

Submission to the Environment Protection Authority on the Verde Terra Pty Ltd application to have EPL 11395 varied.

Please note - if you would like your name and contact details to be kept confidential, the EPA will remove them before providing your submission to Verde Terra Pty Ltd and the Land and Environment Court. Please tick the circle below this box.

- I would like my personal details to be kept confidential and not disclosed to Verde Terra Pty Ltd.

I am a resident of the Central Coast and potentially affected by this landfill. Y N

I strongly **oppose** the reissuing of EPL 11395 to Verde Terra Pty Ltd because I believe that Verde Terra must be required to submit a new DA and Environmental Assessment, not only for assessment by Central Coast Council, but also to be subject to public exhibition and comment.

I am also concerned about the following reasons in ticked boxes:

- The purity of the water supply for the Central Coast is at risk from run-off and seepage of leachate into the creek system supplying Mardi and Mangrove dams.
- The NSW Environment Protection Authority (EPA) and Central Coast Council, both regulatory authorities, are united in opposing the renewal of the licence, for the stated reason of environmental safety.
- EPA Guidelines for Solid Waste Landfills would today prohibit the siting of this landfill at the head of a water catchment.
- For over a decade, the Community is on record as frequently opposing the ^{and upset by the size of} size, nature and operation of the landfill.
- Stormwater and leachate management at the landfill has been, ^{very} and still is poorly managed, with potential for contamination of ground and surface water, and potable water off-site.
- The landfill presently holds 800,000 tonnes of waste, 10x that permitted by the 1998 development consent (DC). Without considering the DC or environmental safety, in 2014 the Land and Environment Court (LEC) approved a further 1.3 million tonnes of waste to be imported into four new cells (W, X, Y and Z) in Area B. Central Coast Council requires a new Environmental Impact Statement and Development Application for this major change. Verde Terra Pty Ltd has not submitted either.

"A"

- The present waste mound is over 85% unlined, allowing toxic leachate to enter the underlying Zone 4 Kulnura Mangrove Mountain aquifer and ground water.

- The EPA has not transferred important pollution control guidelines from its 'EPA Guidelines for Solid Waste Management' to this landfill's licence, ^{THE TESTING BY OTHERS IS FALSE & MISLEADING - SEE EXTRA NOTES.} creating a loophole for the Operator to pollute without penalty.

- The current three stormwater ponds and leachate holding pond have been operating in an unlicensed area for 10 years, outside EPA's jurisdiction, emphasising ^{slack} management of the site by all parties.
BAD

"B"

- Increase in truck traffic carrying waste in a rural community to an average of 55 truck movements/day over a 10 year period.

- SEE EXTRA NOTES

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- ✓ A 6-7 million litre odoriferous leachate holding pond is planned for siting on the golf course near a gully leading to Stringybark Creek. It has the potential to contaminate both golf course and creek and drive away golfers.
- ✓ Dust, noise and smell will affect neighbouring Central Mangrove School, adjoining private properties and the Mangrove Mountain Memorial Club with its restaurant.
- ✓ Current EPA water testing is inadequate for detection of pollution of ground and surface water by the landfill, assurances of safety in a 2017 EPA Media Release notwithstanding.
NOT SIMPLY INADEQUATE - BUT FALSE !!
- ✓ EPA oversight of the landfill has drawn extensive criticism for several years from the local Mountain Districts Community and from a broad base of Central Coast residents.
- ✓ The Community is in favour of a golf course, but it was purchased by the landfill owner in 2014 and is no longer owned by the Community, so its future is in doubt.
(IT SHOULD BE RETURNED TO COMMUNITY OWNERSHIP)
- ✓ The aquifer has been breached at the base of Cell W, without a licence to take water. This will also interfere with lining and longevity of this Cell.
- ✓ The Community and regulatory bodies such as the EPA and Central Coast Council have minimal or limited oversight of Verde Terra Pty Ltd's activities on the landfill. The granting of a licence renewal will quite literally be a licence to pollute.
- ✓ An independent consultant appointed by the EPA with input from Mountain Districts Association, Alan Dyer, produced a report entitled 'Technical, Environmental and Operational Review of Mangrove Mountain Landfill' in May 2017, with 61 suggestions for improvement. This report has been omitted by Verde Terra Pty Ltd in its supporting documents.
- ✓ Sub-surface methane gas levels between 2012 and 2016 have been as high as 896,000 ppm, far higher than the 500 ppm permitted, with no acknowledgement or warning by the EPA or Verde Terra Pty Ltd. These levels indicate that putrescible waste has been landfilled, which is not permitted.

Email your Submission to: MML Submissions@epa.nsw.gov.au, or
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Additional Comments (you may attach an additional page if required)

SEE EXTRA PAGES
Wesley Shirley
10/12/2018

ADDITIONAL INFORMATION ON OBJECTION TO MANGROVE MOUNTAIN LANDFILL LICENCE RENEWAL : ANDREW SHIRLEY

As a resident of the Kulnura area for over 20 years, and an experienced civil & geotechnical engineer with over 50 years experience, I believe that I am professionally qualified to comment on the proposed license renewal for the Mangrove Mountain Landfill [MML].

By reference to the annotations on the attached 'pro-forma' objection sheet, I make the following observations:

ITEM A

I have had the opportunity to review the groundwater and permeability testing conducted by Consulting Earth Scientists [CES] in November 2014. It is my professional opinion that:

- not only is CES testing inappropriate for assessing the hydraulic conductivity of the bedrock, but also;
- quite misleading.

Note: CES is not a firm of independent consulting engineers with extensive experience in civil and geotechnical engineering; rather it is a firm owned and managed by an engineering geologist, with minimal engineering qualifications.

The CES report is **misleading** because persons who do have a significant knowledge, and an understanding of the way in which the permeability testing is undertaken [i.e are not experienced geotechnical engineers], could be persuaded that the Hawkesbury Sandstone bedrock is in effect 'vertically impermeable'. **This is however untrue.**

In fact, the Hawkesbury Sandstone is a vertically pervious rock, in which seepage and groundwater slowly trickles down the various joints and fractures within the bedrock, with the rate of vertical flow being dependent on the extent of jointing and fracturing in a particular area.

Further, and because the age of the groundwater / lower aquifer in the Mangrove Mountain area is considerable [more than 4000 years BP], with the upper groundwater aquifer having a more rapid response to rainfall [typically 6 to 12 months], any pollutants emanating from the landfill will enter the groundwater system over time, thus causing significant harm to the residents of the Mangrove Mountain area.

It is thus my professional opinion that should the license be renewed, then over the next several decades it is **Almost Certain** that the groundwater in the area will become polluted with toxins, and thus destroy the largely agricultural community of the Mangrove Mountain area. The destruction of this agricultural community could also have very serious impacts on the food security issue for the people of Sydney.

In addition, and because the various springs / seepage from the bedrock strata in the mountain district area feed into the creeks and streams feeding the water supply system of the Central Coast area [and the Mardi Dam in particular], any toxins in the groundwater from the Mangrove Mountain landfill will ultimately flow into the Central Coast water supply thus potentially harming hundreds of thousands of people.

ITEM B

I presently travel to Sydney via George Downes Drive, Peats Ridge Road and the M1 to Sydney at least three times a week, and sometimes more. Over the years I have had the opportunity to observe the various truck movements, and the associated damage that has been occurring to the roadway as a result of the truck movements.

In particular:

1. Since the acceleration of construction on the northern side of Sydney [and the North Connex in particular], the rate of damage to the road pavement has considerably increased.
2. I have observed the road reconstruction works on these roads over the years, with several areas needing to be reconstructed several times.



ADDITIONAL INFORMATION ON OBJECTION TO MANGROVE MOUNTAIN LANDFILL LICENCE RENEWAL : ANDREW SHIRLEY

3. There are parts of these roads where increased truck traffic will almost certainly lead to further accidents.
4. Whilst it is currently suggested that there will be an average of 55 truck movements a day over a ten-year period, I consider it more likely than not that on a particular weekday / early morning there will be many truck movements with consequent issues for other traffic.
Note: The current shift change arrangements at the Kulnura & Peats Ridge quarries also regularly cause more than 30 trucks in a row to be going down these roads at any one time.
5. The dust, noise and traffic issues will severely affect the Peats Ridge local shopping centre, as well as the nearby Central Mangrove & Peats Ridge schools.

In view of the foregoing, is my professional opinion that the truck movements resulting from the creation of this landfill site will result in both:

- traffic issues, and;
- greatly increased costs of road maintenance.

Thus, as the Central Coast Council will naturally bear the majority of this cost, then inevitably the consequence of these additional truck traffic movements will be increased council rates.

ITEM C

The creation of a leachate holding pond is in effect the construction of an earth dam near the top of the hill, with the slopes below the earth dam being relatively steep, and sloping towards the streams and creeks that lead to the Central Coast water supply system.

In this regard, I note that as a civil & geotechnical engineer I have acquired much experience in the design, construction and investigation of the failure of earth dams and leachate holding ponds & tailings dams. I have also investigated a number of earth dam failures over the past several decades, some of which were on mine sites. One of these failures involved a lined leachate pond which then seriously contaminated, and removed from agricultural use, several hundred thousand hectares of land.

Whilst I have not had the opportunity to review the detailed engineering plans of the proposed construction, I note the following:

1. Whilst carefully engineered & constructed earth dams for water supply purposes have a generally low risk of failure [annual probability <0.1%], mine site dams, tailings dams, storage ponds & farm dams have a much higher risk of failure.
2. My experience with mine site dams, tailings dams, storage ponds & farm dams indicates that partial failure of the dam as a result of slope instability issues, internal seepage, etc., is a reasonably regular occurrence, with the annual probability of failure being potentially 5% to 10% [i.e. over a decade or two, such a smaller dam can fail].
3. One of the common reasons for the failure of these types of dams is seepage under / through the dam as a consequence of poor construction, and / or the use of soil materials similar to those existent at the MML site [viz: sandy / silty materials]. Seepage at the earth fill / bedrock interface, or through the rock joints, is also a major cause of some failures.
4. The information I have seen to date gives me no confidence that the persons designing / constructing the landfill will be more successful in their task than the average mining company. It is also my opinion that CES are not suitably qualified to prepare the engineering designs / plans for such construction.
5. Should a slope stability failure occur in any part of the holding pond, then the potential for the leachate to rapidly flow into the Central Coast Council water supply system is very large.

In short therefore, it is my opinion that there is **considerable risk** associated with permitting a leachate holding pond at the Mangrove Mountain landfill site, with a potential breach of the holding pond wall having severe, perhaps catastrophic, results on the Central Coast area.

