



Brightwater
ENGINEERING

PROJECT REPORT

Road to Rail Transfer Terminal

Pike River Coal Ltd, Ikamatua, New Zealand
2009



CONCEPT



DESIGN



MANUFACTURE



INSTALL



COMMISSION



OPERATE



The Situation

Pike River Coal Ltd (PRCL) required the development of a Road to Rail Transfer Terminal (R2T2) at Ikamatua in the Buller region of New Zealand, for the purpose of transferring the processed coal from their newly built Coal processing plant from trucks onto trains for delivery via the rail link to Lyttelton.

Brightwater were contracted by PRCL to design, manufacture, install, provide electrical & instrumentation, and commission all aspects of this project on a Turn Key basis.

The design brief from PRCL required that;

- The plant to be able to receive deliveries of coal from 30 tonne truck and trailer units, every 10 minutes during the normal operating hours between 6:00am - midnight.
- The plant had to have a capacity to handle 1.3m tonnes of processed coal per annum.
- The design of the plant had to ensure the availability of a 15,000 tonne stockpile to allow for the load-out of a 30 x 50 tonne wagon trainset within 60 minutes or a 45 x 50 tonne wagon trainset within 90 minutes.
- Provide a safe and efficient operating environment.

The Solution

Brightwater designed, built, installed and commissioned the complete facility, project managing all of the required construction disciplines.

Brightwater's solution included a number of innovative conveyor designs:

- The infeed of the plant is by way of a Truck Unloading Feeder which allows the receipt of both truck and trailer loads over a reclaiming feeder conveyor. From this feeder conveyor the product is conveyed onto a stockpile conveyor that spans over 160 metres and rises to a height of 20 metres. The stockpile conveyor incorporates a moving plough that can distribute the product in various stockpile configurations, ranging from a single 15,000 tonne stockpile to different specifications of product in separate stockpiles.
- The stockpiled coal is reclaimed via vibrating drawdown hoppers which drop the product onto a reclaim conveyor running below the stockpile concrete pad.
- The reclaim conveyor transports the product to the load out conveyor which in turn delivers the product to a load out hopper with a storage capacity of 150 tonnes.



- To ensure that each train wagon does not exceed the required 50 tonne payload, a Meridian scale system was installed onto the rail tracks. This allows real time data on the exiting train wagons to be utilised.
- The design incorporated specialized equipment to allow for client specific criteria to be met. The use of intelligent PLC control allows for the smooth and accurate loading of each train wagon.

- A safer and efficient working environment.
- Minimal use of mobile plant.
- Quiet and energy efficient operation.

The Benefits

Benefits of this system include:

- The main benefit of this plant is to support an alternative transport system from Ikamatua to the Port of Lyttleton.
- The use of a travelling plough - This plough not only can distribute the product in various combinations, but also scans the stock.pile on request to ensure the 15,000 tonne stock.pile is maintained.
- Drawdown Reclaim Hoppers - These hoppers are able to reclaim 1,500 tonnes within 60 minutes without any mobile plant intervention.
- A fully automated receiveal and train loading facility.



Project Specifications

Facility throughput capacity:	1.3Mt/year
Coal density:	Circa 830 Kg/M3
Plant operating:	24hrs/day, 356 days/year
CV101 infeed feeder conveyor:	400tph, grizzly, with feeder belt conveyor 10.5m long
CV201 product conveyor:	400tph, frame section, continuous belt conveyor 160m complete with a moving plough
Stockpile capacity:	15,000 tonnes single or multiple stockpiles
CV301 tunnel reclaim conveyor:	2,200tph, frame section, continuous belt conveyor 76m
CV401 load out conveyor:	2,200tph, frame section, continuous belt conveyor 90m
Surge capacity:	130 tonne capacity surge bin facility with load out control room
Drawdown hoppers:	2 x vibrating drawdown hoppers to allow 2,250 tonnes product drawdown without loader intervention
Load out capacity:	Load 30 x 50 tonne coal wagons within 60 mins

