EPBC 2013/6881

Annual Compliance Report

Springvale Mine

March 2017

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1. INTRODUCTION

Springvale Coal Pty Ltd (Springvale) is an underground longwall mine located 12km North West of Lithgow in NSW and 3 km south of the Centennial Angus Place Mine. The mine is a joint venture owned in equal share by Centennial Springvale Pty Ltd (a wholly owned subsidiary of Banpu Minerals Ltd) and Springvale SK Kores Pty Limited.

The Springvale Mine Extension Project (SMEP) was approved by the New South Wales Planning and Assessment Commission on the 21st of September 2015 (SSD_5594). The Commonwealth Department of Environment subsequently assessed the SMEP and the Minister of Environment approved the SMEP on the 15th of October 2015 (EPBC 2013/6881). The controlled action area is shown in the figure below.

A variation to Conditions 6 and 7 of EPBC 2013/6881 was approved on the 29th of July 2016. The variation related to Temperate Highland Peat Swamp monitoring requirements and was subsequently implemented as part of the Swamp Monitoring Program for longwall 419.

EPBC 2013/6881 Condition 18 requires that:

Before 31 March each year, the approval holder must publish a report on its website addressing compliance with each of the conditions of this approval, including the implementation of any management documents as specified in the conditions during the previous calendar year. Documentary evidence of the date of publication of the compliance report, as well as details of any reported potential non-compliance, must be provided at the same time as the compliance report is published.

This report has been prepared to address the requirements of Condition 18 for the period from the 1st of January 2016 to the 31st of December 2016.

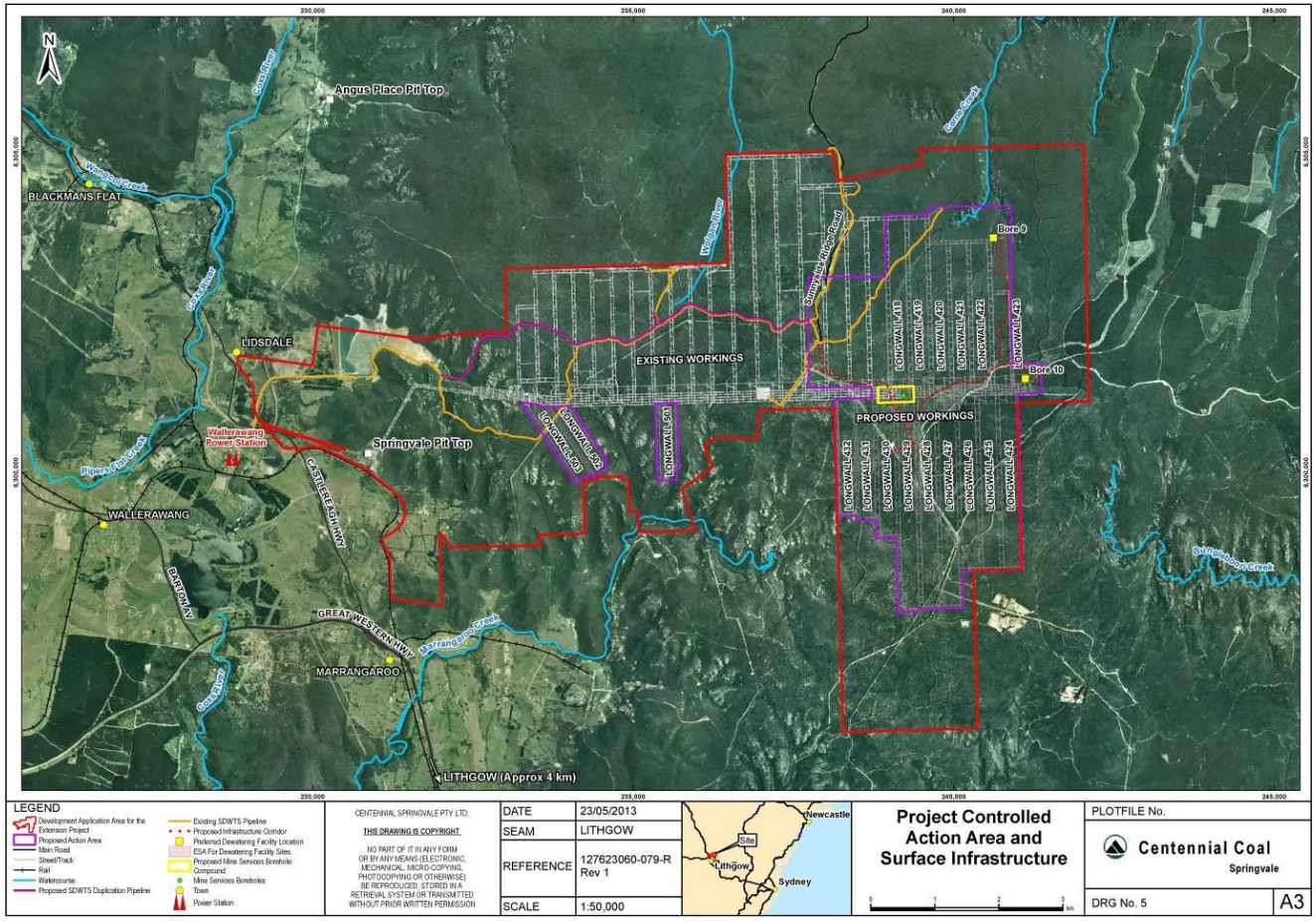

Figure 1 Controlled Action Area EPBC 2013/6881

2. DETAILS OF COMPLIANCE WITH APPROVAL CONDITIONS

Condition 1

Compliant

Centennial will comply with conditions of the Springvale Mine Extension Project Development Consent (SSD_5594).

Condition 2

Compliant

Centennial will comply with conditions of the Springvale Mine Extension Project Development Consent (SSD_5594).

Condition 3

Compliant

Centennial will comply with conditions of the Springvale Mine Extension Project Development Consent (SSD_5594).

Condition 4

Compliant

Centennial will undertake underground mining to ensure the action does not have greater than negligible environmental consequences on any Temperate Highland Peat Swamps within the project area, including in relation to their size, ecological functionality and species composition and distribution, unless those consequences are addressed through Condition 5.

Condition 5

Compliant

Centennial has prepared the following documents in relation to this Condition:

- The Upland Swamp Maximum Offset Liability Framework, dated May 2016. The document provides the framework for monitoring swamps to establish whether mining induced impacts have occurred and the broad process for establishing an offset, should a greater than negligible impact be detected. A Trigger Action Response Plan is also outlined to address Condition 5(a); and
- The Maximum Offset Liability for Gang Gang Swamp, dated May 2016, prepared to assess the maximum offset liability for Newnes Plateau Shrub Swamp occurring within Gang Gang Swamp.

Discussions with the Department of Planning and Environment regarding swamp offsets are ongoing.

Condition 6

Compliant

A variation to this condition was approved on the 29th July 2016. The current Condition 6 has been reported on.

As at the 31st of December 2016, Springvale was mining longwall 419. The requirements of Condition 6 have therefore not been triggered.

Condition 7

Compliant

A variation to this condition was approved on the 29th July 2016. The current Condition 7 has been reported on.

During 2016, Springvale undertook extraction within longwalls 418 and 419. An approved monitoring program was in place for both longwalls, these being:

- The Temperate Highland Peat Swamp on Sandstone Monitoring and Management Plan for Longwall 418; and
- The Swamp Monitoring Program for Longwall 419 (a component Management Plan of the Longwall 419 Extraction Plan).

Condition 8

Compliant

Prior to the approval and implementation of the Swamp Monitoring Program for Longwall 419, monitoring was undertaken in accordance with the Temperate Highland Peat Swamps on Sandstone Monitoring and Management Plan for Longwall 418. This included weekly reporting and downloads in undertaken in accordance with Condition 7(d), which was varied on the 29th of July 2016.

Condition 9

Compliant

As per the requirements of Condition 9, Trigger Action Response Plans have been developed and implemented as part of the Swamp Monitoring Program for longwall 419. The Swamp Monitoring Program was subsequently approved by the Department of Environment.

Condition 10

Compliant

Springvale has not received a cease work notification from the Minister.

Condition 11

Compliant

During 2016, no land clearing of habitat for threatened species was undertaken within the project area.

Condition 12

Compliant

During 2016, Springvale prepared a Biodiversity Management Plan addressing the requirements of Condition 12. The Plan was approved prior to mining commencing with longwall 419.

Condition 13

Compliant

The Blue Mountains Water Skink Research and Management program was submitted on the 30th October 2015 and was approved on the 27th of November 2015. This was prior to the commencement of undermining Carne West Swamp under EPBC 2013/6881.

The 2015/2016 program has been completed and a draft report has been provided to Springvale.

Condition 14

Compliant

Offset areas have not been secured and therefore the requirement has not been triggered. In accordance with SSD_5594 a $2,000,000 Swamp Offset bond was lodged with the Department of Planning and Environment during 2016.

Condition 15

Compliant

The Department was notified on the 16th of October 2015 that the action had commenced. This was within 10 days of commencing the action (10th of October 2015).

Condition 16

Compliant

Accurate records of activities associated with conditions of this approval have been kept. No requests for documents or requests to undertake an audit have been received by Springvale.

Condition 17

Compliant

Springvale has reported potential non-compliances with two business days in accordance with this Condition.

Condition 18

Compliant

This Annual Compliance Report for the 2016 reporting period will be submitted and published on the Centennial Website prior to the 31st of March 2017.

Condition 19

Compliant

No direction has been received by the Minister to undertake an audit.

Condition 20

Compliant

Springvale has not revised any management document associated with EPBC 2013/6881.

Condition 21

Compliant

Not triggered per response to Condition 20.

Condition 22

Compliant

Not triggered per response to Condition 20.

Condition 23

Compliant

Not triggered per response to Condition 20. No notice has therefore been received by the approval holder.

Condition 24

Compliant

Not triggered per response to Condition 20.

Condition 25

Compliant

Mining commenced on the 16th of October 2015. The requirement to seek approval for the continuation of mining after 5 years is not yet triggered.

Condition 26

Compliant

All management documents have been published within 1 month of being approved by the Minister on the Centennial website.

3. IMPLEMENTATION OF MANAGEMENT DOCUMENTS

There are four documents which have been approved under EPBC 2013/6881. These are listed below. Potential non-compliances reported under these management documents and EPBC2013/6881 are presented in Section 4 of this report.

1. The Temperate Highland Peat Swamps on Sandstone Monitoring and Management Plan for LW 418;
2. The Blue Mountains Water Skink Research and Management Plan;
3. The Swamp Monitoring Program for Longwall 419; and
4. The Biodiversity Management Plan for Longwall 419.

Monitoring undertaken in accordance with the Monitoring Programs and an analysis of results are presented in the Subsidence Management Status Reports (prepared four-monthly) and the Annual Review (submitted by the 31st of March each year). The Annual Review also represents the first *Six Monthly Environmental Monitoring Report* for the longwall 419 Extraction Plan.

The inaugural monitoring event for the Blue Mountains Water Skink was conducted in 2015 – 2016. Replicated surveys were conducted over three monitoring rounds and across ten sites to establish the foundations for a successful multi-year monitoring program by:

- Determining Blue Mountains Water Skink presence at each candidate swamp;
- Refining monitoring methodologies and capture-mark-recapture techniques to improve the accuracy of population estimate; and
- Initiating the development of a baseline dataset for impact and control sites thus define the natural pre-impact variation within Blue Mountains Water Skins populations.

It is expected that two to three years of monitoring will be required to provided a baseline for future analyses. A draft report has been provided to Springvale for the 2015 – 2016 sampling program. The draft report indicated that Blue Mountains Water Skink was found within nine of thirteen Temperate Highland Peat Swamps on Sandstone sampled. Results indicated varying population sizes, although the reliability of these population estimates is intrinsically linked by the limit dataset on hand. A program review was completed as part of the Report and consultation will be conducted with the Office of Environment and Heritage and Department of Environment as required.

4. TRIGGER NOTIFICATIONS

The following notifications were provided to the Department of Environment during the reporting period. In accordance with relevant approval requirements, Centennial notified the Department of Environment and has undertaken investigations into the exceedances. The following sections summarise the actions undertaken in relation to each trigger. Additional detail is included in the reports provided to the Department.

4.1. GW1

Initial Notification

Notification of an exceedance at groundwater monitoring location GW1 was received by Springvale from RPS on the 2nd of November 2016. Notification of the trigger was then provided to the Department of Environment and the Department of Planning and Environment on the 3rd of November 2016, as required under the response protocol in the Swamp Monitoring Program for longwall 419 and EPBC 2013/6881 Condition 17.

Investigative Report

A Trigger Investigation Report was submitted to both Departments of the 23rd of December 2016. The Report outlined a series of checks to discern non-mining impacts from mining related impacts and a proposed action plan.

Response Strategy

The following actions are currently being undertaken by Centennial:

- The following actions will be reviewed to form part of a further investigation program to determine potential causes in the change in groundwater level behaviour observed in GW1:
    - Centennial to continue its investigations into subsidence effects to groundwater systems to determine if there is a relationship between mine subsidence and the change in groundwater level behaviour observed in GW1.
    - Review the results obtained from the Stage 1 Hydrological Modelling of Shrub Swamps recently completed by Jacobs.
    - Complete a review of adjacent aquifer piezometers to determine whether there has been a corresponding decline in regional groundwater beneath the base of GW1.
- Continue to monitor conditions for a 6 month period and:
    - Undertake any necessary investigations.
    - Review data from all monitoring programs.

Investigation Outcomes

The swamp piezometer GW1, installed within the peat/soil profile of Gang Gang Swamp South West, exceeded the short term groundwater trigger level following monitoring conducted in October 2016.

While swamps cannot be classified rigidly based on interpretation of the dominant water source, groundwater specialists acknowledge that there may be a transition from rainfall to groundwater dependency along a swamp depending on prevailing climatic conditions. The observed groundwater response to rainfall events is therefore important in the interpretation of hydrographs. Whether or not the change in groundwater level behaviour in GW1 is solely due to dry climatic conditions or is compounded by far-field subsidence interactions is not clear. Data indicates, however, that the observed change in behaviour is not due to conventional subsidence prior to mining within 600m of GW1. Rainfall has been shown to have significant effect on water levels within all impact and reference swamps identified under the SMP. Baseline water levels used to establish triggers were set using historical data where the Cumulative Rainfall Deviation (CRD) was positive (indicating above average rainfall).

From March 2013 to June 2016, the CRD was in decline, indicating a period of below average rainfall. Both impact and reference swamps have shown a response in groundwater levels to this variation.

The triggers in the SMP are based on statistically derived 95th percentile values for standing water levels. The standing water levels at a number of reference swamp piezometers were also below the 95th percentile values at the time of the GW1 trigger activation.

The regional groundwater level recorded in SPR1602 and SPR1603 has dropped below the Gang Gang Swamp South West basement. This is consistent with the decline in water levels in both GW1 and GW2. SPR1602 and SPR1603 were only installed three months ago, and during a period of above average rainfall. The recorded decline may therefore only be temporary and should continue to be observed.

Although the trigger has been activated, it is necessary to view the trigger in the context of regional monitoring at SMP reference sites. The results of the preliminary investigation indicate that the current reduction in standing water level at GW1 could be associated with the rainfall deficit observed since March 2013, or the effects of mining, with the potential for this climatic decline being compounded, or enhanced by far-field subsidence interactions with geological lineaments.

4.2. SPR1104 and SPR1107

Initial Notification

Notification of an exceedance of water level trigger thresholds (short-term) at SPR1104 and SPR1107 was received by Centennial from RPS on the 22nd of December 2016, following scheduled monitoring and subsequent data verification. Notification of the triggers was provided to the Department of Environment and the Department of Planning and Environment on the 22nd of December 2016, as required under Springvale approvals.

Investigative Report

A Trigger Investigation Report was submitted to both Departments on the 16th of February 2017. The Report outlined a series of checks to discern non-mining impacts from mining related impacts and a proposed action plan.

Response Strategy

The following actions are currently being undertaken by Centennial:

- Centennial will continue investigations into subsidence affects to groundwater systems to determine if there is a relationship between mine subsidence and the change in groundwater level behaviour observed at SPR1104 and SPR1107.
- Continue to monitor conditions for a 6 month period and:
    - Undertake any necessary investigations if conditions worsen.
    - Review data from all monitoring programs.

Investigation Outcomes

Both SPR1104 and SPR1107 exceeded the 5th percentile pre-mining thresholds during the pre-mining period. This caused the immediate trigger of SPR1104 and SPR1107 when the

longwall approached within the 600m trigger investigation area. With the same trigger criteria applied, reference piezometers SPR1108, SPR1111, and SPR1113 were also found to trigger during the pre-mining period, indicating a regional climatic influence on groundwater levels. This is supported by a rainfall deficit from March 2013 which is observable through CRD.

SPR1104 shows a sharp declining trend towards the end of September 2016 that does not correlate with reference piezometers or climatic conditions. The hydrograph indicates that groundwater level in the vicinity of the piezometer has re-equilibrated with reduced groundwater levels above the longwall goaf which have been impacted by subsidence, likely fracture dilation and bed separation resulting in increased storage capacity and a corresponding reduction in groundwater levels. This is further supported by stabilisation towards the end of the data set. There is no evidence of continued decline that might be associated with vertical fracturing or deep drainage at this stage.

Post-mining, the groundwater level at SPR1107 has continued at a similar gradient to reference piezometers. Continued monitoring may be expected to show a similar response with the passing of Longwall 419, as observed at SPR1104.

4.3. SSE1 and WC01, WC03 & WC04

Initial Notification

Notification of an exceedance of flora performance indicator triggers at monitoring locations SSE1 (Sunnyside East Swamp) and WC03 & WC04 (Carne West Swamp) was received by Centennial from RPS on the 8th of November 2016. Notification of the triggers was provided to the Department of Environment on the 10th of November 2016, as required under the response protocol in the Longwall 415 – 417 THPSSMP and Longwall 418 THPSS MMP TARP.

Investigative Report

A Trigger Investigation Report was submitted to the Department on the 23rd of December 2016. The Report outlined a series of checks to discern non-mining impacts from mining related impacts and a proposed action plan.

Response Strategy

The following actions were recommended for consideration and are currently being undertaken/investigated by Centennial:

SSE1

- Continue to perform monitoring activities in accordance with the THPSSMP for Longwalls 415 – 417.
- Repeat investigations performed in this analysis to evaluate eucalypt recruitment at a swamp scale.
- Instigate a swamp rehabilitation program centering on the removal of eucalypt regrowth throughout the central and lower parts of the swamp.*

* Note: this recommendation may necessitate application for a licence under Section 91 of the *Threatened Species Conservation Act* 1995. Consultation is required with the Office of Environment and Heritage to discern this requirement.

WC01

- Continue to perform monitoring activities in accordance with the THPSS MMP for LW418.
- Review recent data collected from monitoring methods applied in accordance with the Swamp Monitoring Program for LW419 (i.e. Brownstein et al 2014).
- Consider options for reducing the amount of entry into Carne West for monitoring purposes and/ or consider alternate access options (e.g. installation of raised boardwalk to piezometer sites).
- Consider construction of a barrier along the swamp margin at the vehicle track elbow to disperse fauna movements thus potentially reduce trampling impacts.

WC03 & WC04

- Continue to perform monitoring activities in accordance with the THPSS MMP for LW418.
- Review recent data collected from monitoring methods applied in accordance with the Swamp Monitoring Program for LW419 (i.e. Brownstein et al 2014).

Investigative Outcomes

SSE1

The drying effect of the incision feature (an aged and previously documented erosion feature within Sunnyside East Swamp that pre-dates mining) and the recent prolonged period of dry weather provide an alternative hypothesis for the emergence of eucalypt recruitment. Contrary to other monitored swamps, it is also noteworthy to mention the extensive eucalypt canopy overhang within Sunnyside East Swamp, thus its increased exposure to eucalypt seed accumulation.

Unseasonably dry warm conditions were also prevalent in the preceding months adding further pressure on water availability in the upper peat layers. The combined influence of the incision feature and weather conditions could explain the emergence of eucalypt regeneration within the swamp.

Other measures monitored at SSE01 remain within the expected range and have not resulted in a trigger event. While inconclusive, it is reasonable to speculate that the eucalypt trigger is not necessarily related to mining, rather may be a function of weather and opportunity (i.e. a considerable proportion of Sunnyside East Swamp has overhanging eucalypt cover).

WC01, WC03 & WC04

Coral Fern is a characteristic species in THPSS of the Newnes Plateau area. At Carne West this species forms dense aggregations on the swamp margins decreasing to dense patches in the central parts. Being a fern, this species generally develops a shallow root system in the upper parts of the peat profile and is reliant on constant high soil moisture for growth and vigour. These two factors make this species particularly susceptible to water loss and/ or fluctuation.

According to Hose et al. (2014), Coral Fern is characteristic of the wetter parts of the ‘Budderoo’ THPSS where it associates with sedge (i.e. Gymnoschoenus sphaerocephalus) and tussock (Xyris operculata) species. Zonation of this nature in Carne West is not exactly the same as described by Hose et al. (2014), however is broadly similar with Xyris ustulata

substituting X. operculata and the sedge Lepidosperma limicola substituting G. sphaerocephalus on the swamp margins.

Centennial (2016) provides insight into the recent hydrological regime of Carne West indicating a shift in 2014 from a groundwater to rainfall dependent swamp. Ongoing groundwater investigations are currently being performed to determine if this shift in water reliance is mining induced or is a delayed response to longer term climatic influences.

In consideration of Hose et al. (2014) and Centennial (2016), the exclusion of mining as a possible cause for the decline in Coral Fern condition is a feasible conclusion given that recent dry warm weather conditions may represent a plausible reason for the observed change. If Carne West is rainfall dependent then it is reasonable to assume that the swamp margins will experience the greatest water stress and do so earlier than the swamp axis. Other anthropogenic and natural influences may also have contributed to the sharp decline in Coral Fern condition. Therefore, without clarity on the reason for change in water dependency, it is premature to conclude if the change in Coral Fern condition is mining related or not.

Centennial Coal

Springvale