

Our Reference: 12211#83

Ms J Evans
Director Resource Assessments
Department of Planning and Environment
[c/o Major Projects portal](#)

26th April 2022

Dear Ms Evans

Application to amend Tahmoor South Determination

Thank you for the opportunity to provide comment on the correspondence from SIMEC Mining dated 9 March 2022 in regard to the Tahmoor South Determination (SSD 8445). It is understood that SIMEC are seeking approval to amend Condition B30 within this Determination to *'Prior to the 31st December 2023, the Applicant must commission the Water Treatment Plant required under Special Condition E1.1 of EPL 1389'*. The original condition instead stated that the Water Treatment Plant is to be commissioned by 31st December 2021.

Council's submission on the Environmental Impact Assessment for the Tahmoor South Application (February 2021) contained a Peer Review by Dr Ian Wright from the University of Western Sydney (UWS). An extract of this Peer Review providing comments specifically in relation to discharges from the Tahmoor Colliery site is attached for consideration by the Department of Planning and Environment (DPE) as part of its assessment SIMEC's request for a variation to condition B30.

The following provides an overview of the issues raised in Council's previous submission as well as subsequent activities of Council of relevance to issues raised in the SIMEC correspondence:

- The issues experienced by SIMEC with its former Water Treatment Plant is recognised and the intention to install a new Plant at the site has been welcomed.
- Discharges from the colliery are upstream from Mermaid's Pools on the Bargo River that is a popular recreation destination, particularly during the warmer months.
- Bargo River and adjoining bushland has high natural, cultural and aesthetic value and is viewed as an important asset by both Council and the local community.
- Council in response to community representation has requested SIMEC seek the inclusion of condition(s) in the Environment Protection Authority (EPA) Licence to monitor the suitability of Mermaids Pool for swimming based on the Recreational Water Quality Component of the Australian and New Zealand Environment and Conservation Council (ANZECC) Guidelines.
- Council's correspondence to DPE on provided draft conditions requested the performance indicator measure be amended to state any impacts associated with the Project Application on waterways must comply with site specific local water quality objectives in accordance with the Standard Secretary's Environmental Assessment Requirements within the DPE'S Risk Based Framework.

There are concerns over the adequacy of the interim licence conditions in protecting downstream waterways (including Mermaids) following the commencement of second workings without the commissioning of the Water Treatment Plant based on the above overview as well as the peer review by Dr Wright. The sought modification by SIMEC is

also viewed as having inconsistencies with Finding 118 in the Statement of Reasons Report produced by the IPC which states:

“The Commission agrees with the Department’s position that water quality impacts associated with the discharge point into Tea Tree Hollow are adequately addressed by imposition of the Department’s recommended condition B29 requiring commissioning of the Water Treatment Plant prior to the commencement of second workings”.

An attempt to obtain the viewpoint of the EPA in relation to this matter during the preparation of this correspondence was unsuccessful. The IPC Report is however noted to reference an EPA correspondence dated 20 December 2020 sent to the applicant that in part recommends that a condition be included in the licence requiring commissioning of the water treatment plant prior to the commencement of second workings.

The conclusion of the SIMEC correspondence that *“this modification is considered to cause minimal environmental impact, as the licenced discharge will continue to meet interim Licence conditions until the commissioning of the Main Plant by the 31st of December 2023”* is consequently not necessarily agreed with based on the above concerns. **The preferred position expressed by this correspondence is therefore that the current condition in the Determination requiring the commissioning of the water treatment plant prior to the commencement of second workings be maintained.** This is requested to be viewed as a technical officer position that is however consistent with the previous expressed position of Council which is supportive of the economic benefits of Tahmoor South but has residual concerns over potential impacts to water sources.

The provision of approval to the Modification request from a regulatory perspective is recognised as being a matter for the EPA. The experienced delays in the construction of the water treatment plant expressed in the SIMEC correspondence as a consequence of the COVID-19 pandemic is also recognised. However, the DPE is requested to engage in further discussions with the EPA that also preferably involves the Environment and Heritage Division of DPE, Wollondilly Shire Council and Dr Ian Wright from UWS. The considered purpose of such discussions would be to identify initial temporary arrangements that would satisfy concerns of each of these stakeholders whilst enabling scheduled mining operations to commence in recognition that Determination for the Tahmoor South Project has been issued.

Please contact me on (02) 4677 9610 or via e-mail Bianca.Klein@wollondilly.nsw.gov.au for any enquiries regarding this correspondence.

Yours faithfully



Bianca Klein
Environmental Services Team Leader

Attachment 1 – Extract of Dr Ian Wright’s peer review that accompanied Council’s submission on the EIS for the Tahmoor South Project

1. Failure of the EIS to provide detailed information on Tahmoor Colliery mine wastes

The EIS does not fully describe the chemical contaminants in the Tahmoor Colliery treated mine waste that is currently released into Tea Tree Creek which flows for a short distance before flowing into the Bargo River. The Surface Water chapter of the EIS presents a summary of water quality information that was collected from Tea Tree Hollow (see Table 28). It is based on samples collected many years ago (2012-2015) downstream of the mine discharge. No detailed information is provided in the EIS on recent water quality conditions in tea Tree Hollow (ie 2016, 2017 or 2018) or is provided on predicted future mine waste water quality.

In addition, it is not possible to interpret the extent to which the mine’s wastewater is responsible for degraded water quality in Tea Tree Creek and Bargo River. I understand that the majority of the flow in Tea Tree Hollow is due to the Tahmoor Colliery waste discharge. But I cannot find information in the EIS that explains exactly what proportion of the flow is due to the mine’s discharge. This is puzzling as the mines EPA licence (Environment Protection Licence (EPL) 1389) requires the collection of daily discharge volumes from the mine.

I consider the dated and incomplete information on the water quality of Tahmoor Colliery’s waste water discharge to Tea Tree Hollow and Bargo River to be a major flaw in the EIS. It is also possibly misleading as the EIS should have presented water quality data for the mine’s licenced discharge point into Tea Tree Creek that is routinely collected and reported in accordance with the EPA’s licence EPL 1389. This includes monthly results for (1) nickel; (2) oil & grease; (3) chemical oxygen demand, (4) total suspended solids in the mine waste discharge. These four pollutants are not mentioned in the EIS and this diminishes the ability to provide a detailed overview of the pollutants in the colliery wastewater.

The lack of information in the EIS on the discharge of the pollutant nickel is particularly important and the significance of this is explained further in the next section.

2. Nickel contamination in Tahmoor mine wastes

The EIS ignores nickel pollution of Tea Tree Hollow and Bargo River due to the Tahmoor Colliery waste discharge. The failure to report any results for nickel in Tahmoor Colliery waste water, and in Tea Tree Hollow and the Bargo River in this EIS is a very serious issue. It could also be a misleading omission. This is an important aquatic toxicant that is regularly detected in the Tahmoor Colliery waste discharges, and in downstream waterways at environmentally hazardous concentrations (Wright et al. 2015).

Nickel data in the Tahmoor Colliery wastewater is reported on the Tahmoor Colliery website. This is based on data that is collected and reported monthly, as part of the mine’s EPA licence. The data is made available on the Tahmoor Colliery website (<http://www.simec.com/mining/tahmoor-coking-coal-operations/publications/epl1389-monitoring-reports/>)

Recently this data reveals that nickel in the Tahmoor mine waste discharge was at concentrations in the last six months ranging from 43 µg/l (December 2018) to 82 µg/l (September 2018).

A published peer-reviewed study (Wright et al. 2015) of Bargo River (conducted 2013-2014) reported that nickel concentrations in the river increased by more than 20 times, from a mean of 1.65 µg/l (upstream of Tea Tree Creek) to 35.6 82 µg/l (2.8 km downstream of Tea Tree Creek). Consistently elevated nickel concentrations have been reported in accordance with the EPA licence (EPL 1389) provide confirmation that the Tahmoor Colliery wastes are a point source of the nickel contamination in the Bargo River.

Tahmoor Colliery is aware that ecologically elevated levels of nickel in the mine’s wastewater is a major issue, and the EPA notices to the mine state this very clearly. Nickel is regarded by the EPA as one of the three key pollutants (along with arsenic and zinc) that

the mine's new wastewater treatment facility is required to treat to a much lower concentration (target 11 µS/cm).

For example, the EPA issued a notice to Tahmoor Colliery on 13 August 2018 requiring the effectiveness of the mine's treatment plant to be improved. Part of that notice stated:

'The licensee must submit a report confirming the re-commissioning of the water treatment plant by the due date. The report must contain a summary of water quality achieved by the treatment plant and demonstrate that ANZECC 2000 trigger values for arsenic, nickel and zinc are being achieved in the Bargo River as specified in Stage 1. Due Date: 30 November 2018'

Tahmoor Colliery have failed to satisfy this level of treatment (nickel 11 µg/l), as required by the mine's EPA licence (EPL 1389; PRP 22 Stage 2). The most recent nickel concentration in Tahmoor waste (collected in January 2019 and reported February 2019) was 51 µg/l, more than four times higher than the concentration required by the EPA. This is also more than four times higher than the ANZECC (2000) guideline for ecosystem protection.

The EIS frequently mentions that the upgraded Tahmoor Colliery waste treatment plant will reduce water pollution from the discharge of mine waste water in future discharges. For example, one of the concluding comments from the Aquatic Ecology chapter stated:

'The implementation of a heavy metal treatment plant is likely to reduce heavy metal from mine water discharge and reduce barium precipitation'...

The failure to achieve this target (11 µg/l) for nickel after the EPA deadline of 30 November 2018 erodes the credibility of Tahmoor Colliery to achieve the predicted wastewater treatment performance. The EIS claims that the Tahmoor Colliery Waste Water treatment plant will achieve very low concentrations of nickel. This claim is in doubt given the inability to achieve this performance, as required by the EPA.

3. Salinity contamination in Bargo River from Tahmoor mine wastes

The Tahmoor Colliery currently causes substantial salinity contamination of the Bargo River. The existing salinity impact due to saline colliery wastes is downplayed in the EIS documents. The EIS document indicates that the future colliery development will have similar salinity to the current mine discharge. This indicates that the extended mine operation could cause a larger salinity impact given the larger flows of waste water that are likely to be generated.

The most detailed source of information on the impact of saline Tahmoor Colliery waste discharges is provided in Table 28 'Water Quality Summary for Tea Tree Hollow'. Tea Tree Hollow is the small waterway that receives the Tahmoor Colliery waste, and it is unclear how much of the flow in this creek is due to the mine discharge. This lack of this information deprives the ability to interpret the exact extent to which the mine's wastewater is responsible for the elevated salinity in Tea Tree Hollow and Bargo River.

Water quality data, including salinity, is available as the mine's EPA licence requires monthly reporting of EC in the mine waste discharge. Tahmoor Colliery possess and reports this data which is updated monthly. It should have been presented in the EIS, over many years, to allow a precise description of the impact of salinity from the current operational discharge of mine wastes to receiving water ways.

The salinity guideline used in the EIS is provided in Table 18. Salinity is presented as 'electrical conductivity' with the EC figure of 350 uS/cm, based on ANZECC (2000) guidelines for south eastern Australian upland streams. Yet although the guideline is provided in Table 18, it is never used in any of the following sections of the EIS. The mine releases a highly saline effluent into Tea Tree Hollow. This is clearly apparent from data reported in accordance with the EPA licence. The failure to present detailed data on the salinity of mine wastewater discharged in this EIS is a serious omission. It also diminishes

the ability to predict the water salinity impact of the future mine operation (ie waste discharge to Tea Tree Hollow).

Salinity in Tea Tree Hollow (according to table 28) had a median salinity of 1875 uS/cm, yet this is not shaded as being in exceedance of the water quality guideline (350 uS/cm). This is inconsistent with the comparison of other water quality results with ANZECC (2000) guidelines.

The Tahmoor Colliery wastes cause an increase in the salinity of Bargo River from a median of 187 uS/cm upstream (Table 21) to a median of 867 uS/cm downstream (Table 22). This is indicative of a very large salinity plume caused by the mine in Bargo River, which is likely to extend downstream for many km. It is also well above the ANZECC (2000) guideline of 350 uS/cm.

The EIS fails to fully describe the contribution that the mine wastewater makes to salinity pollution of the Bargo River. However, it does provide an argument that the salinity is not of major concern. For example, a concluding comment in the aquatic ecology was:

'Studies of salinity from mine water discharge in the Southern Coalfield have not shown a direct linkage between salinity and effects on macroinvertebrates'.

I reject this statement for justifying why the current level of elevated salinity in Bargo River from the mine is an acceptable impact. I reject this based on the knowledge that macroinvertebrates may not change abundance or taxonomic richness under higher salinity. Metzeling (1993) published an Australian study that showed that common macroinvertebrate taxa may be tolerant of elevated salinity, but rare taxa are not. The macroinvertebrate data presented in the EIS was coarse. It was based on family-level identification and if it was at the species level, which may have detected the response of rare and common species to salinity, and thus provided a more thorough assessment of any ecological impact. In addition, it is impossible to apportion which chemical constituents were most responsible for the mild ecological impact reported in the EIS in the Bargo River because multiple pollutants are present (salt, zinc, nickel, arsenic, barium etc) and the impacts may overlap in a cumulative impact.

Additionally, macroinvertebrates may not be the most appropriate indicator for detecting the effect of salinity on freshwater rivers and streams. Nielsen et al. (2003) investigated increased salinity on freshwater ecosystems and suggested that algae, plants and microinvertebrates could be more sensitive to salinity than are macroinvertebrates. This supports my opinion that using only macroinvertebrates to assess the ecological risks associated with releasing saline mine wastes provides inadequate evidence to justify why disposing such highly saline mine waste water (c. 1800 - 2600 uS/cm) into Tea Tree Hollow and Bargo River is considered to be acceptable.

In my opinion the information presented in the EIS on salinity in the mine waste, and in Tea Tree Hollow and Bargo River was inadequate for all the reasons mentioned above. I regard salinity as a hazardous pollutant at current elevated levels. The EIS predicts that the mine is likely to continue to release waste water of similar salinity. I believe that this will contribute to continued impairment of aquatic biota in receiving waterways. Given that the EIS prediction that larger volumes of mine waste will be discharged if the mine extension eventuates, I accept that it is likely that the impact of the salinity could cause a larger negative ecological impact on Tea Tree Hollow and on Bargo River.

The EIS recommends that the EPA licence limit (EPL 1389) for salinity (2600 uS/cm) be retained for Tahmoor Colliery waste discharges:

'EC discharge limits for LDP1 currently listed in the Tahmoor Environment Protection licence remain unchanged and that an aquatic ecology monitoring program be established aimed at identifying any future changes in aquatic health due to the discharge from LDP1'.

I reject the suggestion that the future mine operation retains a maximum salinity target of 2600 uS/cm. I suggest that a salinity limit based on the 80th percentile of an unaffected

reference site, such as Bargo River upstream (eg Table 21: 243 uS/cm) would provide a salinity discharge limit that would provide effective protection of the Bargo River aquatic biota from unnatural elevated levels of salinity.

In my opinion, the future performance of the extended Tahmoor Colliery, as described by the EIS, indicates that salinity contamination is likely to continue and will continue to adversely impact the biota of Tea Tree Creek and Bargo River.

Zinc and other pollutants in the coal mine waste

The EIS provided poor-quality data on pollutants discharged in wastewater from existing operations at Tahmoor Colliery. It failed to give a detailed break-down in its chemical constituents, and even failed to describe several of the pollutants that are required by the EPA to be monitored in its licence (EPL 1389). However, summary data for Tea Tree Hollow (from samples collected 2012-2015) acknowledges that Tahmoor Colliery wastes contribute to elevated concentrations of a range of pollutants that exceed the ANZECC (2000) Aquatic Ecosystem guidelines. According to Table 28 summary for Tea Tree Hollow, these pollutants include aluminium, arsenic, copper, selenium and zinc.

Zinc is probably the most environmentally dangerous pollutant in the Tahmoor Colliery mine waste. It was frequently recorded at very hazardous concentrations that are likely to damage freshwater ecosystems. It was reported that Tea Tree Hollow (Table 28) had zinc at a median concentration of 776 ug/l, nearly 100 times higher than the ANZECC (2000) guideline for protection of aquatic ecosystems of 8 ug/l. In the Bargo River zinc increased more than 4 times from 15 ug/l (upstream) to 66.5 ug/l (downstream). My own research has also measured zinc at ecologically dangerous concentrations in Bargo River (Wright et al. 2015). According to the EIS at the Bargo River site downstream of Tea Tree Hollow (Rochford Bridge) the median elevated zinc concentration was 8 times higher than the ANZECC (2000) guidelines and the maximum reported concentration of 754 ug/l was more than 90 times higher than the guidelines.

The water quality data presented in the EIS was collected several years ago and failed to describe water quality of colliery wastes, although these concentrations for pollutants including zinc are available (<http://www.simec.com/mining/tahmoor-coking-coal-operations/publications/epl1389-monitoring-reports/>).

The EIS results for Tea Tree Hollow and Bargo River reveal that the plume of zinc contamination from the Tahmoor Colliery frequently extends down the Bargo River for many km downstream of Tea Tree Hollow. The Tahmoor Colliery is currently required by the EPA to provide much more effective waste treatment to reduce concentrations of zinc in the effluent, to 8 ug/l.

Recent EPL 1389 data for Tahmoor Colliery report that zinc concentrations have ranged from 38 ug/l in December 2018 to 239 ug/l in August 2018. In January 2019, the most recent report, revealed that zinc was 54 ug/L.

Based on the failure of Tahmoor Colliery to achieve the EPA PRP 22 target (less than 8 ug/l) for zinc after the EPA deadline of 30 November 2018 erodes the credibility of Tahmoor Colliery to achieve the predicted future environmental performance expected for the extended mine operation that is discussed in the various EIS chapters.