IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of applications by Meridian Energy Limited to Manawatū-Whanganui Regional Council, Greater Wellington Regional Council, Tararua District Council and Masterton District Council for resource consents to enable the construction, operation, and maintenance of a new wind farm on Mount Munro, located approximately 5km south of Eketāhuna

SECTION 87F REPORT OF ANDREW CURTIS – AIR QUALITY

MANAWATŪ-WHANGANUI REGIONAL COUNCIL, GREATER WELLINGTON REGIONAL COUNCIL, TARARUA DISTRICT COUNCIL AND MASTERTON DISTRICT COUNCIL

15 March 2024

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A. OUTLINE OF REPORT

1 This report, required by section 87F of the Resource Management Act 1991 (**RMA**), addresses the issues set out in sections 104 to 112 of the RMA, to the extent that they are relevant to the applications lodged with the Manawatū-Whanganui Regional Council (**Horizons**), Greater Wellington Regional Council (**GWRC**), Tararua District Council (**TDC**) and Masterton District Council (**MDC**).

2 The resource consents applied for, by Meridian Energy Limited (**Meridian or the Applicant**), are required to authorise the construction, operation and maintenance and improvement of a new wind farm on Mount Munro, located approximately 5 km south of Eketāhuna. The project is known as the Mt Munro windfarm project (the **Mt Munro Project or Project**).

3 In this report I address air quality in relation to the resource consent applications lodged with Horizons and GWRC (the **Regional Councils**) and TDC and MDC (the **District Councils**) (**the Application**).

4 While this report is pursuant to section 87F of the RMA, I have in accordance with section 42A(1A) and (1B) attempted to minimise the repetition of information included in the application and where I have considered it appropriate, adopt that information.

B. QUALIFICATIONS / EXPERIENCE

5 My name is Andrew Curtis. I am Technical Director – Air Quality at Pattle Delamore Partners Limited. I have been in that position since 2020 and prior to that spent over 20 years working for AECOM and its predecessors.

6 My role involves undertaking and reviewing air quality assessments for a wide range of activities. It involves assessing discharges of dust, odour, chemical and combustion emissions, ensuring that these do not result in off-site nuisance or amenity effects, and meet all appropriate standards or ambient guidelines to ensure that there are no adverse health effects on humans or the environment.

7 I hold the following qualifications: a bachelors degree in engineering (Chemical and Materials); a post graduate certificate in Sustainable Management; and a post graduate diploma in Toxicology (Distinction). I am also a certified Making Good Decisions commissioner and a Certified Air Quality Professional. I am a member of Clean Air Society of Australia and New Zealand.

8 I have extensive experience in assessing the potential effects from construction projects with some of my recent experience as follows:

(a) I was responsible for assessing the potential effects associated with the construction of the proposed Ōtaki to North Levin section of the Wellington Expressway and prepared evidence for the direct referral to the Environment Court.

(b) I have been engaged and am currently preparing an assessment of the potential effects associated with the construction of the proposed Takitimu North Stage 2 section of State Highway 2, which is seeking direct referral to the Environment Court.

(c) I was responsible for preparing the air quality assessment for the proposed expansion of Northport, which involved a significant reclamation, and prepared evidence for the Council hearing on that matter.

9 I am familiar with site and surrounding area. I visited the site along with other experts of the Regional Councils and District Councils on 19 June 2023.

C. CODE OF CONDUCT

10 I confirm that I have read and agree to comply with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023. This technical report has been prepared in accordance with that Code. In particular, unless I state otherwise, the opinions I express are within my area of expertise, and I have not omitted to consider material facts that might alter or detract from the opinions that I express.

11 There was initially insufficient information in the assessment of effects accompanying the Application for me to make an assessment as to the potential impacts on air quality. Additional information provided by the Applicant has since addressed some of my queries, however there are areas where I have had to rely on my experience with other projects when reaching conclusions. Where I have done this in my report, I have made it clear that this is the case.

D. EXECUTIVE SUMMARY

12 I have reviewed the information provided by Meridian and it is my opinion that construction related air quality effects can be managed through the use of an appropriate DMP.

13 This is primarily due to the isolated nature of the Project which means that there are significant separation distances between the construction works and the majority of sensitive receptors.

14 The greatest potential for air quality (dust) related effects is associated with vehicles using Old Coach Road which is currently unsealed. If the road is sealed, as recommend by T&T this potential source of dust will be eliminated, and air quality effects at this location minimised as far as practicable.

15 The consent conditions I have recommended as part of my reporting will ensure that the potential for air quality effects will be minimised.

E. SCOPE OF REPORT

16 My report focuses only on issues related to air quality. It covers the following topics:

(a) The potential for dust nuisance effects from the construction of the wind farm.

(b) Potential air quality effects associated with dust generated by activities on Old Coach Road.

(c) Potential air quality effects associated with the operation of a mobile crusher.

(d) Potential air quality effects associated with the operation of a concrete batching plant.

(e) Potential air quality effects associated with the operation of generators on the site.

17 I have reviewed and relied on the information provided by:

(a) Incite, Assessment of Environmental Effects on behalf of Meridian Energy Limited, Mt Munro Wind farm Limited, May 2023 (**AEE**).

(b) Incite, Response to the Mt Munro Proposed Wind Farm Resource Consent Application Section 92 Additional Information Request, 7 September 2023 (**RFI#1**).

(c) Incite, Response to 20 December 2023 Section 92 Additional Information Request, 31 January 2024 (**RFI#2 Response 1**).

(d) Incite, Further Response to 20 December 2023 Section 92 Additional Information Request, 23 February 2024 (**RFI#2 Response 3**).

18 In preparing this report, I have relied on the expert advice from the following technical advisors:

(a) Harriet Fraser – Traffic and Transportation;

(b) Neil Thomas – Groundwater; and

(c) Dr Adam Forbes – Freshwater Ecology.

F. BACKGROUND

Description of Activity

19 Meridian's proposal is set out in detail in Section 2.4 of the AEE and therefore I will not reiterate it in detail. In summary Meridian is proposing to construct, operate and maintain a wind farm, including all ancillary activities such as

earthworks, transmission lines and substations, on a site known as Mt Munro. The wind farm is proposed to comprise of 20 wind turbines, generating up to approximately 90 MW (enough to power up to 42,000 homes annually). Meridian is seeking flexibility by adopting an envelope approach to consideration of the effects arising from the Project.

20 From an air quality perspective, the construction related activities that have the potential to generate dust are those that are of greatest concern. In particular this includes:

(a) Construction of site access or haul roads;

(b) Construction of mast pads;

(c) Disposal of excess cut material;

(d) Onsite crushing of aggregates; and

(e) Operation of the concrete batching plant.

21 There will also be combustion emissions from construction equipment and any generators that might be used on site.

Receiving Environment

22 I have reviewed the information provided in Section 2.3 of the AEE and Section 1.2 of RFI#2 Response 3. I am comfortable that these documents have correctly characterised the nature of the local environment and in particular locations which may be sensitive to the effects associated with construction of the wind farm. This is described further in Section G.

Regional and District Consent Requirements

23 Section 4 of the AEE sets out the consent requirements for the site. As the requirements for air quality are spread through the sections covering the various plans, I have summarised the ones that have been considered in **Table 1** to this report.

24 In **Table 2** I have summarised consent requirements associated with other rules that I consider are relevant.

25 Three of the rules set out in Table 2 are associated with the use of onsite generators that could be used to power the concrete batching plant or other equipment. In its RFI#1 response to question 111 Meridian stated:

> Generators will be used on the site from time to time. These will generally be used by a yet to be appointed contractor, who will also supply the generators. The contractor's generators will either comply with Horizons One Plan Rule 15-6 or Greater Wellington Natural Resources Plan Rule R8, as well as the National Environmental Standards for Air Quality, or the contractor will be required to obtain resource consents or utilise any existing resource consents for generators which do not meet the aforementioned regulations.

26 While I accept that Meridian has the ability to require its contractors to obtain consents, it is my opinion that it would have been better for Meridian, as the project owner, to have applied for relevant consents, as that would have allowed for an appropriate assessment of cumulative effects from all activities on the site.

27 The other rule in Table 2 relates to the operation of the concrete batching plant.

Table 1: Summary of Regional and District Consent Requirements			
Plan	**Rule**	**Requirement**	**Comment**
One Plan	Rule 15-16 Permitted activity Rule for specified mobile sources.	The discharge of contaminants into air pursuant to ss15(1) or 15(2A) RMA from: (a) equipment to treat road surfaces by heat to remove impaired surfaces except where the burning of bitumen is involved (b) mobile aggregate crushing and screening plants (c) mobile asphalt plants (d) earthmoving or harvesting equipment	I agree that this rule covers the potential aggregate processing and earthmoving equipment as long as they can meet the standards that are associated with the rule, but I do not agree that this rule covers the concrete batching plant. The batching plant is not one of the specified activities.
Greater Wellington Natural Resources Plan	Rule R106	While this rule is primarily about earthworks clause f(iii) it talks about odours coming off water as an effect of the activity.	While this rule is primarily about earthworks this rule is generally in accordance with the requirement placed on most activities to not result in offensive odours.
	Rule R27 Handling of Bulk Solids Permitted	The discharge of contaminants into air from the handling of bulk solid materials including from the activities of quarrying, mining, cleanfilling, blasting, extraction, crushing, screening, processing, stockpiling, handling, conveying, sorting, and storage is a permitted activity, provided the following conditions are met: (b) for all other areas, the discharge shall not cause noxious, dangerous, offensive or objectionable odour, dust, particulate, smoke, vapours, droplets or ash beyond the boundary of the property.	I agree that this rule covers the handling of bulk solids as long as the activity meets the relevant standards, which is not causing: *noxious, dangerous, offensive or objectionable …, dust, … beyond the boundary of the property.*
	Rule R28 Cement Storage permitted	The discharge of contaminants into air from the storage, handling, redistribution or packing of cement in fully enclosed silos and conveyance systems is a permitted activity, provided the following condition is met: (a) the discharge shall not cause noxious, dangerous, offensive or objectionable odour, dust, particulate, smoke, vapours, droplets or ash beyond the boundary of the property	I agree that this rule covers the handling of cement if the activity meets the permitted activity standard.
	Rule R42 All other discharges discretionary	The discharge of contaminants into air that are not permitted, controlled, discretionary, noncomplying or prohibited is a discretionary activity	I agree that if cement handling cannot comply with Rule 28 then it would be covered by Rule 42 and require consent.

Table 1: Summary of Regional and District Consent Requirements			
Plan	**Rule**	**Requirement**	**Comment**
Combined Wairarapa District Plan	Rule 4.5.6 Discretionary activities	This rule states that any activity listed in Appendix 4 of the Plan is discretionary. This includes: • Concrete batching • Stone and mineral crushing	I agree that this rule covers these activities if they are carried out on site.

Table 2: Summary of Additional Regional and District Consent Requirements			
Plan	**Rule**	**Requirement**	**Relevance**
One Plan	Rule 15-6 Small Scale fuel burning Permitted	The discharge of contaminants into air pursuant to ss15(1) or 15(2A) RMA from burning coal, untreated wood, diesel, kerosene, light fuel oil, oil (excluding waste oil), methane, biofuels, or natural or liquefied petroleum gas for the purpose of generating useful heat, steam, power or electricity and burning of green vegetative matter undertaken by New Zealand Police.	This rule would cover the use of generators on the site such as those required to operate the concrete batching plant, as long as they could meet the various standards associated with the rule.
	Rule 15-14 Miscellaneous Permitted activity Rule	The discharge of contaminants into air and any subsequent discharge of contaminants onto land or into water pursuant to s15(1) or 15(2A) RMA from the following activities on industrial or trade premises: (e) the manufacture of household, industrial, electrical and garden equipment and appliances, including the manufacture of concrete products, but excluding the manufacture of cement, rubber goods and processes involving the galvanising of steel, (n) the storage, blending or distribution of bulk products including fertiliser, fertiliser mixing and the coating of existing fertiliser product, animal feeds, roading materials, gardening materials, (t) the extraction, processing in fixed plant (crushing and screening), storage, or distribution of aggregates	I consider that this rule covers the operation of the concrete batching plant as well as any storage of aggregates for other purposes on site as long as they meet the standards associated with the rule.
	Rule 15-17 Other Discharges Discretionary	The discharge of contaminants into air pursuant to ss15(1) or 15(2A) RMA and any subsequent discharge of contaminants onto land from activities which either: (a) are located on industrial or trade premises and are not addressed by any other rule in this Plan, or (b) do not comply with one or more conditions, standards or terms of a permitted activity rule, but which are not expressly classified as a controlled activity, restricted discretionary activity, discretionary activity, non-complying activity or prohibited activity.	I consider that this rule covers discharges from any activities on site if they do not meet the relevant permitted activity rules.

Table 2: Summary of Additional Regional and District Consent Requirements			
Plan	**Rule**	**Requirement**	**Relevance**
Greater Wellington Natural Resources Regional Plan	Rule R8 Diesel or Kerosene blends permitted activity	The discharge of contaminants into air from any large scale generator not exceeding a maximum generating capacity of 2MW, from the combustion of diesel or kerosene blends outside a polluted airshed is a permitted activity, provided the following conditions are met: (a) the discharge shall not cause noxious, dangerous, offensive or objectionable odour, dust, particulate, smoke, vapours, droplets or ash beyond the boundary of the property, and (c) when the maximum generating capacity is more than 1MW, the discharge shall occur via a chimney stack or chimney at least 9.5m above ground level, or at least 3m above the ridge line of the roof or building or other structure, whichever is the highest, within a radius of 50m of the chimney stack or chimney, and (d) the discharge shall be directed vertically into air, and shall not be impeded by any obstruction above the chimney stack or chimney that decreases the vertical efflux velocity, and (e) rain excluders shall not impede the vertical discharge of combustion gases, and (g) the fuel burning equipment is maintained by a suitably qualified person at least once per annum, with a copy of the maintenance report held by the operator and presented to the Wellington Regional Council on request.	I consider that this rule would cover the operation of any generator used to power the concrete batching plant. If the generator were larger than 2 MW Rule R42 would apply.

National Environmental Standards

28 There are two air quality related National Environmental Standards, these are:

(a) Resource Management (National Environmental Standard for Air Quality) Regulations 2004 (**NESAQ**), and

(b) Resource Management (National Environmental Standard for Greenhouses Gas Emissions from Industrial Process Heat) Regulations 2023 **(NESGHG**).

29 The NESAQ sets standards for the emissions of certain (primarily combustion related) air pollutants, which are not allowed to be exceeded. It also prohibits the granting of consents for activities that may result in the standards in some circumstances.

30 There are activities associated with the construction of the Mt Munro Project that will produce some of these pollutants, and consequently the NESAQ is discussed in Section G.

31 The intent of the NESGHG is to reduce the emissions of GHG such as carbon dioxide, by reducing the use of fuels such as coal. It also requires that activities install industrial process heat devices that have the least GHG emissions.

32 "Industrial Heat Devices" as defined by the NESGHG are not proposed as part of this application and therefore it is not necessary to consider it as part of this assessment.

G. ASSESSMENT OF APPLICATION

Dust Assessment

33 As discussed in Section F, the primary potential discharge to air associated with the construction of the Mt Munro Project is dust. This can occur from virtually all aspects of the earthmoving activities, and consequently it is no different to any other large construction project.

34 In RFI#2 Response 3 (Appendix 1), the Applicant provided a qualitative assessment of the potential effects of construction dust using the FIDOL factors. The use of this type of assessment is in line with guidance prepared by the Ministry for the Environment[1] as well as Section 15.3 of the One Plan.[2] The FIDOL assessment[3] was prepared by Tonkin and Taylor (**T&T**) (the **Air Assessment**) and as discussed below I am generally comfortable that it has assessed the effects of the works that are proposed as part of the Project.

35 Section 2 of the Air Assessment describes the nature of the discharges including the potential for effects on humans and on the environment. I agree that these are reasonable and appropriately describe the potential effects.

36 The section also describes the key factors that influence the discharge of dust from earthworks and construction. These are:

(a) The amount of fine material in the material being handled;

(b) The moisture content of the material;

(c) Strong winds blowing across exposed surfaces on dry days resulting in entrainment of dusty material; and

(d) The extent of exposed areas.

37 I agree that these are the key factors. The Air Assessment then goes on to state that:[4]

> Typically, the most significant source of dust associated with earthworks and construction projects arises from the movement of vehicles along unpaved surfaces during dry weather.

38 While this can be a significant source, I consider that within the project site, given the exposed location and high recorded wind speeds, that wind erosion

1 Ministry for the Environment, Good Practice Guide for Assessing and Manging Dust (GPG Dust), 2016.
2 Horizons Regional Council, The One Plan, 2014.
3 Tonkin & Taylor, Mt Munro Dust Assessment, February 2024.
4 Tonkin & Taylor, Mt Munro Dust Assessment, February 2024, page 4.

of exposed or unconsolidated surfaces is likely to be a more significant source of dust in this instance, particularly given the large amount of excess cut that needs to be disposed of.

39 As discussed further below, I consider that construction traffic along Old Coach Road could be a significant source of nuisance dust if it remains unsealed. I note that sealing Old Coach Road is also consistent with Ms Fraser's recommendation,[5] and would appear to have some safety benefits in relation to vehicle stopping and visibility.

40 I also consider that there is the potential, without appropriate mitigation, for the crushing and screening of aggregates to be a significant source of dust when it is occurring.

41 In Section 3.1 the Air Assessment discusses sensitive receptors, and I agree with T&T that rural dwellings are likely to be the most sensitive receptors. However, the proximity of adjoining land at the north of the site to where the main access road will be built, and a reasonably large excess fill material disposal area located there, means that despite rural land generally being considered to have low sensitivity, I consider the sensitivity at this location to be moderate.

42 In Section 3.1.2 of the Air Assessment, T&T presents a screening assessment of potential effects at the sensitive receptors using criteria developed by the UK Institute for Air Quality Management.[6] I consider that the values used (250 metres from work sites and 50 metres from roads) are generally reasonable and consistent with New Zealand practice.

43 On this basis the Air Assessment concludes that:[7]

> the receptors with the greatest potential to be impacted by dust emissions from construction activities, specifically dust from vehicles on the unsealed road, are the dwellings located along Old

5 Section 87F Report of Harriet Fraser – Traffic and Transportation, 15 March 2024 paragraph 73.

6 Institute of Air quality management, Guidance on the assessment of dust from demolition and construction, January 2024 (Version 2.2).

7 Tonkin & Taylor, Mt Munro Dust Assessment, February 2024, page 4.

> Coach Road. All other dwellings are considered to have a low risk of being impacted by dust effects because of the significant separation distances between the proposed works areas and the dwellings, which mitigates the risk of dust effects.

44 While PDP considers the strong wind conditions experienced at Mt Munro (as discussed in paragraph 45) may carry dust further than the 250 metres radius discussed above, the distance to residential properties (other than those along Old Coach Road) are significantly greater than this. Consequently, I agree with T&T that it is the dwellings along Old Coach Road that are at the greatest risk of being impacted by dust emissions.

45 In Section 3.2 of the Air Assessment T&T presents meteorological data for the site in the form of two wind roses. I understand that these wind roses are based on data collected from the 80 metre high mast on site. This means that the wind speeds are significantly greater[8] than those that would be measured by a standard 6 or 10 metre mast at the same location. Consequently, the percentage of winds likely to be above seven metres per second will be significantly less than the 65% stated by T&T, which reduces the potential for dust entrainment and dust effects.

46 In Section 5 the Air Assessment has presented four tables summarising FIDOL assessments for:

(a) The construction activities;

(b) The concrete batching plant;

(c) The potential rock crushing; and

(d) The vehicle movements along Old Coach Road.

47 I am comfortable that these assessments appropriately determine the potential effects and agree with T&T that the greatest potential for effects

[8] Due to the surface roughness effects wind speeds reduce the closer you get to ground level.

on sensitive receptors is associated with traffic movements along Old Coach Road.

48 In Section 6 the Air Assessment addresses mitigation measures that could be used to minimise dust nuisance effects associated with vehicle movements along Old Coach Road. I consider that the measures set out in Table 6.1 provide a reasonable summary of the potential mitigation. As I note above, I agree that sealing the road provides the most effective mitigation.

49 However, I am unsure from the RFI#2 Response 3 whether Meridian has accepted T&T's recommendation in the Air Assessment in regard to sealing Old Coach Road. I note that the road is not under the control of Meridian, and therefore T&T's recommendation, were it to be implemented, would need to be agreed between Meridian and the road controlling authority.

50 Finally, I note that the Air Assessment has not commented at all on mitigation required for the other activities that will be undertaken. While I generally accept that other activities[9] undertaken on site are unlikely to result in off-site nuisance effects, it is considered good practice to ensure that dust effects from them are minimised as far as practicable, and this could be achieved by developing a site-specific Dust or Air Quality Management Plan (**DMP**).

51 Meridian has not provided a draft site specific DMP, but did include as Appendix 17 to RFI#1, a copy of the DMP prepared for the Harapaki Wind Farm Development (the **Harapaki DMP**).

52 I have reviewed this document and consider that while it sets out some measures, the Harapaki DMP is very rudimentary and provides little detail on how the mitigation measures discussed, will actually be implemented and how any effects will be identified.

53 I note that the AEE and further information responses state (in several places) that "*dust management will be the responsibility of the main contractor*". While that may be the case contractually between Meridian and

[9] Such use of haul roads, excavation and disposal of excess cut, placement and compaction of fill.

its contractor, Meridian, as the consent holder, is ultimately responsible for ensuring that off-site effects do not occur. In my opinion, it would be more appropriate to have provided a more comprehensive DMP as part of this process.

54 Appendix 4 in the Ministry for the Environment's Good Practice Guide for Assessing and Manging Dust (**GPG Dust**) provides an outline of the information that needs to be covered, and I consider that the DMP needs to:

(a) Fully describe the dust mitigation system.

(b) Identify relevant operating procedures and parameters that need to be controlled to minimise emissions.

(c) Provide an inventory of mitigation equipment and materials.

(d) Provide details and reporting on equipment maintenance programmes, including measures to minimise failure.

(e) Provide details on contingency procedures.

55 Consequently, I consider that Meridian should provide a more comprehensive DMP, and have recommended a condition that would identify what is required.

Mobile Crusher

56 As discussed in paragraph 46, the Air Assessment includes an assessment of the potential effects associated with the operation of a mobile aggregate crusher. I agree with that assessment but consider that the operation of the aggregate crusher should be appropriately managed to minimise the amount of dust generated.

57 I do not agree with Meridian's opinion (as set out in RFI#1 Response 1) that the contractor once appointed will have to seek or hold the consent. It is my opinion that the necessary resource consents should be obtained at an early stage so the management of any associated dust effects occurs alongside the other activities proposed as part of the Project.

Concrete Batching Plant

58 As signalled earlier, in response to RFIS, Meridian has provided additional information on the concrete batching plant. In particular, Appendix 17 of RFI#1 Response 1 contains a copy of the management plan for the Harapaki Windfarm concrete batching plant.

59 I am comfortable that, given the proposed location of the concrete batching plant and the additional information provide in RFI#1 Response 1 in terms of management of the concrete batching plant, there is little potential for air quality related effects from the concrete batching plant. Consequently, I have recommended a consent conditions that requires the development of a site specific management plan for the concrete batching plant to ensure that air quality effects are minimised.

Operation of generators on the site

60 The Application indicates that there will potentially be generators on site to power the cement batching plant and other equipment. In answer to question 111, Meridian indicated in RFI#1 Response 1 that:

> These will generally be used by a yet to be appointed contractor, who will also supply the generators. The contractor's generators will either comply with Horizons One Plan Rule 15-6 or Greater Wellington Natural Resources Plan Rule R8, as well as the National Environmental Standards for Air Quality, or the contractor will be required to obtain resource consents or utilise any existing resource consents for generators which do not meet the aforementioned regulations.

61 As I noted in paragraphs 28-30, the combustion emissions associated with the generators or other stationary engines that may be used on site are covered by the NESAQ, with Horizons and GWRC responsible for ensuring that the air quality standards are not exceeded in their respective regions. Included in the NESAQ are prohibitions[10] on the granting of consents, in some

[10] Resource Management (National Environmental Standards for Air Quality) Regulations 2004, regulations 17, 20 and 21

circumstances, if an activity has the potential to cause the exceedance of one of the standards. In the absence of any information from Meridian I am not able to determine whether consents could be granted for any generators, noting that the off-site effects from these activities need to be considered cumulatively.

62 As I discussed in paragraph 57, I have concerns that not having information on this has not allowed an appropriate consideration of cumulative air quality effects, and consider that it would have been better for Meridian to provide the information as part of the application.

H. SUBMISSIONS

63 There are a number of submissions that identify air quality or dust as an issue. These submissions broadly fall into the following categories.

(a) Dust risks on human health[11];

(b) Dust risks on animal health;[12]

(c) Effects of dust on roof collected drinking water;[13]

(d) Dust effects on pasture;[14]

(e) Dust effects on surface or ground water quality;[15]

(f) General dust nuisance effects;[16]

(g) Road dust on Old Coach Road;[17] and

(h) Effects of diesel emissions from construction machinery.[18]

64 I have set out in the following section my comments on these various issues.

11 Submissions 1, 17, 29, 31, 41, 46, 47, 48, 49, 56, 63, 67,68.
12 Submissions 1, 3, 68.
13 Submissions 1, 3, 21, 29, 41, 43, 44, 47, 48, 65, 67, 68, 71.
14 Submissions 3, 21, 43, 65, 68,71.
15 Submissions 21, 41, 44, 48, 63.
16 Submissions 1, 3, 14, 15, 17, 21, 23, 33, 43, 65, 68, 71.
17 Submissions 28, 44, 45, 62, 63, 65.
18 Submissions 1, 14, 41, 44, 46, 65.

Dust risks on human health

65 This is not a matter that has been explicitly dealt with in the Application. However, as part of RFI#2 Response 3, T&T has considered the effects of construction dust, including the PM_{10} sized fraction that has the potential to give rise to health effects. The Air Assessment concludes that there is little potential for effect on sensitive receivers given the location and large separation distances. The only location where there is some potential for adverse effects is along Old Coach Road as a result of the initial upgrade that will be required, and the subsequent use of the road as the primary access to the Project site. T&T has recommended mitigation (sealing) that would minimise any potential for effect at this location.

66 I agree with T&T that if appropriate mitigation is implemented (including the sealing of Old Coach Road), the potential for dust to cause effects on human health is extremely low. To ensure this is the case I have recommended conditions that require the development of a comprehensive DMP.

Dust risks on animal health

67 This is not a matter that has been explicitly dealt with in the application. However, based on the isolated location, it is unlikely that there will be any off-site dust that has the potential to affect stock at any location apart from the area immediately to the north of the northern haul road.

68 In my experience if Meridian develops a comprehensive DMP, and ensures that it is implemented, the potential for dust to be at a level at this location, that results in effects is minimal. Specifically, I would expect that the DMP contained provisions for Meridian to coordinate with the neighbouring landowner and ensure that the haul road construction works are carried out as far as practicable when there are no stock in the paddock.

Effects of dust on roof collected drinking water

69 As with my response in paragraph 65, I consider that the only location where there could be impacts on roof collected drinking water is for properties on Old Coach Road. If the road is sealed, as recommended in the Air

Assessment, then the potential for effects on roof collected drinking water is negligible. Based on my experience, the potential for effects on roof collected drinking water is, in my opinion, low even if one of the other mitigation options is selected.

Dust effects on pasture

70 As with my response in paragraph 67 to effects on animal health, the only location where I consider that there is any significant potential for dust effects on pasture is on land immediately to the north of the main site haul road.

71 The inclusion of appropriate measures in the DMP should minimise the potential for off-site dust nuisance effect and could contain specific measures to ensure that pasture is maintained or reinstated once construction is completed.

Dust effects on surface or ground water quality

72 The assessment of effects of dust on surface and groundwater is not within my area of expertise and therefore I would defer to Mr Thomas with respect to groundwater. However, I am not aware of any reason why construction related dust should result in any off-site impacts on either surface or ground water if mitigation measures recommended in the DMP are appropriately implemented.

General dust nuisance effects

73 As I have stated above in this report, I consider that as long as an appropriate DMP is prepared and followed there is minimal potential for dust nuisance apart from at the two locations I have identified.[19] Consequently, it is important that the consents contain a robust condition requiring Meridian to develop a DMP, and ensure that its contractors comply with it.

[19] Old Coach Road and the area adjacent to the main haul road on the north site boundary.

Road dust on Old Coach Road

74 I discussed these issues in paragraphs 48 and 49, and consider that if Meridian seal Old Coach Road as recommended in the Air Assessment, the potential for nuisance dust will be eliminated.

75 I understand that some submitters have raised concerns about having the road sealed due to concerns about antisocial behaviour on the road once it is sealed. That is not something I can comment on, but I am confident that while the other measures discussed in the Air Assessment will not be as effective as sealing, they will all reduce the potential for road dust to be generated. Therefore, they are all viable options and if implemented will minimise nuisance effects on the residents of Old Coach Road. I note that Ms Fraser indicates[20] that the seal may be removed once the Project is constructed. While not ideal from an air quality perspective it may resolve the concern raised by submitters.

Effects of diesel emissions from construction machinery

76 This was not a matter that was considered in the Application. However, given the separation distances to residences (as indicated in the Application), and the relatively small number of vehicles involved it is unlikely that diesel emissions from construction activities will result in any significant change.

77 There will potentially be increases in ambient concentrations experienced by residents along Old Coach Road. Based on the traffic volumes set out in the Traffic Report attached to the application[21] the average daily traffic (ADT) is currently 60 vehicles per day of which 6 are heavy vehicles, which will increase to a maximum of 311 ADT of which 261 will be heavy vehicles. While this is a significant increase percentwise, the total traffic volumes are still extremely small and any change in ambient air concentrations will be negligible.

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20 Section 87F Report of Harriet Fraser – Traffic and Transportation, 15 March 2024 paragraphs 54 and 73.

21 Appendix E, Mount Munro Windfarm- Traffic and transportation Effects Assessment prepared by Tonkin and Taylor, May 2023.

78 In any event, emissions from mobile sources on public roads are not covered by the RMA and therefore it is not possible to impose consent conditions.

79 Notwithstanding this, it is not uncommon for proponents of large construction projects to have a section in their air quality management plans which set out measures that will be used to minimise emissions from vehicles or construction machinery. These measures include imposing no idling policies or ensuring the vehicles are well maintained. It follows that there is no reason why Meridian (if it wanted) could not choose to do this.

I. CONDITIONS

80 I have reviewed the consent conditions that have been proposed by Meridian in the Application and RFI responses.

81 The only specific proffered condition for air quality is in relation to the preparation of a DMP. For reasons I explain above, I agree a DMP is appropriate. However, in my view, there also needs to be a consent condition which sets an air quality standard that must be met. In my view a requirement that the activities undertaken on the Project site must not cause noxious, dangerous, offensive or objectionable adverse effects at any point beyond the boundary of the site, is appropriate. The DMP then sets out the methods that are used to ensure that the standard is met.

82 At paragraph [54] I identified at a high level the matters that would need to be within the DMP. More specifically, I recommend the following matters are included in the DMP:

(a) Identification of potential sources of dust taking into account construction activities and the construction programme;

(b) Identification of sensitive receptors including agricultural activities likely to be adversely affected by emissions of dust;

(c) The key environmental performance indicators that apply, with reference to the environmental outcome to be achieved;

(d) Methods for managing and mitigating adverse dust effects that may arise from construction activities, particularly in proximity to sensitive receptors. Where appropriate, these methods may include:

(i) The use of water carts or sprinklers to apply water to areas generating dust;

(ii) Reducing vehicle speeds on unsealed surfaces; and

(iii) The use of commercial dust suppressants;

(iv) Revegetation of exposed surfaces, including cover with hydroseed or mulch; and

(v) Methods and timeframes to stabilise earthworks, and in particular excess cut disposal areas.

(e) The methods of monitoring for potential dust generation, including assessment of weather conditions, soil conditions and visual dust assessments;

(f) The contingency measures to address identified and verified adverse effects of construction activities on sensitive receptors that may include the provision of:

(i) Drinking water or cleaning/upgrading an existing drinking water system; or

(ii) Temporarily ceasing construction activities that give rise to the identified adverse effects.

(g) Training requirements for all staff to ensure that they understand the requirements of the plan and their responsibilities.

Andrew Curtis

15 March 2024