Submission No 56

INQUIRY INTO PERFORMANCE OF THE NSW ENVIRONMENT PROTECTION AUTHORITY

Name: Dr Ian Wright

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Tuesday August 26 2014,

The Director,
General Purpose Standing Committee No. 5,
Parliament House
Macquarie St
Sydney NSW 2000

From: Dr Ian A. Wright,
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University of Western Sydney
(Personal submission)

Dear Sir,

'Upper House Inquiry on the performance of the NSW Environment Protection Authority'

My submission relates to the terms of reference Part 1 (a) The EPA's performance against Section 6 of the *Protection of the Environment Administration Act* (1991). In my opinion the Environment Protection Authority (EPA) fails to meet its central objectives (Section 6 *Protection of the Environment Administration Act*, 1991), particularly in regard to it's licensing of waste discharges to the environment.

I hold the EPA in very high regard, and in the management of pollution the EPA perform an essential community service that controls and limits the incidence and severity of pollution in NSW for humans and the natural environment. My concerns relate specifically to the licensing of waste discharges from scheduled sources (according to the *Protection of the Environment Operations Act* (POEO Act), particularly from coal mines. In relation to pollution licensing (Chapter 3 POEO Act) I regard the performance of the NSW EPA to be inadequate, and in particular, as I read the objectives of the EPA (Section 6 *Protection of the Environment Administration Act,* 1991) in my opinion the EPA does not meet these very clear and entirely appropriate objectives.

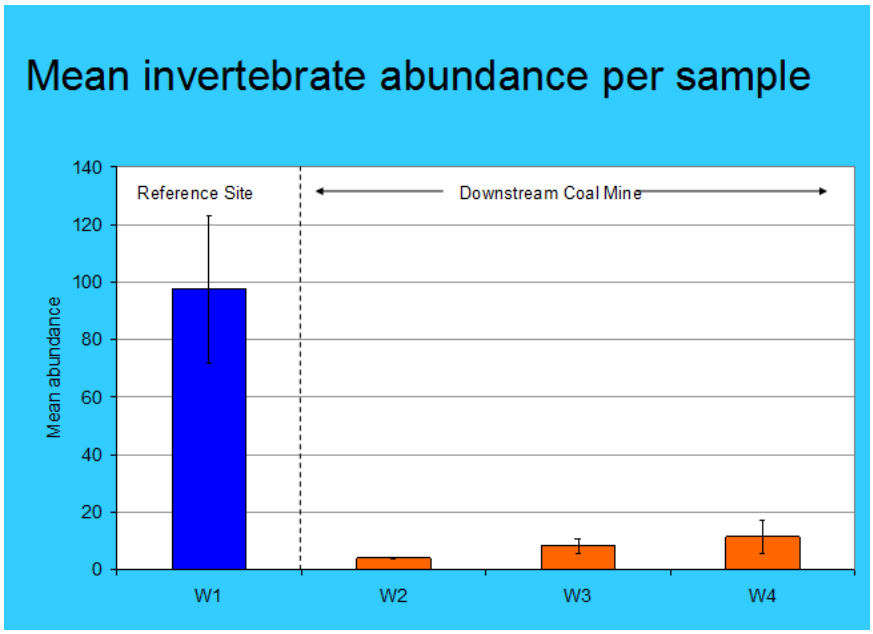
In relation to my concerns, I offer examples supported by my own (with colleagues) peer-reviewed published research, and a number of case studies, with a similar series of major deficiencies related to NSW EPA and water pollution licensing.

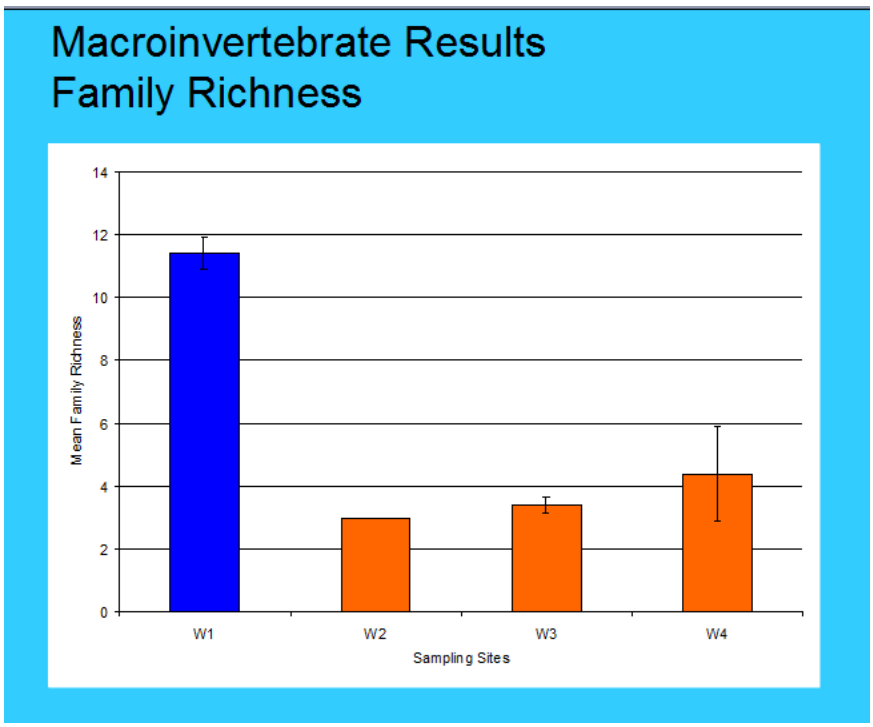
For example, a current case study is the 'Clarence Coal Mine' where its environmental performance is regulated by the NSW EPA through the 'Environment Protection License (EPL) Number 726'. I have

recently contributed to a paper published on the nature of water pollution resulting from this coal mine operation into the Wollangambe River (Belmer et al., 2014).

Our research has concluded that the coal mine waste discharge causes considerable pollution of the Wollangambe River. In summary this pollution involves:

1. A reduction in 'health' of the river ecosystem (reduced diversity and reduced abundance of aquatic invertebrates – see the two graphs below) for approximately 18 km below the coal mine waste discharge. The 'blue' bar is the background ecological condition above the mine and the orange bars are three sites 100m to 18 km below the mine.





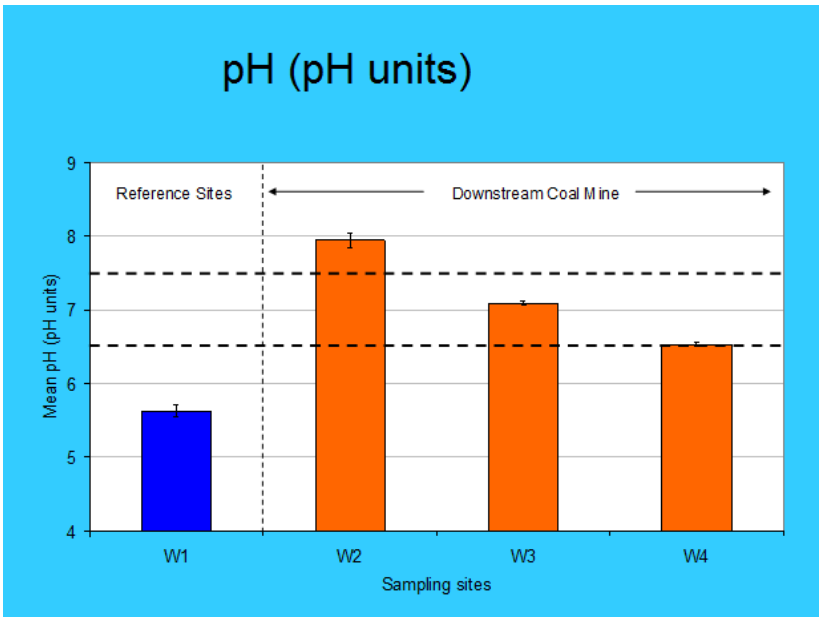
2. Decreased water quality below the coal mine waste discharge (increased pH; increased salinity; increased water temperature; increased nickel concentration and increased zinc concentration).

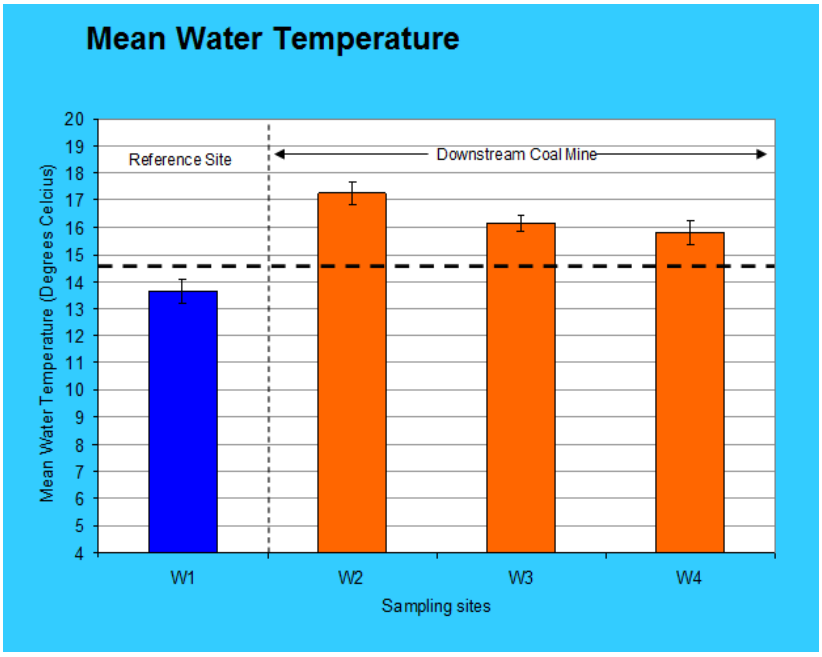
The dotted lines on the graphs below relate to ANZECC water quality guidelines for protection of aquatic ecosystems. Such degraded water quality is indicative of water pollution.

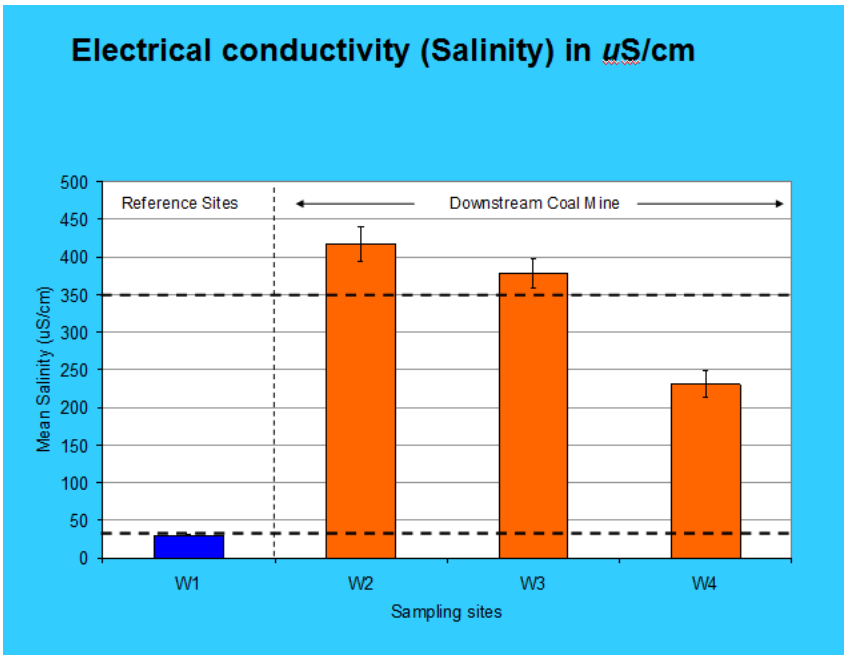
3. Together, these results indicate that the waste discharge from the Clarence Coal Mine is adversely affecting the aquatic ecosystems of the Wollangambe River (according to invertebrate results). In addition, the chemical results indicate that the coal mine is polluting the river water quality through increasing pH; increasing water temperature (thermal pollution); increasing salinity; and is also increasing the concentrations of metals nickel and zinc to levels likely to be toxic for aquatic ecosystems. Please note that I use the term 'pollution' as it is defined in the Protection of the Environment Operations Act (1997).

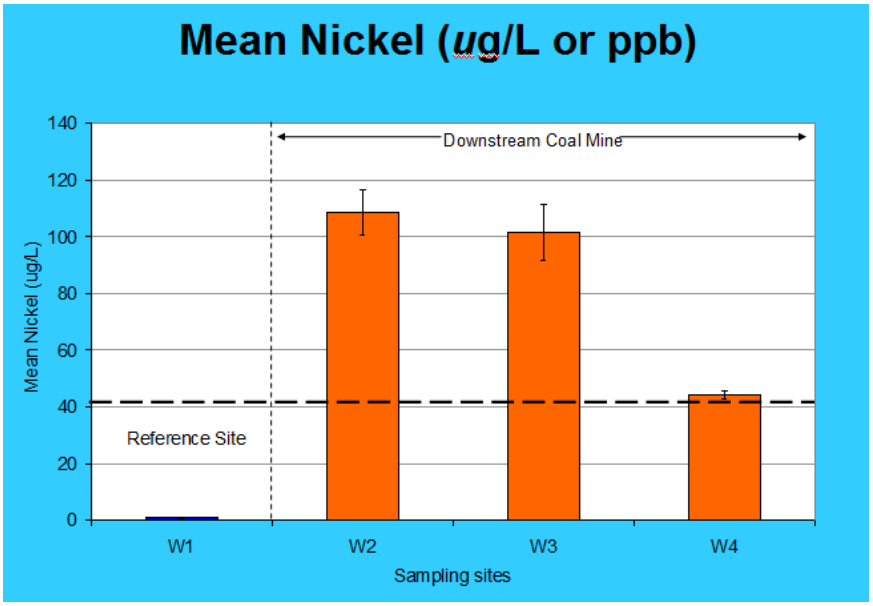
The EPL 726 is the principal environmental regulation 'tool' for the NSW EPA to influence and control water quality and healthy aquatic ecosystems in the Wollangambe River as the coal mine uses the Wollangambe River for disposal of its waste water. It is the clear duty of the NSW EPA (according to Section 6 of the *Protection of the Environment Administration Act* 1991) to '..protect, restore and enhance the quality of the environment in New South Wales,…'. The Wollangambe pollution is indicative that the EPA is failing this central objective.

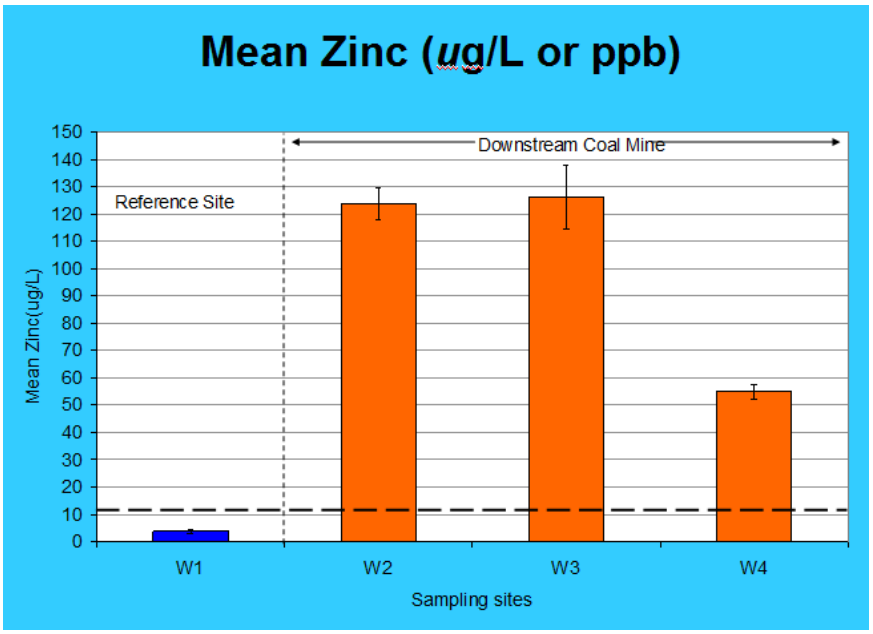
In particular, as the EPL 726 is the EPAs principal regulatory tool for controlling wastewater discharges from Clarence Coal Mine currently fails to include discharge conditions that protect water quality and ecosystems of the Wollangambe River. EPL 726 does not mention aquatic ecosystems at all. EPL 726 does not have any discharge conditions relating to salinity or nickel. EPL does permit the discharge of wastes of elevated pH. EPL actually permits the discharge of high levels of zinc (levels of up to 1500 micrograms per litre).




Mean Water Temperature
Reference Site
Downstream Coal Mine
Mean Water Temperature (Degrees Celcius)
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
W1
W2
W3
W4
Sampling sites


Electrical conductivity (Salinity) in uS/cm
Reference Sites
Downstream Coal Mine
Mean Salinity (uS/cm)
500
450
400
350
300
250
200
150
100
50
0
W1
W2
W3
W4
Sampling sites


Mean Nickel (ug/L or ppb)
Downstream Coal Mine
Mean Nickel (ug/L)
140
120
100
80
60
40
20
0
Reference Site
W1
W2
W3
W4
Sampling sites



The Wollangambe River flows mostly through the protected lands of the Blue Mountains and Wollemi National Park, and is also a declared Wild River and a declared Wilderness Area. It is also part of the Greater Blue Mountains World Heritage Area. It is highly valued for adventure tourism, and is one of the more scenic and highly visited natural rivers in NSW. Our research shows that the upper 30% of the river is highly polluted and the water pollution is directly related to the coal mine waste discharges. This is where the NSW EPA 'Environment Protection Licence # 726' offers so much potential environmental regulation and delivers so little.

EPL 726 fails to impose meaningful discharge limits for coal mine waste (which contribute the majority of the flow in the Wollangambe River in the upper 30% of the river). EPL 726 allows the coal mine to essentially release untreated waste water that has been contaminated by the coal mine operations. Of most concern is that the coal mine wastes have elevated concentrations of zinc and nickel, which are highly toxic to aquatic organisms (fish and aquatic invertebrates).

The fact that EPL 726 allows 1500 micrograms of zinc to be discharged, when the Australian and New Zealand Environment and Conservation Council ('ANZECC') water quality guidelines indicate that zinc may be ecologically hazardous at concentrations about 100 to 200 times lower.

Of equal concern is that the key pollutant 'Nickel' is not even specified in the EPL 726 discharge conditions.

There is a clause in each EPL that the NSW EPA administers which I find interesting and I encourage the EPA to use in this and other cases studies:

‘To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the tables/s’.

The Clarence Coal Mine is discharging unauthorised saline and nickel contaminated wastewater. It is polluting the river and it is damaging the river biology. This is unacceptable and the EPA should immediately issue a ‘Clean-Up’ notice (as per s.91 POEO Act) to the mine and produce an EPL that actually identifies all actual pollutants in the discharge, and also provides discharge limits that conform to know water guidelines (ANZECC) and actually protect the river ecosystem.

In my opinion the fact that EPL 726 offers so little protection for the Wollangambe River, and in reality allows the mine to releases untreated wastes, supports my earlier statement that the EPA fails to meet its central objectives (Section 6, *Protection of the Environment Administration Act*, 1991). The NSW EPA fails to protect the Wollangambe River from water pollution, despite having the legislative power to do so (under *Protection of the Environment Operation Act,* 1997).

The case study I provide here is not isolated. I have been involved in the study of many other waste discharges licenced by the NSW EPA and these include:

- The Canyon Coal Mine, a closed coal-mine that ceased mining in 1997 after approximately 60 years of mining. This mine discharged waste (and still discharges contaminated water today) and is an example that shows how long pollution from a mine may continue after commercial mining activities ceases. This mine currently pollutes the highly valued and environmentally sensitive Grose River, also within the Blue Mountains National Park and World Heritage Area.

- The Westcliff Coal Mine (an active mine that discharges to the Georges River). It now has an EPL that actually names the key waste pollutants and now provides some protection for the river and the river ecosystem. This required extensive media, an impending court case in the NSW Land and Environment Court and then the direct intervention of the former NSW Environment Minister in 2012.

- See article in Sydney Morning Herald 18 July 2012 by Ben Cubby (http://www.smh.com.au/environment/conservation/regulator-ignores-toxic-plume-polluting-river-for-a-decade-20120717-228jw.html) . A quote from this article:

  ‘The Environment Minister Robyn Parker gave the Environment Protection Authority a stinging rebuke when she heard about the pollution yesterday. “The EPA needs to lift their game “ Ms Parker said. “We’ve put them there. And given them increased powers, and

increased responsibilities, and I need to see some action from them". (Ben Cubby, Sydney Morning Herald, 18/7/12)

- The Wallerawang Coal-fired Power Station and the discharge to the Coxs River (Second biggest river inflow to Warragamba dam). This was subject to a court case (that settled out of court) with part of that settlement being the owner (Delta Electricity) admitting that they were polluting the river and also requesting the EPA to issue an EPL that actually reflected the pollution and would help reduce the pollution.

General concerns about the EPA and the licensing of waste water discharges

I have many concerns about the inadequate approach currently taken by the NSW EPA in relation to pollution licensing the disposal of wastes to waterways (i.e. termed 'Environment Protection Licences' or 'EPLs'). These concerns relate to the failure of the EPA to protect the environment from water pollution discharges that it licences:

1. It is not clear when I read an EPL (such as the case studies above) which exact environmental values the EPL is designed to protect. For example, will the EPL make the river safe to swim in, the water suitable to drink, the fish safe to eat or the ecosystem being protected? The EPL should very clearly explain the environmental outcomes that it seeks to protect.
2. The EPL's that relate to waste disposal to waterways should identify and offer meaningful discharge limits for all pollutants in the waste. For example, in the Clarence Coal Mine case study, the EPL should include discharge limits for salt (salinity), water temperature (thermal pollution), nickel and zinc. The discharge limits should relate to accepted industry water quality guidelines (ANZECC, 2000) and should in such a case study, protect a high conservation value river in a declared wilderness area, a declared wild river and a World Heritage area.
3. The EPA should explain the logic behind their discharge conditions in all EPLs. For example, why is a discharge limit for the metal zinc of 1500 ug/L considered to be appropriate for the Clarence Coal Mine and the Wollangambe River when ANZECC (2000) water quality ecosystem guidelines indicates that levels as low as 2.4 ug/L can be ecologically hazardous? Such important EPA decisions should be 'evidence-based'.
4. Some areas have many industries that discharge waste to a network of waterways, such as the Coxs River and the many coal mines in the Lithgow and Wallerawang area. How do EPL conditions consider the cumulative impact of multiple discharges? Remember that the Coxs River is very important for people of Lithgow, is a popular trout fishing stream and is also the second biggest river flowing into Sydney's water supply (Warragamba Dam). I recently made a personal submission to two development proposals to expand two coal mines in this area (Springvale and Angus Place Mines) where both mines currently are operating and hold EPLs that did not reflect contaminants in their waste discharges. In both cases the accompanying 'Environmental Impact

Assessment' information presented water quality data that indicated that both mines discharged waste contaminated by elevated salt and some metals. The Angus Place mine currently holds an Environment Protection Licence (EPL) 467 and the Springvale Colliery has an EPL 3607. The only pollutants that are permitted to be discharged from the Angus Place Colliery (according to EPL 467) are:

- Oil and Grease (10 milligrams per litre)
- pH (6.5-9 pH)
- Total Suspended Solids (30 milligrams per litre)

My research publications relevant to this submission

1. Belmer, N., Tippler, C., Davies, P.J., and Wright, I.A. (2014) Impact of a coal mine waste discharge on water quality and aquatic ecosystems in the Blue Mountains World Heritage Area, in Viets, G; Rutherfurd, I.D, and Hughes, R. (editors), Proceedings of the 7th Australian Stream Management Conference, Townsville, Queensland, Pages 385-391.
2. Wright, I.A. (2012) Coal mine 'dewatering' of saline wastewater into NSW streams and rivers: a growing headache for water pollution regulators. In Grove, J.R. and Rutherfurd, I.D (eds). Proceedings of the 6th Australian Stream Management Conference, Managing for Extremes, 6-8 February, 2012 Canberra, Australia, published by the River Basin Management Society p.p 206-213.
3. Graham, K., and Wright, I.A. (2012) The potential and reality of the Environment Protection Licensing system in NSW: the case of water pollution. Environmental Planning and Law Journal. 29: 359-372.
4. Wright, I.A., Wright S.A., Graham, K. and Burgin, S. (2011) Environmental protection and management: a water pollution case study within the Greater Blue Mountains World Heritage Area. Land Use Policy. 28(1) 353-360.
5. Wright, I.A. and Burgin, S. (2009) Effects of organic and heavy-metal pollution on chironomids within a pristine upland catchment. Hydrobiologia 635: 15-25.
6. Wright, I.A. and Burgin, S. (2009) Comparison of sewage and coal-mine wastes on stream macroinvertebrates within an otherwise clean upland catchment, south-eastern Australia. Water, Air and Soil Pollution. 204: 227-241.

Water Quality Guideline Reference

- ANZECC (2000) Australian and New Zealand guidelines for fresh and marine waters. National Water Quality Management Strategy Paper No. 4. Australian and New Zealand Environment and

Conservation Council. Agriculture and Resource Management Council of Australia and New Zealand, Canberra.