Peel Valley Works and Drought Update

October 14th and 15th 2019

Dungowan and Tamworth

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Executive Manager, System Operations

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Executive Manager – Assets
Overview

• Introduction from Tamworth Regional Council
• Overview

• Latest drought outlook

• What has happened since we were here
  - Key actions
  - Progress on emergency drought works

• Block bank (temporary weir)
  - Design
  - How it works?
  - When does it come out?

• New pipeline from Chaffey to Dungowan
  - Pipeline route
  - River operations

• Water carting – for domestic needs

• How to keep updated
• Next steps

• Discussion
Peel system
Drought Outlook
Rainfall deficiencies
1 April 2018 – 31 August 2019

Australian Government
Bureau of Meteorology

Rainfall Deficiencies: 17 months
1 April 2018 to 31 August 2019

Distribution Based on Grided Data
Australian Bureau of Meteorology

http://www.bom.gov.au
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Issued: 07/09/2019
Soil moisture deficiencies
August 2019

Soil moisture: August 2019
Decile range
- Highest on record
- Very much above average
- Above average
- Average
- Below average
- Very much below average
- Lowest on record
NSW temperatures

Maximum Temperature Anomaly (°C) 1 October 2018 to 30 September 2019
Australian Bureau of Meteorology

http://www.bom.gov.au
© Commonwealth of Australia 2019, Australian Bureau of Meteorology
ID code: AWAP
Issued: 03/10/2019
Drought forecast summary

- Record low inflows continue

- Record high soil moisture deficits (so when it rains - runoff is below average)

- Record high temperatures above long term average continuing

- BOM forecast is for a continuation of below average rainfall and above average temperatures is expected until March 2020.
State policy – updated

Extreme Events Policy

Legend
Incident Response Guide: Criticality Level
- Stage 1 Normal Operations
- Stage 2 Drought Operations
- Stage 3 Severe Drought
- Stage 4 Critical Drought

Data Source:
ESRI Basemap
NSW DFSI Spatial Services
Murray-Darling Basin Authority
© NSW Department of Industry

Lands & Water | Water Division
Compilation Date: 15/03/2019
### Table 2: Determining the stage of criticality for water quantity extreme events

<table>
<thead>
<tr>
<th>Criticality</th>
<th>Evidence base for surface water</th>
<th>Evidence base for groundwater</th>
<th>Broad intent of measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1 Normal management</td>
<td>Can deliver all account water under normal river operations practices.</td>
<td>Groundwater levels remain within acceptable ranges, with annual recovery as expected given rainfall/recharge events</td>
<td>Provide certainty for water use planning. Long term water security and emergency/drought contingency planning</td>
</tr>
<tr>
<td>Stage 2 Emerging drought/water shortage</td>
<td>Unable to deliver 100% of high priority account water and maximum expected use of general security under normal river operations practices.</td>
<td>Unacceptable groundwater level and pressure declines potentially or actually impacting on groundwater availability to high priority GDEs, BLRs and/or LWUs Drawdown to levels that could lead to aquifer subsidence</td>
<td>Operational measures in the current water year to reduce transmission losses and prevent potential future failure to supply water in accounts (surface water). Limit potential impacts in local areas via dealings restrictions and potential local area access restrictions (groundwater). Drought response readiness (LWUs)</td>
</tr>
<tr>
<td>Stage 3 Severe drought/water shortage</td>
<td>Only able to deliver restricted high priority demands and restricted remaining general security account water.</td>
<td>Continuing unacceptable groundwater level or pressure declines Unacceptable drawdown impacts on ‘efficiently constructed’ BLR bores (i.e. levels below the pump or deeper than the bore) Evidence of aquifer compaction</td>
<td>Restricting access to account water, restricting trade, and suspending some WSP rules in addition to increased operational measures to prevent potential future failure to supply water in accounts (surface water). Restrict access from bores in all affected areas. Drought management/restrictions (LWUs).</td>
</tr>
<tr>
<td>Stage 4 Critical drought/water shortage</td>
<td>Only able to deliver restricted town water supply, stock and domestic and other restricted high priority demands.</td>
<td>Water level declines pose a risk to long term availability of the groundwater resources - subsidence, and/or mobilisation and induced flow of poorer water quality Access by ‘efficiently constructed’ BLR bores significantly impacted</td>
<td>Suspension of some WSP rules. Severe restrictions required to prioritise remaining supplies for critical human water needs (surface water and groundwater). Avoidance of permanent damage to aquifers (compaction or salinization) Emergency drought management measures/restrictions (LWUs).</td>
</tr>
</tbody>
</table>
IF it does not rain again and these critical drought works are not completed – there could be a day zero for the region.

These works undertaken by WaterNSW in conjunction with water restrictions and other measures by Tamworth Regional Council will extend supplies for more than a year.
## Critical steps in extending supply

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
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<tbody>
<tr>
<td>1.</td>
<td>Base Case - until cease to flow</td>
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<td>Stage 1 - Blockbanks installed and operational at Dungowan Village, emergency pumping</td>
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<tr>
<td>2.</td>
<td>Impact on Tamworth Supply - Stage 1 - Blockbanks and Pump</td>
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<tr>
<td>3.</td>
<td>Stage 3 - Install permanent pipeline between Chaffey Dam and Dungowan Village (to connect with Dungowan to Tamworth pipeline)</td>
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<td></td>
<td>Impact on Tamworth Supply - Stage 3 - Pipeline Chaffey to Dungowan pipeline</td>
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<td>Other Supporting works</td>
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<td></td>
<td>Alternatives for High security and BLR need - Users to have alternate source in place, See below</td>
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<td></td>
<td>Tamworth Block banks and storage in place</td>
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### Key:
- **Zero inflow**: Recent observed inflow - past two years repeated (SDR 2 drought of record)
- **Under zero inflow pipeline Stage 3 2.4GL deep storage is utilised (Stage 4)**
- **Stage 2 is a planning project to develop the pipeline needs of Stage 3**
- **Alternatives to surface water for high security users (chicken farms etc) and BLR users need to be in place - Water carting, groundwater losses in full river under do nothing scenario estimated at 13.1GL per year (reassessed as most current anticipated maximum loss)**

### Acceptable Serviceability Criteria against lowest recorded inflow
- **2 years**
- **Current availability with approach against lowest recorded inflow**
  - **> 2 years**

### Assessment date:
- **26 July on data from 30 June 2019**
Why 30 November 2019?
Last possible date to avoid a day zero outcome (worst case scenario planning)
Water carting for domestic water supply

- Basic landholders rights (BLRs)

- 24 landholders identified that may be impacted by the drought works

- Water carting for those properties will be administered by the Dept Planning, Industry and Environment – Water

- Information will be available on our website and next fact sheet

- We will be contacting those 24 landholders directly with the specific information and advice from the Department once it is finalised.
So...
What would have happened already if the Chaffey Dam was not there?
Year-17-18, irregular inflow upstream, which was not enough to meet even Tamworth’s min demand

From 1st of Jan 18 onwards, almost no inflow

If there was no dam, trouble would have started since early 2017 to supply for Tamworth Council and irrigators, which is around 33 months

Tamworth council min demand: 20 ML/d

1st of Jan 2017, dam volume was 102 GL, through which water is supplying to GS, HS, S&D till now
Peel River Operations
Chaffey Dam Inflows

- Actual Monthly Inflow
- Mean Monthly Inflow
Peel tributary inflows
Chaffey Dam levels

Chaffey Dam storage

Storage capacity (%)

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Chaffey Dam releases 16-17

6,190 ML environmental release
June 2017
Chaffey Dam releases 17-18

3,892 ML environmental release
5th to 18th June 2018
Gap between black and red line highlights high losses in the system = 2 years Tamworth Supply demand
Groundwater table

Depth to groundwater table below the measuring point
Temporary weir and new permanent pipeline

Ronan Magaharan
PEEL RIVER DROUGHT WORKS

STAGE 1
Temporary Weir
Stage 1 – Temporary weir at Dungowan

Key Facts

• Construction starts 21st October after the Dungowan Show

• Completion by late November

• River “Cease to Flow” no earlier than 30th November

• Weir pool will be approx. 200m long and within current river channel

• Some pulse releases will be made from time to time to maintain water quality in downstream pools
Confirmed design features

Stage 1 – Temporary Dungowan weir

A temporary intake would be constructed into the southern bank of the river, immediately upstream of an existing 4WD crossing shown in the images below.

Existing 4WD crossing (flow direction to left)  Immediately upstream of existing crossing
Temporary weir design

BOX CULVERT TO BE FILLED WITH ROCK FOR STABILITY

TOP OF WALL 426.65 mAHD

PRECAST LID

1390mm
1200mm
190mm
190mm

190mm
1630mm
2010mm
Temporary pipeline route consideration

Stage 1 - Temporary Pipeline Options under consideration

- Option Route 1
- Option Route 2

- Pipeline under bridge
- Temporary pipe through road reserve
- Connection point within road reserve
- Requires one road crossing

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What about impacts on fish and wildlife?

There is very likely to be if drought continues and inflows remain low...

Critical human needs is now the top priority.

Here is what we are doing

• Approval conditions for the temporary weir may require some pulse releases to go down the peel from time to time

• Working with DPI Fisheries around priority refuge water holes.

• Monitor water quality and quantity in refuge pools

• Tributary inflows will flow through the system

• Community can report issues with fish / wildlife to DPI Fisheries on 1800 043 536
Local opportunities

MPC have been selected as the contractor for Stage 1 and 2 and will be sourcing local businesses for:

- Bulk fuel supplies,
- fencing, hardware,
- haulage/truck hire,
- office cleaning,
- waste removal,
- traffic management,
- quarry materials,
- accommodation,
- construction machinery hire
- and labour, equipment hire and materials etc
When does the temporary weir get removed?

Two triggers for removal

1) Dungowan Pipeline project is installed and operational.

2) Chaffey Dam has more than two years supply in storage.

Which ever occurs first!
PEEL RIVER DROUGHT WORKS

STAGE 2
New permanent pipeline
Stage 2 – Permanent pipeline

Stage 2 – Construction of a permanent pipeline

- Pipeline (approx. 17-20km in length) from Chaffey Dam to Dungowan Town (and connecting to the existing pipeline owned by TRC).

- The majority of the route will be along existing road easements or land within the Chaffey Dam property boundary.

- There will be some impacts to traffic movements from time to time.

- Community consultation with neighbouring landholders has been underway in recent weeks.

- Pipeline has been sized to meet Tamworth’s future growth.
Stage 2 – Permanent pipeline route
Stage 2 – Permanent pipeline

Key dates and facts

• Mid November we mobilise equipment

• End of November the community will see significant works i.e. trenching, equipment along the route at multiple points

• We remain on schedule to complete Stage 2 beyond of February 2020

• “Water On” from early March.
Key challenges

- Engaged additional resources
- Working closely with Tamworth Council to coordinate project
- Early briefings to Government Approval agencies
- Financial approval process commenced
- Land / Route selection – primarily council land
- Early Contractor Involvement process
- Pipe capacity / size review to being prioritised
- Pipe Suppliers engaged to minimise lead time
- Environmental approvals
- Lessons learnt from delivering the Broken Hill Pipeline
What we are committing to going forward

- Updated Q&A from this weeks sessions, maps and timeline will be available on line and hard copy by 25th October.

- Next Community information sessions will be late February/early March 2020.

- WaterNSW to update Tamworth Water Taskforce Oct meeting.

- Site preparations will start after Dungowan Show.

- Keeping you updated via our website, social media and local media.
Our commitments to you from our last sessions

• If you are a riverfront landholder with BLR rights with no alternate water supply (town water supply connected or existing bore etc) option, please let us know **Completed**

• Will be back to talk to the community in Mid October **Here today Completed**

• WaterNSW to update Tamworth Water Taskforce in 2 weeks. **Completed**

• Continue planning and feasibility on Stage 2 Pipeline project. **Completed**

• Updates also via our website, social media and local media. **Ongoing**

• Make available our presentation to the public from our August sessions **Completed**
February/ March 2020
Community sessions will cover:

- Latest drought forecast from the BOM
- Operational plan of the new pipeline
- When the temporary weir will be removed
- Peel River operations going forward
- Latest weather forecasts
- Final decision on Jewry Street Weir
Questions?
Fact Sheets available today

DPI site www.industry.nsw.gov.au for facts

Visit the website at: waternsw.com.au/drought

For information including water availability reports and drought reports go to: https://www.waternsw.com.au/supply/drought-information/regional-nsw

Call us on: 1300 662 077

Subscribe at: waternsw.com.au/subscribe
For weekly customer drought updates and more information
Bores
For specific inquiries about stock and domestic bores (Basic landholder rights bores)
email waterregnorth@waternsw.com.au
Nicole Gleeson-Lendon’s (02) 9849 9960

The WNSW general inquiry number – 1300 662 077
Customer.Helpdesk@waternsw.com.au

Early Warning network Registration
(EWN)- Via registration forms available here tonight.
Dedicated Peel Valley information

Facebook Group

https://www.facebook.com/groups/WaterNSWPeelRiver/

Dedicated web pages
Thankyou for attending
END