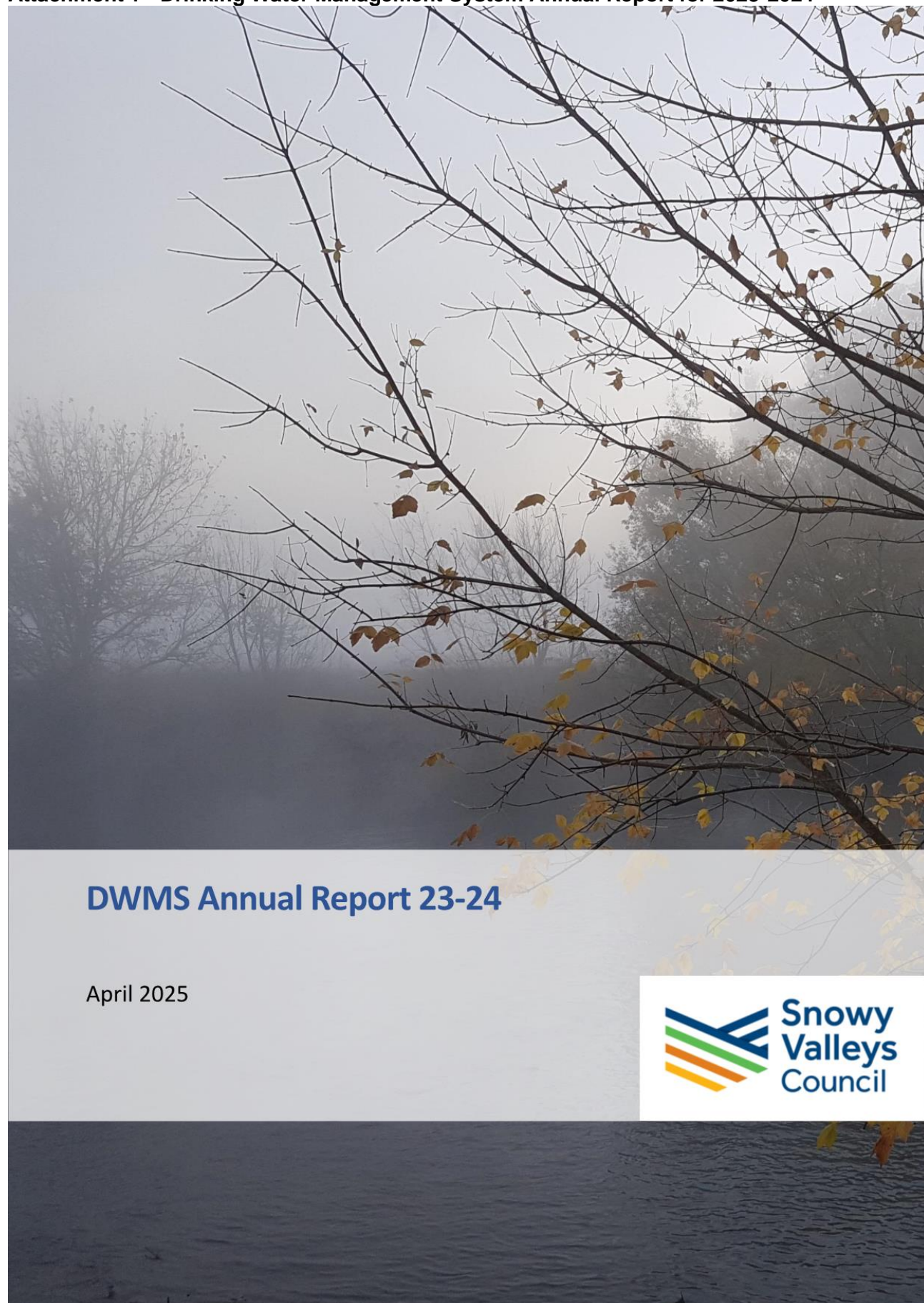


11.3 DRINKING WATER MANAGEMENT SYSTEM ANNUAL REPORT FOR 2023-2024 - ATTACHMENTS

Attachment Titles:

1. Drinking Water Management System - Annual Report 2023-2024

Attachment 1 - Drinking Water Management System Annual Report for 2023-2024



DWMS Annual Report 23-24

April 2025





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EXECUTIVE SUMMARY

Water suppliers in New South Wales (NSW) are required to establish and adhere to a 'quality assurance program', referred to as a Drinking Water Management System (DWMS). An annual report is required to be prepared and submitted to the local Public Health Unit (PHU), NSW Health.

Viridis Consultants P/L (Viridis) was engaged by Snowy Valleys Council (SVC) to prepare the DWMS Annual Report for the 2023-2024 reporting period from 1 July 2023 to 30 June 2024.

SVC is responsible for treating and distributing water to:

- Batlow Township
- Brungle Township
- Khancoban Township
- Talbingo Township
- Tumbarumba Township
- Tumut Township - including Morgans Reserve - Cloverdale and Adelong Township

Verification monitoring results for all schemes conformed with the *Australian Drinking Water Guidelines* (ADWG) health-based guidelines, with one exception noted for Tumut scheme. Tumut scheme (Adelong) had an ADWG health-based guideline exceedance for Nickel. However, immediate actions were taken by the council and investigation into the event concluded that it was a sampling error and had no impact on the public health.

All schemes noted a small number of results that were excursions of the ADWG aesthetic guideline values but had no impact on public health. A low chlorine incident at Brungle resulted in boil water notice during this reporting period. An investigation into the incident was completed by Viridis during this reporting period and the investigation report provided several recommendations for implementation, including an update to the CCPs procedures.

There were occasional critical limit breaches during the reporting period. This needs to be reported to the PHU. The updated CCP procedures (in progress) will make this requirement clear and explicit.

Several reservoirs were overdue for inspections and clean during the 2023-24 reporting period. Council have scheduled these to be completed in 2024/25.

It was noted that the last DWMS review was in 2018 and the risk assessment review completed in 2020. SVC to consider a detailed review and an update of the DWMS and Risk register.

SVC maintained overall good customer satisfaction, with only thirty-one water quality customer complaints across all schemes. Council continues to implement the improvement plan with 9 actions completed during this reporting period.

The overall water quality risks are being managed by the council based on the DWMS review outcomes. However, council are required to implement actions as identified in section 8 of this annual report to strengthen the drinking water management practices.



1. INTRODUCTION

Water suppliers in New South Wales (NSW) are required to establish and adhere to a 'quality assurance program', referred to as a Drinking Water Management System (DWMS). The DWMS is a risk-based approach to managing drinking water quality.

An annual report is required to be prepared and submitted to the local Public Health Unit (PHU), NSW Health.

Snowy Valleys Council (SVC) has engaged Viridis Consultants P/L (Viridis) to prepare the DWMS Annual Report for 2023-2024. This DWMS Report covers a reporting period from 01/07/2023 to 30/06/2024. It summarises SVC's drinking water quality performance for the reporting period and progress on the implementation of the improvement plan.



2. SUPPLY SCHEMES

SVC operates and manages the following drinking water supply schemes, as outlined in Table 1 below.

Table 1 Snowy Valleys Council's Drinking Water Supply Schemes

Scheme Name	Primary Source	Secondary Source	Emergency Supply	Treatment Processes	Served Areas
Batlow	Kunama Dam (via Little Gilmore Creek)	-	-	<ul style="list-style-type: none"> Flocculation Ultrafiltration Disinfection (chlorine gas) Fluoridation (sodium fluoride) Storage (Batlow Reservoir) 	Batlow Township
Brungle	Nimbo Creek	-	Tumut River	<ul style="list-style-type: none"> Limestone Contact Tank (optional) Microfiltration Disinfection (sodium hypochlorite) Storage (Brungle Reservoir) 	Brungle Township
Khancoban	Khancoban Creek	-	-	<ul style="list-style-type: none"> Course filtration (offline) Disinfection (chlorine gas) Storage Reservoir 	Khancoban Township
Talbingo	Jounama Creek	-	Jounama Pondage	<ul style="list-style-type: none"> Flocculation Sand Filtration Disinfection (chlorine gas) Storage (high level and low-level reservoir) 	Talbingo Township
Tumbarumba	Burra Creek	Tumbarumba Creek	McKeenin Street and Common Bore	<ul style="list-style-type: none"> Flocculation Sand Filtration Fluoridation (sodium fluoride) Disinfection (chlorine gas) Storage Reservoir 	Tumbarumba Township
Tumut	Tumut River	-	-	<ul style="list-style-type: none"> Powdered activated carbon (optional) Flocculation Fluoridation (sodium fluorosilicate) Sand Filtration Disinfection (chlorine gas) Adelong Re-chlorination (chlorine gas) Storage Reservoir 	Tumut Township Morgans Reserve-Cloverdale Adelong Township



3. SCHEME CHANGES

The scheme changes are discussed in this section.

3.1. Batlow Scheme

There were no significant permanent changes to the scheme, including catchment characteristics, treatment processes, chemicals used and the distribution network. Minor changes were made to the Water Treatment Plant (WTPs) filter soaking processes; however, this has no negative impact on the treatment processes.

3.2. Brungle Scheme

There were no significant permanent changes to the scheme, including catchment characteristics, treatment processes, chemicals used and the distribution network.

3.3. Khancoban Scheme

There were no significant permanent changes to the scheme, including catchment characteristics, treatment processes, chemicals used and the distribution network.

3.4. Talbingo Scheme

There were no significant permanent changes to the scheme, including catchment characteristics, treatment processes, chemicals used and the distribution network.

3.5. Tumbarumba Scheme

There were no significant permanent changes to the scheme, including catchment characteristics, treatment processes, chemicals used and the distribution network.

3.6. Tumut Scheme

There were no significant permanent changes to the scheme, including catchment characteristics, treatment processes, chemicals used and the distribution network.



4. CRITICAL CONTROL POINTS

Critical control points (CCP) are selected as points that control hazards that represent a significant risk and require elimination or reduction to assure supply of safe drinking water. These points are applied to important treatment processes and must have a timely measurable parameter and corrective actions that are able to be applied in response to a deviation.

Alert and critical limits applied to the parameter are used to assess process performance rather than final water quality (which is discussed in the Verification Monitoring Performance section). A critical limit excursion may indicate that a treatment process is no longer operating properly whereas an ADWG non-conformance indicates that water delivered to customers did not meet required specifications. Both should be managed in accordance with the Incident Emergency Response Plan (IERP), and CCP procedures where applicable.

4.1. Batlow

A detailed data analysis of the CCP performance for Batlow from Jul 2023 to Jun 2024 is presented in Figure 1.

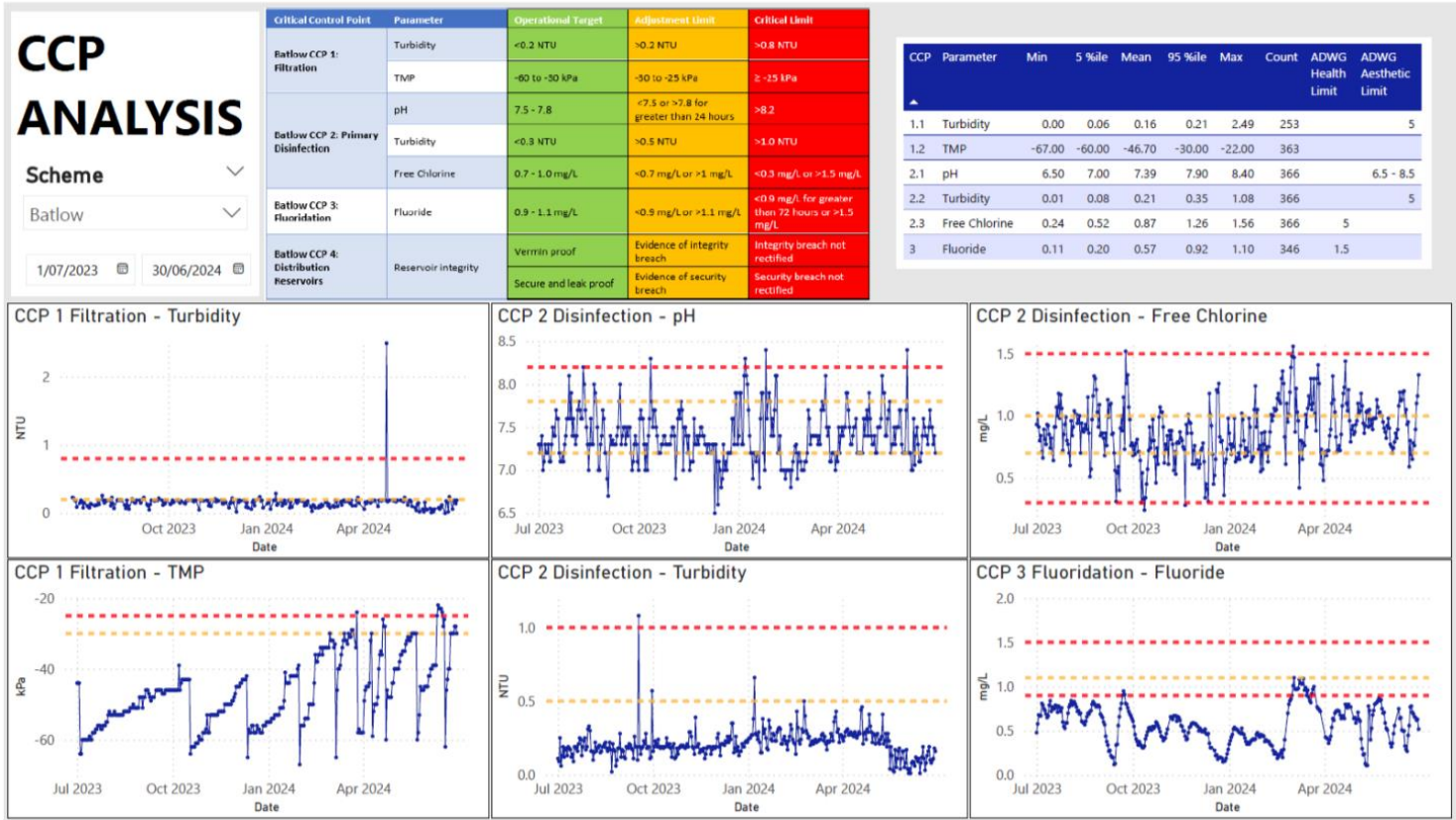


Figure 1 Batlow CCP Analysis Dashboard



4.1.1. CCP 1 Filtration

The filtered water turbidity trend demonstrates good conformance with the monitoring results being <0.2 NTU for majority of the time for the 2023-24 reporting period. However, there were occasional alert limit breaches, and one critical limit breach noted on 23/04/2024 with a value of 2.49 NTU, but the disinfection turbidity level remained within the operational limits during this time. SVC investigated the elevated turbidity reading and no process issues were identified, possible cause related to dirty test tube resulting in false reading.

From the CCP 1 Filtration TMP trend above, the filtered water TMP performed well up until March 2024 with the monitoring results being <30KPa. Significant fluctuations in the TMP performance were noted during the period of March to June 2024 with few critical and alert limit breaches. This was due to pressure sensor issues and/or changes in scaling (Aqua Manage report 08/05/2024). SVC managed to overcome this by installing circulation when the membranes are in a soak mode.

4.1.2. CCP 2 Disinfection

There were many pH values that lay outside the upper and lower alert limits. The pH exceeded the upper critical limit few times, but no excursions from the ADWG aesthetic limit of 6.5 – 8.5 were noted in the network during the 2023-24 reporting period.

The treated water turbidity trend shows good conformance (mostly <0.5 NTU). There were two alert limit exceedances noted during the 2023-24 reporting period and a critical limit exceedance on 17/09/2023 with a turbidity reading of 1.08 NTU. This however is suspected to be an entry error. The turbidity reading noted to have returned to its normal operating limits straight after the critical limit exceedance with a reading of 0.19 NTU on 18/09/2023.

Treated water free chlorine readings shows greater fluctuations in readings with several values being outside of the alert limit during the 2023-24 reporting period. However, the free chlorine levels were maintained within the critical limits, with only four readings outside of the critical limits.

4.1.3. CCP 3 Fluoridation

The fluoride trend shows that the plant was struggling to keep up with the operating limits with readings being <0.9 mg/L from 01/07/2023 to 27/02/2024. During March 2024 the fluoride levels were noted to have returned to the normal operating limits. However, the fluoride reading dropped below 0.9 mg/L towards the end of March 2024 and remained outside the lower critical limit (<0.9 mg/L) for the remainder of the reporting period. This is an open case with the regulator and council is working towards addressing this issue.

In December 2023, a CCP review was undertaken by Viridis and the CCP procedures were updated to version 2.1, with the omission of filtration TMP, treated water pH and treated water turbidity. Council has adopted the new CCP version 2.1 in agreement with the PHU. The CCP omissions are still being monitored by council, however, these are used for operational monitoring purposes only.

The 2023-24 DWMS annual report highlights the need for an update to the DWMS with the changes in CCPs and processes. The last update to the DWMS was in 2018.

4.2. Brungle

A detailed data analysis of the CCP performance for Brungle from Jan Jul 2023 to Jun 2024 is presented in Figure 2.

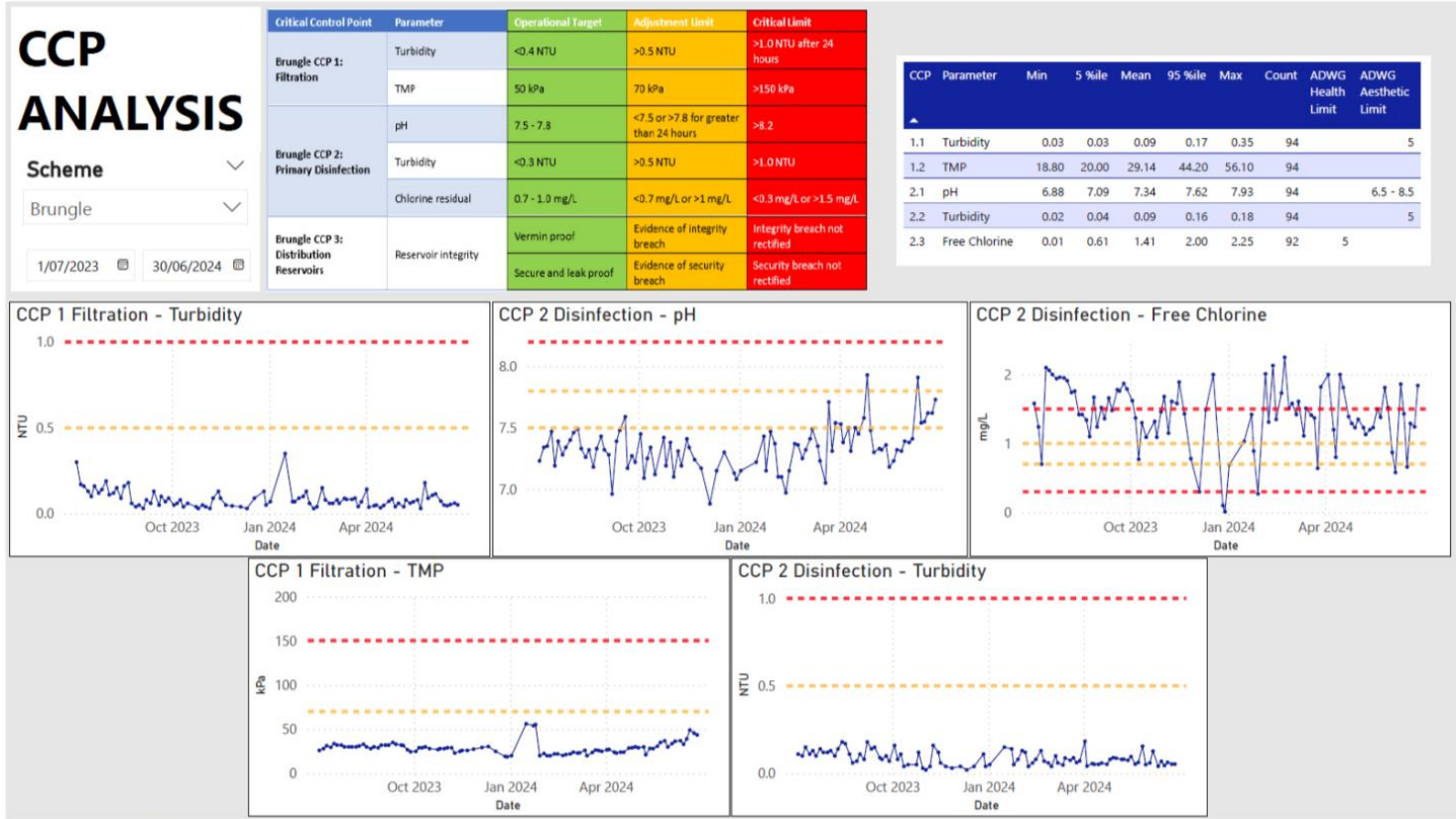


Figure 2 Brungle CCP Analysis Dashboard



4.2.1. CCP 1 Filtration

The filtered water turbidity trend displays good conformance, with turbidity readings maintained well below the alert and critical limits throughout the 2023-24 reporting period.

TMP trend of the filtered water displays 100% conformance with the CCP limits.

4.2.2. CCP 2 Disinfection

pH of the treated water displays a trend of mostly 7.0 – 7.5, which falls below the lower alert limit. However, there were no breaches of the critical limit and all values remained consistent between the ADWG aesthetic guidelines for the network monitoring.

The treated water turbidity trend displays good conformance, with turbidity readings maintained well below the alert and critical limits throughout the 2023-24 reporting period.

The free chlorine trend of the treated water shows that most values exceeded the upper alert and critical limits. A high free chlorine reading of 195mg/L was noted on 02/04/2024. This was considered as a typo and excluded from the graphical trend. The total and free chlorine results from the network monitoring were assessed to confirm this and there were no times when the chlorine levels exceeded the ADWG health limit of 5mg/L. There were three breaches of the lower critical limit on 27/12/2023, 29/12/2023 and 29/01/2024, these are related to the boil water notice raised during 2023-24 reporting period.

In December 2023, a CCP review was undertaken by Viridis and the CCP procedures were updated to version 2.1, with the omission of filtration TMP, treated water pH and treated water turbidity. The council has adopted the new CCP version 2.1 in agreement with the PHU. The CCP omissions are still being monitored by the council, however, these are used for the operational monitoring purposes only.

The 2023-24 DWMS annual report highlights the need for an update to the DWMS with the changes in CCPs and processes. The last update to the DWMS was in 2018.



4.3. Khancoban

A detailed data analysis of the CCP performance for Khancoban from Jul 2023 to Jun 2024 is presented in Figure 3.

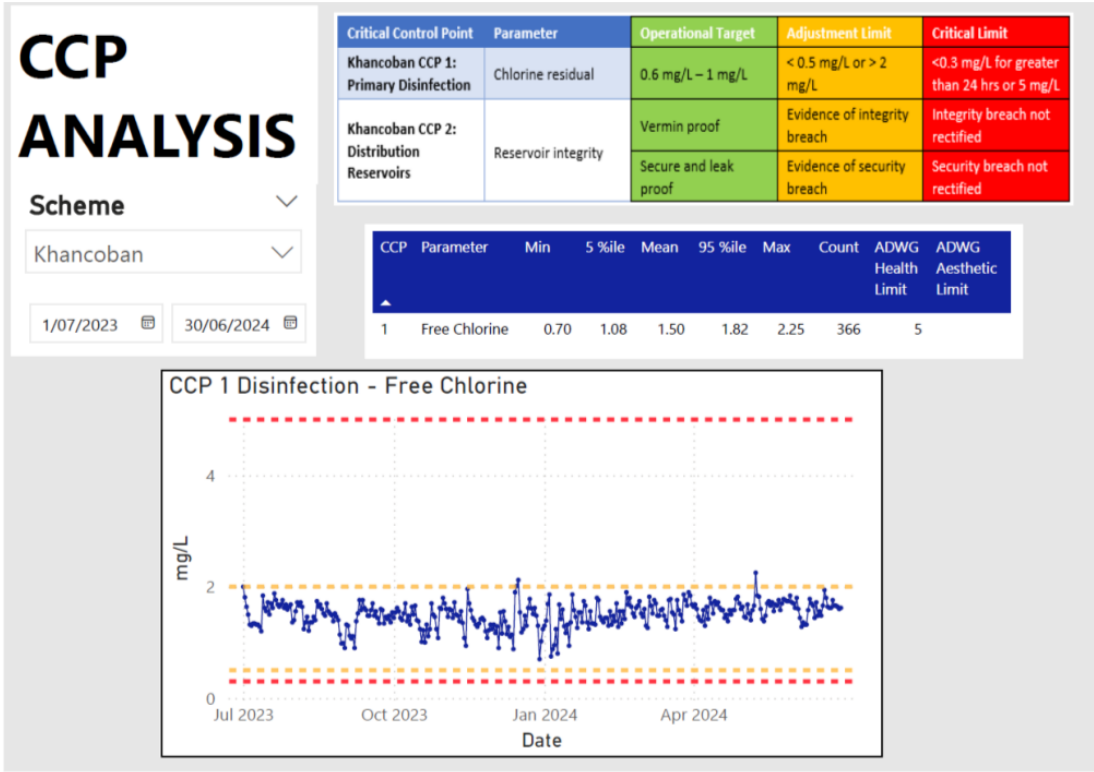


Figure 3 Khancoban CCP Analysis Dashboard

4.3.1. CCP 1 Disinfection

The treated water free chlorine trend shows good conformance with only two results outside of the upper alert limit of 2mg/L, however, there were no times where the free chlorine residual breached the critical limits.

In December 2023, a CCP review was undertaken by Viridis and the CCP procedures were updated to version 2.1, with changes to the operational target and adjustment limits. The council has adopted the new CCP version 2.1 in agreement with the PHU.

The 2023-24 DWMS annual report highlights the need for an update to the DWMS with the changes in CCPs and processes. The last update to the DWMS was in 2018.

4.4. Talbingo

A detailed data analysis of the CCP performance for Talbingo from Jan Jul 2023 to Jun 2024 is presented in Figure 4.

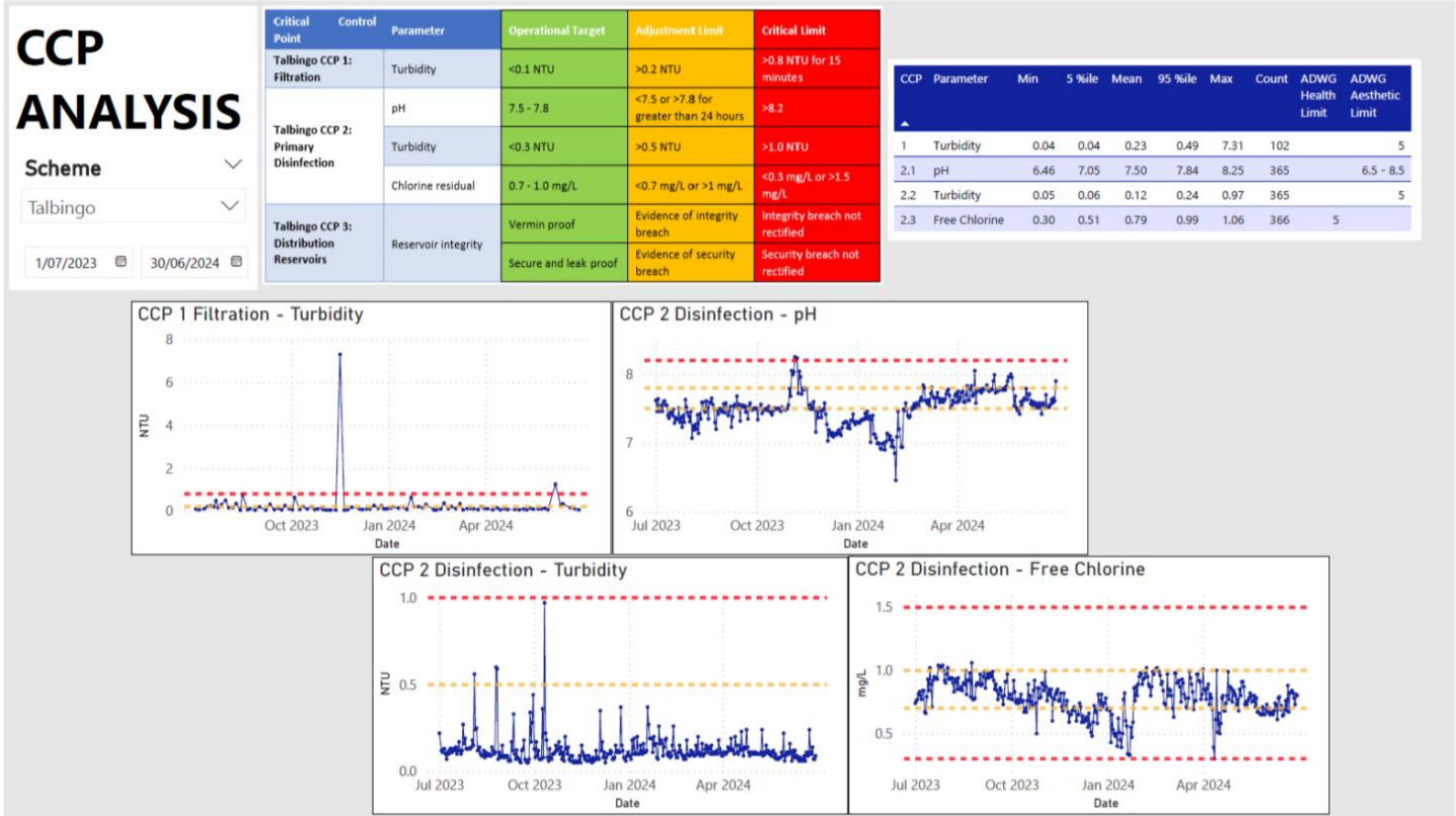


Figure 4 Talbingo CCP Analysis Dashboard



4.4.1. CCP1 Filtration

The filtered water turbidity trend shows that it is mostly below the alert limit of 0.2 NTU. There were two breaches of the critical limit on the 16/11/2023 (7.31 NTU) and 06/06/2024 (1.25 NTU). The high NTU result recorded on 06/06/2024 was investigated and confirmed to be an entry error. Additionally, treated water turbidity on both occasions was found to be less than 0.2 NTU.

4.4.2. CCP2 Disinfection

The pH of the treated water shows quite a variable trend with a range of 6.46 – 8.25. Generally, pH remained below the upper alert limit for the majority of 2023-24 reporting period, with few exceptions during November 2023, April - June 2024 period. Four critical limit breaches were noted during 04/11/2023 – 07/11/2023-with pH readings of 8.03, 8.25, 8.23 and 8.23 respectively.

The treated water turbidity trend displays good conformance with majority of turbidity readings below the alert limit with three exception of alert limit breaches during the period of August and October 2023. No critical limit exceedances were noted during the 2023-24 reporting period.

The free chlorine trend of the treated water displays good conformance (mostly between 0.5 mg/L and 1.0 mg/L). There were some excursions of the upper and lower alert limit, but there were no instances where the critical limits were breached.

In December 2023, a CCP review was undertaken by Viridis and the CCP procedures were updated to version 2.1, with the omission of treated water pH and treated water turbidity. The council has adopted the new CCP version 2.1 in agreement with the PHU. The CCP omissions are still being monitored by the council, however, these are used for the operational monitoring purposes only.

The 2023-24 DWMS annual report highlights the need for an update to the DWMS with the changes in CCPs and processes. The last update to the DWMS was in 2018.

4.5. Tumbarumba

A detailed data analysis of the CCP performance for Tumbarumba from Jul 2023 to Jun 2024 is presented in Figure 5.

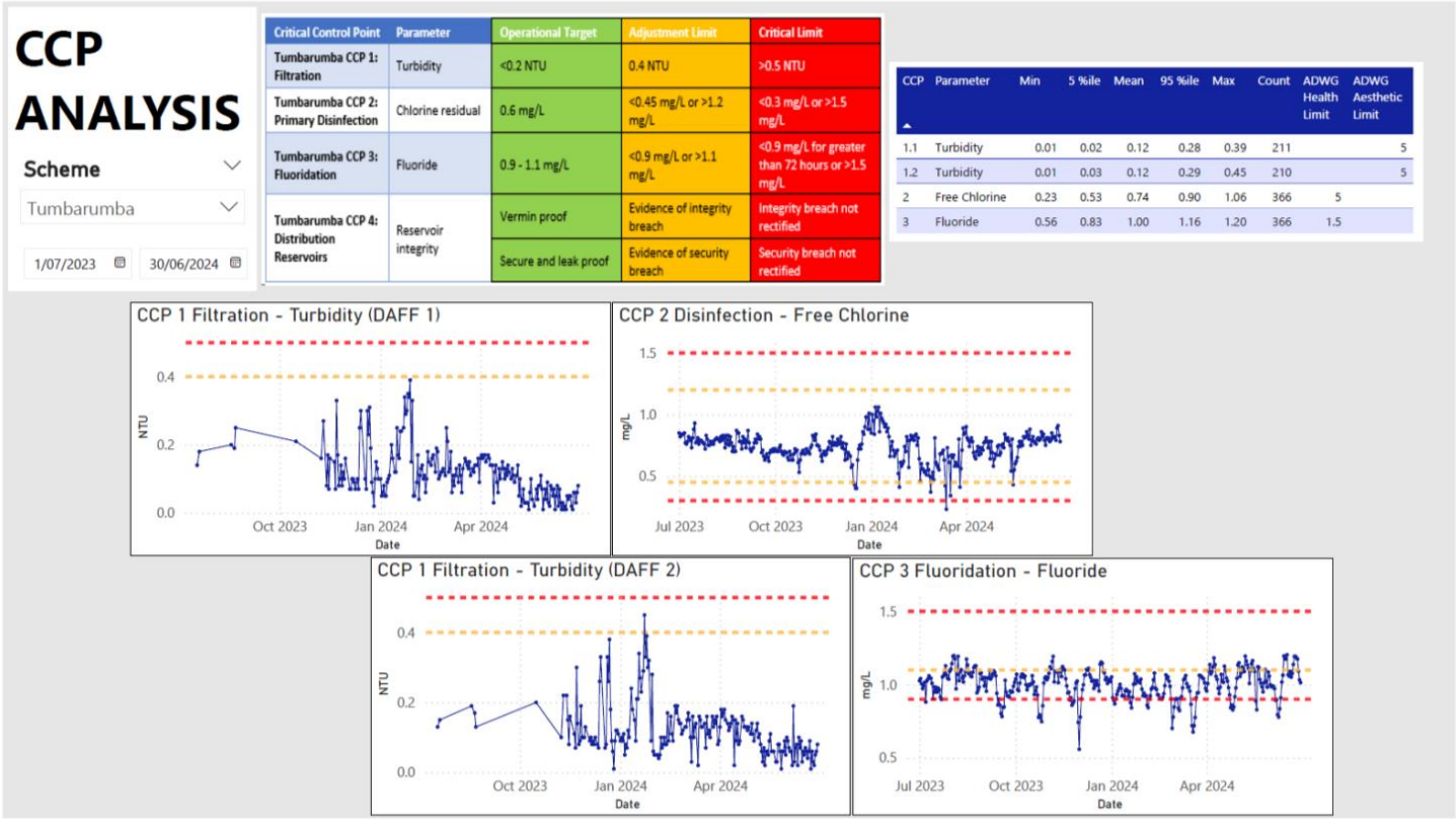


Figure 5 Tumbarumba CCP Analysis Dashboard



4.5.1. CCP1 Filtration

The DAFF turbidity trend shows it was mostly <0.4 NTU across both filters. An alert limit breach of 0.45 NTU was noted off the DAFF 2 filter on 23 January 2024. No critical limit breaches were reported for both filters during the 2023-24 reporting period.

4.5.2. CCP2 Disinfection

The free chlorine trend of the treated water displays very good conformance (mostly between the alert limits of 0.45 mg/L and 1.20 mg/L). However, there were several excursions of the alert limits, and one instance of free chlorine falling below the lower critical limit of 0.3 mg/L.

4.5.3. CCP3 Fluoridation

The fluoride trend of the treated water shows that many values fell below the lower critical limit of 0.9 mg/L throughout the reporting period. There were several incidents notified to NSW health regarding this, and council continues to improve the fluoride levels. At no times the fluoride trend has exceeded the upper critical limit.

In December 2023, a CCP review was undertaken by Viridis and the CCP procedures were updated to version 2.1, with updates to the chlorine operational target and adjustment limits. The council has adopted the new CCP version 2.1 in agreement with the PHU.

The 2023-24 DWMS annual report highlights the need for an update to the DWMS with the changes in CCPs and processes. The last update to the DWMS was in 2018.

4.6. Tumut

A detailed data analysis of the CCP performance for Tumut from Jul 2023 to Jun 2024 is presented in Figure 6.

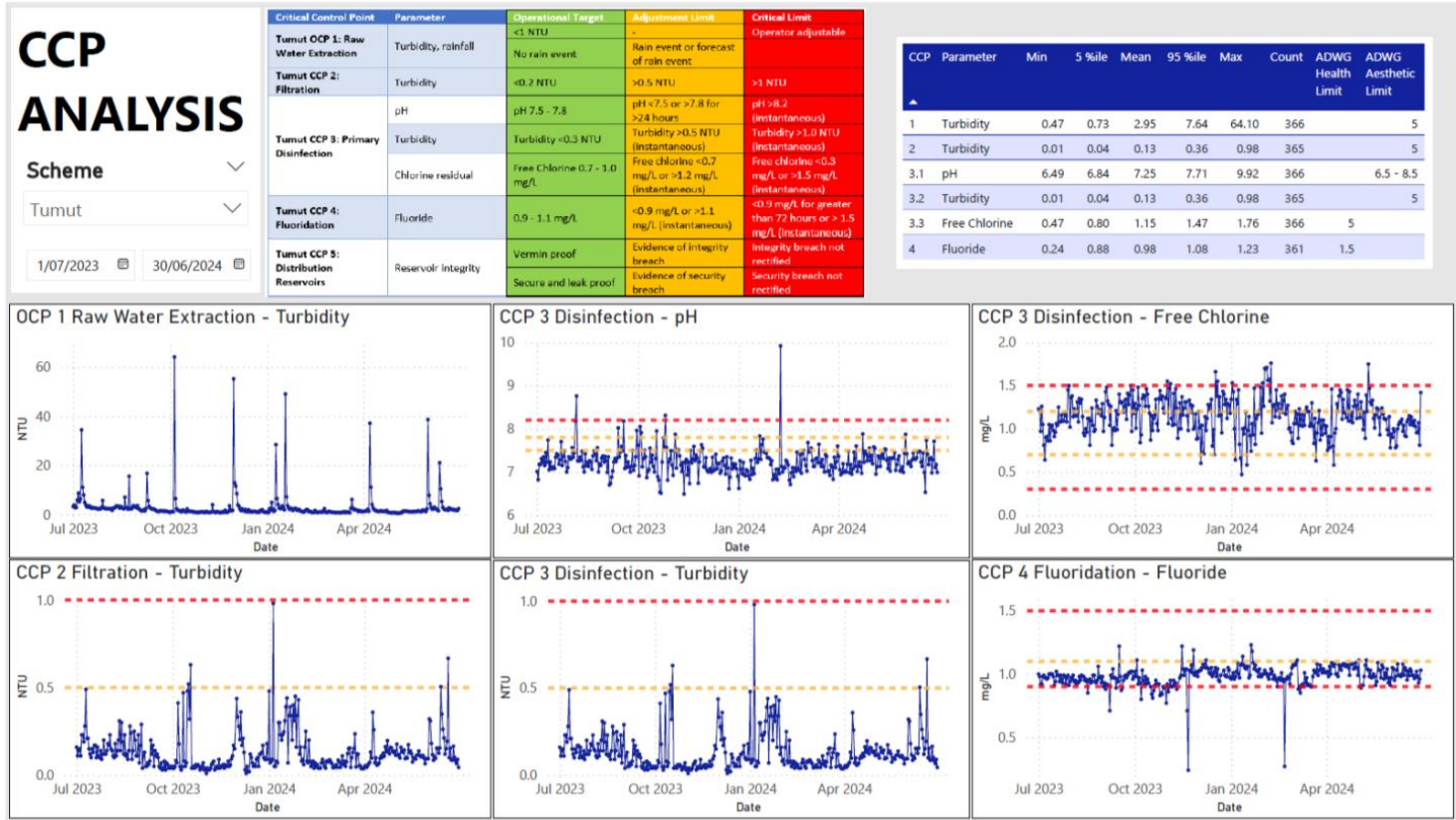


Figure 6 Tumut CCP Analysis Dashboard



4.6.1. CCP1 Raw Water Extraction

The raw water turbidity trend shows variability over the reporting period with several readings above 10 NTU.

4.6.2. CCP2 Filtration

Turbidity of the filtered water shows good conformance with majority of readings below the alert limit. There were four instances where the turbidity readings were above the alert limit of 0.5 NTU. However, there were no times when the critical limit was exceeded.

4.6.3. CCP3 Disinfection

Turbidity of the treated water shows good conformance with majority of readings below the alert limit. There were four instances where the turbidity readings were above the alert limit of 0.5 NTU. However, there were no times when the critical limit was exceeded.

pH of the treated water displays a trend of mostly 7.0 – 7.5, which falls below the lower alert limit. There were three instances of the upper critical limit breach with the highest value of 9.92 recorded on 08/02/24. SVC assessed the high pH readings, and the pH reading recorded on 08/02/2024 confirmed to be an entry error.

The free chlorine of the treated water shows variance in the trend but generally fell between 0.7 – 1.5 mg/L. The upper and lower alert limits were triggered numerous times; however, the free chlorine residual did not fall below the lower critical limit. There were multiple breaches of the upper critical limit of 1.5 mg/L throughout the reporting period, however, no values have exceeded the ADWG total chlorine health limit of 5mg/L from the network monitoring.

4.6.4. CCP4 Fluoridation

The fluoride trend of treated water displays very good conformance (mostly between 0.9 mg/L and 1.2 mg/L). There were several instances where the upper and lower alert limits of 0.9 mg/L and 1.1 mg/L was triggered but there were no exceedances of the critical limit.

In December 2023, a CCP review was undertaken by Viridis and the CCP procedures were updated to version 2.1, with the omission of raw water turbidity, rainfall, treated water pH and treated water turbidity. The council has adopted the new CCP version 2.1 in agreement with the PHU. The CCP omissions are still being monitored by the council, however, these are used for the operational monitoring purposes only.

The 2023-24 DWMS annual report highlights the need for an update to the DWMS with the changes in CCPs and processes. The last update to the DWMS was in 2018.



4.7. CCP - Reservoir Integrity – All Schemes

SVC has a CCP for reservoir integrity for all schemes. Maintaining the integrity of the distribution system is an important barrier in keeping the supply safe from potential recontamination. This includes ensuring that the service reservoirs are not vulnerable to contamination, for example, by vermin, birds, or rainwater runoff ingress. Security of the facilities is also examined to deter contamination by human agency.

SVC has a planned schedule of detailed reservoir inspections for each facility at either two-yearly or four-yearly intervals. A summary of the SVC ASAM RT database, which stores the records of detailed reservoir inspections and cleans, is summarised in Table 2.

Table 2 Reservoir Inspections and Cleans

Reservoir	Last inspection date in ASAM RT	WQ related findings	Next inspection date scheduled	Comments
Adelong	16/02/2020	External and internal areas appear to be OK.	16/02/2024	Overdue - scheduled to be completed in 2024/25
Adelong Break Tank	16/02/2020	Entry hatch requires a lock to prevent unauthorised access. There is light corrosion on the underwater section of the roof support post.	16/02/2024	Overdue - scheduled to be completed in 2024/25
Batlow WTP CWT	15/02/2020	There are osmotic blisters in the lower wall coating.	15/02/2024	Overdue - scheduled to be completed in 2024/25
Batlow WTP RWT	7/05/2022	The hatches are not sealed. The internal ladder is heavily corroded.	7/05/2024	Overdue - scheduled to be completed in 2024/25
Brungle	12/02/2020	The entry hatch is not well secured and can be opened when locked.	12/02/2024	Overdue - scheduled to be completed in 2024/25
Cherry Lane Concrete (Offline)	14/11/2013	NA	NA	NA
Cherry Lane Steel	8/05/2022	The entry hatch and roof hatch are both unlocked. There are osmotic blisters in the lower wall coating. Bolts are corroded on the ladder, inlet riser and overflow base areas indicating poor coating application.	8/05/2026	NA
Cloverdale 1 (Offline)	17/11/2013	NA	NA	NA
Cloverdale 2 (Offline)	17/11/2013	NA	NA	NA
Godfrey	15/02/2020	All steels components inside the tank are corroded.	15/02/2024	Overdue - scheduled to be completed in 2024/25
Golf Club	7/05/2022	The roof sheet edges are not secured. There is a hole around the level pulley where contaminated water can drain into the tank.	7/05/2026	NA



Reservoir	Last inspection date in ASAM RT	WQ related findings	Next inspection date scheduled	Comments
		The bitumen wall floor seals are badly deteriorated. The ladder system is heavily corroded.		
Khancoban No1	17/02/2020	The three hatches on the roof area are all unlocked and unsealed on the upstream side. There were two birds' nests in the roof framing, close to the entry hatch area. Small amounts of corrosion are beginning to develop on the lower wall areas and also on the internal ladder rungs.	17/02/2024	Overdue - scheduled to be completed in 2024/25
Khancoban No2	17/02/2020	The entry hatch cover is not locked. The roof edge flashings are collecting debris and preventing the roof water from draining off.	17/02/2024	Overdue - scheduled to be completed in 2024/25
Lambie	14/02/2020	A large dead bird was found inside the tank. All metallic components inside the tank are heavily corroded.	14/02/2024	Overdue - scheduled to be completed in 2024/25
Southern	23/04/2024	The roof edge screws are loose on the eastern side. There is graffiti present on the lower wall areas.	12/02/2028	NA
Talbingo HL	13/02/2020	The entry hatch is not sealed or secured. The overflow diffuser is heavily corroded and dropping corrosion material into the water.	13/02/2024	Overdue - scheduled to be completed in 2024/25
Talbingo LL	7/05/2022	The lightweight entry hatch cover is not secured. The vent mesh panels in the side walls are too coarse and not effective against fine debris. The inlet downpipe should have a 120° elbow fitted to the base to reduce sediment stirring during the filling cycle.	7/05/2026	NA
Tumbarumba	17/02/2020	The roof sheets do not overlap the edges of the walls. The existing guttering will overflow back into the tank when either blocked or becoming unsealed. The safety mesh fitted under the roof sheets is corroding and dropping onto the floor.	17/02/2024	Overdue - scheduled to be completed in 2024/25
Withers 1	14/02/2020	External and internal areas appear to be OK.	14/02/2024	Overdue - scheduled to be completed in 2024/25
Withers 2	14/02/2020	External and internal areas appear to be OK.	14/02/2024	Overdue - scheduled to be completed in 2024/25

There were 13 reservoirs that were identified to have overdue inspections and clean. The overdue inspections and clean are scheduled to be completed in 2024/25. Cloverdale 1 & 2 and Cherry Lane Concrete reservoirs were confirmed to be offline.



5. INCIDENTS REPORTED TO NSW HEALTH

Table 3 includes the notifications made to the Regulator (NSW Health PHU) for the Jul 2023 to Jun 2024 reporting period.

Table 3 Notifications made to NSW Health PHU

Date notified	Scheme	Issue	Actions taken	Comments
18/09/23	Tumut-Adelong	Chemical sampling on 6 September 2023 has returned high Nickel (0.0615 mg/L) - exceeding the ADWG health limit of 0.02 mg/L.	The PHU was notified, and relevant actions were undertaken by the council including resampling and investigation into the event. It was identified that; the issue was due to sampling error.	No impact on public health due to the incident.
30/10/23	Tumut	CCP Fluoride – critical limit of 0.9 mg/L breached	It was identified that there was issue with the dose feed system and as a result it was under dosing. It was noted that the system has not been serviced since 2021. The PHU was notified and relevant actions were undertaken to rectify the issue. The pump has since been replaced and currently no issues.	No impact on public health due to the incident.
29/12/23	Brungle	Significant drop in chlorine levels resulting in a need for a boil water advisory.	The PHU was notified, and relevant corrective actions were undertaken by the council to rectify the issue. A BOIL WATER NOTICE was issued on 29/12/23 and lifted on 19/01/24.	Appropriate actions were undertaken by the council to reduce the impact on public health and in consultation with PHU and DCCEEW.
19/03/24	Tumbarumba	CCP Fluoride – critical limit of 0.9 mg/L breached with a reading of 0.676 mg/L after 72 hours.	It was identified the dose rate needed to be increased. The PHU was notified, and relevant corrective actions were undertaken to rectify the issue.	No impact on public health due to the incident.
11/06/24	Tumbarumba	CCP Fluoride – critical limit of 0.9 mg/L breached with a reading of 0.795 mg/L after 72 hours.	It was identified the dose rate needed to be increased. The PHU was notified, and relevant corrective actions were undertaken to rectify the issue.	No impact on public health due to the incident.
26/10/23	Tumbarumba	CCP Fluoride – critical limit of 0.9 mg/L breached with a reading of 0.747 mg/L after 72 hours.	It was identified the dose rate needed to be increased. The PHU was notified, and relevant corrective actions were undertaken to rectify the issue.	No impact on public health due to the incident.

Batlow scheme was noted to have low fluoride levels, however, this is an open and ongoing case with the regulator and council is working towards addressing this issue.

There were several critical limit breaches noted during the reporting period across the SVC schemes as discussed in section 4, however, not all CCP limit breaches were reported to the PHU. It is a requirement to report any CCP limit breaches to the regulator. This practise should improve going forward.



6. VERIFICATION MONITORING PERFORMANCE

Verification of drinking water quality provides an assessment of the overall performance of the system and the ultimate quality of drinking water being supplied to consumers. This incorporates monitoring drinking water quality as well as assessment of consumer satisfaction.

6.1. Reticulation Water Quality Monitoring

Drinking water quality monitoring is a wide-ranging assessment of the quality of water in the reticulation or distribution system and importantly, as supplied to the consumer. It includes regular sampling and testing to assess whether water quality is complying with ADWG guideline values. Monitoring of drinking water is regarded as the final check that, overall, the barriers and preventive measures implemented to protect public health are working effectively.

The reticulation drinking water quality data for the schemes for the reporting period is presented in Appendix A. ADWG conformance for each scheme is summarized in Table 4 below.

Table 4 Verification Monitoring ADWG Conformance Jul 2023 to Jun 2024 Period

Scheme	ADWG Health-based guidelines	ADWG Aesthetic-based guidelines
Batlow	100% conformance	4 out of 48 samples had free chlorine out-of-spec.
Brungle	100% conformance	11 out of 55 samples had free chlorine out-of-spec.
Khancoban	100% conformance	100% conformance
Talbingo	100% conformance	2 out of 26 samples had free chlorine out-of-spec. 2 out of 26 samples had pH out-of-spec.
Tumbarumba	100% conformance	2 out of 11 samples had the fluoride ratio out-of-spec. 1 out of 51 samples had pH out-of-spec.
Tumut	100% conformance	2 out of 75 samples had free chlorine out-of-spec.

A sampling result from the Tumut scheme noted to have exceeded the ADWG Health-Based Guideline Limit for Nickel. However, upon investigation it was identified that the high level of Nickel originated from a newly installed sample tap. Further testing from a different sample tap showed complaint results, confirming no issues with the water supply and no impact on public health.

Low chlorine incident at Brungle resulted in a boil water notice raised during December 2023 and lifted on 19/01/2024. Viridis was engaged in the event investigation and the investigation report highlighted the need for a CCP procedure update along with other actions to be undertaken by the council.



6.2. Sampling Frequency Conformance

Sampling frequency in accordance with the monitoring program is summarised in Table 5.

The following supply systems did not achieve the sampling frequency requirement:

- Batlow (microbiology)
- Khancoban (microbiology)
- Khancoban (chemistry)
- Tumbarumba (microbiology)
- Tumbarumba (chemistry)
- Tumut (microbiology)

Table 5 Verification Monitoring Sampling Frequency Jul 2023 to Jun 2024 Period

Supply System	Analysis Type	Allocations (any part)	Samples Expected	Samples Collected in Period				Collected as % of Expected
		in Period	in Period	Allocated	Additional	Repeat	Total	Samples
Batlow SN03	Chemistry	4	2	1	1	0	2	100.00%
Batlow SN03	Microbiology	104	52	48	0	0	48	92.31%
Brungle SN04	Chemistry	4	2	2	0	0	2	100.00%
Brungle SN04	Microbiology	72	36	46	12	0	58	161.11%
Khancoban SN07	Chemistry	4	2	1	0	0	1	50.00%
Khancoban SN07	Microbiology	52	26	24	0	1	25	92.31%
Talbingo SN05	Chemistry	4	2	2	0	0	2	100.00%
Talbingo SN05	Microbiology	52	26	26	0	0	26	100.00%
Tumbarumba SN08	Chemistry	4	2	1	0	0	1	50.00%
Tumbarumba SN08	Microbiology	104	52	51	0	0	51	98.08%
Tumut SN01	Chemistry	24	12	13	5	0	18	150.00%
Tumut SN01	Microbiology	164	82	79	2	0	81	98.78%

The reason for the shortfall in microbiological samples is due to missed samples over the Christmas/New Year laboratory shutdown period and due to staff change overs at the start of the year. Tumbarumba chemistry samples were missed by the courier. SVC to ensure the sampling requirements are always met.



6.3. Water Quality Customer Complaints

Monitoring of consumer complaints can provide insight into any underlying water quality issues which may not be picked up from the performance monitoring otherwise.

Consumer satisfaction with drinking water quality is largely based on a judgment that the aesthetic quality of tap water is 'good', which usually means that it is colourless, free from suspended solids and has no unpleasant taste or odour.

Figure 7 demonstrates the water quality complaints received for the reporting period.

There were 31 water quality complaints during the Jul 2023 to Jun 2024 reporting period. 27 complaints were from Tumut, 1 was from Tumbarumba, 1 from Brungle and 2 from Khancoban. Most complaints were related to taste and odour; complaints related to dirty water were actioned by flushing near the property until cleared and water quality testing returned acceptable results.

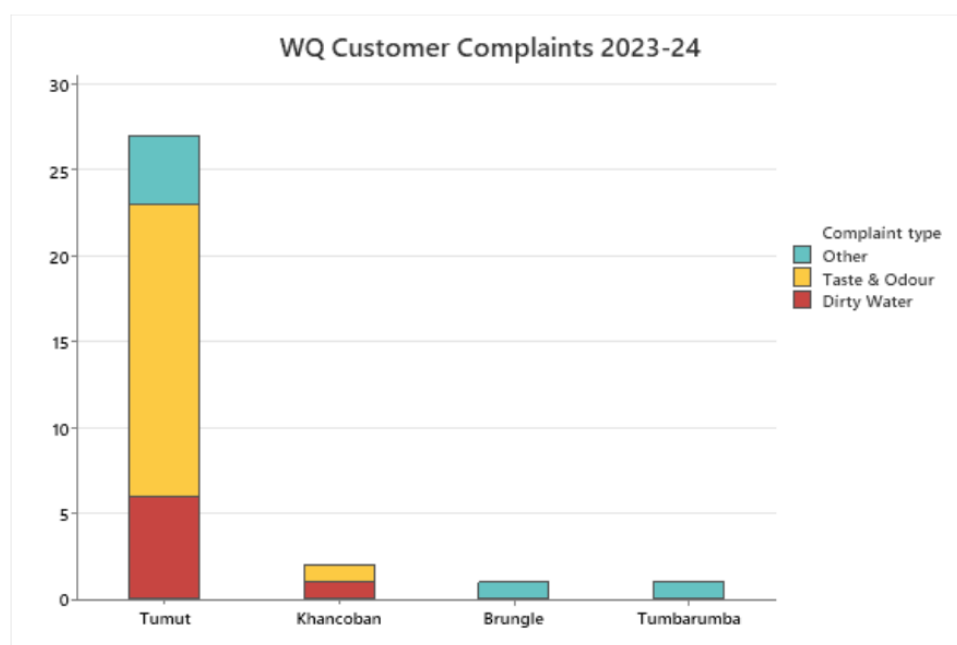


Figure 7 Water Quality Complaints – SVC Schemes



7. IMPROVEMENT PLAN IMPLEMENTATION

An Improvement Plan is part of a management system and demonstrates the continual improvement process in place for an organisation. SVC has an Improvement Plan, which is part of their DWMS.

7.1. Status

The Improvement Plan was reviewed and updated during the preparation of this Annual Report. A summary of the status of all improvement actions, including priority, can be seen in Figure 8.

During the review of the improvement plan for this report:

- 9 actions were completed or closed out
- 3 actions are now in progress

For detailed progress and commentary, refer to the Improvement Plan (Appendix B).

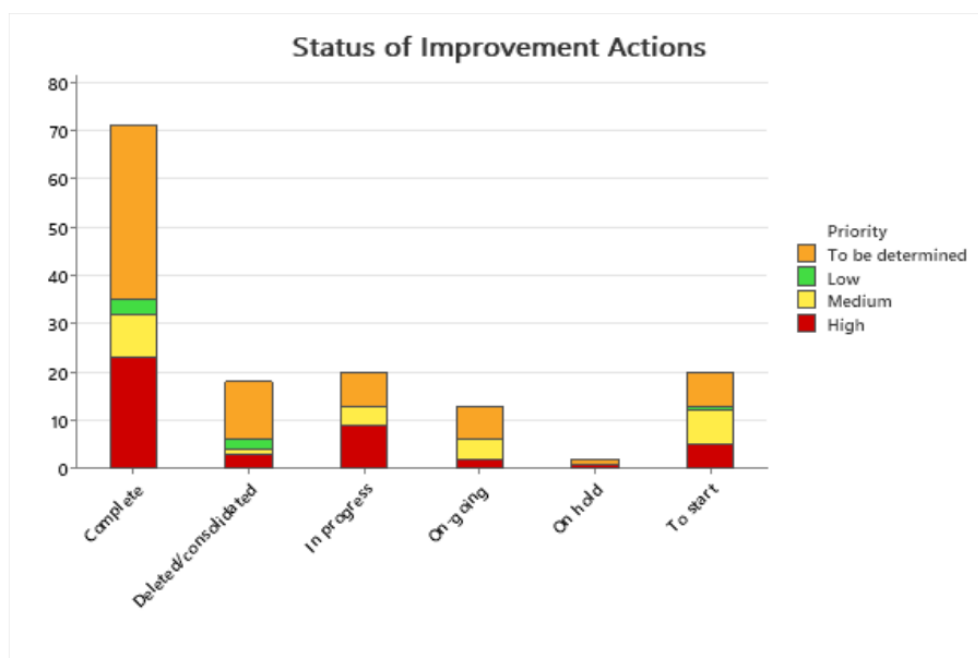


Figure 8 Status of Improvement Actions

7.2. New Additions

No new additions to the improvement plan for this annual review. The improvement actions for the Brungle incident are in progress.

It has been noted that the last risk assessment review was completed by Viridis in 2020 and the DWMS was last updated in 2018. A detailed review of the DWMS and risk assessment should be considered.



8. DWMS REVIEW OUTCOMES

The annual review of the DWMS was undertaken as part of the preparation of this Report.

The outcome of the review, as per Table 6, is that overall water quality risks are being managed. The actions identified in Table 6 should be implemented to strengthen drinking water management practices.

Table 6 Review Details

Review area	Discussions	Related action/s, as relevant
Supply system details, including schematics.	Refer to Section 3. There were no significant changes to the scheme.	NA
CCP performance	Discussed in Section 4. Some critical limit breaches were not reported to the PHU.	To update CCP procedures based on findings from the Brungle incident investigation report (this is in progress). Ensure that all CCP critical limits breaches are reported to the PHU as required by NSW Health.
Outcomes of drinking water quality incidents and emergencies	Discussed in Section 5. Two reportable incidents Brungle-low chlorine and Adelong-Nickel. An investigation into the Brungle incident was completed by Viridis and the investigation report was finalised in April 2024. For Adelong Nickel incident, council investigated and concluded that it was sampling error and not an actual non-compliance against ADWG health limit.	Implement the recommendations from the Brungle incident investigation report.
Drinking water quality performance	Discussed in Section 6. The conformance with ADWG health-based guidelines has been good. However, there seems to be a shortfall in the microbiological sampling frequency.	SVC to ensure verification monitoring requirements are always met.
Concerns of consumers (customer complaints)	Discussed in Section 6.3. Most related to taste and odour. Nothing systematic.	NA
Improvement plan progress	Discussed in Section 7. The status of 12 improvement actions were updated.	NA
Audit outcomes	Discussed in Section 9. Not applicable at this stage.	NA
DWMS and risk assessment	Last DWMS review was in 2018 and the last update to the Risk register was in 2020 by Viridis.	SVC to consider a detailed review and update of DWMS and risk assessment.
Any concerns from NSW Health and Department of Climate Change, Energy, Environment and Water (DCCEEW)	NA	NA



9. DWMS AUDIT OUTCOMES

There was no formal DWMS audit undertaken in Jul 2023 – Jun 2024.



GLOSSARY

Word	Description
ADWG	Australian Drinking Water Guidelines
CCP	Critical Control Point
DWMS	Drinking Water Management System
IERP	Incident Emergency Response Plan
mg/L	Milligrams per litre
NSW	New South Wales
NTU	Nephelometric Turbidity Units
pH	An expression of the intensity of the basic or acid condition of a liquid. Natural waters usually have a pH between 6.5 and 8.5
PHU	Public Health Unit
SVC	Snowy Valleys Council
WQ	Water Quality
WTP	Water Treatment Plant



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