



Coal Stockyard

Draft Dust Management Plan

Prepared for
Lyttelton Port Company

Prepared by
Tonkin & Taylor Ltd

Date
August 2021

Job Number
101429



Exceptional thinking together

www.tonkintaylor.co.nz

Document Control

Title: Coal Stockyard - Draft Dust Management Plan					
Date	Version	Description	Prepared by:	Reviewed by:	Authorised by:
13/8/2021	4	Final	Richard Chilton	Jenny Simpson	Jenny Simpson

Distribution:

Lyttelton Port Company
Tonkin & Taylor Ltd (FILE)

1 PDF copy
1 PDF copy

Table of contents

1	Introduction	1
1.1	Purpose and scope	1
1.2	Background	1
2	Site context and sensitive neighbours / environments	2
2.1	Site description	2
2.2	Surrounding environment and sensitive receptors	2
2.3	Site climate	5
2.3.1	Rainfall	5
2.3.2	Wind	5
3	Site activities	7
3.1	Site layout	7
3.2	Delivery of coal	7
3.3	Stockpiling of coal	7
3.4	Load out of coal	7
4	Dust sources, risk rating and mitigation measures	9
4.1	Factors influencing dust discharge	9
4.2	Sources of dust	9
4.3	Definition of dry conditions	9
4.4	Risk rating and mitigation measures	10
5	Monitoring	16
5.1	Visible dust	16
5.2	Meteorological	16
5.3	Dust deposition gauge monitoring	17
5.4	Continuous dust monitoring	18
6	Complaint response and recording	20
6.1	Overview	20
6.2	Receiving and responding to complaints	20
6.3	Recording and investigating causes	20
7	Record keeping	22
7.1	Daily log	22
8	Roles and responsibilities	23
8.1	Contact details	23
9	Training and induction	24
10	Auditing and review	25
10.1	Audit	25
10.2	Review	25
11	Consent monitoring	26
12	References	27
13	Applicability	28

1 Introduction

1.1 Purpose and scope

The purpose of this Dust Management Plan (DMP) is to provide a framework to manage dust emissions to the environment from the coal stockyard so that adverse dust effects beyond the boundary of land owned by the Lyttelton Port Company (LPC) are prevented or minimised. The DMP includes the following:

- Site contextual information, including a description of sensitive locations near the coal stockyard and local climatic conditions relevant in terms of dust generation.
- A summary of site activities.
- How site activities might discharge dust and their relevant risk rating and mitigation measures.
- Inspection and monitoring programmes.
- Description of necessary record-keeping for compliance.
- Establishing roles and responsibilities of staff with respect to the DMP.

This document has been prepared in general accordance with requirements of Schedule 2 of the Canterbury Air Regional Plan (2017) and the Good Practice Guide for Assessing and Managing Dust (2016) for DMPs. This is a draft DMP has been prepared for the consent application and will be revised to reflect any changes required by consent conditions should consent be granted.

1.2 Background

The coal stockyard handles and stores coal all year around and can operate 24 hours each day, 7 days per week. Since it was established in 1976, the annual throughput has varied depending on overseas demand. At its peak in 2010 annual throughput was 2.5 million tonnes but has since reduced. In the last five years the annual throughput has varied between approximately 1 million to 1.5 million tonnes per annum.

The current resource consent application seeks to provide for a maximum throughput of 2.0 million tonnes per annum.

2 Site context and sensitive neighbours / environments

2.1 Site description

The location of the coal stockyard (the “Site”) is located at the eastern extent of the Port of Lyttelton (the “Port”) and is zoned as Specific Purpose (Lyttelton Port) in the Christchurch District Plan. The area of the site is approximately 9.8 ha. The approximate boundary of the site is shown in Figure 2.1. The site is bounded by Lyttelton Harbour to the south and by high bluffs to the north, east and west.

2.2 Surrounding environment and sensitive receptors

Sensitive locations within the receiving environment include the following:

- The residential area to the west of the coal stockyard, with the nearest residence located approximately 450 m to the west (Gilmore Terrace).
- Users of the Sumner Road Lookout, which overlooks the coal yard off Sumner Road, approximately 160 m west of coal yard.
- Users of the tracks through Urumau Reserve, approximately 120 m northwest of coal yard.
- Visitors of the Lyttelton Timeball Station, approximately 530 m west of coal yard
- The commercial/retail areas of Lyttelton, including cafes, restaurants, and shops, which are located approximately 500 m west of the coal yard.

The sensitive receptor locations surrounding the site are shown in Figure 2.2. The nearest residential zone is 450 m to the west of the coal stockyard.

An assessment of the Frequency, Intensity, Duration, Offensiveness and Location (FIDOL) is provided in the Assessment of Environmental Effects (AEE).



Figure 2.1: Coal stockyard location.

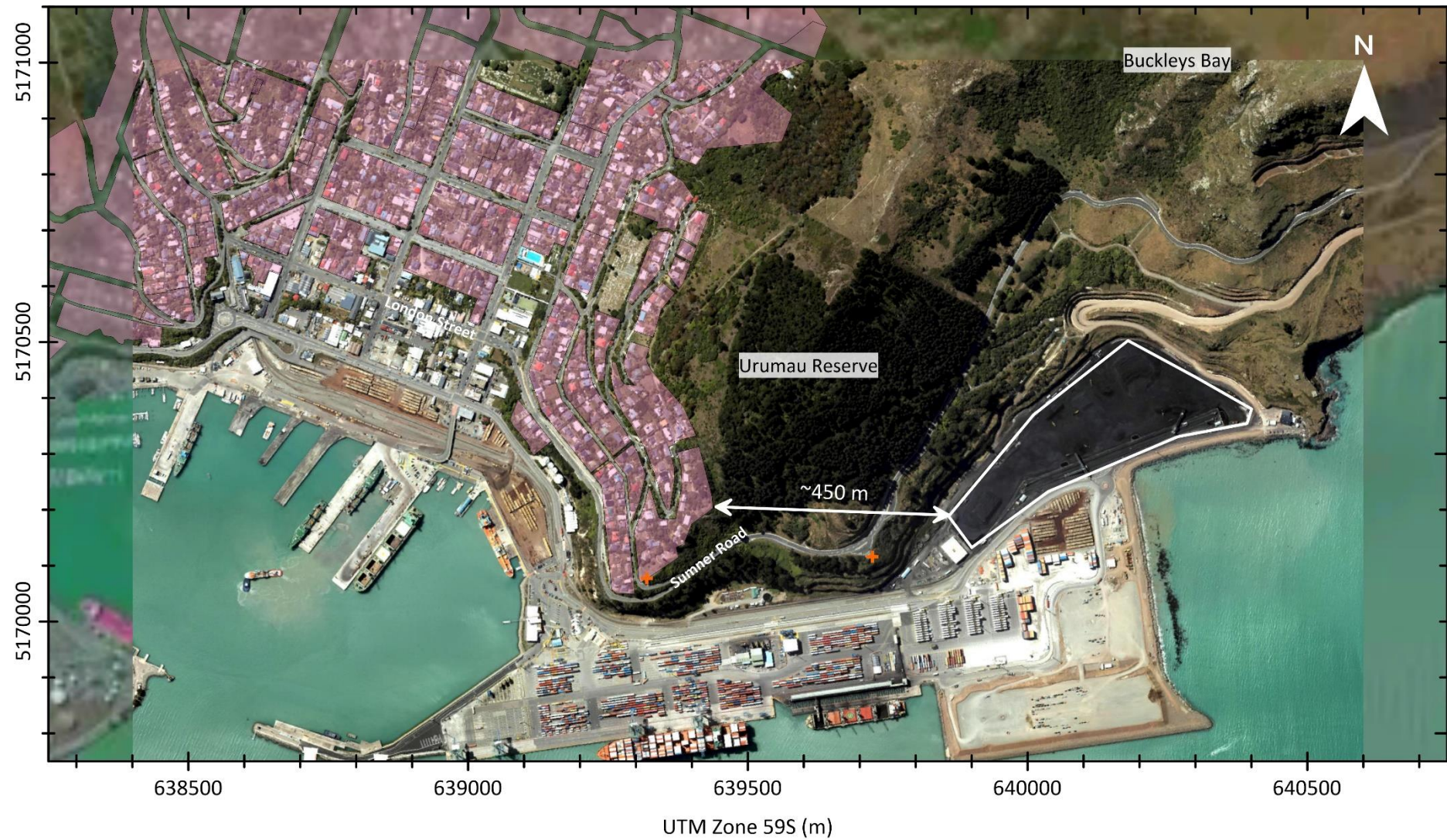


Figure 2.2: Sensitive receptors (high sensitivity) surrounding the LPC coal yard (shown in pink).

2.3 Site climate

2.3.1 Rainfall

Rainfall can suppress dust emissions from coal stockyard. Damp exposed ground will not generate dust emissions, and coal will produce little dust if stored and handled when it is damp.

Figure 2.3 shows the percentage of dry days (based on daily rainfall and evaporation) that are likely to occur for each month of the year. As expected, summer months are predominately dry whereas winter months have a higher frequency of wet days. The data provided in Figure 2.3 is derived from rainfall and evaporation data sourced from the NIWA virtual climate database and presents the frequency of days per month where evaporation exceeds rainfall for the period 2015 to 2021.

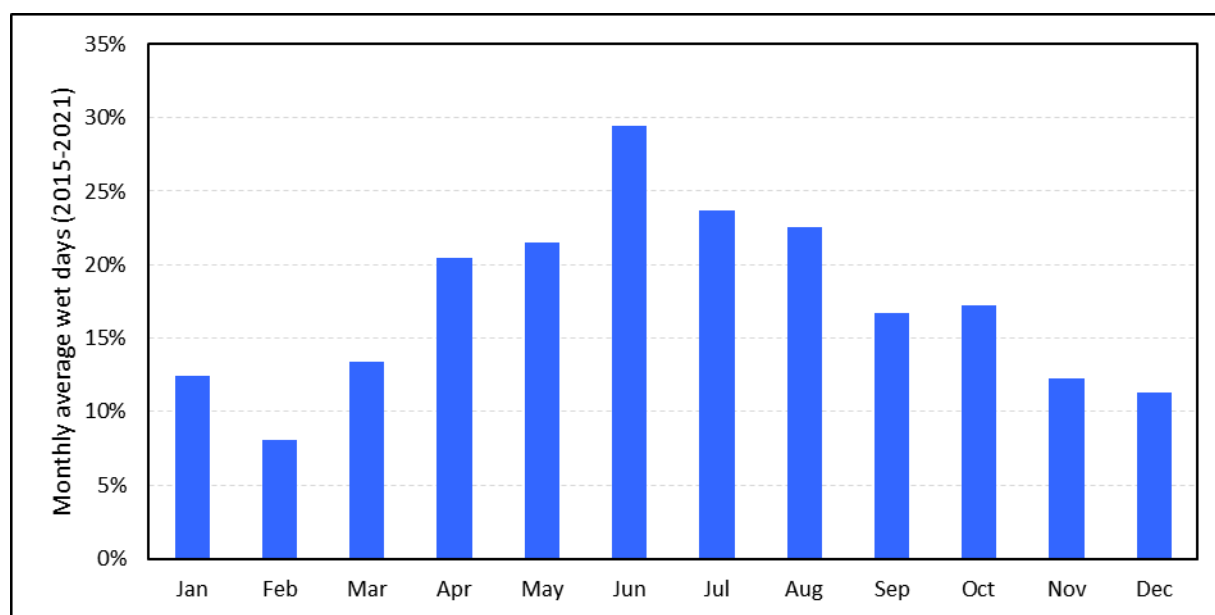


Figure 2.3: Percentage of wet days per month for the LPC coal stockyard – derived from NIWA virtual climate database for -43.575, 172.725.

2.3.2 Wind

Winds of 5 m/s or more have the potential to result in the entrainment of dust from exposed surfaces during dry weather. However, a significant amount of dust erosion is not typically observed until windspeeds exceeds 7 m/s (Davis, 2000).

Wind data measured at the coal stockyard are shown in Figure 2.4 as windroses. The windroses show the strength and prevailing wind direction i.e:

- The prevailing winds come from east-northeast.
- Winds are also common from southwest and west-southwest.
- There is a low percentage of winds from the west-north and east-south quadrants.
- These wind conditions strongly reflect the harbour and its topography, which acts to channel winds up and down harbour.

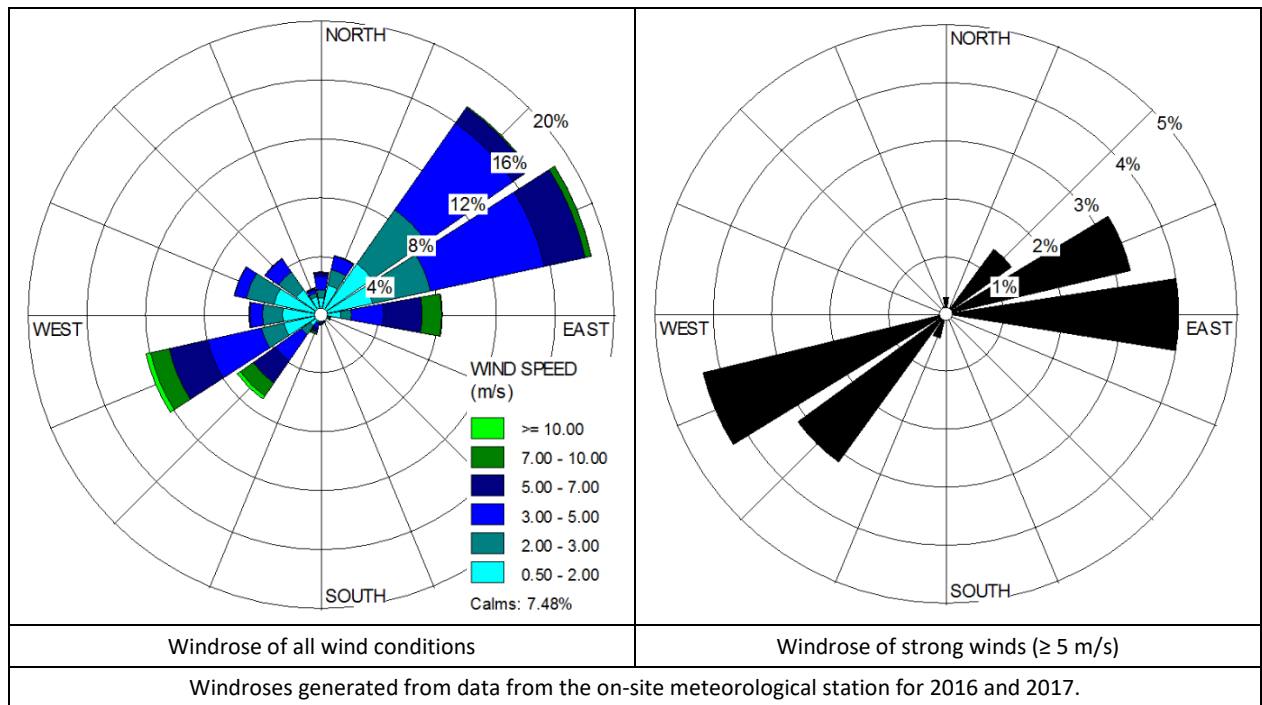


Figure 2.4: Windroses for the site showing prevailing winds and strong winds.

3 Site activities

3.1 Site layout

The site layout of activities taking place on site is illustrated in Figure 3.1.

3.2 Delivery of coal

The coal is delivered to the coal stockyard by rail. The coal stockyard could potentially receive up to seven trains from the West Coast each day. Each train comprises up to 30 wagons. The coal wagons each carry between 30 and 50 tonnes of coal and therefore each train can carry up to approximately 1,500 tonnes of coal.

The wagons are specifically designed to transport coal. The base of each coal wagon contains a trap door which opens and releases the coal into an underground hopper.

3.3 Stockpiling of coal

The coal is conveyed from the underground hopper to a gantry stacker. The gantry stacker forms an initial coal stockpile. The majority of coal is taken from this initial coal stockpile by front-end loaders and redeposited on the other stockpiles beyond the reach of the stacker. The stockpiles are shaped by front-end loaders and bulldozers.

At any one time there are usually five stockpiles in the stockyard as shown indicatively in Figure 3.1. The stockpiles range from 10,000 tonnes to 65,000 tonnes in size and up to 30 m in height.

3.4 Load out of coal

The ships receiving coal moor at Cashin Quay 1. The coal is loaded out to the ship in three ways:

- 1 If feasible, the coal is reclaimed from the stockpiles using a bucket wheel reclaimer that runs east-west along rails, parallel to the gantry stacker. A conveyor transfers the coal reclaimed from the bucket wheel to the ship.
- 2 If timing is suitable, the coal can be sent directly from the train to the ship via the load-out conveyors.
- 3 The majority of coal cannot be reached by the bucket reclaimer and instead is loaded out using the front-end loaders. A bulldozer pushes coal down the side of the stockpile so it can be picked up safely by the loader. The front-end loaders place the coal into one of the four load-out hoppers and onto the load-out conveyor. The load-out conveyor takes the coal to the western-end of the coal stockyard and in-turn to Cashin Quay 1 via an underground conveyor. Finally, the coal is transferred up to an elevated conveyor that runs parallel with Cashin Quay 1

Coal is loaded into the ships using a jet slinger. The jet-slinger is positioned inside the ship hold and ejects (throws) the coal from the conveyor about 25 m into the respective ship hold.

The load-out conveyor is fitted with a computerised control system which is designed to prevent overloading or under loading of the conveyors and to detect blockages. The system controls the loading gates at the hoppers and shuts the conveyor down if blockages occur.

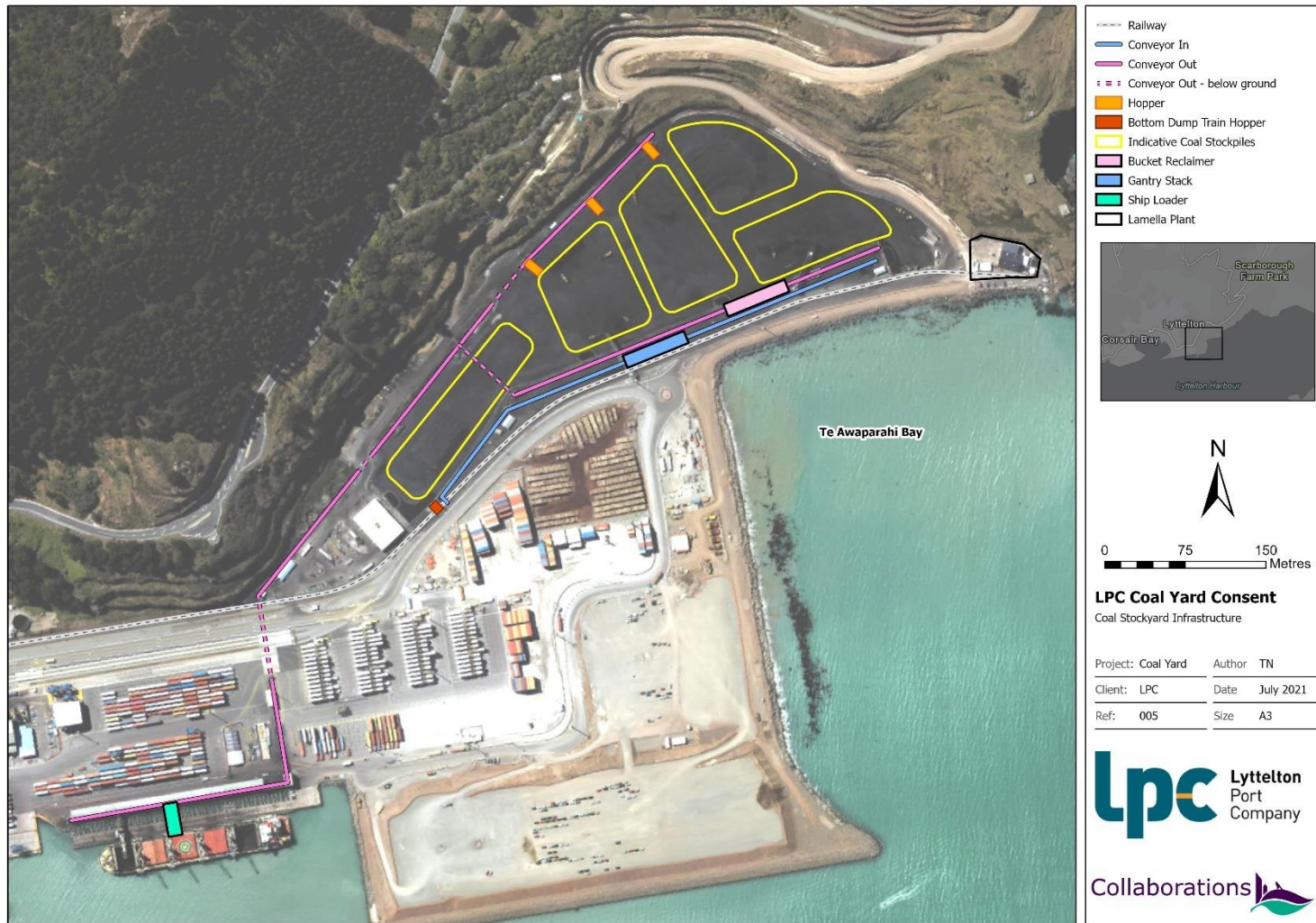


Figure 3.1: Coal stockyard infrastructure layout.

4 Dust sources, risk rating and mitigation measures

4.1 Factors influencing dust discharge

The key factors influencing the discharge of dust from the coal stockyard are as follows:

- The amount of coal being handled and stored. This is relatively consistent for peak days when coal is received via train and load out to ship occurs. However, the frequency of peak days may increase with greater annual coal exports:
 - If the rate of coal exports is predicted to go above 1.75 million tonnes per annum for the following year, then an increased regime of dust management is to be implemented (see Table 4.2).
- The moisture content of the coal.
- On site activity levels, such as days when coal is loading out to a ship (export days) having a higher rate of activity than days when coal is received on site (import days).
- The extent of exposed areas.
- Weather conditions:
 - Wind direction and speed.
 - Ambient temperature.
 - Evaporation.
 - Rainfall.

4.2 Sources of dust

Major sources of dust include the following:

- Windblown dust from coal stacks and yard areas during strong wind events.
- Stacking coal onto the stockpiles using front-end loaders and shaping of stockpiles using bulldozers¹.
- Removing of coal from the stockpiles using a dozer and front-end loaders and placing in the load-out hoppers for conveyance to a ship.

Minor sources of dust include the following:

- Unloading coal into the receival hopper from the wagons and from the gantry stacker².
- Removal of coal from stockpiles using the bucket reclaimers.
- Transporting coal on the conveyors.
- Transferring coal onto the ship.

4.3 Definition of dry conditions

Dusty or dry conditions are when dust emissions are occurring or have the potential to occur. Dusty conditions may present when the following occurs:

- Wind speed of 1-hour rolling average is greater than 7 m/s; and

¹ Two front-end loaders and a dozer are usually used during load-in, and three front-end loaders and a dozer are usually used during load out. Therefore, on occasions up to five front-end loaders and two bulldozers may be in use if load-in and load-out is occurring simultaneously.

² But noting that coal is damp when delivered and therefore only small amounts of dust are generated during unloading and loading.

- Less than 2 mm of rain has fallen in the previous 24 hours.

4.4 Risk rating and mitigation measures

Table 4.1 details mitigation measures associated with the coal stockyard while the annual rate of coal exports remains below 1.75 million tonnes per year (MT/yr). This describes activities with a high, medium and low risk for generating dust on site, and contingency measures for emergency procedures.

Table 4.2 sets out the additional measures to be implemented where it is forecast that the annual rate of coal exports will exceed 1.75 MT/yr. Forecasting of coal throughput shall be determined as the annual rolling average of coal throughput predicted for the following year from 1 July of each year.

Table 4.1: Dust mitigation and contingency measures (coal exports below 1.75 MT/year)

Activity and dust risk rating	Control and management	Responsibility
High risk activities		
Wind erosion from stockpiles and exposed areas of the stock yard	Sprinkler towers (fixed and mobile) - The following network of existing sprinklers are operated manually to provide dust suppression during dry weather: 15 fixed high water sprinklers towers 2 semi-mobile high water sprinklers towers 3 fixed low sprinklers - One low mobile sprinkler unit - The sprinkler system is designed for optimum performance with one sprinkler operational at a time. Two sprinklers may be operated together effectively in certain circumstances. More than two sprinklers may cause the water pressure to drop and trip the booster pump causing it to turn off. - The operation of the existing sprinkler system will have manual and automated control, including use outside of normal hours of operation and at night-time The sprinklers on the edge of the stockyard in the direction that the wind is coming from shall activate under the following conditions: - The recorded wind speed exceeds 7 m/s as a rolling 1-hour average; and - Less than 2 mm of rain has fallen in the previous 24 hours; or - The continuous dust monitoring exceeds the Tier One Trigger concentration. Automation will be linked to the continuous monitoring of meteorological conditions and/or ambient dust concentration trigger levels as described in Section 5.2 and 5.4. - Notify the Coal Services Supervisor immediately of any faulty and ineffective sprinklers that are unable to be corrected. - Sprinklers on the edge of the stockpile in the direction that the wind is coming from should be activated. The wind will drag the mist over the stockpile; this method will increase the coverage and reduce the amount of water wasted by overspray leaving the coal yard. Use of the water cart - The water cart with water gun capable of reaching the top of coal stockpiles operates from during daylight hours, typically between October and March when weather conditions are dry. The water cart is	Coal Operations Manager

Activity and dust risk rating	Control and management	Responsibility
	used to dampen the areas where the sprinkler towers and mobile sprinklers cannot reach as efficiently. This is to include: – Stockpiles. – Unpaved roads associated with the coal stockyard; and – Other unconsolidated surfaces associated with the coal stockyard. • The water cart filling station is at the northeast corner of the coal stockyard. During filling of the water cart, it is not possible to operate the sprinkler system. Weather forecasts • Daily weather forecasting (wind conditions and rainfall) for the Port shall be used in planning and carrying out work to minimise dust discharges. Christmas/New year shutdown • During the Christmas and New Year shutdown, or any other prolonged period when staff are unavailable and the coal stockpiles will not be disturbed and rain is not forecast to occur, a dust suppression veneer is to be applied to the coal stockpiles and exposed areas using the water cart. • During these periods, the use of the water cart or sprinkler system does not need to be used (i.e., the dust suppression veneer provides the necessary dust protection from wind erosion). Tier 2 Dust Monitoring Trigger • In the event that continuous dust monitoring records a concentration that exceeds the Tier 2 Trigger concentration, either: – A dust suppression surfactant shall be introduced into the water supply to the sprinkler towers and the water cart until such time that the concentration falls below the Tier 1 Trigger concentration; or – Dust generating activities cease.	
Stacking and removing of coal onto the stockpiles using front-end loaders and bulldozers ³	Stockpile management • Minimise the drop heights from front end loads. • Limit vehicle speed in Stock Yard to 20 km/h, including for front end loaders and bulldozers.	• Coal Operations Manager

³ Two front-end loaders and a dozer are usually used during load-in and three front-end loaders and a dozer are usually used during load out. Therefore, on occasions up to five front-end loaders and two bulldozers may be in use if load-in and load-out is occurring simultaneously.

Activity and dust risk rating	Control and management	Responsibility
Moderate risk activities		
Coal load in and load out	Gantry Stacker - Minimise drop height of gantry stacker. - Water is applied to coal on the conveyor ahead of the Gantry Stacker. Bucket Reclaimer - Spray bar on bucket wheel reclaimer conveyor exchanges when the coal throughput is predicted to exceed 1.75 million tonnes per annum.	Coal Operations Manager
Low risk activities		
Conveyors and transfer points	- Where possible, three-sided covers (sides and top) for all above ground conveyors are to be maintained for conveyor belts to minimise wind erosion. - Transfer points between conveyor belts are to be covered. - Scrapers are used to clean belts, and coal is picked up using a suction truck, sweepers, and other equipment as appropriate.	Coal Operations Manager
Ship loader and Jet-slinger	- Loadout to the ship shall only be via the use of the jet-slinger. - The jet-slinger shall only operate when it is positioned within the hold of the ship.	Coal Operations Manager
Unloading of coal trains	- Maintain train unloading hopper to minimise coal spill. - Operate a water spray bar on load in conveyor to the gantry stacker. Dampening the coal prior to the gantry stacker minimises potential dust emissions from the stacker.	Coal Operations Manager
Contingency measures		
Application of veneers (dust suppression agent)	The water cart is to be used to distribute veneer/water and will be sprayed on areas which will not be driven on for lengthy periods – targeting completed stockpiles. This is typically undertaken prior to the site shutdown over Christmas and New Year's. Vehicles are not to travel over the area following the application of the veneer until such time that yard activities are to commence again.	Coal General Hand/ Leading Hands / Water Cart Operators
Break-down or failure of water suppression system	The following two methods are available for dust suppression at the site which are usually used in conjunction with each other: Sprinkler system: if unavailable due to breakdown or failure, the water cart will be used to target the areas covered by the sprinklers until such time that the sprinkler system is reinstated.	Coal Operations Manager

Activity and dust risk rating	Control and management	Responsibility
	Water carts: if the main water cart is unavailable due to breakdown or failure, an alternative water cart shall be bought to site for use until such time that the main watercart can be returned to operation. Control methods should be regularly maintained to reduce the incidence of break-down.	
Failure or poor performance of met and dust monitoring systems	The supplier contract should account for equipment malfunction so that replacement equipment can be supplied, or a full repair can be made within 48 hours. Daily checks should be carried out to ensure the equipment is operating and recording correctly.	Coal Operations Manager
Dust impacts occurring out of hours	A 24-hour contact is to be available to respond to complaints, meteorological and PM ₁₀ monitoring trigger alarms, and implement response measures as necessary.	Coal Operations Manager
Water supply for dust suppression	If there is not the required level of water for dust suppression during prolonged dry periods implement the use of biodegradable dust suppressant. It is anticipated that this would only be required in exceptional circumstances given the water supply available for the site.	Coal Operations Manager

Table 4.2: Additional dust mitigation and contingency measures (coal exports above 1.75 MT/yr)

Activity and dust risk rating	Control and management	Responsibility
High risk activities		
Wind erosion from stockpiles and exposed areas of the stock yard	Trial the use of water fog cannons as a replacement for water sprinklers: - When the following years coal exports are predicted to exceed 1.75 MT/yr for the following year, the use of a high-pressure water fog cannon system on the south-eastern and northern sides of the coal stockyard will be used in-place of the existing sprinkler system as a <u>trial to be in place by November of the current year to May the following</u>. - The number of fog cannons, location and type of fog cannon will be subject to a review by an Air Quality Expert (AQE). - The ongoing use of a fog cannon system as a replacement for the sprinkler towers following the trial will be subject to an independent review by an AQE of the success of the trial and the appropriateness for ongoing use of the fog cannons (for example, if the coal exports are predicted to drop below 1.75 MT/yr). - The operation of the fog cannons shall be automated using the same trigger thresholds as the existing sprinkler system.	- Coal Services Supervisor - Coal Operations manager

Activity and dust risk rating	Control and management	Responsibility
	- In the event that the fog cannons are not used beyond the trial and when coal exports are predicted to exceed 1.75 million tonnes per year, a second water cart will be used in addition to existing mitigation measures. Use of dust suppression surfactant (if required) with the sprinkler towers or fog cannons: - The use of a suitable surfactant mixed into the water supply to the sprinkler system or the fog cannons can significantly improve the effectiveness of water for dust suppression by allowing the water aerosols to better adhere to dust particles. - From November to April inclusive when ambient temperatures are higher and ground conditions are dryer, the fog cannons system shall include the use of a suitable surfactant for the type of coal in the water feed to the cannons to further enable dust suppression during high risk conditions (when wind speed and/or continuous dust monitoring trigger levels are reached).	

5 Monitoring

5.1 Visible dust

Site inspections of visible dust emissions will be carried out throughout each day of operation (i.e., when coal is being handled on the site). Observations are to be recorded electronically in Daily Logs (see Section 7.1 for further an example of a Daily Logs).

Visible site observations are used to assess the effectiveness of dust control measures and to augment the continuous dust monitoring described in Section 5.4. The daily observations also help identify dust emission events and investigating and responding to any received complaints.

The procedure for undertaking visible site inspections is outlined below:

- **Coal Operations Manager** (as defined in Section 8) or delegated person on site will routinely look for visible dust emissions.
- If visible dust emissions are observed reaching beyond the site boundary, the following details must be recorded:
 - Source of the visible dust emissions, if known.
 - The extent of the visible dust emissions classed as either:
 - o **Minor:** visible emissions <5 m beyond the coal stockyard.
 - o **Moderate:** visible emissions <30 m beyond the coal stockyard.
 - o **Major:** visible emissions >30 m beyond the site coal stockyard.
 - Date and time, and general weather conditions (wind speed/direction and temperature).
 - Detail the possible cause of the observed dust, and any preventative or corrective actions taken.
- If visible dust is noted beyond the site boundary, **Coal Operations Manager** must be notified immediately to undertake further action.
- Further action is to include investigating the cause of the dust emission and taking necessary actions to reduce dust emission from on-site activities. All actions taken are to be recorded in the Daily Log.

5.2 Meteorological

Dust emissions can propagate during dry, windy conditions due to surfaces rapidly drying and wind erosion of dusty material from exposed surfaces. Winds are to be monitored and appropriate mitigation measures implemented if wind trigger levels are reached.

The meteorological trigger levels and appropriate actions are detailed in Table 5.1.

Table 5.1: Wind speed trigger levels

Trigger level	Condition	Actions
Alert	• >7 m/s as a 1-hour rolling average; and • Rainfall in the last 24 hours is less than 2 mm	• Start water application via water sprinkler or fog-cannon system.

The meteorological station **NZCYX** (Figure 5.1) established on the coal yard will continue to be operated, maintained. Data from it shall be recorded and used for alerting site operators of the above wind trigger conditions.

Meteorological monitoring equipment is to be routinely checked (at least weekly) to ensure it is functioning correctly, and regularly calibrated as per the equipment specification.

A record of all wind trigger events is to be kept electronically. The records are to include the following:

- Summary of wind speeds and direction recorded during the event.
- On-site response to the event including additional actions taken.
- Observations of whether dust was observed beyond the site boundary, and any actions taken as a consequence.

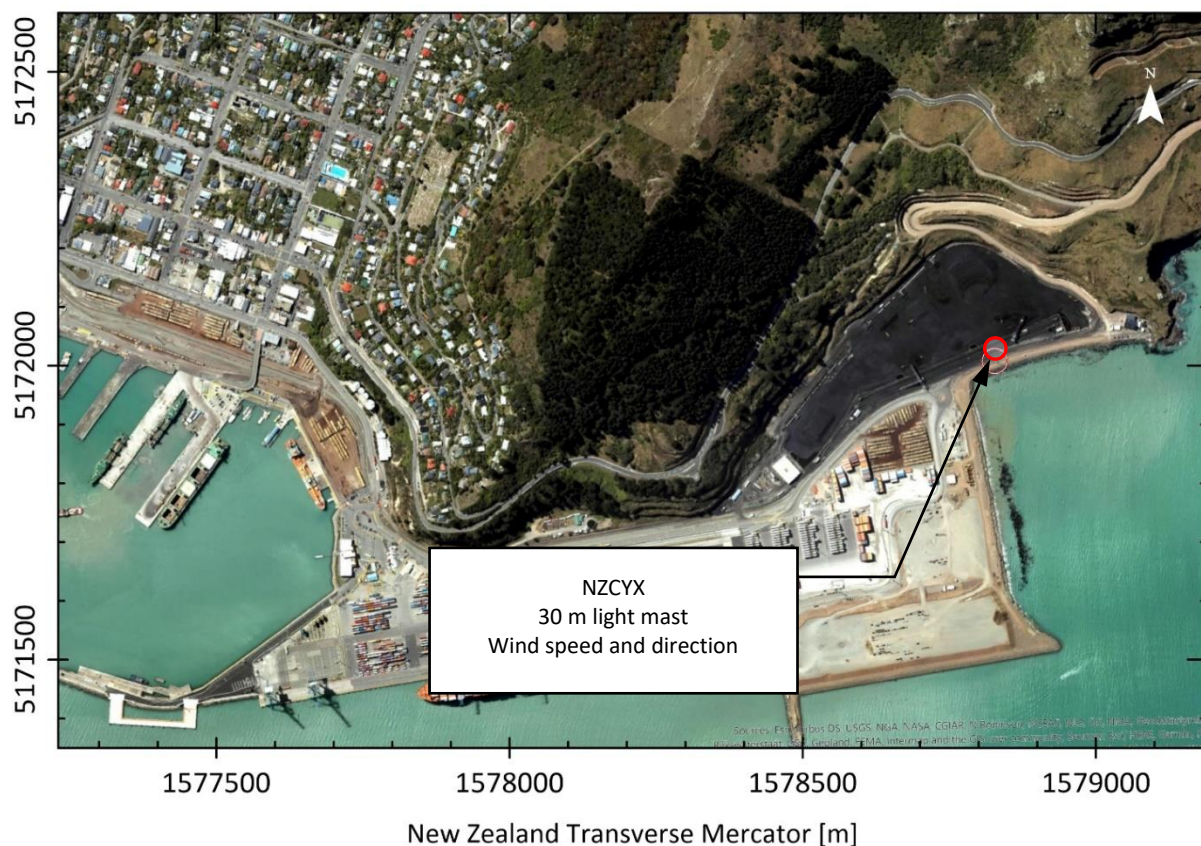


Figure 5.1: Plan showing the location of coal stockyard weather station (NZCYX).

5.3 Dust deposition gauge monitoring

The longer-term effectiveness of dust mitigation is measured through the monitoring of dust deposition at locations surrounding the site. Key locations are those at the nearest residential sites.

Dust deposition gauges measure accumulated dust levels for a period of 1 month and are analysed to determine the deposition rate ($\text{g}/\text{m}^2/30\text{-days}$) and the composition of the accumulated dust that comprises coal.

The monitoring data at each site is summarised monthly.

A review of the site's activities is undertaken where the measured dust deposition rate for any of sites 10, 11 or 13 (the three nearest residential monitoring sites) exceed a coal dust deposition rate of **2.4 g/m²/30-days** (80 mg/m²/day). The review should consider the following:

- Dust suppression water usage rates.
- Any plant malfunction or break down.
- Continuous dust monitoring trigger events.
- Strong wind events.
- Coal throughput.

5.4 Continuous dust monitoring

Continuous monitoring of dust is to be undertaken using a nephelometer instrument that meets the requirements of AS/NZS 3580.12.1:2015 *'Methods for sampling and analysis of ambient air – Part 12.1: Determination of light scattering – integrating nephelometer method'*.

The nephelometer instrument is located within that area shown in Figure 5.2. This location is within LPC land and situated between the coal stockyard and the nearest residences, as well as being generally downwind of the coal stockyard during prevailing east-northeast winds.

The monitor is telemetered with an alarm system that alerts the **Coal Operations Manager** or other nominated persons who have the responsibility of managing dust from the site. It will also be linked to the operation of the water sprinkler or fog cannon system.

The **Coal Operations Manager** or nominated person should be available at all times to respond to alarm trigger events and take necessary measures to reduce dust emissions from the site. Trigger concentrations and corresponding actions are outlined in Table 5.2.

The trigger values given in Table 5.2 may need to be adjusted up or down depending on monitor type, experience with the operation of the monitor or feedback from neighbours regarding impacts. Any revised trigger values are to be implemented through a plan review and justified.

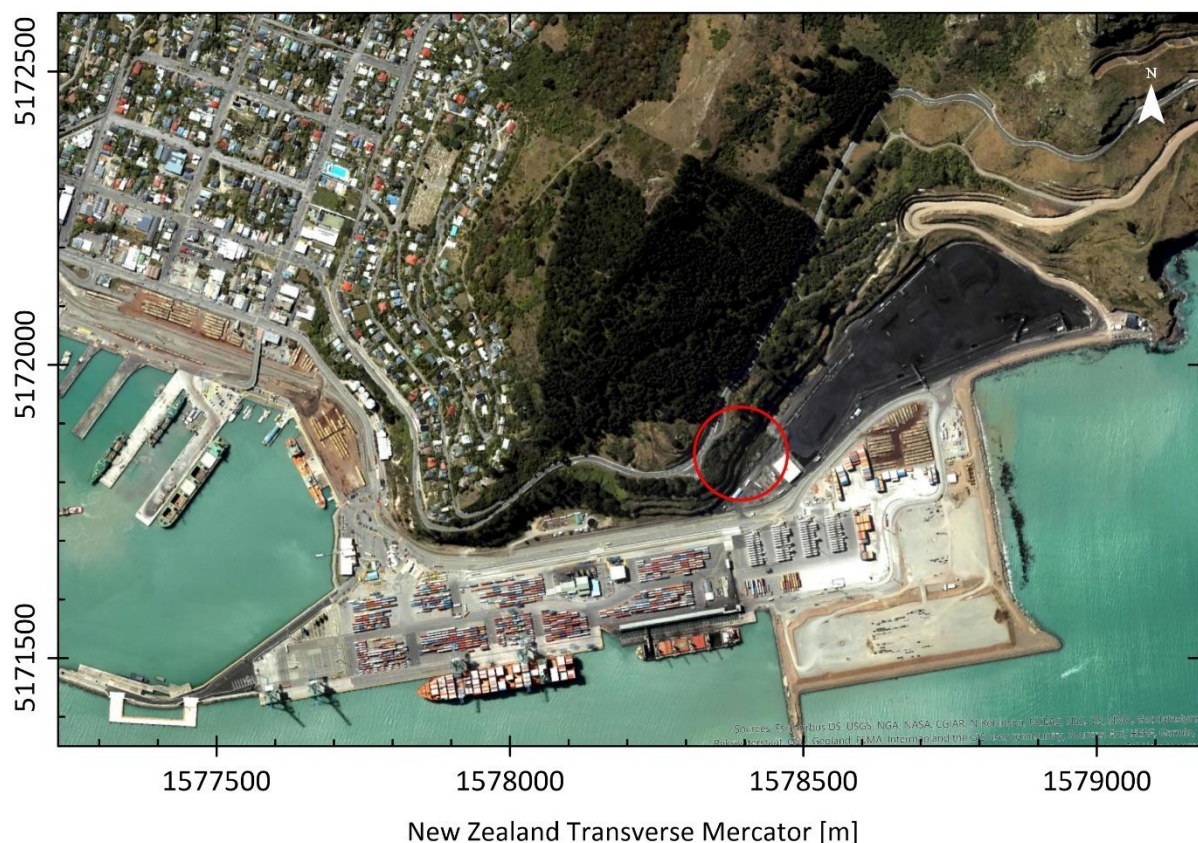


Figure 5.2: General location (red circle) of the nephelometer for real-time dust monitoring.

Table 5.2: PM₁₀ trigger levels

Trigger level	Concentration	Actions
Tier 1	75 µg/m ³ 1-hour rolling average	• Immediate investigation of likely dust sources and implement actions to reduce emissions. • Compulsory water application to any active coal stacks and vehicle tracks using spray towers and water cart.
Tier 2	115 µg/m ³ 1-hour rolling average	• Monitor dust generating activities until concentrations drop below Alert level. • Investigate causes. • Ensures all working on the stockpiles and transporting coal to or from the stockpiles using the bulldozers or front end loaders ceases immediately; or alternatively. • Continue to work on the stockpiles but introduce a dust suppression surfactant to the water cart or water sprinkler/fog cannon system water supply.

The continuous monitor is to be routinely checked to ensure that it is operating correctly, and calibration is maintained at a frequency and in accordance with manufacturer instructions.

The continuous monitor is to be powered by a solar array and battery power (or mains power) so that the heated inlet is maintained at a high enough temperature to avoid misting/fog effects that can give rise to false readings.

6 Complaint response and recording

6.1 Overview

Although the measures outlined in this DMP are aimed at preventing or minimising adverse effects from coal dust emissions beyond land owned by LPC, there may be occasion where an incident occurs and a complaint is received from a member of the public, one or more of the regulatory authorities or a member of the LPC team. Any complaint made must be promptly investigated to resolve the source of the dust emissions; and, if necessary, implement appropriate actions to mitigate the effects.

A Complaints register will be maintained and made available to the consent authority on request.

6.2 Receiving and responding to complaints

The following outlines guidance for receiving and keeping records of any complaints made.

A complaint can be received via the following methods:

- Direct call to LPC.
- Written email or letter correspondence.
- Complainant may attend the site in person.
- Complaint received via Canterbury Regional Council (CRC) and/or Christchurch District Council.

The correct information must be collected by the person receiving the complaint to help investigate the cause and identify any corrective action that has been or needs to be undertaken.

The following guide should be followed when receiving a complaint:

- Be courteous.
- Immediately suspend contact with the complainant if there is a risk of injury or abuse.
- Advise the complainant that an investigation will be taken out to identify the likely cause of their concern, and that appropriate mitigating actions are being undertaken or will be undertaken promptly.
- Record details reported by the complainant highlighted on the Complaint Investigation Form (see Section 6.3).
- Investigate the likely cause of the complaint including immediate investigation of observed dust emissions noting any process considerations and meteorological conditions, including if there are any abnormalities.
- Take corrective actions as soon as practicable if there is evidence of adverse effects beyond LPC's land.
- After completion of the investigation, follow up with the complainant to ensure that their concerns have been addressed.

6.3 Recording and investigating causes

A record is to be kept of all dust related complaints received relating to site activities. Those details shall be recorded in the onsite daily log, or equivalent system.

The recorded complaints information and investigations must be available at the site office and made available to CRC staff when requested.

The complaint investigation must record the following information:

- Name and contact details of the complainant, and location/address of when the dust was detected.
- Date and time of the dust detection.
- Ask the complainant to describe the event:
 - Is it constant or intermittent?
 - How long has it been going for?
 - Does it come from an identifiable source (log yard, coal yard, ship etc)?
 - Weather information at the complainant's location?
- Details of who received the complaint, and how the complaint was made.
- Weather conditions when the dust was detected, including wind speed and direction measured at the site and any information recorded at monitoring stations.
- Details of any observed dust emissions from the site made by responsible person investigating the complaint.
- As soon as possible carry out an investigation of the possible cause of the dust event/complaint. Record all issues observed.
- Record the details any corrective action taken at the time to resolve the incident, and any mitigation methods in place during the time of dust event.
- As soon as practical (preferably within two hours during the day), visit the area that the complaint was from to determine if the complaint is still a problem.
- Record any preventative measures or actions put in place to prevent events such as this occurring in the future.
- Follow up with the complainant and explain any problems found and remediation taken.
- Complete complaint form and file on the register.
- Inform CRC of the complaint.

An investigation of the dust complaint will require the **Coal Operations Manager** to walk around site to make observations of activities being undertaken and any visible dust emissions. It may also include visiting the location of the complaint which may be located off site.

The investigation should be carried out promptly following the receipt of the complaint and where practicable within 30 minutes of the complaint being made.

Appropriate health and safety procedures are to be followed at all times during the investigation.

7 Record keeping

Records are required to be kept by LPC in relation to its air discharge permit and are to be made available to CRC's RMA Monitoring and Compliance Manager upon request. Record keeping requirements are outlined in Table 7.1.

Table 7.1: Record keeping requirements

Record	Responsibility	Location
Daily logs	Coal Operations Manager	Coal-yard office / electronic
Complaints records	Coal Operations Manager	Coal-yard office / electronic
Environmental incident reports and breaches of monitoring trigger levels	Coal Operations Manager	Coal-yard office / electronic
Revisions to the DMP and relevant sub-plans	Coal Operations Manager	Coal-yard office / electronic

7.1 Daily log

Factors such as weather and mitigation equipment operation can affect dust generation from activities on site. Mitigation measures discussed in Section 4 are carried out to prevent or minimise dust emissions, and inspections and monitoring are used to assess the efficacy of those measures.

Recording inspection results and relevant conditions of internal and external factors helps assess whether control measures are effective, and to determine corrective or preventative actions if incidents occur.

The following information is to be recorded on a Daily Log or equivalent on-site environmental management system:

- Records of any PM₁₀ trigger level events as outlined in this DMP, including the date, time, PM₁₀ concentration and any measures undertaken in response.
- Dust control equipment malfunctions (such as failure of the water cart or sprinkler system), and any corrective action(s) taken.
- Results of daily site visual inspections of dust emissions (see Section 5.1). The inspection is to be undertaken during daylight hours when the site is active, and at the most appropriate location and time of day for the conditions presented.
- General weather conditions during the day to be supplemented by on site meteorological monitoring (e.g., windy, dry, calm, warm, rain etc.).

8 Roles and responsibilities

Table 8.1 outlines the management roles for the key environmental management responsibilities on site.

Table 8.1: Environmental management roles and responsibilities on site

Role	Responsibility
Consent holder	Compliance with the RMA and discharge to air permit.
Coal Operations Manager or a person that has been delegated responsibilities by the Coal Operations Manager	- Overall responsibility for site compliance with the RMA and discharge to air permit. - Reviewing and reporting on environmental performance with regards to dust. - Inspection of activities in compliance with this DMP. - Responsible for on-site compliance with this DMP. - Maintain all records required under this DMP including Daily Logs and Complaints Records. - Training of all staff including sub-contractors.
Environmental Manager or a person that has been delegated responsibilities by the Environmental Manager	- Operation, maintenance, and calibration of monitoring requirements, including nephelometers, deposition gauges and meteorological instruments. - Respondent to questions from the general public. - Complaint contact for the community.
CRC Compliance Team	- Auditing against this DMP to assess whether consent compliance is being met. - Consent compliance monitoring and reporting back to the consent holder.

8.1 Contact details

Contact details for those key responsibilities outlined in this DMP are detailed in Table 8.2, including the after-hours in case of emergency.

Table 8.2: Responsible staff contact details

Name	Role	Contact details
TBC	Coal Operations Manager	TBC
TBC	Environmental Manager	TBC
TBC	After-hours contact	TBC

9 Training and induction

It is the responsibility of the **Coal Operations Manager** to implement an on-going training and induction programme for all contractors and staff. The programme is to train personnel about:

- The purpose and requirements of the DMP.
- Air discharge permit requirements.
- Consequence of failure to comply with the DMP.

The training programme for all contractors and staff will include the following:

- The responsibilities of staff to undertake activities in such a manner to minimise dust emissions from the site so to minimise adverse effects on the environment and sensitive receptors in accordance with the Resource Consent.
- Methodology for monitoring dust emissions and keeping of appropriate records.
- Methodology for mitigation methods including:
 - Maintenance of equipment.
 - Speed limits on site.
 - Manual and automatic trigger levels for mitigation.
 - Contingency methods for equipment breakdown or extreme weather.
 - Receiving and recording complaints.

Training is to take place upon issue of the Resource Consent and for new staff as part of their induction process.

10 Auditing and review

10.1 Audit

LPC will undertake a full yearly internal audit of site operations and compliance with this DMP (and the discharge to air consent). The audit should be scheduled to occur during summer months when the risk of dust emissions from the site is highest.

All documentation and records relating to this DMP shall be appropriately stored for auditing.

10.2 Review

This DMP will be reviewed and updated to reflect significant changes to on-site activities, equipment, location of activities, a review of monitoring results and relevant feedback from Ngāti Wheke. Additional modifications may need to be made to manage risks if additional management and mitigation measures are required to minimise dust.

Management will undertake a review of the DMP every four years. This review will be organised by the **Coal Operations Manager**. The review will consider:

- Audit findings and recommendations.
- Environmental monitoring records, including:
 - Continuous dust monitoring trigger events; and
 - Dust deposition gauge monitoring where coal deposition rates for the nearest residential sites (sites 10, 11 and 13) are recorded above 2.4 g/m²/30-days.
- The suitability of continuous dust monitoring trigger concentrations and whether those trigger levels need adjusting up or down for managing off-site effects.
- Any environmental complaints, incidents or emergencies, including details of corrective and/or preventative actions taken.
- On-site personnel comments regarding dust emissions.
- Changes to organisational structure to include responsible persons.
- Ongoing compliance with conditions and targets.
- Possible changes to legislation and standards.
- Improvements to site and any developments of industry codes of practices.

The review process will include looking at environmental controls and procedures to ensure that they are apply to activities being undertaken on site.

Reasons for any changes to the DMP will be documented and stored with a copy of the original version marked as obsolete.

Each new/updated version of the DMP will be issued with a version number and date to avoid obsolete documentation being used.

LPC will ensure that CRC is provided with the most up to date version of the DMP.

11 Consent monitoring

Access to the site must be available to CRC staff, subject to health and safety or quarantine restrictions, at all reasonable times so that they can carry site inspections to assess compliance with consent conditions.

Site staff will be available to assist CRC staff during the inspection and to provide any information required as per the consent conditions. All records and/or information required by the discharge permit will be stored in the appropriate location on site and be made available on request.

Management will undertake a full annual internal audit of site operations and compliance with the air discharge consent (and this DMP).

12 References

- Canterbury Regional Council, Kaunihera Taiao ki Waitaha. (2017, October). Canterbury Air Regional Plan, Te mahere ā-rohe mō te hau o Waitaha.
- Davis, W. T. (2000). *The Air Pollution Manual - Second Edition*. New York: Wiley.
- Ministry for the Environment. (2016, November). Good Practice Guide for Assessing and Managing Dust. ME 1277. Wellington: Ministry for the Environment.

13 Applicability

This report has been prepared in accordance with Tonkin & Taylor Limited's (T+T) letter of engagement dated 10 July 2020. It has been prepared for the exclusive use of our client Lyttelton Port Company, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

We understand and agree that our client will submit this report as part of an application for resource consent and that Canterbury Regional Council as the consenting authority will use this report for the purpose of assessing that application.

Tonkin & Taylor Ltd

Report prepared by:

pp:



Michele Dyer

Senior Environmental Engineer (Air Quality)

Authorised for Tonkin & Taylor Ltd by:



Richard Chilton

Principal Air Quality Scientist

Authorised for Tonkin & Taylor Ltd by:

pp:



Jenny Simpson

Project Director

\\ttgroup.local\corporate\christchurch\tt projects\1014295\issueddocuments\1014295 lpc coal yard dmp - final_aug21.docx

