



23 . 10 . 2012

To: NSW Environment Protection Authority

From: Caroline Graham

Submission on variation of West Cliff Mine EPL 2504

Background information

This is a personal/individual submission, therefore to demonstrate some credentials and a little experience with this issue, I will give some details of my involvement with the Georges River problem, specifically on water quality. This will also serve to demonstrate growing public awareness and involvement along the way.

I am a founder of the Nepean Action Group (2004) and Rivers SOS (2005), and am currently a member of the committee of Rivers SOS.

I was secretary of the Nepean Action Group which, together with the Georges River Environmental Action Team, founded the Rivers SOS Alliance because of the shared experience of the mine damage to the Lower Cataract and Georges Rivers, stemming from the 1990s. Our aim has been to prevent this scale of destruction happening to other river systems around NSW.

I was concerned with the issue of mine impacts on the Georges River from 1998, when the first mine plans were being approved.

This is because I live on the nearby Lower Cataract River which is still polluted by mining, though mining ceased in 2000, and so a similar fate for the Georges River was another appalling development in my immediate area.

Families living along the Lower Cataract had successfully sued BHP Billiton in 1998 for the degradation of this river, but we were shocked to learn that in spite of their loss in the Mining Warden's Court, BHP Billiton was at the same time pursuing plans to mine underneath the Georges River behind Appin, where the same actionable scale of damage would be inevitable.

Approval was given, and since then there have been further approvals for expansions of longwall mining beside, although now not directly under, the river. In the process the water quality has been progressively degraded and we feel strongly that you must apply and implement a more adequate regime. BHP Billiton has always argued that it is adhering to your licence conditions. I believe some progress is being made on firming up conditions, and hope that our submissions to you will be taken into account.

In November 2005 Nepean Action Group members spoke at, and attended, meetings of Wollondilly Council to support their motion calling for a Commission of Inquiry into potential mine damage due to BHP B's mine plans for the Upper Cataract and the Georges Rivers. This Council has supported our campaigns since then.

I was also a member of BHP Billiton's Appin Area Working Group (community consultative committee) from 2004 – 2008, at which we were briefed regularly on West Cliff Colliery's operations. Community members of this group, including myself, unanimously signed a petition dated 30 January 2006 to the NSW Government, objecting to the ongoing damage and pollution of the Georges River with current plans for expansion, but to no avail.

I authored a 23- page submission on behalf of Rivers SOS (28 .1.2006) on this expansion plan beside the Georges River north of Appin (West Cliff Area 5, Longwalls 31 – 33). In this submission I included my photos of the pollution from previous pollution

and failed remediation attempts, at Marhnyes Hole behind Appin.



In this photo: Bruce Duck, retired West Cliff miner and Michelle Imrie, both community members of BHP B's Appin Area Community Working Group. Note the "pumpkin soup" effect from iron oxidation. Worse still is the unseen submerged rockfall which now prevents diving. BHP B had to employ a security guard here for six months to warn local kids not to break their necks.

I also authored a submission for the Nepean Action Group concerning this expansion (29.1.2006). These submissions were sent to the Director Environment, Department of Primary Industries – Minerals. We were calling for mining operations to be set back "to a safe distance" from the Georges River, and in fact from all rivers in NSW. Again to no avail.

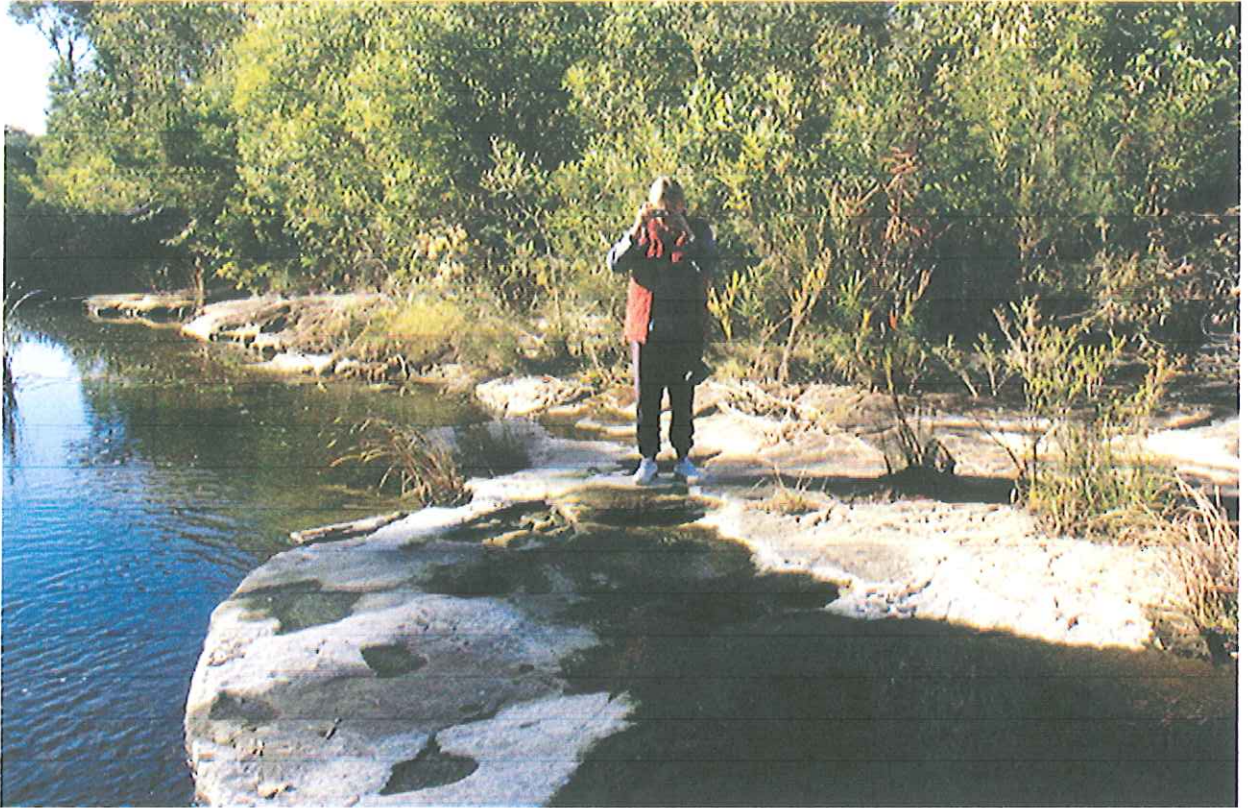
In September 2007 at Camden Civic Centre I presented the Rivers SOS submission to the Southern Coalfield Inquiry Panel of Experts – this drew attention, inter alia, to pollution from mining in the Georges River, and I also complained of bland reports and a misleading statement concerning the Georges river from BHP Billiton's consultants MSEC.

In June 2008 I photographed the state of the Georges River north of Appin, in the section opposite Inghams farm, in the company of Denis Wilson, from the Australian Water Campaigners group. We were investigating impacts on the river from the mining operations and found cracks, which were to be expected (see attached photo).



But we were also surprised to find extensive bleaching of the rocks at or below water level in this stretch, both beside the river and on rocks in the middle of the flow. This whiteness did not contain salt crystals but was ingrained in the rock. In this drought period the water levels had dropped, so exposing the whiteness (see photos attached).





This is still a mystery to us but surely such a drastic effect on rocks must also have an impact on aquatic ecosystems.

In July 2010 I had the pleasure of accompanying Dr Ian Wright and some of his students to the Georges River at Kings Falls, where he was commencing his tests on water quality, as you know. I attach a photo of this occasion, and would like to add that it gave me hope for a better future for our rivers to see how intensely interested all his students are, and in what high regard they hold him.

Warnings on Water quality Issues: What's not to Understand !

In researching the impacts of mining I found many expert warnings about contamination and depletion of river systems. These warnings – augmented by the direct evidence of our damaged rivers - have been studiously ignored by government agencies and by the mining companies.

Nevertheless they are a salutary reminder of the expert advice and calls for action that have been in the public sphere for decades, and so I note some of them here, as support for the recommendations and conclusion in this instance. I also include a few quotations from submissions mentioned above.

I hope that a quick browse through these adds weight to the call for better regulation. It is really high time that EPA, SCA and other agencies acted to protect river systems and water quality with more determination than in the past. The situation is worsening as more river systems are damaged and now also subject to CSG extraction – time for action.

So, here goes:-

The Healthy Rivers Commission's *Independent Inquiry into the Georges River-Botany Bay System* (September 2001) said: "Downstream of Appin, the Georges River flows through spectacular sandstone gorges that have environmental, tourism and Aboriginal heritage values, all of which may be threatened by future mining if adequate controls are not enforced ... longwall coal mining under streams in the upper Georges River catchment has caused cracking of riverbeds, loss of surface flow and **water quality decline.**"

Simon Williams, environmental scientist working in the area for DIPNR, wrote in his *Summary of Environmental Impacts of Longwall Mining on Aquatic Ecosystems in the Southern Coalfield* (July 2003) that potentially irreversible damage to aquatic ecosystems is due to a variety of substance impacts including "increased iron oxides, manganese, electrical conductivity, and lower dissolved oxygen."

The following year – in March 2004 – the Hawkesbury-Nepean River Management Forum published its lengthy report, *Water & Sydney's Future*, recommending that "all underground coal mining be required to eliminate existing impacts and to avoid future impacts upon the water supply systems, rivers, streams and wetlands ..."

The authors of *Meeting the Challenges – The Metropolitan Water Plan* (DIPNR, October 2004) also stated their concern about threats to the health of the "precious" rivers around Sydney.

A report for the Dept. of Planning, *Coal Mining Potential in the Upper Hunter Valley* (Dec. 2005) stated that rock fractures due to mining lead to "increased movement of saline groundwater into the alluvial aquifers and to streams ...**Such impacts can be avoided by adopting a policy to restrict where possible coal mine development ... The policy should include appropriate buffer zones between open cut or underground coal mines and streams or alluvial aquifers ...**"

The NSW Scientific Committee, in its *Final Determination* of July 2005, noted that floc formation by oxidising bacteria is accelerated due to mining impacts. These bacteria are able to grow in water lacking dissolved oxygen. Studies in the USA indicated that these effects may still be evident 12 years after mining. (A ferruginous spring at Pool 11 in the

Georges River erupted due to previous mining, adding water high in salts, iron and manganese).

The Nepean Action Group's submission (29.1.2006) to the Dept. of Primary Industries – Minerals, concerning BHP B's plans to extend three more longwalls to the north of the previous mines under the Georges River, quoted Dr Stephen Kunz, Senior Ecologist with US company Schmid & Co., who – having studied longwall mining for some years – summed up the consequences: the permanent drying up and pollution of springs and wells, the drying up of streams, aquifers that are disrupted by cracks and fissures, groundwater that is contaminated by methane or radon, and wetlands that are destroyed – and “as a result of more than 200 years of coal mining, some 3,200 miles of Pennsylvania streams currently are degraded by acid mine drainage.”

The Rivers SOS submission (28.1.2006) regarding BHP B's subsidence management plan for West Cliff Area 5, stated that “contamination of river water will occur with release of ecotoxic minerals through fractured Hawkesbury sandstone, adding to the pollution already occurring through pumping out of mine waste water and storm water into the river from both West Cliff and Appin Collieries ... satisfactory and permanent remediation is not available.”

The submission included a separate section on water pollution in which I noted that BHP B's SMP stated that “the water released from Brennans Creek Dam already exceeds the default national water quality guidelines ... for dissolved NI and Zn, and the extra NI and Zn contributed by the dissolution of marcasite during sub-bed diversion would only serve to increase these exceedances” if the mining went ahead.

It was also noted that groundwater flow into rivers increases after mining, due to the increase in horizontal permeability along the strata interface. Groundwater is saline, more acidic than river water, and contains less dissolved oxygen.

In 2006, when this was written, longwalls 5A1 – 5A4 had already damaged the river and its tributaries. This latest Subsidence Management Plan, regarding three more longwalls to the north, mentioned that seven major tributaries might be affected plus a further number of smaller creeks.

On 26.3.2008, Rivers SOS sent a further submission, written this time by Julie Sheppard, to the Director Environment, Dept. of Primary Industries concerning a further mine expansion beside the Georges River (longwalls 34 – 36) in which we complained about the ingress of contaminated groundwater and the methane eruptions from the cracks caused by the previous mining.

And now

The Orica disaster led to promising reforms in environmental law, including the establishment of the EPA in February as an “independent, accountable and modern regulator,” according to the EPA's web site.

I understand that the recent case in the Land and Environment Court concerning pollution of the Georges River, not yet resolved, has also brought the EPA's attention to this specific problem.

In terms of the vital issue of water quality and mining, there remains the obvious failure to ensure relevant pollutant levels in the EPLs. The EPLs should include limits, or even better though perhaps unattainable, total bans, on all environmentally hazardous pollutants in every discharge. All discharges should be monitored by truly independent scientists.

In a recent article in the journal *The Conversation* (26.9.2012) Dr Ian Wright stated that "in so many cases the EPLs for water pollution fail to specify limits for the most damaging chemicals in the waste discharge." I understand this to be the case with the discharges from Brennans Creek Dam into the Georges River. This sad state of affairs must be rectified.

You are able to do this in your response to BHP Billiton's current application. The company says that they have submitted this application "in accordance with the EPA's request." The appendix written by Ecoengineers, their consultants, adds that you asked them to "propose a set of quantified contaminant discharge limits." As examples of contaminants they mention salinity, ammonia and a "suite of metals associated with coal production."

In conclusion ...

I do not have the relevant qualifications to allow me to comment on specific limits on contaminants. BHP Billiton's application states that their "proposed additional pollutants and concentration limits have been determined using the National Water Quality Guidelines methodologies." This sounds fine but in order to promote an accountable and transparent procedure, you could ensure that independent scientists are employed to advise and to monitor all discharges.

It is not good enough to have outfits like Ecoengineers, employed by the company in a permanent capacity, carrying out monitoring and any other form of regulation. There is an obvious conflict of interest when consultants are rusted on and dependent on mining companies for steady employment as in this case.

Please follow the recommendations of Dr Wright in regulation of ecotoxic discharges.

I understand that Dr Ann Young has asked you to ban any discharges of this nature, and instead pump the contaminated water back into the mine. Please explore this constructive idea.

Another possibility is the establishment of a desalination plant at West Cliff. The desal plant at BHP's Appin West Colliery on the Nepean has been operating since 2007. This

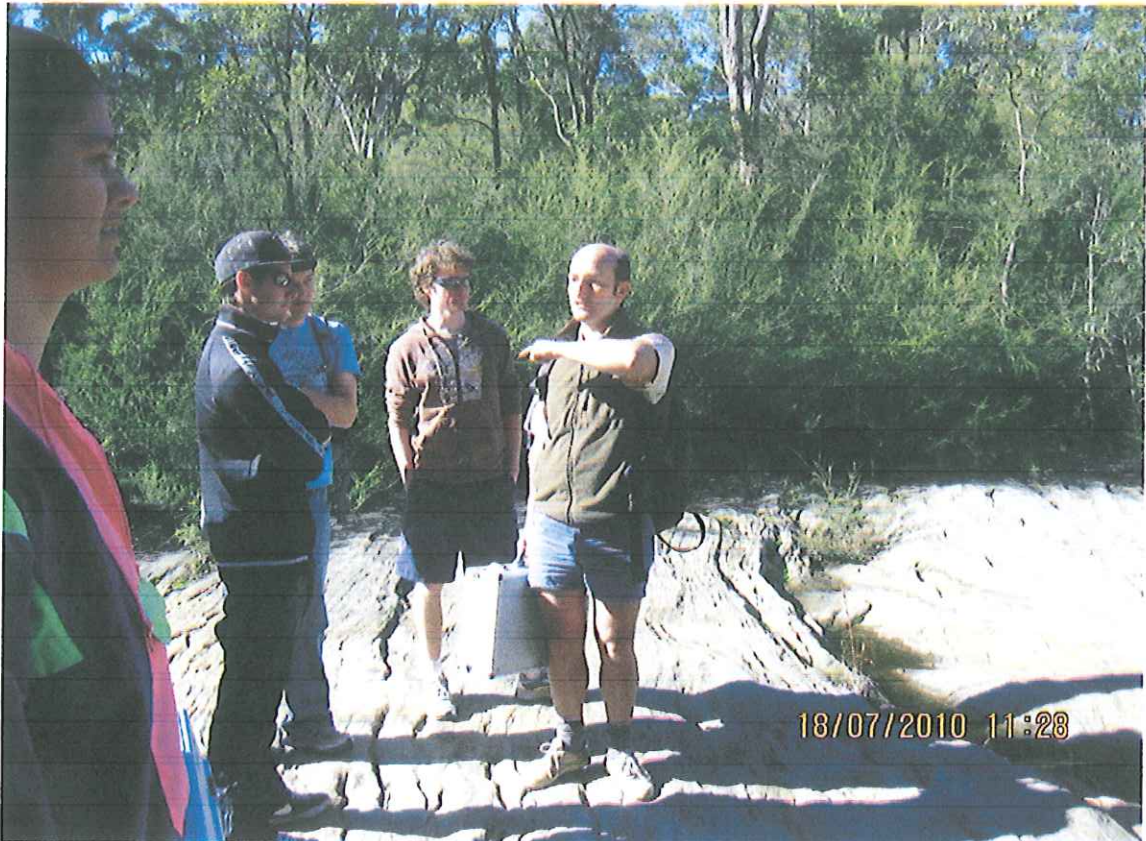
may have come about because the Nepean Action Group was tipped off by an anonymous caller, who advised us to access the extent of the salt load going into the Nepean and Bargo rivers through the Freedom of Information process. When we found that 2.8 tons of salt were being pumped into the Nepean, the local press publicised the issue and I believe that the desal plant was built at least in part because of this exposure.

While admittedly I do not know what you are able to do behind the scenes, in terms of influencing decision-making, I am only able to guess by looking at depressing outcomes. I therefore conclude that you do not exert sufficient pressure on politicians, otherwise outcomes would be more positive.

Please note that such pressure as does exist, in this case pressure for protection of our river systems, comes not from you, the SCA or other government agencies, or politicians. It has come from members of the public, groups like NAG, Rivers SOS, EDO and Macarthur Bushwalkers, and scientists with conscience (few and far between) who are campaigning for responsible legislation and implementation. This is not as it should be. Our society has entrusted you with specific responsibilities for the environment. I very much hope that recent reforms and new personnel will enable you to take a stronger stance and provide real protection for the Georges and other rivers in NSW.

In short, my recommendations are summarised as follows:

- 1) Establish an advisory committee of truly independent scientists including Dr Wright to advise on strict limits and monitoring of discharges. Informed community members could also sit on this committee.
- 2) Explore the possibility of a desalination plant at West Cliff, and/or also the possibility of pumping mine waste water back underground
- 3) Ask community groups and individuals to lobby government for more staff to allow EPA to carry out all its responsibilities adequately. In general co-ordinate more with interested groups and individuals, perhaps by way of meetings.
- 4) Do not allow BHP Billiton to fob off reforms in order to spin out time to the extent that West Cliff will close before new conditions are implemented. So act on independent advice as quickly as possible.
- 5) We have seen more than enough damage to rivers from mining throughout NSW and so have you, so I call on you to take the above actions with some urgency.



Dr Ian Wright with some of his students, testing water on the Georges River above BCD.