

Air Quality

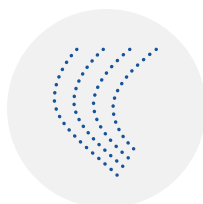


Leigh Creek Energy's in situ gasification (ISG) demonstration project sits within the Telford Basin of the Leigh Creek Coalfield.

Air quality in the broader Leigh Creek region is typical of a remote rural environment and influenced by a range of activities such as; dust from stock and vehicle movements, and vehicle and equipment exhaust fumes.

Air Quality in Leigh Creek

Air quality in the vicinity of the Leigh Creek Coalfield is likely to be influenced by:



Dust generation from spoil dumps, mining/rehabilitation activities, stock and vehicles



Particulates, vapour and combustion emissions from spontaneous combustion of mine spoil dumps



Vehicle and equipment exhaust fumes

Community

The closest residences are at Copley which is located approximately 8.5 km south of the demonstration plant site and approximately 1 km south of the southern boundary of Leigh Creek Energy's Petroleum Exploration Licence (PEL 650).

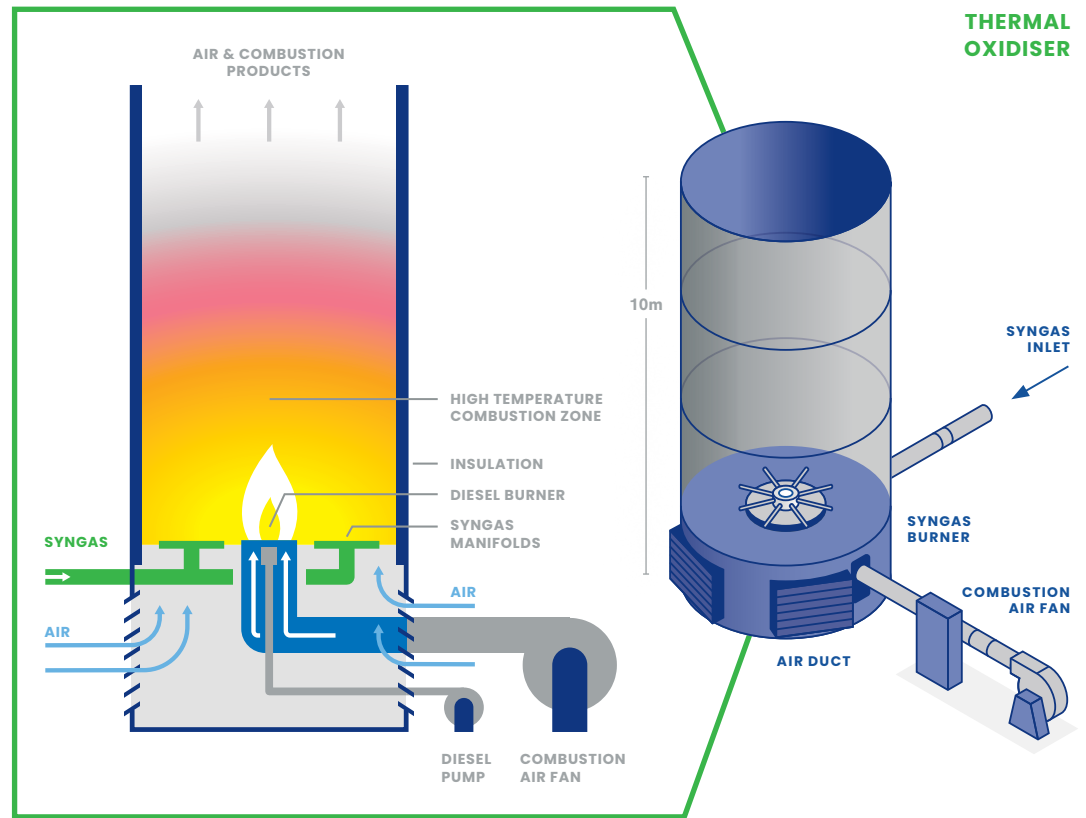
The occurrence of odours at Copley (e.g. the smell of rotten eggs) has been raised by several stakeholders (mid-to-late 2016), well before any activities with the potential to release odour

had been undertaken by Leigh Creek Energy. Coalfield odour has been observed as far south as Leigh Creek.

A preliminary background odour assessment was carried out in June 2017 at Copley located approximately 5 km from the site, and this detected a smoky odour consistent with fugitive emissions from spontaneous combustion of the coal mine waste rock dumps.

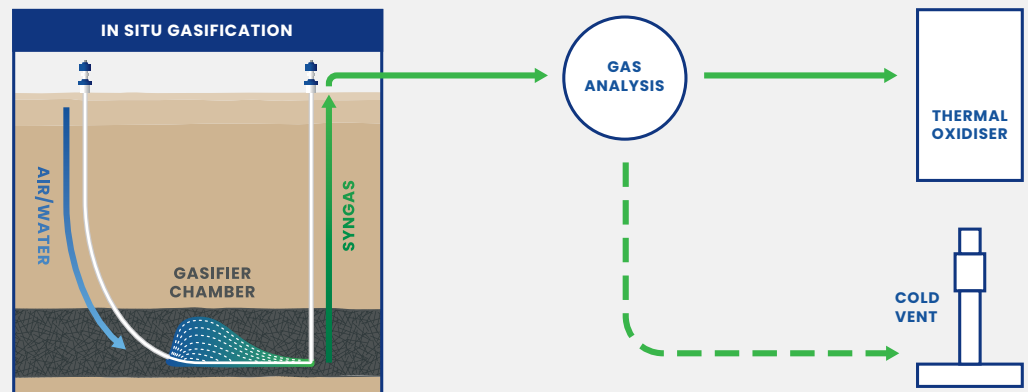
Managing Air Quality

The thermal oxidiser is a process unit used for air pollution control of industrial waste streams. It is a highly reliable system used to destroy gases and liquids by high temperature combustion before releasing the products of combustion into the atmosphere. Although the gasification process creates products with commercial value, as part of our exploration licence, for the operation of the demonstration plant LCK had to destroy any gases and liquids created through the gasification process.



Emergency Event

In the event of an emergency syngas was planned to be diverted to a venting system. If atmospheric conditions are unfavourable, this odour (albeit minor) may be detected in the towns of Leigh Creek and Copley. During the short duration of the demonstration project, no odours associated with this demonstration were detected off-site.



What does the EPA say about odour?

While some people may become acclimatised to odours, others may become sensitised to them. An individual's response to odour may be influenced by a variety of factors including:

- The state of their health
- Previous experience with the odour
- Relationship to the enterprise generating the odour (if a person's livelihood is dependent, directly or indirectly, on the operation, the perception of the odours may not be as severe if the person has had negative experiences with the operation)

Source: www.epa.sa.gov.au

Leigh Creek Energy undertook all reasonable steps to ensure that any odours emitted from the PCD were managed by applying best available technology.

To obtain information for the design for a commercial facility, Leigh Creek Energy successfully constructed, operated and decommissioned a small-scale ISG demonstration plant during 2018/19. This demonstration facility involved the construction of an above ground plant (and associated service infrastructure) and the establishment of a below ground single ISG gasifier chamber. The demonstration plant successfully produced syngas, proving that the technical and environmental performance of the process can be confirmed at Leigh Creek.

Leigh Creek Energy acknowledges and respects the Adnyamathanha people, the Traditional Owners of the land on which our operations occur and pays our respects to their Elders past and present.

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