



EPBC 2011/5949

***Temperate Highland Peat Swamps
on Sandstone Monitoring and
Management Plan LW 415 to 417
Annual Compliance Report***

Springvale Mine

July 2017

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Declaration of Accuracy

In making this declaration, I am aware that Section 490 and 491 of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) make it an offence in certain circumstances to knowingly provide false or misleading information or documents. The offence is punishable on conviction by imprisonment or a fine, or both. I declare that all the information and documentation supporting this compliance report is true and correct in every particular. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed 

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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.

Approval 2011/5949 was issued to Springvale by the Department of Sustainability, Environment, Water, Population and Communities (SEWPAC) on the 14th of March 2012. Approval 2011/5949 is related to a controlled action area of the Springvale mine for mining of longwall panels (LW) 415 – 417 as shown in Figure 1.

This report has been prepared in accordance with the Annual Compliance Report Guidelines (Department of Environment, 2014) to address the requirement of EPBC 2011/5949 Condition 29, which states that:

Within three months of every 12 month anniversary of the commencement the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans, report, strategy etc. as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the department at the same time as the compliance report is published. The person taking the action must also notify any non-compliance with this approval to the department in writing within two days of becoming aware of the non-compliance.

The reporting period for this Annual Compliance Report is from the 15th of March 2016 to the 14th of March 2017.

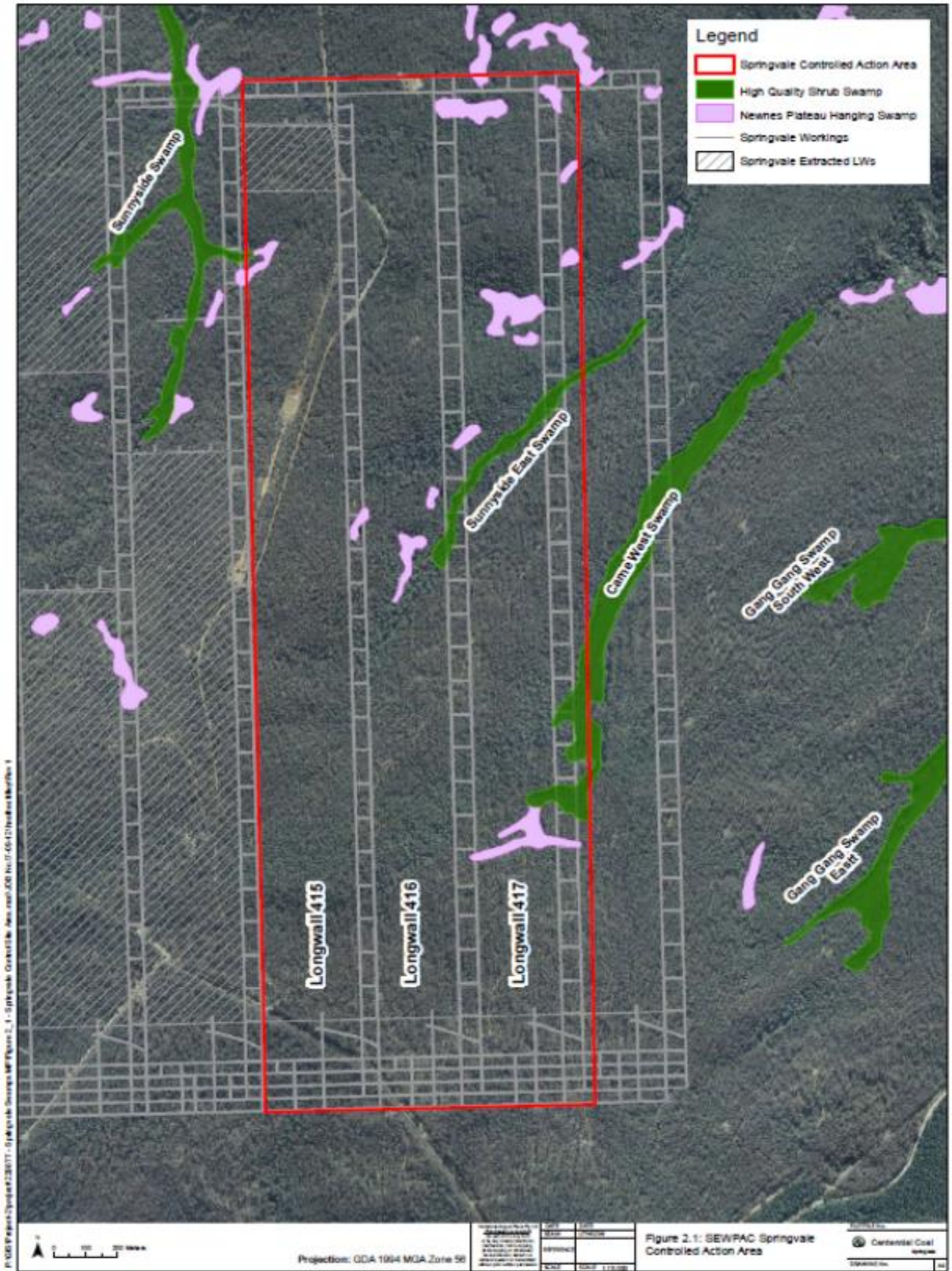


Figure 1 Controlled Action Area 415 to 417

2. DESCRIPTION OF ACTIVITIES

An overview of EPBC 2011/5949 project details, as per Annual Compliance Report Guidelines (Department of Environment, 2014) is outlined in Table 1.

Table 1. EPBC 2011/5949 Project Details

EPBC Number	EPBC 2011 / 5949
Project Name	Mining of Longwalls 415, 416 and 417 at Springvale Colliery, NSW
Approval Holder	Springvale Coal Pty Ltd ACBN 052 096 769
Approved Action	Coal extraction using longwall mining techniques of three longwall panels at the existing Springvale Mine, including longwalls 415-417
Location of the Project	Springvale Mine, 8km north-east of Lithgow. Refer Figure 1 for controlled action area.
Reporting Period	15 th of March 2016 to 14 th of March 2017
Date of Report	First submission: 15 th June 2017 Second submission: 19 th July 2017

2.1. Approvals

Springvale operates under NSW Development Consent SSD_5594, two EPBC Approvals and EPL3607. Details of these are provided in Table 2. Two modifications to SSD_5594 were submitted during the reporting period. Details of these are outlined in **Error! Reference source not found.**

Table 2. Springvale Major Approvals

Approval	Details	Date of Issue	Expiry
SSD_5594	Springvale Mine Extension Project	21 September 2015	31 December 2028
EPBC 2011/5949	Mining of Longwalls 415 – 417.	14 March 2012	19 March 2032
EPBC 2013/6881	Mining associated with the Springvale Mine Extension Project.	15 October 2015	8 October 2035
EPL3607	Environmental Protection License for Springvale Coal Pty Limited	17 May 2000	Renewed Annually

Table 3. SSD_5594 Modifications during the Reporting Period

Modification No.	Details of Modification	Date of Application /Exhibition Period	Status (as at 14 March 2017)
Mod 1	<ul style="list-style-type: none"> • Increase of the approved workforce (including contractors) from 310 full time equivalent (FTE) to 450; • Increase in ROM coal production from the approved 4.5 Mtpa to 5.5 Mtpa; and • Increase in the existing stockpile capacity at the Springvale pit top from 85,000 tonnes to 200,000 tonnes capacity and an increase in the coal stockpile footprint by 0.3ha northeast of the stockpile area. 	23/07/2016 / 02/08/2016 – 23/08/2016	Assessment
Mod 2	<ul style="list-style-type: none"> • To remove the requirement to <i>Meet limits for salinity of 700 (50th percentile), 900 (90th percentile) and 1000 (100th percentile) uS/cm by 30 June 2017</i>; and • To defer to 30 June 2019 the requirement to <i>Eliminate acute and chronic toxicity from LDP009 discharges to aquatic species by 30 June 2017, with acute toxicity defined as >10% effect relative to the control group and chronic toxicity defined as >20% effect relative to the control group.</i> 	22/12/2016 / 24/01/2017 – 28/02/2017	Submitted

2.2. Operational Summary

The approval of SSD_5594 allowed Springvale to continue underground coal mining operations within the Lithgow Seam until 31 December 2028, with subsequent rehabilitation and closure works. In summary the project includes:

- continued longwall mining operations to extract up to 4.5 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal from the Lithgow Seam;
- continued operation of the mine's pit top area, support facilities and utilities;
- extension and continued use of the Springvale Delta Water Transfer Scheme, bore dewatering facilities and ventilation infrastructure;
- continued processing (sizing and screening) of ROM coal at the pit top area;
- continued stockpiling of ROM coal (85,000 tonnes (t) capacity);
- continued transportation of processed coal by overland conveyor to Centennial's Western Coal Services site (WCSS) for further processing or to the Mt Piper Power Station;
- continued transportation of processed coal by road haulage to other local domestic customers (limited to 50,000 tpa); and
- rehabilitation of the pit top area and Newnes Plateau surface infrastructure sites.

The main components of Springvale Mine's operations are an underground longwall mine, accessed via the Springvale pit top, and supporting surface infrastructure within the pit top area and on Newnes Plateau within the Newnes State Forest.

During the reporting period, extraction of longwalls 418 and 419 were undertaken.

Extraction of longwall 418 commenced on the 22nd of October 2015 and was completed on the 27th of May 2016 with a total retreat of 2487m. Extraction of longwall 419 commenced on the 2nd of August 2016 and was completed on 18th of March 2017 with a total chainage of 2340m.

3. DETAILS OF COMPLIANCE WITH APPROVAL CONDITIONS

Springvale's compliance status with EPBC 2011/5949 is outlined in Table 4.

During the reporting period, a three yearly Independent Environmental Audit was undertaken by MCW Environmental, per Schedule 6, Condition 13 of SSD_5594. EPBC 2011/5949 was assessed as part of this Audit and the audit findings have been referenced in assessing compliance.

Table 4. EPBC 2011/5949 - Condition Compliance Status

Condition Number / Reference	Condition	Project Compliance Status	Evidence / Comments
1	Unless agreed by the minister in writing, longwall mining is not to be undertaken in areas directly below known high quality sites of temperate highland peat swamps on sandstone or within approved buffer zones (as per condition 2). If at any time the person taking the action seeks the minister's agreement to vary this condition the person taking the action must demonstrate in writing that a proven technology or engineering methodology will be used for the proposed longwall mining that prevents severe impacts of subsidence on temperate highland peat swamps on sandstone, or that would allow any severe impacts on temperate highland peat swamps on sandstone to be successfully remediated.	Compliant	<p>An application was made on the 27th of March 2013 with attached supporting documentation seeking agreement from the Minister to vary condition 1 of the approval (EPBC 2011/5949). Additional information was provided on the 3rd and 4th of September 2013 as requested by the department.</p> <p>As evidenced by correspondence dated the 21st of October 2013 from the Department of Environment, the request under Condition 1 of the approval was approved to allow for mining of longwalls 415, 416 and 417 under THPSSEC.</p>
2	Within three months of the date of this approval, the person taking the action must submit details of proposed buffer zones around high quality temperate highland peat swamps on sandstone for the minister's approval. The buffer zones must be approved by the minister before mining of longwalls 416 and 417 can commence.	Compliant	<p>On the 8th June 2012, a letter was submitted to the department containing details of proposed buffer zones around known high quality sites of Temperate Highland Peat Swamps on Sandstone in the Controlled Action Area. This was within 3 months of the date of issue of 2011/5949 EPBC (14 March 2012) and was compliant with the requirements of Condition 2 of the EPBC 2011/5949 approval.</p> <p>The proposed buffer zones were approved on the 14th of June 2013. Longwall extraction of 416 and 417 commenced on the 24th of September 2013 and on the 11th</p>

			of October 2014 respectively.
3	The person taking the action must monitor subsidence resulting from the proposed longwall mining in accordance with the <i>Springvale Colliery Subsidence Management Plan: Proposed Subsidence Monitoring and Reporting program LW415 to 417</i> to monitor subsidence effects on the endangered temperate highland peat swamps on sandstone ecological community.	Compliant	<p>Monitoring of subsidence has been conducted in accordance with the Springvale Colliery Subsidence Management Plan: Proposed Subsidence Monitoring and Reporting Program LW415 to 417 and records maintained for analysis, reporting and audit purposes.</p> <p>MCW Environmental (October 2016) reported the following in assessment of Condition 3:</p> <p><i>Audits of compliance against EPBC 2011/5949 conditions in 2013 and 2015 were sighted. The audits reported that monitoring had been undertaken in accordance with the approved monitoring program and document control references for monitoring records for CoA 3 were available.</i></p>
4	<p>If anomalous subsidence is detected within 200 metres of an area of temperate highland peat swamps on sandstone ecological community using the method defined in condition 3, the person taking the action must submit to the department a report detailing:</p> <p>a) the extent and level of subsidence recorded</p> <p>b) likely reasons for the anomalous subsidence</p> <p>c) potential impacts on the temperate highland peat swamps on sandstone ecological community resulting from the anomalous subsidence.</p>	Not Applicable	<p>There has been no anomalous subsidence detected within 200m of any areas of Temperate Highland Peat Swamps on Sandstone Ecological Communities.</p> <p>As no reporting under Condition 4 of the EPBC 2011/5949 approval has been required, this condition has been assessed as not triggered.</p>
5	The report in condition 4 must be submitted to the department within 10 business days of detecting the anomalous subsidence.	Not Applicable	<p>There has been no anomalous subsidence detected.</p> <p>The requirement to submit a report within 10 business days has therefore not been triggered.</p>
6	Within six months of the date of this approval, the person taking the action must submit a Temperate Highland Peat Swamps on Sandstone Monitoring and Management Plan ('Monitoring and Management Plan') for the minister's approval, to define clear, quantifiable and measurable criteria for monitoring the impact of longwall mining on temperate highland peat	Compliant	Condition 6 requires the development of a Temperate Highland Peat Swamps on Sandstone Monitoring and Management Plan (THPSS MMP) within six months of approval (14 March 2012). The THPSS MMP was received

	swamps on sandstone.		by the department on 14 September 2012, satisfying the requirements of this condition. The letter approving the THPSS MMP (dated 21/09/2012) references receipt of the THPSSMMP by the department on 11/09/2012, which is less than six months from EPBC 2011/5949 approval (14/03/2012).
7	<p>The Monitoring and Management Plan must include prevention, monitoring, mitigation and management actions for all potential impacts on the temperate highland peat swamps on sandstone ecological community arising from the action. The Monitoring and Management Plan must be a stand-alone document and include but not be limited to:</p> <p>a) monitoring must take into account the geological and hydrological context in which the swamps sit, i.e. monitoring must include methods to detect potential geological and hydrological impacts upstream of temperate highland peat swamps on sandstone</p> <p>b) monitoring must focus on surface and groundwater hydrology (including at least one piezometer per swamp), surface and groundwater quality, vegetation community structure and diversity, and biological indicator species</p> <p>c) monitoring must include at least one sample per season (four samples per year) at each sampling location for each parameter measured, though more frequent sampling may be required for some parameters</p> <p>d) monitoring post-mining must continue for a period of at least 10 years. Monitoring frequency may be reduced once three years of post-mining swamp monitoring has been undertaken if swamp condition has not degraded as a result of mining activity</p> <p>e) monitoring must include all temperate highland peat swamps on sandstone (including but not limited to both Newnes Plateau Shrub Swamps and Newnes Plateau Hanging Swamps) potentially affected by the proposed action (impact sites) as well as reference sites. Reference sites must include temperate highland peat swamps on sandstone that have never been subjected to, or are not predicted to be impacted by, subsidence impacts</p>	Compliant	<p>The requirements of CoA 7 are addressed in the THPSSMMP 2013 and 2015 as follows (section reference in brackets):</p> <p>a) monitoring must take into account the geological and hydrological context in which the swamps sit (sections 3 and 5)</p> <p>b) monitoring must focus on surface and groundwater hydrology (section 7.1)</p> <p>c) monitoring must include at least one sample per season (four samples per year) at each sampling location for each parameter measured (table 8.1)</p> <p>d) monitoring post-mining must continue for a period of at least 10 years (sections 6.1, 7.1.2 and 7.2.1)</p> <p>e) monitoring must include all temperate highland peat swamps on sandstone (section 7)</p> <p>f) details of the parameters monitored, methods, timing, frequency and location of baseline monitoring within the temperate highland peat swamps on sandstone ecological community (section 7 and Appendices)</p> <p>g) definition and description of baseline conditions of individual temperate highland peat swamps on sandstone (including both impact and reference sites), including biological processes, condition, threats and the range of natural variability observed in parameters monitored (sections 3.6 and 6 and Appendices (baseline))</p>

	<p>f) details of the parameters monitored, methods, timing, frequency and location of baseline monitoring within the temperate highland peat swamps on sandstone ecological community</p> <p>g) definition and description of baseline conditions of individual temperate highland peat swamps on sandstone (including both impact and reference sites), including biological processes, condition, threats and the range of natural variability observed in parameters monitored</p> <p>h) trigger levels sufficient to detect potential impacts of subsidence on the temperate highland peat swamps on sandstone ecological community, including information on how the triggers were derived using baseline monitoring and desktop study data. Triggers should be specific and measureable</p> <p>i) details of the parameters monitored, methods, timing, frequency and location of reference site monitoring within the temperate highland peat swamps on sandstone ecological community</p> <p>j) allowance and methods for trigger levels to be refined as more monitoring data is collected</p> <p>k) details of the parameters monitored, methods, timing, frequency and location of impact site monitoring within the temperate highland peat swamps on sandstone ecological community, sufficient to detect changes in the defined trigger levels</p> <p>l) corrective actions to be taken should the defined trigger levels (as at condition 7h) be exceeded. These should be clear, measurable, auditable and include specific timing (e.g. within 6 months of impact detection). Implementation of a Response Strategy (as required at condition 1) should be included as a corrective action should severe impacts be detected.</p> <p>m) details of how data collected by the proposed monitoring methods will be analysed. This must include a method to analyse data sets in an holistic manner to produce an overall indication of swamp health</p> <p>n) description of how potential impacts arising from the monitoring and mitigation measures themselves will be minimised or avoided</p>		<p>h) trigger levels sufficient to detect potential impacts of subsidence on the temperate highland peat swamps on sandstone ecological community (section 6)</p> <p>i) details of the parameters monitored, methods, timing, frequency and location of reference site monitoring (section 7)</p> <p>j) allowance and methods for trigger levels to be refined as more monitoring data is collected (section 7 and table 11.2.1)</p> <p>k) details of the parameters monitored, methods, timing, frequency and location of impact site (section 7)</p> <p>l) corrective actions to be taken should the defined trigger levels be exceeded (sections 9 and 10)</p> <p>m) details of how data collected by the proposed monitoring methods will be analysed (section 7)</p> <p>n) description of how potential impacts arising from the monitoring and mitigation measures themselves will be minimised or avoided (section 7)</p> <p>o) maps illustrating the location of the longwall mining activity, past mining activities, expected subsidence limits, location of temperate highland peat swamps on sandstone within a 5 kilometre radius of the longwall mining activity, and past and proposed monitoring locations for all parameters</p> <p>p) description of record keeping and reporting procedures (section 11)</p> <p>q) the plan must clearly state the person responsible, including their position or status (section 1.3)</p> <p>r) the plan must include a timeline for review, and provision for revisions to be approved by the department prior to their implementation (section 11)</p> <p>The 2012 THPSSMMP was revised in 2013 for LW 415-</p>
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	<p>o) maps illustrating the location of the longwall mining activity, past mining activities, expected subsidence limits, location of temperate highland peat swamps on sandstone within a 5 kilometre radius of the longwall mining activity, and past and proposed monitoring locations for all parameters</p> <p>p) description of record keeping and reporting procedures</p> <p>q) the plan must clearly state the person responsible, including their position or status</p> <p>r) the plan must include a timeline for review, and provision for revisions to be approved by the department prior to their implementation</p>		417, and again in 2015 for LW 418.
8	The Monitoring and Management Plan must be reviewed by two independent reviewers approved by the department prior to the submission to the department for approval.	Compliant	<p>The THPSS MMP was reviewed by two independent reviewers prior to submission to the department for approval as required under Condition 8. DoE approval of the independent reviewer was provided on 22/06/2012.</p> <p>The independent reviewers provided correspondence to DoE on 24/09/2014 stating that peer review of the THPSS MMP had been completed.</p>
9	If the minister approves the Monitoring and Management Plan then the approved Monitoring and Management Plan must be implemented.	Compliant	<p>On the 21st October 2013 DoE approved the Springvale THPSS MMP. The plan has been fully implemented as required under Condition 9.</p> <p>MCW Environmental reported the following in assessment of Condition 9:</p> <p><i>Evidence of implementation of the THPSSMMP included:</i></p> <ul style="list-style-type: none"> • The 2014 LW 415 to 417 Annual THPSSMMP report includes subsidence, flora, surface water and groundwater monitoring results. • Annual monitoring reports have been submitted to the DoE (2013 – 2016). • The THPSSMMP Annual Compliance Report (03/2016) identifies that the following notification and investigations were conducted in accordance with TARP and notification processes defined in LW 415-

			<p><i>417 and LW 418 THPSSMMPs:</i></p> <ul style="list-style-type: none"> ○ <i>SSE1 and SPR1101: Notification of the defined groundwater monitoring trigger was received by CC from RPS on 24/03/2014. This was reported to DoE on 28/03/2014 (i.e. within five business days) with subsequent provision of an investigation report within eight weeks (19/05/2014) with additional investigation details provided on 19/01/2016.</i> ○ <i>SSE2 and SSE3: Notification of the groundwater monitoring trigger was received by CC from RPS on 27/03/2015. This was reported to the DoE on 30/03/2015 (i.e. within five business days) with subsequent provision of an investigation report within eight weeks (22/05/2015).</i> ○ <i>Stolen Piezometers: The 2015 Audit spreadsheet identified that piezometers were stolen on 5/5 and that notification was provided to the DoE on 5/5 (assumed to be 2015) which is within five business days. The spreadsheet also provides a Doc One reference link to the notification, APP128649.</i> ○ <i>CW3 and CW4: Notification of the defined groundwater monitoring trigger was received by CC from RPS on 29/07/2015. This was reported to DoE on 05/08/2015 i.e. within five business days. A preliminary investigation report was provided on 22/09/2015 (within eight weeks).</i> ○ <i>SPR1109: Notification of an historical trend of decline groundwater levels was received by CC from RPS on 29/07/2015. This was reported to the DoE on 05/08/2015 (within five business days) and a preliminary findings report submitted to the DoE on 22/09/2015.</i> ○ <i>CW1 and CW2: Notification of an historical trend of declining groundwater levels was received by CC from RPS on 18/12/2015. This was reported to the DoE on 22/12/2015 (i.e. within five business days) with subsequent provision of a preliminary investigation report on 12/02/2016. This report summarised monitoring data related to the impact, provided an explanation of the expected cause and that further data analysis was required to</i>
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			<p><i>determine if the changes to water levels in Carne West Swamp are related to mine subsidence or the decline observed in the regional groundwater table aquifer.</i></p> <ul style="list-style-type: none"> • <i>The Audit includes links to the following documents verifying monitoring has been undertaken in accordance with THPSSMMP requirements:</i> <ul style="list-style-type: none"> ○ <i>Groundwater reports from October 2013;</i> ○ <i>Flora reports from October 2013;</i> ○ <i>Subsidence monitoring; and</i> ○ <i>Water quality reports from October 2013.</i> <p>Based on the evidence compiled as part of the 2016 Audit demonstrating the implementation of the THPSS MMP through compliance monitoring and reporting, this condition has been assessed as compliant.</p>
10	A report detailing the results of actions carried out under the Monitoring and Management Plan must be prepared and provided to the department annually on the anniversary of the date of this approval. The minister may request that the report be reviewed by an independent reviewer approved by the department.	Compliant	<p>While the THPSS MMP was not approved until the 21st of October 2013, a report to satisfy the requirements of Condition 10 and Condition 29 was submitted to demonstrate that actions were being undertaken in good faith by Centennial based on the draft THPSS MMP on the 14th of June 2013.</p> <p>On 28th March 2014, 17th March 2015, 11th March 2016 and 14th of March 2017, an Annual Monitoring Report was submitted to the Department as required under Condition 10.</p>
11	<p>The person taking the action must, when first becoming aware of an impact to temperate highland peat swamps on sandstone:</p> <p>a) when the impact is a defined trigger level (as defined in condition 7h) being exceeded, report the impact to the Department within five business days b) when the impact is a defined trigger level (as defined in condition 7h) being exceeded, report the implementation of the corrective action (as defined at condition 71) within such time as is reasonable in the circumstances, unless required to report outcomes within a time frame specified in writing by the department</p> <p>c) when exceedence of a trigger level is not detected, but an impact is</p>	Compliant	<p>Two reporting requirements under this condition were triggered during the reporting period.</p> <p>As the triggers fell under both the THPSS MMP for longwalls 415 - 417 and THPSS MMP for longwall 418, notification was provided under the more recent EPBC 2013/6881 approval (Condition 17).</p> <p>In accordance with relevant approval requirements, Centennial notified DoE and has undertaken investigations into the exceedances. Section 4 of this report summarises</p>

	<p>apparent. report the impact to the department within 20 business days with details of proposed corrective actions</p> <p>d) in all of the above cases (conditions 11 a to 11 c inclusive), provide the results of monitoring data relating to the impact and an explanation of the expected cause of the impact.</p>		the actions undertaken in relation to each trigger.
12	<p>If at any time the minister determines that data provided in the report at condition 10 or 11 indicates that the action has had a severe impact on the temperate highland peat swamps on sandstone ecological community and/or any associated threatened species, the minister will inform the person taking the action in writing ('the severe impact notification letter'), particularising all severe impacts. Once the person taking the action receives the severe impact notification letter, conditions 13 to 18 (inclusive) will apply.</p>	Not Applicable	<p>No severe impacts to THPSS EC have been detected or reported and no severe impact notification letters have been issued by the department under Condition 12.</p> <p>This condition has therefore been assessed as not triggered.</p>
13	<p>When the person taking the action receives a severe impact notification letter, the person taking the action must prepare and submit a Temperate Highland Peat Swamps on Sandstone Response Strategy (the 'Response Strategy') for the minister's approval within three months of the date of the letter.</p>	Not Applicable	<p>No severe impact notification letters have been received and no Temperate Highland Peat Swamps on Sandstone Response Strategy has been required under Condition 13.</p> <p>This condition has therefore been assessed as not triggered.</p>
14	<p>The Response Strategy must include measures for remediating or offsetting all severe impacts particularised by the Minister on the temperate highland peat swamps on sandstone ecological community arising from the action. The Response Strategy must be a stand-alone document and include but not be limited to:</p> <p>a) a description of the severe impact including extent, duration, and expected cause. This should include a description of how the impact may affect temperate highland peat swamps on sandstone</p> <p>b) the objectives of the Response Strategy</p> <p>c) the proposed response actions to be taken and how the proposed actions will be implemented</p> <p>d) a description of how the strategy will deliver an overall conservation outcome that improves or maintains the viability of temperate highland peat swamps on sandstone and associated threatened species</p>	Not Applicable	<p>No Temperate Highland Peat Swamps on Sandstone Response Strategy has been required under Condition 14.</p> <p>This condition has therefore been assessed as not triggered.</p>

	<p>e) the estimated cost of all proposed response actions</p> <p>f) the strategy must clearly state the person responsible for implementing remediation actions, including their position or status and contact details</p> <p>g) description of record keeping and reporting procedures</p>		
15	The Response Strategy must be reviewed by two independent reviewers approved by the department prior to the submission to the department.	Not Applicable	<p>No peer review of a Temperate Highland Peat Swamps on Sandstone Response Strategy has been required under Condition 15.</p> <p>This condition has therefore been assessed as not triggered.</p>
16	If the minister approves the Response Strategy then the approved Response Strategy must be implemented.	Not Applicable	<p>No Ministerial approval or implementation of a Temperate Highland Peat Swamps on Sandstone Response Strategy has been required under Condition 16.</p> <p>This condition has therefore been assessed as not triggered.</p>
17	A report detailing the results of actions carried out under the Response Strategy must be prepared and provided to the department at a time agreed to in writing by the department upon receiving the Response Strategy. The report must be reviewed by an independent reviewer within a timeframe determined in agreement with the department prior to being provided to the department.	Not Applicable	<p>No reporting of the results of actions carried out under a Temperate Highland Peat Swamps on Sandstone Response Strategy has been required under Condition 17.</p> <p>This condition has therefore been assessed as not triggered.</p>
18	The person taking the action must, if required in writing by the minister, stop all work associated with the proposed action within sixty days of the date of the letter referred to in condition 12. Work may be resumed if indicated in writing by the minister.	Not Applicable	<p>No stopping of work has been directed by the Minister under Condition 18.</p> <p>This condition has therefore been assessed as not triggered.</p>
19	If at any time the minister determines in writing that s/he is not satisfied that adequate financial arrangements are in place to ensure that a Response Strategy (as required under condition 13) could be implemented, the minister may require the person taking the action to provide an	Not Applicable	No financial arrangement (bond) related to implementation of a Temperate Highland Peat Swamps on Sandstone Response Strategy has been directed by the Minister under

	arrangement (in the form of a bond, financial guarantee or similar arrangement (in these conditions 'a bond')), as directed by the minister.		Condition 19. This condition has therefore been assessed as not triggered.
20	The value of a bond that may be required by the minister under condition 19 is the amount determined by the minister as required to implement of a Response Strategy.	Not Applicable	No financial arrangement (bond) related to implementation of a Temperate Highland Peat Swamps on Sandstone Response Strategy has been required under Condition 20. This condition has therefore been assessed as not triggered.
21	The minister may increase or decrease the bond amount required where the person taking the action has increased or decreased, respectively, the liability.	Not Applicable	No financial arrangement (bond) related to implementation of a Temperate Highland Peat Swamps on Sandstone Response Strategy has been required under Condition 21. This condition has therefore been assessed as not triggered.
22	In providing for or varying a bond amount in accordance with these conditions, the minister may request the person taking the action to obtain written quotes for the cost of potential actions under the Response Strategy from a third party approved by the minister within a timeframe determined in agreement with the department.	Not Applicable	No financial arrangement (bond) related to implementation of a Temperate Highland Peat Swamps on Sandstone Response Strategy has been required under Condition 22. This condition has therefore been assessed as not triggered.
23	The bond is to remain in force until the minister is satisfied that no claim is likely to be made on the assurance.	Not Applicable	No financial arrangement (bond) related to implementation of a Temperate Highland Peat Swamps on Sandstone Response Strategy has been required under Condition 23. This condition has therefore been assessed as not triggered.
24	The person taking the action must meet all the charges and costs in obtaining and maintaining the bond.	Not Applicable	No financial arrangement (bond) related to implementation of a Temperate Highland Peat Swamps on Sandstone Response Strategy has been required under Condition 24. This condition has therefore been assessed as not

			triggered.
25	The person taking the action must meet all the charges and costs associated with independent review of documents required under these conditions.	Not Applicable	<p>Centennial Coal has met all historic costs related to independent review of documentation required under Condition 25 of the of the EPBC 2011/5949 approval.</p> <p>During the reporting period, no independent review was required regarding EPBC 2011/5949 documents.</p> <p>This condition has therefore been assessed as not triggered.</p>
26	The person taking the action must publish all documents required under these conditions on their website, except where agreed in writing with the department on grounds of potentially sensitive commercial information.	Compliant	<p>During the reporting period the following documents were uploaded to the website in accordance with Condition 26:</p> <ul style="list-style-type: none"> • EPBC 2011/5949 – 2016 Annual Compliance Report (published 13/06/2016), per Condition 29. • EPBC 2011/5949 – Condition 10 2017 Annual Report (published 14/03/2017).
27	Within 30 days after the commencement of the action, the person taking the action must advise the department in writing of the actual date of commencement.	Compliant	The action was commenced on 15 March 2012 and advice was provided to DoE in writing of commencement of the action on 29 March 2012, satisfying the requirements of Condition 27.
28	The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the management plans, report, strategy, etc. required by this approval, and make them available upon request to the department. Such records may be subject to audit by the department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the department's website. The results of audits may also be publicised through the general media.	Compliant	<p>Records have been kept of all activities related to the conditions of approval as required under Condition 28.</p> <p>MCW Environmental reported the following in assessment of Condition 28:</p> <p><i>Monitoring records were available for subsidence, flora, surface water and groundwater monitoring, and when THPSSMMP triggers were reached, notifications and investigations.</i></p> <p><i>A sample of these references were sighted during the Audit.</i></p>

			<p><i>No audits by the DoE have been undertaken.</i></p> <p>Based on the evidence compiled as part of the 2016 Audit demonstrating the maintenance of monitoring records in accordance with the THPSS MMP, this condition has been assessed as compliant.</p>
29	<p>Within three months of every 12 month anniversary of the commencement the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans, report, strategy etc. as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the department at the same time as the compliance report is published. The person taking the action must also notify any non-compliance with this approval to the department in writing within two business days of becoming aware of the non-compliance.</p>	Compliant	<p>Throughout 2013 there was extensive consultation with the DoE, (formerly SEWPaC), regarding compliance with all conditions of EPBC 2011/5949. A report was provided to SEWPaC to address the requirements of Condition 10 and 29 of EPBC 2011/5949 on the 14th of June 2013.</p> <p>In 2014 a Compliance Report was submitted on the 11th of March 2014. In 2015 a Compliance Report was submitted on the 15th of June 2015. In 2016 a Compliance Report was submitted on the 15th of June 2016.</p> <p>This document represents the amended 2017 Compliance Report (previously submitted on the 15th of June 2017).</p>
30	<p>Upon the direction of the minister, the person taking the action must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the minister. The independent auditor must be approved by the minister prior to the commencement of the audit. Audit criteria must be agreed to by the minister and the audit report must address the criteria to the satisfaction of the minister.</p>	Not Applicable	<p>There has been no request from the minister to conduct an independent audit against the conditions of EPBC approval 2011/5949.</p> <p>This condition has therefore been assessed as not triggered.</p>
31	<p>If the person taking the action wishes to carry out any activity otherwise than in accordance with the management plans report, strategy etc, as specified in the conditions, the person taking the action must submit to the department for the minister's written approval a revised version of that management plan, report, strategy etc. The varied activity shall not commence until the minister has approved the varied management plan, report, strategy etc in writing. The minister will not approve a varied management plan, report, strategy etc unless the revised management plan, report, strategy etc would result in an equivalent or improved environmental outcome over time. If the minister approves the revised</p>	Not Applicable	<p>All activities related to the action have been conducted in accordance with the conditions of the EPBC 2011/5949 approval and associated reports, management plans and strategies. No approvals of revised reports, management plans or strategies have been required under Condition 31.</p> <p>This condition has therefore been assessed as not triggered.</p>

	management plan, report, strategy etc that management plan, report, strategy etc must be implemented in place of the management plan, report, strategy etc originally approved.		
32	If the minister believes that it is necessary or convenient for the better protection of threatened species and communities to do so, the minister may request that the person taking the action make specified revisions to the management plan, report, strategy etc specified in the conditions and submit the revised management plan, report, strategy etc for the minister's written approval. The person taking the action must comply with any such request. The revised approved management plan, report, strategy etc must be implemented. Unless the minister has approved the revised management plan, report, strategy etc. then the person taking the action must continue to implement the management plan, report, strategy etc. originally approved, as specified in the conditions.	Not Applicable	There have not been any Ministerial requests for revisions to reports, management plans or strategies under Condition 32. This condition has therefore been assessed as not triggered.
33	If, at any time after two years from the date of this approval, the person taking the action has not substantially commenced the action, then the person taking the action must not substantially commence the action without the written agreement of the minister.	Not Applicable	The action was commenced immediately after the issue of the EPBC 2011/5949 approval. This condition has therefore been assessed as not triggered.
34	Unless otherwise agreed to in writing by the minister, the person taking the action must publish all management plan, report, strategy etc referred to in these conditions of approval on their website. Each management plan, report, strategy etc must be published on the website within one month of being approved.	Compliant	During the reporting period the following documents were published to the website in relation to EPBC2011/5949. <ul style="list-style-type: none"> • EPBC 2011/5949 – 2016 Annual Compliance Report (published 13/06/2016), per Condition 29. • EPBC 2011/5949 – Condition 10 2017 Annual Report (published 14/03/2017).

4. TRIGGER NOTIFICATIONS

4.1. 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.

4.2. WC02 and CW04

Initial Notification

Notification of an exceedance of flora performance indicator triggers at monitoring locations WC02 and CW04 (Carne West Swamp) was received by Centennial from RPS on the 8th of March 2017. Notification of the triggers was provided to the Department of Environment on the 10th of March 2017, 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 3rd of May 2017. The Report outlined a series of checks to discern non-mining impacts from mining related impacts and a proposed action plan.

Response Strategy

WC02

The following actions are recommended for consideration:

- Continue to perform monitoring activities in accordance with the THPSS MMP for LW418;
- Transition to lower impact monitoring practices as soon as possible to reduce any exacerbating deleterious impacts on the swamp (i.e. Brownstein et al 2014 and RAM (Goldney et al 2009) as specified under SMP for LW419);
- Consider options for reducing the amount of entry into CW for monitoring purposes and/ or consider alternate access options (e.g. installation of raised boardwalk to piezometer sites); and
- Consider construction of a barrier along the swamp margin to disperse fauna movements thus potentially reduce trampling impacts.

CW04

The following actions are recommended for consideration:

- Continue to perform monitoring activities in accordance with the THPSS MMP for LW418; and
- Transition to lower impact monitoring practices as soon as possible to reduce any exacerbating deleterious impacts on the swamp (i.e. Brownstein et al 2014 and RAM (Goldney et al 2009) as specified under SMP for LW419).

Investigative Outcomes

WC02

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. 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. Floristic zonation in Carne West is not exactly the same as described by Hose et al. (2014); however is functionally similar with *Xyris ustulata* substituting *X. operculata* and the sedge *Lepidosperma limicola* substituting *G. sphaerocephalus* on the swamp margins.

Centennial (2016) indicates the recent hydrological regime of Carne West shifted in 2014 from a groundwater fed system to one predominantly reliant on rainfall events. Under this regime it is considered that abnormal weather conditions are likely to have exacerbated the altered bioavailability of groundwater resources, particularly along the eastern swamp margin for the following reasons:

- Reduced water saturation of upper peat layers in the central parts of the swamp (i.e. groundwater related) is likely to have reduced water availability at the swamp margins (i.e. drawdown of rainfall related contributions to the central parts of the swamp); and
- High evapotranspiration stress in the 2016 summer autumn period with the most pronounced effect being on west facing aspects.

In consideration of Hose et al. (2014), Centennial (2016) and analysis conducted as part of the RPS Trigger Investigative Report, it is considered that mining may be the primary cause for the observed decline in Coral Fern condition (i.e. prolonged reductions in the bioavailability of groundwater resources). In this respect the most pronounced effects of reduced groundwater bioavailability will be at the swamp margins rather than the swamp axis. Site observations indicate that other anthropogenic and natural influences have exacerbated the sharp decline in Coral Fern condition to an extent where a trigger event has occurred.

CW04

The 'non-live groundcover' trigger is considered to be a trigger co-correlating with prolonged condition loss of Coral Fern, abnormal weather conditions (i.e. drying of the peat at the swamp margins with the highest evapotranspiration stress resulting in reduced regenerative potential), fauna activity (i.e. high rodent activity) and swamp monitoring (i.e. routine trafficking of within swamp tracks). While the primary causation is likely to be a loss of bioavailable groundwater resources, it is not clear from site inspections that this causation is responsible for the trigger event (i.e. monitoring data has intersected with secondary impacts such as anthropogenic and fauna activity).



Centennial Coal

Springvale