



# *Industrial Customers*

## Health and Environmental Management Plan

Epsom Spring Gully Recycled Water Project

August 2007



## Document Review & Authorisation

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# 1 Introduction

## 1.1 Project Overview

The Epsom Spring Gully Recycled Water Project makes use of both existing and new infrastructure to create a flexible and integrated water supply system within Bendigo. An overview diagram is provided in Figure 1-1.

Milestone 1 involves the following actions:

- Treatment at the Bendigo Water Reclamation Plant will be improved via installation of further UV capacity and new chlorination and de-chlorination equipment. A chlorine contact tank and final water tank will also be constructed;
- A 14 km pipeline to Spring Gully Reservoir will be constructed, with associated pumping facilities to transfer recycled water.

These improvements will enable recycled water to be supplied to a number of end users, including individual rural customers, public open spaces, standpipe users and industrial customers.

## 1.2 Quality of Recycled Water

The recycled water to be supplied will be a mix of treated effluent from the Bendigo Water Reclamation Plant at Epsom and treated groundwater from Bendigo Mining Limited. Both of these sources provide recycled water of very high quality. Limits have been determined based on *Guidelines for Environmental Management – Use of Reclaimed Water* (EPA Victoria, 2003), *Guidelines for Environmental Management – Dual Pipe Water Recycling Schemes* (EPA Victoria, 2005) and *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC & ARMCANZ, 2000). Further details are provided in the Recycled Water Quality Management Plan and the Regional Environment Improvement Plan.

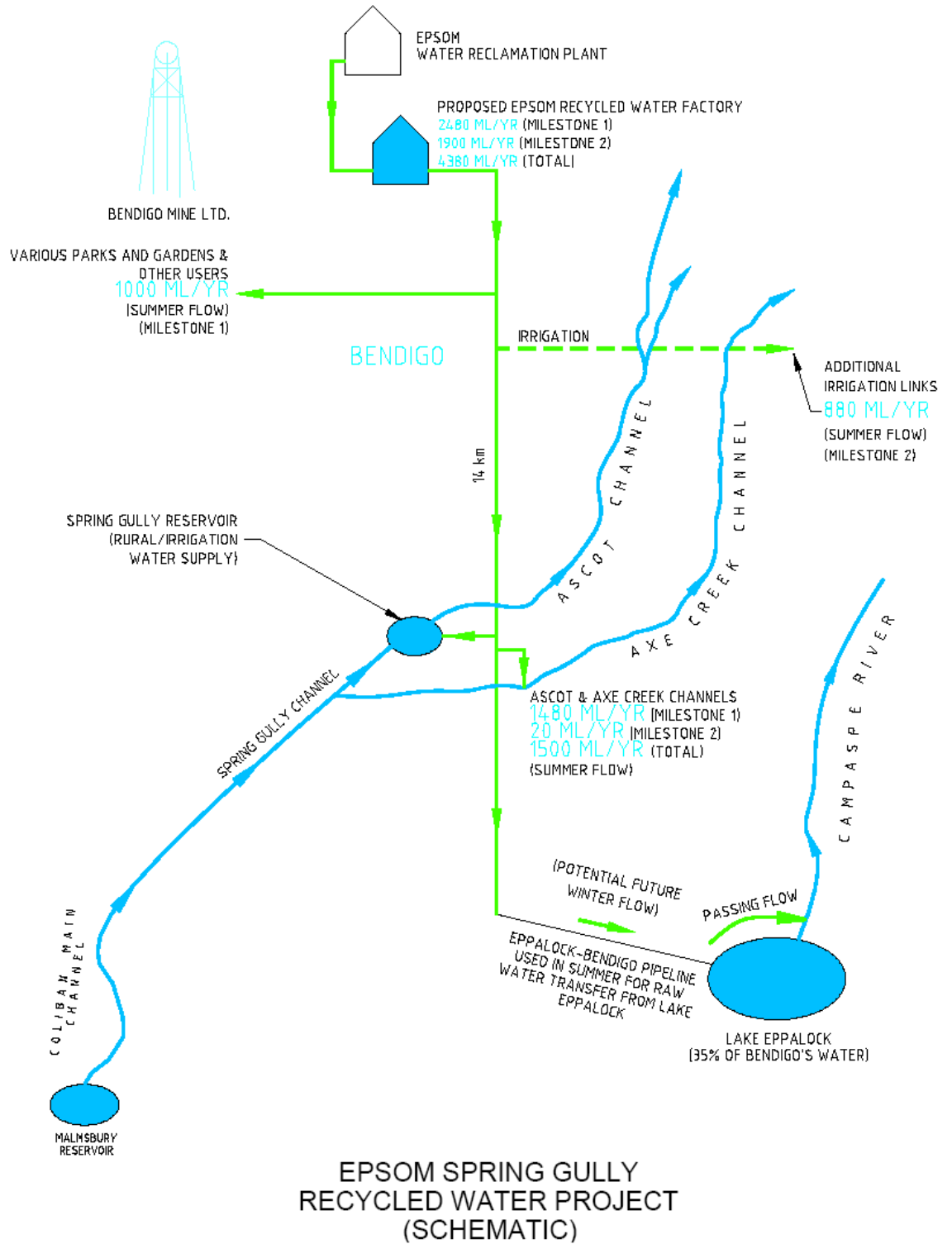
The recycled water is fit for the intended purposes as listed in this document. The treated effluent produced by Bendigo Water Reclamation Plant is classified as Class A quality, meaning that pathogen levels are low. The treated groundwater from Bendigo Mining Limited is fit for the same purposes. For both sources, heavy metal concentrations are very low.

Nutrient levels in the recycled water are very low compared to typical treated sewage, because the treatment process at the Water Reclamation Plant includes nutrient removal, and nutrient levels in the treated groundwater are also very low.

The salinity of the recycled water to be supplied in the short term will typically be around 500 mg/L TDS (around 800 EC). This is slightly higher than the current water supply, however it is lower than many sources of irrigation water. The Australian guideline for potable water is that “Based on taste, total dissolved solids in drinking water should not exceed 500 mg/L”. Coliban Water plans to commission a desalination plant in early 2008 and this will reduce the salinity of the recycled water to a lower level.

The quality of the recycled water results in a low level of risk to human health and the environment. The requirements for end users of the recycled water are therefore simple and straightforward, as set out in this document.

**Figure 1-1 Overview of the Epsom Spring Gully Recycled Water Project.**



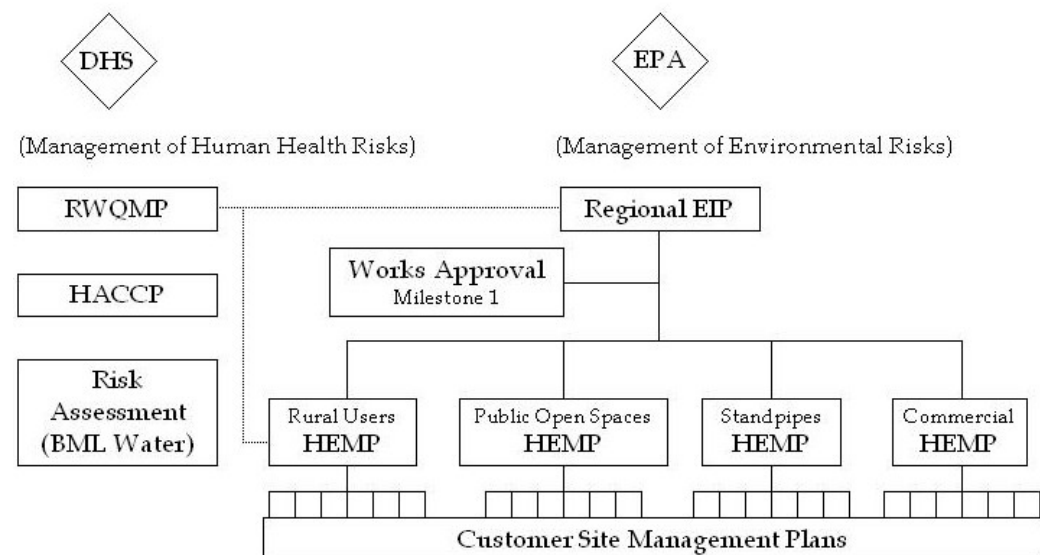
### 1.3 Purpose and Scope of this HEMP

This document is the Health and Environmental Management Plan (HEMP) for Industrial Customers receiving recycled water from the Epsom Spring Gully Recycled Water Project. It details the management practices required to control health and environmental risks associated with the end use of the recycled water for industrial systems. The purpose is to inform end users of their responsibilities and the limitations relating to use of the recycled water.

This HEMP is supported by a number of other documents as outlined in Figure 1-2. Of these documents the most closely linked are:

- Regional Environment Improvement Plan (REIP) - addresses environmental and health issues associated with the operation of the system as a whole from treatment to use by the customers. The REIP includes a detailed risk assessment.
- Customer Site Management Plans – developed by the relevant customer to outline details relating to location, quantity and type of water use, and the end-use controls necessary to ensure sustainable use of recycled water.

**Figure 1-2 EIP Relationships**



The HEMP is also supported by a Stakeholder Engagement Strategy, which outlines the communications process for all stakeholders, including end users. The overarching goals for the communications process are to:

- Provide an open and transparent process for all stakeholders.
- Allow the community to come to their own conclusions about water recycling and its importance to a sustainable water supply for the region.
- Minimise public and stakeholder objections and reduce concerns.
- Show leadership – demonstrate long-term plans/solutions to the community.
- Develop a shared responsibility for solving the water supply problem across Bendigo.
- Ensure end users use their water for the purposes it is fit for.

## 2 Description of End Use

### 2.1 Overview

This HEMP considers the use of recycled water for industrial systems.

An initial list of the industrial customers to be supplied with recycled water is provided in section 2.4. Additional industrial customers may be supplied in future, subject to preparation and approval of Customer Site Management Plans (CSMPs).

As stated in EPA Publication 464.2, "There are many potential options for the reuse of reclaimed water within industry sectors. Some examples of reuse options include:

- cooling system make-up water;
- boiler feed water;
- process water (for example, concrete batching plants);
- washdown water;
- fire protection (such as sprinkler systems); and
- dust control/suppression at construction sites, quarries and mines."

### 2.2 Acceptable Uses

The recycled water is of very high quality. However, there are some restrictions on its use that must be understood by all customers prior to the use of any recycled water.

The expected quality of the recycled water to be supplied, in relation to environmental and human health risk factors, is summarized in Table 2-1. Further details can be found in the Regional Environment Improvement Plan (refer to Fit For Purpose Assessments in Appendix D), the Recycled Water Quality Management Plan, and the Risk Assessment for BML Water.

**Table 2-1 Water Quality Parameters**

Parameter	Recycled Water Combined Stream	Suitable for the end uses listed in this document
Microbiological quality <sup>1</sup>	< 10 <i>E.coli</i> org/100mL	Yes
Turbidity	< 2 NTU	Yes
BOD <sub>5</sub>	< 3 mg/L	Yes
Suspended Solids	< 1 mg/L	Yes
pH	6 - 9	Yes
Salinity	< 500 mg/L TDS	Yes
Sodium	< 200 mg/L	Yes
Chloride	< 250 mg/L	Yes
Boron	< 0.1 mg/L	Yes
Total Nitrogen	< 5 mg/L	Yes

Parameter	Recycled Water Combined Stream	Suitable for the end uses listed in this document
Total Phosphorus	< 0.5 mg/L	Yes
Chlorine disinfection residual	< 0.01 mg/L at point of use	Yes
Heavy Metals and other chemicals (aluminium, arsenic, cadmium, copper, cyanide, lead, mercury, nickel, zinc)	Within irrigation water standards and stock drinking water standards	Yes

1. The treatment process in place at Coliban Water's Bendigo Water Reclamation Plant will achieve EPA Class A recycled water with microbial criteria as follows:

- Bacteria < 10 *E.coli*/100 mL
- Viruses 7-log reduction from raw sewage to recycled water
- Protozoa 6-log reduction from raw sewage to recycled water

Recycled water of the quality outlined in Table 2-1 is suitable for the following purposes:

- Irrigation of public open spaces, such as parks and sports fields, where public access is unrestricted.
- Toilet flushing.
- Washing machine use.
- General outdoor uses such as car washing, dust suppression, construction and washdown.
- Filling water features and ponds that are not used for swimming.
- Firefighting and fire protection systems, including hydrants and sprinkler systems.
- Irrigation of human food crops, including those consumed raw.
- Irrigation of non-food crops (eg. flowers, turf).
- Industrial uses, including open systems with worker exposure potential.

The recycled water is **NOT** considered acceptable for the following uses:

- **Drinking.**
- **Cooking or other kitchen purposes**
- **Bathing and showering.**
- **Filling swimming pools and spas.**
- **Children's water toys.**
- **Any and all uses involving contact with pigs.**

## 2.3 Supply System

The recycled water will be supplied direct from the Epsom Spring Gully pipeline.

The Epsom Spring Gully recycled water pipeline and distribution system is described in section 3.2 of the REIP.

## 2.4 List of Customers

An initial list of potential industrial customers is provided in Table 2-2 along with an estimated annual water usage.

**Table 2-2 Industrial Customers**

<b>Business</b>	<b>End Use</b>	<b>Estimated Usage (ML/annum)</b>
Bendigo Health	To wash linen and flush toilets	70

## **2.5 Roles and Responsibilities**

### **2.5.1 Coliban Water**

Coliban Water is the bulk supplier and retailer of the recycled water. They are responsible for:

- Supplying recycled water in accordance with agreements with customers, and in accordance with the Regional Environment Improvement Plan (REIP) and this HEMP;
- Operating and maintaining the Class A treatment plant, pump station and pipeline to achieve the quality standard;
- Management of recycled water distribution and monitoring following mixing of the treated effluent from the Bendigo Water Reclamation Plant at Epsom and treated groundwater from Bendigo Mining Limited;
- Obtaining endorsement of the HEMP, and ongoing maintenance of the HEMP;
- Providing an annual report on findings and compliance to the EPA;
- Keeping a register of information about customers, including addresses, quality and quantity of supply, and end use of the water;
- Informing customers of the potential risks associated with use of recycled water and assisting in the management of those risks;
- Providing a reliable system for recording and responding to complaints;
- Responding to incidents, auditing functions and establishing use agreements with relevant parties.

### **2.5.2 Bendigo Mining Limited**

Bendigo Mining Limited (BML) are responsible for the management of their reverse osmosis treatment plant at New Moon and transfer of the treated water to the Bendigo WRP. They ensure the quality of the treated water meets the Coliban/BML agreed limits.

### **2.5.3 Industrial Customers**

The customers are responsible for using the recycled water provided for approved end uses, as defined by this HEMP. They are also responsible for implementing appropriate management and monitoring practices (also outlined in this HEMP and the Customer Site Management Plans) to ensure protection of public health and the environment.

Industrial customers are responsible for providing the information required to develop and maintain Customer Site Management Plans (CSMPs).

Customers will be audited on an annual basis to ensure they are meeting their responsibilities. Refer to section 5 for further details.

#### **2.5.4 EPA Victoria**

The EPA is responsible for the approval of this HEMP, the Regional EIP and the individual Customer Site Management Plans. They provide formal agreement that the project is environmentally sustainable, provided all documentation is complied with.

#### **2.5.5 Department of Human Services**

The Department of Human Services (DHS) is responsible for ensuring that Class A water quality criteria are protective of public health.

Specific responsibilities of DHS in relation to endorsing documentation for the recycled water scheme are described in the Regional Environment Improvement Plan (REIP).



### 3 Process for Determination of Management Practices

Due to the wide variety of potential industrial end uses, it can be expected that there will be different modes and levels of risk for different industrial customers. In this sense, industrial customers are different from other customer groups for whom end use is similar across the group.

This HEMP for Industrial Customers documents broad potential risks. Issues requiring consideration in the development of management practices are listed in sections 4 and 5. However it is not possible in this document to provide fully detailed management practices that will be applicable to all potential industrial customers.

Each proposed industrial use will require a detailed Customer Site Management Plan that identifies the risks and mitigation actions at each industrial site. In formulating Customer Site Management Plans for industrial use, proponents are advised to speak with Coliban Water and the EPA.

The customer will need to confirm the health-based water quality specifications for the proposed industrial use. These water quality specifications should be based on the anticipated exposure to recycled water, confirmed in consultation with end users, and undertaken using the risk assessment tools contained within the *National Guidelines for Water Recycling: Managing Health and Environmental Risks* (NRMMC 2006). Proponents may wish to consult with the Department of Human Services (DHS).

Occupational health and safety issues should also be considered in the preparation of Customer Site Management Plans. Proponents may wish to consult with WorkSafe in this regard.

Requirements for the format of Customer Site Management Plans are provided in section 7.

## 4 Managing Human Health Risks

### 4.1 Overview

A risk assessment for the Epsom Spring Gully Recycled Water Project was undertaken in development of the Regional Environment Improvement Plan. The methodology used and outcomes of the risk assessment are detailed in the REIP.

This HEMP focuses on the practices required to manage the risks relating to end use for industrial systems. In regards to human health, the risks are low due to the high level of treatment undertaken. A summary is provided in Table 4-1. The management practices that need to be implemented by industrial customers in order to maintain these low risk levels are detailed in sections 4.2 to 4.7.

**Table 4-1 Overview of Human Health Risks**

<b>Risk</b>	<b>Mitigation Measure</b>	<b>Mitigated Risk Level</b>
Health risks for workers exposed to recycled water.	The health risk from the recycled water is minimal. Customers to communicate to on-site workers and visiting workers (eg. plumbers), requirements relating to recycled water. These include washing hands before eating, drinking or smoking.	Low.
Contamination of the drinking water supply with recycled water due to cross connection between the two supplies within customer properties.	All plumbing works will be undertaken in accordance with AS/NZS 3500:2003 – National Plumbing and Drainage Code which is consistent with the Plumbing Industry Commission Recycled Water Plumbing Guide.  Above-ground recycled water and drinking water infrastructure will be separated by at least 100 mm and below-ground infrastructure by at least 300 mm.  Above-ground pipes carrying recycled water will be clearly identifiable.  (For industrial customers, potable backup will be permitted with approved backflow prevention.)	Low.
Human exposure due to drinking from recycled water outlet.	Customers will be advised that the recycled water is not suitable for drinking.  Warning signs to be located on all recycled water taps in public areas – no further than 150mm from the tap handle. These signs should read “Do Not Drink”.  Properties where recycled water is in use will be signposted.  Recycled water taps and above ground pipework to be coloured purple / lilac. Recycled water taps to have removable handles where appropriate.	Low.
Inappropriate use of recycled water (eg filling swimming pools).	Advice will be provided to customers regarding acceptable use of the recycled water.  Drinking water will be supplied from an alternative source (either town potable supply or rainwater tanks).	Low.

Risk	Mitigation Measure	Mitigated Risk Level
Offsite water movement or spray drift.	No buffer distances are prescribed for Class A recycled water. However, spray drift should be prevented to avoid nuisance aspects of the water. Customers will be provided with advice regarding management of spray drift. Customers will also be provided with advice regarding prevention of surface runoff.	Low.
Contaminants (heavy metals, chlorine residuals) impact on human health.	Contaminant levels post-treatment are very low. Industrial customers with specific water quality requirements will undertake individual assessments before using recycled water.	Low.

## 4.2 Workers Exposed to Recycled Water

On-site workers must be informed that recycled water is in use, and of the requirement that workers must not drink the recycled water.

The Customer Site Management Plans will detail the communication strategy to be implemented for on-site workers and visiting workers.

## 4.3 Cross-Connections

It is important to ensure that recycled water does not enter the reticulated drinking water supply within the site or external to it.

All plumbing works must be undertaken in accordance with AS/NZS 3500:2003 – *National Plumbing and Drainage Code*, which is consistent with the Plumbing Industry Commission *Recycled Water Plumbing Guide*. Plumbers undertaking works (either on the potable system or the recycled water system) should be made aware that recycled water is in use on the property.

A site map will be included in the Customer Site Management Plan for each site, showing the layout of major features of the site, location of recycled water pipelines, and locations where recycled water will be used.

Any above-ground infrastructure carrying recycled water will be coloured purple/lilac (this can be achieved by spray painting existing infrastructure).

Above-ground recycled water and drinking water infrastructure must be separated by at least 100 mm and below-ground infrastructure by at least 300 mm.

Should potable water be used as a backup for the recycled water supply, backflow protection will be required between the potable water supply and recycled water system. This can be achieved via a registered air-gap or a reduced pressure zone device (RPZD), in accordance with the *Guidelines for Environmental Management – Dual Pipe Water Recycling Schemes* (EPA Victoria, 2005) and the Plumbing Code. The location of any air-gap or RPZD will need to be identified on the site map, and a testing program will need to be developed with Coliban Water. Details shall be provided in the Customer Site Management Plan.

As an added precaution, Coliban Water requires the installation of a backflow prevention device, specifically a Reduced Zone Pressure Device (RZPD), on any drinking water supplies to a customer's site where recycled water is being used, to protect the mains water supply against any accidental cross-connection. Details of the location of the RZPD and a testing program shall be provided in the Customer Site Management Plan.

Prior to the use of recycled water on site the system must be fully tested and commissioned by a licensed plumber in accordance with the requirements of AS/NZS 3500:2003 – *National Plumbing and Drainage Code*. *Copies of all certificates of compliance are to be forwarded to Coliban Water. As part of the testing and commissioning process, a number of plumbing audits and inspections are to be carried out by the licensed plumber in conjunction with a representative of Coliban Water's Property Service Group (or the Plumbing Industry Commission). The processes to be followed for the testing, commissioning, auditing and inspections of the recycled plumbing are described in a fact sheet to be provided to customers separately.*

Any modifications, extensions, or major maintenance works to recycled water infrastructure on a customer's property must be notified to Coliban Water. Coliban Water will determine appropriate testing and commissioning processes depending on the nature of the works undertaken.

Ongoing customer property inspections will be undertaken by Coliban Water as detailed in Table 6-1.

#### **4.4 Recycled Water Outlets**

All recycled water taps must be labelled to indicate the water is not suitable for drinking. This will be achieved via:

- Warning signs placed no further than 150 mm from the tap handle. These signs should read 'Do Not Drink'.
- Use of purple/lilac taps and above ground pipework (can be achieved by spray painting existing fixtures).
- Use of taps with removable handles where appropriate.

In addition workers and the public must be informed that recycled water is in use, by installation of warning signs at site entrances to locations where recycled water is being used, reading 'Recycled Water in Use. Do Not Drink.'

Recycled water must not be supplied to drinking fountains, drinking taps, or hand-washing facilities. Toilet blocks can be supplied with recycled water for toilet-flushing, but must be supplied with potable water for hand-washing, and the potential for cross-connections must be tested for and avoided as discussed in the previous section.

Further guidance on the requirements for onsite plumbing can be obtained from Section 6.2 of EPA Publication 1015: "Dual Pipe Water Recycling Schemes – Health and Environmental Risk Management".

## 4.5 Inappropriate Use

Recycled water can be used for the purposes listed in section 2.2.

The recycled water is **NOT** considered acceptable for the following uses:

- Drinking.
- Cooking or other kitchen purposes
- Bathing and showering.
- Filling swimming pools and spas.
- Children's water toys.
- Any and all uses involving contact with pigs.

## 4.6 Spray Drift and Runoff

All companies operating in the City of Greater Bendigo are required to avoid causing nuisance to neighbours by appropriately managing spray drift and runoff of water over property boundaries. The same requirements apply to recycled water customers.

Where recycled water is used for irrigation (eg. watering of lawn areas), the following prevention techniques should be considered (sites can choose to implement some or all these as appropriate to their situation):

- Ceasing irrigation in windy conditions;
- Using semi-circle sprinklers that direct spray away from boundaries;
- Providing tree screens between the irrigated area and boundaries;
- Providing a buffer zone between the irrigated area and boundaries;
- Using irrigation systems that prevent the generation of fine mist, eg. low rise sprinklers, microsprinklers;
- Irrigating at night or at times when there are few people around.

To prevent irrigation runoff the following should be undertaken:

- Practice irrigation scheduling such that a soil deficit remains following irrigation (ie. not irrigating to soil saturation point – water should not pool on the surface following irrigation). This prevents irrigation runoff and provides a buffer to take up the first flush of rainfall runoff.
- Irrigation should also be turned off in the event of rainfall occurring (for rain events > 5mm).

Specific details regarding management of any spray drift and runoff at each site shall be outlined in the Customer Site Management Plans.

## 4.7 Contaminants

Contaminant levels in the recycled water are very low.

Chemicals entering the Bendigo Water Reclamation Plant are managed through trade waste agreements and ongoing cleaner production initiatives at the sources. They are substantially diluted with other waste, and generally removed or degraded by the treatment processes. The groundwater from Bendigo Mining Limited is treated to ensure removal of contaminants. Further details are provided in the Regional Environment Improvement Plan.

For most industrial uses it is expected that no special management practices will be required. In cases where the customer has specific water quality requirements, the customer will conduct an assessment of whether the recycled water is suitable, which will be documented in the Customer Site Management Plan.



## 5 Managing Environmental Risks

### 5.1 Overview

As discussed in section 4.1, a risk assessment for the Epsom Spring Gully Recycled Water Project was undertaken in development of the Regional Environment Improvement Plan.

This HEMP focuses on the practices required to manage the risks relating to end use for industrial systems. In regards to the environment, these risks are low due to the high level of treatment undertaken. A summary is provided in Table 5-1. The management practices that need to be implemented by industrial customers in order to maintain these low risk levels are detailed in sections 5.2 to 5.5.

**Table 5-1 Overview of Environmental Risks**

Risk	Mitigation Measure	Mitigated Risk Level
Nutrients in recycled water impact on surface waters or groundwater.	The recycled water contains small amounts of nitrogen and phosphorus. Discharge to stormwater should be minimised.  Where recycled water is used for irrigation, specific measures are required, as described below. A simple nutrient balance will be provided in the Customer Site Management Plan.	Low.
Salinity of recycled water impacts on plant health, soil structure, surface waters or groundwater.	Generally the risks related to the salinity of the recycled water are low.  Where recycled water is used for irrigation, specific measures are required, as described below.	Low.
Offsite water movement or spray drift.	No buffer distances are prescribed for Class A recycled water. However, spray drift should be prevented to avoid nuisance aspects of the water.  Customers will be provided with advice regarding management of spray drift.  Customers will also be provided with advice regarding prevention of surface runoff.	Low.
Contaminants (heavy metals, chlorine residuals) impact on plant health, surface water or groundwater.	Contaminant levels post-treatment are very low.  Industrial customers with specific water quality requirements will undertake individual assessments before using recycled water.	Low.

### 5.2 Nutrients

The recycled water contains small amounts of nitrogen and phosphorus.

Where recycled water is used in a closed system, eg. in washing machines or as a process input, there is no environmental contact during use, so there is no environmental risk. After use, recycled water discharged from the site should be directed into the sewer, not into a stormwater drain.

Where recycled water is used in an open system, eg. for dust suppression, road making or washdown, provided that only the required amount of water is utilised and excess application is avoided, it is anticipated that the nutrient loading rates applied to land will be negligible. Recycled Water must not enter waterways or stormwater drains.

Where recycled water is used for irrigation (eg. watering of lawn areas), it should be noted that the recycled water contains small amounts of nitrogen and phosphorus. (The amount will be in the order of 1 gram nitrogen per square metre and 0.1 gram phosphorus per square metre.) Fertiliser use should be reduced slightly to account for this, with the method for fertiliser reduction to be detailed in the Customer Site Management Plan (CSMP) for each site.

A simple nutrient balance for the irrigation area will be included in each CSMP.

### **5.3 Salinity**

The recycled water is slightly saltier than the potable water supply. It is very unlikely that there will be any noticeable impact from the short term salinity level, which is expected to be around 500 mg/L TDS. This salinity level is not likely to cause increased corrosion of machinery or pipework. The water is suitable for use in construction and maintenance of roads. No special management practices are required for industrial use.

Where recycled water is used for irrigation (eg. watering of lawn areas), the only situations where customers might notice an effect is if they are irrigating very impermeable soil (ie. soil drainage is poor so water takes a long time to soak in), or if customers spray the recycled water onto sensitive plants in the heat of the day.

Customers are advised to:

- Follow good irrigation practices, in particular avoid sprinkler irrigation direct to plant leaves in the heat of the day. If daytime irrigation is required, use a method that does not apply water direct to plant leaves, such as drip/micro-spray, sub-surface irrigation or a hand-held hose directed at the plant base. This is not important for tolerant plants such as pasture and turf, but is relevant for plants sensitive to leaf damage such as citrus, apricots, almonds, potatoes and tomatoes.
- Improve the texture of impermeable soils (eg. heavy clays) to improve soil drainage (eg. by addition of organic matter or imported soil), or avoid irrigation of salt sensitive plants. This is only important for salt sensitive plants, such as fruit (eg. citrus, stone fruits, grapes, strawberries), some vegetables (eg. beans, carrots, lettuce) and some ornamental plants (eg. azaleas, roses, jasmine, flowering annuals). A more comprehensive list will be provided in a salinity information sheet that can be obtained from the Coliban Water website.

### **5.4 Spray Drift and Runoff**

Refer to section 4.6 for details regarding prevention of spray drift and runoff.

### **5.5 Contaminants**

Contaminant levels in the recycled water are very low. No special management practices are required at site of use for protection of the environment.

## 6 Monitoring and Reporting

### 6.1 Monitoring

Monitoring requirements relating to end use are minimal, due to the low risk levels involved. Details are provided in Table 6-1.

**Table 6-1 Monitoring – Industrial Customers**

Monitoring Item	Purpose	Details	Frequency	Responsibility	Trigger	Corrective Action
Recycled water quality	Ensure recycled water is fit for purpose.	The monitoring programs for water quality are detailed in the Recycled Water Quality Management Plan.				
Blue green algae in Spring Gully Reservoir	Ensure recycled water is fit for purpose.	Refer to Coliban's Blue Green Algae Response Plan (included as an appendix to the Recycled Water Quality Management Plan)				
Volume of recycled water used	To calculate annual water balance and invoice customers for usage.	Flow meters installed for each individual customer.	Quarterly	Coliban Water	Annual water usage exceeds volume specified in CSMP.	Consult with customer to investigate cause and address as required.
Customer monitoring checklist completed and provided to Coliban Water	Ensure customer awareness of site condition and management requirements.	Refer to CSMPs	Annually	Customers	Checklist not submitted to Coliban by June 30 <sup>th</sup> .	Coliban to contact customer to request completed checklist.
Customer property inspection	Ensure no cross connections, signs in place, pipes/taps marked appropriately, and so on. (Refer to fact sheet for details of process.)	Commissioning: Each site will be inspected initially.  Ongoing: Each site will be inspected each year.	Prior to initial supply  Annually	Coliban Water	Non-compliance with HEMP and/or CSMP.	Action as appropriate to issue (eg. spray paint taps that are not purple).  Supply of recycled water can be ceased until site conforms.

For each site, a monitoring checklist will be included as part of the Customer Site Management Plan (CSMP).

## 6.2 Complaints and Faults Procedure

Coliban Water has an existing call centre, which handles all incoming queries, complaints and fault reports (i.e. leaks, burst mains, sewer overflows, supply outages and water quality issues etc). The contact number is 1300 363 200.

Call centre officers will be educated about recycled water issues, and the software prompt for call response will be updated to include recycled water issues.

When a complaint or fault report is received regarding the recycled water it will be logged and issued to the Coliban manager for the scheme. For each complaint or fault report the following is documented:

- All calls coming into the call centre are logged.
- The callers details, name, contact number are recorded where possible.
- Along with this information the details of complaint or fault report, address or location, and the specific nature of the problem are recorded.
- Some complaints and faults reports are received via mail, fax and email.

Fault reports are prioritised according to the Essential Services Commission's (ESC) Level 1 and Level 2 priority response criteria based on the severity of the impact of the fault report. A fault report will result in an operational response to rectify the issue within a prescribed time frame.

Complaints (any expression of dissatisfaction by a customer, whether verbal or written) will be formally responded to by Coliban Water within 5 working days of receipt of the complaint. Complaints (which by their very nature may also constitute a fault report) may also result in an immediate operational response to rectify the issue.

If a customer is not satisfied with Coliban Water's response to a complaint, they may have the complaint referred to an appropriate manager for review.

If the customer is still not satisfied with the response, a senior manager of Coliban Water will review the complaint. That manager will ensure that the complaint has been properly investigated and that the final decision has taken into account the customer's rights and obligations.

Customers who remain dissatisfied with Coliban Water's resolution of a complaint may lodge a complaint with the office of the Energy & Water Ombudsman (Vic) by calling 1800 500 509. Customers can also contact EPA Victoria on 1800 444 004 regarding any concerns to do with the environmental or quality aspects of the recycled water.

A summary of the complaints received will be included in the annual report from Coliban Water.

## 6.3 Incidents and Emergencies

Incidents occurring at end use sites that could affect the environment or human health are listed below, along with a summary of the operational response to each:

- Complaints of illness possibly due to recycled water;
  - Details of customer complaint to be recorded on Coliban Water complaints database.
  - Coliban Water will advise customers that the recycled water has been treated to very high standards and the risk of becoming ill from drinking small amounts of it is extremely low. Customers will be advised to contact their doctor if they feel concerned or experience signs of illness. Contact details for the Environmental Health Unit (1300 761 874) will be provided to customers should their doctor like to speak with someone in the Department of Human Services (DHS).
- Unauthorised use of recycled water;
  - Identified during Coliban Water site inspections or from customer notifications;
  - Risk assessment and rectification undertaken by Coliban Water;
  - Coliban Water has the power to cease supply until unauthorised use issues are resolved;
  - DHS to be notified if there is any suspected potential human health risk (as assessed by Coliban Water or at request of customer).
- Cross connection of recycled water supply to drinking water supply;
  - Identified during customer self-check (part of annual customer checklist), Coliban Water site inspection, plumber working at site, or customer complaint;
  - Confirmation through Coliban Water inspection and if within Coliban Water supply then immediate rectification to take place (if required);
  - DHS and customer to be notified immediately of a confirmed cross connection;
  - If within the customer's plumbing, Coliban Water to cease supply immediately and instruct the customer to rectify the cross connection;
  - Risk assessment undertaken and discussed with DHS to establish likelihood of other cross connections and need for immediate follow up testing within the recycled water system;
  - DHS and EPA provided with incident report by Coliban Water.
- Leakage, spillage or runoff of recycled water beyond site boundaries.
  - Can occur due to burst in Coliban Water main, or burst in customer pipework. Unlikely to be due to customer behaviour;
  - Customer to contact Coliban Water if significant runoff is noticed beyond site boundaries (so that Coliban Water can assist in managing impacts);

- Coliban Water will attend site;
- Coliban Water to contact EPA if confirmed to be a major spill (the circumstances in which EPA is to be notified are described in Coliban Water SOP-08E Sewer Spill Environmental Response);
- Coliban Water to contact others as necessary;
- Incident report provided to EPA by Coliban Water.

Incidents and emergencies relating to recycled water use should be reported immediately to Coliban Water by phoning 1300 363 200 (24 hours per day). Coliban Water will assist the customer to respond appropriately. The objective of the response is to:

- Bring the process back under control as soon as possible;
- Generate improvement plans to avoid recurrence of incident.

Coliban Water maintains an Emergency Management and Response Plan, which covers the actions, roles and responsibilities of Coliban Water Staff and others in the case of a real or potential incident which could threaten the health and safety of persons, damage to property or the environment and service to customers.

Customers can also contact EPA Victoria on 1800 444 004.

## **6.4 Annual Report**

Following an internal review of the recycled water scheme as a whole, an annual report will be prepared by Coliban Water and submitted to the EPA.

In relation to end use by industrial customers, the annual report will include:

- A statement as to whether this HEMP has been complied with, or an outline of actions undertaken to address non-compliance;
- An analysis of monitoring data, collected as outlined in section 6.1;
- A summary of incidents and emergencies, including corrective actions;
- A listing of industrial customers supplied;
- A summary of complaints received, including corrective actions undertaken.

## **6.5 Audits**

The use of recycled water by industrial customers will be audited as part of the wider recycled water scheme. Details of the system audit process and frequency are provided in the REIP.

Prior to use of the recycled water:

- A plumbing installation audit is to be carried out by a licensed plumber for each industrial site, in conjunction with site inspections by a representative of Coliban Water's Property Service Group (or the Plumbing Industry Commission). A copy of all Certificates of Compliance are to be forwarded to Coliban Water.

- Coliban Water will conduct a site inspection to check that the appropriate warning signs and other physical site controls are in place.

To ensure ongoing compliance, Coliban Water will conduct system audits of industrial users on an annual basis.

## **6.6 HEMP Review**

This HEMP will be reviewed on an annual basis or when a major change or addition to the recycled water system is implemented. The review will take into consideration changes to:

- Customer base;
- Water quality;
- EPA guidelines;
- Regulatory requirements;
- Coliban Water policies.

Customer Site Management Plans will also be reviewed at least every 3 years to ensure they remain up to date.

## 7 Requirement for Customer Site Management Plan

Each industrial customer must develop a Customer Site Management Plan (CSMP).

It is difficult to develop a generic management plan for industrial customers given that the end uses and potential risks are varied. Each industrial customer should develop a management plan specific to their application to demonstrate compliance with the performance objectives and measures in EPA guidelines.

The process for determining what management practices are required is described in section 3.

As a minimum, the CSMP must contain the following information:

- Site details including company name, address, contact person.
- A site map showing the layout of major features on the site, location of recycled water pipelines, location of supply metering and backflow prevention and locations where recycled water will be used.
- Description of end use of the recycled water.
- Volume to be used per annum.
- Storage of recycled water on site, eg. recycled water delivered to storage dams, tanks, or direct to point of use.
- Details of specific site controls, including:
  - Management of cross connections and testing programs for backflow prevention.
  - Signage (including locations of signs).
  - Worker training.
  - Control of spray drift and runoff (if relevant).
  - Management of water quality aspects such as salinity, nutrients and contaminants (if required).
  - QA/QC process for the management of modifications to the recycled water system, including notifications to Coliban Water.
- Site Use Agreement (as per Appendix 1)
- Monitoring checklist to be completed by the customer at the end of each financial year and submitted to Coliban Water (see example provided in Appendix 2)

Before recycled water can be supplied to a site, the CSMP must be approved by Coliban Water and EPA, who will also refer it to DHS for comment.

Coliban Water will retain copies of all CSMPs on file.

## References

ANZECC & ARMCANZ (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Volume 3, Primary Industries. Australian and New Zealand Environment and Conservation Council & Agriculture and Resource Management Council of Australia and New Zealand.

Coliban Water (undated) *Waterplan 2055 Securing our Water Future*.

EPA Victoria (2005) *Dual Pipe Water Recycling Schemes – Health and Environmental Risk Management*. Publication 1015. Guidelines for Environmental Management. EPA Victoria.

EPA Victoria (2003) *Use of Reclaimed Water*. Publication 464.2. Guidelines for Environmental Management. EPA Victoria.

EPA Victoria (1991) *Guidelines for Wastewater Irrigation*. Publication 168. EPA Victoria.

EPA Victoria (unpublished) *Best Practice Environmental Management Guidelines for Reclaimed Water Irrigation*. Publication 168a. (Draft Version 4, Prepared by RMCG for EPA Victoria, March 2004).

Natural Resource Management Ministerial Council, Environment Protection and Heritage Council, and Australian Health Ministers' Conference (November 2006) *National Guidelines for Water Recycling: Managing Health and Environmental Risks (Phase 1)*. National Water Quality Management Strategy.

# Appendix 1: Site Use Agreement for Industrial Customers

The following agreement must be included in the Customer Site Management Plan for each customer.

## Site Use Agreement

Site Name and Address: \_\_\_\_\_

I agree that by signing this document I understand that recycled water produced in accordance with EPA guidelines will be supplied to this site. I understand that the water I receive is not suitable for use as drinking water. It will only be used for purposes specified in the Customer Site Management Plans (CSMP).

I have been provided with a copy of the Health and Environmental Management Plan (HEMP) for Industrial Customers. A Customer Site Management Plan (CSMP) has been developed for this site and I undertake to keep the CSMP up to date. I understand the acceptable uses and controls relating to the recycled water and I am committed to using the recycled water in accordance with the Customer Site Management Plan.

I accept that Coliban Water may cease the provision of recycled water at any time, in the event that testing indicates that quality limits cannot be met or sufficient volumes are not available.

Signature of Customer Representative

\_\_\_\_\_

Full Name of Customer Representative

\_\_\_\_\_

Position

\_\_\_\_\_

Organisation

\_\_\_\_\_

Date

\_\_\_\_\_

## Appendix 2: Example Site Management Checklist

This checklist is to be completed by the customer prior to initial supply of recycled water, then annually at the end of each financial year. The completed checklist is to be submitted to Coliban Water.

Check	Tick if compliant	Any Comments (optional)
End use is acceptable as outlined in the HEMP for Industrial Customers		
Backflow prevention devices installed and tested on all recycled water and potable water connections to site.		
Check undertaken to ensure drinking water outlets are not connected to recycled water supply.		
Appropriate signs in place on recycled water outlets and at site entrances to public areas.		
Above-ground recycled water and drinking water infrastructure separated by at least 100 mm and below-ground infrastructure by at least 300 mm.		
Recycled water not discharged into stormwater drains.		
Staff appropriately trained in the use and management of recycled water on site.		
<i>(Add any further checks relevant to the specific end use at this site)</i>		

Completed by: \_\_\_\_\_

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

Checked by (Coliban Water representative): \_\_\_\_\_