

**Lower Waiwhakaiho
Air Discharges
Monitoring Programme
Annual Report
2020-2021**

Technical Report 2021-45



Taranaki Regional Council
Private Bag 713
Stratford

ISSN: 1178-1467 (Online)
Document: 2838933 (Word)
Document: 2924335 (Pdf)
February 2022

Lower Waiwhakaiho
Air Discharges
Monitoring Programme
Annual Report
2020-2021

Technical Report 2021-45

Taranaki Regional Council
Private Bag 713
Stratford

ISSN: 1178-1467 (Online)
Document: 2838933 (Word)
Document: 2924365 (Pdf)
February 2022

Executive summary

The Lower Waiwhakaiho area of New Plymouth accommodates several industries that include two abrasive blasting operations and an asphalt plant. The companies hold resource consents to allow them to discharge emissions into the air. This report for the period July 2020 to June 2021 describes the monitoring programme implemented by the Taranaki Regional Council (the Council) to assess the companies' environmental performance during the period under review, and the results and environmental effects of the companies' activities in relation to emissions to the air.

Overall, the companies assessed in this Lower Waiwhakaiho Air Discharge Compliance Monitoring Programme demonstrated a high level of environmental performance.

The companies monitored during the period under review were Downer EDI Works Ltd, Dialog Fitzroy Ltd, and Katere Surface Coatings Ltd.

The companies hold three resource consents, which include a total of 72 special conditions setting out the requirements that the companies must satisfy.

The Council's monitoring during the year under review included 10 inspections and two deposition gauge surveys.

The deposition gauge surveys found that, in relation to dust resulting in deposited particulates, ambient air quality in the area during the year under review was high.

During the year, Downer EDI Works Ltd demonstrated a high level of environmental and administrative performance with their resource consent. Overall, the site was found to be well maintained.

During the year, Dialog Fitzroy Ltd demonstrated a high level of environmental and high administrative performance. Overall, there was a measured improvement in site management.

During the year, Katere Surface Coatings Ltd demonstrated a high level of environmental performance and a high level of administrative compliance with their resource consent. Overall, there was an improvement in site management.

For reference, in the 2020-2021 year, consent holders were found to achieve a high level of environmental performance and compliance for 86% of the consents monitored through the Taranaki tailored monitoring programmes, while for another 11% of the consents, a good level of environmental performance and compliance was achieved.

This report includes recommendations relating to monitoring in the 2020-2021 year.

Table of contents

		Page
1	Introduction	1
1.1	Compliance monitoring programme reports and the Resource Management Act 1991	1
1.1.1	Introduction	1
1.1.2	Structure of this report	1
1.1.3	The Resource Management Act 1991 and monitoring	2
1.1.4	Evaluation of environmental and administrative performance	2
1.2	Resource consents	4
1.3	Monitoring programme	4
1.3.1	Introduction	4
1.3.2	Programme liaison and management	4
1.3.3	Site inspections	5
1.3.4	Particulate deposition monitoring	5
1.4	Incidents, investigations, and interventions	7
2	Downer NZ Ltd	8
2.1	Introduction	8
2.1.1	Process description	8
2.2	Results	10
2.2.1	Inspections	10
2.2.2	Results of receiving environment monitoring	10
2.2.2.1	Deposition gauging	10
2.2.3	Investigations, interventions, and incidents	11
2.3	Discussion	12
2.3.1	Discussion of site performance	12
2.3.2	Environmental effects of exercise of consents	12
2.3.3	Evaluation of performance	13
2.3.4	Recommendations from the 2019-2020 Annual Report	14
2.3.5	Alterations to monitoring programmes for 2021-2022	15
2.4	Recommendation	15
3	Dialog Fitzroy Ltd	16
3.1	Introduction	16
3.1.1	Process description	16
3.2	Results	18

3.2.1	Inspections	18
3.2.1.1	Mobile blasting inspections	19
3.2.2	Provision of company data	19
3.2.2.1	Operation, Management and Maintenance Plan	19
3.2.3	Results of receiving environment monitoring	20
3.2.3.1	Deposition gauging	20
3.2.4	Investigations, interventions, and incidents	21
3.3	Discussion	21
3.3.1	Discussion of site performance	21
3.3.2	Environmental effects of exercise of consent	21
3.3.3	Evaluation of performance	22
3.3.4	Recommendations from the 2019-2020 Annual Report	24
3.3.5	Alterations to monitoring programmes for 2021-2022	24
3.4	Recommendation	25
4	Katere Surface Coatings Ltd	26
4.1	Introduction	26
4.1.1	Process description	26
4.2	Results	27
4.2.1	Inspections	27
4.2.1.1	Site inspections	27
4.2.1.2	Mobile blast inspections	27
4.2.2	Results of receiving environment monitoring	27
4.2.2.1	Deposition gauging	27
4.2.3	Investigations, interventions, and incidents	28
4.3	Discussion	28
4.3.1	Discussion of site performance	28
4.3.2	Environmental effects of exercise of consents	28
4.3.3	Evaluation of performance	29
4.3.4	Recommendations from the 2019-2020 Annual Report	31
4.3.5	Alterations to monitoring programmes for 2021-2022	31
4.4	Recommendation	32
5	Lower Waiwhakaiho area performance	33
5.1	Air related incidents	33
5.2	Deposition gauging	33
5.2.1	Results of deposition gauging	33

5.3	Discussion	35
5.3.1	Environmental effects of exercise of air discharge permits	35
6	Summary of recommendations	36
	Glossary of common terms and abbreviations	37
	Bibliography and references	38
Appendix I	Resource consents for discharges to air held by industries in the Lower Waiwhakaiho area (alphabetical order)	
Appendix II	Wind direction information for the New Plymouth area during the deposition gauge monitoring periods	

List of tables

Table 1	Air discharge permits in the Lower Waiwhakaiho	4
Table 2	Downer EDI Works Ltd air monitoring site locations	10
Table 3	Deposition gauge results from around the Downer NZ Ltd site	11
Table 4	Incidents, investigations, and interventions summary table	12
Table 5	Summary of performance for Consent 4060-5, Downer EDI Works Ltd discharge of emissions to air	13
Table 6	Deposition gauge results from around the Dialog Fitzroy site	20
Table 7	Incidents, investigations, and interventions summary table	21
Table 8	Summary of performance for Consent 4025-4, Dialog Fitzroy Ltd discharge of emissions to air	22
Table 9	Deposition gauge results from around the Katere Surface Coating Ltd site	28
Table 10	Summary of performance for combine Consent 4475-3 and Consent 10881-1 - Katere Surface Coatings Ltd discharge of emissions to air	29

List of figures

Figure 1	Location of industries holding air discharge permits, regional landfill and monitoring sites within the Lower Waiwhakaiho area	6
Figure 2	Location of Downer EDI Works Ltd and related deposition gauge sites	9
Figure 3	Deposition gauge results at Downer EDI Works monitoring sites (July 2016 – July 2021)	13
Figure 4	Dialog Fitzroy Ltd site and deposition gauge locations	18
Figure 5	Deposition gauge results for the Dialog Fitzroy monitoring sites from July 2016 to July 2021	22
Figure 6	Location of Katere Surface Coatings Ltd and their deposition gauge sites	26
Figure 7	Deposition gauge results for the Katere Surface Coatings monitoring sites from July 2016 to July 2021	29
Figure 8	Dust deposition for the Lower Waiwhakaiho area in the 2020-2021 monitoring period	34

1 Introduction

1.1 Compliance monitoring programme reports and the Resource Management Act 1991

1.1.1 Introduction

This report is the Annual Report for the period July 2020 to June 2021 by the Taranaki Regional Council (the Council) describing the results of the monitoring programme associated with the air discharge permits held by three industries in the Lower Waiwhakaiho area. The monitoring covers emissions to air from the companies' activities in the Fitzroy area of New Plymouth.

Since 1 October 1991, with the enactment of the *Resource Management Act 1991* (RMA), the Council has been the agency with primary responsibility for air quality management in the Taranaki region. Early in 1992, the Council initiated air quality monitoring programmes for industries holding discharge permits, and has subsequently issued and monitored air discharge permits for a number of other industrial and trade premises.

The Council began monitoring some of the industries in the Lower Waiwhakaiho area in 1992. This report is the 28th Annual Report to be prepared by the Council to cover the companies' air discharges and their effects. It is the 20th Annual Report to deal with emissions in the area as a combined monitoring report.

A separate report covers the results and findings of the Council's monitoring programmes associated with the water discharge permits held by some of these companies¹.

1.1.2 Structure of this report

Section 1 of this report is a background section. It sets out general information about:

- consent compliance monitoring under the RMA and the Council's obligations;
- the Council's approach to monitoring sites through annual programmes;
- the resource consents held by the companies in the Lower Waiwhakaiho area;
- the nature of the monitoring programme in place for the period under review; and
- a description of the activities and operations conducted in the companies' site/catchment.

Each company's activity is then discussed in a separate section (Sections 2 to 4).

In the subsections for each company (e.g. Section 2.1) there is a general description of the industrial activity and its discharges, an aerial photograph or map showing the location of the activity, and an outline of the matters covered by the company's air discharge permit.

Subsection 1 provides a process description for each company.

Subsection 2 presents the results of monitoring of the companies' activities during the period under review, including scientific and technical data.

Subsection 3 discusses the results, their interpretation, and their significance for the environment in the immediate vicinity of the site under discussion.

Subsection 4 presents recommendations to be implemented in the 2020-2021 monitoring year.

¹ Lower Waiwhakaiho Catchment Monitoring Programme Annual Report, 2020-2021

Section 5 presents the results and findings in relation to any investigations, interventions, and incidents relevant to the Lower Waiwhakaiho area and discusses the deposition gauge results, their interpretation, and their significance for the environment in the Lower Waiwhakaiho area as a whole.

Section 6 presents a summary of recommendations made in relation to the monitoring of each company's activities.

A glossary of common abbreviations and scientific terms, and a bibliography, are presented at the end of the report.

1.1.3 The Resource Management Act 1991 and monitoring

The RMA primarily addresses environmental 'effects' which are defined as positive or adverse, temporary or permanent, past, present or future, or cumulative. Effects may arise in relation to:

- a. the neighbourhood or the wider community around an activity, and may include cultural and social-economic effects;
- b. physical effects on the locality, including landscape, amenity and visual effects;
- c. ecosystems, including effects on plants, animals, or habitats, whether aquatic or terrestrial;
- d. natural and physical resources having special significance (for example recreational, cultural, or aesthetic); and
- e. risks to the neighbourhood or environment.

In drafting and reviewing conditions on discharge permits, and in implementing monitoring programmes, the Council is recognising the comprehensive meaning of 'effects' inasmuch as is appropriate for each activity. Monitoring programmes are not only based on existing permit conditions, but also on the obligations of the RMA to assess the effects of the exercise of consents. In accordance with Section 35 of the RMA, the Council undertakes compliance monitoring for consents and rules in regional plans, and maintains an overview of the performance of resource users and consent holders. Compliance monitoring, including both activity and impact monitoring, enables the Council to continually re-evaluate its approach and that of consent holders to resource management and, ultimately, through the refinement of methods and considered responsible resource utilisation, to move closer to achieving sustainable development of the region's resources.

1.1.4 Evaluation of environmental and administrative performance

Environmental performance is concerned with actual or likely effects on the receiving environment from the activities during the monitoring year. Administrative performance is concerned with the company's approach to demonstrating consent compliance in site operations and management including the timely provision of information to Council (such as contingency plans and water take data) in accordance with consent conditions.

Events that were beyond the control of the consent holder and unforeseeable (that is a defence under the provisions of the RMA can be established) may be excluded with regard to the performance rating applied. For example loss of data due to a flood destroying deployed field equipment.

The categories used by the Council for this monitoring period, and their interpretation, are as follows:

Environmental Performance

High: No or inconsequential (short-term duration, less than minor in severity) breaches of consent or regional plan parameters resulting from the activity; no adverse effects of significance noted or likely in the receiving environment. The Council did not record any verified unauthorised incidents

involving environmental impacts and was not obliged to issue any abatement notices or infringement notices in relation to such impacts.

Good: Likely or actual adverse effects of activities on the receiving environment were negligible or minor at most. There were some such issues noted during monitoring, from self reports, or during investigations of incidents reported to the Council by a third party but these items were not critical, and follow-up inspections showed they have been dealt with. These minor issues were resolved positively, co-operatively, and quickly. The Council was not obliged to issue any abatement notices or infringement notices in relation to the minor non-compliant effects; however abatement notices may have been issued to mitigate an identified potential for an environmental effect to occur.

For example:

- High suspended solid values recorded in discharge samples, however the discharge was to land or to receiving waters that were in high flow at the time;
- Strong odour beyond boundary but no residential properties or other recipient nearby.

Improvement required: Likely or actual adverse effects of activities on the receiving environment were more than minor, but not substantial. There were some issues noted during monitoring, from self reports, or during investigations of incidents reported to the Council by a third party. Cumulative adverse effects of a persistent minor non-compliant activity could elevate a minor issue to this level. Abatement notices and infringement notices may have been issued in respect of effects.

Poor: Likely or actual adverse effects of activities on the receiving environment were significant. There were some items noted during monitoring, from self reports, or during investigations of incidents reported to the Council by a third party. Cumulative adverse effects of a persistent moderate non-compliant activity could elevate an 'improvement required' issue to this level. Typically there were grounds for either a prosecution or an infringement notice in respect of effects.

Administrative performance

High: The administrative requirements of the resource consents were met, or any failure to do this had trivial consequences and were addressed promptly and co-operatively.

Good: Perhaps some administrative requirements of the resource consents were not met at a particular time, however this was addressed without repeated interventions from the Council staff. Alternatively adequate reason was provided for matters such as the no or late provision of information, interpretation of 'best practical option' for avoiding potential effects, etc.

Improvement required: Repeated interventions to meet the administrative requirements of the resource consents were made by Council staff. These matters took some time to resolve, or remained unresolved at the end of the period under review. The Council may have issued an abatement notice to attain compliance.

Poor: Material failings to meet the administrative requirements of the resource consents. Significant intervention by the Council was required. Typically there were grounds for an infringement notice.

For reference, in the 2020-2021 year, consent holders were found to achieve a high level of environmental performance and compliance for 86% of the consents monitored through the Taranaki tailored monitoring programmes, while for another 11% of the consents, a good level of environmental performance and compliance was achieved.²

² The Council has used these compliance grading criteria for more than 17 years. They align closely with the 4 compliance grades in the MfE Best Practice Guidelines for Compliance, Monitoring and Enforcement, 2018

1.2 Resource consents

Section 15(1)(c) of the RMA stipulates that no person may discharge any contaminant from any industrial or trade premises into air, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations.

A list of the companies holding air discharge permits monitored as part of the Lower Waiwhakaiho Air Discharges Compliance Monitoring Programme is given in Table 1, and their locations are shown in Figure 1. Copies of the full consents are included (in alphabetical order) in Appendix I.

Table 1 Air discharge permits in the Lower Waiwhakaiho

Consent Holder	Consent No	Description	Granted	Next Review Date	Expiry Date
<i>Air discharge permits</i>					
Downer NZ Ltd	4060-5	To discharge emissions into the air from the manufacture of hot mix asphalt paving mixes and associated activities	September 2021	June 2026	June 2038
Dialog Fitzroy Ltd (formerly Fitzroy Engineering Group Ltd)	4025-4 10869-1	To discharge emissions into the air from abrasive blasting operations throughout the Taranaki region, except within some part of the Coastal Marine Area	December 2020	June 2029	June 2038
Katere Surface Coatings Ltd	4475-3 10881-1	To discharge emissions to air from abrasive blasting and surface coating activities at a permanent site located at Katere Road, New Plymouth and from mobile operations throughout the Taranaki region including Port Taranaki, but excluding the remainder of the Coastal Marine Area.	December 2020	June 2023	June 2038

1.3 Monitoring programme

1.3.1 Introduction

Section 35 of the RMA sets obligations upon the Council to gather information, monitor and conduct research on the exercise of resource consents within the Taranaki region. The Council is also required to assess the effects arising from the exercising of these consents and report upon them.

The Council may therefore make and record measurements of physical and chemical parameters, take samples for analysis, carry out surveys and inspections, conduct investigations and seek information from consent holders.

The air quality monitoring programme for the industries in the Lower Waiwhakaiho area consisted of up to three primary components.

1.3.2 Programme liaison and management

There is generally a significant investment of time and resources by the Council in:

- ongoing liaison with resource consent holders over consent conditions and their interpretation and application;

- discussion over monitoring requirements;
- preparation for any consent reviews, renewals or new consent applications;
- advice on the Council's environmental management strategies and content of regional plans; and
- consultation on associated matters.

1.3.3 Site inspections

Each site was visited up to four times during the monitoring period. Inspections focused on plant processes with associated actual and potential emission sources and characteristics, including potential odour, dust, noxious or offensive emissions. Sources of data being collected by the consent holder were identified and accessed, so that performance in respect of operation, internal monitoring, and supervision could be reviewed by the Council. The neighbourhood was surveyed for environmental effects.

1.3.4 Particulate deposition monitoring

Atmospheric particulate matter can arise from a number of sources, both natural and from human activity, for example vegetation pollens, smoke and ash, sea spray, dust from soils and paved surfaces, and manufacturing processes. While extremely fine particles may remain floating in the atmosphere for weeks or months, coarser dusts may settle out within timeframes ranging from a few seconds to minutes.

The environmental effects of dusts include loss of visibility, loss of the amenity and aesthetic values of a 'clear sky', irritation to breathing, and soiling of surfaces. It has been found that background rates of dust deposition in rural areas of New Zealand are typically 0.1-1.5 g/m²/30 days, while in urban areas rates are generally higher, in the range of 0.6-3.0 g/m²/30 days. From experience, rates above 3-4 g/m²/30 days tend to lead to complaints by neighbours over the objectionable or offensive nature of dust emissions from particular sources.

Many industries emit dust from various sources during operational periods. In order to assess the effects of the emitted dust, industries have been monitored using deposition gauges. From past results of deposition gauging it is likely that factors including seasonal weather variations, vehicle traffic about the site and the type of work being conducted can have some effect on the results.

Deposition gauges are basically buckets elevated on a stand to about 1.6 m. The buckets have a solution in them to ensure that any dust that settles out of the air is not re-suspended by wind. During processing, any insects and/or vegetative matter is removed by a 150 µm filter.

As a part of the Lower Waiwhakaiho Air Discharge Compliance Monitoring Programme, deposition gauges were placed in the vicinity of selected sites on two occasions during the year, and the collected samples were analysed for deposited particulate. The monitoring locations are shown in Figure 1. The gauges were left in place for approximately three weeks, on two separate occasions.

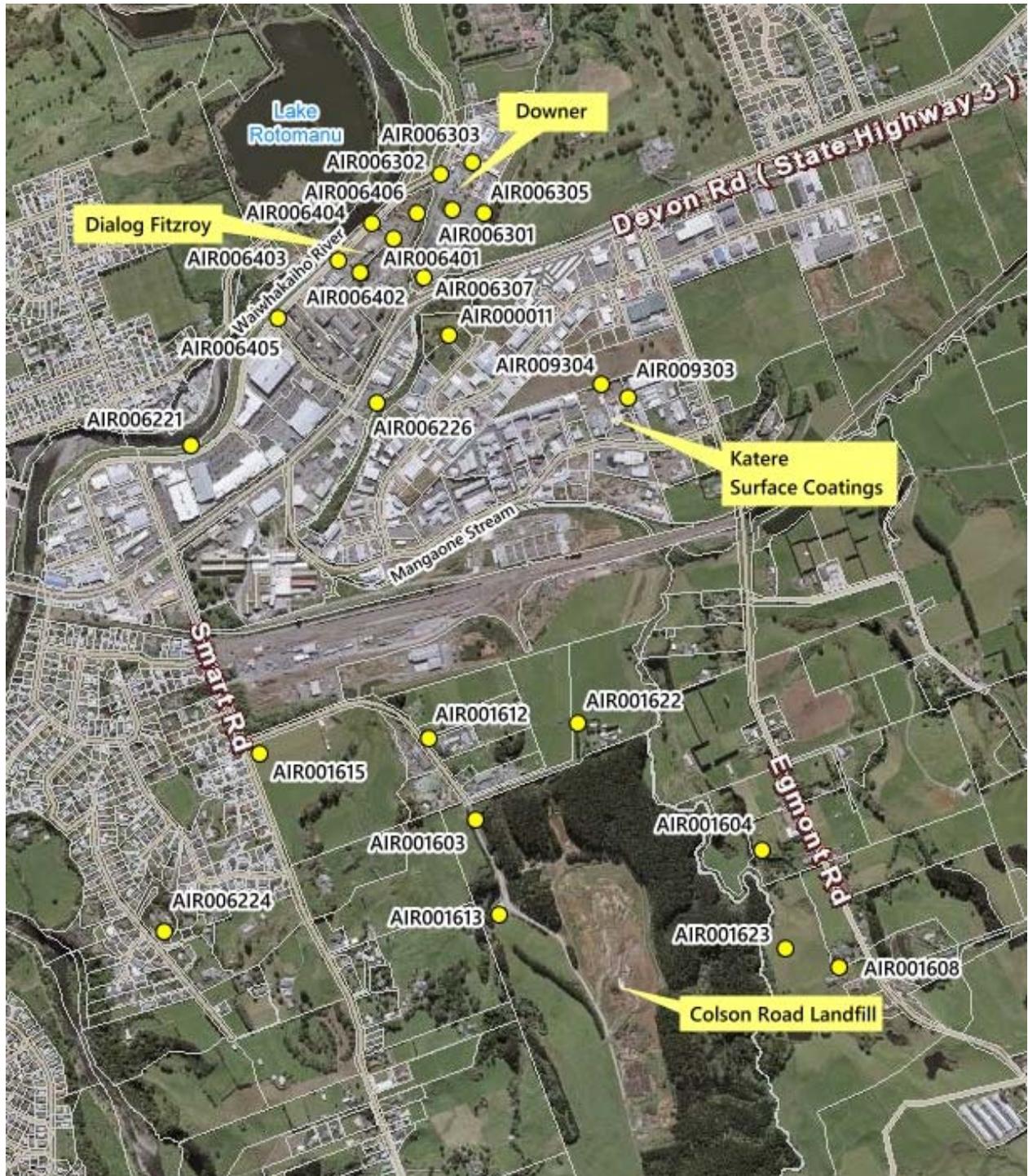


Figure 1 Location of industries holding air discharge permits, regional landfill and monitoring sites within the Lower Waiwhakaiho area



Photo 1 Examples of a deposition gauge set up and recovered filter pads

The rate of dustfall is calculated by dividing the weight of insoluble material (grams) collected by the cross-sectional area of the gauge m^2 and the number of days over which the sample was taken. The units of measurement are $g/m^2/day$.

Guideline values used by the Council for dust deposition are $4 g/m^2/30$ days or $0.13 g/m^2/day$ deposited matter. Consideration is given to the location of the industry and the sensitivity of the surrounding community, when assessing results against these values. This guideline value has been incorporated as a limit in the companies' consents.

1.4 Incidents, investigations, and interventions

The monitoring programme for the year was based on what was considered to be an appropriate level of monitoring, review of data, and liaison with the companies. During the year matters may arise which require additional activity by the Council, for example provision of advice and information, or investigation of potential or actual causes of non-compliance or failure to maintain good practices. A pro-active approach, that in the first instance avoids issues occurring, is favoured.

For all significant compliance issues, as well as complaints from the public, the Council maintains a database record. The record includes events where the individual/organisation concerned has itself notified the Council. Details of any investigation and corrective action taken are recorded for non-compliant events.

Complaints may be alleged to be associated with a particular site. If there is potentially an issue of legal liability, the Council must be able to prove by investigation that the identified individual/organisation is indeed the source of the incident (or that the allegation cannot be proven).

Details of incidents, investigations and interventions are provided under each Company's section of this report.

2 Downer NZ Ltd

2.1 Introduction

2.1.1 Process description

The purpose of the Downer EDI Works Ltd (Downer) plant is to produce asphalt for use on roads and driveways etc. A permanent drum mix plant has replaced the batch plant and mobile plant that were formerly in use at the site.

The asphalt production is achieved by the following processes. The plant is a parallel-flow drum mix plant consisting of a rotary drum (which is used to both dry and heat the aggregate and to mix the hot aggregate with bitumen), a dual fuel burner and integral combustion air fan, a bitumen drum injection system and expansion box. Aggregate is transferred into the rotating drum at the burner end and then travels down the slightly inclined rotating drum where products of combustion and excess air dry and heat the aggregate. The drum is fitted with flights, which achieve a lifting motion ensuring good contact between the drying gases and the aggregate. Hot liquid bitumen is injected into the drum about half way down. A steam barrier from the drying aggregate, and burner design, prevents the burner from impinging on the hot bitumen. Hot mix temperatures range from 135 °C to 170°C depending on the blend, and mixes generally contain about 5% bitumen. The product is removed continuously by a conveyor at the end of the drum and is transferred to insulated storage bins prior to discharge into trucks.

The spraying of bitumen into the aggregate, and the steam generated by drying the aggregate removes a substantial proportion of the entrained dust. The combustion products, dust, bitumen volatiles, and pyrolysis products are drawn through an expansion box where large dust particles settle out and drop into the aggregate/bitumen mix. The emissions then pass through a venturi water scrubber, which injects water into the exhaust gas stream and centrifugally separates out the water/dust prior to discharge from the 17 m stack.

Road patching mix can be manufactured in a pugmill serviced via a by-pass conveyor.

The current drum mix plant was installed in 2006. It has a maximum production rate of 80 tonnes per hour, but is normally operated at around 50 tonnes per hour, with the typical annual operating time being around 200 to 400 hours per year.

The major components of this drum mix plant were either new or refurbished, with only items such as the aggregate storage facilities, control room and weighbridge being existing facilities. The scrubber settling ponds, although existing, were deepened to increase retention/settling time.

The drum burner for this plant operates primarily on natural gas but is equipped with dual fuel capability. The plant is able to operate on diesel oil, primarily to give some commercial advantage when negotiating fuel contracts. The burner has a rated capacity of 12 MW gross, but the plant requires only 7 MW gross on average at the plant's maximum production rate of 80 tonnes per hour.

Diesel and kerosene are not blended or stored at the site but at Port Taranaki. If diesel firing of the dual fuel drum burner was required, the consent holder advised that the existing self banded (double skinned) 10,000 litre fuel tank would be used for fuel storage.

The plant is designed to be capable of processing recycled asphalt, and Downer indicated that they may want to introduce this at a later date. However, no information was provided to the Council at the time of their resource consent application regarding the potential effects from the processing of recycled asphalt paving and so it is not currently permitted by their consent.

The main potential issues associated with the discharges to air from the site are particulates, silica, organic compounds, carbon monoxide, nitrogen oxides and sulphur dioxide.

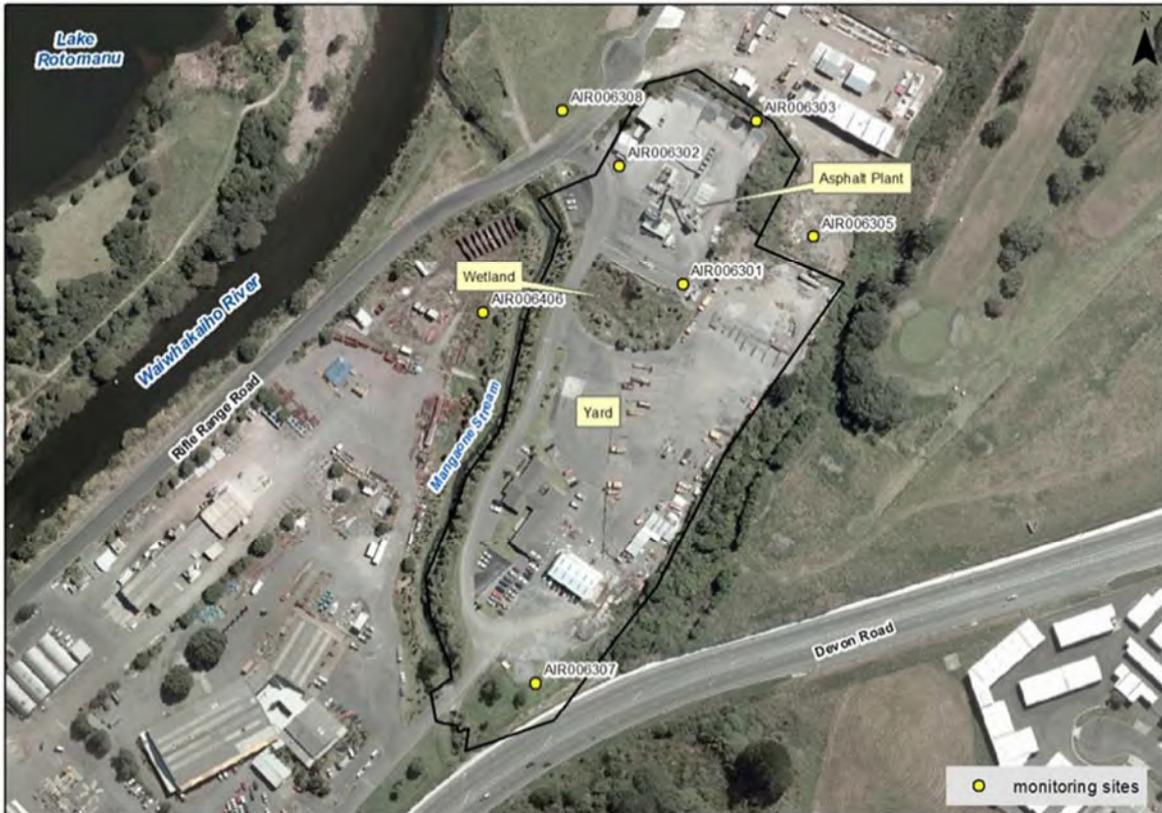


Figure 2 Location of Downer EDI Works Ltd and related deposition gauge sites

In addition to the emissions from the asphalt plant itself during normal operation, the main sources of additional particulates are:

- storage and movements of aggregate and crusher dust, the effects of which are mitigated by keeping the materials damp;
- washing out of the drum between substantially different batches of asphalt;
- run-out of aggregate loaded in excess of requirements;
- fugitive emissions, which are controlled by ensuring that adequate monitoring and maintenance is undertaken by operators at the site, and
- mobilisation of dust from the yard surface due to truck movements. The roads and yard areas have been progressively hard paved and these surfaces are kept damp when appropriate. The yard has been equipped with water sprays to assist in minimising dust during windy weather. Spillage of aggregate is scraped up and the area washed down as necessary. A speed limit of 10 km/h has been imposed to reduced dust generation from vehicle movements in dry weather.

Some of the total organic carbon (TOC) emissions can produce a noticeable odour, however it is expected that these odours would dissipate sufficiently so that they are not considered to be offensive beyond the boundary of the site. Bitumen odour can be apparent beyond the boundaries of the premises resulting from the dumping of hot mix or patching mix into waiting trucks. When the material is deposited in the truck, a moderate cloud of bitumen smoke may drift downwind. This event is of short duration.

Most of the sulphur dioxide and nitrogen oxides produced by the burning of fossil fuels in the plant are removed by the water scrubber in the cyclone.

Ground level concentrations of carbon monoxide and silica are estimated to be well below relevant guidelines.

2.2 Results

2.2.1 Inspections

Three inspections were carried out in the 2020-2021 period; these were conducted on 17 November 2020, and 9 February and 4 May June 2021. Results from the inspections are below.

17 November 2020

An inspection was undertaken in fine weather with light westerly wind conditions. The yard was clean and tidy and ambient dust was within consented limits. The stack emissions testing had not been undertaken before 1 June 2021 as required by condition 9 of the resource consent. This was deemed a non-compliance of resource consent conditions, and an investigation in conjunction with Downer was undertaken. The results of this investigation are discussed in section 2.2.3. No objectionable or offensive dust or odour was noted at the time of the visit.

All other consent conditions were compliant at the time of inspection.

9 February 2021

An inspection of the yard and plant was carried out in overcast weather with light wind conditions. The yard was relatively clean and tidy with no evidence of spills. The plant was not operating at the time of inspection, and no discharges to air were occurring. No odours were noted and ambient dust levels were within allowable limits. The emissions stack testing was scheduled to be carried out in March.

Overall, the site was compliant at the time with no issues noted.

4 May 2021

An inspection was undertaken in calm, wet weather with light rain showers. Yard maintenance was required in the form of sweeping, however there was no evidence of spills. The plant was not operating at the time and no discharges to air were occurring. No odours were noted and ambient dust readings were within allowable limits. The emissions stack testing had not yet been undertaken.

Overall, the site was compliant at the time of inspection.

2.2.2 Results of receiving environment monitoring

2.2.2.1 Deposition gauging

Deposition gauges were deployed on two occasions during the monitoring period. The first deployment began in January 2021 and lasted 21 days. The second deployment began in February 2021 and lasted 21 days.

A site map marking the location of the gauges around the Downer site is shown in Figure 2, with the monitoring site locations also described in Table 2.

Material from the gauges was analysed for solid particulates with the results shown in Table 3. The prevailing wind directions during the surveys is included in Appendix II.

Table 2 Downer EDI Works Ltd air monitoring site locations

Site code	Location description	At or beyond site boundary
AIR006301	Approx. 80 m SE of asphalt plant	Inside boundary
AIR006302	NW of asphalt plant approx. 10 m from Rifle Range Road	Inside boundary
AIR006303	NE of asphalt plant approx. 50 m along screening bank	Inside boundary

Site code	Location description	At or beyond site boundary
AIR006305	East. Near golf course track	Outside boundary
AIR006307	Between southern site entrance and Devon Road	Inside boundary

For an industry such as this, relatively high deposition rates are expected due to handling and processing of aggregate material. As can be seen from Table 3, two of the ten samples collected and analysed during the year under review exceeded or were at the Council's recommended guideline value of 0.13 g/m²/day, or the consent limit of 4 g/m²/30 days for deposited particulate at monitoring locations at the site boundary.

January 2021 survey

All sites sampled were within the guideline limit during the January survey, and the material collected ranged from light brown to brown with vegetative matter and insects present in most gauges.

The appearance of the particulate matter collected was consistent with re-suspended yard dust from the surrounding area and vegetation.

February 2021 survey

Two gauges (sites AIR006303 and AIR006305) showed elevated rates at or above the guideline limit during the February survey.

The material collected ranged from dark green to dark brown. Vegetative matter and/or insects were present in all gauges. The appearance of the particulate matter collected was consistent with a high input from vegetation as opposed to re-suspended yard dust.

Table 3 Deposition gauge results from around the Downer NZ Ltd site

Site ID	Dust deposition rate (g/m ² /day)	
	Run 1 From 06/01/2021 to 27/01/2021	Run 2 from 10/02/2021 to 03/03/2021
AIR006301	0.03	0.07
AIR006302	0.01	0.09
AIR006303	0.00	0.13
AIR006305	0.02	0.19
AIR006307	0.02	0.08
Guideline value:	0.13 g/m ² /day	

Key: Results in bold are at recommended guideline value

2.2.3 Investigations, interventions, and incidents

Table 4 below sets out details of any incidents recorded, additional investigations, or interventions required by the Council in relation to Downer's activities during the 2020-2021 period. This table presents details of all events that required further investigation or intervention regardless of whether these were found to be compliant or not.

Table 4 Incidents, investigations, and interventions summary table

Date	Details	Compliant (Y/N)	Enforcement Action Taken?	Outcome
November 2020	Emissions stack testing not completed	N	None	Further investigation found that the consent holder had engaged the services of the specialist stack testing company, however due to lockdown requirements and subsequent demand nationally, there were delays of up to 6 months before testing could be carried out. Testing was undertaken in December 2020.

2.3 Discussion

2.3.1 Discussion of site performance

Routine compliance monitoring inspections during the year under review found that activities at the site were well managed. There were no offsite effects found from either dust or odour due to Downer's activities at the time of inspection. The asphalt plant was in operation on one of the three compliance monitoring inspections undertaken.

Emissions stack testing was completed in December 2020 and the findings from the tests were used to make improvements to the performance of the plant and routine maintenance schedules.

In terms of potential dust issues, it is considered that activities at the site were generally well managed. There were two exceedances of the particulate deposition rate guideline value, or the consent limit, however these results were attributed to the presence of vegetative matter as opposed to dust from site activities.

There were no dust or odour complaints received by the Council.

2.3.2 Environmental effects of exercise of consents

Deposition gauging was conducted for the 62nd and 63rd time during the 2020-2021 monitoring year around the Downer site.

The results from the dust deposition gaugings show that of the ten samples collected during the 2020-2021 period, two were in excess of the particulate deposition rate guideline values adopted by the Council (Figure 3). However, the results could not be directly attributed to Downer's site; rather the high particulate deposition was more likely due to vegetation input and yard dust re-suspension from the wider area. Wind direction was predominantly from the west during the first gauging period. During the second period, this was split between southerlies and south easterlies (Appendix II). Particularly due to these variable winds, the neighbouring properties cannot be discounted as potential contributors to the high deposition rate.

It is noted that there were no complaints received by the Council in relation to dust issues from the Downer site during the 2020-2021 year.

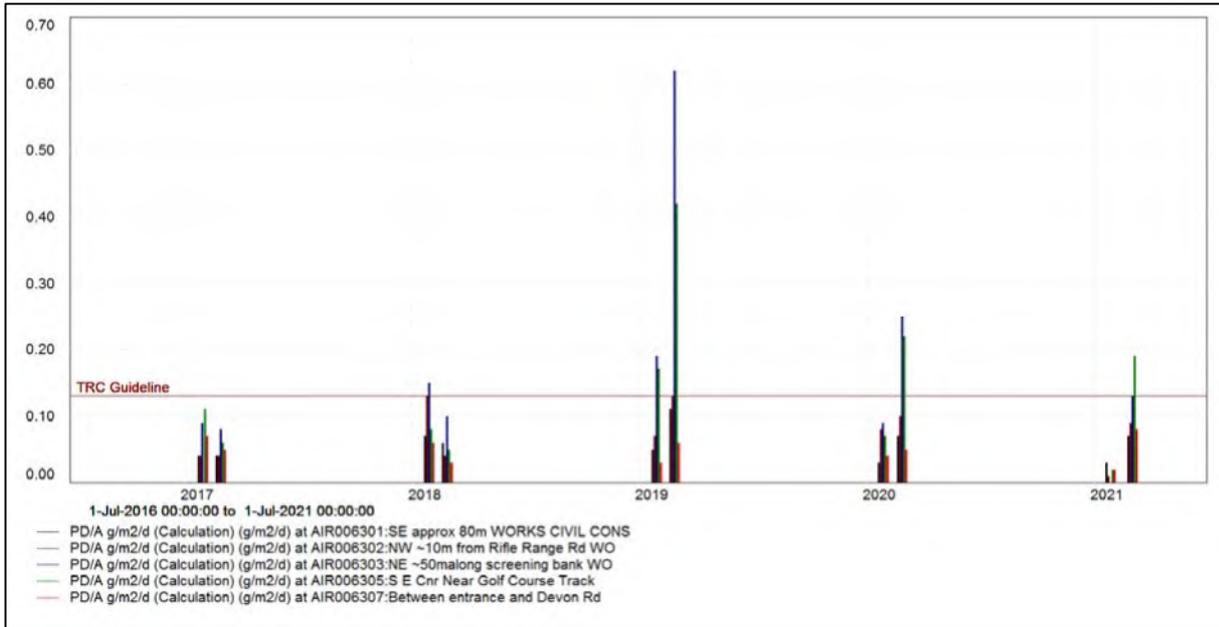


Figure 3 Deposition gauge results at Downer EDI Works monitoring sites (July 2016 – July 2021)

2.3.3 Evaluation of performance

A tabular summary of Downer's compliance record for the year under review is set out in Table 5.

Table 5 Summary of performance for Consent 4060-5, Downer EDI Works Ltd discharge of emissions to air

Purpose: To discharge emissions to air from the manufacture of hot mix asphalt paving mixes and associated activities		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Exercised in accordance with the application	Inspection	Yes
2. Approval prior to alterations to plant or processes	Inspection and liaison with consent holder	N/A
3. Prohibition of recycled asphalt processing	Inspection and liaison with consent holder	Yes
4. Operation using waste oil not permitted	Inspection and liaison with consent holder	Yes
5. Sulphur content of fuel	Discussed during inspection. Diesel not used in asphalt plant	Yes
6. Treatment prior to gas discharge	Inspection found emissions captured and treated satisfactorily. No complaints received. Emissions monitoring undertaken twice during the monitoring period	Yes
7. Stack emissions testing due before 1 June 2022 and every 12 months after	Review of documentation provided to the Council	N/A
8. Definition of methodology to be used for stack emissions testing	Review of documentation provided to the Council	N/A

Purpose: To discharge emissions to air from the manufacture of hot mix asphalt paving mixes and associated activities		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
9. Particulate deposition rate at site boundary	Deposition gauge monitoring	Two of ten gauges above limit, but attributed to vegetation input
10. Objectionable odour or level of dust not permitted at site boundary	Inspection and observation when inspecting officer is in the vicinity of the site on other business	Yes
11. Control of ground levels of carbon monoxide, nitrogen dioxide, fine particles (PM10), and sulphur dioxide	Future monitoring as required	Yes
12. No hazardous, noxious, dangerous, offensive or objectionable emissions at site boundary	Inspection and observation when inspecting officer is in the vicinity of the site on other business	Yes
13. Requirements of Operations and Maintenance Management Plan	Inspection and liaison with consent holder	Yes
14. Reporting requirements of OMMP	Review of documentation provided to the Council	N/A – report next required June 2022
15. Option for review of consent	Liaison with consent holder	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		High
Overall assessment of administrative performance in respect of this consent		High

During the year, the Downer NZ Ltd demonstrated a high level of environmental performance and administration performance and compliance with their resource consent, as defined in Section 1.1.5. One unauthorised incident was initially recorded in relation to their activities on the site, but it was later found that they held a defence under the RMA. There were no recorded environmental effects associated with this discharge.

Although there were exceedances of the particulate deposition rate recorded, these were considered to be a result of vegetation input and yard dust re-suspension from the surrounding area, and no complaints were received in relation to their activities during the year.

2.3.4 Recommendations from the 2019-2020 Annual Report

In the 2019-2020 Annual Report, it was recommended:

1. THAT monitoring of consented activities at the Downer EDI Works Ltd site in the 2020-2021 year continues at the same level as in 2019-2020.
2. THAT should there be issues with environmental or administrative performance in 2020-2021, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

Recommendation 1 was implemented, while there was no requirement for additional work as allowed for in Recommendation 2.

2.3.5 Alterations to monitoring programmes for 2021-2022

In designing and implementing the monitoring programmes for air/water discharges in the region, the Council has taken into account:

- the extent of information already made available through monitoring or other means to date;
- its relevance under the RMA;
- the Council's obligations to monitor consented activities and their effects under the RMA;
- the record of administrative and environmental performances of the consent holder; and
- reporting to the regional community.

The Council also takes into account the scope of assessments required at the time of renewal of permits, and the need to maintain a sound understanding of industrial processes within Taranaki exercising resource consents.

It is proposed that for the 2021-2022 year the programme continues at the same level as in 2020-2021.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the site in question. The Council reserves the right to subsequently adjust the programme from that initially prepared, should the need arise if potential or actual non-compliance is determined at any time during 2021-2022.

2.4 Recommendation

1. THAT monitoring of consented activities at the Downer EDI Works Ltd site in the 2021-2022 year continues at the same level as in 2020-2021.
2. THAT should there be issues with environmental or administrative performance in 2021-2022, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

3 Dialog Fitzroy Ltd

3.1 Introduction

3.1.1 Process description

Dialog Fitzroy Ltd (formerly known as Fitzroy Engineering Group Ltd) carries out abrasive blasting to clean and prepare surfaces for painting. The process involves blasting "garnet", an abrasive sand-like substance, onto the surface of the object in question. Material from the blasting process becomes airborne due to the release of high pressure air used to accelerate the abrasive media to the required cleaning velocities. Spray painting is also carried out on the site.

Emissions from abrasive blasting operations have the potential to cause nuisance and possible health risks, especially when conducted within populated areas. The Dialog Fitzroy permanent site is within an industrial area. The environmental effects of dusts can include loss of visibility, loss of the amenity and aesthetic values of a 'clear sky', irritation to breathing, and soiling of surfaces. In the case of dust emissions from Dialog Fitzroy's blasting operation, there is also the potential for the dust to contain metals such as lead, zinc and chromium from the surface of the items blasted. The potential for lead to be contained in the dust has been significantly reduced as Dialog Fitzroy now undertakes lead testing as a matter of course. If a positive result is obtained, special procedures apply to contain and dispose of the debris in accordance with Department of Labour Guidelines. Dialog Fitzroy has also informed Council that the blasting of chromium items is not undertaken.

Dialog Fitzroy has carried out abrasive blasting in the permanent facilities and in the yard at their site on Rifle Range Road, New Plymouth since 1990, and also undertakes abrasive blasting work on fixed items at various locations throughout the Taranaki region (mobile blasting).

At the Dialog Fitzroy site there is a permanent facility called the "grit room". The grit room has a wet scrubber unit on its discharge outlet to minimise emissions to the atmosphere. The wet scrubber was commissioned in July 1995. The canvas curtains at the north-east end of the building were replaced by solid doors during the 1998-1999 monitoring period. These doors more effectively contained dust emissions from the operation. The grit room is now used very infrequently, and was not used at all during the year under review.

Dialog Fitzroy has another facility on its premises to provide for unusually sized and/or shaped objects. This facility is called the "garnet shed". A scrubber tower and spray system was installed to mitigate emissions from the garnet shed in June 2000, which was expected to provide a decrease in particulate levels on and off site. An upgrade was carried out in January 2003 when a stack extension, incorporating a third ring of water spray nozzles, was added. Further upgrades were undertaken during the 2005-2006 year when it was found that the discharge from the stack did not comply with condition 7, limiting the particulate emissions to less than 125 mg/m³. The upgrade consisted of a reduction in nozzle size to achieve a more effective droplet size, and changing the spray configuration from a circumferential pattern to a centrally located arrangement. These upgrades were intended to generate a more effective water mist within the tower. Spent garnet and waste removed from the bottom of the scrubber towers was stored in bags in the yard, which were then disposed of by a contracted company on an as required basis.

In 2015, a new 'Blastquip' fabric filter air treatment system was installed at the garnet shed (Photo 2). This new system is considered to be the best practicable option for air treatment and a significant improvement from the wet scrubber system. Essentially, air is extracted from the roof at the northern end of the shed and directed through a filter system. The treated air is then returned to the shed at the southern end of the roof. The system is largely 'closed loop'; however, some of the treated air is discharged to the atmosphere with ambient air introduced into the shed, in order to control the shed temperature.



Photo 2 Blastquip fabric filter air treatment system at Dialog Fitzroy

The 'Blastquip' system has since been inspected by an external consultant from JCL Air and Environment Ltd in order to assess the feasibility and necessity of emission monitoring. Due to a number of factors, the consultant determined that emission monitoring was not feasible. Furthermore, the system's specifications provided by Blastquip indicated that the particulate concentration of treated air would be around 0.1 mg/m^3 , well below the guideline level of 125 mg/m^3 . Instead, the consultant's recommendation was to require compliance of the consent holder through the implementation of a management plan for the 'Blastquip' air treatment system. All these recommendations were set out as new conditions in a consent change in June 2016. They have subsequently been implemented.

Yard blasting is carried out when items cannot be blasted within the grit room or garnet shed. The yard areas on site are predominantly gravel, and therefore any sandblasting material spilt or deposited on site from aerial emissions is difficult to manage, and may be re-suspended by wind or vehicle movements. A substantial area of the yard near the offices at the Rifle Range Road end of the site was sealed during the 2002-2003 monitoring period.

The containment of emissions from yard and mobile blasting is limited to the use of screens, tarpaulins and other similar methods of airborne particulate suppression due to the temporary nature of the work being carried out.

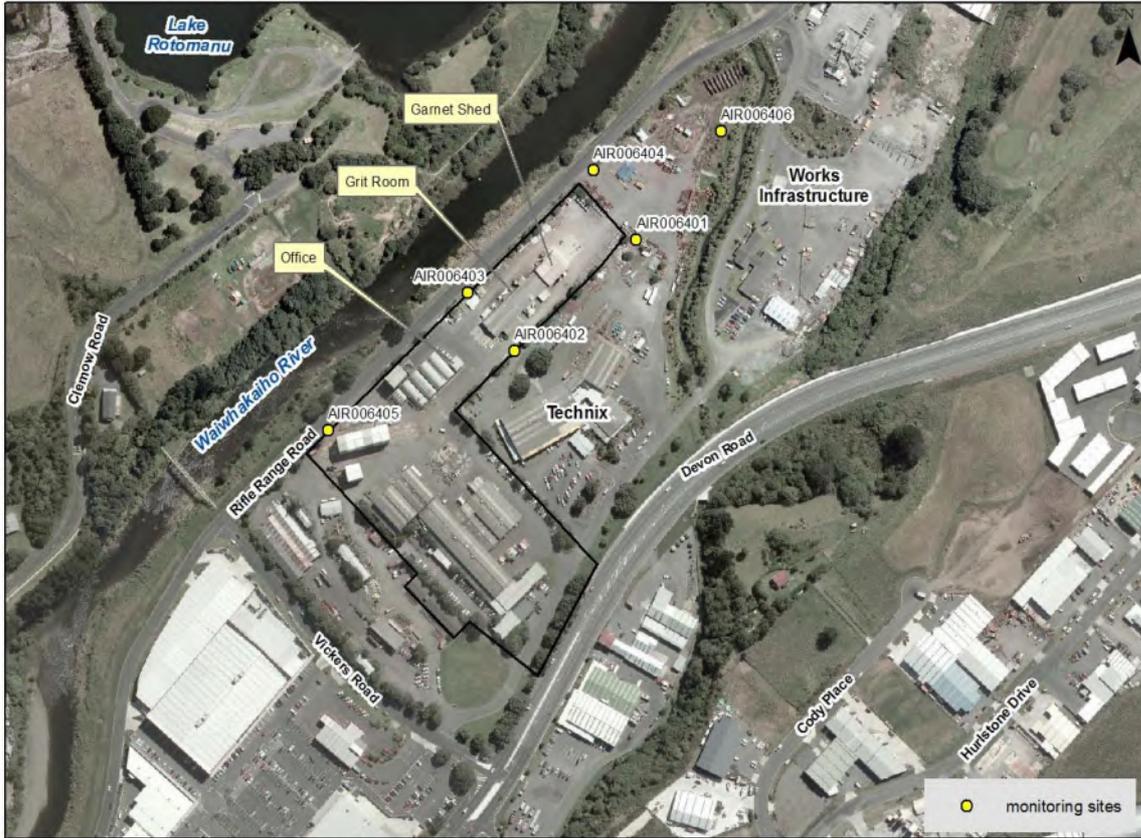


Figure 4 Dialog Fitzroy Ltd site and deposition gauge locations

3.2 Results

3.2.1 Inspections

Three routine compliance monitoring inspections were undertaken during the 2020-2021 year, on 12 January, 9 February, and 4 May 2021. Inspections were also undertaken in relation to monitoring of the stormwater consent for the site, which was previously reported here but is now included in Dialog Fitzroy's section of the Lower Waiwhakaiho Catchment Monitoring Report.

There is also provision for a further inspection of mobile blasting operations to be undertaken by the Council if notification of mobile blasting is received. One mobile blasting notification was received, and an inspection of the mobile blasting site was carried out on 29 February 2021.

12 January 2021

An inspection was undertaken in fine weather with calm wind conditions. The yard was very clean and tidy with very little garnet accumulated around the blast shed in comparison to previous visits. Blasting was being carried out at the time of the visit, and all material was contained within the blast shed. Sprinklers were in use to suppress dust from the yard as required. Discussions were held around potentially sealing the bottom of the yard area dependant on stormwater monitoring results. Ambient dust concentration were within consented limits

The site was compliant with resource consent conditions at the time of inspection.

9 February 2021

An inspection was carried out in fine weather. The yard was relatively tidy, with no discharges to air occurring at the time. There were no accumulations of garnet at the discharge points to the Waiwhakaiho River, and no issues to note on the site. Dust levels were within allowable limits and no offensive or objectionable odours or dust were noted.

At the time of inspection, the site was compliant with resource consent conditions.

4 May 2021

An inspection was carried out in cloudy weather with calm wind conditions. The yard was in need of maintenance, with several areas of spilt garnet noted. Staff onsite advised that cleaning would be carried out shortly, and an area of the yard would be designated as a store for the used garnet to ensure adequate containment. No discharges to air were occurring at the time, and no offensive or objectionable odours or dust were noted. Dust levels were within allowable limits.

All consent conditions were being complied with at the time of the visit.

3.2.1.1 Mobile blasting inspections

One notification was received by the Council regarding mobile blasting being undertaken by Dialog Fitzroy during the year under review and an inspection in relation to this activity was carried out on 26 February 2021.

26 February 2021

An inspection was carried out in fine weather with calm wind conditions. Abrasive blasting works were being carried out on the eastern end of the Te Rewa Rewa Bridge in Fitzroy, New Plymouth. Screening was in place to prevent dust emissions. During the visit a very small amount of dust was observed collecting on surfaces underneath the bridge, and some dust was also found to have accumulated on tree leaves, rocks, and in the water below the bridge. Iwi monitoring staff were onsite at the time and had been present since the start of works. They advised that in the days prior, larger paint particles had been accumulating, but improvements had been made to the process resulting in fewer discharges. Ambient dust levels were found to be within allowable limits.

Blasting work on the portion of the bridge above the water was scheduled to commence, and improvements were being discussed to further reduce dust emissions. The bridge was due to be repainted the following year. No issues were noted on the site.

At the time of inspection, the operation and site were compliant with resource consent conditions.

3.2.2 Provision of company data

3.2.2.1 Operation, Management and Maintenance Plan

As per special condition 7 the new consent, Dialog Fitzroy is required to update and maintain an Air Discharge Management Plan (formerly known as the OMMP) which details their procedures. This includes:

- Staff training
- General housekeeping, site clean-up, and yard maintenance, including record keeping
- Blasting operations
- Screening/containment of both off-and onsite blasting that occurs outside of an enclosed environment
- Monitoring and maintenance of the blasting buildings and air discharge treatment systems

- Handling of potentially hazardous substances
- Provision of blasting information to interested parties

The most up-to-date version of this plan was received from Dialog Fitzroy on 16 September 2021, and has been subsequently implemented into the monitoring programme. Adherence to this plan is assessed during compliance monitoring inspection visits.

3.2.3 Results of receiving environment monitoring

3.2.3.1 Deposition gauging

Deposition gauges were deployed on two occasions during the monitoring period. The first deployment began in January 2021 and lasted 21 days. The second deployment began in February 2021 and lasted 21 days.

A site map marking the location of the gauges around the Dialog Fitzroy site are shown in Figure 4. The results for the year under review are given in Table 6, with the prevailing wind directions during the surveys given in Appendix II.

Table 6 Deposition gauge results from around the Dialog Fitzroy site

Site ID	Dust deposition rate (g/m ² /day)	
	Run 1 from 06/01/2021 to 27/01/2021	Run 2 from 10/02/2021 to 03/03/2021
AIR006401	0.13	0.11
AIR006402	0.06	0.17
AIR006403	0.03	0.11
AIR006404	0.07	0.02
AIR006405	0.04	0.06
AIR006406	0.07	0.02
Guideline value:	0.13 g/m ² /day	

Key: Results in bold exceed recommended guideline value

The monitoring showed that the deposited particulate was at or in excess of Dialog Fitzroy's consent limit in two of the twelve gauges collected during the year under review.

January 2021 survey

The January survey found that no sites exceeded the particulate deposition rate guideline value, however one site, AIR006401 (SE of the blasting shed), was at this limit.

The material collected ranged in colour from green brown to dark brown, and five of the samples contained vegetative matter.

The appearance of the particulate matter collected was consistent with re-suspended yard dust and vegetation from the surrounding area rather than blasting media.

February 2021 survey

The February survey found that the particulate deposition rate limit was very slightly exceeded at one site, AIR006402 (opposite the loading ramp).

The material collected ranged in colour from green brown to dark brown, with vegetative and/or insect matter found in all samples. The sample at site AIR006402 contained a large volume of vegetation and large dust deposits. The appearance of the particulate matter was consistent with re-suspended yard dust from the surrounding area and vegetation rather than blasting media.

No dust complaints were received regarding dust issues originating from the Dialog Fitzroy site.

The available evidence indicates that the elevated levels of dust deposition found in the gauges around Dialog Fitzroy were not as a result of the activities occurring on this site.

3.2.4 Investigations, interventions, and incidents

Table 7 below sets out details of any incidents recorded, additional investigations, or interventions required by the Council in relation to Dialog Fitzroy's activities during the 2019-2020 period. This table presents details of all events that required further investigation or intervention regardless of whether these were found to be compliant or not.

Table 7 Incidents, investigations, and interventions summary table

Date	Details	Compliant (Y/N)	Enforcement Action Taken?	Outcome
February 2021	Exceedance in deposition rate	Y	None	Likely as a result of vegetative matter found in the gauge.

3.3 Discussion

3.3.1 Discussion of site performance

During the year under review, blasting activities were occurring onsite during one inspection and there were no reported issues associated with the condition of the plant. The first two found that the yard was being maintained in a clean and tidy manner, however the third visit noted that some improvements to general housekeeping were required. There were also no visible emissions noted, following an upgrade to the air discharge treatment system.

The Air Discharge Management Plan (formerly the Operation, Management and Maintenance Plan) continued to be implemented and operational throughout the monitoring year, with no issues noted during compliance monitoring inspections. Site inspections continued to show generally high level in management and housekeeping, with no unauthorised incidents occurring during the monitoring period.

During the year under review there were no complaints received by the Council relating to dust emissions or off site odours from the site.

3.3.2 Environmental effects of exercise of consent

Abrasive blasting operations have the potential to create adverse effects on health and the environment as well as creating nuisance. The impact that sandblasting has is determined by the type of abrasive material used (for example if it is sand that is dust free with low silica content), the effectiveness of the blasting enclosure and treatment system, the procedures followed by staff when blasting outside the blasting room (for example temporary screening), and the items blasted (e.g. with coatings such as lead-based paints or larger rusted areas resulting in generation of extra detritus).

Deposition gauging was conducted for the 50th and 51st time during the 2020-2021 monitoring year around the Dialog Fitzroy site.

The results from the gaugings found that one of the twelve samples collected during the 2020-2021 period was in excess of the consent limit (Table 6). However, the results could not be directly attributed to Dialog Fitzroy’s site; rather the high particulate deposition was more likely due to vegetation input and yard dust re-suspension from the wider area. Wind direction was predominantly from the west during the first gauging period. During the second period, this was split between southerlies and south easterlies (Appendix II). Particularly due to these variable winds, the neighbouring properties cannot be discounted as potential contributors to the high deposition rate.

The site and immediate surrounding landscape has been significantly reshaped by human activity, and has no features of particular aesthetic, cultural, or other value. The main highway, golf course, and Mangaone Stream/Waiwhakaiho River are unlikely to be affected by activities on the site.

There is the potential for the staff and property of industries in the surrounding area to be affected by dust generated by Dialog Fitzroy and during recent years a significant amount of commercial development has occurred in the area. This increases the potential for complaints, as the number of people working in this area, and the number of public visiting the area has increased.

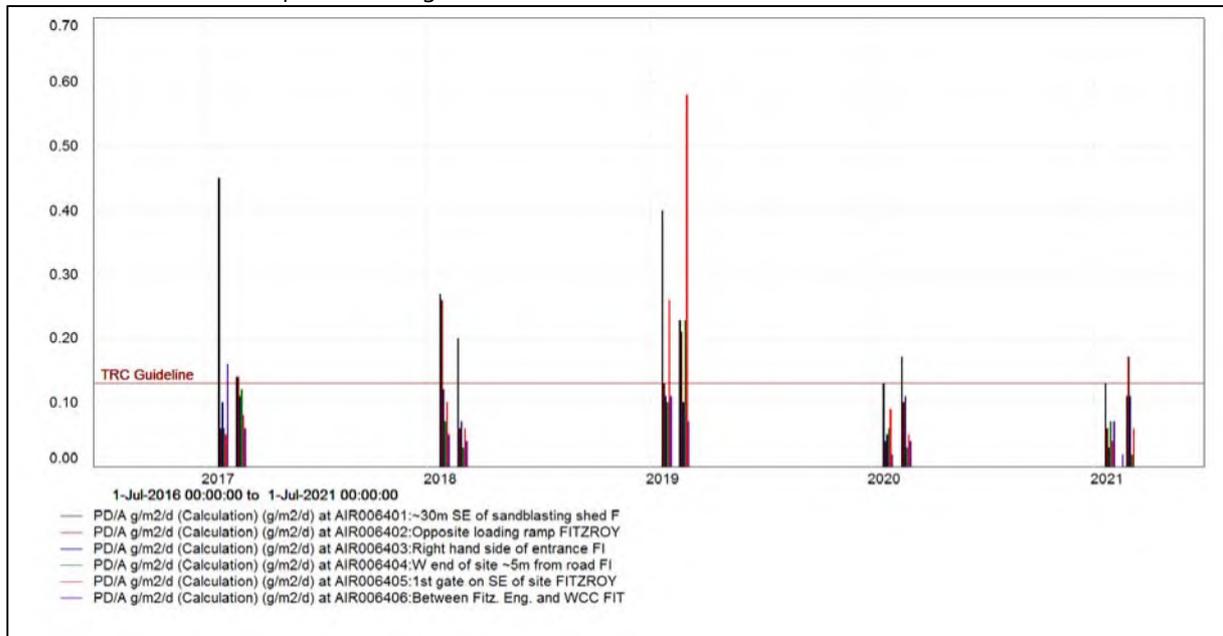


Figure 5 Deposition gauge results for the Dialog Fitzroy monitoring sites from July 2016 to July 2021

3.3.3 Evaluation of performance

A tabular summary of Dialog Fitzroy’s compliance record for the year under review is set out in Table 8.

Table 8 Summary of performance for Consent 4025-4, Dialog Fitzroy Ltd discharge of emissions to air

Purpose: To discharge emissions into the air from abrasive blasting operations throughout the Taranaki Region, except within some parts of the Coastal Marine Area		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Specifies which special conditions apply to which activities	N/A	N/A

Purpose: To discharge emissions into the air from abrasive blasting operations throughout the Taranaki Region, except within some parts of the Coastal Marine Area		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
All operations		
2. Definition of area that discharges to air are authorised to occur in	Inspection and liaison with consent holder	Yes
3. Exercise consent in manner consistent with consent application	Inspection and liaison with consent holder	Yes
4. No offensive, objectionable or toxic odour or dust beyond boundary or within 20 m of boundary for public land and CMA	Inspection and observation when inspecting officer is in the vicinity of the site on other business	Yes
5. Clearance of blasting material	Inspection	Yes
6. Avoidance of dry sand blasting	Inspection and liaison with consent holder. Dry sand not used	Yes
7. Provision and maintenance of Air Discharge Management Plan	Plan on file	Yes
Operations within permanent facilities		
8. Enclosed blasting at permanent site	Inspection and observation when inspecting officer is in the vicinity of the site on other business	Yes
9. Screening at yard blasting to contain dust emissions	Inspection and observation when inspecting officer is in the vicinity of the site on other business	Yes
10. All emissions contained and treated as far as practicable	Inspection and observation when inspecting officer is in the vicinity of the site on other business	Yes
11. Particulate deposition rate limit of 0.13 g/m ² /day beyond the boundary	Deposition gauging	One of twelve gauges above limit, but attributed to vegetation input
Operations at any other site		
12. Screening at mobile blasting to contain emissions	Inspection and observation when inspecting officer is in the vicinity of the site on other business	Yes
13. Notification 48 hours before blasting near watercourses	Discussion with consent holder, and review of the Council records. Notification received.	Yes
14. Discharges prohibited within 150 m of sites of significance to Maori	Inspection and observation when inspecting officer is in the vicinity of the site on other business	Yes

Purpose: To discharge emissions into the air from abrasive blasting operations throughout the Taranaki Region, except within some parts of the Coastal Marine Area		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
15. Limits on suspended particulate matter and dust deposition	Inspection and sampling as required	Yes
16. Wind direction and strength accounted for during blasting	Inspection and record of complaints	Yes
17. Requirements for record keeping of blasting activities	Inspection and notifications	Yes
18. Noise to be managed and controlled during works within the CMA	Inspection and observation when inspecting officer is in the vicinity of the site on other business	N/A
Review and Lapse		
19. Provision for lapse of consent if not exercised	Consent exercised	N/A
20. Optional review provision re environmental effects	Next opportunity for review June 2026	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		High
Overall assessment of administrative performance in respect of this consent		High

During the year, Dialog Fitzroy Ltd demonstrated a high level of environmental and a high level of administrative performance as defined in Section 1.1.5. No unauthorised incidents were recorded in relation to their activities on the site. The likely environmental effects of this discharge were considered to be low to negligible.

Although there was one slight exceedance of the particulate deposition rate recorded, this was considered to be a result of vegetation input and yard dust re-suspension from the surrounding area, and no complaints were received in relation to their activities during the year.

3.3.4 Recommendations from the 2019-2020 Annual Report

In the 2019-2020 Annual Report, it was recommended:

1. THAT monitoring of consented activities at the Dialog Fitzroy Ltd site in the 2020-2021 year continues at the same level as in 2019-2020.
2. THAT should there be issues with environmental or administrative performance in 2020-2021, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

Recommendation 1 was subsequently implemented, while there was no requirement for additional work as allowed for in Recommendation 2.

3.3.5 Alterations to monitoring programmes for 2021-2022

In designing and implementing the monitoring programmes for air/water discharges in the region, the Council has taken into account:

- the extent of information already made available through monitoring or other means to date;

- its relevance under the RMA;
- the Council's obligations to monitor consented activities and their effects under the RMA;
- the record of administrative and environmental performances of the consent holder; and
- reporting to the regional community.

The Council also takes into account the scope of assessments required at the time of renewal of permits, and the need to maintain a sound understanding of industrial processes within Taranaki exercising resource consents.

It is proposed that for 2021-2022 the programme continues at the same level as in 2020-2021.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the site in question. The Council reserves the right to subsequently adjust the programme from that initially prepared, should the need arise if potential or actual non-compliance is determined at any time during 2021-2022.

3.4 Recommendation

1. THAT monitoring of consented activities at the Dialog Fitzroy Ltd site in the 2021-2022 year continues at the same level as in 2020-2021.
2. THAT should there be issues with environmental or administrative performance in 2021-2022, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

4 Katere Surface Coatings Ltd

4.1 Introduction

4.1.1 Process description

Katere Surface Coatings Ltd (Katere Surface Coatings) operates an abrasive blasting and surface coating business from a mobile unit at a permanent site on Katere Road. A map showing the location of the site is provided in Figure 6.

The emissions from abrasive blasting operations may include sand, grit, dust, silicates, rust, detritus, and various metal compounds including zinc, iron, lead and arsenic. Emissions from surface coating processes may include objectionable odours and spray drift.

Blasting takes place within an enclosed building with emissions passed through a scrubber system before being discharged to the atmosphere. Some items are too large to process in the building and are, therefore, blasted outside. All outside work requires effective screening measures such as tarpaulins and similar covers to contain emissions within the site boundary. Screening also applies to operations carried out by the mobile unit. Weather conditions must be considered before any outside work is carried out.

The 2020-2021 monitoring year was the 30th year in which the Council has monitored air emissions from the Katere Surface Coatings site (formerly Vinsen G M Ltd) and their effects within the region.



Figure 6 Location of Katere Surface Coatings Ltd and their deposition gauge sites

4.2 Results

4.2.1 Inspections

Three routine compliance monitoring inspections were carried out during the monitoring period, on 13 November 2020, 9 February 2021 and 25 May 2021.

4.2.1.1 Site inspections

13 November 2020

An inspection was undertaken in cloudy conditions with calm wind conditions. The yard was generally free of garnet build up, except for one area at the rear of the shed where cladding had come loose. Staff onsite at the time advised that repairs were scheduled to be undertaken in that area. Advice was given to ensure that any garnet material that had escaped the blasting shed at this point would need to be cleaned up and measure undertaken to prevent a reoccurrence. Ambient dust measurements taken at the boundary were within consented limits.

The site was compliant with resource consent conditions at the time of inspection.

9 February 2021

An inspection was carried out in fine weather with light wind conditions. It was noted that there was still evidence of blasting material escaping from the rear of the shed, and accumulating in the area around the shed. Advice was given to staff onsite to ensure that regular housekeeping was undertaken. It was noted that a small amount of garnet had mobilised down the site towards the stormwater drain near the driveway. Staff undertook to clean this area immediately. No offensive or objectionable dust or odour was noted beyond the boundary of the site.

At the time of inspection, the site was compliant with resource consent conditions.

25 May 2021

An inspection was carried out in fine weather with light south easterly wind conditions. Repairs had been carried out to one side of the blasting shed, however it was found that there was still potential for garnet to escape from this point. A recommendation was made to adjust the cleaning frequency to ensure all blasting material was contained and managed. No dust was noted escaping from the shed at the time. A new container shed was being installed onsite to facilitate soda blasting. The hard stand area outside of the general blast shed was in need of sweeping, and advice was given to ensure that all material was cleaned up to avoid tracking down the driveway and into stormwater drains.

All resource consent conditions were being complied with at the time of inspection.

4.2.1.2 Mobile blast inspections

No notifications were received by the Council regarding mobile blasting being undertaken by Katere Surface Coatings during the year under review.

4.2.2 Results of receiving environment monitoring

4.2.2.1 Deposition gauging

Deposition gauges were deployed on two occasions during the monitoring period. The first deployment began in January 2021 and lasted 21 days. The second deployment began in February 2021 and lasted 21 days.

A site map marking the location of the gauges around the Katere Surface Coatings site is shown in Figure 6 and the results of the 2020-2021 gauging surveys are presented in Table 9. The prevailing wind directions during the surveys are shown in Appendix II.

Table 9 Deposition gauge results from around the Katere Surface Coating Ltd site

Site ID	Dust deposition rate (g/m ² /day)	
	Run 1 from 06/01/2021 to 27/01/2021	Run 2 from 10/02/2021 to 03/03/2021
AIR009303	0.03	0.16
AIR009304	0.01	0.09
Guideline value:	0.13 g/m ² /day	

January 2021 survey

All sites were within the guideline limit for the January survey. The material collected was a brown or green brown colour with vegetative matter and bugs present in all gauges. The appearance of the particulate matter was consistent with organic matter and re-suspended yard dust rather than blasting media.

February 2021 survey

The February survey found that one gauge (site AIR009303) slightly exceeded the guideline limit. The material collected was dusty brown with vegetative matter and a large volume of dust present. The appearance of the particulate matter was consistent with vegetation and re-suspended yard dust rather than blasting media.

4.2.3 Investigations, interventions, and incidents

In the 2020-2021 period, the Council was not required to undertake significant additional investigations and interventions, or record incidents, in association with Katere Surface Coating's conditions in resource consents or provisions in Regional Plans.

4.3 Discussion

4.3.1 Discussion of site performance

There were no complaints received during the 2020-2021 year in relation to Katere Surface Coating's activities. There were no offsite emissions or odours noted during any inspection. It appears that the treatment system installed on the paint shed during the 2012-2013 year has continued to be effective in preventing the odour and overspray issues that resulted in a number of complaints during previous monitoring years.

Historical improvements made at the site in relation to the treatment systems for both the blast booth and the paint shed have continued to produce significant reductions in emissions from the site.

General housekeeping at the site was in need of some improvement during monitoring period, however staff responded quickly to advice and suggestions offered by Council staff, and necessary repairs were carried out as required. The Council was not required to issue any abatement notices in regards to accumulation of blast material on the ground around the vicinity of the blast booth.

4.3.2 Environmental effects of exercise of consents

Abrasive blasting operations have the potential to create adverse effects on health and the environment as well as creating nuisance. The impact that sandblasting has is determined by the type of abrasive used (for

example is it sand that is dust free with low silica content), the effectiveness of the blasting enclosure and treatment system, the procedures followed by staff when blasting outside the blasting room (for example temporary screening), and the items blasted (for example with coatings such as lead-based paints or larger rusted areas resulting in generation of extra detritus).

There were no exceedances of the particulate deposition rate at any gauging sites during the January 2021 survey, and one exceedance during the February 2021 survey (Figure 7). The high particulate deposition during this instance was attributed to vegetation input and re-suspended yard dust from the wider area.

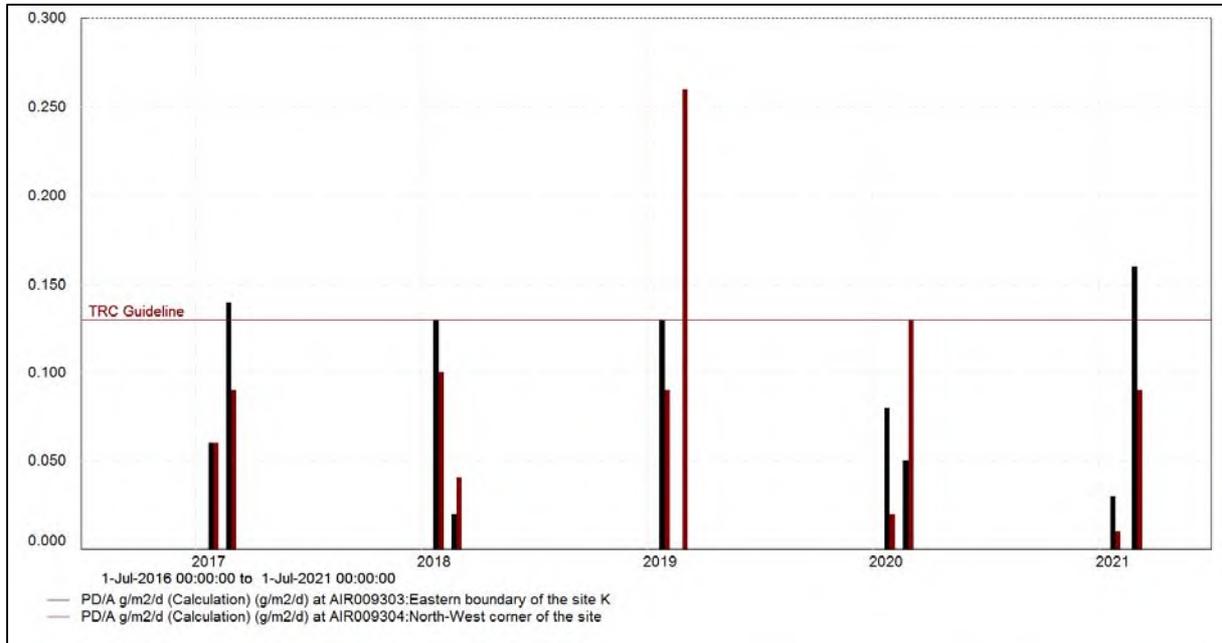


Figure 7 Deposition gauge results for the Katere Surface Coatings monitoring sites from July 2016 to July 2021

There were no complaints received regarding dust impacting beyond the boundary of the property. Wind direction was predominantly from the west during the first gauging period. During the second period, this was split between southerlies and south easterlies (Appendix II). Due to these variable winds, neighbouring properties cannot be discounted as potential contributors to the deposition rate.

The results of the 2020-2021 monitoring indicate that there were no significant adverse environmental effects that occurred as a result of Katere Surface Coatings’ activities.

4.3.3 Evaluation of performance

A tabular summary of Katere Surface Coating’s compliance record for the year under review is set out in Table 10.

Table 10 Summary of performance for combine Consent 4475-3 and Consent 10881-1 - Katere Surface Coatings Ltd discharge of emissions to air

Purpose: To discharge emissions to air from abrasive blasting and surface coating activities at a permanent site located at Katere Road, New Plymouth and from mobile operations throughout the Taranaki region, including Port Taranaki, but excluding the remainder of the Coastal Marine Area		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Specifies which special conditions apply to which activities	N/A	N/A

Purpose: To discharge emissions to air from abrasive blasting and surface coating activities at a permanent site located at Katere Road, New Plymouth and from mobile operations throughout the Taranaki region, including Port Taranaki, but excluding the remainder of the Coastal Marine Area		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
All operations		
2. Exercise consent in manner consistent with consent application	Inspection and liaison with consent holder	Yes
3. No offensive, objectionable or toxic odour or dust beyond boundary	Inspection and observation when inspecting officer is in the vicinity of the site on other business	Yes
4. Clearance of blasting material	Inspection	Yes
5. Sand has low active silica content and avoidance of dry sand blasting	N/A – garnet used	N/A
6. Provision and maintenance of Air Discharge Management Plan	Plan on file	Yes
Operations within the permanent facility		
7. Blasting to be carried out in enclosed facility	Inspection and liaison with consent holder	Yes
8. Treatment of emissions prior to discharge. Limit on emissions from enclosure of 125 mg/m ³	Inspection and point source suspended particulate monitoring	Yes
9. Items too large for enclosed facility to be screened for blasting	Inspection and observation when inspecting officer is in the vicinity of the site on other business	Yes
10. Particulate deposition rate limit of 0.13 g/m ² /day	Deposition gauging	Yes
Operations at any other site		
11. Screening to contain emissions	No mobile blasting undertaken	N/A
12. Email notification to the Council 48 hrs prior to blasting in close proximity to watercourse	Discussion with consent holder, and review of the Council records. No notifications received as no mobile blasting undertaken	N/A
13. Discharges prohibited within 150 m of sites of significance to Maori	No mobile blasting undertaken	N/A
14. Suspended and deposited particulate limits 3 mg/m ³ and 0.13 g/m ² /day respectively	No mobile blasting undertaken	N/A
15. Consideration of wind conditions to minimise off-site emissions	No mobile blasting undertaken	N/A
16. Requirements for record keeping of blasting activities	No mobile blasting undertaken	N/A

Purpose: To discharge emissions to air from abrasive blasting and surface coating activities at a permanent site located at Katere Road, New Plymouth and from mobile operations throughout the Taranaki region, including Port Taranaki, but excluding the remainder of the Coastal Marine Area		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
17. Noise to be managed and controlled during works within the CMA	No mobile blasting undertaken	N/A
18. Occupation of coastal space limited to 48 hr period	No mobile blasting undertaken	N/A
19. Discharges within CMA limited to defined Port Area	No mobile blasting undertaken	N/A
Review		
20. Optional review provision re environmental effects	Next opportunity for review June 2026	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		High
Overall assessment of administrative performance in respect of this consent		High

During the year, Katere Surface Coatings demonstrated an overall high level of environmental and administrative performance as defined in Section 1.1.5. No significant adverse environmental effects were noted due to the activities of Katere Surface Coatings during the period under review.

4.3.4 Recommendations from the 2019-2020 Annual Report

In the 2019-2020 Annual Report, it was recommended:

1. THAT monitoring of consented activities of Katere Surface Coatings Ltd in the 2020-2021 year continues at the same level as in 2019-2020.
2. THAT should there be issues with environmental or administrative performance in 2020-2021, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

Recommendation 1 was implemented, while there was no requirement for additional work as set out in Recommendation 2.

4.3.5 Alterations to monitoring programmes for 2021-2022

In designing and implementing the monitoring programmes for air/water discharges in the region, the Council has taken into account:

- the extent of information already made available through monitoring or other means to date;
- its relevance under the RMA;
- the Council's obligations to monitor consented activities and their effects under the RMA;
- the record of administrative and environmental performances of the consent holder; and
- reporting to the regional community.

The Council also takes into account the scope of assessments required at the time of renewal of permits, and the need to maintain a sound understanding of industrial processes within Taranaki exercising resource consents.

It is proposed that for 2021-2022, the monitoring continues at the same level as in 2020-2021.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the site in question. The Council reserves the right to subsequently adjust the programme from that initially prepared, should the need arise if potential or actual non-compliance is determined at any time during 2021-2022.

4.4 Recommendation

1. THAT monitoring of consented activities of Katere Surface Coatings Ltd in the 2021-2022 year continues at the same level as in 2020-2021.
2. THAT should there be issues with environmental or administrative performance in 2021-2022, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

5 Lower Waiwhakaiho area performance

5.1 Air related incidents

During the year under review there were no incidents recorded in relation to air discharges within the Lower Waiwhakaiho catchment. All consent holders in the area demonstrated a high level of environmental performance.

5.2 Deposition gauging

With the transient nature of effects upon air quality a combined monitoring approach in the industrial area in question is a good way of assessing consent holder performance. This approach was continued in this monitoring period as adopted following the recommendations in the 2000-2001 annual reports for dischargers in the area.

The deposition gauges were put in place and retrieved at all sites at the same time, including the Council's state of the environment monitoring (SEM) sites. The gauges for the near-by Colson Road landfill site were also deployed for the same period. The wind direction and speed for each of the sampling periods are shown in Appendix II. These were recorded at the Hillsborough Weather Station, which is in the same area.

5.2.1 Results of deposition gauging

There were five recorded instances where the Council's guideline limit was met or exceeded, out of 26 total gauge deployments assessing the three consent holders covered by this report. The results of the deposition gauging undertaken in the Lower Waiwhakaiho area for the year under review are summarised in Figure 8.

Deposition gauge results from the Colson Road landfill monitoring programme have also been included in Figure 8 to provide context of air quality in the wider Waiwhakaiho area. There were no exceedances of the 11 total gauge deployments for the Colson Road landfill programme in the year under review. Colson Road landfill deposition gauges AIR001612 and AIR001615 are also used as SEM gauges. Accordingly, results from these gauges have been included in the TRC SEM table in Figure 8.

Results from the SEM gauges deployed in the Lower Waiwhakaiho area have been included in Figure 8 to provide context of air quality in the wider Waiwhakaiho area. None of the 12 total SEM gauges exceeded the Council's guideline limit in the period under review.

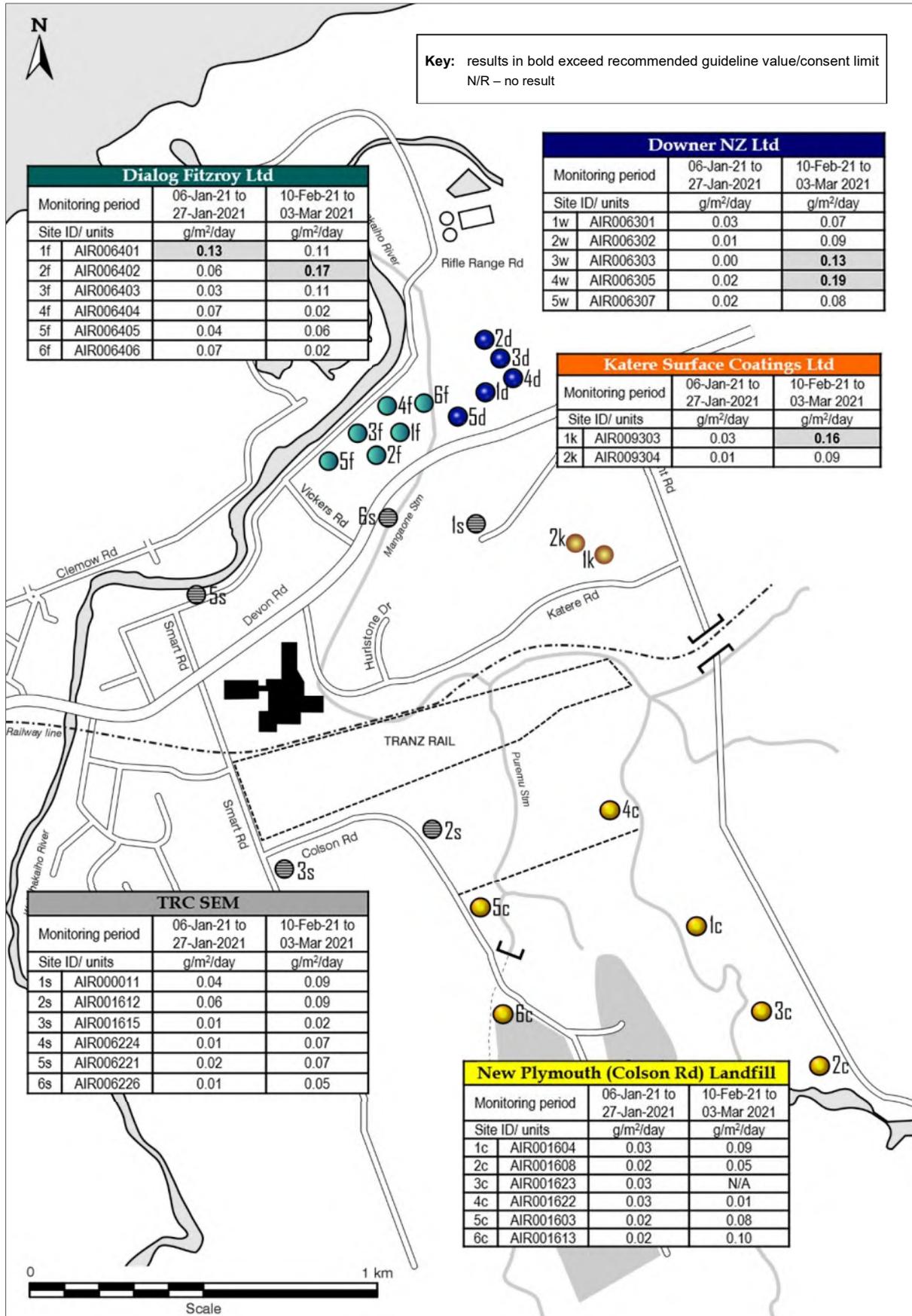


Figure 8 Dust deposition for the Lower Waiwhakaiho area in the 2020-2021 monitoring period

5.3 Discussion

5.3.1 Environmental effects of exercise of air discharge permits

Ambient air quality (at SEM sites) in the Lower Waiwhakaiho area during the year under review was good.

The overall air quality in the Lower Waiwhakaiho area, including deposition survey results for the five consent holders covered in this report, was generally high during both the January and February gauging periods.

January 2020 deposition gauge survey

In the case of the January survey, just one of 13 (8%) of the gauges analysed was measured at the guideline value. There were no exceedances over the guideline value in any of the gauges. As with previous years, the higher particulate deposition rates were again found to be at monitoring locations in close proximity to industrial sites.

Wind direction was consistent during the gauging period, with winds predominantly from the west for 47% of the time, and from the north west for 19%. The strongest winds were from the west.

February 2020 deposition gauge survey

In the case of the February survey, four of 13 (31%) of the gauges returned results that were at or in excess of the guideline value. On this occasion the exceedances were again at monitoring sites located close to the industrial sites, in the vicinity of the Dialog Fitzroy and Downer EDI sites. The prevailing wind directions observed during this gauging period were from the south east (23% of the time) and the south (18% of the time), with the strongest winds from the south.

6 Summary of recommendations

1. THAT monitoring of consented activities at the Downer EDI Works Ltd site in the 2021-2022 year continues at the same level as in 2020-2021.
2. THAT monitoring of consented activities at the Dialog Fitzroy Ltd site in the 2021-2022 year continues at the same level as in 2020-2021.
3. THAT monitoring of consented activities of Katere Surface Coatings Ltd in the 2021-2022 year continues at the same level as in 2020-2021.
4. THAT should there be issues with environmental or administrative performance in 2021-2022, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

Glossary of common terms and abbreviations

The following abbreviations and terms may be used within this report:

g/m ³	Grams per cubic metre, and equivalent to milligrams per litre (mg/L). In water, this is also equivalent to parts per million (ppm), but the same does not apply to gaseous mixtures.
Incident	An event that is alleged or is found to have occurred that may have actual or potential environmental consequences or may involve non-compliance with a consent or rule in a regional plan. Registration of an incident by the Council does not automatically mean such an outcome had actually occurred.
Investigation	Action taken by the Council to establish what were the circumstances/events surrounding an incident including any allegations of an incident.
L/s	Litres per second.
PM ₁₀	Relatively fine airborne particles (less than 10 micrometre diameter).
QPR	Quality Pavement Repair - a high performance permanent repair material for repairing potholes, filling utility cuts and repairing damaged asphalt.
Resource consent	Refer Section 87 of the RMA. Resource consents include land use consents (refer Sections 9 and 13 of the RMA), coastal permits (Sections 12, 14 and 15), water permits (Section 14) and discharge permits (Section 15).
RMA	<i>Resource Management Act</i> 1991 and including all subsequent amendments.

For further information on analytical methods, contact a Science Services Manager.

Bibliography and references

- Taranaki Regional Council (2020): *Lower Waiwhakaiho Air Discharges Compliance Monitoring Programme Annual Report 2019-2020*. Technical Report 2020-39.
- Taranaki Regional Council (2019): *Lower Waiwhakaiho Air Discharges Compliance Monitoring Programme Annual Report 2018-2019*. Technical Report 2019-71.
- Taranaki Regional Council (2018): *Lower Waiwhakaiho Air Discharges Compliance Monitoring Programme Annual Report 2017-2018*. Technical Report 2018-87.
- Taranaki Regional Council (2017): *Lower Waiwhakaiho Air Discharges Compliance Monitoring Programme Annual Report 2016-2017*. Technical Report 2017-87.
- Taranaki Regional Council (2016): *Lower Waiwhakaiho Air Discharges Compliance Monitoring Programme Annual Report 2015-2016*. Technical Report 2016-12.
- Taranaki Regional Council (2015): *Lower Waiwhakaiho Air Discharges Compliance Monitoring Programme Annual Report 2014-2015*. Technical Report 2015-120.
- Taranaki Regional Council (2014): *Waiwhakaiho Airshed area Monitoring Programme Annual Report 2013-2014*. Technical Report 2014-55.
- Taranaki Regional Council (2013): *Waiwhakaiho Airshed area Monitoring Programme Annual Report 2012-2013*. Technical Report 2013-69.
- Taranaki Regional Council (2012): *Waiwhakaiho Airshed area Monitoring Programme Annual Report 2011-2012*. Technical Report 2012-13.
- Taranaki Regional Council (2012): *Waiwhakaiho Airshed area Monitoring Programme Annual Report 2010-2011*. Technical Report 2011-88.
- Taranaki Regional Council (2010): *Waiwhakaiho Airshed area Monitoring Programme Annual Report 2009-2010*. Technical Report 2010-25.
- Taranaki Regional Council (2009): *Waiwhakaiho Airshed area Monitoring Programme Annual Report 2008-2009*. Technical Report 2009-80.
- Taranaki Regional Council (2008): *Waiwhakaiho Airshed area Monitoring Programme Annual Report 2007-2008*. Technical Report 2008-63.
- Taranaki Regional Council (2008): *Waiwhakaiho Airshed area Monitoring Programme Annual Report 2006-2007*. Technical Report 2007-109.
- Taranaki Regional Council (2006): *Waiwhakaiho Airshed area Monitoring Programme Annual Report 2005-2006*. Technical Report 2006-107.
- Taranaki Regional Council (2005): *Waiwhakaiho Airshed area Monitoring Programme Annual Report 2004-2005*. Technical Report 2005-46.
- Taranaki Regional Council (2004): *Waiwhakaiho Airshed area Monitoring Programme Annual Report 2003-2004*. Technical Report 2004-46.
- Taranaki Regional Council (2003): *Waiwhakaiho Airshed area Monitoring Programme Annual Report 2002-2003*. Technical Report 2003-47.
- Taranaki Regional Council (2002): *Waiwhakaiho Air Monitoring Programmes (Fitzroy Engineering Group Ltd, PCL Industries Ltd, Ravensdown Fertiliser Co-operative Ltd, Works Infrastructure Ltd, Clelands Timber Ltd, and Vinsen GM Ltd) Annual Report 2001-2002*. Technical report 2002-56.

- Taranaki Regional Council (2001): *Waiwhakaiho Air Monitoring Programmes (Fitzroy Engineering Group Ltd, PCL Ltd, Ravensdown Fertiliser Co-op Ltd, and Works Infrastructure Ltd) Annual Report 2000-2001*. Technical report 2001-30.
- Taranaki Regional Council (2000): *Works Civil Construction Air Monitoring Programme Annual Report 1999-2000*. Technical Report 99-53.
- Taranaki Regional Council (2000): *Ravensdown Fertiliser Ltd Air Monitoring Programme Annual Report 1999-2000*. Technical Report 2000-61.
- Taranaki Regional Council (2000): *Poultrymen's Co-operative Ltd Monitoring Programme Annual Report 1999-2000*. Technical Report 2000-47.
- Taranaki Regional Council (2000): *G M Vinsen Ltd Monitoring Programme Annual Report 2000-2001*. Technical report 2001-74.
- Taranaki Regional Council (2000): *Fitzroy Engineering Group Ltd Air Monitoring Programme Annual Report 1999-2000*. Technical report 2000-74.
- Taranaki Regional Council (1999): *Works Civil Construction Air Monitoring Programme Annual Report 1998-99*. Technical Report 99-71.
- Taranaki Regional Council (1999): *Ravensdown Fertiliser Ltd Air Monitoring Programme Annual Report 1998-99*. Technical Report 99-73.
- Taranaki Regional Council (1999): *Poultrymen's Co-operative Ltd Monitoring Programme Annual Report 1998-99*. Technical Report 99-27.
- Taranaki Regional Council (1999): *Fitzroy Engineering Group Ltd Air Monitoring Programme Annual Report 1998-99*. Technical report 99-93.
- Taranaki Regional Council (1998): *Technic Taranaki Air Monitoring Programme Annual Report 1997-98*. Technical Report 98-31.
- Taranaki Regional Council (1998): *Ravensdown Fertiliser Ltd Air Monitoring Programme Annual Report 1997-98*. Technical Report 98-96.
- Taranaki Regional Council (1998): *Poultrymen's Co-operative Ltd Air Monitoring Programme Annual Report 1997-98*. Technical Report 98-71.
- Taranaki Regional Council (1998): *Fitzroy Engineering Group Ltd Air Monitoring Programme Annual Report 1997-98*. Technical report 98-91.
- Taranaki Regional Council (1997): Regional Air Quality Plan.
- Taranaki Regional Council (1997): *Technic Taranaki Air Monitoring Programme Annual Report 1996-97*. Technical Report 97-66.
- Taranaki Regional Council (1997): *Poultrymen's Co-operative Ltd Air Monitoring Programme Annual Report 1996-97*. Technical Report 97-31.
- Taranaki Regional Council (1997): *Fitzroy Engineering Group Ltd Air Monitoring Programme Annual Report 1996-97*. Technical report 97-60.
- Taranaki Regional Council (1997): *Farmer Fertiliser Ltd Air Monitoring Programme Annual Report 1996-97*. Technical Report 97-49.
- Taranaki Regional Council (1996): *Technic Industries Ltd Air Monitoring Programme Annual Report 1995-96*. Technical Report 96-24.

- Taranaki Regional Council (1996): *Poultrymen's Co-operative Ltd Air Monitoring Programme Annual Report 1995-96*. Technical Report 96-47.
- Taranaki Regional Council (1996): *Fitzroy Engineering Group Ltd Air Monitoring Programme Annual Report 1995-96*. Technical report 96-53.
- Taranaki Regional Council (1996): *Farmer Fertiliser Ltd Air Monitoring Programme Annual Report 1995-96*. Technical Report 96-29.
- Taranaki Regional Council (1995): *Technic Industries Ltd Air Monitoring Programme Annual Report 1994-95*. Technical Report 95-56.
- Taranaki Regional Council (1995): *Poultrymen's Co-operative Ltd 1994-95 Annual Report 1994-95*. Technical Report 95-40.
- Taranaki Regional Council (1995): *Fitzroy Engineering Group Ltd Air Monitoring Programme Annual Report 1994-95*. Technical report 95-59.
- Taranaki Regional Council (1995): *Farmers Fertiliser Ltd Air Monitoring Programme Annual Report 1994-95*. Technical Report 95-32.
- Taranaki Regional Council (1994): *Technic Industries Ltd Air Monitoring Programme Annual Report 1993-94*. Technical Report 94-33.
- Taranaki Regional Council (1994): *Poultrymen's Co-operative Ltd Air Monitoring Programme Annual Report 1993-94*. Technical Report 94-21.
- Taranaki Regional Council (1994): *Fitzroy Engineering Group Ltd Air Monitoring Programme Annual Report 1993-94*. Technical report 94-24.
- Taranaki Regional Council (1994): *Farmers Fertiliser Ltd Air Monitoring Programme Annual Report 1993-94*. Technical Report 94-62.
- Taranaki Regional Council (1993): *Technic Industries Ltd Air Monitoring Programme Annual Report 1992-93*. Technical Report 93-36.
- Taranaki Regional Council (1993): *Poultrymen's Co-operative Ltd Air Monitoring Programme Annual Report 1992-93*. Technical Report 93-38.
- Taranaki Regional Council (1993): *Farmers Fertiliser Ltd Air Monitoring Programme Annual Report 1992-93*. Technical Report 93-42.

Appendix I

Resource consents for discharges to air held by industries in the Lower Waiwhakaiho area (alphabetical order)

(For a copy of the signed resource consent
please contact the TRC Consents department)

Water abstraction permits

Section 14 of the RMA stipulates that no person may take, use, dam or divert any water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or it falls within some particular categories set out in Section 14. Permits authorising the abstraction of water are issued by the Council under Section 87(d) of the RMA.

Water discharge permits

Section 15(1)(a) of the RMA stipulates that no person may discharge any contaminant into water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or by national regulations. Permits authorising discharges to water are issued by the Council under Section 87(e) of the RMA.

Air discharge permits

Section 15(1)(c) of the RMA stipulates that no person may discharge any contaminant from any industrial or trade premises into air, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Permits authorising discharges to air are issued by the Council under Section 87(e) of the RMA.

Discharges of wastes to land

Sections 15(1)(b) and (d) of the RMA stipulate that no person may discharge any contaminant onto land if it may then enter water, or from any industrial or trade premises onto land under any circumstances, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Permits authorising the discharge of wastes to land are issued by the Council under Section 87(e) of the RMA.

Land use permits

Section 13(1)(a) of the RMA stipulates that no person may in relation to the bed of any lake or river use, erect, reconstruct, place, alter, extend, remove, or demolish any structure or part of any structure in, on, under, or over the bed, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Land use permits are issued by the Council under Section 87(a) of the RMA.

Coastal permits

Section 12(1)(b) of the RMA stipulates that no person may erect, reconstruct, place, alter, extend, remove, or demolish any structure that is fixed in, on, under, or over any foreshore or seabed, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Coastal permits are issued by the Council under Section 87(c) of the RMA.

Discharge & Coastal Permit
Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council

Name of
Consent Holder: Dialog Fitzroy Limited
Private Bag 2053
New Plymouth 4340

Decision Date 2 December 2020

Commencement Date 2 December 2020

Conditions of Consent

Consent Granted: To discharge emissions into the air from abrasive blasting operations throughout the Taranaki Region, except within some parts of the Coastal Marine Area

Expiry Date: 1 June 2038

Review Date(s): June 2026, June 2029, June 2032, June 2035

Site Location: 691 Devon Road, Waiwakaiho & various locations throughout the Taranaki region

Grid Reference (NZTM) 1696630E-5677760N (Permanent Site)

Catchment: Waiwhakaiho
Tasman Sea
Various

*For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document*

General condition

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

1. The conditions of this consent shall apply to the various operations of the consent as follows:
 - a) Special Conditions 2 – 7 apply to all operations.
 - b) Special Conditions 8 – 11 apply to operations conducted within the blasting enclosure at the permanent facility at 691 Devon Road, Waiwhakaiho.
 - c) Special Conditions 12 – 18 apply to mobile blasting operations.

All operations

2. This consent authorises discharge to air from abrasive blasting throughout the Taranaki Region, excluding the Coastal Marine Area within the rohe of Ngaruahine Iwi.
3. The activity shall be undertaken in general accordance with the information provided in the application documentation. In the case of any contradiction between the application and the conditions of this consent, the conditions of this consent shall prevail.
4. The exercise of this consent shall not give rise to any offensive, objectionable, noxious, hazardous or dangerous levels of dust or odour at or beyond the boundary of the property on which the abrasive blasting is occurring, or within 20 metres of the activity, where the activity occurs on public land or within the Coastal Marine Area.
5. As far as is practicable, work areas and surrounding areas shall be cleared of accumulations of blasting material at the end of each blasting session and by the end of each working day.
6. Blasting media used for dry abrasive blasting shall contain less than 2% by dry weight dust able to pass through a 0.15 mm sieve and sand used for dry abrasive blasting shall contain less than 5% by dry weight free silica.
7. From March 2021 onwards all blasting operations and site management shall be undertaken in accordance with an Air Discharge Management Plan ('the Plan') that has been prepared by the applicant and approved by the Chief Executive, Taranaki Regional Council, acting in a certification capacity. The Plan shall detail procedures and methods that will be used achieve compliance with the conditions of this consent and shall include but not be limited to details of:
 - a) blasting operations;
 - b) screening/containment of offsite blasting or onsite blasting that occurs outside of an enclosed booth or shed;
 - c) monitoring and maintenance of the blasting buildings and air discharge treatment systems;
 - d) handling of potentially hazardous substances;

- e) how advice of blasting will be provided to interested parties
- f) process for ensuring compliance with condition 14
- g) recording of maintenance;
- h) staff training; and
- i) general housekeeping, site cleanup and yard maintenance.

Discharges within blasting enclosure 691 Devon Road, Waiwhakaiho

8. As far as practical, all abrasive blasting at 691 Devon Road, Waiwhakaiho shall be carried out in an enclosed booth or shed.
9. All items to be blasted within the yard of the site shall be screened by means of covers, tarpaulins, cladding, or other means, as completely as practicable, to contain dust emissions and depositions and, as far as practicable, minimise the spread of all blasting debris.
10. All emissions at 691 Devon Road Waiwhakaiho shall be contained and treated prior to discharge from the operations enclosure. All exhaust air ventilated or otherwise emitted from an enclosure shall be treated to a concentration of total particulate matter of less than 125 mg/m³ [natural temperature & pressure] corrected to dry gas basis, at any time.
11. The dust deposition rate beyond the property boundary of the site at 691 Devon Road, Waiwhakaiho arising from the discharge, shall be less than 0.13g/m²/day.

Operations conducted at any site other than within the blasting enclosure

12. All items or premises to be blasted shall be screened by means of covers, tarpaulins, cladding, or other means, as completely as practicable, to contain dust emissions and depositions and, as far as practicable, minimise the spread of all blasting debris.
13. Where abrasive blasting or surface coating is to take place within 25 metres of a watercourse, the consent holder shall notify the Chief Executive, Taranaki Regional Council, at least two working days before the activity commences. The notice shall include details of: the location, the specific blasting proposed, the screening (required by condition 12 above), dates and times of the discharge. It shall be served by completing and submitting the 'Notification of work' form on the Council's website (<http://bit.ly/TRCWorkNotificationForm>).
14. There shall be no discharge within 150 metres of:
 - a) any fenced (or otherwise identified) urupa without the written approval of the relevant Iwi; or
 - b) any marae, unless the written approval of the marae Chair has been obtained to allow the discharge at a closer distance.
 - c) any site of significance to Maori located within the Coastal Marine Area.
15. The suspended particulate matter shall not exceed 3 mg/m³ [measured under ambient conditions], and the deposition of dust shall not exceed 0.13 g/m²/day beyond the property boundary or beyond 50 metres of the discharge when sited on land where the public has free access, whichever is less.

Consent 4025-4.0

16. All abrasive blasting is to be conducted with taking into account wind direction and wind strength, such that off-site effects are kept to a practicable minimum.
17. The consent holder shall keep a record of abrasive blasting, including, but not limited to the following information:
 - a) Location (property address and map reference);
 - b) the type of blasting material used;
 - c) date; and
 - d) time/duration of work.

The record of mobile blasting shall be made available to the Chief Executive, Taranaki Regional Council on request.

18. The noise from any construction, maintenance and demolition activities in the Coastal Marine Area must be measured, assessed, managed and controlled in accordance with the requirements of New Zealand Standard NZ6803:1999 Acoustics – Construction noise.

Lapse and Review

19. This consent lapses 5 years after its date of commencement, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.
20. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2026 and at 3 yearly intervals thereafter, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time

Signed at Stratford on 2 December 2020

For and on behalf of
Taranaki Regional Council



A D McLay
Director - Resource Management

Discharge Permit
Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council

Name of
Consent Holder: Downer NZ Limited

Decision Date: 22 September 2021

Commencement Date: 22 September 2021

Conditions of Consent

Consent Granted: To discharge emissions into the air from the manufacture of hot mix asphalt paving mixes and associated activities

Expiry Date: 1 June 2038

Review Date(s): June 2026, June 2032

Site Location: 106 Rifle Range Road, New Plymouth

Grid Reference (NZTM) 1696860E-5677944N

*For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document*

General condition

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

1. The exercise of this consent shall be undertaken in general accordance with the information provided in support of the application for this consent and with any subsequent application to change consent conditions. Where there is conflict between applications the later application shall prevail, and where there is conflict between an application and consent conditions the conditions shall prevail.
2. Prior to undertaking any alterations to the plant, processes or operations, which in the opinion of the Chief Executive, Taranaki Regional Council, may significantly change the nature or quantity of contaminants emitted from the site, the consent holder shall advise the Chief Executive, Taranaki Regional Council, and shall obtain any necessary approvals under the Resource Management Act, 1991.
3. Recycled asphalt shall not be processed at the site.
4. The consent holder shall not operate the asphalt plant using waste oil.
5. The asphalt plant shall not be operated on any fuel containing more than 0.3% sulphur (weight/weight basis).
6. All exhaust gases ventilated from the drier drum shall be treated to reduce the concentration of total particulate matter to less than 125 milligrams per cubic metre, expressed on a dry gas basis at zero degrees Celsius and 1 atmosphere pressure, at any time.
7. The consent holder shall have an emission test conducted on discharges from the asphalt plant stack to demonstrate compliance with special condition 6. This test shall:
 - a) be undertaken by 1 June 2022 and every 12 months thereafter for the duration of the consent; and
 - b) comprise not less than three separate samples taken during production conditions that give rise to maximum emissions from the asphalt plant stack; andbe reported to the Chief Executive, Taranaki Regional Council, within 20 working days of the samples being taken. The report shall include the results of the tests, the relevant operating parameters including pressure drop over the scrubber and the production rate over the period of each test, all the raw data, and all the calculations.

Consent 4060-5.0

8. The emissions tests shall be carried out in accordance with Australian Standard 4323.2-1995, or any other equivalent method subject to the written approval of the Chief Executive, Taranaki Regional Council, and these tests shall be performed to the satisfaction of the Chief Executive, Taranaki Regional Council.
9. The dust deposition rate beyond the property boundary arising from the discharge shall be less than 4.0 g/m²/30 days or 0.13 g/m²/day.
10. Any discharge to air from the exercise of this consent shall not give rise to any offensive or objectionable odour at or beyond the boundary of the property.
11. The consent holder shall control all emissions from of carbon monoxide, nitrogen dioxide, fine particles (PM₁₀) and sulphur dioxide to the atmosphere from the site, in order that the maximum ground level concentration of any of these contaminants arising from the exercise of this consent measured under ambient conditions does not exceed the relevant ambient air quality standard as set out in the Resource Management (National Environmental Standards for Air Quality Regulations, 2004) at or beyond the boundary of the property.
12. The consent holder shall control all emissions to the atmosphere from the site of contaminants other than those expressly provided for under special condition 11, in order that they do not individually or in combination with other contaminants cause hazardous, noxious, dangerous, offensive or objectionable effects at or beyond the boundary of the property.
13. Within one month of this consent being granted, the site shall be operated in accordance with an 'Operations and Maintenance Management Plan' (OMMP). The OMMP shall be prepared by the consent holder and approved by the Chief Executive, Taranaki Regional Council, acting in a certification capacity. The OMMP shall detail how the site is managed to achieve compliance with the conditions of this consent and shall include, but not be limited to:
 - staff training;
 - general housekeeping and site maintenance;
 - maintenance of air discharge treatment systems;
 - recording of training and maintenance;
 - recording of complaints made directly to the consent holder;
 - review frequency of the OMMP.
14. The OMMP required by condition 13 shall be forwarded to the Chief Executive, Taranaki Regional Council, before 1 August each year.

Consent 4060-5.0

15. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2026 and/or June 2032, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 22 September 2021

For and on behalf of
Taranaki Regional Council



A D McLay

Director - Resource Management

General condition

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

1. The conditions of this consent shall apply to authorised discharges as follows;
 - (a) Special Conditions 2 to 6 apply to discharges from all locations.
 - (b) Special Conditions 7 to 9 apply only to discharges at the permanent facility at Katere Road, Waiwhakaiho.
 - (c) Special Conditions 10 to 14 apply to only to discharges at sites other than the permanent facility.
 - (d) Special Conditions 15 (review) apply to the consent generally.

All operations

2. The activity shall be undertaken in general accordance with the information provided in the application documentation. In the case of any contradiction between the application and the conditions of this consent, the conditions of this consent shall prevail.
3. The exercise of this consent shall not give rise to any offensive, objectionable, noxious, hazardous or dangerous levels of dust or odour at or beyond the boundary of the property on which the abrasive blasting is occurring.
4. As far as is practicable, work areas and surrounding areas shall be cleared of accumulations of blasting material at the end of each blasting session and by the end of each working day.
5. Blasting media used for dry abrasive blasting shall contain less than 2% by dry weight dust able to pass through a 0.15 mm sieve and sand used for dry abrasive blasting shall contain less than 5% by dry weight free silica.
6. From February 2021 onwards all blasting operations and site management shall be undertaken in accordance with an Air Discharge Management Plan ('the Plan') that has been approved by the Chief Executive, Taranaki Regional Council, acting in a certification capacity. The Plan shall detail procedures and methods that will be used achieve compliance with the conditions of this consent and shall include but not be limited to details of:
 - (a) blasting operations;
 - (b) screening/containment of offsite blasting;
 - (c) monitoring and maintenance of the blasting buildings and air discharge treatment systems;
 - (d) handling of potentially hazardous substances;
 - (e) recording of maintenance;
 - (f) staff training; and
 - (g) general housekeeping, site clean-up and yard maintenance.

Discharges at the permanent facility at 93a Katere Road, Waiwhakaiho

7. As far as practicable, all abrasive blasting at 93a Katere Road, Waiwhakaiho shall be carried out in an enclosed booth or shed.
8. All emissions from the enclosed booth or shed shall be contained and treated prior to discharge from the operations enclosure. All exhaust air ventilated or otherwise emitted from an enclosure shall be treated to a concentration of total particulate matter of less than 125 mg/m³ [natural temperature & pressure] corrected to dry gas basis, at any time.
9. Any items to be blasted at 93a Katere Road, Waiwhakaiho that are too large or otherwise not able to be blasted within the enclosed facility shall be screened by means of covers, tarpaulins, cladding, or other means, as completely as practicable, to contain dust emissions and depositions and, as far as practicable, to avoid any discharge beyond the immediate work area.
10. The dust deposition rate beyond the property boundary of the site at 93a Katere Road, Waiwhakaiho arising from the discharge, shall be less than 0.13 g/m²/day.

Operations conducted at any site other than the permanent facility

11. All items or premises to be blasted shall be screened by means of covers, tarpaulins, cladding, or other means, as completely as practicable, to contain dust emissions and depositions and, as far as practicable, to avoid any discharge beyond the immediate work area.
12. Where abrasive blasting or surface coating is to take place within 25 metres of a watercourse or at the coast, the consent holder shall notify the Chief Executive, Taranaki Regional Council, at least two working days before the activity commences. The notice shall include details of: the location, the specific blasting proposed, the screening (required by condition 11 above), dates and times of the discharge. It shall be served by completing and submitting the 'Notification of work' form on the Council's website (<http://bit.ly/TRCWorkNotificationForm>).

For clarity, this consent does not authorise any discharge to water except of contaminants of very small volumes that cannot practicably be contained and which have less than minor adverse effects.

13. There shall be no discharge within 150 metres of:
 - (a) any fenced (or otherwise identified) urupa without the written approval of the relevant Iwi; or
 - (b) any marae, unless the written approval of the marae Chair has been obtained to allow the discharge at a closer distance.
 - (c) any site of significance to Maori as defined in the *Proposed Regional Coastal Plan for Taranaki* (as modified by Council decisions, October 2019) or any Operative Coastal Plan unless prior approval is obtained from the relevant iwi.
14. The suspended particulate matter shall not exceed 3 mg/m³ [measured under ambient conditions], and the deposition of dust shall not exceed 0.13 g/m²/day beyond the property boundary or beyond 50 metres of the discharge when sited on land where the public has free access, whichever is less.

Consents 4475-3.0 & 10881-1.0

15. All abrasive blasting is to be conducted with taking into account wind direction and wind strength, such that off-site effects are kept to a practicable minimum.
16. The consent holder shall keep a record of abrasive blasting, including, but not limited to the following information:
 - (a) location (property address and map reference);
 - (b) the type of blasting material used;
 - (c) date; and
 - (d) time/duration of work.

The record of mobile shall be made available to the Chief Executive, Taranaki Regional Council on request.

17. Noise generated by blasting within the CMA shall not exceed the following at any point landward of the boundary of the CMA

Time (any day)	Limit
7am – 7pm	50 dB L _{Aeq} (15 mins)
7pm – 10pm	45 dB L _{Aeq} (15 mins)
10pm – 7am	40 dB L _{Aeq} (15 mins)
10pm to 7am	70 dB L _{Amax}

Noise shall be measured in accordance with the *New Zealand Standard NZS 6801:2008 Acoustic – Measurement of Environmental Sound* and assessed in accordance with *New Zealand Standard NZS 6802:2008 Acoustic Environmental Noise*

18. Any exclusive occupation of the coastal space within 1 km of MHWS shall not occur for a period of more than 48 hours.
19. Any discharge within the coastal marine area authorised by this consent shall occur only within the “Port” Coastal Management Area as defined in the *Proposed Regional Coastal Plan for Taranaki* (as modified by Council decisions, October 2019).

Review

20. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2023 and at 3-yearly intervals thereafter, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

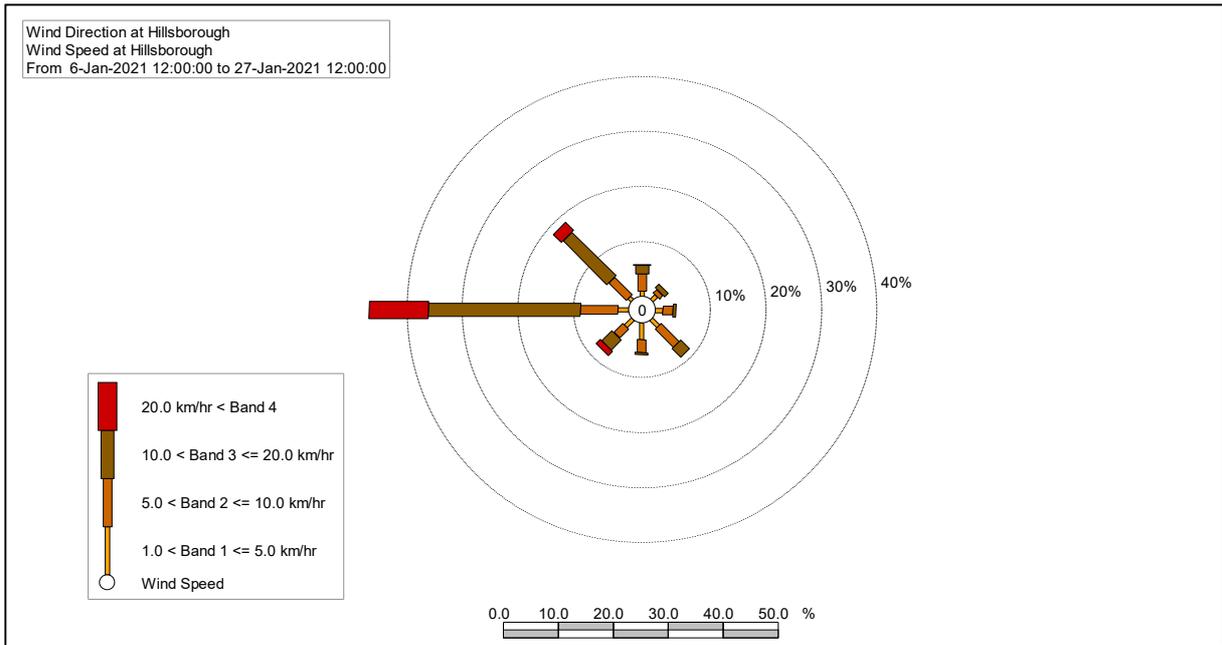
Signed at Stratford on 21 December 2020

For and on behalf of
Taranaki Regional Council

A D McLay
Director - Resource Management

Appendix II

Wind direction information for the New Plymouth
area during the deposition gauge monitoring
periods



~~~ Hilltop Hydro ~~~ Version 6.71.05  
~~~ PLWind ~~~

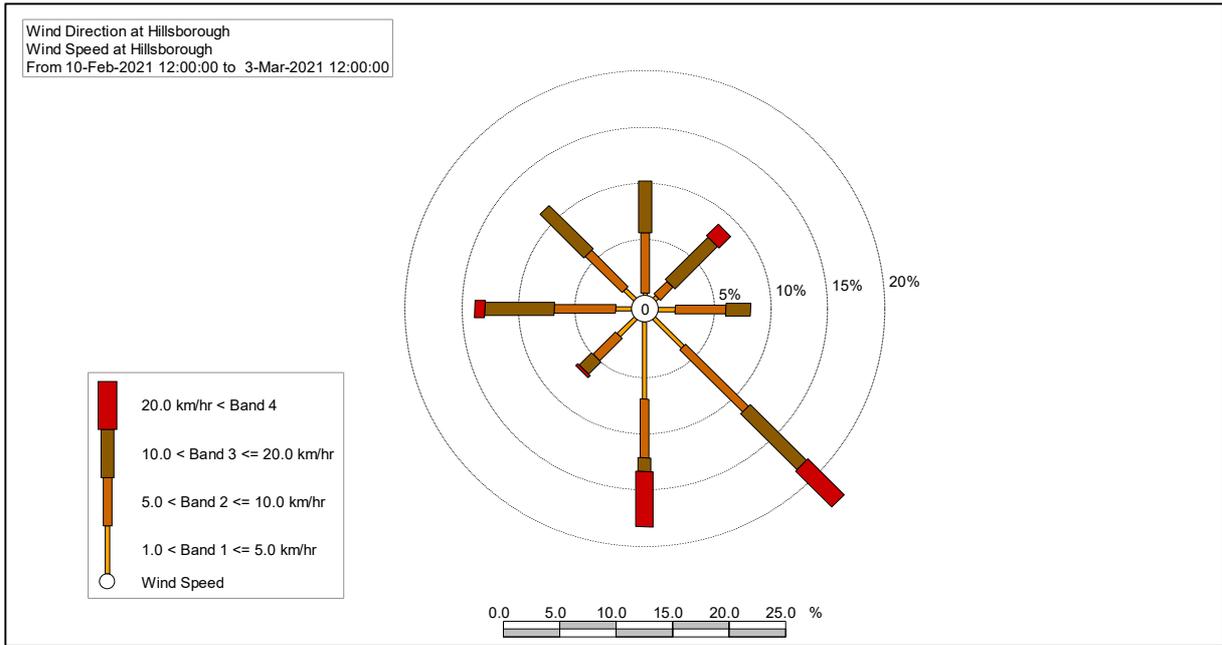
14-Sep-2021

Source is R:\UNAUDITED-DATA\TELEMETRY\TELEMETRY.HTS
Wind Direction at Hillsborough and Wind Speed at Hillsborough
From 6-Jan-2021 12:00:00 to 27-Jan-2021 12:00:00

Number of data points read : 3020
Number of directions <0.0 or >360.0 deg. : 0
Limits for Wind Speed are 0.0 to 50.0 km/hr
Number of readings outside limits : 0
Number of data points used : 3020

| Direction | Percentage of time in each band | | | | Total |
|---------------|---------------------------------|--------|---------------|--------|-------|
| | Band 1 | Band 2 | Band 3 | Band 4 | |
| 337.5 - 22.4 | 0.9 | 3.2 | 1.5 | 0.1 | 5.8 |
| 22.5 - 67.4 | 1.2 | 1.0 | 0.8 | 0.0 | 3.0 |
| 67.5 - 112.4 | 1.3 | 1.8 | 0.6 | 0.0 | 3.7 |
| 112.5 - 157.4 | 1.8 | 4.6 | 2.3 | 0.0 | 8.6 |
| 157.5 - 202.4 | 3.0 | 2.4 | 0.3 | 0.0 | 5.6 |
| 202.5 - 247.4 | 1.7 | 2.3 | 2.6 | 1.2 | 7.8 |
| 247.5 - 292.4 | 1.9 | 6.8 | 27.3 | 10.8 | 46.8 |
| 292.5 - 337.4 | 0.8 | 4.5 | 11.2 | 2.1 | 18.6 |
| Total | 12.6 | 26.6 | 46.7 | 14.1 | 100.0 |
| | | | Percentage <= | 1.0 | 0.0 |

Wind Speed bands (km/hr)
1.0 < Band 1 <= 5.0 5.0 < Band 2 <= 10.0
10.0 < Band 3 <= 20.0 Band 4 > 20.0



~~~ Hilltop Hydro ~~~ Version 6.71.05  
 ~~~ PLWind ~~~

14-Sep-2021

Source is R:\UNAUDITED-DATA\TELEMETRY\TELEMETRY.HTS
 Wind Direction at Hillsborough and Wind Speed at Hillsborough
 From 10-Feb-2021 12:00:00 to 3-Mar-2021 12:00:00

Number of data points read : 3024
 Number of directions <0.0 or >360.0 deg. : 0
 Limits for Wind Speed are 0.0 to 50.0 km/hr
 Number of readings outside limits : 85
 Number of data points used : 2939

| Direction | Percentage of time in each band | | | | Total |
|---------------|---------------------------------|--------|---------------|--------|-------|
| | Band 1 | Band 2 | Band 3 | Band 4 | |
| 337.5 - 22.4 | 0.2 | 5.3 | 4.6 | 0.0 | 10.2 |
| 22.5 - 67.4 | 0.3 | 1.6 | 5.4 | 1.4 | 8.7 |
| 67.5 - 112.4 | 1.5 | 4.5 | 2.1 | 0.0 | 8.1 |
| 112.5 - 157.4 | 3.6 | 7.8 | 7.0 | 4.5 | 22.9 |
| 157.5 - 202.4 | 6.8 | 5.2 | 1.2 | 4.9 | 18.2 |
| 202.5 - 247.4 | 2.1 | 2.8 | 1.5 | 0.3 | 6.7 |
| 247.5 - 292.4 | 1.4 | 5.4 | 6.1 | 0.9 | 13.8 |
| 292.5 - 337.4 | 1.3 | 4.6 | 5.5 | 0.0 | 11.3 |
| Total | 17.3 | 37.2 | 33.5 | 12.0 | 100.0 |
| | | | Percentage <= | 1.0 | 0.0 |

Wind Speed bands (km/hr)
 1.0 < Band 1 <= 5.0 5.0 < Band 2 <= 10.0
 10.0 < Band 3 <= 20.0 Band 4 > 20.0