wrap-up and meeting evaluation**

The Chair provided a brief wrap up of Day 1 and 2. Refer Page 1 for Key Messages.

The meeting evaluation was positive.

The Chair closed the meeting at 12.30pm.

END

DRAFT