

Major Infrastructure Assessments
Department of Planning
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Robertson Environment Protection Society
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Dear Mr Jeffries

Re: Upper Nepean (Kangaloon) Borefield (Application 06_0331)

Thank you for the opportunity to comment on this proposal.

Our society would also like to thank the Sydney Catchment Authority for their open and frank discussions as well as their presentations and thanks to the SCA and the NSW Government for the availability of reports.

The Robertson Environment Protection Society would like to stress some points.

Could you please read these points carefully as we consider them to be important.

point 1

Project Outcomes and Project Justification (pages 2 & 26 of the Environmental Assessment Summary) lists 9 reasons for this proposal.

These 9 points are listed below with comments.

a) "a new available water source during severe drought (readiness strategy)"

This is not a new available water resource. It is a new way to extract an existing water supply source. The SCA documentation and research shows that most of this aquifer water drains slowly and naturally to the Nepean Reservoir.

The Nepean River and other streams in the area are 'gaining streams' due to the base flows from the high groundwater level and this flow is especially important in times of no rainfall including times of severe drought.

b) "a new bulk water supply source, with similar capacity to existing storage dams (diversification)"

see point a); also the aquifer is intact (pre pumping) and is not subject to further evaporation or contamination.

c) "potential for staged development, depending on demand and hydrogeological factors (flexibility)"

A borefield development in this catchment area will not leave a long-term, natural and safe water supply feeding from the aquifer system to the reservoir and surrounding important ecosystems.

d) “strategic and progressive development of groundwater sources (expansion)”

This is not strategic development of groundwater sources. If the proposed borefield was situated below the catchment dams then this would have some strategic merit and may be a new available water source. The more ‘development’ of this groundwater area will lead to more interference, degradation and pollution of the catchment area including the degradation and potential pollution of an efficiently working aquifer system which now supports Sydney’s water supply and the associated catchment area.

e) “potential deferral of an increase in capacity of the desalination plant (lower cost option)”

One of the main reasons to investigate groundwater extraction was to put off building the desalination plant which is now being built. The desalination plant will feed water directly into water pipes in Sydney for Sydney’s consumption. It will also buy wind power energy to run it and will promote wind power as an alternative energy. The Commonwealth Government (Labor) also gave an election promise to augment (expand) the states desalination plants if they wanted to. The desalination plant also takes the pressure off the creeks and rivers and aquifers.

With regard to the borefield, this proposal uses ordinary mains power with new infrastructure to be installed. The extracted water must travel over 100 kilometres to Sydney via the Upper Canal to Prospect with losses from evaporation at the reservoirs and losses via the old open canal. The lower cost assumption needs to be properly determined with a cost/benefit analysis.

f) “increased supply security for the Illawarra (certainty)”

The Illawarra is most vulnerable here due to not being able to tap Warragamba Dam. The potential degradation of part of Illawarra’s catchment area and its associated aquifer system reduces supply security and certainty. If in severe drought and / or when overall dam storages drop to around 40% then large scale and continuous pumping of the aquifer is proposed for 2 to 3 years. Then the aquifer system needs about 5 years or more to recover.

At this stage a lot of water that would normally flow naturally to the reservoir from the aquifer will not, due to the lower water table. Some upstream natural flows will also be diverted (naturally) away from filling the reservoir to help fill the aquifer (‘losing stream’). A percentage of rainfall will also go to the aquifer and not directly to the reservoir.

So if the drought conditions continue after the 2 to 3 years there will be a lack of security and certainty for Illawarra’s water supply, being unable to pump over the next 5 to 7 years of recovery.

This is even more important when considering the weather variability with climate change. The best scenario is to retain the natural high water level of the aquifer for long term water supply security.

g) “improved information for catchment and water supply management (surface water / groundwater interaction, research benefits)”

There has been some worthwhile science undertaken as part of this project proposal, however there are still gaps and risks associated with those gaps in knowledge. This point only shows the lack of definitive knowledge that the SCA apparently has with this proposal.

h) “improved monitoring of the natural environment (groundwater, surface water and nearby ecosystems)”

The SCA appears to have drawn mainly from their research over the last few years, which still can be considered preliminary findings, and which reveals a lack of research in this area over the last 100 years or so. The flora and fauna surveys, carried out in Spring and Autumn have been very useful in highlighting the large number of endangered species and communities in this area. This is a rich ecological region and should be left undisturbed.

Monitoring of the natural environment is a good idea but some of the effects of sustained lowering of the water table may take many years to be visible and then it may be too late.

i) “minimal impact on the environment”

groundwater levels

The regional groundwater level here is generally 5 to 20 metres below the surface although, at a few sites, the regional water table is close to the surface (EA summary p15). Vegetation could depend on this groundwater with canopy trees being the most obvious example, especially in times of drought when pumping is proposed.

pollution

The water treatment facilities for iron removal are extensive, including aeration and sand filtration. Backwashing of the sand filter will be required every few days, and this back wash then needs treatment using aluminium sulphate to settle the solids. The use of this chemical adjacent to the Nepean River (previously a class ‘S’ specially protected waterway) is of concern.

The projected iron concentrations of 24,750 kg/month are substantial and could lead to operational problems with this proposal. The iron and associated sludge water (a percentage of the groundwater extracted) will have to be removed and dumped in an appropriate landfill site. It has the potential to pollute streams with associated bacteria forming oily-looking scums in slow flowing rivers and pools. This is a large amount of pollution and needs to be considered when evaluating this project. Other extracted minerals (e.g. manganese) and the exceedance of water quality parameters are also a concern.

The project does not appear to have a neutral or beneficial effect on the landscape. There are risks to the catchment area from all aspects of this proposal. The project outcomes and justification do not appear to be correct and are based on assumptions.

This is short term expediency for long term cost and adversely affects this unique environment and Sydney and Illawarra’s water supply.

Infrastructure is also a concern and should not be considered.

point 2

A recent study has brought into question previous ideas about this proposal. A pumping trial at Butlers Swamp went for almost 4 months and was then stopped due to a significant rainfall event resulting in the Nepean Reservoir overflowing.

This new report (PB 2008) investigated water quality and recharge. By comparing groundwater ages before and after pumping it found that the contribution of new recharge water (e.g. rainfall) was minor and that the water level recovery was primarily due to the inflow of water from aquifer zones unaffected by pumping into the zones affected by pumping.

This is of great concern as we have been told by the SCA that recharge comes from direct rainfall on the sandstone area. It shows that the area of effect is greater than the anticipated drawdown area and that rainfall may have a minor influence with aquifer recovery. It also questions the validity of earlier assumptions which led to this proposal being considered in the first place.

REPS believes this catchment area is far better left alone and opposes this proposal on all grounds, including environmental, economic, social and water supply grounds.

The aquifer is already supporting Sydney and Illawarra's water supply and is best left in its natural state for this purpose.

Leon Hall (signed)

President

Robertson Environment Protection Society

Parsons Brinckerhoff (2008) Water Quality Monitoring During Pumping Trial Upper Nepean Trial Borefield - Final Report February, 2008 Sydney Catchment Authority.