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<b>Subject</b>	<b>SPR1301 Trigger Notification Report</b>	<b>Project Name</b>	Springvale Groundwater Monitoring
<b>Attention</b>	Natalie Gardiner	<b>Project No.</b>	IA132000
<b>From</b>	Quan Bui		
<b>Date</b>	13 May 2021		
<b>Copies to</b>			

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## 1. Introduction

This memorandum (memo) has been prepared by Jacobs to notify Centennial Coal Springvale of a water level trigger at monitoring bore - SPR1301.

The monitoring bore – SPR1301 – is screened in the Bankswall Sandstone (above the Mt York Claystone and the target coal seam) and is 87 m deep. The monitoring bore – SPR1301 – has been within the 600m Trigger Investigation Area (TIA) for Longwall 427 (LW427) since about 5 February 2021.

SPR 1301 is a monitoring site in both the Longwall 424-427 Water Management Plan and Swamp Monitoring Program. Trigger levels are defined in Swamp Monitoring Program.

Groundwater levels have been recorded in the bore since its installation in May 2014. The water level in the bore has been declining since mid-2016, most likely due to the drought conditions. More recently, the water levels were found not to have recovered following the average to above average rainfall through 2020. Also, during the April 2021 monitoring campaign, the groundwater levels were found the water level to be below the 5<sup>th</sup> percentile trigger for more than a month in the post mining period. This has caused the trigger notification protocol to be enacted, and an investigation will be carried out following this memo.

Note that analysis and interpretation of the trigger values, and the reasons for any trigger exceedances, are not discussed in this document. Any required investigation procedures and analysis should be implemented in accordance with Section 8 of the SMP LW424-427 (Centennial 2018).

If the trigger levels in Section 5 of the SMP LW424-427 (Centennial 2018) are exceeded, a series of checks will be made to discern non-mining-related impacts from mining related impacts. Once this process is followed then management measures and/or corrective actions can be implemented, if required.

Figure 1 shows the locations of groundwater impact sites against the progression of LW427 in April 2021, at the time when the impacts were observed.

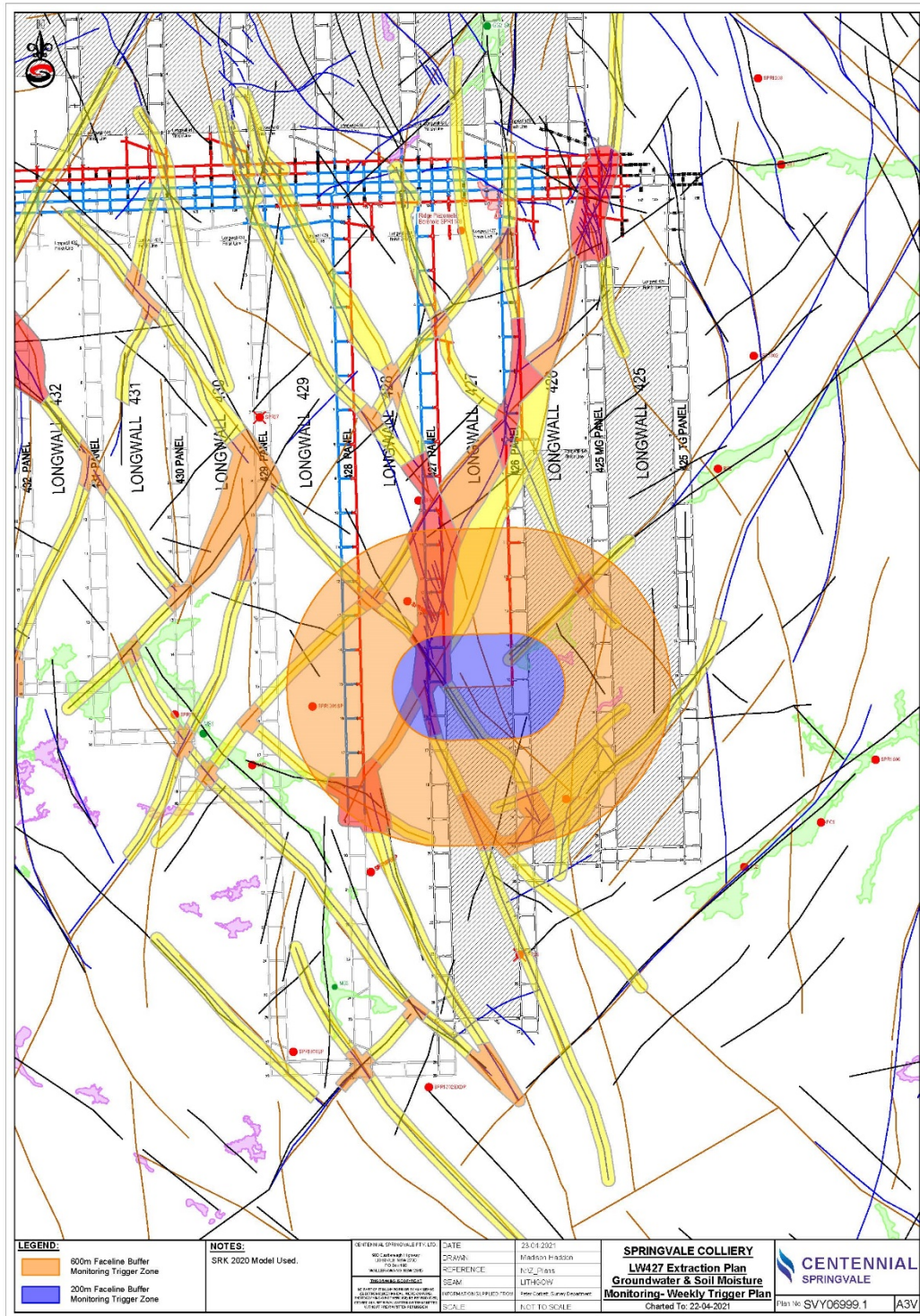


Figure 1: Monitoring locations with Mining Progression

## 2. Background

Groundwater level triggers have been developed to determine whether anomalous results have been measured at groundwater monitoring sites. The methodology of developing the triggers is based on statistical analysis and the development of percentile based triggers. Section 8 of the SMP LW424-427 (Centennial 2018) presents the design of the monitoring program in the context of how trigger values can be applied across the mining area. Per the SMP, monitoring locations have been designated as impact sites and reference sites.

Impact sites are those locations which have the potential to be impacted by longwall mining due to their close proximity (within 600m) of a planned underlying longwall.

Reference sites are those locations at which mining induced impacts are considered highly unlikely due to their significant distance away from planned active mining areas. Both site types are monitored at the same frequency. Notably, an impact site as classified in the SMP, may be used as a reference site. This may occur in the instance that an impact site is a sufficient distance away from the active mining area, has itself not been undermined previously, whilst being close enough to the relevant impact site to have similar climatic, geological, hydrogeological and vegetative conditions.

Reference sites are used as a comparative reference when determining whether any changes at impact sites are the result of natural (e.g. climatic or bush fire related) factors or whether the changes are the result of mining activities.

Reference and impact sites have been defined for the two upper aquifer systems underlying the Springvale mining area including:

- The perched swamp aquifer system; and
- The regional aquifer system.

## 3. Summary

The hydrograph of SPR1301 are shown in the figure below. The historical longwalls are highlighted, and the vertical dotted lines represent the pre-mine cut-off date of when the LW427 would be within 600 m of SPR1301. SPR1301 is located approximately 560 m west of LW427; that is, directly over LW429 between Cut-through 15 (ct15) and ct16.

The water level in SPR1301 has been declining since early-2016, likely as a result of the drought conditions between 2016 and February 2020. The water level stabilised following rainfall in February 2020, but the water level did not recover to historic levels. On 31 January 2021, the water level dropped below the trigger and the seven-day average water level has remained below the trigger for more than one month into the post mining period. The 600 m Faceline Buffer Monitoring Trigger Zone reached SPR1301 in early February 2021; however, the current lineament mapping does not show any features adjacent the monitoring bore

Further investigative actions are required to comply with the SMP and WMP for LW424-427. This memo is just a notification of significant changes that were observed in the monitoring network.

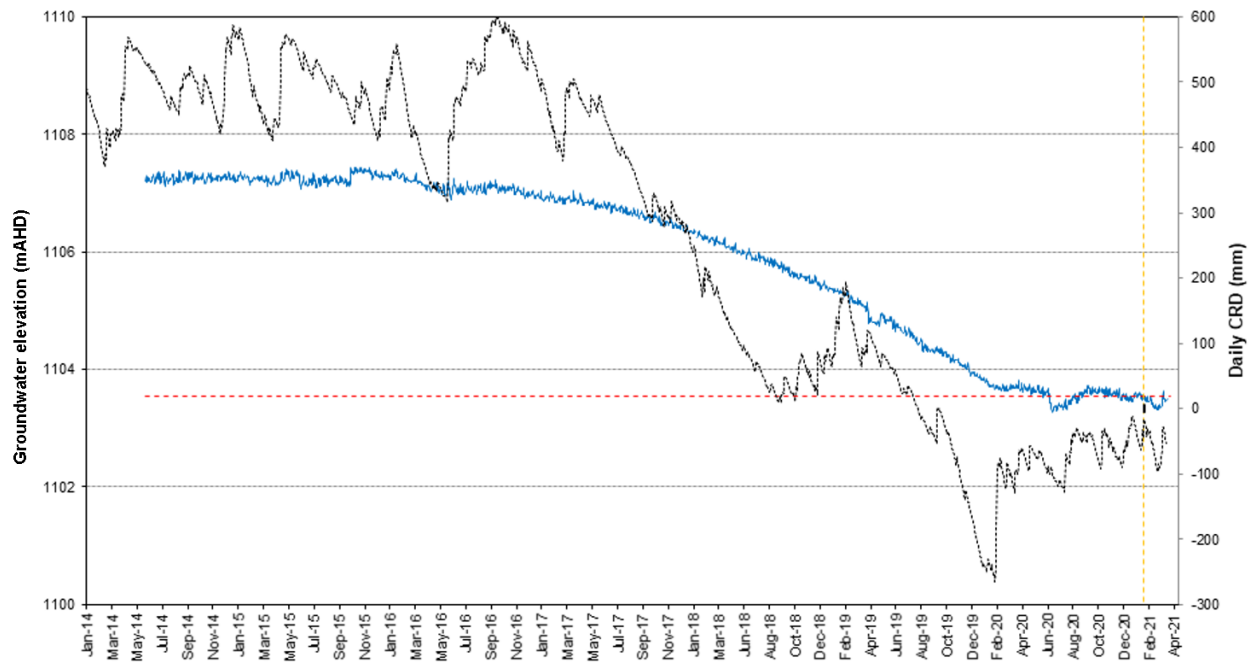


Figure 2: 1301 Hydrograph

#### 4. Closure

We trust this information is sufficient for your purposes. Should you require any further information or clarification please do not hesitate to contact our office. We will undertake the follow up investigation and provide the report shortly.

Yours sincerely

Quan Bui

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### References

Centennial 2018, Swamp Monitoring Program for LW424 to LW427, Centennial Coal May 2018

Centennial 2018a, Water Management Plan of Extraction Plan for LW424 to LW427, Centennial Coal May 2018