



Greater  
Hume  
Council

# **Drinking Water Quality Incident and Emergency Response Plan**

August 2018



# Drinking Water Quality Incident and Emergency Response Plan

Viridis Consultants Pty Ltd  
GPO Box 131  
Bulimba Qld 4171  
Australia  
[www.viridis.net.au](http://www.viridis.net.au)  
ABN: 49 129 185 271

Telephone: 1300 799 310

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## Document History and Status

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## **Acronyms and Abbreviations**

ADWG	Australian Drinking Water Guidelines
CCP	Critical Control Point
DISPLAN	Local Disaster Plan
DOI	Department of Industry
DWQ IERP	Drinking Water Quality Incident and Emergency Response Plan
DWMS	Drinking Water Management System
FRS NSW	Fire and Rescue Service New South Wales
GHC	Greater Hume Council
NSW	New South Wales
PHU	Public Health Unit

## 1. Introduction

Greater Hume Council (GHC) has developed a Drinking Water Management System (DWMS) with the goal of protecting public health through the provision of safe drinking water. Drinking water quality incident and emergency response planning is an essential part of the DWMS.

Considered and controlled responses to incidents and emergencies that can compromise the safety of water quality are essential for protecting public health, as well as maintaining consumer confidence and the organisation's reputation.

Although preventive strategies are intended to prevent incidents and emergency situations from occurring, some events cannot be anticipated or controlled, or have such a low probability of occurring that providing preventive measures would be too costly. For such incidents, there must be an adaptive capability to respond constructively and efficiently.

This document is the Drinking Water Quality Incident and Emergency Response Plan (DWQ IERP) for GHC. The benefits of establishing and implementing a DWQ IERP include:

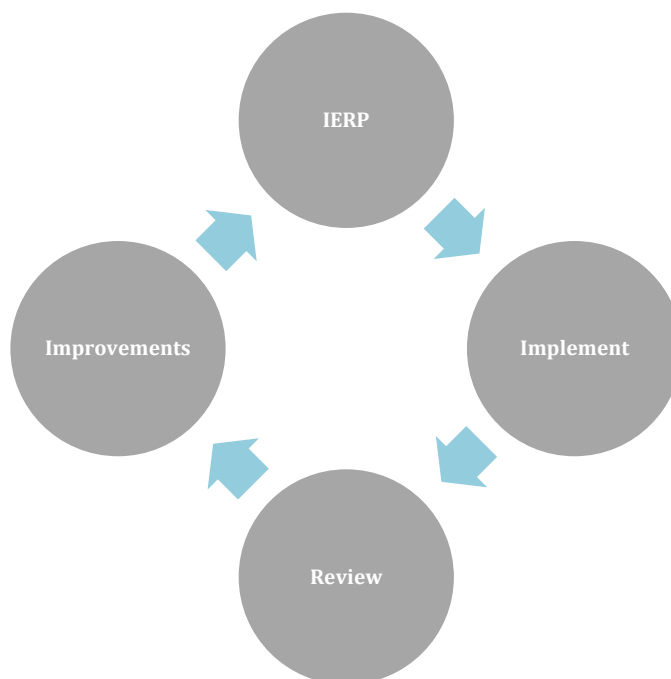
- timely response to drinking water incidents and emergencies
- reduced health risks by preventing or reducing the exposure of customers to contamination
- clearly defined roles and responsibilities of employees and stakeholders
- consistency in response
- improved audit trail.

The key elements of the DWQ IERP are shown in Figure 1 and explained in detail in this plan.



Figure 1 DWQ IERP Key Elements

It is important to note that this plan or document in itself is not the end, implementation of the plan is essential to manage drinking water quality incidents and emergencies. Figure 2 illustrates the overall process which should be undertaken to ensure the plan remains valid and fulfils its objectives.



**Figure 2 Overall Process for the Management of Incidents and Emergencies**

## **1.1. Scope**

This plan applies to GHC's response to drinking water quality incidents and emergency situations in relation to public health. It does not include management of water quantity, nor does it include specific details of natural disaster management, which could impact water quality.

Appropriate references to other related protocols, for example, Council's Drought Management and Emergency Response Plan (2014) and Local Disaster Plan (DISPLAN 2013), have been made to link response actions and avoid duplication of efforts.

## **1.2. Objectives**

This Plan aims to assist GHC to:

- outline timely and consistent response to drinking water quality incidents and emergencies
- define roles and responsibilities, including reporting and communication
- make reference to clearly defined and documented remedial actions.

## **2. Drinking Water Service**

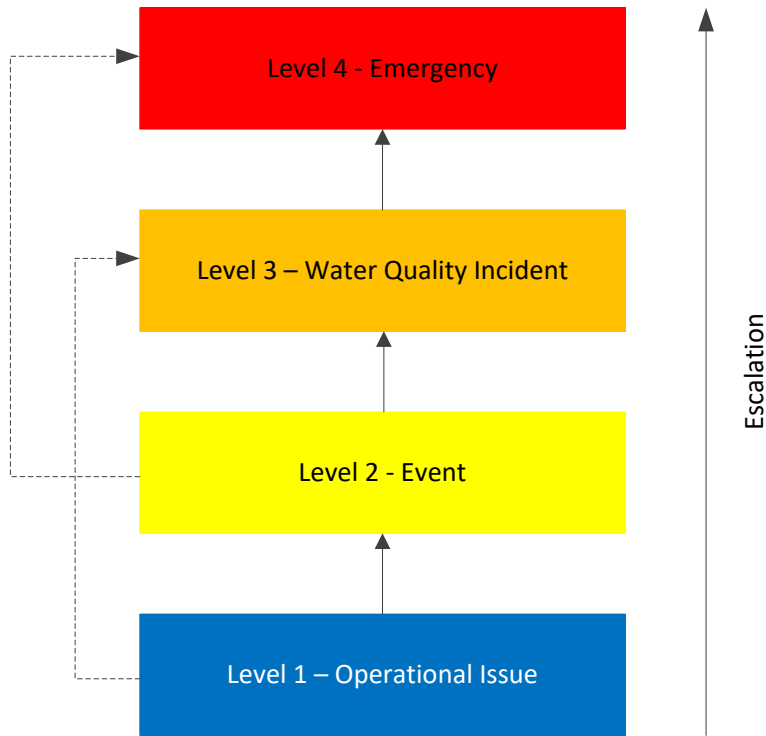
GHC is responsible for two water supply schemes:

- Culcairn water supply – raw water sourced from bores, treated and distributed.
- Villages water supply (Jindera, Burrumbuttock, Brocklesby, Gerogery, Gerogery West, and connected rural areas) – bulk treated water obtained from Albury City Council (ACC) and distributed to consumers.

Water supply for the townships of Henty, Holbrook, Morven, Walla Walla, Walbundrie, and Woomargama is provided by Riverina Water.

### 3. Incident and Emergency Levels

Incidents and emergencies within GHC's drinking water scheme are grouped in four levels, with Level 1 being the least severe and complex in relation to response coordination. Figure 3 shows the levels and escalations of drinking water incidents and emergency, and linkages between the levels.



**Figure 3 Incident and Emergency Levels and Escalation**



Table 1 provides the detailed descriptions of each level of incident and emergency.

**Table 1 Incident and Emergency Levels and Descriptors**

Incident/Emergency Level	Description of Levels
<p style="text-align: center;"><b>1</b> Operational Issue</p>	<ul style="list-style-type: none"> <li>• Exceedance of operational or target limits for monitoring results</li> <li>• General customer complaints</li> <li>• Ordinary operational issues</li> </ul> <p>There is no non-compliance against water quality criteria (ADWG guideline values) to impact public health. Incident is managed within the operations team in line with the DWMS without any additional assistance.</p>
<p style="text-align: center;"><b>2</b> Event</p>	<p>Anything in relation to the drinking water service that may have an adverse effect on public health and/or has reporting requirement. Examples include:</p> <ul style="list-style-type: none"> <li>• Non-compliance against ADWG aesthetic guideline values</li> <li>• Exceedance of alert levels for the Critical Control Points, CCPs (results from in-house testing)</li> <li>• Breach in reservoir integrity</li> <li>• Treatment failure</li> <li>• Potential water quality issue at transfer point from ACC for village water supply scheme</li> <li>• Specific customer complaints on health allegedly linked to water quality</li> </ul> <p>Event may require coordination across council and external resources and support, such as from NSW Health and NSW Department of Primary Industries Water (DOI Water). It has the potential to create secondary issues more damaging than the actual event.</p>
<p style="text-align: center;"><b>3</b> Water Quality Incident</p>	<ul style="list-style-type: none"> <li>• Non-compliance against ADWG health-based guideline values (results from samples tested externally, NSW Health monitoring program)</li> <li>• CCP critical limit exceedance (results from in-house testing)</li> <li>• May result from escalation of Level 1 or Level 2</li> </ul> <p>Incident is managed within the team responsible for drinking water operations and management in line with the DWMS. In some cases, it may require coordination across council and external resources and support, such as from NSW Health, DOI Water, ACC.</p>
<p style="text-align: center;"><b>4</b> Emergency</p>	<ul style="list-style-type: none"> <li>• There is an outbreak of waterborne disease traced to council supply or</li> <li>• Declared emergency situation in local/regional area</li> <li>• May result from escalation of Level 2 or Level 3</li> </ul> <p>Requires coordination across council and is likely to require external resourcing and support from agencies, such as NSW Health, DOI Water, emergency responders e.g. NSW Fire and Rescue Service (FRS), SES and Police.</p>

## 4. Actions and Responsibility

A summary of the key actions to be taken according to the level of the incident or emergency and the person responsible for the actions is provided in Table 2.

**Table 2 Lists of Actions to be Undertaken for Each Level**

Level	Actions to be Undertaken	Person/s Responsible
<p style="text-align: center;"><b>1</b> Operational Issue</p>	<ul style="list-style-type: none"> <li>implement relevant operating procedure and corrective actions</li> <li>undertake follow up sampling, as required</li> <li>review operations and maintenance records for anomalies</li> <li>commence investigation to determine cause and instigate immediate remediation actions</li> <li>for general customer complaints, coordinate investigation and resolution, including obtaining water samples where required</li> <li>increase operational monitoring frequency, where required</li> <li>maintain appropriate records e.g. plant diary, record sheets</li> <li>notify Supervisor, as relevant</li> </ul>	<b>Operators</b>
<p style="text-align: center;"><b>2</b> Event</p>	<ul style="list-style-type: none"> <li>implement the respective CCP procedure</li> <li>implement NSW Health pathogen risk management protocol, as applicable (Appendix A)</li> <li>implement NSW Health protocol on physical / chemical exceedance (Appendix B), as applicable</li> <li>contact and/or discuss issue with ACC, as relevant</li> <li>investigate, rectify failure or be on alert, as relevant</li> <li>increase or undertake additional sampling, as necessary, including in the reticulation</li> <li>fill out the water quality incident report, as applicable</li> <li>notify Overseer and/or Manager Water and Wastewater (Manager)</li> </ul>	Operator/ Overseer
	<ul style="list-style-type: none"> <li>review CCP alert level breach incident for closure and sign off</li> <li>report to NSW Health and DOI Water, as relevant</li> <li>follow any directives from NSW Health or DOI Water</li> <li>Drought Management Plan and/or DISPLAN is on standby if the need arises</li> </ul>	<b>Overseer/ Manager</b>
<p style="text-align: center;"><b>3</b> Water Quality Incident</p>	<ul style="list-style-type: none"> <li>implement the respective CCP procedure</li> <li>implement NSW Health protocol on pathogen risk management (Appendix A) or physical / chemical exceedance (Appendix B), as applicable</li> <li>review operational records</li> <li>undertake follow up sampling, as necessary</li> <li>commence investigation to determine cause and instigate immediate remediation actions, including isolation of affected area where possible</li> </ul>	Operators/ Overseer
	<ul style="list-style-type: none"> <li>report incident to NSW Health PHU immediately</li> <li>follow any directives from NSW Health regarding risk to public health and corrective actions</li> <li>fill out relevant sections of the water quality incident report</li> <li>consider what customer notification is needed in consultation with NSW Health</li> <li>Drought Management Plan and/or DISPLAN is on standby if the need arises</li> <li>review incident for closure and sign off</li> </ul>	<b>Overseer/ Manager</b>
<p style="text-align: center;"><b>4</b> Emergency</p>	<ul style="list-style-type: none"> <li>keep Council updated and informed</li> <li>follow any directives from relevant government department regarding risk to public health and corrective actions</li> <li>facilitate activation of DISPLAN as required</li> </ul>	<b>Director Engineering</b>
	<ul style="list-style-type: none"> <li>contact NSW Health as soon as practicable</li> <li>consider what customer notification is needed</li> <li>coordinate notification, investigation/response to drinking water related aspects</li> </ul>	Manager

## 5. Response Protocols

The NSW Health response protocols are being used by GHC for the management of drinking water quality incidents.

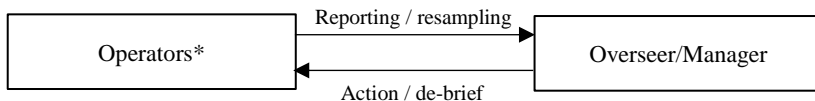
These include:

- pathogen risk management (Appendix A)
- detection of chemical/physical parameter above ADWG guideline value (Appendix B)

## 6. Communication Lines

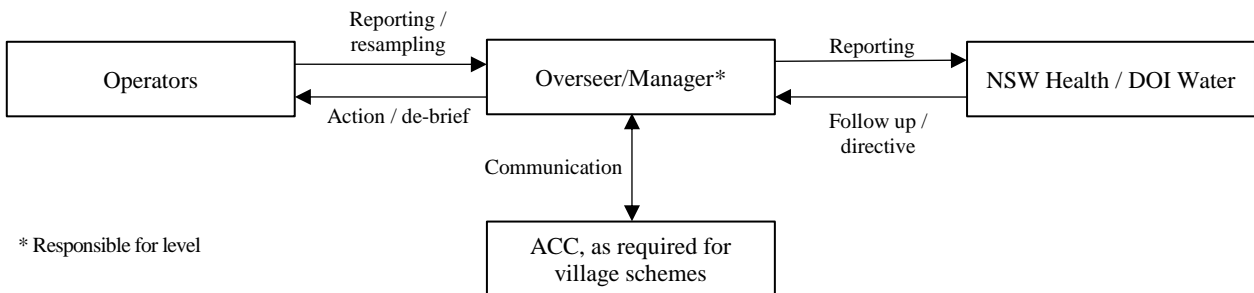
Effective communication is vital in managing incidents and emergencies. It is important to have clear lines of communication with employees, customers, stakeholders, media and government departments.

The communication lines from the person responsible for each respective incident or emergency level, and the summary of the actions are detailed in Figure 4 to Figure 7.



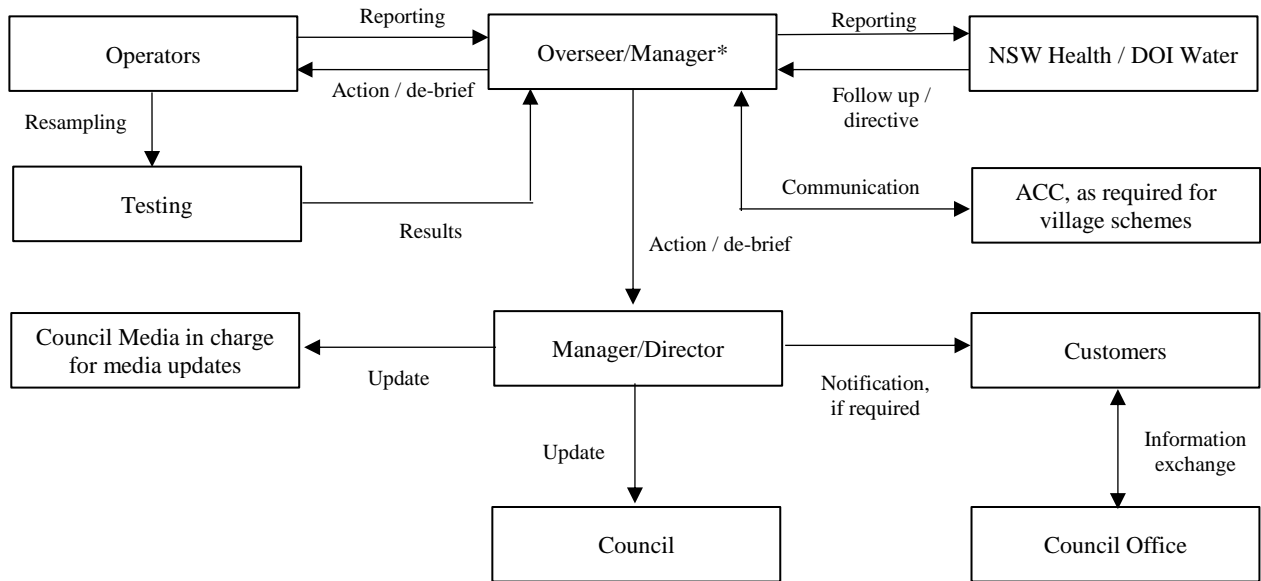
\* Responsible for level

**Figure 4 Communication Lines - Level 1 Operational Incident**



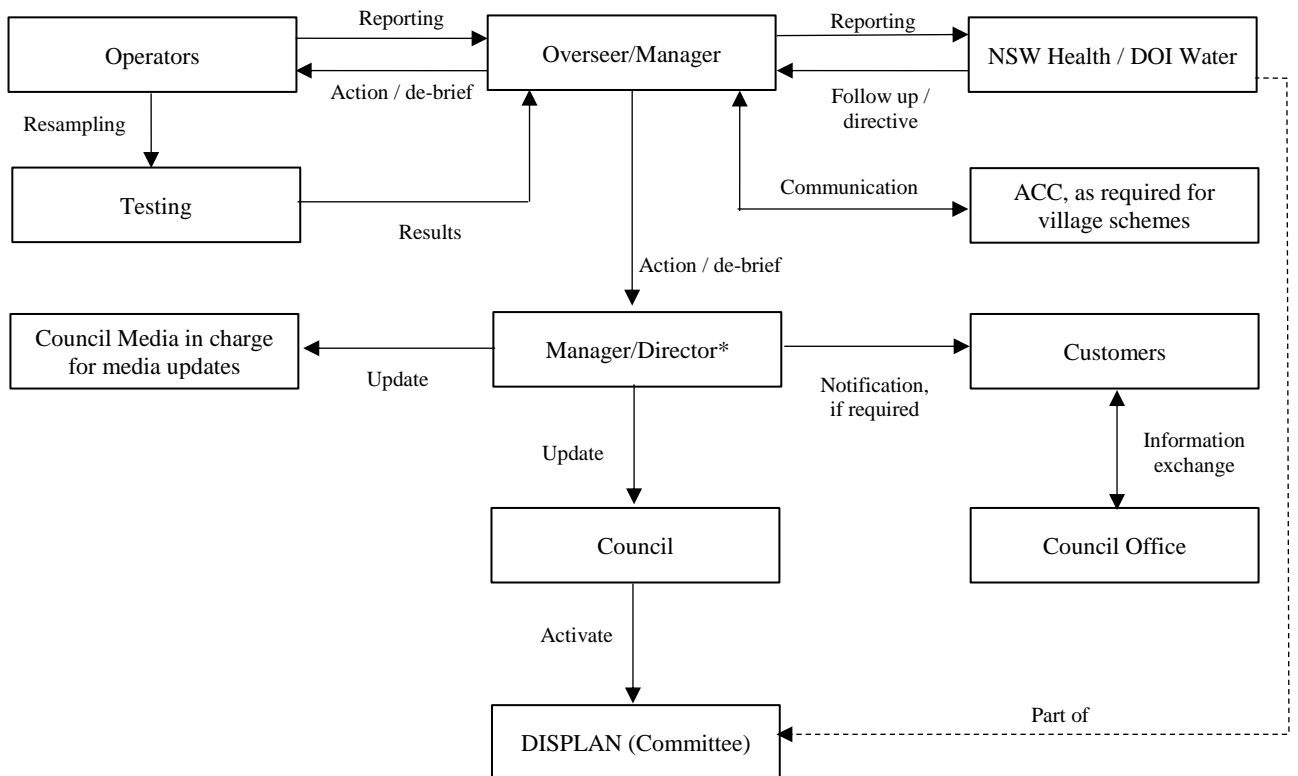
\* Responsible for level

**Figure 5 Communication Lines - Level 2 Event**



\* Responsible for level

**Figure 6 Communication Lines – Level 3 Water Quality Incident**



\* Responsible for level

Figure 7 Communication Lines – Level 4 Emergency

## 6.1. Internal and External Contacts

A contact list of key people, agencies and businesses is kept to ensure the communication process is effective and efficient during drinking water incidents or emergencies. The contact list is maintained as an Excel spreadsheet to enable ease of update.

The Operator on-call attends to after hours incident and emergency situations as required.

The list should be reviewed as required and at least annually when the DWMS Annual Report is compiled to keep it up to date.

## 6.2. Customer Notification

During an incident or emergency, council’s media representative will be the designated person to coordinate communication to the customer and media, if the need arises.

The Manager Water and Wastewater will consult with NSW Health PHU to determine need for customer notification such as ‘boil water notice’, ‘do not drink water’ etc (as required). The boil water notice which GHC will distribute to its customers and post on notice boards and its website, is attached as Appendix C.

All employees are kept informed of any incident / emergency that requires customer notification, as they provide informal points of contact for the stakeholders.

## 7. Incident Records

Maintaining records for the management of incidents is very important. It provides the necessary information during the review of the DWMS, acts as evidence during audits, provides a platform for continuous improvement and overall is good management practice. Table 3 provides details on incident records to fill in and maintain.

Table 3 Incidents Records

Incident/Emergency Level	Records
<b>1</b> Operational Issue	<ul style="list-style-type: none"> <li>• Plant diary, relevant record sheets</li> </ul>
<b>2</b> Event	<ul style="list-style-type: none"> <li>• Water quality incident report (template shown in Appendix D). Fill in:                         <ul style="list-style-type: none"> <li>○ Sections 1-4 (as relevant) – at the onset or during an incident</li> <li>○ Section 5 – after close of incident following the review/debrief meeting</li> </ul> </li> <li>• Plant diary, relevant records sheets</li> </ul>
<b>3</b> Water Quality Incident	<ul style="list-style-type: none"> <li>• Water quality incident report (template shown in Appendix D). Fill in:                         <ul style="list-style-type: none"> <li>○ Sections 1-4 (as relevant) – at the onset or during an incident</li> <li>○ Section 5 – after close of incident following the review/debrief meeting</li> </ul> </li> </ul>

# 4

## Emergency

- As per DISPLAN

## **8. Staff Training**

Incident and emergency response training is essential for the effective implementation of the DWQ IERP. Training educates and familiarises staff and contractors about incident and emergency situations, resulting effects on water systems and response protocols. It also provides an opportunity to practice responses.

Training is conducted at least every two years as refresher or when:

- new employees or contractor personnel join (part of induction)
- DWMS is updated or revised, including procedures (significant changes).

Training should include instructions and explanation of the DWQ IERP, including response actions/protocols and documenting and reporting requirements.

A mock drinking water incident training exercise is held every 2 years to ensure the communication and coordination is functioning as outlined.

The training records should be kept up-to-date, as required, to reflect the training history, including refreshers.

## **9. Improvements**

A review or de-brief meeting is conducted to ensure lessons from an incident or emergency are documented and actions that will prevent a recurrence or improve the response for similar situations are completed.

The outcomes of the meeting (formal or informal) are documented in the water quality incident report form for future references as mentioned in section 7, Table 3.

The Manager Water and Wastewater (or delegate) is responsible for facilitating the de-brief meeting, ensuring the outcomes are documented and actions implemented. The outcomes of the de-brief meeting may include a review of the DWQ IERP (discussed in section 10).

## **10. Review**

This DWQ IERP is reviewed every two years. Other earlier triggers for review include:

- de-brief or review meeting outcome following an incident or emergency recommends review of the DWQ IERP
- update or revision of the DWMS, which may impact the DWQ IERP, including any key procedures
- immediately upon change in roles and responsibilities.

The Manager Water and Wastewater is responsible for facilitating the review of the DWQ IERP.

## 11. References

Department of Health. (2003). *Emergency Response Planning Guide for Public Drinking Water Systems*. Division of Drinking Water, Washington State Department of Health.

Drought Management and Emergency Response Plan. (2014). Council office, NSW.

Local Disaster Plan (DISPLAN). (2013). Council office, NSW.

NHMRC & NRMCC. (2011). *National Water Quality Management Strategy: Australian Drinking Water Guidelines*. 6th Ed., 3.0. National Health and Medical Research Council and Natural Resource Management Ministerial Council. Australian Government. Canberra.

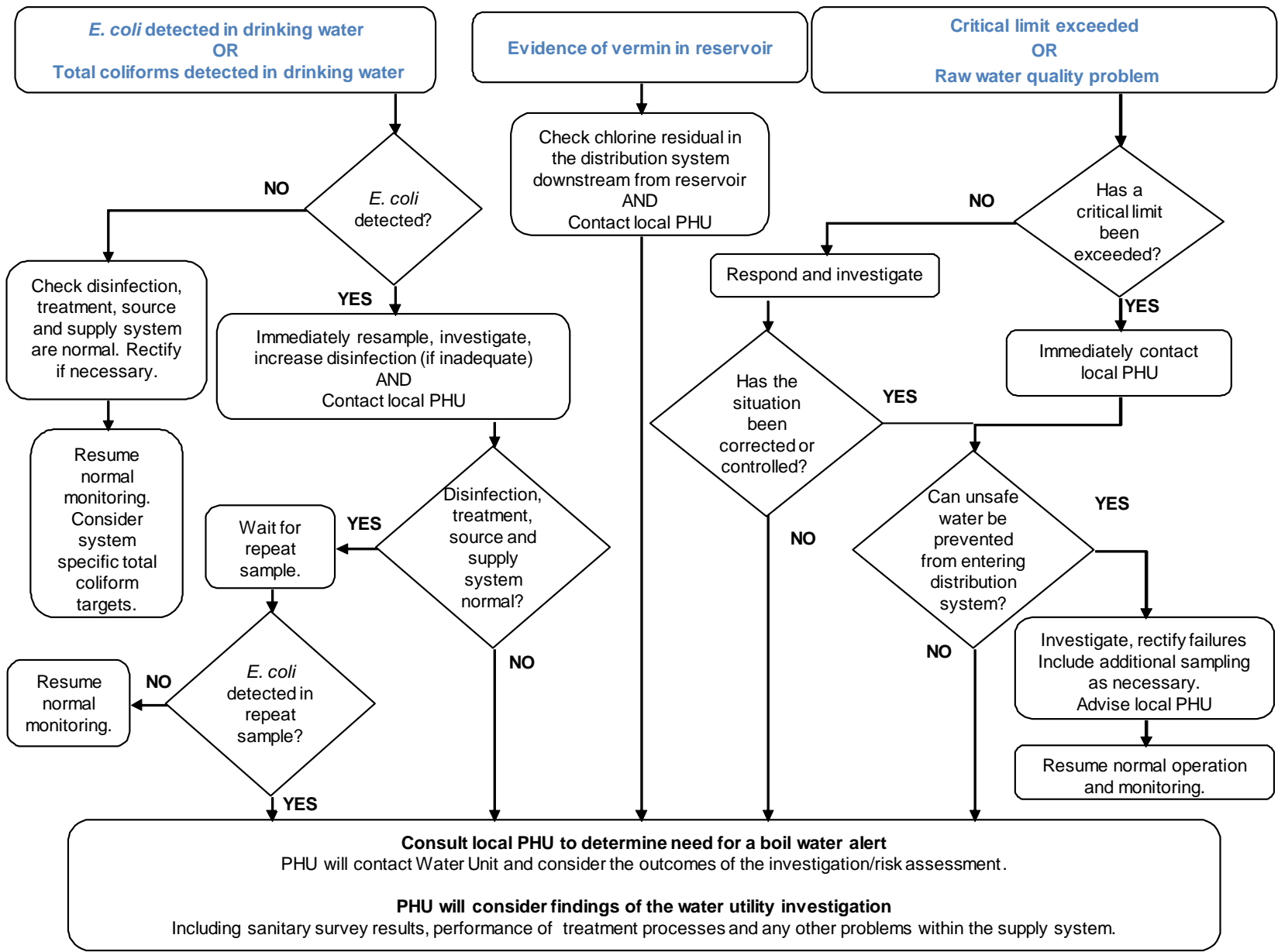
NSW Health website. *Drinking Water*. Date accessed: 15 October 2016.  
<http://www.health.nsw.gov.au/environment/water/Pages/Drinking-Water-Quality-and-Incidents.aspx>

Greater Hume Council. (2016). CCP Procedures, Council office, NSW.



## **Appendix A**

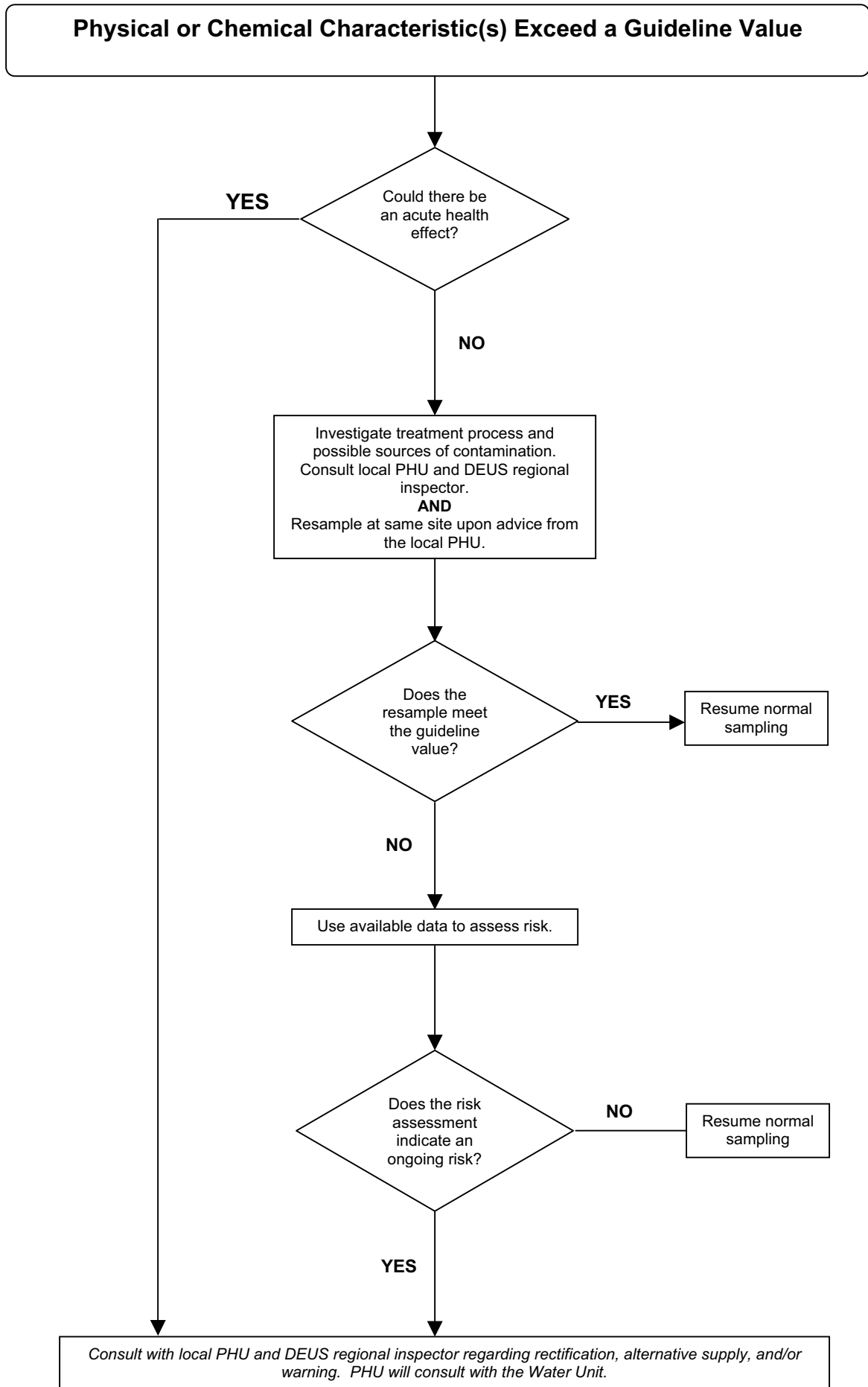
### **Pathogen Risk Management – Response Protocol**



**Decision making process for NSW Health Response Protocol - Managing Pathogen Risks in Drinking Water**

## **Appendix B**

### **Detection of Chemical /Physical Parameter above ADWG – Response Protocol**



## **Appendix C**

### **Boil Water Notice Template – *E. coli* Contamination**

## Boil Water Notice

### *E. coli* Bacteria Contamination

Regular monitoring for *E. coli* bacteria in the water supply system is conducted by Council. *E. coli* itself is generally not harmful but its presence in drinking water is associated with sewage and animal wastes. The presence of these bacteria indicates that the water may be contaminated with organisms that may cause disease.



Recent monitoring has shown *E. coli* to be present in the water supply system. As a precaution you are advised that water for consumption should be brought to a rolling boil. Water should then be allowed to cool and stored in a clean container with a lid and refrigerated.

Cooled boiled or bottled water should be used for:

- drinking, cooking, washing raw foods (such as seafood or salads), making ice, pet's drinking water and cleaning teeth
- dishes should be washed in hot soapy water or in a dishwasher. Children should take bottled or cooled boiled water to school.

Council is working to alleviate the problem.

Precautions should be taken until further notice.

*Please share this information with other people who drink this water, especially anyone who may not get this notice directly. For further information, contact Council on 1300 653 538 (Holbrook office); 02 6029 8588 (Culcairn office); 0408 691 637 (24 hours emergency service).*

## **Appendix D**

### **Water Quality Incident Report**

## WATER QUALITY INCIDENT REPORT

Water Supply Scheme: \_\_\_\_\_

- Incident Type:  1. CCP Breach (in-house test)  
 2. Event  
 3. Water Quality Non-Conformance (NSW Health monitoring program)

### 1. CCP Breach (Incident Levels 1 or 2) – Operator to Fill in

Date: \_\_\_\_\_ Time: \_\_\_\_\_

CCP Breached:  Disinfection

Parameter:  Free Chlorine

Limit Breached:  Alert  Critical

**Critical limit breach - contact NSW Health PHU – section 4, as soon as possible and within 24 hours**

CCP Value at Time of Breach: \_\_\_\_\_

*Details: (possible cause, corrective actions taken, results of resampling etc)*

Supervisor Notified:  Yes  No Date/Time: \_\_\_\_\_

Name: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

### 2. Event (Level 2) – Supervisor or delegate to Fill in

Date: \_\_\_\_\_ Time: \_\_\_\_\_

- Event:  Potential water quality issue at transfer point from ACC for village supply  
 ADWG aesthetic guideline breach (NSW Health monitoring program)  
 Other

*Details: (possible cause, corrective actions taken, results of resampling etc)*

**Contact NSW Health, if deemed necessary – section 4**

Name: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



**3. Water Quality Non-Conformance (Level 3) – Supervisor or delegate to Fill in**

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Parameter: \_\_\_\_\_ Date sample was collected: \_\_\_\_\_

Non-conformance value: \_\_\_\_\_

*Details: (possible cause, corrective actions taken, results of resampling etc)*

**Contact NSW Health – section 4. Also, contact ACC for village water supply schemes.**

Name: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**4. External Notification – Supervisor or delegate to Fill in**

Stakeholder contacted:  PHU Date/Time: \_\_\_\_\_  ACC Date/Time: \_\_\_\_\_

Person/Position Contacted: \_\_\_\_\_

Notification Method:  Phone  SMS  E-mail

Feedback from stakeholder/s:

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**5. Review and De-brief – Manager Water and Wastewater or delegate**

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Were corrective actions appropriate? Any Issues?

Any improvement needed?

Does it need to be included in the Improvement Plan?  Yes  No

Name: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_