Before a Board of Inquiry
Transmission Gully
Notices of Requirement and Consents

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under: the Resource Management Act 1991

in the matter of: Notices of requirement for designations and resource consent applications by the NZ Transport Agency, Porirua City Council and Transpower New Zealand Limited for the Transmission Gully Proposal

between: **NZ Transport Agency**
Requiring Authority and Applicant

and: **Porirua City Council**
Local Authority and Applicant

and: **Transpower New Zealand Limited**
Applicant

Statement of evidence of Gavin Westwood Fisher (Air quality) for the NZ Transport Agency and Porirua City Council

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Dated: 14 November 2011

REFERENCE: John Hassan (john.hassan@chapmantripp.com)
Nicky McIndoe (nicky.mcindoe@chapmantripp.com)

Chapman Tripp
T: +64 4 499 5999
F: +64 4 472 7111

10 Customhouse Quay
PO Box 993, Wellington 6140
New Zealand

www.chapmantripp.com
Auckland, Wellington,
Christchurch

STATEMENT OF EVIDENCE OF GAVIN WESTWOOD FISHER FOR THE NZ TRANSPORT AGENCY AND PORIRUA CITY COUNCIL

QUALIFICATIONS AND EXPERIENCE

1 My full name is Gavin Westwood Fisher.

2 I am a research scientist and consultant with 32 years' experience in atmospheric science and 21 years' experience in air pollution modelling, transport effects and meteorology. I have an MSc in Physics from the University of Canterbury.

3 I am currently self-employed as a consultant (Endpoint Ltd). I was previously employed by the National Institute of Water and Atmospheric Research Ltd (*NIWA*) in Auckland in various roles, including (for eight years) Manager of the Auckland office and senior air quality scientist. I am past President of the Clean Air Society of Australia and New Zealand. I am also past President of the International Union of Air Pollution Prevention Association. I have produced over 500 reports and publications, including 76 refereed papers, and over 350 client reports on air quality issues. I have appeared in 51 hearings on resource consenting matters.

4 I have conducted numerous air quality assessments for transportation projects in Auckland (such as the Waterview Connection project, the Victoria Tunnel project, the Newmarket Viaduct expansion, the Eastern Arterial project, State highway (*SH*) 20 expansions, and the Cross Harbour Tunnel investigations), Wellington (the Basin Reserve project, the SH1 widening north of Waikanae), Christchurch (the Central Bus Terminal), Napier (the SH3 port bypass), Hamilton (the SH1 widening and bypass), Nelson (the SH1 expansion through the City) and in Sydney, Australia (the M5 tunnel, the Lane Cove tunnel).

5 I have also been in charge of a major research programme to assess health effects due to transport, the 2007 "Health and Air Pollution in New Zealand" study[1], and was principal author of the 2002 Ministry of Transport study on the health effects of vehicle emissions[2]. I am co-author of the 2008 Ministry for the Environment's "Good Practice Guide for Assessing Discharges to Air from Land Transport", and have completed a Land Transport New

[1] Fisher, G.W; Kjellstrom, T.; Kingham, S.; Hales, S.; O'Fallon, C.; Shrestha, R.; Sherman, M. (2007). Health and air pollution in New Zealand. Final Report to the Health Research Council, Ministry for the Environment and Ministry of Transport. June. 156 p. (Available at www.hapinz.org.nz).

[2] Fisher, G.W.; Rolfe, K.A.; Kjellstrom, T.; Woodward, A.; Hales, S.; Sturman, A.P.; Kingham. S.; Petersen, J.; Shrestha, R.; King, D. (2002). Health effects due to motor vehicle air pollution in New Zealand. Report to the Ministry of Transport. AK02013. 72 p. (Available at www.transport.govt.nz).

Zealand project on developing air quality assessment tools for transport emissions[3].

6 On 15 August 2011 the NZ Transport Agency (*NZTA)*, Porirua City Council (*PCC)* and Transpower New Zealand Limited *(Transpower)* lodged Notices of Requirement (*NoRs)* and applications for resource consent with the Environmental Protection Authority (*EPA)* in relation to the Transmission Gully Proposal (*the Proposal)*.

7 The Proposal comprises three individual projects, being:

7.1 The 'NZTA Project', which refers to the construction, operation and maintenance of the Main Alignment and the Kenepuru Link Road by the NZTA;

7.2 The 'PCC Project' which refers to the construction, operation and maintenance of the Porirua Link Roads by PCC[4]; and

7.3 The 'Transpower Project' which refers to the relocation of parts of the PKK-TKR A 110kV electricity transmission line between MacKays Crossing and Pauatahanui Substation by Transpower.

8 My evidence is given in support of the NZTA and PCC Projects. It does not relate to the Transpower Project. For the purposes of my evidence I will refer to the NZTA and PCC Projects collectively as the Transmission Gully Project (and hereafter *the Project* or *the TGP*).

9 I am very familiar with the area that the Project covers and the State highway and local roading network in the vicinity of the Project, having resided in this part of Wellington for 25 years, and undertaken a further site inspection in October 2010.

10 I am the peer reviewer of the Transmission Gully Project: Assessment of Air Quality Effects (*Technical Report 13*) which formed part of the Assessment of Environmental Effects (*AEE)* lodged in support of the Project. This report has been prepared by a number of air quality scientists at Beca Infrastructure Ltd (*Beca*), with whom I have been involved at each stage. I have also previously undertaken technical air quality work for the Project in its early stages in 2002-2005.

11 I have read the Code of Conduct for Expert Witnesses as contained in the Environment Court Consolidated Practice Note (2011), and I agree to comply with it as if this Inquiry were before the Environment Court. My qualifications as an expert are set out

[3] Fisher, G.W.; Metcalfe, J.; Sherman, M. (2006). Toolkit for assessing discharges to air from transport emissions. CD ROM and Report to Land Transport New Zealand. June 2006.

[4] The Porirua Link Roads are the Whitby Link Road and the Waitangirua Link Road.

above. I confirm that the issues addressed in this brief of evidence are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

SCOPE OF EVIDENCE

12 My evidence will deal with the following:

12.1 Background and role in relation to the Project;

12.2 Description of methodology for assessment;

12.3 Effects of the Project on air quality (both in terms of construction and operation, and including positive effects);

12.4 Response to submissions;

12.5 Proposed conditions (including methods for managing dust during construction); and

12.6 Conclusions.

SUMMARY OF EVIDENCE

13 The existing ambient air quality in the vicinity of the majority of the Main Alignment and the new Porirua Link Roads is rural by nature and therefore has very low existing levels of air quality contaminants. The main exception to this is the southernmost part of the route through Linden (including parts of the Kenepuru Link Road), which is currently impacted by particulate emissions from home heating during winter time.

14 The operation of the Project will improve air quality in many parts of the Project area, due to the vehicle emissions being taken off the existing congested SH1 coastal route and arterial roads and being dispersed in a rural location. Moving the traffic from the existing congested urban road network means better air quality than would exist with these same traffic volumes using these local urban roads. This applies particularly to the areas around the Mana Esplanade which are currently heavily impacted by vehicle emissions.

15 Some locations near to the new routes are predicted to slightly increase the exposure of people living, working or spending time in the Project area to vehicle related contaminants above the 'do minimum' scenario (i.e. without the Project). This is due to the location of the three new link roads, and increased volume of traffic accessing the Main Alignment at Linden and via the Kenepuru Interchange. However, these increases are comparatively small, and would not result in these roads being considered heavily used roads. Exposure levels in all areas will comply with the National Air

Quality Standards[5] which are designed to protect the health of the most vulnerable individuals in the community.

16 During the construction phase of the Project there will be dust generated. This comes mainly from earthworks, stockpiles, vehicle movements and from the concrete batching plant. Dust is unavoidable in a project of this size, but significant measures are proposed to minimise dust and mitigate any potential effects. For instance, there will be standard dust control measures employed such as watering, limiting vehicle speeds, limiting soil disturbance, use of windbreaks and rapid restabilisation of disturbed ground. The concrete batching plant is proposed for a site that is 250m from the nearest residence, at the corner of Paramata-Haywards Rd (SH58) and Bradey Rd.

17 In addition, there will be comprehensive dust monitoring, and a process for quickly dealing with complaints or nuisance events. Details of how dust minimisation will be achieved are contained in the Construction Air Quality Management Plan (*CAQMP*), and all contractors will be required to comply with this Plan. Specific measures regarding dust arising from the making of concrete are detailed in the Concrete Batching Plant Management Plan (*CBMP*).

18 Regional scale impacts on the Porirua, Wellington and Kapiti airsheds will be insignificant, despite a slight increase in vehicle kilometres travelled overall. This is due to improvements in traffic flow through the Project area, combined with the continuing improvements in vehicle emissions generally. The Project will not affect Greater Wellington Regional Council (*GWRC*)'s ability to issue future resource consents within the airshed.

19 Thus there are no air quality related grounds preventing confirmation of the NoRs or granting of the resource consents sought, subject to standard desingation and consent conditions (discussed below). There will be no significant adverse air quality effects on people or the environment.

BACKGROUND AND ROLE

20 My particular role in this Project has been:

20.1 Undertaking a full site visit (in October 2010);

20.2 Producing early scoping reports[6];

[5] Resource Management (National Environmental Standards Relating to Certain Air Pollutants, Dioxins, and Other Toxics) Regulations 2004 SR 2004/309, including amendments SR2004/433 and SR2005/214.

[6] (a) Fisher, G.W. (2010). Air quality assessment for the Transmission Gully project. Report to NZTA. 32p. (b) Fisher, G.W. (2005). Western Corridor Transportation Study. Element Analysis (17 documents). Prepared for Maunsels Ltd. and Transit NZ. 85 p.

20.3 Formulating the modelling approach and scope of technical assessments for air quality, along with an expert team at Beca and in consultation with the NZTA;

20.4 Responding to the external review (by Golders Ltd), and advising on the subsequent revisions to Technical Report 13.

21 This air quality analysis has used the predicted traffic flow changes as one of its primary inputs. These are detailed in the Assessment of Traffic and Transportation Effects report[7], and discussed in the evidence of **Mr Kelly**.

METHODOLOGY FOR ASSESSMENT

Reference material

22 The following policies and plans relating to air quality have been considered in my assessment:-

22.1 Regional Air Quality Plan for the Wellington Region 2003;8

22.2 New Zealand Transport Strategy 2008;9

22.3 Wellington Regional Land Transport Strategy 2007;10 and

22.4 The NZTA's Environmental Plan 2010.11

Procedures

23 The air quality assessment followed the Tier 3 (the most advanced) procedures outlined in the Ministry for the Environment's Good Practice Guide for Assessing Discharges to Air from Land Transport (2008)[12] and the draft NZTA Standard for Producing Air Quality Assessments for State Highway Projects (2011)[13].

Methodology

24 Dispersion modelling was used as the primary tool to quantitatively assess pollutant concentrations associated with the Project. The models assessed the new sections of roading as well as changes in the existing road network. The focus was on five key areas where

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[7] Assessment of Traffic and Transportation Effects, Technical Report 4.

[8] *Regional Air Quality Management Plan » Greater Wellington.* *www.gw.govt.nz/regional-air-quality-management-plan.*

[9] *New Zealand Transport Strategy 2008 - Ministry of Transport* *www.transport.govt.nz/ourwork/Documents/NZTS2008.pdf.*

[10] *Wellington Regional Land Transport Strategy 2007 - 2016* *www.gw.govt.nz/document-library-2/detail/740.*

[11] *Contained in Environmental policy manual | NZ Transport Agency* *www.nzta.govt.nz/.../environmental-policy.../environmental-policy.*

[12] Ministry for the Environment. 2008. *Good Practice Guide for Assessing Discharges to Air from Land Transport*. ISBN 0-978-0-0478-30237-0. Ministry for the Environment, Wellington.

[13] NZ Transport Agency, 2009b. *NZTA Guideline for Producing Air Quality Assessments for State Highway Projects* (Draft), NZ Transport Agency, Wellington.

the increases in traffic are expected to be greatest (shown in **Annexure 1**). The dispersion model inputs of vehicle emission rates and traffic volumes were derived using traffic modelling and the Vehicle Emissions Prediction Model v3 (2009) emission factors.

25 All the models used were the most advanced available, and the input data gathered was, in my view, the most extensive possible. The methods included using advanced Ausroads dispersion modelling, existing ambient monitoring data from Tawa, and extensive new benzene and NO_2 passive sampling campaigns, traffic flows from the Saturn model and the Wellington Transport Strategy model, traffic emissions from the latest Vehicle Emissions Prediction Model, and meteorological data from the TAPM model using all available meteorological stations in the area.

Scenarios

26 The potential air quality impacts were predicted by comparing a 'base year' of 2006 with two future years, 2026 and 2031. For the years 2026 and 2031, the emission scenarios considered both "do minimum" (i.e. the Project not being undertaken) and the "with project" scenario. The assessment focused on the relative impacts that the 2026 and 2031 emissions scenarios will have on existing air quality, when compared to the existing baseline as modelled in the 2006 emission scenario.

Contaminants

27 The assessment considered the potential effects of carbon monoxide (CO), fine particles (as PM_{10}), nitrogen dioxide (NO_2) and benzene. Although these are not the complete suite of contaminants emitted from vehicles, they are very adequate indicators of total effects. That is, if standards and guidelines are met for these main contaminants, then they will also be met for all others.

Existing air quality

28 The total cumulative potential effects of each contaminant have been considered in the assessment. Conservative existing (background) levels of CO, PM_{10} and NO_2 have been derived using ambient air quality data collected at the GWRC monitoring station at Tawa, and through project specific passive NO_2 and benzene sampling programmes.

29 Potential effects were assessed by comparing predictions against relevant health-based National Environmental Standards for Air Quality (*AQNES*) (2005)[14], and the New Zealand Ambient Air Quality

[14] Ministry for the Environment. 2005. Updated Users Guide to Resource Management (National Environmental Standards Relating to Certain Air Pollutants, Dioxins and Other Toxics) Regulations 2004 (Including Amendments 2005 SR 2004/309 SR 2004/433 SR 2005/214).

Guidelines (*NZAAQG*) (2002)[15] and the GWRC Regional Ambient Air Quality Guidelines (*RAAQG*) (2004)[16].

EFFECTS OF THE PROJECT ON AIR QUALITY

30 The key technical conclusions of the air quality assessment are now discussed. The following is a summary of results only, with full details given in Technical Report 13.

Projected Contaminant levels
Nitrogen dioxide

31 I have outlined below the projected NO_2 results (all $\mu g/m^3$):

(a)	National Standard[17] (1 hour)[18]	200
(b)	Peak value at Linden 2006	69
(c)	Peak value at Linden 2031 (without Project)	56
(d)	Peak value at Linden 2031 (with Project)	57
(e)	Peak value at Warspite Ave 2006	50
(f)	Peak value at Warspite Ave 2031 (without Project)	47
(g)	Peak value at Warspite Ave 2031 (with Project)	48

32 These indicative results show that:

(a) The existing (2006) peak concentrations are reasonably comfortably below the 1-hour standard – that is 69 $\mu g/m^3$ versus 200 $\mu g/m^3$;

(b) That peak concentrations are predicted to fall slightly in future, due to cleaner vehicles on the road – despite there being more vehicles; and

(c) That the Project has only a very small effect on these peak concentrations (for instance 57 $\mu g/m^3$ versus 56 $\mu g/m^3$ at Linden, or 48 $\mu g/m^3$ versus 47 $\mu g/m^3$ at Warspite Ave). These effects are negligible.

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[15] Ministry for the Environment. Ambient Air Quality Guidelines. 2002 Update. Air Quality Report 32, Section 2.10. p18.

[16] Greater Wellington Regional Council. Regional Air Quality Management Plan. Wellington. 2004.

[17] Ministry for the Environment. 2005. Updated Users Guide to Resource Management (National Environmental Standards Relating to Certain Air Pollutants, Dioxins and Other Toxics) Regulations 2004 (Including Amendments 2005 SR 2004/309 SR 2004/433 SR 2005/214). Schedule 1. Nitrogen dioxide.

[18] This is the average concentration of the contaminant that occurs in the air over a 1-hour period. It is recognised in standards, guidelines and health effects assessments as an indicator of the effect of the contaminants. Not all contaminants have 1-hour standards – some are more realistically assessed with 24-hour or annual averages.

Carbon monoxide

33 A similar situation exists with CO. The current CO concentrations are well within the Standard of 10 milligrams/cubic metre[19] (by over two orders of magnitude), and they are expected to decrease in future. The construction of the Project makes no perceptible difference to ambient concentrations.

Particulates

34 Current peak concentrations of particulates (as PM_{10}) are closer to the Standard, but the principal cause of this is due to other sources, such as naturally occurring dust and home heating emissions. A summary of selected results is given below[20] (all $\mu g/m^3$):

(a)	National Standard[21] (24 hour)	50.0
(b)	Peak value at Linden 2006	44.6
(c)	Peak value at Linden 2031 (without Project)	42.8
(d)	Peak value at Linden 2031 (with Project)	43.1
(e)	Peak value at Warspite Ave 2006	40.0
(f)	Peak value at Warspite Ave 2031 (without Project)	39.6
(g)	Peak value at Warspite Ave 2031 (with Project)	39.7

35 These results show a similar pattern as occurs with NO_2, but the quantum of changes is smaller, as vehicle emissions are not the principle source of PM_{10} except very close to the roadway (1-2 m from the road edge).

Benzene

36 As with the other pollutants, the effects of benzene are negligible. The highest current peak annual concentration, which is at Linden, is 1.3 $\mu g/m^3$. This compares with the guideline value[22] of 3.6 $\mu g/m^3$. This is expected to fall to 1.2 $\mu g/m^3$ by 2031, whether or not the Project is in place.

Overall region wide effects/changes

37 In terms of regional effects and impacts on the airsheds in the region (Wellington, Porirua, and Kapiti), the Project is expected to

[19] Ministry for the Environment. 2005. Updated Users Guide to Resource Management (National Environmental Standards Relating to Certain Air Pollutants, Dioxins and Other Toxics) Regulations 2004 (Including Amendments 2005 SR 2004/309 SR 2004/433 SR 2005/214. Schedule 1. Carbon monoxide.

[20] Table 13.26 in Technical Report 13, p. 75.

[21] Ministry for the Environment. 2005. Updated Users Guide to Resource Management (National Environmental Standards Relating to Certain Air Pollutants, Dioxins and Other Toxics) Regulations 2004 (Including Amendments 2005 SR 2004/309 SR 2004/433 SR 2005/214. Schedule 1. PM_{10}.

[22] Ministry for the Environment. Ambient Air Quality Guidelines. 2002 Update. Air Quality Report 32, Section 2.10. p18.

have an insignificant effect on regional air quality, despite a slight increase in vehicle kilometres travelled overall, due to improvements in traffic flow through the Project area, combined with the continuing improvements in vehicle emissions generally. The Project is not predicted to impact the GWRC's ability to issue future resource consents within the airshed. Or put simply, there will still be "space" in the airshed to allow further emissions without compromising the National Standards or resulting in any significant effects.

Positive effects

38 The relocation of traffic from the existing SH1 coastal route to the Main Alignment (as discussed in **Mr Kelly's** evidence) will result in significantly reduced exposure to vehicle emissions for the coastal communities between Linden and MacKays Crossing. The improvement in efficient traffic flow expected to be brought about as a result of the Project is considered to adequately mitigate any potential adverse effects of vehicle emissions from the Project.

39 For example, previous monitoring of PM_{10} along the Mana Esplanade by GWRC has shown concentrations close to the standard and exceedences near the edge of SH1[23]. The situation is still problematic along the nearby SH1 at Raumati today, with peak PM_{10} levels significantly exceeding the standard[24]. These lead to adverse health effects in this community, and likely other communities along the route between Linden and McKay's Crossing that can experience heavy traffic on SH1. After the Project is complete there will be a dramatic reduction in contaminant concentrations along the SH1 coastal route between Porirua and McKay's Crossing.

Dust effects

40 All the results presented in my evidence thus far have been associated with vehicle emissions using the new Main Alignment and its link roads. However, on a project of this size, the issue of dust released to air from construction, and related activities must also be considered.

41 Dust will be generated during the construction phase of the Project. This includes wind blown dust from stockpiles, road dust due to vehicles travelling around the sites, and dust from the concrete batching plant. Dust effects associated with such activities are difficult to quantify, as the processes are highly variable and weather dependent.

42 A draft CAQMP has been prepared, which is designed to form the basis for specific management plans to be prepared by

[23] Unpublished NIWA research report, 2000.

[24] Raumati South Air Quality Investigation. Greater Wellington Regional Council Technical Report. GW/EMI-T-11/52. 2011.

contractors.[25] The CAQMP and the specific management plans prepared by contractors will detail methods to be used to mitigate the discharges of contaminants into air arising from the construction of the Project. At the locations where construction occurs in close proximity to sensitive receptors, including residential premises and childcare facilities, a high standard of emissions control and management will be employed to adequately avoid or mitigate the effects of discharges of construction dust.

43 In my opinion the CAQMP will provide a robust and effective mechanism to ensure that adverse effects are minimised so that no serious adverse affects on local communities will eventuate. As with any construction project of this size there may be times when dust does affect some areas, but the Plan includes procedures for:

43.1 detailed methodologies for dust control;[26]

43.2 monitoring effects;[27]

43.3 rapidly responding to these.[28]

44 Construction of the Project is going to require the handling of a large volume of concrete. This will be processed at a specific concrete batching plant, located on an unpopulated section of SH58, at least 250m away from the nearest residence. The management of potential dust arising from concrete manufacture will be addressed in a specific CBMP.

45 In my view, the proposed measures are the most practical and effective way of dealing with dust nuisance. The CAQMP and CBMP contain the necessary details to minimise dust nuisance to an appropriate level.

Summary of air quality effects

46 All of the relevant air quality standards and guidelines are met. That is, as a result of the Project, there will be no exceedences of air quality standards, and no additional health effects. In some locations along the feeder roads into the three new link roads there will be an increase in traffic and a consequent increase in air quality effects. However, these are very minor and do not result in any exceedences of standards or guidelines at any time at any sensitive receptors.

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[25] Condition NZTA.12; NZTA.G.14; PCC.11, PCC.G.35.

[26] E.g. Transmission Gully Project: Construction Air Quality Management Plan, Beca, March 2011. Section 7.

[27] E.g. Transmission Gully Project: Construction Air Quality Management Plan, Beca, March 2011. Section 8.

[28] E.g. Transmission Gully Project: Construction Air Quality Management Plan, Beca, March 2011. Section 9.

47 People living, working or spending time along the new routes, and its feeder roads, will not experience any significant decrease in air quality due to vehicle emissions.

48 Dust generated during the construction phase will be controlled and minimised in line with best practice, using an extensive series of procedures detailed in the CAQMP and the CBMP.

RESPONSE TO SUBMISSIONS

49 Of the 68 public submissions received, 12 have referred to air quality issues. These are addressed below.

50 Seven submissions were concerned with general dust nuisance during construction at the Tawa/Linden end of the Project[29]. The proposed mitigation of dust effects is laid out in detail in the draft CAQMP and reducing any dust nuisance effects are the main focus of the proposed conditions. Standard measures will be applied for reducing dust nuisance and include features such as:

50.1 Watering,

50.2 Continuous dust monitoring,

50.3 Maintaining a log of all operations capable of producing dust,

50.4 Controlling operations in windy weather,

50.5 Ceasing operations if significant dust is produced,

50.6 Keeping the sites clean,

50.7 Operating stockpiles to minimise dust production,

50.8 Cleaning of buildings,

50.9 The use of filters on the cement building air vents, and

50.10 Placing constraints on all contractors and truck drivers in relation to dust production.

These are all measures that will act to keep dust production to an absolute minimum, and to mitigate any dust effects that do occur.

[29] Submitter No. 31 C. Sheriden and A.D. Osborne, Submitter No. 36 Gail & Murray Milner, Submitter No. 51 Mr Jianfei Li, Submitter No.52 Mrs Judith Esther Gray, Submitter No.62 David & Janet Barnes, Submitter No.63 Sallie Hill & Jon Grace (all the same form and words used in the submissions), and Submitter No.18 Mr & Mrs Cecil and Susan Edmonds.

51 Two submissions were concerned with dust arising from the site works and concrete batching plant, which are proposed to be located on SH58.[30] The concrete batching plant has been carefully located so as to minimise dust effects. The nearest residence is some 250m from the plant and this is a significant distance for ameliorating any dust effects. For instance there are (and have been) many locations throughout the Country where residences are within a few tens of metres from the likes of quarries, stockpiles, timber yards, railways and similar dust producing activities. At distances of up to 50m these locations can experience some dust nuisance effects, but this falls off rapidly with distance and beyond 100m the effects are generally minor. With all of the stringent controls proposed to be applied in this case, I would expect dust effects at 250m from the site to be no more than minor.

52 One submission was concerned about "extra fumes from vehicles", particularly along Warspite Avenue[31]. This is a concern expressed by many residents along new road routes. The expected traffic volumes along Warspite Ave after the Project is completed are around 7,000 vehicles per day. This is by no means a heavy vehicle flow rate. For example, key parts of SH1 carry around 35,000 vehicles per day and, for context, busy motorways in Auckland carry up to 120,000 per day. Notwithstanding the modest predicted vehicle rate, a full assessment of air quality effects (including along Warspite Avenue) has been carried out. This has shown that the air quality effects associated with the predicted vehicle numbers are very small and do not lead to any significant adverse effects. As a general guide, experience shows that for roadside air quality effects to become significant the traffic flows have to be in the order of 70,000 vehicles per day or more.

53 One submission was concerned about "the operation of the road may result in increased pollution runoff from vehicle emissions."[32] The effects of emissions from vehicles are of widespread interest, and can be significant in urban areas with large volumes of traffic. The principal causes of the problem are (a) the sheer volume of traffic, and (b) the emissions from large and/or poorly maintained vehicles – especially diesel vehicles.

54 The control of vehicle emissions is a role for the Ministry of Transport and not specifically for the NZTA. The Ministry has put in place a number of initiatives over the last several years including adopting overseas emissions standards for new vehicles, tightening the fuel specifications and a raft of public information programmes. These have assisted in lowering the total emissions from the vehicle

[30] Submitter No.37 Pauatahunui Residents Association, Submitter No.67 Mr Craig Edge.

[31] Submitter No.15 Cannons Creek Residents & Ratepayers Association.

[32] Submitter No.46 Pukerua Bay Residents Association.

fleet in New Zealand. However, it is impractical to attempt to control emissions in any particular area or any particular road. Agencies such as the NZTA and local Councils can – and do – play their part when designing new routes, such as the one proposed here. As noted in my evidence the consequence of taking traffic away from built up areas, especially along the SH1 coastal route, results in very clear air quality gains for many communities. As long as this can be done without adversely affecting other communities, this is of great benefit. The volumes of traffic along the new Transmission Gully route, and its feeder roads, are simply not great enough to produce such adverse effects.

55 Finally, Transpower has sought a minor change to the proposed condition[33] governing discharge to air contaminants[34] Transpower would like to see the reference in condition NZTA.20G to "…lines..." changed to "…assets…". Accordingly, the condition would read as follows:

> "NZTA shall ensure that the discharge of contaminants to air from the site during construction of the Transmission Gully Project does not create any dust hazard or nuisance to the transmission ~~lines~~ assets managed by Transpower New Zealand Limited…"

This is perfectly acceptable.

PROPOSED CONDITIONS

56 The proposed conditions relate to the potential nuisance effects from dust generated during the construction period. These are covered firstly in the proposed CAQMP, which is part of the set of proposed management plans.

57 The conditions[35] state that the CAQMP must provide a methodology for managing the effects of dust onsite and shall include, as a minimum:

57.1 Identification and implementation of dust suppression measures appropriate to the environment in which the works are located, and the sensitivity of nearby receptors;

57.2 Identification of contingency measures to address identified and verified adverse effects on sensitive receptors. In my view, contingency measures could include options such as:

(a) cleaning of houses and buildings,

[33] See condition NZTA.20G of the conditions agreed between the NZTA and Transpower (Appendix B to the Project AEE).

[34] Submitter No.65 Transpower New Zealand Ltd.

[35] NZTA.12; PCC.11; NZTA.G.14, PCC.G.35.

(b) compacting road surfaces,

(c) laying fresh gravel whenever necessary,

(d) cleaning spills rapidly,

(e) watering unsealed roads and stockpiles,

(f) retaining vegetation wherever possible,

(g) forbidding the use of blowers,

(h) limiting activities on windy days,

(i) stabilising exposed areas, and

(j) enclosing areas where dust potential is significant.

58 More specific conditions[36] are proposed in relation to potential dust from the use of concrete, in the CBMP. The conditions provide that the CBMP shall include, but not be limited to details of:

58.1 Procedures for responding to process malfunctions and accidental dust discharges;

58.2 Procedures to seek to ensure that sand and aggregate (and other potentially dusty materials) are handled and stored so as to minimise dust emissions;

58.3 Mitigation measures to be implemented during the operation of the plant, including the installation of a water sprinkler system to minimise dust emissions;

58.4 Criteria, including consideration of weather conditions and procedures for use of water sprays on stockpiles and operational areas of the site;

58.5 Daily visual monitoring of dust emissions.

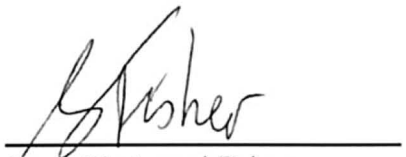
59 I support the conditions proposed and consider that they will implement suitable measures for the management of dust during the Project's construction period.

CONCLUSIONS

60 After a full scale air quality assessment, taking account of all the relevant technical factors, in my view, the air quality effects as a

[36] NZTA.G.13, NZTA.CBP.3, CBP.7-10.

result of the Project will be acceptable, and indeed will result in significant benefits along much of the existing SH1.



Gavin Westwood Fisher
14 November 2011

ANNEXURE 1 TRAFFIC CHANGES OF RELEVANCE

This shows the expected increases (in red) and decreases (in green) for traffic flows in the area. The five identified locations show where the greatest traffic flow increases are expected, and where detailed localised dispersion modelling was carried out.