



24 March 2025

Mr Stephen Barry
Planning Director
Office of the Independent Planning Commission
Suite 15.02
Level 15
135 King Street
Sydney NSW 2000

Dear Mr Barry,

**SSD-7592-Mod-11
Response to Request for Information**

We refer to the letter dated 20 March 2025 from the Independent Planning Commission (**IPC**), requesting information in relation to the Modification 11 application, and a response to a question from Commissioner Dinning asked at the Public Meeting, on 21 March 2025.

The IPC have requested information on five (5) items plus an additional question from Commissioner Dinning and responses to the request for information are provided within this letter.

Item 1

Question

Please quantify any material impacts on Sydney Drinking Water Catchment water supplies and the broader environment in the event that the Application is not approved.

Response

If the modification is not approved, then it is likely that more mine water will need to be stored in the mines during the Mt Piper outage. Ultimately this increases the risk of the mines being flooded in the event any future dewatering interruption or failure occurs.

If the mines are overwhelmed by water, then ultimately this will reach the surface and raw ground water (aka mine water) would find its way into the catchment via uncontrolled release reducing water quality compared to the status quo in which the mine water is being processed.

So the risk of mine flooding increases if the mod is not approved, which increases the risk of an uncontrolled raw mine water discharge at some future infrastructure failure which will be a risk for a negative impact on the broader environment.

As well as increasing the risk of negative impacts on the river system, flooding of the mines would materially impact coal supply to MPPS leaving the NSW power system exposed to shortfalls in peak demand / low renewables periods. Protecting the coal asset to ensure energy supplies to NSW continue to meet customer needs is a key benefit of this modification particularly given the evolving dynamics of the National Energy Market transition currently underway.

Item 2

Question

Is there sufficient storage capacity within Thompsons Creek Reservoir (TCR) to accommodate foreseeable precipitation events in addition to the proposed 42ML/day of water transfers from the Springvale Water Treatment Facility (SWTF), while still complying with Energy Australia's Water Supply Work and Water Use Approval and the proposed TCR release rates as part of this Application? If not, how are these releases proposed to be managed?

Response

Under EA's existing Dam Safety Regulation requirements, there is a hard requirement that inflows into the TCR must be ceased if the High Operating Level (**HOL**) is reached.

This protocol is in place to ensure sufficient headroom is available between the HOL (1032.6) and the Full Supply Level (**FSL**) (1033.3) to accommodate a high rainfall event at all times. This allows the capture of a ~400mm rainfall event which is equivalent to 1:100, 72 hr rainfall event.

At the start of the outage the water level in TCR will be at the Low Operating Level (**LOL**) (1031.61). There is ~1,900 ML capacity in TCR between the LOL and the HOL. During the outage up to 924 ML of water will be required to be transferred to TCR when both units are offline at MPPS. The transfer of water from the SWTP would utilise approximately half of the capacity available before reaching the HOL.

Therefore, there would be a remaining capacity in TCR from ~1032.1 up to the FSL (1033.3) to capture a ~1,200mm rainfall event, which is almost double the Annual Rainfall for the region or three, back-to-back, 1:100 year annual recurrence rainfall events. These magnitude rainfall events are not forecast for the April/May outage period.

Item 3

Question

Please provide a table setting out total water transfer volumes and salt loadings to the TCR (median and 95th percentile) resulting from the Application.

Response

The planned Station Outage, scheduled to occur at MPPS in April/May 2025 will result in Unit 1 and Unit 2 being out of service for 54 days and 22 days, respectively, including a consecutive 22-day period where both units are out of service concurrently. In addition, a nominal two-week buffer period is required prior to a Station Outage, to allow sufficient time for pond levels at Mt Piper Power Station (**MPPS**) to be reduced prior to commencement. A nominal one week buffer period after a Station Outage is also required to allow for the transfer of water to Thompsons Creek Reservoir (**TCR**), as it is common for a unit to be taken out of service shortly after an Outage to correct any irregularities with the power station infrastructure prior to being put back in operations permanently. The transfer of water to TCR after a unit outage is a contingency measure; this would only be required if the unit is required to be taken offline at short notice.

While the Outage period is proposed to be 54 days, the requirement for transfers to the TCR are likely for only a portion of these days, more likely 22 days; however, the full 54-day transfer period is included here for completeness. Considering this, and the required buffer periods, **Table 1** and **Table 2** below provide a summary of total water transfer volumes and salt loadings to the TCR (median and 95th percentile (%ile)) resulting from the proposed modification to SSD-7592 (Mod-11).

Table 1 presents total water transfer volumes and salt loadings to the TCR over the 54-day Outage period plus pre and post Outage transfer buffer periods, which is a less likely scenario. **Table 2** presents the total water transfer volumes and salt loadings to the TCR over the 22-day Outage period plus pre and post Outage transfer buffer periods which is a more likely scenario. Both **Table 1** and **Table 2** have assumed that 100% of the SWTP to TCR transfer capacity

(42/ML/day) will be utilised during the Outage period and that only 50% of the SWTP to TCR transfer capacity (21 ML/day) will be utilised during the buffer period of 14 days prior to and 7 days following any Outage. Both **Table 1** and **Table 2** have also assumed a 3:4 mixed ratio of Treater Water to Filtered Water based on the 95th %ile and median conductivity values presented.

These estimates have excluded salt load estimates related to Filtered Water transfers given that any salt load estimate to account for Filtered Water Transfers would be hypothetical only. As noted in the Response to Submissions Report, the ability to transfer Filtered Water to TCR would only be required for brief portions of the Outage period when the brine crystalliser is out of service for maintenance. It is planned to conduct this maintenance prior to the upcoming April outage to minimise the need to use this facility, however the need for a crystalliser clean during the outage cannot be completely eliminated and therefore the ability to transfer Filtered Water for such periods may be required.

TABLE 1: FULL OUTAGE, 54 DAYS PLUS BUFFER PERIOD - LESS LIKELY

Full Outage, 54 days plus buffer period - less likely scenario						
95 th %ile	Treated Water Quality (STW) – 464.2 µS/cm Filtered Water Quality (MWQ) – 1,230 µS/cm					
EC	TDS	Flow (ML/day)	Salt load (t/day)	Days	Transfer volume (ML)	Salt load (t)
902	541	42	0.023	54	2,268	1.23
902	541	21	0.011	14	294	0.16
902	541	21	0.011	7	147	0.08
			Total	75	2,709	1.47
Median	Treated Water Quality (STW) – 273.8 µS/cm Filtered Water Quality (MWQ) – 1186 µS/cm					
EC	TDS	Flow	Salt load (t/day)	Days	Transfer volume (ML)	Salt load (t)
795	477	42	0.020	54	2,268	1.08
795	477	21	0.010	14	294	0.14
795	477	21	0.010	7	147	0.07
			Total	75	2,709	1.29

*Assumes a conversion factor of 0.6; Total Dissolved Solids - TDS (mg/L) = EC (µS/cm) x 0.6

TABLE 2: STATION OUTAGE ONLY, 22 DAYS PLUS BUFFER PERIOD - MORE LIKELY

Station Outage only, 22 days plus buffer period - more likely scenario						
95 th %ile	Treated Water Quality (STW) – 464.2 µS/cm Filtered Water Quality (MWQ) – 1,230 µS/cm					
EC	TDS	Flow (ML/day)	Salt load (t/day)	Days	Transfer volume (ML)	Salt load (t)
902	541	42	0.023	22	924	0.50
902	541	21	0.011	14	294	0.16
902	541	21	0.011	7	147	0.08
			Total	43	1,365	0.74
Median	Treated Water Quality (STW) – 273.8 µS/cm Filtered Water Quality (MWQ) – 1186 µS/cm					
EC	TDS	Flow (ML/day)	Salt load (t/day)	Days	Transfer volume (ML)	Salt load (t)
795	477	42	0.020	22	924	0.44
795	477	21	0.010	14	294	0.14
795	477	21	0.010	7	147	0.07
			Total	43	1,365	0.65

*Assumes a conversion factor of 0.6; Total Dissolved Solids - TDS (mg/L) = EC (µS/cm) x 0.6

Item 4

Question

Per the recommendations on page 7 of the Independent Expert Advisory Panel for Mining (IEAPM) advice to the Department of Planning, Housing and Infrastructure dated 18 March 2025, please:

- a. provide more detail on the composition of the following water streams proposed to be transferred to TCR as a result of the Application:
 - i. Treated water (i.e. waters that have been RO filtered);
 - ii. Partially treated water (i.e. waters that have been treated at SWTP but not RO filtered); and
 - iii. Blended water (i.e. the mix of RO filtered and non-RO filtered waters);
- b. provide analyses of all waters of interest (including the above waters as well as those of TCR and downstream receiving waters), including complete analyses of all major cations and anions as well as the minor species currently analysed; and
- c. confirm that the TCR artificial destratification system (i.e. the aeration facility) is capable of consistently maintaining TCR in a fully mixed state. If this cannot be confirmed, please provide conservative revised water discharge modelling which allows for a realistic non-fully mixed-state with appropriate justification for any changes to the modelled water discharge quality.

Response

Item 4a

Section 4.5 of the Water Impact Assessment (WIA) provides details of the relevant and available water streams relating to the proposed modification to SSD-7592 (Mod-11) with comparison to

the adopted ANZG (2018) guidelines, and the supporting data is provided in Appendix C of the WIA. Further commentary is provided below.

- i. The composition of Treated Water is described in Section 4.5.1 and Appendix C, Table 1 (last 12-months) and Table 2 (all available) of the WIA.
- ii. The composition of Filtered Water is described in Section 4.5.2 and Appendix C, Table 3 (last 12-months) and Table 4 (all available).
- iii. No monitoring data is available for Blended Water, as the requirement for Blended Water transfers has not previously been approved as part of routine operations. As described in Section 4.5.5 of the WIA, where the 95th percentile results exceeded the respective ANZG (2018) guidelines, the concentrations were comparable when comparing monitoring data from the TCR, Treated Water, Filtered Water, and catchment water quality at WX9 and Cox 8A. The main exception was for conductivity, which, over the last 12-month period, was notably more elevated at WX9 (879 $\mu\text{S}/\text{cm}$) and in Filtered Water (1230 $\mu\text{S}/\text{cm}$) compared to Cox 8A (353 $\mu\text{S}/\text{cm}$) and TCR (542 $\mu\text{S}/\text{cm}$).

Therefore, based on the outcomes presented in Section 4.5 of the WIA, the potential changes in TCR water quality and local Cocks River catchment water quality are likely to be reflected in changes to conductivity. Hence, the potential changes to conductivity were further assessed via the mixing assessment, which applied a conservation of mass approach.

Item 4b

Appendix C of the WIA provides available data for the relevant and available water streams relating to the proposed modification to SSD-7592 (Mod-11), as follows:

- Treated Water: Table 1 (last 12-months) and Table 2 (all available)
- Filtered Water: Table 3 (last 12-months) and Table 4 (all available)
- TCR: Table 5 (last 12-months) and Table 6 (all available)
- TCR riparian release: Table 7 (last 12-months) and Table 8 (all available)
- Cox8A (Lake Lyell): Table 9 (last 12-months) and Table 10 (all available)
- WX9 (Cocks River near former Wallerawang Power Station): Table 11 (last 12-months) and Table 12 (all available)

Where available, data for major cations and anions is provided in the above tables, however this data is unavailable for most of the locations assessed.

Item 4c

The destratification system has traditionally been used mainly for controlling algae in TCR, and has been turned on when algae was present, and turned off when not required to conserve energy. This would explain the differing degrees of stratification noted by the expert panel at different periods.

We note the expert panel has identified effective mixing as a key assumption in the modelling which they agree demonstrated that this modification will have negligible environmental impact.

In order to confirm this modelling assumption and predicted negligible impact is delivered in reality, Centennial will commit to continuous operation of the destratification system for the term of the outage.

Item 5

Question

Are there any reasons why, in the event this Application was approved, conditions should not be imposed requiring:

- a. water transfers from the SWTF to cease once:
 - i. water levels in TCR reach the high operating level (HOL); and/or*
 - ii. there is a risk of water quality within the TCR exceeding 600 µS/cm;**
- b. all reasonable efforts to be taken to ensure that reverse osmosis treatment of mine waters can be maintained for all future Mount Piper Power Station (MPPS) outages;*
- c. that the TCR artificial destratification system (i.e. the aeration facility) is capable of consistently maintaining TCR in a fully mixed state;*
- d. compliance with specific, measurable, assignable, realistic, and time-bound (SMART) benchmarks for substantive improvements in discharge water quality over time (including during future MPPS shut-down periods); and*
- e. that regular progress reports on compliance with these conditions be published in a timely manner?*

Response

Item 5a(i)

Dam safety regulations including the SWTP TCR Operating Protocol, Dams Safety Management System and Dams Safety Emergency Plan already have a hard requirement that inflows from the SWTF (and indeed other sources under EA control) must cease if the HOL is reached.

The SWTP planning consent was carefully structured to dovetail with the Dam Safety Regulations to ensure that dam safety would not be compromised in any way.

Additional requirements with regard to the HOL should not be added to the planning consent to ensure this critical public safety parameter is clearly regulated in one place only (eg. the Dam Safety requirements). Multiple overlapping regulations should be avoided to prevent confusion or inadvertent compromise to the existing critical public safety regulations.

Item 5a(ii)

The requirement to cease inflows if there is a risk of water quality in TCR exceeding 600uS/cm is a reasonable condition to add, and is acceptable to Centennial.

This has already been proposed by the EPA and accepted by Centennial.

Item 5b

This measure should not be added to the consent.

The modification is a short term measure, of limited duration to allow the upcoming MPPS outage, and any additions should be limited to the term of its operation.

Under the existing consent conditions, once this modification is expired, then all future transfers must be treated water under the existing SWTP consent. In other words the existing consent only allows fully treated water to be delivered to TCR without the need for further amendment.

A requirement to use “reasonable efforts” for future outages is therefore not required, and would be redundant.

Item 5c

We note from the Independent Expert Panel review, that questions were raised about varying results from the destratification system seen over recent years.

This is explained by the current operational arrangements, where the focus on this system is primarily on algae management, so the system is manually enabled when required and the

system is not used at other times when the algae is not prevalent. This accounts for the variable results noted by the panel.

In order to dispel any concerns about the stratification during this upcoming outage event, Centennial will commit to having the destratification system in operation for the term of the outage modification.

Item 5d

A requirement to commit to future improvements in water quality should not be imposed. The scheme already stipulates a high standard of treated water for all normal authorised operations, and this is already required for any water directed to TCR under normal operations. Further water treatment would deliver no material benefit.

Given this is a time bound modification, it is not appropriate to impose future requirements for outages which have not been approved in this modification. This modification should be limited to the matter at hand and not impose conditions which have not been assessed or for which justification has not been made.

All parties agree that the SWTP has provided significant benefits to the catchment. The project was designed to meet the performance and quality requirements outlined in its original approval. However, the introduction of unassessed and material investment requirements by the IPC, without prior assessment or justification, could potentially set a concerning precedent for the investment certainty that the NSW planning system aims to provide. It would be beneficial to avoid such an outcome.

The expert panel, presenters at the public meeting, regulators, the IPC, as well as Centennial Coal and EnergyAustralia all share the view that ongoing efforts to enhance the mine dewatering scheme are important to ensure its continued effectiveness and resilience. It has been acknowledged that further work on potential long-term arrangements is in progress but has yet to be fully assessed. This work may offer a more suitable context for discussing long-term plans for the scheme, rather than making adjustments through this short-term modification, where such requirements may not be entirely appropriate.

In the absence of demonstrated benefits and a viable plan to achieve them an open ended requirement to improve water quality creates uncertainty which is not consistent with good regulatory practice.

Item 5e

A condition to report on relevant parameters for this duration of the outage would be acceptable, with the monitoring reporting parameters to be developed in consultation with the EPA.

Given the period of the outage, weekly reporting would be appropriate.

Item 6

Question

I was told at the Site Inspection that unanticipated mine water greater than modelled (six times that modelled) has been experienced at Springvale and Angus Place Mines - how is that increased mine water make is being managed and being dealt with.

Response

During 2021/22, Springvale Mine recorded increased mine inflows above the modelled variance, which could be attributed to a range of factors, the principle being the more intense La Nina events from 2020 to 2022 that resulted in record levels of rainfall being recorded within NSW. Other factors that could have attributed to increased water make include seepage from historical former mine workings, interactions with fully charged aquifers and increased mine area associated with progressing mine development.

Mine water make from Angus Place and Springvale Mines are currently approximately 39 ML/day. The mine water is pumped to and managed at the SWTP, with a nominal SWTP throughput capacity of 42ML/day at 100% availability.

Mine water make is subject to monitoring using various techniques, methods and modelling. The mine water make monitoring is used to develop mine water management strategies to enable the short, medium and long term planning for water management at the mine.

The recent years (2020 – 2023) of higher than expected mine water make has resulted in the storage of approximately 6GL of mine water in underground workings at Springvale and Angus Place. The remaining storage has been calculated at 1.4GL, which represents a month of storage in the event of complete water management system unavailability, that will impact on current and future mining activities.

The ability for the SWTP to continuously process mine water at its operating capacity is critical to the delivery of the mine water management plans and strategies.

Plans are being developed for alternative mine water management options (subject to approvals), including a new LDP for the SWTP and other alternative disposal options. These proposals are in various stages of development and are subject to extensive technical assessment and stakeholder consultation processes.

If you have any questions or require any further information, please do not hesitate to call Ron Bush General Manager – Development & Approvals on [REDACTED] [REDACTED] [REDACTED] email [REDACTED]

Yours sincerely,

[REDACTED]

Ron Bush
General Manager – Development & Approvals