



Dust Management

As part of the largest coal export port in the world, Dalrymple Bay Coal Terminal (DBCT) handles up to 55.5 million tonnes of coking and thermal coal each year. The Terminal is conscious of its production impacts on surrounding beachside communities and is committed to best practice in dust management, as well as being a supportive neighbour in the Port of Hay Point. While it is impossible to prevent all coal dust emissions, DBCT operates well below required management objective levels and has a comprehensive dust reduction and management system that includes the following features.

BEFORE THE COAL ARRIVES

Where possible, consignment moisture declarations are forwarded to DBCT prior to a train's arrival. This helps operators devise a management plan tailored to the individual requirements of each of the 90 coal products handled. DBCT is currently extending this program to include all consignments.

UNLOADING THE COAL

Arriving coal trains discharge their cargo directly into hoppers through automatic bottom-dump gates as they pass through one of the Terminal's two Rail Receiving stations. Regular cleaning of the inloading facility also redirects smaller coal particles and remnants into the hoppers.

Exhaust fans in Rail Receiving 2 extract dust particles from the air and pass them through an air-handling system that redirects coal fines into the hopper while the air is filtered and expelled.

Automated water sprays in the Rail Receiving hoppers allow DBCT P/L to monitor and adjust coal moisture levels throughout the Terminal's coal-handling process to help minimise dust creation.

Enclosed Rail Receiving stations help contain dust emissions.

Automatic washing of coal residue from each train's wheels as it passes out of Rail Receiving 2, reduces the amount of dust transported back onto the rail line.

CONVEYORS

Covered conveyors are used, where practical, within DBCT's 28-kilometre conveyor network to minimise weather impacts on the coal and prevent coal dust dispersal.

Metal skirts are fitted to each conveyor to prevent coal spilling over and accumulating on the ground.

Belt scrapers are used throughout the Terminal's conveyor system to remove any build-up of coal debris and reduce the potential for spillage and dust creation.

Belt washing stations clean the belts and reduce carry-back and spillage.

Water sprays are located at transfer points to dampen coal as it is transported.

DBCT's Programmable Logic Control (PLC) program allows operators to regulate coal flow through the Terminal's system, avoiding and managing the generation of dust.



The stockyard's 156 water sprays are controlled by an automated system connected to real-time weather monitoring stations.



IN THE STOCKYARD

Several techniques have been devised to minimise dust creation when coal (that is not immediately conveyed to the wharf) is stacked, stockpiled and reclaimed. These include the reduction of coal 'residence' time in the stockyard from an average of 12 days to four.

Boom water sprays on each stacker/reclaimer machine target coal as it falls from the machine into the stockpile, and are used during the reclaiming process to reduce airborne dust particles.

Stockpile heights have been set at Bench Three (13.2 metres) of a possible four to make them less susceptible to wind and reduce the risk of coal particles becoming airborne.

Bunds, a series of low earth walls, are situated at the end of each stockpile row. They create a physical barrier to separate stockpiles and protect much of the stockpile from wind.

One hundred and fifty-six **water sprays** located around the stockyard are controlled by an automated system connected to real-time weather monitoring stations. Changes in weather conditions and dust levels initiate automatic responses, but these water sprays can also be activated manually if needed. The height of the spray towers is currently being reduced to improve effectiveness and further assist dust reduction.

Water trucks are in operation from 6am to 6pm daily and are used in conjunction with the yard sprays. The trucks are particularly effective in reducing dust from roadways and targeting stockpiles during windy conditions.

Vacuum trucks are used to remove dust from sealed roadways and other hard surface areas.

Enclosed transfer towers and surge bins (where coal is tested and stored) at each end of the stockyard help ensure coal dust and unwanted noise associated with the conveyor engines is contained.

Training in various techniques to minimise dust potential is provided for all machine operators. These include the stacking of coal in a flatter configuration and reclaiming using the "wind-rowing" technique that minimises wind effect and dust generation.

Designated clean-up crews, combined with concreting under conveyors and other coal-spillage areas, help ensure spilt coal is

removed quickly and does not become a source of dust.

Strict **speed limits** are enforced on Terminal roads to reduce dust creation.

Veneering treatments are also being trialled to test their ability to prevent dust lift off from stockpiles and the terminal's roadways in high-wind conditions.

ON THE WHARF

Covered conveyors are used for the transportation of coal 3.8 kilometres off shore to the wharf. Pans below the conveyors prevent spillage into the sea and minimise wind effect on the product. Conveyors to each of the three shiploaders are also covered and the coal product remains in a protected environment until it is deposited in the hold of its transport vessel.

An **enclosed transfer tower** on the wharf, like its counterparts on the mainland, helps contain dust and noise emissions. The tower also features belt washers, belt scrapers and enclosed transfer chutes.

Vacuum trucks are used to remove any coal residue or spillage on the wharf.

Each shiploader features a **telescopic boom**, allowing the coal to be deposited deep into the hold of each vessel. This helps to reduce wind impacts.



Dust-monitoring units are situated throughout the terminal as well as at Salonika Beach, Half Tide Beach and Louisa Creek.



WEATHER MONITORING

Forecasts consisting of long-term (3-day) and six-hourly updates are provided by the Bureau of Meteorology (BoM), as part of its contract to provide DBCT P/L with a dedicated weather service. In addition to this, an **automated weather station** established at Hay Point by DBCT P/L, Hay Point Services and the BoM, is used to collect local data and generate specific forecasts for the area. The general public can access this data, updated every 30 minutes, through the BoM website at: www.bom.gov.au/products/IDQ65519/IDQ65519.99367.shtml

Real-time weather and dust monitoring stations within the terminal and at sites throughout Hay Point allow operators to respond swiftly to changing weather patterns and dust levels. In addition, a series of OSIRIS units (new monitoring technology imported from the United Kingdom) is being installed along the Terminal's perimeter to feed additional data into the existing monitoring system.

THE FUTURE

DBCT P/L values its relationship with its neighbouring communities and is committed to working with other operators in the Port of Hay Point to ensure a united approach to the dust challenge. By continually monitoring international initiatives and research, and trialling new dust-reduction techniques, DBCT P/L endeavours to remain at the cutting edge of developments in this field.