

# Safe Drinking Water Annual Report 2012 - 2013

*Healthy Parks  
Healthy People*



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# 1. Introduction



Parks Victoria is responsible for managing Victoria's National, State, and Regional Parks, Reservoir Parks, some major Metropolitan Parks and Conservation Reserves, Marine National Parks and Marine Sanctuaries. In addition, Parks Victoria manages many cultural assets such as historic properties and gardens, as well as Port Phillip Bay, Western Port Bay, and major waterways. Parks Victoria's role is to protect the natural and cultural values of the parks and other assets, while providing a great range of outdoor opportunities for all Victorians and visitors.

Maintaining the health of Victoria's parks and reserves while providing a range of excellent visitor services not only contributes to the environmental health of the State but also to the physical and social wellbeing of all Victorians.

In accordance with the State Government's *Safe Drinking Water Act 2003* (SDWA), Parks Victoria is committed to minimising the risk to public health by providing a reliable and safe supply of potable water. The SDWA requires that an Annual Report, containing information on analysis results, management processes, incident actions and other issues that have arisen, is submitted to the Department of Health (DH) and made publicly available.

## Further Information

For further information on this Annual Report, contact Parks Victoria on 13 1963 or [www.parkweb.vic.gov.au](http://www.parkweb.vic.gov.au)

## Characterisation and water source of the systems

From July 1, 2012 to June 30, 2013, Parks Victoria managed drinking water supplies at five separate locations as detailed in Table 1.

These five drinking water supplies managed by Parks Victoria were listed as water sampling localities in the Victorian Government Gazette S161 on 22 June 2006, and make up the drinking water supplies which Parks Victoria will report on in this *Safe Drinking Water Annual Report*.

Water supplies which form part of a leased enterprise are now the contractual responsibility of the leasee. Leasees who operate food and/or accommodation services have an obligation under the *Public Health and Wellbeing Act 2008* or the *Food Act 1984*, rather than the SDWA, to provide potable water.

Parks Victoria also manages a number of mineral springs in Central Victoria, chiefly in the Hepburn Regional Park and Castlemaine Diggings National Heritage Park. At several of these springs, facilities and infrastructure encourage visitors to drink spring water for the health benefits that it is believed to provide. Without affecting the viability of the tourism industry associated with the mineral springs, Parks Victoria recognises that appropriate risk management needs to be applied to ensure that drinking the mineral water from them is as safe as possible.

During the 2012-13 reporting period, several of the mineral springs recorded detections of *E. coli* (see Section 4 for more details). Parks Victoria took appropriate action in each case. This included signposting the affected spring(s) to the public, then re-sampling and removing signs only when *E. coli* levels became acceptable. Given the lack of treatment barriers, it is considered inappropriate to declare the springs as SDW water sampling localities.

Parks Victoria continues to test the mineral springs for a broader range of water quality data which DH will use to conduct a health risk assessment on the consumption of spring water. This health risk assessment will guide future decisions regarding management of the mineral springs.

Parks Victoria continued to report detections of *E. coli* at the springs and the five SDW locations under Section 22 of the SDWA.

**Table 1: Description of Parks Victoria's Drinking Water Localities**

Water Sampling Locality	Source water	Treatment	Description
Gabo Island Lightstation at Gabo Island Lightstation Reserve	Rainwater	Sedimentation and reverse osmosis (RO)	Water is captured on cottage roof and held in two above-ground poly tanks. Water to the guest cottage's kitchen is passed through a reverse osmosis unit. Water reticulated through the rest of the cottage is not treated.
Lakeside/Candlebark/Devil Cove Campgrounds Lake Eildon National Park	Goulburn Valley Water mains <sup>1</sup>	Standard treatment by Goulburn Valley Water	Treated water is delivered to the campgrounds by a commercial tanker operator. Water is transferred from the tanker into three discrete tanks and is gravity fed to each tap-stand.
Tidal River Wilson's Promontory National Park	Creek water	Conventional water treatment plant. Added substances include: <ul style="list-style-type: none"> <li>• Aluminium chlorohydrate</li> <li>• Soda ash</li> <li>• Sodium hypochlorite</li> </ul>	Water is harvested from an unconfined 2000ha conservation zone, then pumped to a treatment plant where it undergoes processes of coagulation, flocculation and clarification, before filtration and disinfection. Treated water is transferred from a single clear water storage tank to twin storage tanks before reticulation by gravity throughout Tidal River.
Twelve Apostles Visitor Centre Port Campbell National Park	Wannon Water mains <sup>1</sup>	Standard treatment by Wannon Water	Treated water is delivered to the site by a commercial tanker operator. Water is pumped from underground storage to elevated storage in the amenity block, then gravity-fed to taps.
Wilson's Promontory Lightstation Wilson's Promontory National Park	Rainwater	Sedimentation and filtration	Water is captured on roof and transferred to in-ground storage and then pumped on demand, via a filter and UV disinfection, to cottages.

<sup>1</sup> Tankered to Parks Victoria storage by commercial water tanker operator

## 2. Quality Management



### Issues

A strict regime of water treatment processes continued at Tidal River during 2012-13. However, THM readings of 0.29mg/L, 0.26mg/L and 0.291 mg/L were detected in January, February and March 2013 respectively. Investigations by expert staff at the Tidal River water treatment plant found no clear reason why these levels had occurred.

A non compliant *E.coli* reading of 3orgs/100ml was detected in the East Bathroom Basin at Gabo Island Lightstation in February 2013. Following treatment, *E.coli* returned to acceptable levels.

A non compliant *E.coli* reading of 16 orgs/100ml was detected in June 2013 at Candlebark Campground-Lake Eildon National Park. Following treatment, *E.coli* at the site returned to acceptable levels.

## 3. Water Quality



Water quality is assessed according to a number of parameters which collectively determine the suitability of water for human consumption. The limits of these parameters are listed in Table 2.

**Table 2: Water quality parameters and standards**

Parameter	Water quality standard
<i>Escherichia coli</i> ( <i>E. coli</i> )	At least 98% of all samples collected in the 12-month period to contain zero <i>E. coli</i> per100mL
Turbidity	95% Upper Confidence Limit (UCL) of the 12-month mean of samples must be ≤ 5 NTU.
Aluminium	Must not exceed 0.2 mg/L
Chloroacetic acid	Must not exceed 0.15 mg/L
Dichloroacetic acid	Must not exceed 0.1 mg/L
Trichloroacetic acid	Must not exceed 0.1 mg/L
Trihalomethanes	Must not exceed 0.25 mg/L

### Sampling frequencies and parameters

During the 2012-13 reporting period, Parks Victoria continued to use agreed variations to the frequency of sampling, under the process described in regulation 11(3) of the Safe Drinking Water Regulations 2005. The rationale for reduced testing frequencies included:

- The low level of risk presented to a relatively small number of visitors at many of the locations;
- The expectation of visitors and local communities;
- The supplies having no known history of public health incidents; and
- The transient consumption of the water supplied.

Agreed sampling frequencies for the reporting period were undertaken as listed in Table 3.

**Table 3: Agreed sampling regimes for 2011-12**

Water sampling locality	Sampling frequency	Parameters for routine monitoring
Gabo Island Lightstation at the Gabo Island Lighthouse Reserve	Quarterly	<i>E. coli</i> Turbidity
Lakeside/Candlebark/Devil Cove Campgrounds in Lake Eildon National Park	Monthly	<i>E. coli</i> Turbidity
Tidal River in Wilsons Promontory National Park	Weekly	<i>E. coli</i> Turbidity
	Monthly	Aluminium Chloroacetic acid Dichloroacetic acid Trichloroacetic acid Trihalomethanes
Twelve Apostles Visitor Centre in Port Campbell National Park	Monthly	<i>E. coli</i> Turbidity
Wilsons Promontory Lightstation at the Wilsons Promontory Lighthouse Reserve	Quarterly	<i>E. coli</i> Turbidity

## Results

*E. coli* and turbidity testing is required for all drinking water supplies. However, testing for aluminium and chlorine-based disinfection by-product chemicals is only required at water supplies where chemicals are added as part of the treatment process. Chemical treatment only occurs at Tidal River.

### Escherichia coli (E. coli)

Testing for the presence of microbiological organisms such as *Escherichia coli* (*E. coli*) was completed at all sites. The results of the tests are listed in Table 4.

**Table 4: Summary of *E. coli* test results**

Water sampling locality	Sampling Frequency	No. of samples	No. of Non complying samples	Maximum (orgs/100mL)	% Samples with no <i>E. coli</i>	Complying (Yes/No)
Gabo Island Lightstation - Gabo Island Lighthouse Reserve	Quarterly@	12	1	3	91.6	No
Lakeside/Candlebark/Devil Cove Campgrounds - Lake Eildon National Park	Monthly#	36	1	16	97.2%	No
Tidal River - Wilsons Promontory National Park	Weekly	52	0	0	100%	Yes
Twelve Apostles Visitor Centre - Port Campbell National Park	Monthly	12	0	0	100%	Yes
Wilsons Promontory Lightstation - Wilsons Promontory Lighthouse Reserve	Quarterly	4	0	0	100%	Yes

At least 98% of all samples collected in the 12-month period must contain zero *E. coli*/100mL to comply.

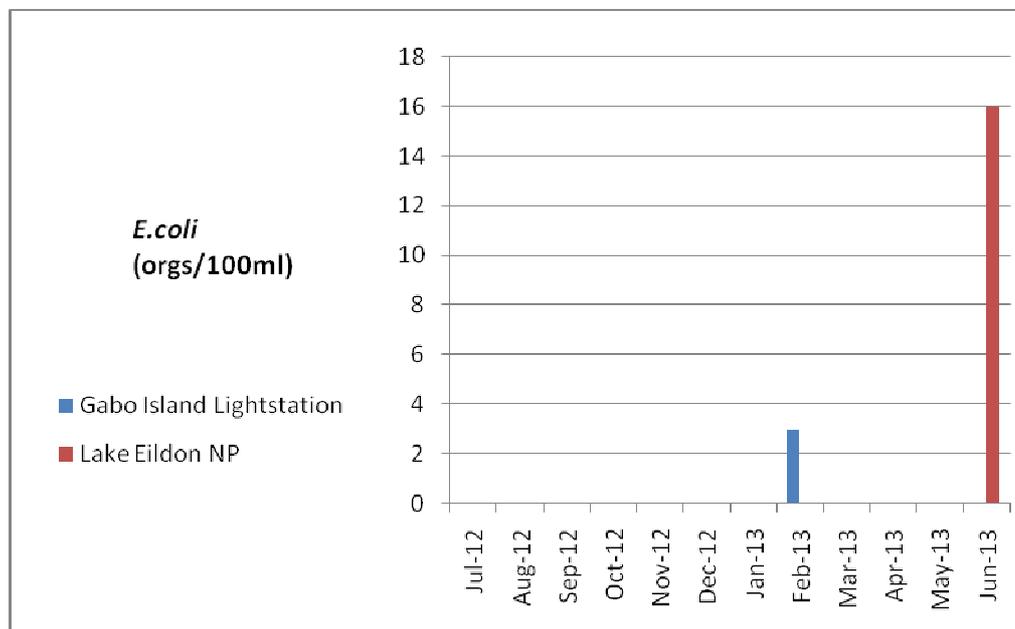
@ Each quarter, three samples are collected from various sampling points within the locality.

# Each month, three samples are collected from various sampling points within the locality.

## Actions in relation to *E. coli* non-compliance

Action summaries for non-compliant results can be found in the *Incident Management* section of this report.

**Graph 1: *E. coli* results for Gabo Island Lightstation and Lake Eildon National Park**



## Turbidity

Testing for turbidity is required for all water supplies. The turbidity results of samples taken in 2012-13 are listed in Table 5.

**Table 5: Summary of turbidity test results**

Water sampling locality	Sampling Frequency	No. of samples	No. of Non complying samples	Maximum (NTU)	Minimum (NTU)	95% UCL of mean	Complying (Yes/No)
Gabo Island Lightstation Gabo Island Lighthouse Reserve	Quarterly	12@	1	0.7	0.1	0.2	Yes
Lakeside/Candlebark//Devil Cove Campgrounds Lake Eildon National Park	Monthly	36#	0	0.4	0.1	0.2	Yes
Tidal River Wilson's Promontory National Park	Weekly	52	0	2.3	0.1	0.6	Yes
Twelve Apostles Centre Port Campbell National Park	Monthly	12	0	0.2	0.1	0.2	Yes
Wilson's Promontory Lightstation Wilson's Promontory Lighthouse Reserve	Quarterly	4	1	19.0	0.7	14.5	No

The 95% UCL result for mean turbidity must be  $\leq 5$  NTU for the locality to comply.

@ Each quarter, three samples are collected from various sampling points within the locality.

# Each month, three samples are collected from various sampling points within the locality

## Aluminium

Aluminium may be present in water through natural leaching from soil and rock, or from the use of aluminium salts as coagulants in water treatment. Aluminium is used only at Tidal River as a water treatment coagulant. Testing for aluminium therefore occurs at this location only. The results of the tests for aluminium at Tidal River are provided in Table 6.

**Table 6: Summary of Aluminium test results**

Water sampling locality	Sampling Frequency	No. of samples	No. of Non complying samples	Maximum (mg/L)	Minimum (mg/L)	Complying (Yes/No)
Tidal River Wilson's Promontory National Park	Monthly	12#	1	0.29	0.01	No

If the maximum result for acid soluble aluminium is 0.2 mg/L or greater, then the locality is non-complying.

## Chlorine based disinfection by-product chemicals

The use of chlorine as a disinfectant for treatment of drinking water is used only at Tidal River. Testing for chlorination by-product chemicals therefore occurs only at this location. By-products of chlorine include chloroacetic acid, dichloroacetic acid, trichloroacetic acid and trihalomethanes. A summary of the results for chlorine by-products is provided in Tables 7 to 10.

**Table 7. Results of testing for Chloroacetic acid at Tidal River.**

Water sampling locality	Sampling Frequency	No. of samples	No. of Non complying samples	Maximum (mg/L)	Minimum (mg/L)	Complying (Yes/No)
Tidal River Wilson's Promontory National Park	Monthly	12	0	0.010	0.010	Yes

If the maximum result is 0.15 mg/L or greater, then the locality is non-complying.

**Table 8. Results of testing for Dichloroacetic acid at Tidal River.**

Water sampling locality	Sampling Frequency	No. of samples	No. of Non complying samples	Maximum (mg/L)	Minimum (mg/L)	Complying (Yes/No)
Tidal River Wilson's Promontory National Park	Monthly	12	0	0.033	0.005	Yes

If the maximum result is 0.1 mg/L or greater, then the locality is non-complying.

**Table 9. Results of testing for Trichloroacetic acid at Tidal River.**

Water sampling locality	Sampling Frequency	No. of samples	No. of Non complying samples	Maximum (mg/L)	Minimum (mg/L)	Complying (Yes/No)
Tidal River Wilson's Promontory National Park	Monthly	12	0	0.042	0.005	Yes

If the maximum result is 0.1 mg/L or greater, then the locality is non-complying.

**Table 10. Results of testing for Trihalomethanes at Tidal River.**

Water sampling locality	Sampling Frequency	No. of samples	No. of Non complying samples	Maximum (mg/L)	Minimum (mg/L)	Complying (Yes/No)
Tidal River Wilson's Promontory National Park	Monthly	12	3	0.290	0.008	No

If the maximum result is 0.25 mg/L or greater, then the locality is non-complying.

## Analysis of results

Graphs 2, 3 and 4 below compare water quality results from the last three financial years

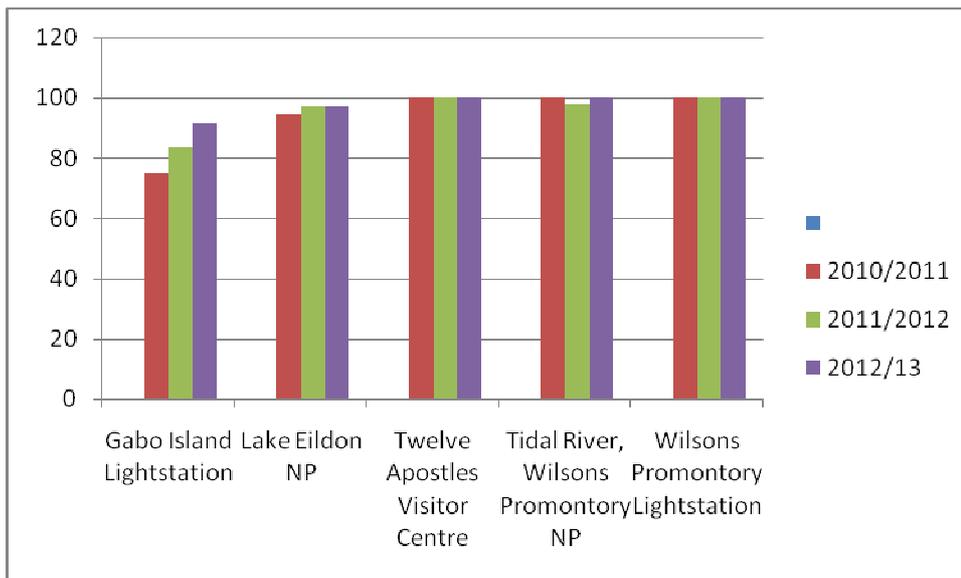
Graph 2 compares the *E.coli* results at all sampling sites for the past three years and shows improved levels of compliance at Gabo Island Lightstation and Tidal River.

A 100% *E.coli* compliance was recorded at the Twelve Apostles visitor centre and Tidal River.

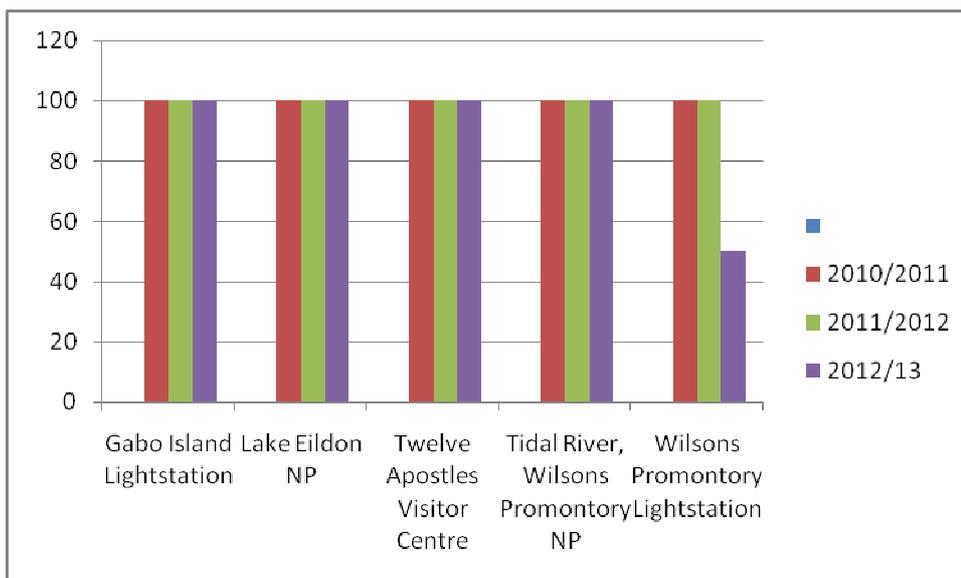
Graph 3 compares the turbidity results at all sampling sites for the past three years and shows a continued 100% compliance for all locations except Wilson's Promontory Lightstation.

Graph 4 compares Tidal River's water quality in the 2012-13 period compared to the previous two financial years. Compliance with the standard for chlorination by-product chemicals was maintained at 100% for chloroacetic acid, dichloroacetic acid, trichloroacetic acid. The Aluminium and Trihalomethanes standards were not achieved due to unexplained non-compliant results in January 2013 (Al) and January, February and March 2013 (THM). Despite intensive investigations following each incident, the causes for these incidents could not be determined.

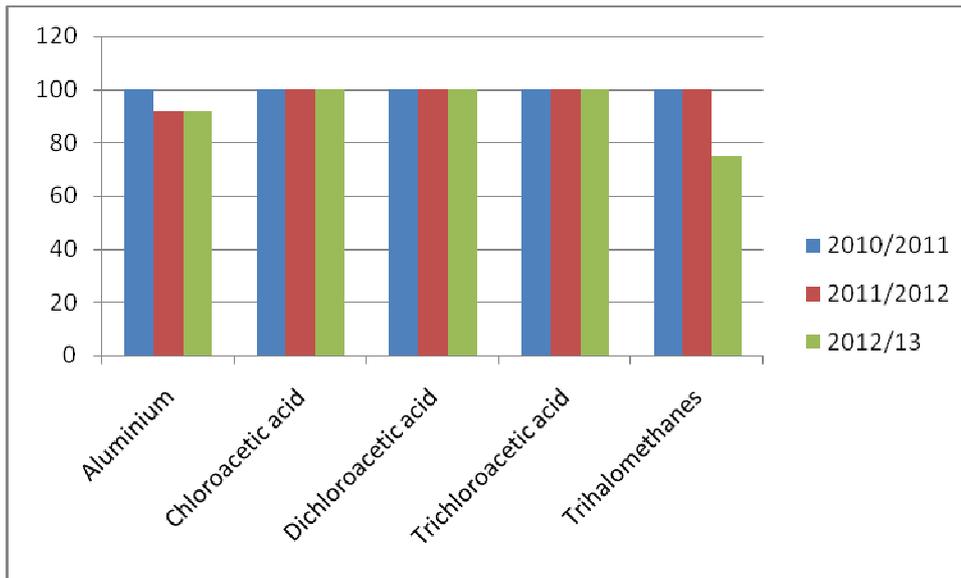
**Graph 2: E. coli annual % compliance past 3 years at all sampling sites**



**Graph 3: Turbidity annual % compliance past 3 years at all sampling sites**



**Graph 4: Water quality % compliance for the past 3 years at Tidal River, Wilsons Promontory NP**



## 4. Incident Management



### Incidents requiring Section 22 Reports

The incidents requiring a Section 22 report are described in Table 11 below.

**Table 11: Summary of Section 22 incidents**

Water sampling locality	Incident	Date of incident	Actions
Gabo island Lightstation accomodation	<i>E. coli</i> recorded in water sample ( 3orgs/100mL)	25/2/2013	The affected tap was isolated. "Do not Drink" sign was installed. Guests were notified and bottled water issued to them. The tanks were treated with sodium hypochlorite and lines to the tap flushed. A re-sample was taken and <i>E. coli</i> levels returned to zero.
Lake Eildon NP (Candlebark Campground)	<i>E. coli</i> recorded in water sample ( 16 orgs/100mL)	25/6/2013	The tank was closed and treated with sodium hypochlorite and lines flushed to clear contaminated water. All taps on the tank were closed off and a "Do not Drink" signs installed at the taps until the re-sample showed that <i>E. coli</i> levels had returned to zero.

Section 22 Reports were also submitted when several mineral springs recorded detections of *E.coli* as described in Table 12. The water from each spring comes from a natural source and heavy rainfall may recharge the springs leading to cross contamination between shallow run off and mineral water as it moves to the surface through the shallow fractured rock. Parks Victoria took appropriate action following each detection, including installation of "Do Not Drink" signs and re-sampling. The springs were re-opened when *E. coli* levels returned to zero.

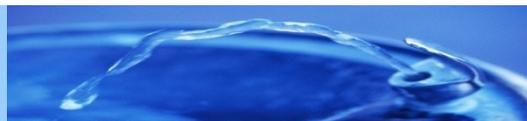
**Table 12: Summary of Section 22 incidents at Mineral Springs**

Water sampling locality	Incident	Date of incident
Mineral Spring – Lithia	<i>E. coli</i> recorded in water sample (1org/100mL)	16/8/12
Mineral Spring – Sailors Falls Pipe	<i>E. coli</i> recorded in water sample (1 org/100mL)	14/2/13
Mineral Spring –Sailors Falls Pipe	<i>E. coli</i> recorded in water sample (95 orgs/100mL)	27/2/13
Mineral Spring – Sailors Falls Pump	<i>E. coli</i> recorded in water sample (12orgs/100mL)	27/2/13
Mineral Spring – Tipperary	<i>E. coli</i> recorded in water sample (>200 orgs/100mL)	27/2/13
Mineral Spring – Lithia	<i>E. coli</i> recorded in water sample (200 orgs/100mL)	27/2/13
Mineral Spring – Henderson	<i>E. coli</i> recorded in water sample (19 orgs/100mL)	27/2/13
Mineral Spring – Deep Creek	<i>E. coli</i> recorded in water sample (11 orgs/100mL)	27/2/13
Mineral Spring – Sailors Falls Pump	<i>E. coli</i> recorded in water sample (6 orgs/100mL)	20/4/13
Mineral Spring – Sailors Falls Pipe	<i>E. coli</i> recorded in water sample (21 orgs/100mL)	20/4/13
Mineral Spring – Deep Creek	<i>E. coli</i> recorded in water sample (130 orgs/100mL)	20/4/13

### Other incidents

There were no other incidents in the 2012-13 reporting period.

## 5. Complaints



No complaints about water quality were received regarding any of the water sampling localities listed by Parks Victoria.

## 6. Audit Findings



An external audit of Parks Victoria’s Safe Drinking Water program was not required during the reporting period.

## 7. Undertakings under Section 30



No agreed undertakings with DH were required under section 30 for any of the five water sampling localities within the Parks Victoria estate.

## 8. Regulated Water



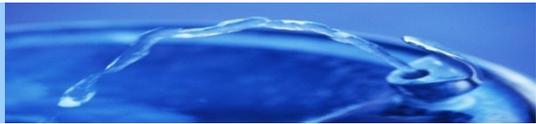
Section 6 of the SDWA allows the Minister for Health to declare water that is not intended for drinking, but which could be mistaken for drinking water, as regulated water. Parks Victoria's estate has several hundred water supplies that are not intended for drinking. Parks Victoria has decided that these supplies should remain accessible to park visitors. However, it is necessary that all are signed as "Not for Drinking" to ensure visitors cannot mistake the water at these sites for drinking water. Consequently, signs that feature the universal "Do Not Drink" symbol and text descriptive of the water source have been installed at all supplies. These signs describe the water supply as *untreated rainwater*, *untreated bore water*, *untreated creek water*, or *untreated water*. These descriptions are intended to assist visitors in selecting the most appropriate method of treatment should they choose to use the water.

At this stage, it has not been considered necessary by DH to declare the water supplied at these sites as regulated water as the signage should remove any confusion as to whether the water is intended for drinking.

Parks Victoria produces information sheets (Park Notes) to provide park users with information relevant to the visitor site or park they are visiting. As existing Park Notes are updated and reprinted, any wording or symbols that suggest drinking water is available at sites other than the gazetted drinking water sampling localities and those visitor sites with reticulated drinking water are being removed. This also applies to drinking water messaging that appears on the Parks Victoria website and other promotional publications.

In partnership with DH, a specific Park Note was issued to provide advice on the risks of untreated water. This Park Note advises on treatment methods and necessary precautions and is available on the websites of DH and Parks Victoria and from Parks Victoria's visitor centres.

## 9. Glossary of Terms



### **95% UCL**

The value that when calculated for a random data set equals or exceeds the true mean 95% of the time.

### **NTU**

Nephelometric turbidity units - a unit of measurement for turbidity.

### **Regulated water**

Water which is not intended for drinking, but which could reasonably be mistaken as being drinking water.

### **Risk Management Plan**

A document that contains a detailed description of the system of supply, identification and assessment of the risks to the quality of the water and the steps to be taken to manage those risks.

### **SDWA 2003**

*Safe Drinking Water Act 2003*

### **Section 30 undertaking**

The agreement between a water supplier and DH that details of how the water supplier, when in contravention of the SDWA or its associated regulations, will address the contravention and stop it from recurring.

### **Section 22 report**

The type of notification required by DH, as set out in section 22 of the SDWA, of a water supplier when drinking water supplied to the public may pose a risk to human health or cause widespread public complaint.

### **Zone**

A specific area in a national park or reserve defined by a primary purpose and value.

