

24 February 2020

Department of Planning, Industry and Environment
Locked Bag 5022
PARRAMATTA NSW 2124

Attention: Stephen O'Donoghue, Director, Resource Assessments
Andrew Rode, Senior Environmental Assessment Officer

Via email: donoghue@planning.nsw.gov.au, andrew.rode@planning.nsw.gov.au

**RE: TRONOX RESPONSES TO DPIE-WATER AND NRAR SUBMISSION ON THE SNAPPER
MINE NORTHERN EXTENSION MODIFICATION**

Dear Stephen and Andrew,

Tronox Mining Australia Limited (Tronox) is the owner and operator of the Snapper Mineral Sands Mine (the Snapper Mine), which is located approximately 85 kilometres (km) north-east of Wentworth and approximately 170 km south-east of Broken Hill in western New South Wales (NSW).

On 22 November 2019, Tronox submitted an application to modify Project Approval (06_0168) for the Snapper Mine Northern Extension Modification (the Modification) to the Department of Planning, Industry and Environment (DPIE). A Submissions Report for the Modification was subsequently submitted to the DPIE on 31 January 2020.

On 21 February 2020, the DPIE – Water Division (DPIE – Water) and Natural Resources Access Regulator (NRAR) provided a submission on the Modification.

Please find attached Tronox's responses to the DPIE – Water and NRAR comments on the Modification.

Please don't hesitate to contact me if you have any queries or wish to discuss.

Yours sincerely,



Haakon Nielssen
Environmental Approvals Manager
Tronox Mining Australia Limited

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ATTACHMENT 1

TRONOX RESPONSES TO THE DPIE – WATER AND NRAR COMMENTS ON THE
SNAPPER MINE NORTHERN EXTENSION MODIFICATION

Table 1
Tronox Responses to DPIE – Water and NRAR Comments on the Snapper Northern Extension Modification Report

	Comment	Tronox Response
1	<i>Appendix F Section 6.1.2 states that the Modification would result in a minor northern extension in drawdown in the upper aquifer associated with the mine path extension during mining. The proponent should provide an estimation of the extension in drawdown in the upper aquifer associated with the mine path extension, particularly at the nearest private bore (Greenvale Well) and how this complies with the AIP guidelines.</i>	The Modification would extend the mine path by approximately 600 metres (m) to the north-west. The predicted drawdown in the upper aquifer would also be expected to extend 600 m to the north-west consistent with the mine path extension. The closest private bore to the Snapper Mine, namely Greenvale Well, is located approximately <u>16 kilometres</u> north-east of the Snapper Mine. Groundwater modelling undertaken by GEO-ENG (2013)¹ indicated that maximum cumulative groundwater drawdown due to operations at the Snapper and Ginkgo Mines would be approximately 0.14 m at the Greenvale Well. The Modification Hydrogeological Review concluded that potential cumulative drawdown at the Greenvale Well would not change as a result of the Modification (i.e. would be negligible). The Modification would therefore not result in cumulative drawdown of more than 2 m at any privately owned water supply work as per the 'Minimal Impact Considerations' described in the NSW <i>Aquifer Interference Policy</i> (Table 3 of the Modification Hydrogeological Review).
2	<i>Appendix F Section 2.7 Table 1 includes Tronox-owned monitoring bores and their schedules however does not include SM1. SM1 is located north of the mine path and is predicted to have a decline in the water level of the upper aquifer. SM1 should be included in Table 1.</i>	Table 1 of the Modification Hydrogeological Review only lists Tronox-owned bores and therefore does not include bore SM1 (i.e. SM1 is not a Tronox-owned bore). Notwithstanding the above, groundwater level and quality monitoring is undertaken at bore SM1 on a monthly basis in accordance with the approved Snapper Mine Water Management Plan² (WMP) (noting that bore SM1 is referred to as 'South Tank Bore' in the approved WMP). Monitoring results from bore SM1 are reported annually in the Snapper Mine Annual Review in accordance with Condition 5, Schedule 4 of Project Approval (06_0168).

¹ GEO-ENG (2013) *Ginkgo Mine Modification Crayfish Deposit – Hydrogeological Assessment*. Pooncarie NSW.

² GHD (2016) *Ginkgo and Snapper Mines Water Environmental Management Plan*. October 2016.

Table 1 (Continued)
Tronox Responses to DPIE – Water and NRAR Comments on the Snapper Mine Northern Extension Modification Report

	Comment	Tronox Response
3	<i>Modification 7 involves an extension of the mine path by approximately 600 m at the northern end. Appendix F Section 5.2 details that the extension would result in a minor extension (to the north) of groundwater interactions associated with the dredge pond, namely lowering of the water table level due to dredge pond level maintenance, and creation of a groundwater mound behind the advancing dredge pond. This section lacks detail on any potential increase in groundwater take due to lowering of water table and evaporative losses due to the 600m extension of mine path.</i>	GEO-ENG (2013)¹ estimated that the maximum combined groundwater requirement for the Snapper and Ginkgo Mines is approximately 12,800 ML/year. The Modification (including the approximate 600 m increase in the length of the mine path) would not significantly change annual groundwater inflows into the dredge pond (and associated evaporation) given the size of the dredge pond at any one time would not change as a result of the Modification as the mine path would continue to be progressively backfilled. Tronox currently holds a combined total of 21,442 share components (units or million litres [ML]) in the Western Murray Porous Rock Water Source for the Snapper and Ginkgo Mines under the <i>Water Sharing Plan for the NSW Murray Darling Basin Porous Rock Groundwater Sources 2011</i>. Given the above, no additional water licences are required for the Modification (Section 8 of the Modification Hydrogeological Review).
4	<i>Appendix F Section 5.3 states that the rate of infiltration in the final depression associated with the dredge pond at cessation of mining will be higher than normal due to its increased surface area (40 ha prior to Modification 7, 200 ha after Modification 7), but does not provide a modelled estimate of the increased infiltration volume or provide an assessment that the increase will not impact adjacent water quality (beyond 40 m from the activity). It is therefore required that the Modification 7 Report (Appendix F) include calculation of the increase in infiltration volume and an assessment that this increase will not result in groundwater quality change 40 m from the activity.</i>	It is expected that the increased surface area of the modified final depression would result in an increase in the amount of infiltration to the upper aquifer proportional to the size of the increase (i.e. 40 hectares [ha] to 184 ha). The increased infiltration would however remain insignificant over the scale of the aquifer (Section 5.3 of the Modification Hydrogeological Review). Given the highly saline nature of the groundwater in the upper aquifer (i.e. total dissolved solids in excess of 35,000 milligrams per litre), it is considered to have limited beneficial use. Surface runoff reporting to the modified final depression (i.e. low salinity rainwater) that would infiltrate into the upper aquifer would therefore not have any significant impact on groundwater quality below or surrounding the modified final depression. Given the above, the Modification would not lower the beneficial use category of the groundwater source (Section 6.6 of the Modification Hydrogeological Review).