

SWTP Mod 9

SWTP Mod 10 & WCS Mod 6

Independent Planning Commission Presentation
02 February 2024

Agenda

- Centennial Coal Overview
- Water Management System
- SWTP Mod 9
- SWTP Mod 10 & WCS Mod 6

Centennial Coal

- Ron Bush - Early Phase Projects Manager/Approvals
- Chase Dingle - General Manager ESD
- Mick Nadalin - Senior Project Manager
- Peter Corbett - General Manager Technical

Centennial Coal

- Centennial is an Australian mining company supplying domestic and export coal markets.
- Centennial's coal fuels around 30% of NSW's coal-fired electricity generating capacity, while we also manage a successful export business.
- Established in 1989 and listed on the Australian Securities Exchange in 1994, Centennial was a coal mining and marketing company supplying thermal coal to the domestic and export markets. From our small beginnings in 1989 and a \$20 million listing in 1994, Centennial grew to be a top S&P/ASX 100 company.
- Upon the takeover by Banpu Public Company Limited in 2010, our market capitalisation had grown to approximately \$2.5 billion.
- Centennial operates four underground coal mines in the western region and three underground coal mines in the northern region.
- Both regions are supported by separate coal processing services sites and associated coal transportation infrastructure.



Banpu Public Company Limited

- Banpu Public Company Limited was established on 16 May 1983 as “Ban Pu Coal Company Limited” with a THB 25 million registered capital.
- The Company was founded by members of the Vongkusolkit and Auapinyakul families in order to subcontract a coal mining operation at Banpu Mine (BP-1 Mine) located in Li district, Lamphun province from the Department of Alternative Energy Development and Efficiency.
- On 4 May 1989, Banpu was listed on the Stock Exchange of Thailand (SET).
- The Company later changed its name on 29 July 1993 to “Banpu Public Company Limited.”
- Driven by 40 years of experience in local and international businesses, Banpu is currently an international versatile energy provider operating in Thailand, Indonesia, China, Australia, Lao PDR, Mongolia, Japan, the United States of America and Vietnam.
- Banpu has three core groups of businesses:
 - Energy Resources (coal and gas including related operations such as marketing, trading, logistics, fuel procurement and transmission);
 - Energy Generation (base-load and renewable power plants); and
 - Energy Technology (total solar energy solutions, energy storage system and energy technology system).



Water Management System

- The Springvale Water Treatment Plant (**SWTP**) (**SSD-7592**) receives and treats water from underground mine dewatering facilities at the Springvale Colliery and Angus Place Colliery for industrial reuse at the Mount Piper Power Station (**MPSS**) operated by Energy Australia (**EA**).
- All water from Angus Place and Springvale Mine (that is not reused on site) is transferred to the SWTP.
- SWTP is a beneficial reuse project and has been developed to:
 - Use treated mine water in MPSS cooling towers instead of EA extracting water from the Coxs River catchment.
 - Minimise untreated mine water discharge into Coxs River catchment (Sydney's drinking water catchment) for improved environmental outcomes.
- The establishment of the SWTP has allowed mine water discharges to cease into the Cox's River and enabled reuse up to 42 mega litres (ML) of treated mine water in place of fresh water from the Cox's River Catchment.
- Ground water inflow to the Springvale Colliery and Angus Place Colliery mine workings needs to be dewatered to prevent the mine filling with water that impacts mining operations and sterilises the coal reserves.

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OUR WAY IN ENERGY

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- The approved (Modifications 3, 4, 7 and 8) Interim Water Management Strategy (**IWMS**) to the SWTP consent provides for the transfer and storage of up to 5,760ML of filtered mine water to Thompson Creek Reservoir (**TCR**) to 31 October 2023.
- Approximately 2,693 ML has been transferred to date.
- Mod 9 seeks to extend the IWMS at the SWTP to 31 October 2026 to enable the full 5,760 ML to be transferred.
- The extension is required to manage the threat of flooding the underground infrastructure associated with the Angus Place Colliery and the Springvale Coal Mine.

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Draft Conditions

- Proposed draft conditions:
 3. *Following condition 6A of Schedule 2, insert the following:*
 - 6B. *By 31 May 2024, the Applicant must, in consultation with Energy Australia, install and maintain a real-time water quality monitoring system capable of assessing water quality in the Thompsons Creek Reservoir.*
 - 6C. *The Applicant must ensure that water entering the Thompsons Creek Reservoir is managed so that water quality does not exceed 650 uS/cm EC at any time.*
 - 6D. *The Applicant must immediately notify EPA and WaterNSW in the event of water quality exceeding 550 uS/cm EC in the Thompsons Creek Reservoir.*

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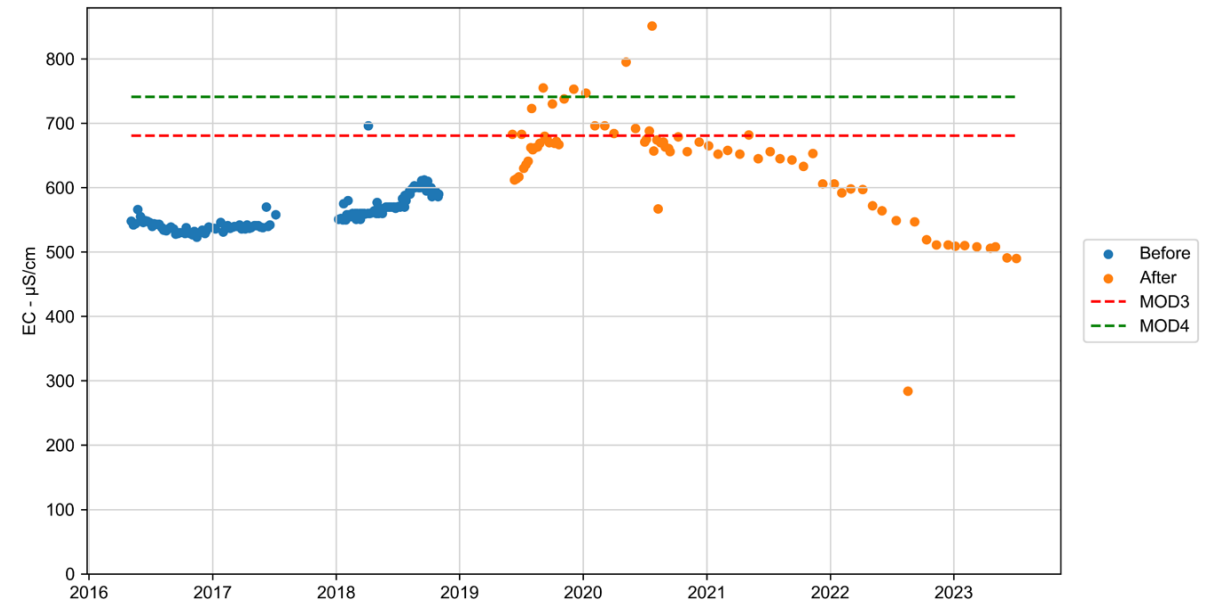
Requested Draft Conditions

- Proposed draft conditions:
 3. *Following condition 6A of Schedule 2, insert the following:*
 - 6B. *By 31 May 2024, the Applicant must, in consultation with Energy Australia, install and maintain a real-time water quality monitoring system capable of assessing water quality in the Thompsons Creek Reservoir.*
 - 6C. *The Applicant must ensure that ~~water entering the Thompsons Creek Reservoir is managed so that~~ water quality **in the Thompson Creek Reservoir** does not exceed **741** uS/cm EC at any time.*
 - 6D. *The Applicant must immediately notify EPA and WaterNSW in the event of water quality exceeding **700** uS/cm EC in the Thompsons Creek Reservoir.*
- SWTP Modification 4 approved on 5 November 2019 provided for the balance of the IWMS water to be transferred to TCR with predicted EC at 741.
- We request that the EC water quality limits be set to reflect this limit.

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Justification

- A water quality assessment was prepared for MOD 9 which provided a statistical analysis of water quality data from the TCR to identify statistically significant changes between water quality before and after the transfer of filtered mine water to TCR which commenced in June 2019.
- The 'before' dataset is based on water quality data reported between May 2016 and October 2018 and the 'after' dataset is based on water quality data reported between June 2019 and July 2023.
- The assessment concluded that Electrical Conductivity (**EC**) was the only water quality parameter above Default Guideline Value (**DGV**) where a statistically significant increase between the before and after datasets was evident.



TCR EC readings in TCR between May 2016 and July 2023

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- The initial process at the SWTP is a pre-treatment process that aims to reduce the suspended solids of the raw mine water before the water passes onto the following desalination process sections of the SWTP that includes Reverse Osmosis.
- The pre-treatment process at the SWTP consists of a settling (sludge) pond and a solids contact clarifier.
 - The pre-treatment process removes solids from the raw mine water.
 - The residual waste stream remaining has a solids content of approximately 2%.
- The residuals are approved to be pumped via a pipeline to the Western Coal Services (**WCS**) (**SSD-5579**) site for disposal within the onsite Reject Emplacement Area (**REA**).
- During mining operations different geological lithologies are encountered within the mined coal seam due to coal washouts post-deposition and replacement by shales, siltstones and mudstones. The washout areas occur throughout the remaining mining areas in Longwalls 429-432, with mining in this area planned through to end of 2026.
- Being a natural system, the geological conditions can change and vary during the progression of the mining operations. At times, certain geological lithologies can result in mine water transferred to the SWTP that has higher than anticipated mine water turbidity.
- Higher than anticipated turbid mine water can present difficulties for the SWTP pre-treatment process, such that sludge can build up within the pre-treatment settling pond.
- During periods when the SWTP experiences high turbid mine water, the SWTP capacity has to be managed, generally by reducing the mine water processing throughput, to enable the pre-treatment system to operate within its design parameters.

SSD-7592 Modification 10

Draft Condition

SSD-7592

- Current Condition 5 of SSD-7592 states the following:

LIMITS ON CONSENT

Pipelines

5. The Applicant must not transfer more than:

- (a) 42 megalitres of mine water on any day via the Raw Water Transfer Pipeline;
- (b) 0.35 megalitres of residual waste per day on an annual average basis via the Residuals Transfer Pipeline; and
- (c) 0.43 megalitres of residual waste on any day via the Residuals Transfer Pipeline;

- The proposed modification to Condition 5 of SSD-7592 is as following:

LIMITS ON CONSENT

Pipelines

5. The Applicant must not transfer more than:

- (a) 42 megalitres of mine water on any day via the Raw Water Transfer Pipeline;
- (b) 0.35 megalitres of residual waste per day on an annual average basis via the Residuals Transfer Pipeline (subject to the exception in condition 5A below); and
- (c) 0.43 megalitres of residual waste on any day via the Residuals Transfer Pipeline (subject to the exception in condition 5A below);

5A. Between approval of MOD 10 and 30 April 2024, the Applicant must not transfer more than:

- (a) 0.50 megalitres of residual waste per day on an annual average basis via the Residuals Transfer Pipeline; and
- (b) 1.00 megalitres of residual waste on any day via the Residuals Transfer Pipeline.

SSD-5579 Modification 6 Draft Condition

SSD-5579

- Current Condition 8A of SSD-5579 states the following:

Residual Waste

8A. The Applicant must not receive or emplace more than 0.35 megalitres per day (annual average) or 0.43 megalitres per day (daily maximum) of residual waste from the Springvale Water Treatment Project.

- The proposed modification to Condition 8A of SSD-5579 is as following:

Residual Waste

8A. The Applicant must not receive or emplace more than 0.35 megalitres per day (annual average) or 0.43 megalitres per day (daily maximum) of residual waste from the Springvale Water Treatment Project (subject to the exception in condition 8B below).

8B. Between the date of approval of MOD 6 until 30 April 2024, the Applicant must not receive or emplace more than 0.50 megalitres per day (annual average) or 1.0 megalitres per day (daily maximum) of residual waste from the Springvale Water Treatment Project.

Requested Draft Conditions

SSD-7592

- The requested modification to Condition 5 of SSD-7592 is as following:

LIMITS ON CONSENT

Pipelines

5. The Applicant must not transfer more than:

- (a) 42 megalitres of mine water on any day via the Raw Water Transfer Pipeline;
- (b) 0.35 megalitres of residual waste per day on an annual average basis via the Residuals Transfer Pipeline (subject to the exception in condition 5A below); and
- (c) 0.43 megalitres of residual waste on any day via the Residuals Transfer Pipeline (subject to the exception in condition 5A below);

5A. Between approval of MOD 10 and ~~30 April 2024~~ **30 June 2025**, the Applicant must not transfer more than:

- (a) 0.50 megalitres of residual waste per day on an annual average basis via the Residuals Transfer Pipeline; and
- (b) 1.00 megalitres of residual waste on any day via the Residuals Transfer Pipeline.

SSD-5579

- The requested modification to Condition 8A of SSD-5579 is as following:

Residual Waste

8A. The Applicant must not receive or emplace more than 0.35 megalitres per day (annual average) or 0.43 megalitres per day (daily maximum) of residual waste from the Springvale Water Treatment Project (subject to the exception in condition 8B below).

8B. Between the date of approval of MOD 6 until ~~30 April 2024~~ **30 June 2025**, the Applicant must not receive or emplace more than 0.50 megalitres per day (annual average) or 1.0 megalitres per day (daily maximum) of residual waste from the Springvale Water Treatment Project.

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Requested Draft Conditions

- Proposed draft conditions propose to time limit for increased residuals transfer to 30 April 2024.
- We request that the time limitation be extended until **30 June 2025**.
- The amended time period for increase residual transfer will provide sufficient time to operationally accommodate the current issues experienced at the SWTP requiring increased residual transfer.
- Additionally, the extended time period will enable the Alternative Residual Management System to be developed in consultation with the EPA to address their concerns raised.
- The 18 month time period will provide sufficient time for the Alternative Residual Management System to be designed, approved, installed and commissioned.
- It is anticipated that the Alternative Residual Management System would require modification to both the SSD-7592 and SSD-5579 consents.
- Centennial are currently in the middle of a longwall move and anticipate commencing cutting coal in the next longwall in April 2024.
- It is anticipated that the next longwall will encounter geological lithologies that result in increased residual generation in June and November 2024 (and beyond in further longwalls). The draft condition time limited to 30 April 2024 is operationally ineffective and unproductive.



CENTENNIAL