

Wilpinjong Coal Community Factsheet



Spontaneous Combustion

The team at Wilpinjong is committed to keeping the community and other stakeholders up to date about our operations. This fact sheet provides background about spontaneous combustion and outlines Peabody's approach to managing it at Wilpinjong.

The stockpile process

Once coal is mined, it is washed and stored in stockpiles before being railed to customers.

The rock and dirt moved to access the coal is stored in spoil piles or dumps – before being ultimately used to refill and re-vegetate the mined areas. Some of this material may contain traces of coal or carbonaceous material which can lead, under certain conditions, to spontaneous combustion.

What is spontaneous combustion?

Spontaneous combustion results from self-heating of coal and other carbonaceous material. It is largely caused by oxidation, or the exposure of these materials to oxygen.

In general, the reactivity of a material depends on its carbon and sulphur content. Large amounts of reactive carbonaceous material increase the risk of spontaneous combustion.

If the heat generated by this process is trapped, for example in a coal stockpile or spoil pile, the temperature of the material will begin to rise and if unchecked may ultimately ignite or spontaneously combust.

What factors influence spontaneous combustion?

No one can be certain about whether or when spontaneous combustion will occur, however some factors make it more likely. These include:

- A high proportion of highly reactive carbonaceous materials
- Exposure and length of exposure of these materials to oxygen
- Weather conditions (prevailing winds)
- Low-moisture content.

The reactivity of materials varies considerably. Coal is reactive material whereas materials that contain no carbon, like sandstone, rocks, soil and clay, are inert or non-reactive.

The higher the ratio of reactive to inert materials, that is to say, the more coal or carbonaceous materials exposed to oxidation or oxygen on the spoil pile - the greater the chance of spontaneous combustion.



The chance of spontaneous combustion is greatly reduced by limiting the exposure of carbonaceous materials to oxygen – by encapsulating them in inert materials on spoil piles.

Is spontaneous combustion dangerous?

Community health risks associated with small scale combustion at Wilpinjong are negligible, given the infrequency of the combustion events, and distance between our local residents and our operations.

Wilpinjong engaged NATA-accredited Ecotech Pty Ltd to undertake a comprehensive air quality testing program from March 2013 (to date). Results have so far concluded that, while spontaneous combustion produces a distinctive aroma, concentrations of gases which typically arise from it are well below the assessment criterion (maximum level set by the NSW government).

How does Wilpinjong manage spontaneous combustion?

While it may not be dangerous to local residents, Peabody still needs to manage the chance of spontaneous combustion on its coal stockpiles and spoil piles.

As a result, Peabody undertakes a number of measures at the mine to reduce this likelihood. These include:

- Undertaking handling measures to minimise oxygen from coal stockpiles and spoil piles
- Compacting materials on stockpiles and spoil piles where practicable
- Using watercarts to cool and quench the hot/dusty areas
- A mining sequence to limit the exposure of hot/dusty material
- The addition of inert material (like soil, rock and clay) to cover spoil piles
- Cessation of mining when dust criteria are approached
- A stockpile management plan that tracks duration of coal on stockpile.

What is Wilpinjong doing to reduce the chance of future events?

Wilpinjong is undertaking comprehensive measures to reduce the chance of spontaneous combustion. These include the removal of a legacy spoil pile or dumps on site. The dump will be 'mined' from the top in a series of level benches using an excavator, a wheel loader, dump trucks and dozers.

Material will be moved from the dump, placed in the adjacent voids (previously-mined pits) and capped (covered) with inert material.

While the removal of this spoil pile will ultimately reduce the chance of spontaneous combustion on site long term, localised areas of spontaneous combustion will be encountered during the process.

These areas will be contained and controlled using one or more of the following techniques:

- Applying water to penetrate the stockpile to reduce heat and coagulate ash
- Using water (fogger and sprays) to minimise dust
- Using chemical fire retardant to suppress hot areas
- Pushing out the hot and/or ashy material for removal
- Capping with cool inert material
- Placing below surface in layers.



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If you have questions about the information contained in this factsheet please contact the Wilpinjong Community Information Line 1300 606 625.