

## Management Report

**From:** [REDACTED]  
**Sent:** Tuesday, 5 November 2019 11:37 AM  
**To:** Policies <[policies@svc.nsw.gov.au](mailto:policies@svc.nsw.gov.au)>  
**Subject:** RE: Re: Internal Exhibition of Policies and Plans

Hello,  
In comment on the Mannus Lake BGA Management Policy:

While strong on the reactive process, this policy lacks details on prevention. Prevention is better than cure (and generally cheaper!). Council should be leading our community in advocating, engaging, educating, and facilitating actions to protect and improve the health of this water body.

Council could:

- Engage with the community – involve them in the process, form an action group, etc.
- Educate upstream landholders.
- Facilitate landholders gaining government grants to fence out and protect the watercourse through their properties.

Council should develop a strategy (and provide a budget) to improve the quality of inflows to Mannus Lake - this will prevent BGA blooms more effectively than trying to treat the problem later, and will have additional positive benefits for the site.

Kind regards,  
[REDACTED]

## Management Report

Mr. Heinz Kausche

Acting Director of Infrastructure and Assets

Snowy Valleys Council

[hkausche@svc.nsw.gov.au](mailto:hkausche@svc.nsw.gov.au)

18 November 2019

Dear Mr. Kausche,

### Re Mannus Lake Blue-Green Algae Management Policy

This submission is made in response to Council's advertisement of the Draft Mannus Lake Blue-Green Algae Management Policy by [REDACTED]

We are please that Council is formalising policy and procedure for the monitoring and management of algal blooms in the Mannus Lake, and are also pleased that Council is reviewing the signage that is placed at the lake in the event of an algal bloom.

However, we are concerned that the draft policy does not mention the need for any testing downstream of the lake or management options that might be investigated to reduce the potential for blooms and the impact on aquatic life and downstream water users.

The Strategic Purpose of the policy is to 'guide Snowy Valleys Council's (Council) management and response to Blue Green Algae (GBA) outbreaks in the Mannus Lake. We think there should be a statement here acknowledging the potential impact of algal blooms on downstream water users and aquatic life and Council's desire to minimise this impact.

P1 of the policy (in 2. Policy Statement) says 'This policy is used to determine the general response levels and the actions required during an algal bloom in Mannus Lake'. The statement does not acknowledge the need to respond or take action in relation to streams downstream of the lake.

P2 of the policy (in 4.2 Classification of Response Levels) says 'Algal blooms will be monitored in Mannus Lake by Council.' There is no mention of monitoring algal blooms in the streams downstream of the lake.

We therefore ask that Council consider the following for inclusion in the policy:

1. Council broaden the description of the Strategic Purpose of the policy to acknowledge the potential impact of algal blooms on downstream water users and aquatic life, and Council's desire to minimise this impact.
2. Council undertake regular monitoring of Mannus Creek at Walteela Road Bridge, Mannus Creek at the 3 bridges at Tooma, and the Tooma River at the 4 bridges at Greg Greg. We also ask that Council consider testing at the Kooyong water gauging station in addition to these sites, to alert water users between Kooyong and the 3 bridges at Tooma when there is a red alert for blue green algae in their section of the creek.
3. While our group generally agrees with the rules for determining when testing is needed, we ask that if the Mannus Lake still has an amber alert, that testing continue at the Mannus Creek at Tooma (and at the Kooyong gauging station), even if readings at Walteela Road

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Bridge have decreased to a green alert. This is because of observations last summer by landholders (as discussed at meeting with Council, Simon Mitrovic UTS and Steve Thompson LLS on 6<sup>th</sup> August 2019) that blue green algae appears to persist in stagnant pools in Lower Mannus Creek when it has cleared the upper reaches of the creek at the Walteela Road Bridge. Please discuss this further with us if any clarification is needed.

4. Section 4.7 states that Council will provide limited water for domestic and stock use to directly affected landholders. We think this statement should clarify 'directly affected landholders at the lake and downstream'.
5. There was discussion at the meeting with Council and Simon Mitrovic of other measures that Council could take in conjunction with NSW Fisheries and with the concurrence of NSW Water. These included potentially lowering the trunnion and increasing water flow above the licence requirements, both for the benefit of downstream landholders, and for aquatic life. Would Council therefore please include a statement to the effect: In the event of an algal bloom, Council will actively work with NSW Fisheries, Water NSW, and downstream landholders to discuss and action other mitigation measures that may include lowering the trunnion and increasing water discharge from the lake above the minimum licence requirements.

If you wish to discuss these measures further, please advise, and we can quickly convene a meeting with you.

Yours faithfully,

[Redacted signature block]



|                             |  |
|-----------------------------|--|
| <b>Policy Title</b>         | Mannus Lake Blue-Green Algae Management Policy |
| <b>Policy Category</b>      | Public   |
| <b>Number &amp; Version</b> | SVC-ENG-PO-078-01                              |
| <b>Policy Owner</b>         | Asset Planning and Design                      |
| <b>Approval by</b>          |  |
| <b>Effective date</b>       | October 2019                                   |
| <b>Date for review</b>      | October 2020                                   |

### 1. STRATEGIC PURPOSE

This policy guides Snowy Valleys Council's (Council) management and response to Blue Green Algae (BGA) outbreaks in Mannus Lake, recognising and minimising the impact of algal blooms on recreational use of the lake and the downstream water users and aquatic life.

### 2. POLICY STATEMENT

Council is committed to the effective management of algal blooms in Mannus Lake, which protects public health and meets the *National Health and Medical Research Council Guidelines for Managing Risk in Recreational Water*.

Council is required to manage algal blooms under approval conditions for the operation of Mannus Lake. *The Department of Industry: Water (DOI: Water) Condition 34* of Council's approval to operate Mannus Lake (Lot 2 //608847) states:

*If an algal scum is visually observed, the approval holder (Snowy Valleys Council) must undertake water sampling and testing. If the analysis reveals toxic levels, the approval holder must erect appropriate warning signs and provide the NSW Office of Water with a copy of water testing results.*

This policy is used to determine the general response levels and the actions required during an algal bloom in Mannus Lake.

### 3. DEFINITIONS

|                     |   |
|---------------------|---|
| Cyanobacteria (BGA) | Bacterial photosynthetic autotrophs that form a common and naturally occurring component of most-aquatic ecosystems. These bacteria are a concern for public health, as some types produce toxins that have harmful effects on tissues, cells or organisms. |
| Operational         | A planned sequence of measurements and observations to assess and confirm that individual barriers and preventative strategies are functioning properly and   |

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Adopted:

Reviewed:

|            |   |
|------------|---|
| Monitoring | effectively.  |
| Hazard     | A source of potential harm or a situation with a potential to cause harm; that can exist as a biological, chemical or physical agent. |
| RACC       | Regional Algal Coordinating Committee (WaterNSW).   |
| NATA       | National Association of Testing Authorities   |

#### 4. CONTENT

##### 4.1 Identifying and Responding to a BGA Bloom

A BGA bloom requires a quick, efficient and well-planned response to communicate to affected communities the presence and caution necessary relating to BGA.

Council undertakes sampling, as part of operational monitoring, for the purposes of identifying BGA species and cell counts. Algal species, cell counts and biovolumes are reported along with the total cell count for potentially toxic species.

A total biovolume greater than 0.04 mm<sup>3</sup>/L raises an exception which Council uses to establish a response level (See Section 4.2). The Algal bloom action plan summarises the actions required for each response level (See Section 4.3)

The identification of the BGA species is important as it enables a targeted response and a more accurate assessment of potential toxicity. After a bloom is controlled, Council will review the response effort.

##### 4.2 Classification of Response Levels

Response is based on a three-tier alert level framework, which is a monitoring and management action sequence that Council uses for a graduated response to the onset and progress of cyanobacterial bloom in Mannus Lake. Council uses representative sampling for monitoring purposes.

Potential Toxin Producer (PTP) biovolume are the primary assessment criterion. The alert levels are shown in Table 1.

Algal blooms will be monitored in Mannus Lake by Council. The development of a BGA bloom is related to water temperature, nutrient levels and the stratification of water within the lake.

##### 4.3 Response Level Flow Chart

Figure 1 shows the general sequence of actions required to determine the BGA response level and the corresponding actions.

Alerts may be downgraded to the Green level when two consecutive samples meet the requirements for a Green level. The recovery procedure is then to be applied when the BGA bloom has subsided.

This approach allows for a staged response to the presence of cyanobacteria in recreational waters, as it links the results from the monitoring program with the actions in the different alert levels. The alert levels signal the potential for hazard and the appropriate actions, such as additional sampling and eventual warning to users, when a guideline value is exceeded.

Table 1 Response Levels and Actions (Summary)

| Green Level (Surveillance Mode)   | Amber Level (Alert Mode)   | Red Level (Action Mode)   |
|---|--|---|
| <p>≥ 500 to &lt; 5000 cells/mL <i>M. aeruginosa</i>;<br/> <b>Or</b><br/>           *Biovolume equivalent of &gt; 0.04 to &lt; 0.4 mm<sup>3</sup>/L for the combined total or all cyanobacteria.</p> | <p>≥ 5000 to &lt; 50,000 cells/mL <i>M. aeruginosa</i><br/> <b>Or</b><br/>           *Biovolume equivalent of &gt; 0.4 to &lt; 4 mm<sup>3</sup>/L for the combined total or all cyanobacteria, where a known PTP is dominant in the total biovolume (75% or more of total biovolume)<br/> <b>Or</b><br/>           Biovolume equivalent of &gt; 0.4 to &lt; 10 mm<sup>3</sup>/L for the combined total or all cyanobacteria, where known PTPs are not present.</p> | <p>≥ 50000 cells/mL <i>M. aeruginosa</i><br/> <b>Or</b><br/>           *Biovolume equivalent of &gt; 4 mm<sup>3</sup>/L for the combined total or all cyanobacteria, where a known PTP is dominant in the total biovolume (75% or more of total biovolume)<br/> <b>Or</b><br/>           Biovolume equivalent of &gt; 10 mm<sup>3</sup>/L for the combined total or all cyanobacteria, where known PTPs are not present.<br/>           Monitoring Requirements:<br/>           Warning to be issued that the water body is considered unsafe for primary contact recreation.</p> |
| <p><b>Monitoring Requirements:</b><br/>           Routine sampling to measure cyanobacteria levels.</p>   | <p><b>Monitoring Requirements:</b><br/>           Increase sampling to enable the risks to users to be more accurately assessed.</p>   | <p><b>Monitoring Requirements:</b> As per Amber. Warning to be issued, indicating that the water body is considered unsafe for primary contact recreation, domestic and stock use.</p>  |

#### 4.4 Management

Providing adequate information to the public on the cyanobacterial risk associated with Mannus Lake is important. It allows the public to avoid the hazard and to understand the symptoms potentially caused by exposure and identify their cause.

Warnings to the public may be provided through local news media, Facebook, Council's website and warning signage adjacent to the affected areas.

Additional management options may include:

- Council liaise NSW Fisheries and WaterNSW to implement alternative management options, such as increasing water discharge from the lake above the minimum licence requirements; this could be addressed as a variation to the operating licence;
- Council may develop of a long-term management strategy to improve the quality of water entering the lake, with a focus on information to assist landowners to protect the water courses on their land, reduce runoff into the creeks and damage to riparian zones. Working groups or a Section 355 committee may be appropriate.

Note: Local Land Services (LLS) may be able to assist farmers with nutrient management and erosion control options.



#### 4.5 Monitoring Techniques

Regular monitoring of Mannus Lake, and adjacent creeks, allows for the effective management of a BGA outbreak through early detection. Any change that occurs, affecting the appearance and odour of the lake, coupled with current seasonal and weather conditions, could represent the initial stages of an algal bloom.

Council will monitor Mannus Lake for algal growth annually, with extra sampling between the months of October through to March. Sampling will be undertaken in Mannus Lake, with limited sampling in adjacent creeks in response to increasing algae presence in the lake\*\*.

Monitoring will be achieved through a variety of measures:

- Collecting samples and having them tested for BGA presence;
- Visual monitoring for the presence of small algal colonies floating on the surface of the lake, the colour of the water and/or the presence of a film on the surface;
- Awareness of past, present and forecast weather conditions;
- Operator performing an odour based assessment, for example, earthy, musty and grassy type odours represent certain species of BGA.
- All persons involved in the monitoring process should be appropriately trained and have a good understanding of the process and methods used to monitor the Lake.

The procedure for collecting the sample is set out below:

- The operator must take the sample from the same location, at the same site, each time; samples are collected from just below the surface of the water;
- The samples must be sent away the same day as collection occurs, to prevent the degradation of the algae;

The results received will be used to determine the Response Level and the actions required.

Council will engage a National Association of Testing Authorities (NATA) accredited laboratory to perform testing services involving the identification and enumeration of blue green algae species.

The NATA accredited laboratory will report cell counts for potentially toxic species, from which Council will determine the classification and thus determine an appropriate Alert level response. Where a red level is reached, concurrence with WaterNSW is required.

Council will notify relevant landholders that may be affected by the contaminated water and publish all water alert levels on its website under the *Environmental Monitoring* page.

It should be understood that the initiation and subsequent lifting of a red alert is in response to algae sampling in Mannus Lake and not any sampling undertaken in the adjacent creeks.

\*\*Sampling, in limited locations in the adjacent creeks, is undertaken to assess the extent of an algae bloom and to provide limited information to nearby landholders. Given the variability in creek conditions and local runoff, landholders should undertake their own water quality monitoring where appropriate.

NSW DPI Agriculture provides information regarding farm water quality and treatment options. Local Land Services (LLS) may be of some assistance too.

Although Mannus Lake may be clear of a red alert, local creek conditions can be very different from those at the limited sampling locations.

#### 4.6 Warning Signage

The posting of warning signs during a bloom is an appropriate method advising water users that the water contact is to be avoided and of the alert level.

Where a red alert level is reached, Council will erect warning signs at appropriate places. These signs will be located at public access points where they are most obvious to user groups.

#### 4.7 Alternative Water Sources

Subject to satisfying eligibility requirements, Council will provide limited water for domestic and stock use to directly affected landholders, including those at the lake and downstream; application forms are available on Council's website.

This water is provided under Section 356 of the Local Government Act.

### 5. RESPONSIBILITIES /ACCOUNTABILITIES

#### Councillors

Councillors are responsible for:

- Reviewing and approving the Mannus Lake Blue-Green Algae Management Policy, as required;
- Reviewing and approving Council's budget annually;
- The overall responsibility for management of Mannus Lake incidents; however, this responsibility is delegated to the relevant director or employees.

#### Council Executive – General Manager and Director Assets and Infrastructure

Overall responsibility for management and resourcing of the water and infrastructure works departments.

#### All Managers and Employees

Council employees involved in the operational monitoring of Mannus Lake outflow release are responsible for understanding, implementing, maintaining and continuously improving the Mannus Lake BGA management.

In accordance with Section 356 of the Local Government Act 1993, Council will supply and deliver potable water to affected downstream residents who have no alternative domestic water source. This supply will be capped at 13kL per fortnight per household.

Council has the right to review, vary or revoke this policy.

### 6. ASSOCIATED LEGISLATION

The Department of Industry: Water (DOI: Water) Condition 34

The Department of Industry: Water (DOI: Water) Blue-Green Algae Management Protocols - 2014

Section 356 of the Local Government Act 1993



## 7. ASSOCIATED COUNCIL DOCUMENTS

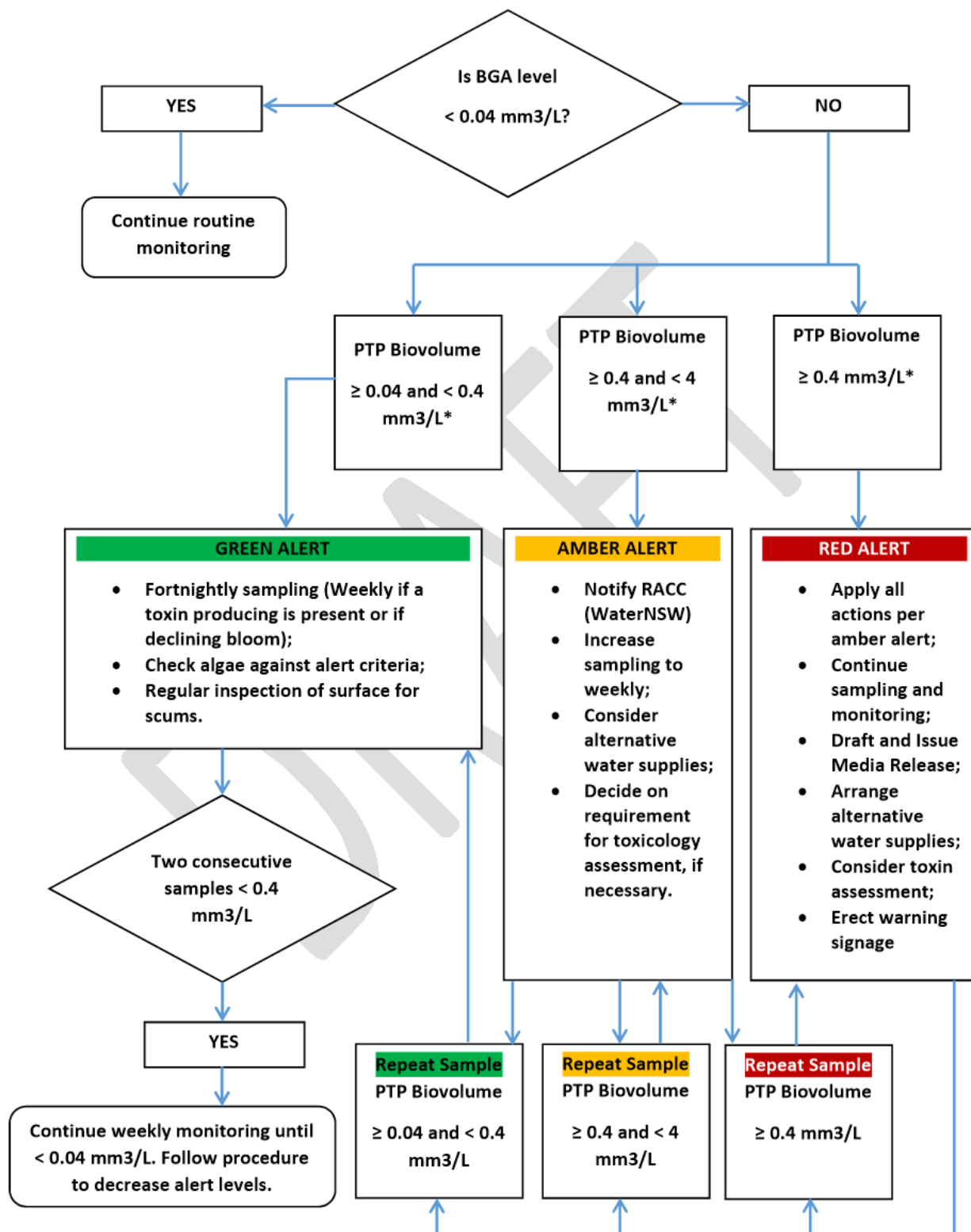
Operational Response Procedure for the management of Blue Green Algae in Mannus Lake (to be produced).

Mannus Lake Blue Algae Event Assistance Application Form – SVC-ENF-F-123-01

## 8. HISTORY

| Date       | Action | Name   | Policy Number  | Resolution Date | Resolution Number |
|------------|--------|--|----------------|-----------------|-------------------|
| 17/10/2019 | New    | Mannus Lake Blue – Green Algae Management Policy | SVC-ENG-PO-078 |                 |                   |
|            |        |  |                |                 |                   |

Figure 1: Basic Mannus Lake BGA Action Plan



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Adopted:  
Reviewed: