

QLD / SA Comparison



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

Through an independent review of both the Leigh Creek site and the site at Chinchilla in Queensland, it was found to be unreasonable to compare the Leigh Creek Energy project with the Linc Energy project due to material differences relating to site suitability, operational practices and the level of regulatory oversight.

Key differences between the former Linc Energy UCG test site outside Chinchilla, Queensland (the Chinchilla site) and the LCKE demonstration plant:

The Chinchilla Site

Site operations were commercially driven, operating 5 gasifiers over a period of more than 12 years under a "black box" approach.

Regulator considered the operations R&D, had limited engagement with the company and restricted reporting triggers to water bore quality at the boundary of the site.

Site characteristics that contributed to environmental risk:

1. Shallow at 125m
2. Permeable coal seam that was a local aquifer
3. Anthropogenic fracture permeability in the coal and immediate roof material
4. CSG bearing coal
5. Nearby water users of the coal seam aquifer

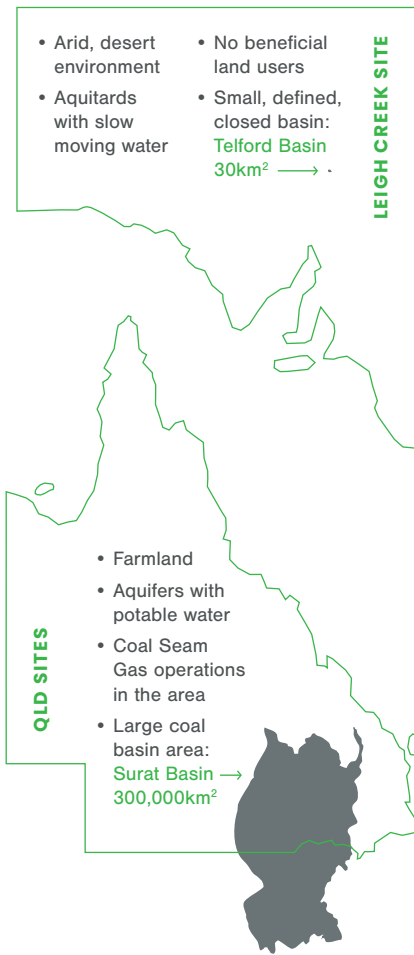
LCK Demonstration Plant

Environmental performance important, demonstrated through a discrete 3 month operation with transparency to the regulator and general public.

Regulator is closely engaged with the proponents, has developed a technical understanding of the technology and risks, and has undertaken a rigorous assessment process.

Site characteristics that minimise environmental risk:

1. Depth at 500m (more than 4 times Chinchilla site)
2. Very low permeability of coal (an aquitard)
3. Fractures and fracturing risk deemed low through comprehensive geotechnical investigations
4. Non-gas bearing coal
5. Aquitard has no value for groundwater users



The Chinchilla Site

Operational actions that contributed to environmental risk:

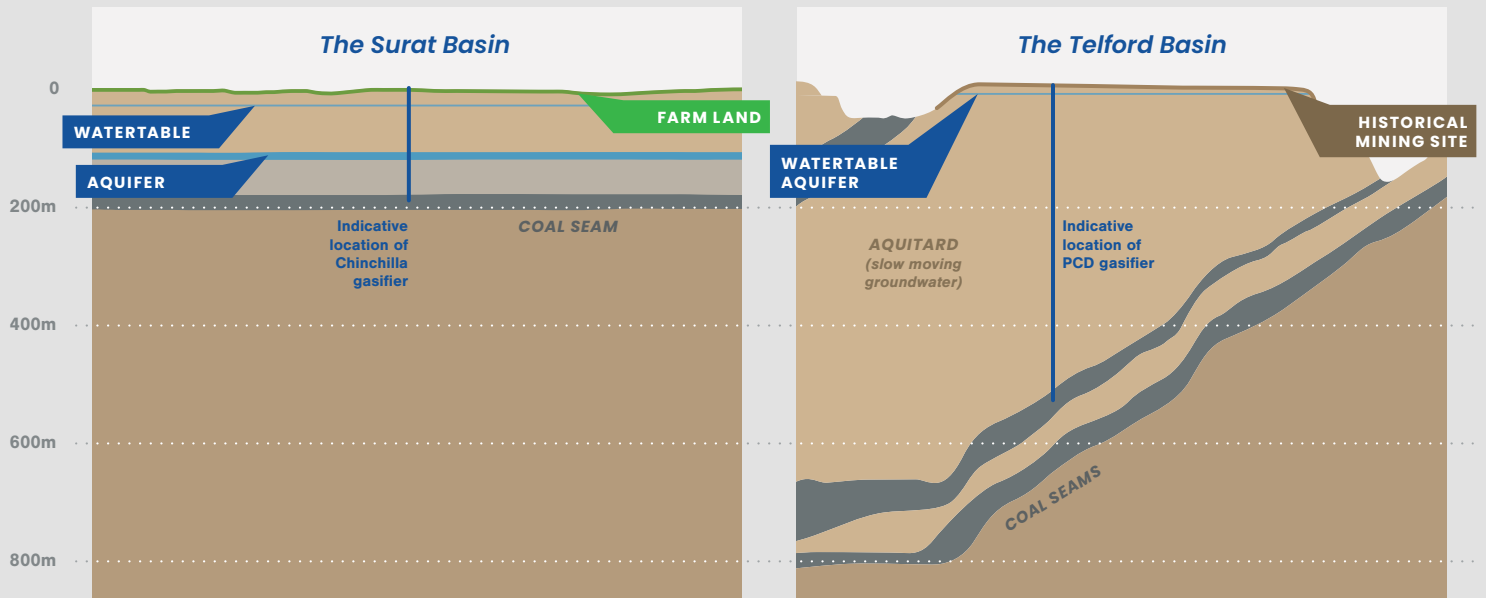
1. Operating pressure was neither declared by proponent nor prescribed by regulator
2. Operating pressures exceeded containment pressures
3. Hydraulic fracturing – intentional and unintentional
4. Proponents set well design standards which were largely inadequate
5. Progressive depressurisation of coal seam water levels
6. No monitoring requirements, triggers or actions of the process area

LCK Demonstration Plant

Operational actions that will reduce environmental risk:

1. Operating pressures declared by proponent based on verifiable data
2. Operating pressures set to stay below hydrostatic pressure (key safety feature)
3. Low risk of hydraulic fracturing
4. Wells are designed beyond industry standards
5. Depressurisation highly localised due to low permeability
6. Strict monitoring requirements for groundwater, air and soil in process area

Source: DPC, South Australia Assessment of Leigh Creek Energy UCG Trial, Independent Review of Site Suitability and Subsurface Risks for the Proposed Leigh Creek Energy UCG Demonstration Plant.



GARY J LOVE

“...the Leigh Creek site represents one of the strongest opportunities for low risk commercial UCG anywhere in the world.”

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.

Leigh Creek Energy Limited
 community@lcke.com.au
 (08) 8132 9100
 Level 11, 19 Grenfell Street
 Adelaide SA 5000
www.lcke.com.au