



THE COLONG FOUNDATION FOR WILDERNESS LTD.

Monday January 14th, 2019

Emeritus Professor Jim Galvin

Chair

Independent Expert Panel for Mining in the Catchment

catchment.panel@chiefscientist.nsw.gov.au

Dear Professor Galvin,

Further Submission - ToR1 submission regarding Metropolitan and Dendrobium Mines in the Metropolitan Special Area

It struck me over the weekend in regard to ToR1 that the NSW Government really needs recommendations regarding what is acceptable mining at Dendrobium and Metropolitan mines in the drinking water supply catchments, the Special Areas. There is really no point in reviewing anything without yardsticks to determine acceptability of mining.

Limits of Acceptable change

Does the current regulatory environment adequately protect ecological integrity, water quality and water flows in the Southern Coalfield region? How do *you* answer this troika of questions?

The limits of acceptable change must be defined. The Panel has to do it, as nobody else will, and certainly not the Independent Planning Panels that determine development consents.

A starting point for acceptability should be a review of development consents, noting that most consents have incorrectly have assumed the approved mining would not cause significant damage ecological integrity, water quality and water flows (the capacity of the catchment to collect, transmit and store water). Too often EIS reports painted a rosy picture of limited environmental impacts.

As the Panel would know, since the 1974 Renyolds Inquiry mining intensity has greatly increased, but due to some form of mental amnesia, mining stakeholders have assumed that environmental damages did not also significantly increase along with it. Of course damage increase did by a poorly defined two or three fold amount.

This amnesia has meant that there are poor records on the extent of mining damage. There is no consistent mapping of damage. So definition of acceptable change thresholds remains difficult. It is not

just modelling, monitoring or science which is lacking, but agreed objectives; the need to define catchment protection - the limits of acceptable change.

Unrestricted coal mining conducted at the time of Reynolds, on the evidence presented to that ancient inquiry, did not cause any substantial loss of water from the catchment. Today, unrestricted mining does cause a loss of water from the catchment.

What the limits of acceptable change should do?

These thresholds of acceptable change should limit variability in near-surface groundwater in upland swamps. Define acceptable changes to water quality in terms of the volume/concentration discharged of (an exfiltrate of) toxic groundwater to surface streams.

The expert Panel must define the limit of water loss to streams in terms of flows over rock bars and storage in stream pools. No loss of water to the catchment.

Limits of acceptable change must be defined by the Panel in common sense terms that stakeholders understand.

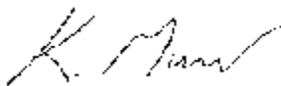
These benchmarks can be compared to existing coal mines operations and become rules that establish future appropriate mine plans. Otherwise without benchmark limits mining intensity continues unchallenged. Multi-seam mining proposals will continue to come forward and attempt to be passed off as acceptable.

The following table is my 2001 attempt to define what is acceptable mining. The Table suggests that the intensity of coal mining in the drinking water catchments must be significantly reduced and to give reasonable catchment protection.

Coal miners should be required to accept mining according to rules that set acceptable limits, rather than the current ad hoc approach where mining companies determine mining intensity by its EIS report. Setting new acceptable limits is how the EPA operates (although we know what happens to them!). The Colong Foundation submits the Panel should then set the limits of acceptable change for catchment protection, and then the mining companies would then have to devise a means of achieving these limits.

I hope these suggestions are of assistance. Not enough attention has been given to the mechanisms of mine regulation to achieve catchment protection.

Yours sincerely,



Keith Muir
Director
The Colong Foundation for Wilderness Ltd

Table: Mining Intensity (as determined against Reynolds Partial Extraction Criteria) and associated environmental effects

COLLIERY	AREA AFFECTED	DEPTH OF COVER (m)	PANEL WIDTH (m)	PANEL (W/D)/R_L*	PILLAR WIDTH (m)	PILLAR (W/D)/R_p#	DAMAGE
ELOUERA 1993 -	Wongawilli Creek	340	185	1.4	40	0.6	Creek bed cracked, creek dry, water polluted downstream.
APPIN 1998	Cataract Tunnel	460	206.2	1.3	32.8	0.3	Shear stress fractures and cracks in wall and roof.
APPIN 1999 –on	Cataract Tunnel	520	255.4	1.6	32.8	0.3	Greater shear stress fractures and cracks in wall and roof.
TOWER 1988 – 92	Cataract River	430	110	0.7	40	0.5	Claimed damage?
TOWER 1992 – 94	Cataract River	430	155	1.0	40	0.5	River bed cracked, river dry, water pollution downstream.
TOWER 1994 – 00	Cataract River	430	207	1.4	40	0.5	Greater river bed cracking, river dry, water pollution downstream.
WESTCLIFF	Georges River	400 - 500	250	1.4 to 1.6	35	0.25 to 0.4	River bed cracked, river dry, water pollution downstream.
BULLI 1980's	Cataract Reservoir	230	80	1.0	60	1.3	No damage.
BULLI 1990's	Cataract Reservoir	320	110	1.0	60	1.0	No damage.
DENDROBIUM AREA 1	Lake Cordeaux	145 - 310	183	1.7 to 3.7 +?	40	0.6 to 1.4	Soil slumps, rock toppling, cliff falls into stored waters. Creek damage. Rainforest lost.
DENDROBIUM AREA 2	Lake Cordeaux +	105 - 360	225	2.4 to 6.9	35	0.65 to 2	Soil slumps, rock toppling, cliff falls into stored waters. Creek damage. Rainforest lost.
DENDROBIUM AREA 3	Wongawilli Creek	300 - 400	305	2.1 to 2.9	35	0.3 to 0.6	Creek bed cracked, creek and upland swamps drained, water pollution downstream.

Explanatory notes: $(W/D)/RL^* = [(Longwall\ panel\ width / cover\ depth)/(0.35)]$

that is the ratio of panel width by cover depth, by the Reynolds panel guideline (panel width be no more than one third cover depth). The smaller the number, the less the damage and numbers equal to or smaller than one comply with Reynolds.

$(W/D)/Rp^\# = [(Coal\ pillar\ width / cover\ depth) / (0.2)]$

that is the ration of panel width by cover depth, by the Reynolds pillar guideline (pillar width should be no more than one fifth the cover depth). The larger the number, the less the damage and numbers equal or greater than one comply with Reynolds.

?+ = Further subsidence due to old workings.