

<b>IN THE MATTER OF</b>	The Resource Management Act 1991
<b>AND</b>	
<b>IN THE MATTER OF</b>	Application for resource consent under sections 88 and 124 of the Act, in relation to the proposed reconsenting of the discharge of contaminants into air from fumigation at the Port of Tauranga.
<b>BY</b>	<b>GENERA LIMITED</b> Applicant

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**STATEMENT OF EVIDENCE OF KEITH FRENTZ  
ON BEHALF OF THE APPLICANT**

1 May 2023

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Planning

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## PEPEHA<sup>1</sup>

Tēnā Koutou Whanau  
E mihi ana ahau ki nga iwi o Ngāti Ranginui raua ko Ngāiterangi  
I a koutou, tēnei te mihi maioha i a koutou  
E hore ahau i te Māori  
Engari  
No Tenemāka te Tipuna  
Ko Whakamarama te Kāinga  
Ko Te Rangituanehu te Maunga  
Ko Te Puna te awa  
Kei te mahurangi te Maunga mē te Awa hoki ahau  
Ko European tōku iwi  
Ko Frentz tōku whanau  
Ko Keith tōku ignoa  
No reira  
Tēnā koutou Tēnā koutou Tēnā koutou katoa

## INTRODUCTION

1. My full name is **Keith Frentz**.
2. I am a Technical Director in Planning with Beca, based in Tauranga. I am a full member of the New Zealand Planning Institute.
3. My evidence is given on behalf of Genera Limited ("**Genera**") on its application under sections 88 and 124 of the Resource Management Act 1991 ("**RMA**") in relation to the proposed consenting of the discharge of contaminants into air from fumigation ("**proposal**") at the Port of Tauranga ("**POT**").
4. My evidence relates to the preparation of the assessment of the proposal's effects on the environment, statutory planning, submissions and proposed conditions in relation to the application for resource consent to the Bay of Plenty Regional Council ("**BOPRC**").

## Qualifications and experience

5. I have the following qualifications relevant to the evidence I shall give:
  - (a) Bachelor of Science in Land Surveying from Otago University; and
  - (b) Master of Social Science (Honours) in Resource and Environmental Planning from Waikato University.
6. I have over 40 years' experience. My experience has included significant infrastructure and stormwater management projects involving multi-disciplinary teams. I have also been responsible for the preparation of District Plans, Plan Changes and Structure Plans for local authorities, as well as preparing significant resource consent applications on behalf of a range of

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<sup>1</sup> Translation provided in Attachment KF1

clients. For example, I have been involved in the preparation of an assessment of effects on the environment and presentation of planning evidence in the application to leave the remains of the MV Rena on Otaiti (Astrolabe Reef). I have also been the primary author of the Motiti Island Environmental Management Plan (a District Plan under the RMA); have prepared a comprehensive stormwater discharge consent application for over 1,000 outlets in the Tauranga City area; re consenting for the Ohau Channel Diversion Wall in Lake Rotoiti, re consenting the discharge of aluminium sulphate to the Puarenga and Utuhina Streams, Lake Rotorua, to Lake Rotoehu and to Lake Okaro and an earlier resource consent application for the discharge of methyl bromide to air at the POT.

### **Code of conduct**

7. I have read the Expert Witness Code of Conduct set out in Section 9 of the Environment Court's Practice Note 2023 and I agree to comply with it. I confirm that the issues addressed in this statement of evidence are within my area of expertise, except where I state I am relying on the specified evidence of another person. I have not omitted to consider material facts known to me that might alter or detract from my expressed opinion.

### **Background and role**

8. I have been involved with the Genera re consenting project since March 2018. My involvement has included preparing the resource consent application and Assessment of Effects on the Environment ("**AEE**"), drafting conditions for the consent and managing the technical inputs to the application. I have also been part of the team undertaking consultation on behalf of Genera with tangata whenua and other stakeholders. Following the Environmental Protection Authority ("**EPA**") decision to reissue an approval for a hazardous substance (methyl bromide ("**MB**")) under clause 4 of Schedule 7 of the Hazardous Substances and New Organisms ("**HSNO**") Act 1996 (APP203660) I also prepared an addendum to the application that amended the application to incorporate that decision. I followed this, at the request of the BOPRC, with a Combined Application Report which incorporated the now relevant material from the original application, the addendum in relation to MB, reference to the EPA decision on the reassessment for the use of MB (HSR001635), reference to the EPA decision on ethanedinitrile ("**EDN**") (HSR101529) and a description of the changes to Genera's fumigation operations subsequent to decision HSR001635.

9. At the direction of the Hearing Commissioners I attended an expert conferencing session for the Planners involved in this Hearing and this resulted in the Joint Witness Statement ("**JWS**") that has been circulated to the parties.

### **Scope of evidence**

10. I provide evidence in relation to the following matters:
- (a) a description of the activities to which Genera's application relates and of the application itself, including an overview of the background to the 2010 EPA assessment of MB, the current EPA reassessment of MB and the EPA assessments of EDN and phosphine ("**PH3**");
  - (b) an overview of the refinements to the proposal since the application was lodged on 30 October 2019. For clarification, I confirm that following the s92, RMA, process, the application was refined to seek consent for the discharge of MB, PH3 and EDN as described further in paragraph 31 and subsequent paragraphs;
  - (c) an overview of the resource consent sought in the application;
  - (d) an overview of the changes made to the application as a consequence of the EPA decision to reissue an approval for MB, as outlined in the addendum and the Combined Application Report. I can confirm that the applicant accepts the EPA decision and has amended the application to reflect that decision;
  - (e) an assessment of the proposal against the relevant statutory and non-statutory documents, taking into consideration the assessment of effects on the environment provided in the technical report, the addendum, the Combined Application Report, the JWS and evidence submitted on behalf of the applicant;
  - (f) a summary of the alternatives considered;
  - (g) comments on the submissions received on the application in response to notification;
  - (h) comments on the Section 42A Report ("**s42A Report**"); and
  - (i) the proposed conditions determined following the expert Planner conferencing and included in the JWS.

### **EXECUTIVE SUMMARY**

11. The applicant's case is comprehensively presented in the application documents, including the material provided in response to the BOPRC s92

request, the Cultural Impact Assessment (“**CIA**”) provided by Ngāi Tūkairangi, the addendum and the Combined Application Report provided following the EPA Decision on MB and the evidence presented by the applicant’s experts that I rely on to form my own expert opinion on planning matters.

12. My overall opinion is that granting the resource consent for the discharge of contaminants into air from fumigation activities at the POT, incorporating the conditions proposed by the applicant, would be consistent with the relevant national and regional planning documents and the RMA overall.
13. The positive effects of the proposal include significant economic and environmental benefits to a major export industry in New Zealand in accordance with our international trading agreements and our responsibility to manage and control biosecurity threats to the New Zealand environment.
14. The proposal gives effect to Policies 6(2)(c) and 9 of the New Zealand Coastal Policy Statement (“**NZCPS**”) and accords strongly with Policy IR 9B (Biosecurity) and Objectives 1, 11, 20 and 26 and Policy AQ 2A of the Bay of Plenty Regional Policy Statement (“**RPS**”) and Objective AIR-O1 and Policies AIR-P2, AIR-P3 and AIR-P4 of Plan Change 13 (“**PC13**”) to the Bay of Plenty Regional Natural Resources Plan (“**RNRP**”) which provide for and encourage the best practicable option to avoid or mitigate the adverse effects of the discharge to air.
15. Measures are proposed to limit the levels of contaminants discharged to the environment, by implementing recapture of MB to a degree that is in excess of the minimum required by the EPA decision HSR001635. Other measures are proposed to implement the best practicable option for quarantine and pre-shipment (“**QPS**”) and pest management purposes for all the fumigants for which consent is sought, consistent with the objectives and policies of the RPS and PC13.
16. The applicant has sought the views of tangata whenua consistent with Objective 13 (kaitiakitanga) and Policies IR 4B (consultation) and IW 6B (kaitiakitanga) of the RPS and Objectives KT O3 and KT O4 of the RNRP. A Core Liaison Group (“**CLG**”) was established at the commencement of the reconsenting project which included representatives from the three local iwi and two hapū – Ngāi Te Rangi, Ngāti Ranginui, Ngāti Pukenga, Ngāti Kuku and Ngāi Tūkairangi. Ngāi Tūkairangi has provided a CIA describing their views of the proposal.

17. The responses that have been received from tangata whenua to date have been considered in the development and further refinement of the proposal and in the preparation of proposed conditions (attached to my evidence as **“Appendix A”**).
18. The views of the Tauranga Moana Fumigant Action Group (**“TMFAG”**) and the Clear the Air – Mount Maunganui group have also been sought, however, response and engagement to date has been limited.
19. On the basis of the evidence presented, I consider that fumigation is an essential tool in the biosecurity toolbox to protect the New Zealand environment from unwanted pests originating from overseas, as well as being essential to meeting agreed international trade obligations while providing the best practicable option in mitigation for the discharge of contaminants to air by managing the discharges to an acceptable level and, for MB and EDN, in accordance with the EPA decisions HSR001635 and HSR101529 and for PH3 in accordance with EPA decisions HSR007629 (Vaporph3os), HSR001632 (Approval for Gas containing 20 g/kg phosphine) and HSR001636 (Approval for Pellets containing 570 g/kg aluminium phosphide). I have attached the EPA decisions as Attachment KF3, Attachment KF4 and Attachment KF5, respectively to my evidence.
20. With regard to MB, its use has been comprehensively reviewed by the Decision Making Committee (**“DMC”**) of the EPA through a publicly notified process and the decision from that reassessment (HSR001635) provides controls that must be complied with by the fumigator. Genera accepts these controls, is complying with them and is actively working towards further reducing the use of MB in its operations and the destruction of MB recaptured following fumigation.
21. More generally and based on the evidence presented, I consider that the proposal, as it relates to MB, incorporating the proposed consent conditions attached to my evidence as Appendix A and compliance with the controls of EPA decision HSR001635 will:
  - (a) Not present a health risk to the public or workers in the vicinity of the discharge to air;
  - (b) Not compromise the cultural values of the area within which the discharge will occur;
  - (c) Not affect the water quality of Te Awanui / Tauranga Harbour;

- (d) Provide significant economic benefit to rural production activities that may be vulnerable to imported pests or rely on export markets that require treatment for pest species before the product leaves New Zealand;
  - (e) Provide significant environmental benefit to indigenous habitats and ecosystems that are vulnerable to exotic pest species and biosecurity incursions from infected imported goods.
22. Similarly, in relation to EDN and PH3, implementing the activity in accordance with the proposed consent conditions and in compliance with the controls of EPA decisions HSR101529, HSR007629, HSR001632 and HSR001636 will ensure that the effects of fumigation using these substances on the environment will be less than minor.
23. In my opinion, granting consent to this proposal does not compromise New Zealand's international obligations as a signatory to the United Nations Montreal Protocol as, importantly, the Protocol provides for the use of MB for QPS purposes. I note that and PH3 and EDN are not ozone-depleting gases ("ODG") and so are not the focus of the Montreal Protocol.
24. Overall, I am of the opinion that the proposal is consistent with the purpose of the RMA.
25. In my view, a consent duration of 10 years is appropriate in the circumstances. The applicant acknowledges that this is an area in which the technology and treatment methodologies are rapidly advancing. Ten years will provide certainty while allowing a review of the consent to take into account those advances within a relatively short timeframe.
26. The proposed 10 year duration also aligns reasonably closely with the timeframes provided in EPA decision HSR001635 on MB when, from the 1<sup>st</sup> January 2031, an event recapture proportion of 100% with minimum recapture of 80% and an annual average recapture performance of 95% will be required. From 1<sup>st</sup> January 2033 these performance indicators will be 100%, 90% and 99% respectively.
27. A copy of the proposed conditions based on the conditions determined through expert Planner conferencing (attached to the JWS) and further refinement described in this evidence, is attached in Appendix A to my evidence.
28. I consider the conditions proposed are comprehensive and robust and will adequately avoid, remedy or mitigate the actual and potential effects on the



environment of the proposal. In my expert opinion, the Hearing Panel is therefore able to grant consent.

## **BACKGROUND MATERIALS REFERENCED**

29. In preparing my evidence, in addition to the relevant statutory planning documents, I have had regard to the following:
- (a) The application documents and AEE, including the technical reports, further information, the addendum and the Combined Application Report;
  - (b) The application, research documentation and evidence provided for the Reassessment of Methyl Bromide by the EPA, 2020 (APP203660) and the subsequent decision (HSR001635);
  - (c) The EPA decision HSR101529 in relation to EDN;
  - (d) EPA approvals HSR007629, HSR001632 and HSR001636 for PH3 as a gas and Aluminium Phosphide ("**ALP**");
  - (e) The CIA provided by Ngāi Tūkairangi;
  - (f) The statements of evidence of the applicant's expert witnesses;
  - (g) Kiwifruit Vine Health's ("**KVH's**") statement on the importance of fumigation for biosecurity risk management (Attachment KF8);
  - (h) The s42A report and Technical Review prepared by the BOPRC;
  - (i) The Technical Peer Review undertaken by Tonkin and Taylor Ltd;
  - (j) The JWS prepared as a result of the expert Planner conferencing; and
  - (k) The submissions received on the application.

## **DESCRIPTION OF THE ACTIVITY**

### **Fumigation**

30. This application for discharge to air is to enable the continuation of the fumigation of both export goods, in accordance with our international trade obligations, and of imported goods to protect New Zealand's biosecurity and, ultimately, its environment. This consent would replace the current consent (RC62719) which has expired but continues to have effect pursuant to s124 of the RMA.
31. As I have noted above, the application is for fumigation utilising fumigants authorised for use in New Zealand by the EPA. Other chemicals referred to in the application including Ethyl Formate, Pestigas (a natural Pyrethrin), and synthetic Pyrethroids and other phytosanitary fumigants authorised by the

EPA, have been withdrawn from this application through the further information process under s92 of the RMA.

32. Fumigation must be carried out in accordance with the EPA approvals for the use of MB (HSR001635, Attachment KF3), EDN (HSR101529, Attachment KF4), phosphine as a gas (HSR001632, Attachment KF5) and Aluminium Phosphide (HSR001636, Attachment KF5) and the requirements for the use of these fumigants imposed and administered by WorkSafe NZ (“**WorkSafe**”) as well as the conditions of the BOPRC’s current consent and any future consents.
33. The primary safe work instrument administered by WorkSafe is the Health and Safety at Work (Hazardous Substances) Regulations 2017<sup>2</sup> and an amendment specific to EDN (dated 2022) is attached for reference in Attachment KF6 to my evidence.
34. The following paragraphs describe the fumigation activity utilising each of the proposed fumigants.

#### **Methyl Bromide**

35. MB is a colourless, odourless, flammable gas used as a fumigant to kill pests.
36. It is also an ODG and, for this reason, is subject to the Montreal Protocol, a United Nations protocol for the management of ODGs to reduce and limit their use around the world. Under the Montreal Protocol all QPS uses of ODGs are exempt from the restrictions imposed by the Protocol.
37. New Zealand, as a signatory to the Montreal Protocol, is committed to the reduction and limitation of the use of MB. In accordance with the Protocol New Zealand has not used MB for any purpose other than for QPS since 2005.
38. The use of fumigants for QPS is essential to protect the biosecurity of New Zealand (in the treatment of incoming goods to prevent the introduction of pests such as the Brown Marmorated Stink Bug) and the biosecurity of other countries in accordance with the trade agreements entered into by the New Zealand Government with those countries<sup>3</sup>.
39. The bulk of the MB used in New Zealand is for the treatment of timber (in particular, logs), exported to countries including China and India. In 2018

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<sup>2</sup> These regulations can be accessed at <https://www.legislation.govt.nz/regulation/public/2017/0131/latest/whole.html>

<sup>3</sup> Source for paragraphs 35 - 38 *Information on the biosecurity use of methyl bromide in New Zealand*, Ministry for Primary Industries, July 2019

China comprised approximately 80% of the log export market and India about 8%. The phytosanitary controls for these markets require:

*China: Fumigation with MB at a rate of 120 or 80 g/m<sup>3</sup> (depending on temperature) for 16 hours or PH3 in-transit is required for logs that have not been debarked.*

*India: Fumigation with MB at a rate of 72 - 48 g/m<sup>3</sup> (depending on the temperature) for 24 hours or heat treatment is required.*

40. In 2018 17.7% of logs exported to China were treated with MB with the balance primarily being treated with PH3 (and a small amount being debarked). In the same year 100% of logs exported to India were treated with MB as no other practical treatment<sup>4</sup> is currently acceptable to that country.
41. Comparison of current use of MB to the use of MB prior to 2021 is moot as the implementation of the EPA decision HSR001635 has seen a noticeable decrease in the number of log rows ventilated from 2021 to 2022 by 89.59% and a reduction of MB ventilated to air by 99.56% as detailed in Mr Baker's evidence at paragraph 74.
42. In 2010 the EPA issued an approval for the use of MB that set in place controls for the use of MB in New Zealand<sup>5</sup> (HRC08002). This has now been replaced by the EPA decision in August 2021 (HSR001635). The key outcomes of this 2021 reassessment of MB controls by the EPA were that:
  - (a) Tolerable Exposure Limits ("**TELS**") were re-imposed for 1 hour, 24 hour and annual periods; these were unchanged from the 2010 decision;
  - (b) The definitions used in the 2010 approval decision have been reviewed and refined. The most notable change has been a new definition for minimum recapture which states:

*"Minimum recapture means the minimum reduction of methyl bromide from the maximum amount of methyl bromide in the enclosed space that must be achieved for a fumigation event."*

The EPA has further clarified this definition with regard to the keeping of records:

*"The intent of the DMC was that the recapture percent is calculated based on the headspace concentration of methyl bromide at the end of the fumigation period (rather than the total applied), as compared to the headspace*

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<sup>4</sup> The use of heat treatment for logs has been investigated and found not to be a practical treatment (see paragraph 247).

<sup>5</sup> <https://www.epa.govt.nz/assets/FileAPI/hsno-ar/HRC08002/59ff5b37d7/HRC08002-Methyl-Bromide-amended-decision-17-June-2011.pdf>

*concentration after recapture. Therefore, the recording control requires these measurements to be recorded. This was based on around 60% of methyl bromide absorbing to logs - information that was provided by the applicant and Genera.”<sup>6</sup>;*

- (c) Since 1 January 2023, fumigation of ship’s holds using MB has been prohibited.
  - (d) Since 1 January 2022, a Person Conducting a Business Undertaking (“**PCBU**”) with management or control of quarantine or pre-shipment fumigation using MB must, not less than 24 hours before the start of the fumigation event, notify the PCBU’s intention to carry out a fumigation event to—
    - (i) the relevant territorial authority; and
    - (ii) neighbouring marae and neighbouring community facilities;
  - (e) Recapture technology must be used and it must be —
    - (i) capable of achieving the performance criteria for the relevant circumstance of use specified in Table A or Table B in decision HSR001635; and
    - (ii) used in a manner that will achieve the specified performance criteria for the relevant circumstance of use; and
  - (f) Buffer distances for fumigation activities using MB are prescribed in decision HSR001635.
43. This reassessment does not compromise New Zealand’s compliance with the Montreal Protocol which, as I have noted earlier, provides for the use of MB for QPS purposes.
44. In response to, and in order to comply with, the EPA decision on MB Genera has amended or reinforced its operations as follows:
- (a) Genera does not, and will not, ventilate when wind speed is less than 2 m/s.
  - (b) Genera will not fumigate MB in ship holds unless required to undertake it as an emergency biosecurity treatment directed by Ministry of Primary Industries (“**MPI**”) or other statutory authority. Section 7A of the

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<sup>6</sup> For example, if 10 kg of MB is dosed at the commencement of fumigation and 6kg of MB is adsorbed then 4kg of MB remains in the enclosed space. 90% minimum recapture means the recapture of 3.6kg of MB from the enclosed space.

Biosecurity Act provides for emergencies such as this without requiring compliance with the RMA.

- (c) Genera operates, and will continue to operate, within the POT Mount Maunganui wharves and Sulphur Point container terminal with at least the minimum buffer zones prescribed in the EPA decision HSR001635<sup>7</sup>.
  - (d) Before a fumigation event Genera notifies:
    - (i) The Bay of Plenty Regional Council;
    - (ii) PCBUs adjacent to the fumigation activity, including Port of Tauranga;
    - (iii) The Whareroa Marae; and
    - (iv) Other organisations meeting the definition of “community facility” adjacent to the POT boundary where Genera is advised of their presence.
  - (e) I note that the Tauranga City Council has advised that they do not wish to be notified of fumigation events. Should this change in the future then Genera would include it in the notification process.
45. Possibly one of the most significant changes Genera has made has been the change from a liquid chemical-based recapture process for MB to an activated carbon-based process. This has been done to meet the level of recapture effectiveness stipulated in the EPA decision. Genera has investigated, developed and implemented a system that recovers MB from saturated carbon then chemically destroys it. This enables reuse of the carbon, saving it from being disposed of to landfill where the saturated MB would eventually be discharged to the surrounding soil and air negating the environmental gains of recapture. This process is not subject to a resource consent requirement as there is no discharge occurring as a consequence of the activity.
46. The following description of the activity, which I have discussed extensively with Genera, applies to a carbon-based recapture process.

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<sup>7</sup> For the purposes of this application the Buffer zone boundary is defined as the Port security boundary which is the boundary between the area that can only be accessed by “occupational bystanders” extending seaward to include the area under the administration of the Harbourmaster and persons who are authorised to be in that area and the area outside the buffer zone which is open to the public.

47. MB is applied in a suitable enclosure, either in a container<sup>8</sup>, or under a tarpaulin sheet ("**sheet**" or "**sheets**") for a period of time prescribed by the type of material requiring fumigation and MPI requirements. The sheets are sealed around the outer edges by two water snakes (sealing tubes filled with water) to hold them down and limit MB escaping during fumigation.
48. Once that time has elapsed then the recapture technology is attached to the fumigation enclosure and the headspace in the enclosure is evacuated i.e., the MB remaining in the headspace is removed, recaptured and replaced with air. This evacuation is undertaken for a period of time depending on the volume in the headspace to ensure that the MB is reduced to, at least, the levels specified in EPA decision HSR001635.
49. For log fumigation on average 60% of the MB is adsorbed into the logs with on average 40% remaining in the headspace. As an example, if 10kg of MB is applied at the start of fumigation approximately 6kg is adsorbed by the logs over the fumigation period. 4kg remains in the headspace under the tarpaulin sheets. Minimum recapture of 90% would require 3.6kg of the MB in the headspace to be recaptured in the activated carbon media.
50. In order to confirm that this reduction is achieved a reading using a Riken monitoring device is taken from the centre of the log row when the fumigation period has been completed and before recapture commences. This reading then allows a 90% reduction to be calculated and the recapture continues until the Riken reading indicates that it has been reached or exceeded. The recapture equipment is then disconnected and ventilation commences with appropriate monitoring and other safeguards in place.
51. Mr Baker has described how this process has significantly reduced the amount of MB ventilated to the atmosphere and the effect this has had on the concentration levels at the buffer zone boundary (paragraph 74 of his evidence).
52. There is a time limit between the completion of fumigation and loading onto the ship, to reduce the chance of re-infestation. If not loaded within this time limit the fumigation must be repeated.
53. After recapture, and once a log stack is ready to be ventilated, the water snakes at the bottom of the log stack are deflated and removed, this allows the

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<sup>8</sup> Container is defined in HSR001635 to include shipping containers, siloes or other enclosed spaces but not including targets fumigated under sheets (tarpaulins) or in ship holds.

fumigant to start escaping to the atmosphere at a slow rate from under the cover. The sheet is then slowly pulled back.

54. Fumigant levels immediately around the log stack are actively monitored and govern the rate of ventilation. Where concentrations at the Risk Area<sup>9</sup> (“**RA**”) boundary trend towards levels that could exceed the workplace exposure standards (“**WES**”), sheet removal is stopped and / or the RA is expanded, to ensure occupational bystanders are not exposed to unsafe concentrations of the fumigant.
55. Independent of the EPA decision HSR001635 for MB, WorkSafe NZ is responsible for the WES that must be complied with under the Health and Safety at Work Act (“**HSWA**”). These standards are applied for the protection of workers (occupational bystanders) within the buffer zone. They are set at different levels to the TELs that apply to non-occupational bystanders (the public) because the time limited exposure and higher levels of awareness that are applied in the working environment results in there being less risk to workers in this area. This is described more fully in the evidence of Mr Browne and Mr Cressey.
56. The WES for MB has recently been reviewed and the current WES for MB is a Time Weighted Average (TWA) over 8hr of 1ppm and a Short-Term Exposure Limit (STEL) over 15min of 2ppm. Again, this is explained in more detail by Mr Cressey.
57. Keeping levels below the WES at the RA boundary (the boundary of the area within which PPE must be worn) also ensures that levels are maintained below the TEL at the site, or Buffer Zone boundary which, in the case of log stacks, is currently at least 150 metres away from the designated fumigation area. This boundary is fixed in Table C of EPA decision HSR001635.
58. In all cases, passive monitoring is undertaken at the boundary of the buffer zone, which is the boundary of the POT, directly downwind of the fumigation area. In addition, for log rows, where practicable taking into account the surrounding work environment, monitoring is undertaken 45° left and right of the central monitoring location in relation to the wind direction. The monitoring trigger level at the edge of the RA is a reliable indicator that the concentration of total volatile organic compounds (“**TVOCs**”) recorded at the boundary of the

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<sup>9</sup> The area around the fumigation site from which non-fumigation staff and staff not wearing appropriate PPE are excluded

buffer zone do not exceed the TELs specified in the current consent and the EPA decision HSR001635.

59. The EPA decision HSR001635 for MB also requires that the TEL monitoring data collected is recorded and reported on.

### PH3

60. PH3 is a colourless, flammable, toxic gas compound with the chemical formula  $\text{PH}_3$ . It is used for in-hold treatment of logs in-transit for the China market. PH3 is not an ODG and is therefore not the subject of the Montreal Protocol and does not require recapture technology.
61. As for the use of MB described above, I have also discussed the PH3 fumigation process extensively with Genera. The following paragraphs of my evidence (62 – 70) incorporate the information I have obtained in those discussions and as described in Mr Baker's evidence.
62. Genera applies PH3 in two forms, Aluminium Phosphide ("**ALP**"), that reacts slowly when exposed to the atmosphere and Vaporph3os which is phosphine gas contained in cylinders and is effective on release. ALP is approved for use under HSR001635 and Vaporph3os is approved for use under HSR007629.
63. PH3 is used to fumigate logs for export to China in ships' holds, as required by the Chinese Government, and may be used to fumigate grain and other agricultural or horticultural product (either imported or for export) to destroy biosecurity threats and other pests, either in ships' holds or on the wharf.
64. ALP reacts with moisture and the air to produce PH3 gas which kills the pests in/on the logs or other target material. Once the packaging seal is broken the chemical reacts slowly with the atmosphere and there is a preliminary release of gas which may discharge a negligible amount to air within the Bay of Plenty Region before the ship's manhole or fumigation enclosure is sealed.
65. Vaporph3os is cylindered PH3 gas that is pumped into the hold using a dedicated piece of equipment that dilutes the gas well below the self-combustion limit.
66. The fumigant is added to ship holds typically within about 4-6 hours of the departure time. ALP is applied both in pellet and blanket forms using entry points into the ships holds such as manholes and vents.
67. PH3 treatments are long duration, low dose, typically 2 to 3.5 g/m<sup>3</sup> for a number of days. The fumigation of logs in ships holds has a 10-day duration which makes it ideally suited to a transit to China which typically takes 14+ days.



68. While the vast majority of PH<sub>3</sub> fumigations are logs and ventilated at sea fumigations undertaken on land of grain, for example, are managed in a similar way to other fumigants except that the detectable discharge is negligible to none, due to factors including the low dose rate, long duration of application and short half-life<sup>10</sup>. Any low levels of PH<sub>3</sub> that are released dissipate readily and quickly.
69. Ship hold fumigations are different in that because of the volume of cargo involved the treatment needs a top-up after about 5 days which means that this occurs outside of New Zealand's territorial waters. Accordingly, there is no ventilation of ship holds at the POT.
70. This application for the discharge to air of PH<sub>3</sub> is therefore to cover off the potential for small discharges between the time ALP or Vaporph3os is applied to a fumigation target and the completion of sealing that target and ventilation of fumigations at the port most commonly with grain fumigations.
71. The initial discharge to the air in the period between application and the sealing of the fumigation target is limited because of the slow reactive nature of the ALP and the limited period of time between application and sealing of the target. With Vaporph3os there is potential for a small discharge when the application manifold is removed until the fumigation target is sealed or, in the case of ship holds, the manhole lid is closed and sealed, which happens immediately following application.

#### **Ethanedinitrile (EDN)**

72. EDN (C<sub>2</sub>N<sub>2</sub>) is a rapid acting, volatile, colourless, flammable chemical used for fumigation. It is a cyanogen.
73. EDN has now been approved by the EPA (decision HSR101529 in Attachment KF4 of my evidence) for use in New Zealand under the HSNO Act; it is not currently used by Genera. Consent is sought to use EDN as a fumigant on the basis of the controls of the EPA approval to provide another tool in the "tool box" of biosecurity treatment. It has only been approved for use as a fumigant for logs or timber for export under a sheet or in a shipping container. Before it can be used, EDN must also be accepted as a suitable treatment by the government of the receiving country. Currently China and India do not accept EDN as a fumigation treatment for logs.

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<sup>10</sup> The World Health Organisation advises that: "The half-life in air (of phosphine) is approximately 5 hours with the mechanism of degradation being photoreaction with hydroxy radicals. The dark half-life is approximately 28 hours" (WHO, 1988).

74. The EPA decision HSR101529 states (in part):

*“Additional requirements for the substance are set through safe work instrument(s) (SWIs), a form of legislation that supports or complements health and safety regulations. SWIs specific to EDN are listed below.*

- *Health and Safety at Work (Hazardous Substances—Requirements for Specified Fumigants) Safe Work Instrument 2017 as amended by the Health and Safety at Work (Hazardous Substances—Requirements for Specified Fumigants) Amendment Safe Work Instrument (22 June 2022).*
- *Health and Safety at Work (General Risk and Workplace Management—Exposure and Health Monitoring Requirements for Ethanedinitrile) Safe Work Instrument (22 June 2022).”*

75. The EPA's staff overall evaluation concluded that<sup>11</sup>:

- *“EPA considers (that) **risks to human health** from the use of EDN to be **negligible** when used in accordance with the controls and requirements proposed by the EPA and WorkSafe*
- *The potential **benefits of EDN outweigh the risks to the environment**, if used in accordance with the appropriate controls and requirements*
- *It is considered that EDN is **not likely to pose significant potential risks** or impacts **on Māori interests** if appropriate controls are assigned to EDN.”*

76. The SWIs specific to EDN were approved by the Minister for Workplace Relations and Safety on 22 June 2022 and are attached as Attachment KF6 to my evidence. The application of EDN is required to be in accordance with the SWIs under the HSWA in relation to the health and safety of workers in the vicinity of the activity.

77. I understand from my discussions with, and evidence of, Mr Baker that EDN will be applied in a similar way to MB, that is, for log and timber stacks on sealed surfaces, under tarpaulins held down and sealed by a double water seal with application lines run under the water seal into the covered log stack.

78. Logs or timber in containers would be charged with EDN in a similar way to the application of MB (a tube inserted through the closed container door seal). An amount of EDN calculated as being appropriate to the material being fumigated would be inserted and the container remain closed for the fumigation period.

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<sup>11</sup> From the EPA presentation to the EDN hearing on 25 November 2021. (Bold emphasis included in the presentation.)

79. Most of the applied EDN will have been adsorbed into the wood 15 – 16 hours into a fumigation and ventilation is not permitted until concentrations reach the approved level (700ppm).

## REFINEMENT TO THE PROPOSAL

80. Since this application was lodged with BOPRC, the EPA has reassessed and approved MB for ongoing use in New Zealand.
81. As part of the process of the reassessment of MB, and as a result of the presentation of two separate modelling reports, corresponding technical reviews and divergent expert opinions, the EPA's DMC<sup>12</sup> requested that the technical experts convene in an expert conference to seek to resolve the technical issues identified in the areas of:
- (a) Modelling approach;
  - (b) Meteorological data used;
  - (c) Modelling sources and emissions;
  - (d) Scaling factors;
  - (e) Project area and modelled receptors; and
  - (f) Predicted impacts reporting.
82. The DMC also stated that *"The purpose of the expert conferencing process is for experts to meet to attempt to agree on relevant facts and issues and clearly agree on the facts and issues on which they cannot agree and the reasons for that disagreement"*<sup>13</sup>.
83. As a result of the expert conferencing directed by the DMC, Sullivan Environmental Consultants ("**SEC**") were tasked with preparing an air discharge model for the POT on the basis of the agreed parameters.
84. Genera considered that because of the rigorous approach to the preparation of the model for the DMC, and in order to maintain a consistent approach to what was effectively the same output, the Golder model submitted with the application when lodged should be withdrawn and replaced with the SEC model. This was done on 31 July 2020 in response to the BOPRC request for further information in relation to the Golder model.

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<sup>12</sup> Application APP203660: modified reassessment of methyl bromide: Direction & Minute WGTO02 of the DMC — 28 November 2019

<sup>13</sup> Ibid.

85. In addition to provision of the SEC air discharge model, an addendum to the Health Risk Assessment prepared by ESR was also provided to BOPRC at the same time to update the health risk assessment against the new model.
86. Other refinements that have occurred since the lodgement of the application include the following:
- (a) Confirmation of the methodology for removing the tarpaulin from log-stacks;
  - (b) Confirmation of the methodology for ventilating ships' holds following fumigation<sup>14</sup>; and
  - (c) Confining the application to the use of MB, PH3 and EDN, while removing the use of Ethyl Formate, Pestigas (a natural Pyrethrim), synthetic Pyrethroids and also "other fumigants that may from time to time be authorised by the EPA for phytosanitary purposes" from the application for the reasons explained above.
87. In my view these refinements are within the scope of the application as lodged with BOPRC, as they are, by and large, made in response to BOPRC requests for further information and to incorporate the EPA's decisions on MB and EDN. In my opinion these refinements do not change the activity itself (fumigation) or the nature of, or increase the scale of, the effects of the activity.

## OVERVIEW OF THE CONSENT REGIME

### Current consent

88. The current consent (RC62719) provides for the *"discharge of fumigants (methyl bromide and phosphine) to air for the purpose of fumigation for quarantine and export and import requirements for the Port of Tauranga Limited. Such fumigations are limited to the following;*
- *Logs under sheets*
  - *Logs in ships' holds*
  - *Timber under sheets*
  - *Cargo in sheds and on-wharf under sheets*
  - *Shipping containers and contents*

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<sup>14</sup> This is no longer applicable to this application as MB is no longer used in ship hold fumigation and EDN is not yet authorised for use in ship holds. PH3 is not ventilated from Ship holds at the wharf or within territorial waters.

- *Cargo in ships holds when directed by the Ministry of Primary Industries in relation to a biosecurity risk.”*

89. The applicant is seeking a new consent for the same activity authorised by this consent pursuant to s124 RMA, subject to the refinements I have discussed above. The application was made more than 6 months before the current consent was due to expire (on 30 April 2020). Because the activity for which consent is sought, with the exception of EDN, is the same as the preceding consented activity, Genera is permitted to continue to exercise the consent pursuant to its conditions.
90. In my opinion the inclusion of EDN in the new application does not change Genera’s ability to continue to exercise its current consent authorising the use of MB and PH3 because:
- (a) The current consent does not authorise the use of EDN under the RMA, and therefore Genera cannot use EDN under the RMA until a new consent is granted; and
  - (b) The application for the new consent comprehensively assesses the effects on the environment of all of the fumigants proposed to be used, including both MB and PH3 which are authorised for use under the current consent.

### **New consent**

91. The activity to be authorised by the new consent is also proposed to be more accurately described in order to more comprehensively cover the activities required to be undertaken at the POT. These changes do not change the current limitations on the use of MB for QPS purposes only, nor the approved use of EDN for application to logs and timber under sheets.
92. The description of the activity to be authorised by the consent now agreed in expert Planner conferencing and included in the JWS is:

*The purpose of this resource consent is to authorise and specify conditions for the discharge of contaminants to air (being Methyl Bromide (MB), Phosphine (PH3) and Ethanedinitrile (EDN)) associated with fumigation activities at the Port of Tauranga, specifically:*

Activity – fumigation of	MB	Phosphine	EDN
Ship holds	N	Y	N
Under sheets	Y	Y	Y (export logs and timber only)

Containers	Y	Y	Y (shipping containers for export logs and timber only)
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93. The operative Regional Air Plan (“**RAP**”) is currently in the process of being reviewed and replaced by PC13 to the RNRP. Advice on the BOPRC website is that the RAP should no longer be referred to<sup>15</sup>. I will therefore refer to PC13 and the RNRP in my evidence.
94. Policy AIR-FUME-P6 and Rule AIR-FUME-R20 of PC13 relate to fumigation for QPS purposes; both the Policy and the Rule are treated as operative provisions of the RNRP under s86F of the RMA given no appeals have been lodged against them.
95. Policy AIR-FUME-P6 states:

***Fumigation for quarantine application or pre-shipment application —  
Auahina ki te paitini mō te tono taratahi, tono utanga-tōmua rānei***

*Protect human health and the environment from adverse effects from use of fumigants for quarantine application or pre-shipment application by:*

- (1) enforcing the best practicable option for use of the fumigant, including via the use of effective recapture technology of fumigant gases, the use of safer fumigants, or alternative methods*
- (2) ensuring compliance with relevant exposure levels and management regime set by the New Zealand Environmental Protection Authority to protect human health*
- (3) having particular regard to protecting the health of persons in sensitive areas from fumigant exposure.*

96. Rule AIR-FUME-R20 states:

***Fumigation for quarantine application or pre-shipment application –  
Discretionary or Non-complying — Auahina ki te paitini mō te tono  
taratahi, tono utanga-tōmua rānei – Ka whiriwhirihia, Tautuku-kore rānei***

*The discharge of contaminants into air from fumigation for quarantine application or pre-shipment application:*

- (1) Using fumigants other than methyl bromide, is a discretionary activity.*
- (2) Using methyl bromide with effective recapture, is a discretionary activity.*

<sup>15</sup> <https://www.boprc.govt.nz/your-council/plans-and-policies/plans/regional-plans/regional-air-plan>

(3) *Using methyl bromide without effective recapture, is a non-complying activity.*

97. In accordance with Rule AIR-FUME-R20 the use of PH3 and EDN as fumigants is a **discretionary** activity.
98. The use of MB at the time of lodgement of the application was a **non-complying** activity as not all of the uses of MB at the time were able to utilise effective recapture.
99. The definition of “effective recapture” in PC13 is:

***Effective recapture** in relation to fumigation, means a process that captures any fumigant from fumigation enclosures (such as buildings, shipping containers or gas proof sheets covering target product) on activated carbon or other medium so that it is not released into the atmosphere when the fumigation enclosure is ventilated such that the concentration of fumigant (not absorbed by the target product) within the fumigation enclosure at the beginning of the fumigation period is reduced by 80% prior to ventilation of the fumigation enclosure.*

100. This definition is the equivalent of “minimum recapture” in the EPA decision HSR001635. The decision does not require minimum recapture of 80% until 1 January 2031 however, Genera is achieving, and will continue to achieve, minimum recapture in excess of 80%. The activity in relation to MB therefore satisfies clause 2 of Rule AIR-FUME-R20 and is therefore a **discretionary** activity.
101. Fumigation for Pest Management purposes is covered elsewhere in PC13 under the rules for Agrichemicals but I have been advised by BOPRC that the fumigants for which this application seeks consent are not Agrichemicals and the targets may include inorganic objects such as equipment. The use of these fumigants for Pest Management purposes therefore cannot be considered under the agrichemical rules of PC13 and must also be considered in accordance with Rule AIR-FUME-R20.
102. Overall, as a bundle of activities, the application is for a **discretionary** activity. I noted that the s42A Report author has reached the same conclusion for the same reasons.<sup>16</sup>

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<sup>16</sup> Section 42A Report, 4. Statutory reasons for requiring resource consents, page 8.

## STATUTORY FRAMEWORK

103. In this section of my evidence I set out the statutory framework that is relevant for assessing the application and I address the environmental effects of the activity in light of the relevant national and regional planning documents, lwi planning documents and other relevant documents.

### Sections 104 and 104B of the Resource Management Act 1991

104. The application for resource consent when lodged was assessed, overall, as a non-complying activity to be considered under sections 104 and 104D of the RMA. For the reasons I have explained above, as a result of the subsequent EPA decision for MB and the changes to Genera's fumigation practices, the application now falls to be considered as a discretionary activity under sections 104 and 104B of the RMA; consideration of s104D is no longer required.

105. Section 104(1) requires BOPRC as the consent authority, when considering an application for a resource consent and any submissions received, subject to Part 2, to have regard to:

- (a) any actual and potential effects on the environment of allowing the activity; and*
- (ab) any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from the activity; and*
- (b) any relevant provisions of –*
  - (a) a national environmental standard;*
  - (b) other regulations;*
  - (c) a national policy statement;*
  - (d) a New Zealand Coastal Policy Statement;*
  - (e) a regional policy statement or proposed regional policy statement;*
  - (f) a plan or proposed plan; and*
  - (g) any other matter the consent authority considers relevant and reasonably necessary to determine the application.*

106. An assessment of effects on the environment and a statutory assessment, as required by s104(1) and as appropriate for a Discretionary activity, as



described in the Combined Application Report and in my evidence below, provides the relevant assessment tests for the application.

### **Assessment of Effects on the Environment**

107. The actual and potential effects of fumigation for each of the three fumigants is comprehensively addressed in the AEE for the application, its Addendum and in the Combined Application Report and the evidence of Mr Cressey that I adopt for the purposes of my assessment.
108. The key matters that are addressed in the AEE, the Addendum, the Combined Application Report and the evidence are:
- (a) The extent of the discharge to air of MB;
  - (b) The health risk of the discharge to air of MB, PH<sub>3</sub> and EDN; and
  - (c) The benefits arising from fumigation.
109. I also take into account the existing environment, the controls imposed by the EPA in its decisions HSR001632, HSR001635, HSR001636 and HSR101529 (for the use of phosphine, MB, ALP and EDN respectively), the consented environment and the conditions proposed in Appendix A, as a means of managing the environmental effects of fumigation at POT.

### ***The existing environment***

110. The existing physical environment is the POT industrial area. Non-occupational bystanders (the public) are not allowed within the wharf areas either at Sulphur Point or Mount Manganui because they are Customs Control Areas. There is no public access to the POT site and the landward boundary of the buffer zone area is taken as being the security fence around the POT area.
111. The existing regulatory environment includes the EPA's reassessment of MB (HSR001635), the EPA approval for PH<sub>3</sub> as a gas (HSR001632, HSR007629), ALP (HSR001636) and EDN (HSR101529) under the HSNO Act and the relevant SWIs administered by WorkSafe as the regulatory authority within a working environment. In addition, there are the underlying requirements of the POT<sup>17</sup> (for lease holders) which define the areas within which fumigation may take place.
112. The EPA's 2021 MB reassessment requires that, under the HSNO Act, fumigation using MB shall be undertaken in accordance with the controls

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<sup>17</sup> Fumigation Procedures for the Port of Tauranga, version 3, June 2018

included in its decision HSR001635, attached in Attachment KF3 to my evidence. These controls include the following in Tables A, B and C of the decision:

- (a) Table A: Performance criteria of recapture technology for every methyl bromide fumigation event in containers;
- (b) Table B: Performance criteria of recapture technology for methyl bromide fumigations under sheets;
- (c) Table C: Minimum buffer zones for methyl bromide fumigation under sheets.

113. The 2021 MB reassessment also reimposes the TELs from the 2010 assessment which requires that the concentrations of MB measured at the boundary of the buffer zone do not exceed the following:

- (a) TEL<sub>air</sub> (chronic, annual average): 0.0013 ppm (0.005 mg/m<sup>3</sup>);
- (b) TEL<sub>air</sub> (24 hour): 0.333 ppm (1.3 mg/m<sup>3</sup>); and
- (c) TEL<sub>air</sub> (1 hour): 1 ppm (3.9 mg/m<sup>3</sup>).

114. In addition to the above requirements under the HSNO Act, the POT requires that MB fumigation is undertaken at least 200m from any cruise ship berthed at the wharves and logs being fumigated by MB under covers are also required to be a minimum of 100m from the POT boundary (the edge of the buffer zone), as shown on the Plans within the POT's Fumigation Procedures document (shown below as Figures 1, 2 and 3 in my evidence). Figure 4, Appendix 1 in the Fumigation Procedures document, which I have also reproduced below, describes the limitations on fumigation within each of the zones identified.

115. The POT limits have, to a large degree, been superseded by the conditions imposed in the EPA's decision HSR001635 and would only apply when the POT limits prescribe a more onerous buffer distance than the EPA controls in decision HSR001635, such as for the separation distance to cruise ships.

Figure 1: Fumigation Areas – Mount Maunganui Wharves North



Figure 2: Fumigation Areas – Mount Maunganui Wharves South



Figure 3: Fumigation Areas – Sulphur Point

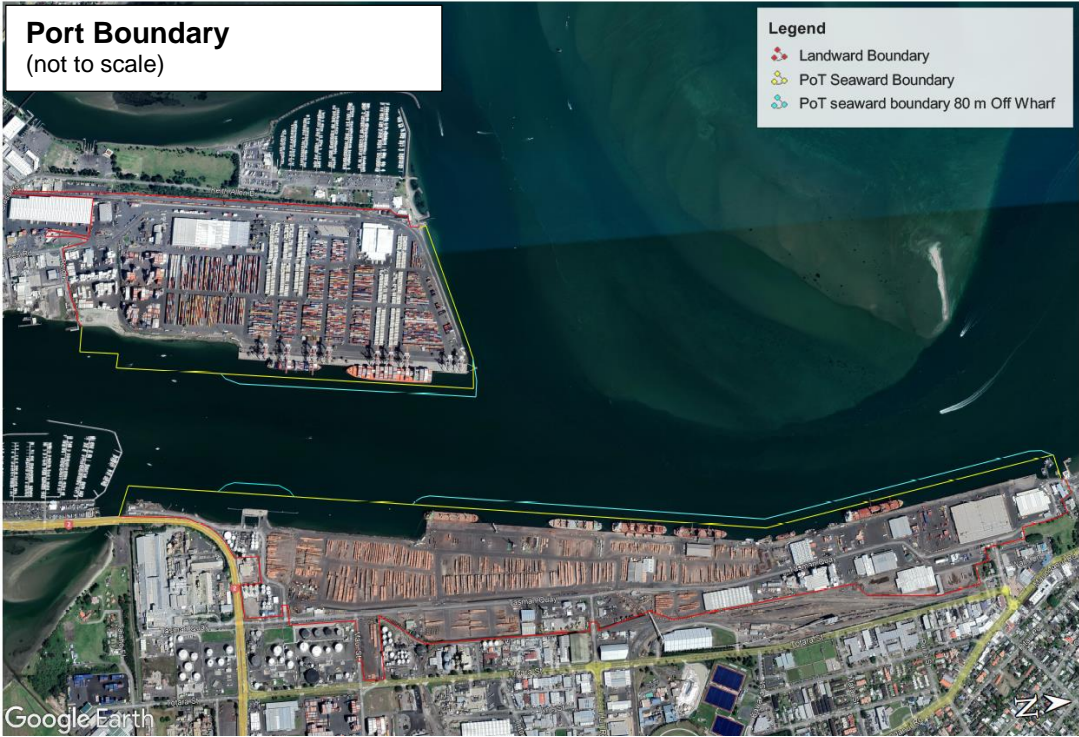




Figure 4: Appendix 1 from POT Fumigation procedures

Maps of Port showing fumigation areas plus eight (8) zones	
Zone 1:	Ship storage area
Zone 2:	The area south of Berth #11 access road
Zone 3:	North of Berth #11 access road to 20m south of Shed 5
Zone 4:	East of Tasman Quay – <b>No fumigation</b>
Zone 5:	#5 Shed – <b>No fumigation</b>
Zone 6:	#6 Berth
Zone 7:	#5 / #4 Berth for containers, sawn timber and vehicles (no logs) including #3 and #9 Shed – <b>Fumigation on application only</b>
Zone 8:	Sulphur Point containers, S Block and #20 Shed, MPI Mobile Inspection facility and Empty Container Inspection

Figure 5: Port boundary



116. Fumigation may need to be undertaken in any areas within the Port boundary. To landward the Port boundary is defined by the Port security fence and to seaward it is defined as being the area over which the Harbourmaster has jurisdiction. This area extends to 50m from the face of the wharves (continuing on the same line beyond the berths) or 50m from a ship berthed at the wharves which is approximately an additional 30m from the wharves edge. These boundaries are illustrated on Figure 5 above and as Attachment 1 to the suggested conditions in Appendix A. Each of the fumigants will be required to

comply with any site-specific restrictions defined by the Port of Tauranga Limited as well as the limits of the relevant EPA approval controls under the HSNO and the proposed conditions of the consent.

***The consented environment***

117. The current consent effectively repeats the controls imposed in the former 2010 MB assessment. The POT requirements which are more stringent than the 2010 MB assessment in terms of the distance to the POT boundary are imposed in the conditions of the current consent.

118. I note that while the current consent authorises the use of both PH3 and MB, there are no conditions that specifically relate to the use of PH3.

119. Genera prepared a Fumigation Management Plan (“**FMP**”) in accordance with Condition 5.5.2 of the current consent which states:

*The consent holder shall submit to Bay of Plenty Regional Council for approval a plan depicting the areas where fumigation is to be limited to including buffer zone setbacks. The areas identified for fumigation including specific buffer zones shall override the requirements of conditions 5.4, 5.5 & 5.5.1 above. Where fumigation is to be undertaken outside the approved plan areas then the buffer zones in conditions 5.4, 5.5 & 5.5.1 shall apply. The applicant may upgrade their fumigation plan with the prior written approval of Regional Council.*

120. In addition to defining the areas where fumigation should take place the FMP included a number of matters that provide a “means of compliance” with the conditions of the current consent. These included an Emergency Management Plan, methods of implementation and methods of monitoring, Genera H&S forms and Safe Operating Procedures (“**SOPs**”) and a Protocol for monitoring under sheets.

121. A revised FMP was included as part of this current application and was attached to the application for reference as Appendix C.

122. However, the EPA's HSR001635 Decision has resulted in Genera reviewing the need for the FMP. As a consequence, the FMP has been deleted from the application because it is effectively an operational document that may potentially be changed to reflect updated technology or operational requirements.

123. The EPA decision HSR001635 now effectively represents the consented environment in relation to the use of MB. The changes and controls imposed

in decision HSR001635 are reflected in the proposed conditions for the new consent as documented in the JWS.

124. There is no consented environment at present for EDN as it has not previously been consented or used at the POT (or anywhere to date in New Zealand).
125. For PH3 the consented environment, in the absence of any relevant conditions in the current consent, is best represented by the controls imposed in EPA decisions HSR007629, HSR001632 and HSR001636.
126. The evidence and technical reports provided by Mr Cressey confirm that the TELs for MB are appropriate and conservative and that infrequent exceedances do not in themselves constitute a health risk. Tables A, B and C of EPA decision HSR001635 specify buffer zones, recapture proportion, minimum and annual average recapture performance that have been calculated as mitigating the potential for TEL exceedances and Genera is required to comply with these controls.
127. The outcome of the EPA's HSR001635 Decision is that MB is a fumigant approved for use in New Zealand for QPS purposes subject to compliance with the controls specified in that approval. This is reflected in the approach adopted in the proposed conditions attached in Appendix A of my evidence.
128. While there was a "track record"<sup>18</sup> historically from monitoring of infrequent exceedances of the control limits of TVOCs, in my opinion, the monitoring reporting, self-reported exceedances and response by Genera does not support the view of submitters that this demonstrates that Genera is reckless, or irresponsible or a poor corporate citizen. Rather, I believe it demonstrates that the systems in place are effective and work. Because monitoring and reporting is based on TVOCs it is also a very conservative measure of MB concentration (MB is a subset of TVOCs). Mr Baker discusses this further in his evidence at paragraphs 58 – 63.
129. Furthermore, in my opinion, the reapproval of MB by the EPA resets the use of MB as a fumigant for QPS purposes within a more rigorous and controlled environment mitigating the actual or potential adverse effects of its use. This is illustrated in the significant decrease in MB discharged to air since the issue of the EPA's recent decision on the reassessment of MB as described in Mr Baker's paragraph 74.
130. In addition, MB is only one of the three fumigants subject to this consent application proposed to be used at the POT. PH3 and EDN are also approved

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<sup>18</sup> Submission by Clear the Air – Mount Maunganui and others.

for use in New Zealand and are also subject to HSNO and HSWA controls which Genera is required to comply with.

***Discharge to air of MB***

131. The extent of the discharge to air from fumigation by MB at the POT has been extensively tested in evidence and through expert conferencing to inform the EPA's HSR001635 decision. The air discharge model prepared by SEC that the DMC relied on to reach its decision was prepared for the POT and has been adopted as the model for this resource consent application.
132. This model and the evidence presented to the DMC during the reassessment of MB has resulted in the controls imposed in that decision and as expressed in Table C in particular (see Attachment KF3 of my evidence).
133. It is my understanding that these controls imposed by the EPA have not been challenged by any of the parties to the reassessment under HSNO, including those who are also participants in this resource consent application process.
134. Genera accepts those controls and has amended its operations to ensure compliance with the EPA's HSR001635 Decision.

***Health Risk of MB Exposure***

135. I adopt the evidence and reports prepared by Mr Cressey. I summarise those parts relevant to my planning evidence below.
136. Two reports have been prepared by Mr Cressey. The first report was attached to the application as Appendix F and was prepared taking into account the original air modelling report prepared by Golder Associates. The second report is an Addendum report prepared taking into account the subsequent SEC air modelling report (prepared at the direction of the DMC during the EPA's reassessment of MB under HSNO). Mr Cressey's conclusions are the same for each of these reports. They also remain relevant in the light of the EPA's HSR001635 decision on MB.
137. In Mr Cressey's first report (Golder Model) he responded to concerns regarding potential health effects and MB exposure on the following basis:

*Recent regulatory assessments of methyl bromide were reviewed. There was no evidence to suggest that **the tolerable exposure limit (TEL) concentrations derived for New Zealand** were not **still the most relevant reference concentrations** for assessment of methyl bromide concentrations at POT.*



*Consideration of air dispersion modelling suggested that fumigation could result in exposure of occupational bystanders to methyl bromide over the 1-hour TEL. These exceedances were at the maximum of the predicted methyl bromide concentrations and at the 99.9<sup>th</sup> and lower percentile exposures were below the TEL. Maximum predicted exposures over other timeframes (24-hour and chronic) were below TELs for bystanders (residential) and occupational bystanders. The derivation of the 1-hour TEL appears to be sufficiently conservative that the **predicted TEL exceedances are unlikely to result in adverse health effects**.*

*Review of epidemiological studies of **associations between methyl bromide exposure and adverse human health effects did not identify any consistent associations**.*

*Methyl bromide exposure has been suggested as a risk factor for motor neuron disease (MND). Little supporting evidence for this proposition was found in the literature. **Associations between MND and pesticides in general were weak or not significant**<sup>19</sup>.*

*[My emphasis added.]*

138. Mr Cressey confirmed his original assessment in his second report (SEC Model):

*The dispersion modelling identifies **no concerns for bystander exposure** for any timeframe (1-hour, 24-hour or chronic) at any of the presented percentiles of the concentration distributions. This includes exposure concentrations at the 99.99<sup>th</sup> percentile for 1-hour exposures. The 1-hour exposure at the 99.99<sup>th</sup> percentile of the concentration distribution identifies a slight excursion of the 1 ppm concentration isopleth outside the port boundary into the industrial estate to the south-east. This excursion is not apparent at the 99.5<sup>th</sup> percentile of the concentration distribution. Given the **very low probability of this excursion** (equivalent to approximately 1 hour per year) and the **conservatism in the exposure model and the tolerable exposure limit (TEL)**, this excursion is **unlikely to be a cause for concern**<sup>20</sup>.*

*[My emphasis added.]*

139. He also adds in relation to the chronic (annual) TEL for MB:

*A similar excursion above the TEL is apparent in the chronic concentration modelling for the same zone. However, given that the identified zone will not*

<sup>19</sup> Assessment of Fumigants Used in the Treatment of Timber, ESR, October 2019

<sup>20</sup> Assessment of Fumigants Used in the Treatment of Timber – Addendum, ESR, July 2020

*be continuously occupied, the effective mean chronic exposure concentration in this zone will be below the TEL<sup>21</sup>.*

### **Health Risk of EDN Exposure**

140. Mr Cressey has also addressed the health risk associated with EDN exposure. As EDN was not at the time of this assessment authorised for use in New Zealand under HSNO, Mr Cressey undertook an extensive literature study of the research that had been undertaken, including studies in Australia and New Zealand (EDN has been authorised for use in Australia). which concluded that the use of EDN in fumigations should not result in adverse effects on human health:

*The Australian Pesticides and Veterinary Medicines Authority (APVMA) evaluated EDN in the form of Sterigas® 1000 fumigant, containing 1000 g/kg EDN (APVMA, 2013). The fumigant was intended to create a concentration of 50 g/m<sup>3</sup> to fumigate timber held under a tarpaulin.*

*APVMA concluded that “there **should be no adverse effects on human health** (workers and/or bystanders) from the use of Sterigas® 1000 Fumigant for treating timber, when used in accordance with the manufacturers product specific directions, including the product label and Material Safety Data Sheet, together with the procedures outlined in the Australian Standard AS 2476 (2008)”<sup>22</sup>.*

*[My emphasis added.]*

### **Health Risk of PH3 Exposure**

141. In his assessment of PH3 Mr Cressey has reviewed a number of regulatory regimes and provided the following comments on its use in New Zealand:

*For the phosphine gas application, ERMA (Environmental Risk Management Authority, 2006, the predecessor of the EPA) adopted a USEPA oral reference dose (RfD) of 0.0003 mg/kg bw/day as an acceptable daily exposure (ADE) and used this ADE to define the following values:*

- *Potential daily exposure from food (PDEFOOD) = 0.0002 mg/kg bw/day*
- *Tolerable exposure limit from air (TELair) = 0.0003 mg/m<sup>3</sup>*
- *Ceiling TELair = 0.01 mg/m<sup>3</sup> (Note that the ceiling TELair is only referred to in HSR007629)*

<sup>21</sup> Ibid.

<sup>22</sup> Appendix F, Application, Beca, October 2019

*For occupational exposure the Worksafe WES-TWA and WES-STEL (see next section) were adopted.*

*While no specific assessment of phosphine by Worksafe was found, the compilation of workplace exposure standards and biological exposure indices for New Zealand lists a workplace exposure standard – time-weighted average (WES-TWA) concentration for phosphine of 0.3 ppm (0.42 mg/m<sup>3</sup>). The associated short-term exposure limit (WES-STEL), a 15-minute weighted average, for phosphine is 1 ppm (1.4 mg/m<sup>3</sup>).*

*Worksafe note that, except for a small number of reassessments, the WES values are as adopted from the American Conference of Governmental Industrial Hygienists in 2002.*

*No biological exposure index (BEI) is available for phosphine<sup>23</sup>.*

142. The proposed conditions of consent recorded in Appendix A to my evidence reflect the requirements outlined by Mr Cressey and align the conditions of this consent with the controls imposed in the relevant EPA approvals.

***Benefits arising from fumigation***

143. The DMC for the reassessment of methyl bromide received a significant amount of evidence regarding the economic value of maintaining the use of methyl bromide for QPS in order to protect New Zealand's biosecurity and to enable exports of logs, in particular, to trading partners such as India and China. At paragraph 4.17 of the DMC's decision<sup>24</sup> they agreed that *"there are economic and societal benefits to maintaining the use of methyl bromide, at least until a viable and accepted alternative is available. However, those benefits must be considered against the costs and risks."*
144. The DMC concluded that *"With the revised controls framework in place, the Committee considered that the benefits associated with methyl bromide use outweigh the adverse effects."* (Para. 4.59).
145. This conclusion was within the context that methyl bromide is only able to be used for QPS purposes and that it is economically of significant benefit to maintain New Zealand's biosecurity and to enable trade with our international trading partners. The benefits indicated in the evidence provided to the DMC in the course of the reassessment of MB under HSNO included maintaining employment in the forestry industry through exporting logs and supporting

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<sup>23</sup> Appendix F, October 2019. Section 9.3, Combined Application Report RM19-0663

<sup>24</sup> Decision: modified reassessment of methyl bromide. APP203660, 11 August 2021

the import of fresh produce, for example, from the Pacific Islands, thereby supporting the economies of those islands.

146. These benefits were estimated by the reassessment applicant (STIMBR) as being in the order of “\$2.2 to 3.2 billion over ten years” (para 3.34 of the DMC’s decision). The DMC did not comment further on this estimate and therefore I have accepted it as informing, in part, the DMC’s overall decision.
147. Furthermore, the DMC “*acknowledged the significant benefits to the New Zealand economy and society from the use of methyl bromide as a quarantine and pre-shipment fumigant*” (Summary of Decision, page 8).
148. These benefits are derived from the use of MB as a fumigant and similar benefits apply to fumigation by other authorised fumigants for QPS and pest management purposes.
149. KVH is a “*grower funded; pan-industry biosecurity organisation dedicated to protecting the New Zealand kiwifruit industry*”. However, their statement regarding the importance of fumigation for biosecurity risk mitigation (Attachment KF8) applies more broadly to the horticultural sector of the New Zealand economy which faces a significant risk from pests that may be introduced through imports from outside of New Zealand.
150. In relation to the Brown Marmorated Stink Bug (BSMB) alone KVH states that:

*“A report on the likely economic impact of BMSB on the New Zealand economy (NZIER 2017) found that BMSB would significantly reduce horticultural yields and impose surveillance and treatment costs on orchard owners. BMSB establishment would not only result in additional pesticide costs, but also reduced labour productivity, lower export prices, new machinery requirements, and additional netting requirements. The study estimated horticulture export values would fall by between NZ\$1.4 and \$3.0 billion in 2028 and between NZ\$2.0 billion and \$4.2 billion in 2038 because of the presence and impact of BMSB.*

*BMSB damage reported from kiwifruit growers offshore suggest 5-10% damage can be expected at a minimum, with up to 30% damage on the most severely impacted blocks. For the kiwifruit industry, it is imperative to have the right mitigation tools available to give New Zealand the best chance of managing BMSB at our borders, as eradicating BMSB will be difficult and long-term management in kiwifruit would be very challenging.”*

151. KVH concludes that there are *“over 100 organisms that could have significant impacts to our industry and fumigation can play a key role in reducing the risk of many of these”*.
152. Mr Murray has provided economic evidence for the Applicant to this Hearing and I rely on this evidence that addresses the post-EPA decision era and, in particular, the potential economic effects should fumigation be constrained by consent conditions or cease if consent is declined.
153. In summary, Mr Murray concludes that the economic cost if fumigation is no longer feasible at POT over 10 years would be in the order of \$3.24 billion, whereas if conditions constrained, or increased the costs associated with fumigation significantly then the economic cost would be in the range of \$294.9 to \$686.7 million over 10 years.
154. Therefore, in my opinion, enabling the continuation of fumigation at the POT is essential to maintaining the biosecurity of New Zealand and would result in an ongoing economic benefit to the Bay of Plenty Region and New Zealand as a whole.

***Conclusion in relation to the assessment of effects on the environment***

155. In my opinion, and for the purposes of the Hearing Panel's regard to s104(1)(a) and (ab) of the RMA in its consideration of Genera's application, undertaking the fumigation of material at the POT in accordance with the application, the controls imposed in EPA decisions HSR001635, HSR001636, HSR101529 and the recommended conditions of consent will result in adverse effects that are not more than minor. Moreover, the use of the fumigants for which consent is sought is likely to result in significant environmental, social, economic and cultural benefits to New Zealand as a whole.

**National and regional planning documents**

156. The national and regional planning documents I have considered in forming my opinion on planning matters for the purposes of s104(1)(b) of the RMA, are:
- (a) the New Zealand Coastal Policy Statement;
  - (b) the National Environmental Standard for Air Quality;
  - (c) the Bay of Plenty Regional Policy Statement;
  - (d) PC13 to the RNRP; and
  - (e) the Resource Management Act.

157. A full list of the relevant policies and objectives of the statutory documents I have considered in my assessment is provided in Attachment KF2 to my evidence.

158. I comment briefly on each of the instruments below.

**New Zealand Coastal Policy Statement (NZCPS)**

159. The fumigation activity is undertaken at the POT including, at least in part, in the Coastal Marine Area (“**CMA**”) (ship holds and on wharf) and is therefore subject to the NZCPS.

160. Policies relevant to Genera’s proposal include Policy 6(2)(c), Policy 9 and Policy 23.

161. Policy 6(2)(c) recognises that there are activities undertaken within the CMA that have a functional need to be located in that area and Policy 6(2)(c) provides for those activities.

162. The NZCPS recognises that ports, as infrastructure, are part of the coastal environment and provides specifically for them in Policy 9. The POT is New Zealand’s largest export port and it is essential that it can be operated efficiently and safely.

163. The logistics of exporting logs requires that fumigation takes place as close to the embarking ship as possible as there is a limited time period after fumigation that the logs must be despatched, as described in the evidence of Mr Baker (paragraphs 55 – 57). There is therefore a functional need for the activity (fumigation) to be undertaken at the POT and undertaking the fumigation as described contributes to the safe and efficient operation of the port.

164. Fumigation at the POT, or within the ship hold, gives effect to Policy 6(2)(c) and Policy 9.

165. Policy 23(5)(a), Discharge of Contaminants, requires that in managing discharges to water in the coastal environment, (operators) have particular regard to:

(5) *In managing discharges from ports and other marine facilities:*

(a) *require operators of ports and other marine facilities to take all practicable steps to avoid contamination of coastal waters, substrate, ecosystems and habitats that is more than minor;*

166. The use of fumigants at the POT has the potential to discharge a small portion of the fumigant to air. No portion of the fumigant is discharged to ground or to

water therefore avoiding contamination of coastal water, substrate or the ecosystems or habitats that make up these environments.

### **National Environmental Standard for Air Quality (NESAQ)**

167. Regulation 20 of the NESAQ requires that:

(2) *A consent authority must decline an application for a resource consent to discharge oxides of nitrogen or volatile organic compounds into air if the discharge to be expressly allowed by the resource consent—*

(a) *is likely, at any time, to cause the concentration of nitrogen dioxide or ozone in the airshed to breach its ambient air quality standard; and*

(b) *is likely to be a principal source of oxides of nitrogen or volatile organic compounds in the airshed.*

168. Of the fumigants proposed in this application, MB is a Volatile Organic Compound (“**VOC**”) and an ODG, while PH3 and EDN are not VOCs and nor are they oxides of Nitrogen or ODGs. PH3 and EDN do not affect the concentration of nitrogen dioxide or ozone in the airshed to the extent that there is a breach of the air quality standard and MB is discharged intermittently to such a minor extent that it is *not* the principal source of VOCs in the airshed.

169. There is therefore no reason under this section of the NESAQ for BOPRC to decline the application.

### **Bay of Plenty Regional Plans – RPS**

170. The relevant objectives and policies of the RPS include Objective 11 (integrated management), Objective 13 (kaitiakitanga), Objective 20 (protection of indigenous habitats and ecosystems), Objective 26 (sustainable management of the region’s rural land resource), Policy AQ 2A (Managing adverse effects from the discharge of odours, chemicals and particulates), Policy CE 14B, (providing for ports), Policy IW 6B (kaitiakitanga) and Policy IR 4B (consultation) and Policy IR 9B (taking an integrated approach to biosecurity).

171. The RPS acknowledges and provides for the management of urban and rural growth in the Region with reference to the forestry primary industry in section 2.8:

*Management of growth and development within rural areas is also important, particularly given the existing and future importance of primary industries (including agriculture, horticulture, forestry, quarrying and*

*mining) to the region's economy. Rural production activities (including associated processing plants and research facilities) contribute to social and economic wellbeing and are dependent on access to and use of natural and physical resources and need to be protected from constraints introduced by incompatible or sensitive activities.*

172. The ability to provide for the export of rural product (logs and processed timber product as well as horticultural produce) and also to protect the rural environment against pest incursions by fumigation is essential to these primary industries. Subject to the management of fumigation in accordance with the conditions of consent and sound industry practice (including through compliance with HSNO and HSWA requirements) the use of fumigants is provided for in the RPS and gives effect to its objectives and policies.

*Managing the effects of discharges*

173. Policy AQ 2A requires that people's health and the amenity values of neighbouring areas from discharges of offensive and objectionable odours, chemical emissions and particulates are protected. For MB this has been thoroughly assessed and determined in the EPA's HSR001635 Decision. For PH3 and EDN the relevant controls are stipulated in EPA decisions HSR007629, HSR001632, HSR001636 and HSR101529. All fumigants are subject to WorkSafe NZ controls. The assessments and evidence provided for in this application indicate that the potential effects of the discharge of these fumigants on the environment are minor or less than minor when used in accordance with their relevant controls.

*Provision for Ports*

174. Policy CE 14B recognises that the region's ports, in particular the POT, are an existing and essential component of the region's transportation network. In particular, the Policy requires that the capacity and efficiency of the POT and activities that have a functional need to be located at the port are safeguarded. The use of fumigants at the POT is in accordance with Policy CE 14B which, in turn, gives effect to Policy 9 of the NZCPS.

*Biosecurity*

175. These objectives and policies recognise that there is a risk to both indigenous habitats and ecosystems and the rural land resource that must be protected. This is expanded on in the explanation to Policy IR 9B:



*Explanation: The risk of biosecurity incursions presents a threat to the rural production sector, the regional economy and the region's biodiversity. This policy enables the prevention of new pest incursions and responses to such pest incursions, should they arise.*

176. Without providing for fumigation as a management tool at the border there is a risk that indigenous habitats and, in turn, the export of rural produce are compromised. This is inconsistent with Policy IR 9B. Therefore, the comprehensive assessment of, and applying rigorous conditions to, biosecurity management is appropriate and ensures that the proposal gives effect to the relevant biosecurity objectives and policies of the RPS.

#### *Kaitiakitanga*

177. In recognising their kaitiaki role and the principles of the Treaty of Waitangi, the applicant has undertaken consultation and engagement with tangata whenua and sought their views on the application.
178. From the initiation of the preparation of the documentation required for this resource consent application a Core Liaison Group (“**CLG**”) was established that included the local Iwi (Ngāi Te Rangi, Ngāti Ranginui and Ngāti Pukenga) and hapu (Ngāi Tūkairangi and Ngāti Kuku). The CLG was resourced to attend meetings and at the outset met regularly (although not all representatives could attend each meeting), to discuss the fumigation process and activities at the POT. Their input has been incorporated into the assessment of effects on the environment and has shaped Genera's operational procedures and input to this application.
179. In particular:
- (a) the CLG was provided with draft copies of the application for review and feedback before it was finalised and lodged with BOPRC.
  - (b) Ongoing engagement with Ngāi Tūkairangi has included the Genera team being welcomed onto the Whareroa marae, an arrangement was established to notify the marae directly of ship hold fumigation<sup>25</sup> and a CIA by Kiamaia Ellis was commissioned for inclusion with the application.
  - (c) Genera resourced the engagement of Dr Julien Huteau by Ngāi Tūkairangi to provide expert advice on the hāpu's behalf.

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<sup>25</sup> I note that ship hold fumigation with MB is no longer being undertaken by Genera at the POT as a result of the HSR001635 Decision.

180. I consider that the iwi and hāpu consultation and engagement undertaken by the applicant and the conditions proposed regarding the ongoing engagement with tangata whenua are consistent with the direction of the regional planning documents with regards to recognising kaitiakitanga, including Objective 13 and Policy IW 6B and Policy IR 4B of the RPS.

#### **Bay of Plenty Regional Plans – RCEP**

181. The Regional Coastal Environment Plan (“**RCEP**”) section 3.1 states that; *“Discharges of contaminants to air in the coastal marine area are addressed in the Bay of Plenty Regional Air Plan”* and is not considered further in my evidence.

#### **Bay of Plenty Regional Plans – RNRP (PC13)**

182. Objectives KT O3 and KT O4 of the RNRP provide the goals for managing kaitiaki relationships in the regional planning document which are given effect to for Air Quality through Policy AIR-FUME-P6 of PC13.
183. Policy AIR-FUME-P6 of PC13 directly addresses fumigation for quarantine or pre-shipment application:

##### ***AIR-FUME-P6***

##### ***Fumigation for quarantine application or pre-shipment application — Auahina ki te paitini mō te tono taratahi, tono utanga-tōmua rānei***

*Protect human health and the environment from adverse effects from use of fumigants for quarantine application or pre-shipment application by:*

- (1) enforcing the best practicable option for use of the fumigant, including via the use of effective recapture technology of fumigant gases, the use of safer fumigants, or alternative methods*
- (2) ensuring compliance with relevant exposure levels and management regime set by the New Zealand Environmental Protection Authority to protect human health*
- (3) having particular regard to protecting the health of persons in sensitive areas from fumigant exposure.*

184. The application gives effect to this policy by:

- (a) Undertaking effective recapture of MB in accordance with the controls of the EPA's decision HSR001635 and undertaking fumigation using PH3 and EDN in accordance with the controls of the EPA's decisions HSR007629, HSR001632, HSR001636 and HSR101529.
  - (b) Undertaking monitoring and adapting the discharge methodology to ensure the rate of discharge meets the relevant exposure levels and to manage the health risk to workers and bystanders in accordance with those levels (AIR-FUME-P6(3)).
185. In addition, the BOPRC implemented an "Airshed" for the Mount Maunganui industrial area, including the POT, pursuant to the NESAQ with effect from the 28<sup>th</sup> November 2019 (after this application was lodged).
186. The focus of this Airshed is the discharge of particulates to the environment and does not affect the discharges sought in this consent which are not particulate in nature.
187. In my opinion, the proposal is not contrary to the objectives of the relevant plans (being the RPS, RNRP and PC13).

#### **Iwi management documents**

188. The application also considered the following Iwi management documents:

- (a) Tauranga Moana Iwi Management Plan 2016-2026;
- (b) Ngāi Tūkairangi and Ngāti Tapu Joint Iwi Management Plan 2014.

These are discussed in greater detail in section 11.1.2 of the application.

189. The Tauranga Moana Iwi Management Plan refers directly to MB in Policy 12. While stating a preference for the prohibition of MB (Policy 12(g)(i)) the following sections of the policy acknowledge that there is likely to be a period when MB is used and the sections provide guidance on implementation including the provision of a "Safe Practice Plan" and undertaking stringent monitoring.
190. Genera has a number of SOPs in place and an Emergency Management Plan as well as being required to undertake stringent monitoring. These have been provided to the Iwi and hapū for comment. Ngāi Tūkairangi hapū were resourced to undertake their review.
191. The policies within the Ngāi Tūkairangi, Ngāti Tapu Joint Iwi Management Plan are more generic requiring appropriate buffer zones, particular regard to be

had to applications that may adversely affect kai moana and working with the hapū in partnership.

192. Genera's commitment to, and compliance with, EPA decision HSR001635 also contributes to ensuring that the implementation of fumigation activities meets the objectives and policies of these Iwi Management Plans.
193. Genera has worked closely with the hapū incorporating their suggestions into the day-to-day working protocols, in particular by directly notifying the marae of fumigation activities that may affect it. Through this process an on-going relationship has developed with the hapū that will endure through and beyond the consent period.

#### **OTHER DOCUMENTS**

194. In addition to the above, there are a number of relevant (or potentially relevant) 'other' documents that I have considered for the purposes of s104(1)(c) of the RMA including:
  - (a) Regional Pest Management Plan (RPMP);
  - (b) MAF Biosecurity New Zealand (now MPI), Pest Management National Plan of Action (PMNPA);
  - (c) National Adaptation Plan for Climate Change;
  - (d) Emissions Reduction Plan.

#### *Regional Pest Management Plan*

195. The RPMP responds to the Biosecurity Act 1993 requirement for regional councils to 'provide regional leadership in pest management'.
196. The RPMP sets specific outcomes and objectives for pest management within the Bay of Plenty region:

Regional Pest Management Plan Overview	
Regional Pest Management Plan outcome	Our people, economy and ecosystems are protected from harmful pests
Intermediate Plan outcomes	No new pests are established in the region* Identified pest impacts are excluded, reduced or contained Our regional communities are experienced and effective pest managers
Plan objectives	Invest in the prevention of new pest populations establishing in the region Promote and invest in the control of pests across the region Support initiatives that national and regional communities undertake to manage pests Ensure the ongoing development and implementation of our biosecurity system
The things Bay of Plenty Regional Council does	Support national pest programmes Make and enforce rules Carry out pest control Undertake surveillance and monitoring Provide support, advice and information Develop and review policy

\*This is an aspirational outcome; ensuring that no new pests become established is inherently hard to achieve.

197. With regard to the exclusion or eradication of pests that the BOPRC wants to prevent from entering, or eradicate from, the region the RPMP states that, *“Council leads the management of these pests”*.
198. In addition, the RPMP states that Council will, *“Assist MPI with control of any “new to New Zealand” pests through the National Biosecurity Capability Network if they are present and aims to eradicate them”*.
199. Genera, through its use of fumigants by certified handlers, is at the forefront of implementing the RPMP, in particular by intercepting *“new to New Zealand”* pests at the border.

*Pest Management National Plan of Action*

200. I draw the Hearing Panel's attention to the following excerpt from the PMNPA which I consider particularly relevant to Genera's application:

*Pest management is a core activity in the New Zealand biosecurity system and is also integral to many public and private systems (see Figure 1 for a snapshot of these). The systems include protecting native plants, animals and ecosystems and sustaining New Zealand's most significant areas of economic activity in farming, forestry, horticulture, fishing and aquaculture. The systems extend right down to the management of individual farms, water bodies and gardens. From a tāngata whenua perspective, pest management is part of kaitiakitanga, the customary system of caring for the environment.*

201. At the border, fumigation is an essential tool in New Zealand's biosecurity system and, as stated above, a key part of kaitiakitanga, caring for, and protecting, New Zealand's indigenous habitats and ecosystems.

*National Adaptation Plan for Climate Change, Emissions Reduction Plan and Greenhouse Gas Emissions*

202. MB is a "Greenhouse Gas" and its use is only permitted for QPS purposes which are essential in order to protect New Zealand's and our trading partners' biosecurity.

203. It was recognised in the EPA decision HSR001635, that MB is an important tool in the biosecurity toolbox but that there are better ways of managing its use and limiting its direct discharge to the atmosphere.

204. The National Adaptation Plan for Climate Change (the "**NAP**") was adopted in 2022 and consideration must be given to it from the 31<sup>st</sup> November 2022. For completeness I have included consideration here even though this application was made prior to the adoption of the NAP.

205. The NAP is underpinned by four priorities supported by key objectives and actions. The four priorities are:

- *enabling better risk-informed decisions*
- *driving climate-resilient development in the right places*
- *laying the foundations for a range of adaptation options including managed retreat*
- *embedding climate resilience across government policy.*

206. The NAP does not directly address fumigation but the EPA decision itself provides the foundations to enable the use of MB as a fumigant to be utilised in a way that addresses these priorities with the result that the emission of MB to the atmosphere is significantly reduced as described in Mr Baker's evidence.
207. The Emissions Reduction Strategy and the Plan that has been prepared to execute it, is based on five principles:
1. *Playing our part*
  2. *Empowering Māori*
  3. *Equitable transition*
  4. *Working with nature*
  5. *A productive, sustainable and inclusive economy*
208. Genera has reduced the amount of MB ventilated at the Port of Tauranga which is 92.6% less now than it was before the implementation of the EPA decision, HSR001635.
209. Since mid-2022, Genera has applied "dose to concentration" to all log rows. This is in advance of the 1st of January 2024 deadline in HSR001635 and has resulted in the application of approximately 30-40% less methyl bromide as indicated in Mr Baker's evidence at paragraph 42(e).
210. Furthermore, Genera is implementing a process by which the MB captured in the activated carbon process is separated out and chemically destroyed enabling the reuse of the carbon and ensuring that the MB is not released in the future from the landfills where it would otherwise be disposed to.
211. In this way the four priorities of the NAP and the five principles of the Emissions Reduction Plan are implemented in a meaningful way that significantly reduces Greenhouse Gas emissions without compromising New Zealand's, and its trading partners', biosecurity.
212. The EPA decision HSR001635 will continue to be implemented and over time the proportion of MB discharged to the atmosphere will continue to be reduced in accordance with the controls in that decision.

## RESOURCE MANAGEMENT ACT

### ***Part 2 of the RMA***

213. As directed in s104(1), the Hearing Panel's consideration of Genera's application against a range of statutory criteria is subject to Part 2 of the RMA. Sections 5 to 8 (in Part 2) of the RMA define the purpose and principles of the Act. Case law indicates that it is largely unnecessary to refer directly to Part 2 of the RMA in considering an application for resource consent, unless there is invalidity, incomplete coverage or uncertainty of meaning in the provisions of the relevant planning instruments.
214. In light of my review of the relevant planning provisions which I have set out earlier in my evidence, I consider that the relevant provisions of the regional planning documents give adequate coverage of the principles in Part 2 of the RMA. As such, I consider that a decision can be made on this application without making a separate assessment under Part 2. However, in anticipation that it may assist the Hearing Panel, I do in my evidence below, form an overall conclusion on the proposal with regards to Part 2 of the RMA.

### *The purpose of the RMA (section 5)*

215. Section 5 of the RMA states that:

- (1) *The purpose of this Act is to promote the sustainable management of natural and physical resources.*
- (2) *In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while—*
  - (a) *sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
  - (b) *safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
  - (c) *avoiding, remedying, or mitigating any adverse effects of activities on the environment.*



216. The use of fumigation to safeguard New Zealand's borders and meet the country's trade obligations is an essential tool in enabling New Zealanders and the communities that make up New Zealand to provide for their social, economic and cultural well-being. The conditions provided at a national level through the assessment and approval of fumigants by the EPA (HRS001635) and local consents such as RC62719 and this application are instrumental in:
- (a) sustaining the potential for natural and physical resources (in particular the forestry resource but also the broader agricultural and horticultural resource, as well as the resource represented by the natural environment) to meet the needs of future generations;
  - (b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems by effectively destroying potentially harmful pests;
  - (c) avoiding adverse effects on the environment through strict compliance with a comprehensive suite of controls.
217. I acknowledge that MB used in fumigation is an ODG. However, it is also recognised as an extremely effective pesticide, accepted and required as a treatment for export logs and other material. It is authorised for use in New Zealand by the EPA and internationally as a QPS agent under the Montreal Protocol to which New Zealand is a signatory.
218. While the meaning of "sustainable management" includes enabling people and communities to provide for (amongst other things) their health and safety, the statutory management of this is provided for through other legislation including the HSWA and delivered by WorkSafe New Zealand as described in Mr Browne's evidence.
219. Compliance with the relevant aspects of the HSWA and the regulations and SWIs that go with that indicates, in my opinion, that the effects of an activity on health and safety are deemed to be acceptable to a less than minor degree.

#### *Section 6 – Matters of National Importance*

220. Section 6 of the RMA states (in my opinion, subsections (c) and (e) are relevant):

*In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for the following matters of national importance:...*

(c) *The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:*

(e) *The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:*

221. Fumigation is an important and necessary activity in the prevention of the importation of pests that may threaten New Zealand's biosecurity. Equally it is an important activity in the prevention of exporting unwanted pests from New Zealand to our trading partners. It is therefore an activity that gives effect to s6(c).

222. Te Awanui (Tauranga Harbour) is a taonga to the iwi and hapū of this area. It is important that the values and the traditional use of the harbour, such as collecting kai moana are protected.

223. The fumigants used are not discharged to the harbour and Genera has agreed to advise the hapū directly of fumigations resulting in ventilations to air before they occur.

224. In terms of a positive cultural benefit, fumigations are a key tool in the biosecurity system providing for the kaitiakitanga and protection of indigenous habitats and ecosystems.

#### *Section 7 – Other Matters*

225. Section 7, Other Matters to which the Hearing Panel should have particular regard to include:

(a) *kaitiakitanga:*

(aa) *the ethic of stewardship:*

(b) *the efficient use and development of natural and physical resources:*

(c) *the maintenance and enhancement of amenity values:*

(f) *maintenance and enhancement of the quality of the environment:*

226. I have considered kaitiakitanga above in a number of places regarding the regional planning documents and s6 RMA and I believe this encompasses the ethic of stewardship as it relates to non-Māori (s7(a) and s7(aa)).

227. The use of fumigation as a tool in the biosecurity system to meet the needs of New Zealand's export and import requirements contributes to the efficient use and development of natural and physical resources (s7(b)) as well as the

maintenance and enhancement of the quality of the environment by preventing the importation, or exportation, of unwanted pest species (s7(f)).

228. By operating within the established parameters and controls for the use of these fumigants the amenity values of the surrounding area are not compromised (s7(c)).

#### *Section 8 – Other Matters*

229. Section 8, Treaty of Waitangi, states:

*In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).*

230. The Treaty of Waitangi established a partnership between Iwi of Aotearoa/New Zealand and the Crown. It is a “living” document and its interpretation has developed over time through the application of a number of principles that have also evolved over time.

231. While the principle of partnership sits at the highest level (Crown and Iwi) I believe that it is incumbent on everyone to deliver as best they can in terms of the social contract that the principles of the Treaty represent.

232. The Principles as provided in the guiding document “*The principles of the Treaty of Waitangi as expressed by the Courts and the Waitangi Tribunal*”<sup>26</sup> include:

- (a) The Principle of Partnership, incorporating “*the obligation on both parties to act reasonably, honourably, and in good faith, (but) derives these duties from the principle of reciprocity and the principle of mutual benefit*”;
- (b) The Principle of Rangitiratanga;
- (c) The duty to make informed decisions;
- (d) The Principle of Active Protection;
- (e) The Principle of Redress.

233. In some circumstances these may be generally referred to as the principles of partnership, active protection and participation, as described in the submission made by Te Runanga o Ngāiterangi Iwi Trust.

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<sup>26</sup> <https://waitangitribunal.govt.nz/assets/Documents/Publications/WT-Principles-of-the-Treaty-of-Waitangi-as-expressed-by-the-Courts-and-the-Waitangi-Tribunal.pdf>

234. At a personal level the applicant, Genera, has implemented these principles by forming the CLG from the outset, engaging with the Iwi of Te Awanui and the hapū within whose rohe the activities fall.
235. This engagement has led to an agreement with Ngāi Tūkairangi to directly inform them of activities that may affect their cultural use of Te Awanui and an ongoing relationship between the parties.
236. The parties have also been provided with draft material for review before lodgement and Ngāi Tūkairangi has been resourced to provide input to their review. Members of the CLG have been resourced to attend meetings.
237. In my opinion the applicant has had regard to the Principles of Te Tiriti o Waitangi as it has been appropriate for them to do so.

## **ALTERNATIVES**

238. In terms of the Hearing Panel's consideration of s105 of the RMA, my observation is that Genera and the wider fumigation industry are very aware of the concerns held by the public regarding the use of fumigants for biosecurity purposes and are actively researching means of destroying recaptured MB and alternatives to the use of fumigants in general.
239. The research and use of alternative methodologies by Genera has taken three separate paths:
- (a) The use of non-chemical alternatives;
  - (b) The use of chemicals other than MB;
  - (c) The use of technology to destroy recaptured MB.

### *Non-chemical alternatives*

240. The main non-chemical alternative to fumigation for export logs is de-barking. This has been implemented by Timberlands Ltd and Kaingaroa Timberlands through the construction of a de-barking facility in Murupara. This facility is reported to have an ultimate capacity of 1.8 million tonnes per year<sup>27</sup> or approximately 4.5 million cubic metres<sup>28</sup>. There are also a number of other de-barkers being used at export ports around the country.

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<sup>27</sup> Friday Offcuts Newsletter, Timberlands Ltd, Friday 19 May 2019

<sup>28</sup> [www.teara.govt.nz](http://www.teara.govt.nz)

241. By comparison the total volume of logs exported in 2017 was over 19 million cubic metres<sup>29</sup> and the volume exported to China in that year was over 14 million cubic metres<sup>30</sup>.
242. At best the current de-barking of export logs to China would only be able to be used for approximately one third to one half of the market.
243. Debarked logs for China are inspected prior to export. If the debarking is not up to standard or live insects are found, the logs would need to undergo further treatment prior to export. This may be either a second debarking or fumigation.
244. Until New Zealand's de-barking capacity is significantly increased, and more markets are open to the import of de-barked logs, a suite of different treatment options will be required.
245. India (export volume in 2017 of approximately 1.6 million cubic metres), does not accept de-barking as a means of reducing their biosecurity risk and will only accept treatment by MB. As a result of the EPA decision HSR001635 the export of logs to India through the POT has effectively ceased.
246. Genera has a full-time research and development team that has developed and implemented other chemical and non-chemical biosecurity treatments. One of the non-chemical treatments successfully implemented has been heat treatment of second-hand cars imported into Auckland.
247. STIMBR has also investigated other non-chemical treatment for export logs including heat treatment and high voltage electricity. Neither of these methods has proved to be feasible.

#### *Other chemical treatment*

248. Fumigants, by their nature, are toxic. Any substitute chemical for MB will need careful, expert handling and is likely to have adverse effects on people exposed to it. EDN has been included in this consent application as an alternative to the use of MB, at the suggestion of the BOPRC, and since the application was lodged it has been approved for use in New Zealand by the EPA under HSNO. EDN is a cyanogen which, if not handled appropriately, is toxic to people.
249. Now that EDN is approved for use in New Zealand, the next step is for the New Zealand Government to negotiate agreement with New Zealand's trading partners that it is an appropriate treatment fumigant. EDN would not be able

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<sup>29</sup> <https://www.mpi.govt.nz/forestry/new-zealand-forests-forest-industry/forestry/wood-product-markets/>

<sup>30</sup> Ibid

to be used for the markets that do not agree to its use. For example, although EDN is approved for some QPS use in Australia, China and India have not approved it as a treatment for imported logs.

250. Over the past 10 years Genera has developed and implemented the use of PH3 to fumigate logs in transit. China has agreed that it is a suitable treatment and in 2019 MPI reported that *“The majority of log exports to China are fumigated with PH3 (76%).”*<sup>31</sup>.

#### *Recapture Technology*

251. Recapture technology is only used on MB fumigations because MB is an ODG. PH3 and EDN are not ODGs and therefore do not require the use of recapture technology.
252. The development of recapture technology has progressed rapidly over the past 10 years although implementation has tended to occur in the latter half of the period as the initial period was taken up in research and development.
253. Genera is a world leader in developing and implementing recapture technology. It has previously developed and used a liquid-medium recapture methodology as well as using a carbon-medium methodology. The liquid medium was used at the POT for log rows under cover up until the EPA reassessment approval for MB in 2021. However, with the levels of effective recapture required by EPA decision HSR001635 all recapture now uses carbon-medium recapture.
254. The “efficiency” of the process relies on the cargo being available in a space that is able to be treated in this way, which is a function of logistics, as well as the ability to recapture for a long enough period to reduce the concentration of MB in accordance with the controls required under decision HSR001635.
255. Genera is committed to using recapture technology that achieves the requirements of decision HSR001635. However, there remains the issue of disposing of carbon-medium saturated with MB in a sustainable manner.
256. Genera is now using a process that strips the MB from the carbon medium and then chemically destroys it thereby eliminating any potential for future discharge as the saturated carbon disposed of to landfill degrades over time and allowing re-use of the carbon for further recapture.

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<sup>31</sup> [https://www.epa.govt.nz/assets/FileAPI/hsno-ar/APP203660/97838963f6/APP203660\\_Response-from-MPI-to-EPA-re.Methyl-bromide-information.pdf](https://www.epa.govt.nz/assets/FileAPI/hsno-ar/APP203660/97838963f6/APP203660_Response-from-MPI-to-EPA-re.Methyl-bromide-information.pdf)

### *Conclusion on alternatives*

257. Genera has undertaken a significant amount of work and invested equally significant resource and capital over the past 10 years to research, develop and implement alternatives to the use of MB. This, coupled with the EPA's decision HSR001635, has seen a significant reduction in the quantity of MB used in Tauranga and nationally by Genera.
258. Implementation of alternatives is not able to be controlled by Genera but relies on the approval of alternatives, such as EDN, by the EPA and then the acceptance of those alternatives by export customers.
259. MB is acknowledged to be a very effective fumigant in combating pests and while all efforts are being made to reduce the amount of MB being used it is likely to continue to be used for at least the next 10 years for which this consent is being sought as a biosecurity and QPS tool to protect New Zealand and its trading partners. Undertaking recapture in accordance with the controls imposed by the EPA in decision HSR001635 and then destroying the MB from the saturated carbon medium will eliminate a minimum of 99% of the MB remaining in the headspace around the fumigated material following fumigation from (at the latest) 1 January 2033, in accordance with Table B of decision HSR001635.
260. The range of fumigants used by Genera depending on the material required to be fumigated and the circumstances of its use is reflected in the scope of this consent application.

## **COMMENTS ON SUBMISSIONS**

### **Introduction**

261. A total of 345 submissions were made on the application. I am aware that at least six of the 345 submissions were received after the deadline for submissions of the 16<sup>th</sup> November 2020. I understand that Genera does not object to the acceptance of these late submissions so I, accordingly, address the matters raised in all of the submissions made on the application.
262. Of the 345 submissions, 14 submissions were received in support of the application and 322 were identified as being in opposition. One submission was neutral and 8 did not state whether they were in support or in opposition. From a review of these submissions I have assumed that they are in opposition although some of them may not have reached a conclusion.

## **Submission of a trade competitor**

263. This application was publicly notified which generally means that anyone may make a submission on the application to BOPRC within the timeframe specified for submissions. There is however, one particular exception to who may submit and that is from parties who may be defined as “Trade competitors”. “Trade competitor” is identified in s308A RMA and includes “surrogates” or people knowingly receiving direct or indirect help from a trade competitor. Section 308B RMA prescribes the limitations on those parties making a submission:

### ***308B Limit on making submissions***

- (1) Subsection (2) applies when person A wants to make a submission under section 96 about an application by person B.*
  - (2) Person A may make the submission only if directly affected by an effect of the activity to which the application relates, that—*
    - (a) adversely affects the environment; and*
    - (b) does not relate to trade competition or the effects of trade competition.*
264. In my opinion the ISO Ltd submission prepared by Chris Bell, General Manager Health and Safety, is an example of a submission by a trade competitor and, in my opinion and for the reasons explained below, parts of the submission should not be considered by the Hearing Panel.
265. ISO Ltd is a stevedoring company with a significant presence at the POT, and it is also a participant in the de-barking industry. In particular, the ISO Ltd submission concludes by stating (in part) that:
- “ISO are currently debarking 17.5% of export logs that are handled in our Log Marshalling operation on the Port of Tauranga. This plant has the capability to handle a further 50k JAS (2.5%).*
- ISO also has the capability to have a new debarker plant set up within approximately 6 months of the need arising. Based on a 24 hour shift the plant could handle up to 1.2m JAS per annum which equates to 60% of log export volume on the Port of Tauranga.*
- A further 600k JAS is debarked at the Timberlands debarker in Murupara. This volume is also exported from the Port of Tauranga.”*



266. As is clear in the submission, the export of de-barked logs provides competition to the export of logs fumigated by MB, PH3 and, potentially, EDN.
267. ISO Ltd is significantly involved in the export of de-barked logs (as explained in the submission) and, as I understand, it is not involved in the export of fumigated logs, although they may provide stevedoring services. Therefore, in my opinion they meet the definition of being a “Trade competitor” and their submission may only be considered in terms of the actual or potential effects of the activity on the environment and then only if they are directly affected by those actual or potential effects.
268. The ISO submission is concerned with the direct effects of fumigation (in particular fumigation by MB) on its workers and specifically references the HSWA and related regulations.
269. The concerns raised are relevant to compliance with the HSWA and regulations and are matters that should be addressed through WorkSafe NZ and compliance with the relevant SWIs and WES controls. These are not matters that are able to be addressed through the implementation or conditions of a resource consent granted under the RMA which applies to the actual or potential effects of the activity on the environment beyond the buffer zone. Mr Browne addresses the application of the SWIs and HSWA in his evidence concluding that, in his opinion; “... *the health of people in a workplace is a regulatory function of WorkSafe and Maritime New Zealand and their subject matter experts*” (paragraph 49).
270. Having said that, from my observations, and from my understanding of Mr Baker’s evidence, Genera takes its obligations under the HSWA seriously. From the evidence presented to the DMC for the Reassessment of MB by the EPA the monitoring by independent organisations such as WorkSafe NZ did not indicate any exceedances of the standards in place at that time. Since then the WES (8-hour average) and the STEL (15 minute average) have been reduced significantly. Mr Baker has advised me that Genera will continue to comply with the WorkSafe NZ and EPA requirements.
271. On this basis I acknowledge that this submission, as an expression of concern for worker health and safety, is genuine but that the actual effects, being in accordance with the WorkSafe standards, are less than minor. In all other respects I believe that this is a submission from a Trade Competitor and those parts of the submission should be disregarded.

## **Submissions in Support**

272. Of the 14 submissions in support of the proposal the submissions by the Forest Owners Association (“**FOA**”) and the MPI provide a good summary of the main reasons for support.

273. The FOA submission states:

*The international trade in logs and wood products (as well as other horticultural products) relies on the availability of effective and internationally accepted phytosanitary treatments to mitigate the global spread of biosecurity threats.*

*Importing countries stipulate phytosanitary treatment(s) that are acceptable to them to protect their environment, economy, and people from the risk of imported pests in the same way New Zealand does for imports.*

*The availability of effective phytosanitary treatments is therefore critical for ensuring, maintaining, and protecting the ongoing international trade in wood and wood products from New Zealand and for mitigating and preventing the introduction of biosecurity threats.*

274. I concur with this assessment.

275. The MPI submission states:

### **Biosecurity**

*MB fumigation is our best treatment option when serious pests such as fruit flies and brown marmorated stink bugs are detected in imported commodities. The approximate value of the goods treated with MB is estimated to be \$1.6 billion per annum.*

*It is difficult to fully identify all treatments of cargo imported through Tauranga as many of the containers are railed directly through to the inland port in Wiri. However, some 1,200 consignments were (sic) identified as being fumigated at the Port of Tauranga in 2019.*

### **Conclusion**

*New Zealand primary industries rely on fumigation with MB or PH3 to meet the import requirements of overseas countries and for the export of wood products and fresh produce. Revenues from forestry and horticulture exports are significant in the BOP region. Meeting phytosanitary conditions of the importing country and preventing pests establishing in New Zealand is key to their success.*

*New Zealand and MPI's ability to protect New Zealand from biosecurity risks and allow trade to occur also depends on the availability of an effective and feasible treatment. A significant amount of the \$26.7 billion of products imported per year relies on an effective treatment being available to mitigate biosecurity risks.*

*In view of the key role that fumigation plays in our export and maintaining biosecurity, MPI supports the submission for the biosecurity use of fumigants in the Bay of Plenty and the extension of the resource consent for Genera Ltd to undertake fumigations at the Port of Tauranga.*

276. I concur with the MPI view that fumigation has a key role in export and in maintaining New Zealand's biosecurity. I also acknowledge their expert view that MB fumigation is currently our best available treatment option to combat serious pests.

### **Submissions in opposition**

277. I address the concerns raised in the submissions in opposition below under the following broad subject headings:

- (a) Matters common to many of the submissions;
- (b) Matters of concern raised by the Tauranga Moana Fumigant Action Group ("**TMFAG**");
- (c) Matters of concern raised by the Whareroa marae and Te Runanga o Ngāi Te Rangi Iwi Trust ("**TRONIT**");

#### *Matters common to many of the submissions*

278. Clear the Air – Mount Maunganui ("**CTR**") provided a comprehensive submission including a petition signed by 408 people. In addition, many individual submissions included the same, or similar, statements to those in the CTR submission. I provide an extract from the CTR submission below:

*I believe that the current levels of use, monitoring and buffer zones are not adequate to ensure our safety. I live in Mt Maunganui. I bike around the Mount area and am concerned about breathing in methyl bromide without realising it. My children play sport at Blake Park and I watch sport at Blake Park which is located within a few hundred meters of the Port of Tauranga, where this activity is carried out.*

*I am also concerned for people who fish and boat in the Tauranga inner harbour close to the Port and ship holds where MB is being applied and then released.*

*Please consider that the Applicant (Genera):*

- *Has a track record of environmental breaches of its consent conditions and has made minimal efforts to recapture methyl bromide over the past 20 years, demonstrating they are a poor corporate citizen to the community, choosing profits over people and the planet.*
- *Has failed to adopt, invent or implement sound recapture technology or other viable solutions, despite having over 10 years to do so;*
- *In breaching of EPA standards and resource consent parameters related to recapture, as well as applying slack approach to monitoring the quantities and recapture rates over the 20 years it has held a consent, the Applicant has:*
  - ~ *Endangered workers at the Port of Tauranga*
  - ~ *Endangered residents living and working in close proximity to the Port of Tauranga*
  - ~ *Endangered athletes training at Blake Park*
  - ~ *Endangered recreational boaties in the Harbour*
  - ~ *Endangered cyclists and pedestrians unknowingly within the buffer zones when Methyl Bromide is being applied and then released to the atmosphere;*
- *The use of Methyl Bromide was halted at the Port of Nelson and Picton, and has been significantly restricted/banned at Ports of Auckland and Wellington following public outcry due to clusters of cancers and motor neuron disease.*
- *The EPA has recommended safe buffer distances for use of MB near urban areas, which have not been adopted by the Applicant (ref EPA hearings 2020)*
- *Global experts on Methyl Bromide advise that no other developed Country in the world is applying Methyl Bromide under tarpaulins in the*

*quantities used at the Port of Tauranga, in particular so close to urban areas. (ref EPA hearing 2020)*

- *The logging business has increased rapidly over the last ten years at the Port of Tauranga. Our community now has the fifth highest use of methyl bromide in the world, and this toxic poison not being recaptured by Genera is being released into the atmosphere at Mount Maunganui.*
- *Given the trends in the growth of logging, we can assume that Methyl Bromide use will also increase, as stated by the Ministry for Primary Industries in the EPA hearings of 2020.*
- *This industry must invest in safe ways of treating logs, our health and the planet's health need to be prioritised over profits.*

279. I have addressed many of these issues in my earlier evidence and therefore do not repeat them here, however I will directly address the following concerns raised below:

- (a) There is no evidence from either the monitoring undertaken by Genera or monitoring by BOPRC or other independent organisations, such as WorkSafe NZ, that there are concentrations of MB exceeding the 1-hr, 24-hr or annual TELs at Totara Street, Blake Park, the Whareroa Marae or other areas able to be accessed by the public on any more than an exceptional and unintentional basis. The TELs are described in Mr Cressey's evidence and I adopt his expert opinion that these are appropriate for the protection of human health.
- (b) Since 2016 there were 21 enforcement proceedings issued by the BOPRC to Genera in relation to its existing consent, with the last one being a formal warning related to a fumigation event in July 2020. These have included:
  - (i) 4 formal warnings
  - (ii) 7 infringement notices
  - (iii) 10 abatement notices

These are discussed in more detail in Mr Baker's evidence at paragraphs 60 – 65.

I concur with Mr Baker's opinion that the reporting indicates that the system of monitoring is working well and the proposed conditions will

further refine and enhance this system. The facts do not support the submitters' assertions that Genera has a track record of non-compliance.

- (c) Over the past 10 years there has been significant advancement in the use of alternative treatments and in the recapture of MB as demonstrated by the increased use of PH3 and debarking and the reduction in quantum of MB used per tonne of logs. Much of this change has been researched, developed and implemented by Genera and further research and development is ongoing.
- (d) The monitoring evidence and the evidence of Mr Cressey does not support the submitters' assertions that Genera has compromised the health of the public beyond the POT boundary, or workers within the POT area. Pedestrians and cyclists are not able to pass through the buffer zone and the POT defined areas for fumigation that matched or exceeded the limits prescribed by the EPA in its 2010 decision HRC08002 for MB. The EPA's most recent decision HRS001635 has now defined more prescriptive limits for the use of MB and Genera is required to comply with those limits.
- (e) The use of MB at the Port of Nelson is provided for as a Controlled or Discretionary Activity under the Nelson Air Plan and Genera currently holds a consent for its use at that port. MB is not used at Picton as this is not a port used for the export or import of goods and therefore QPS activities are not undertaken.

The Wellington Regional Air Quality Management Plan provides for fumigation as either a permitted activity or a discretionary activity while the Wellington Proposed Natural Resources Plan provides for fumigation using, among other things, MB and PH3 as a controlled activity.

The Auckland Unitary Plan Air Quality section provides for fumigation for commercial pest control as a permitted activity.

No fumigation activities (including fumigation using MB), in any of these plans are listed as Prohibited Activities.

- (f) Whether other users of MB choose to fumigate under tarpaulins or whether the use of MB in New Zealand increases as log volumes increase, management of the activity should be related to the effects of the activity. The effects are managed through recapturing, monitoring and controlling ventilation so that the concentration of the fumigant at the

buffer zone boundary does not exceed the TELs. The EPA through its HSR001635 Decision has determined that, at the concentrations prescribed by the TELs, there is an acceptable effect on the environment. This is described further in Mr Cressey's evidence.

*Matters raised by the Tauranga Moana Fumigant Action Group*

280. In its submission TMFAG states that:

*The environment at the POT is not suitable for fumigation of logs due to multi users in a small area which were not envisaged by the EPA controls... the physical and operations constraints at POT are the driving reason for the proposed changes to the consent conditions relaxing the requirements on the percentage of log fumigations at the Port of Tauranga ...*

*There are alternatives to the present systems of fumigation under sheets and in ship holds which are available but have not been taken up ....*

*The applicant is not the appropriate holder of any consent as they have no control over the surroundings in which the fumigations take place.*

*Although the proposed consent conditions adopts the definition of 'effective recapture' in Plan Change 13 of 80% of the remanent (sic) gas after log absorption the applicant is currently applying to the EPA to have the recapture controls reduced to 30% upon the basis that this is all that is practically possible. If this change to the controls is granted the applicant will be likely to seek the corresponding change in the resource consent.*

*The following detailed (sic) are raised by TMFAG in regard to the application:*

- *Genera has had more than sufficient time to invest in recapture technology to achieve 100% recapture of Methyl Bromide (MB) emissions.*
- *Genera has consistently failed to meet the regulatory requirements imposed by BOPRC. Choosing instead to lobby for decreases in the recapture requirements and time extensions to the recapture requirements.*
- *Genera has breached the allowable emission limit restrictions in the Consent on multiple occasions.*

- *Genera has failed to investigate or adopt recapture technologies that are commercially available and viable, choosing instead to seek to develop its own proprietary technology.*
- *In the recent application to the EPA to amend the current terms of the EPA controls STIMBR has adopted the position that there is no foreseeable technology to effect total recapture of MB from log stacks or from ship holds. The application seeks controls that recapture requirements of 30% from log stacks within 2 years and an extension of 10 years for any recapture requirements for ship holds. ... In the meantime, the use of MB at the Port of Tauranga has increased rapidly year on year. While the use of MB has been halted or restricted at another (sic) New Zealand Ports.*
- *Fumigation using MB under tarpaulins should not be occurring on the wharves at Port of Tauranga. It is too close to residential areas, sports grounds, public facilities, businesses, and a Marae. International experts on the use of Methyl Bromide stated at the recent EPA hearing that no other developed countries apply MB under tarpaulins so close to urban areas.*
- *The physical environment in which the fumigation of logs on the wharves at Port of Tauranga make it unsuitable for the use of MB. The log stacks being fumigated are located in areas where there are large numbers of people working and travelling though in close proximity to where logs are being fumigated. The intensity of activity in the area has increased significantly since the previous consent was granted. ...*
- *As Genera has little control of the physical environment in which the fumigation of logs is carried out it is not the appropriate holder of any consent to carry out fumigations. ...*
- *Genera has had 10 years to develop technology to achieve recapture from ship holds. It has failed to do so. If it cannot achieve recapture from ship holds, it should not fumigant goods in ship holds.*
- *BOPRC should not provide consent for the use of hazardous substances that have not even been approved for use in New Zealand by the EPA.*

281. In addition to the evidence and responses above I provide the following specific comments on the TMFAG submission:



- (a) The POT environment is as it was when the use of MB was assessed by the EPA in 2010. The use of MB in the port environment is subject to the limitations imposed by WorkSafe, being the WES and compliance with the relevant SWIs, and as implemented in accordance with the POT and Genera's SOPs, and EPA decision HSR001635. The physical and operational conditions of the POT environment are taken into account and managed through the SOPs and compliance with EPA decision HSR001635 and significant reporting requirements. Any changes proposed to the consent conditions will have the effect of tightening monitoring systems and reducing the potential for discharges that exceed either the TEL or the WES limits. The application seeks to align the limitations imposed by the consent conditions with the requirements of the EPA decision which was based to a significant degree on the specific environment experienced at the POT.
- (b) I have addressed the alternatives to the proposal in paragraphs 239 to 261 of my evidence.
- (c) Genera is the most appropriate party to hold this consent as it has direct control of the activity (and is also subject to the consequences of not complying with the conditions of the consent).
- (d) Genera was not the applicant to the EPA for the reassessment of MB although, as it was likely to be significantly affected by the decision made, it was a party to the proceedings. As stated above this resource consent application seeks to align the controls of the EPA decision to the consent conditions to avoid any confusion in the future.
- (e) I have addressed most of the specific details raised by the TMFAG above, however:
  - (i) With regard to the fumigation of ship holds with MB; Genera no longer undertakes fumigation of ship holds with MB unless (as it could be in the future), it is at the direct request of MPI as a matter related to border security under the Biosecurity Act (which, as I have previously mentioned, overrides the RMA as a matter of law).
  - (ii) The final bullet point provided in the TMFAG submission refers to the inclusion of EDN in Genera's resource consent application. EDN was included for two important reasons:

1. EDN was included in Genera's application in order to align Genera's use of this fumigant with the approval sought and subsequently obtained from the EPA to use EDN in New Zealand. Genera seeks to align the EPA controls for EDN and the conditions of this consent, should it be granted.
2. EDN was also included in Genera's application at the suggestion of BOPRC in order to "future-proof" fumigation activities at the POT and to ensure that, as far as possible, there is a seamless transition away from MB to an approved alternative.

*Matters raised by the Whareroa Marae and TRONIT*

282. In addition to the matters raised in relation to the potential for physical adverse effects that are addressed above, the Whareroa Marae and TRONIT have raised concerns that the proposal fails to meet ss5, 6, 7, 8 of the RMA RMA. I have addressed these matters in paragraphs 213 to 237 above.
283. Further to my previous comments, the submitters have raised matters related to:
- (a) Issues of reverse sensitivity on the (Whareroa) marae whanau, kohanga reo and on the sensitive activities associated with marae related activities, and
  - (b) Concerns that the application fails to adequately assess the proposal against the provisions of the relevant Iwi Planning documents or to recognize well documented values such as those associated with the Tauranga Harbour, the POT wharves and the surrounding area.
284. From the southern boundary of fumigation zone 2, shown in Figure 2 on page 28 of my evidence, to Taiaho Place is approximately 577m as stated in the TRONIT submission. The distance from the area within which fumigation of log rows can now take place under the EPA decision HSR001635 as shown in Figure 6 below to Taiaho Place is over 1100m.
285. Monitoring by both Genera and BOPRC along the POT boundary and in the areas closest to Taiaho Place and the Whareroa marae does not record any MB, or TVOCs related to fumigation events. There is either no MB discharged in this direction or if there is any MB discharged in this direction it is below detectable limits. Notwithstanding the potential effects of other port or industrial

activities identified in the submission there would be no adverse effects in the vicinity of the marae resulting from the use of MB.

286. Fumigation using MB in accordance with EPA decision HSR001635 has increased the distance of ventilation of log rows from the marae. In addition, the cessation of fumigation of ships holds with MB has eliminated the potential for ventilation discharging across the harbour in excess of the TEL 1-hour limit beyond the area administered by the Harbourmaster potentially adversely affecting harbour users and tangata whenua gathering kai moana.

Figure 6: Current area of log row fumigation using Methyl Bromide



287. On this basis the potential for reverse sensitivity effects (lawfully permitted or consented uses at the marae being adversely affected by the consented fumigation activity, or vice versa) would be nil, or, if a complaint were to be made, it would not be sustained.
288. I have addressed the relevant Iwi Planning documents and relevant national and regional planning documents that address the values associated with Te

Awanui (the Tauranga Harbour), the POT and the surrounding area in the application at paragraphs 159 to 193 of my evidence.

289. The TRONIT submission also draws attention to the potential for cumulative effects:

*“Some of the cumulative effects issues which have been the focus of recent decisions and debate include:*

- *Cumulative water quality effects*
- *Compromise of natural character of the coastal environment*
- *Compromise of landscape and cultural and amenity values*
- *Cumulative air quality effects”<sup>32</sup>*

290. As the fumigants do not discharge to water and the character of the port coastal environment does not change as a consequence of these activities and, in my opinion, landscape, cultural and amenity values are not compromised, I do not believe that the fumigation activities present cumulative effects on these values.

291. As an acknowledged ODG, MB is likely to have cumulative air quality effects. However, these effects have been weighed and balanced in the preparation of the Montreal Protocol, and in the EPA reassessment decision HSR001635, against the benefits of using it for QPS purposes as a tool in the biosecurity system tool kit and has been authorised for use. Genera will continue to use MB and the other fumigants as authorised in accordance with the controls of that use.

292. The Technical Review included in the Hearing Agenda raises concerns regarding the cumulative effects of the ventilation of different fumigants at the same time. Mr Cressey addresses this concern in his evidence at paragraph 48 and concludes: *“Cumulative effects are generally considered when exposure is to multiple chemicals sharing the same mode of action. There is currently no evidence that MB, PH3 and EDN have the same mode of action and substantial evidence that the fumigants act by quite different modes of action. On this basis, the controls separately applied to each fumigant should be sufficient for the protection of public health”*.

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<sup>32</sup> Te Runanga o Ngai Te Rangi Iwi Trust submission, paragraph 4.61.

## **BOPRC SECTION 42A REPORT**

293. I have reviewed the BOPRC s42A Report prepared by Mr Greaves.
294. While recommending approval, the recommended conditions attached to the s42A report posed challenges for the implementation of the consent. Because of this Genera sought a peer review of the Technical Review in the s42A Report and requested that expert Planner conferencing be undertaken to resolve differences, as far as possible, before the Hearing.
295. I am pleased that the request for a peer review was agreed to and this is attached to the JWS prepared as an outcome of the expert Planner conferencing directed by the Hearing Panel. While I am generally in agreement with the conditions that resulted from expert conferencing there remained some areas of disagreement and matters that would benefit from amendment that I discuss below.
296. I provide an alternative set of conditions largely based on the JWS conditions in my Appendix A.

### **Recommended duration of consent**

297. Section 123(c) of the RMA allows a maximum duration of 35 years for discharge permits. The applicant has sought a duration of 10 years for the discharge to air resulting from the use of fumigants at the POT. This aligns with the current EPA decisions authorising the use of MB and EDN in New Zealand.

## **PROPOSED CONDITIONS**

298. The following comments and further changes to conditions in Appendix A take the JWS conditions as a base and take into account further comments from the applicant (refer also to the evidence of David Baker) regarding the operational implications of the proposed conditions. For ease of understanding I have removed reference to agreed deleted conditions and renumbered consecutively.
299. Table 1 below provides my commentary on the recommended JWS conditions including reasons why further changes are necessary. I propose alternatives that would resolve the issues identified. For simplicity I address only those conditions where further changes are proposed.
300. The key points discussed at the expert conferencing that are relevant to my comments on the small number of conditions that are not agreed are:

- (a) Each of the fumigants are different and there should be discrete conditions for each fumigant;
  - (b) Each fumigant is controlled by the EPA and therefore the starting point should be that this consent is undertaken in accordance with (i.e., aligned with), the relevant EPA decision. Further “local” conditions may be added but given that both the MB and EDN decisions were based on the POT there should be few, if any, “local” conditions;
  - (c) The HSWA provides for the health and safety of occupational bystanders (workers at the port) or “other persons<sup>33</sup>”, through the imposition of regulations and SWIs relevant to the work in general or to specific fumigants. These regulations and SWIs relate to the area within the buffer zone boundary identified as being within the Port Security Area because no one can enter this area unless they have either completed the POT induction for workers in the area or are accompanied by someone who has been inducted and have been made aware of the hazards within the area. The HSWA, associated regulations and SWIs are administered by WorkSafe NZ. As this area falls under the jurisdiction of WorkSafe NZ it is not appropriate to repeat or duplicate WorkSafe regulations and SWI controls in this area in the consent conditions.
301. The gap between the consent being given effect to and the preparation, finalisation and certification of the Fumigation Monitoring and Reporting Plan (**FMRP**) was discussed and it was agreed that if the current consent was deemed to have ceased no fumigation could take place until the new FMRP was certified, placing, at the very least, an unacceptable biosecurity risk on the environment. For this reason the FMRP is currently in preparation and will be circulated to BOPRC, submitters and the Hearing Panel prior to the Hearing commencing for consideration and certification (if accepted) by the Panel.
302. There is also a general amendment to clarify that for the purposes of this consent the Buffer zone boundary and the Port boundary are one and the same. Other minor changes are also proposed for clarification, grammar, spelling etc.

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<sup>33</sup> See evidence of Mr Browne, paragraph 14.

Table 1: Assessment of JWS Conditions

JWS Condition	Assessment	Comment
Condition 2.1		A plan showing the area of fumigation is attached at the end of Appendix A.
Condition 3.1: The Consent Holder shall ensure that ventilation of different fumigants shall not occur at the same time.	The evidence of Mr Cressey addresses this condition and concludes that as the mode of operation of the fumigants (MB, PH3 and EDN) are quite different there is no need to control cumulative effects through this (or any other) condition. The effects of the discharge on the environment are controlled through the limitations imposed through the Tolerable Exposure Limits as set out in conditions 8.2 (MB), 9.2 (PH3) and 10.4 (EDN).	The condition is unnecessary and should be deleted.
Condition 3.3 (formerly 3.5): Monitoring data recording	This condition seeks to require the recording of wind speed and direction. The EPA decisions for MB and for EDN specify the controls relating to the recording of data for those fumigants and it is proposed that all data should be recorded on the same basis to enable an efficient and effective operation. Although not required	Alternative wording is proposed in Appendix A.

	<p>in the relevant EPA decisions I have also included a suggested sub-condition for phosphine.</p> <p>In my opinion this condition would also be better placed under section 5 of the conditions (Monitoring).</p>	
Condition 3.4: Wind Speed and Direction Data	The requirements and conditions related to recording wind speed and direction were dispersed throughout the JWS conditions and these have been combined to comprise one condition with 6 parts to it.	New condition as provided in Appendix A.
Condition 3.5 (formerly 3.7): The Consent Holder must ensure that ventilation of any fumigation event does not occur when a minimum wind speed of 2 m/s or less is measured at the site of fumigation at any point in the 10 minutes prior to ventilation.	<p>Combined with condition 3.4 noting that:</p> <p>The EPA decision HSR001635 only allows ventilation to be undertaken when wind speed is at least 2m/s. However, it is recognised as good operational practice that wind speed readings are undertaken in the period immediately prior to ventilation. Therefore, this condition is accepted subject to the changes discussed in Mr Baker's evidence at paragraph 95 to the effect that average wind speed should be not less than 2m/s in the 10 minutes prior to ventilation.</p>	<p>Amended wording is proposed:</p> <p><i>The Consent Holder must ensure that ventilation of any fumigation event does not occur when an average wind speed of less than 2 m/s is measured at the site of fumigation during the 10 minute period prior to ventilation.</i></p>



<p>Condition 3.8 (formerly 3.10): <del>Pressure testing</del> <u>Leak Detection and Management</u></p>	<p>Pressure testing is not required in the EPA controls for these fumigants and is not undertaken as common practice in New Zealand or Australia. Mr Baker discusses this further and describes the process undertaken in his paragraph 96.</p> <p>As I understand the operation from my observations and from Mr Baker's evidence a high degree of gas-tightness is necessary to ensure the effectiveness of the treatment and this, as audited by the MPI, is achieved through the current operating procedures.</p> <p>Therefore, in my opinion, pressure testing as a condition of consent is unlikely to achieve any improvement on the current situation at considerable cost and loss of efficiency with no measurable change to the potential for adverse effects on the environment.</p>	<p>This condition should be deleted or, if it is considered necessary to control this aspect of the operation, the condition should be replaced as follows:</p> <p><i>For all fumigation events, the Consent Holder shall actively monitor air quality at the MSZ/Risk Area boundary <u>from when the fumigant is first applied into the enclosure, until the end of application when a final check is undertaken</u>. Should monitoring <u>detect fumigant levels exceeding the relevant WES value at the MSZ/Risk Area boundary, application shall cease until all identified leaks have been addressed, with the process repeated until fumigant levels at the MSZ/Risk Area boundary are maintained at or below applicable WES values. This process protects workers outside the risk area but for the purposes of this consent.</u></i></p>
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		<u>ensures a leak does not result in elevated fumigant levels at or beyond the buffer zone / port boundary.</u>
Condition 5.1:	<p>The DG suggested wording of this condition does not take into account the many variables that are in effect for different fumigation events.</p> <p>The three main variables are onshore and offshore wind direction and fumigation of containers versus fumigations under sheets at Sulphur Point and the Mount Maunganui wharves respectively.</p> <p>The most commonly considered situation is for fumigation of log rows under sheets at the Mount Maunganui wharves during an onshore (westerly) wind. It is agreed that as far as reasonably practicable there should be one monitor directly downwind and one either side of this location at approximately 45 degrees from the wind direction.</p>	<p>Condition 5.1 should read:</p> <p><i>As a minimum, during ventilation for all fumigation events <u>other than shipping containers, during on-shore wind conditions</u>, the Consent Holder shall undertake monitoring of fumigant levels at the landward buffer zone <u>/port</u> boundary directly down wind of the fumigation activity and at two additional sites at 45 degrees <u>either side of the directly downwind location</u>, or as close as reasonably practicable <u>to these locations</u>.</i></p> <p><i>As a minimum, during ventilation of <u>shipping</u> containers <u>during on-shore wind conditions</u>, the consent holder shall undertake monitoring at the <u>landward</u></i></p>

	<p>The second most common situation is in the ventilation of containers at Sulphur Point (although containers may also be ventilated at the Mount Maunganui wharves).</p> <p>The minimum buffer distances for containers are 10m and 25m which is close enough to the container to be able to accurately identify the directly downwind location for monitoring without needing to measure at 45 degrees to that location in anticipation of a change in direction.</p> <p>In addition, the duration of the ventilation from a container is significantly less than from a log row under sheets and there is a limited “window of opportunity” for a change in wind direction to take place.</p> <p>Furthermore, while the minimum buffer distances are 10m or 25m the defined buffer zone boundary for the POT is the Customs Control Area or 50 – 80m off the wharf edge, as shown in the application which may potentially be hundreds of metres away from the container (in a westerly wind) or at least 75m away in an easterly wind (from the POT fumigation limits for</p>	<p>buffer zone <u>/port</u> boundary directly downwind of the fumigation activity, <u>or as close as reasonably practicable to this.</u></p> <p><i>In the event that the wind direction is towards the harbour (<u>off-shore</u>) the monitoring locations shall be at the seaward boundary of the wharves, <u>or as close as reasonably practicable to this,</u> downwind of the fumigation activity. The location of these sites shall be determined in all cases following consideration of the safety of the fumigation staff and other PCBU's workers required to operate in the vicinity of the downwind area <u>and the potential for interference or cross sensitivities from other substances, for example VOCs (volatile organic compounds) when monitoring methyl bromide.</u></i></p>
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	<p>Sulphur Point, Figure 3). The purpose of monitoring in these situations is therefore to safeguard the MSZ/RA from being breached by non-fumigation workers in the vicinity.</p> <p>The third situation is in relation to the ventilation of log rows fumigated under sheets at the Mount Maunganui wharves in an offshore (easterly) wind.</p> <p>The fumigation area in this situation is at least 100m from the wharf edge but the wharf edge is not the buffer zone boundary which is 50 – 80m off-shore (being the area within the control of BoPRC (the Harbourmaster)).</p> <p>This area is also likely to be the scene of intensive Port activities with other PCBUs undertaking work in the area as described in Mr Baker's evidence at paragraphs 98 and 99.</p> <p>Figure 6 of my evidence below illustrates the location of the log row fumigation area in relation to the wharf edge and ships at berth. Effectively it would be impracticable to locate any monitoring station between the fumigation area and the wharf edge. Therefore, in an easterly</p>	<p><u>Where required, identified buffer zone / port boundary monitoring locations should be adjusted to capture areas where the greatest risk of public exposure is identified.</u></p> <p><u>Where the monitoring location is not on the Buffer Zone / port boundary readings above the TEL shall be extrapolated to the equivalent of a reading at the Buffer Zone / port boundary taking into account the distance the monitoring location is from the Buffer Zone / port boundary, the wind conditions at the time of the reading and any local operational conditions that may influence the reading such as equipment that may discharge other VOCs that impact on the reading and the degree of accuracy of the monitoring device.</u></p> <p><u>Where an extrapolated result is required and there is disagreement between the</u></p>
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	<p>wind the nearest monitoring location could be at least at a 45 degree angle to the wind direction determined for health and safety reasons and also be 80m or more (on the angle) from the Buffer zone boundary. Therefore, in my opinion, it is only reasonably practicable to require one monitoring location in these circumstances.</p> <p>The suggested condition in Appendix A provides for these three different scenarios.</p>	<p><u>Consent holder and BOPRC, a suitably qualified and experienced air modelling expert shall be engaged to determine the likely concentration of fumigant at the boundary.</u></p>
Condition 5.3	<p>To avoid long term storage of redundant data it is recommended that a time limit is set for the retention of data. A minimum of two years is proposed.</p>	<p>Amended wording is provided in Appendix A.</p>
Condition 5.4 (formerly 5.7)	<p>This condition lists the requirements to be included in the FMRP.</p> <p>In general these follow the requirements of the EPA controls for monitoring and reporting although 5.7(d) has been amended as it only relates to devices monitoring MB and there are three aspects listed in 5.7(f) that are either unnecessary or incorrect.</p>	<p>Condition 5.4 should be amended by:</p> <ol style="list-style-type: none"> <li>1. Adding the words: “Where the monitoring devices do not directly monitor the fumigant being utilised; ...” to the beginning of item (d).</li> <li>2. Deleting the last two bullet points in 5.4(f) and amending the reference to</li> </ol>

	<p>In the third bullet the correct reference to the WorkSafe NZ Safe Work Instrument should be 2022. It is important to note that this document is specific to EDN and is not applicable to other fumigants. (This amendment should also be made in condition 10.3.)</p> <p>The fourth bullet point (personal monitor alarms) refers to a worker related operational matter that is not a matter that needs to, or should, be controlled by conditions of a resource consent.</p> <p>The fifth bullet is unnecessary and made redundant by monitoring at the locations required in sub-paragraph (e).</p>	<p>the Worksafe New Zealand document titled Health and Safety at Work (Hazardous Substances—Requirements for Specified Fumigants) Amendment Safe Work Instrument, which only relates to EDN, to “2022”.</p>
Condition 5.5 (formerly 5.10A)	<p>This condition contained an incorrect reference to condition 6.1 which is proposed to be deleted.</p> <p>In addition, to avoid a gap between the submission of a FMRP for certification or recertification a sentence is added for the avoidance of doubt that the immediately preceding equivalent plan shall remain in effect until the new plan is certified. If there were a gap in the process</p>	<p>Proposed wording is provided in Appendix A.</p>

	fumigation would not be able to be undertaken at the POT.	
Condition 5.6 (formerly 5.8)	<p>This condition should be retained to cover future situations where the FMRP may need to be recertified following updating.</p> <p>Wording is proposed to clarify who should be engaged to undertake the arbitration process.</p>	Amended wording is provided in Appendix A.
Condition 5.7 (formerly 5.9)	The FMRP does not manage the fumigation activities themselves but describes the monitoring and reporting process that need to be undertaken. The condition is reworded for clarification.	Amended wording is provided in Appendix A.
Condition 5.9 (new)	This new condition is proposed to cover the situation that may arise where the parties (Genera and BOPRC) do not agree on the recommendations of the audit undertaken in accordance with condition 5.8.	Amended wording is provided in Appendix A.
Condition 6.1: Emergency Management Plan	Genera is required to have a current Emergency Response Plan (ERP) under the HSWA. WorkSafe NZ is the regulatory authority responsible for the	Suggested amendments to Condition 6.1:

	<p>administration of the HSWA and the ERP is reviewed by Fire and Emergency NZ (FENZ) who provide feedback on it (as described in Mr Baker's evidence at paragraph 102).</p> <p>The ERP is provided to the BoPRC for feedback and this process of providing feedback has proved acceptable to the BoPRC up to this point. In my opinion there is no reason that this requirement should be duplicated under separate sets of legislation or that any other effects on the environment would be mitigated by requiring a separate process of certification by the BoPRC.</p> <p>I understand that a copy of the current ERP will be made available for viewing at the Hearing.</p> <p>However, to ensure that engagement in this matter continues between Genera and the BoPRC I would suggest a condition requiring a continuation of the current process of feedback rather than certification.</p>	<p><i>A copy of the consent holder's Emergency Response Plan (ERP) must be provided to the BOPRC for feedback annually during the month of May. Feedback shall be provided to the consent holder and incorporated into the ERP where appropriate.</i></p>
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	Subject to this change being accepted Conditions 6.2 and 6.3 are unnecessary.	
Condition 7.1	As indicated in Mr Baker's evidence at paragraph 103 the provision of an aerial photograph in all cases is unnecessary when GPS coordinates are recorded for each fumigation. I concur with Mr Baker's opinion in this case.	Delete the fourth bullet point from condition 7.1.
Condition 7.2	<p>While detailed records are made of each fumigation event and an annual report is required to be prepared for the EPA it is appropriate that more frequent reports are made to the BoPRC to confirm that the conditions of this consent are being complied with.</p> <p>Currently this is undertaken by providing a summary record of monitoring on a monthly basis with detailed records being provided on a case-by-case basis on request should any issues be identified.</p>	<p>Minor amendments to condition 7.2:</p> <p><i>The Consent Holder shall submit, electronically, a summary record of the monitoring required by condition 7.1 to the Bay of Plenty Regional Council, for each calendar month, within 10 working days after the end of the month, or as less frequently as may be agreed. Detailed records shall be made available on request.</i></p>

	This arrangement has been shown to be successful to this point and minor changes are provided to condition 7.2 to record this situation.	
Sections 8 (Methyl Bromide), 9 (PH3) and 10 (Ethanedinitrile)	<p>In Appendix A I propose a number of minor changes in these sections for clarity and consistency including the addition of the phrase “until ventilation is concluded” to indicate an endpoint to the monitoring periods for the ventilations and for clarity the addition of “Minimum” to the heading “Buffer Zone” in the relevant tables to avoid a fixed distance which would not be appropriate in terms of adaptive management.</p> <p>Further clarification is also provided by stating that the TEL concentration limits are measured “at the port boundary”.</p>	<p>Conditions amended in Appendix A.</p> <p>The definition of Buffer zone has been amended to clearly refer to the Port security boundary (or Port boundary) as being the Buffer zone boundary for the purposes of this consent.</p> <p>A definition of Buffer zone distance is also included to support these conditions.</p>
Condition 9.2	In accordance with the recommendation of Mr Cressey (Peter Cressey evidence paragraph 47) I have amended the PH3 concentration limits to provide for a TEL 24-hour of 0.02ppm. Mr Cressey states that this is:	Condition amended in Appendix A.

	<p><i>“Based on the acute and chronic health-based guidance values derived by USEPA and EFSA”</i></p> <p>A TEL annual limit of 0.00022 ppm is included in the condition which is the same as the control in EPA decisions HSR007629, HSR001632 and HSR001636 (Attachment KF5) for chronic exposure.</p> <p>I note that HSR007629 also sets a ceiling TELair for Vaporph3os of 0.01mg/m<sup>3</sup> (0.0073 ppm) which would be required to be complied with in accordance with that approval.</p> <p>While the ceiling TELair is less than the proposed TEL24-hour of 0.02 ppm in condition 9.2 it only applies to the use of Vaporph3os and does not apply to the use of ALP. The ceiling TELair is not included in the condition to allow flexibility in the choice of fumigant while providing for an evidence-based limit (from USEPA and EFSA) for non-Vaporph3os applications.</p>	
Condition 10.2	This condition has been relocated from condition 3.13 which was proposed to be deleted in the JWS. Mr	Condition 10.2:

	Baker has identified in his evidence at paragraph 97 that this condition is one of the Safe Work Instrument regulations for EDN so it is more appropriately located in section 10 (EDN) of the conditions and I have re-phrased it to align with the regulation.	<i>Ventilation is carried out only during the hours between sunrise and sunset.</i>
Acronyms	The acronym for WES, Workplace Exposure Standard, is amended to be the same as the definition provided in the WorkSafe guidance document “ <i>Workplace exposure standards and biological exposure indices</i> ”, Edition 13, April 2022, WorkSafe.	Acronym amended in Appendix A.
Definitions	<p>The definitions have been reviewed by the Planners to ensure that they are relevant to the conditions and align with the definitions in existing EPA controls or other legislative requirements such as WorkSafe Safe Work Instruments.</p> <p>On further review a new definition for Buffer zone distance is proposed to be added and three of the definitions are proposed to be slightly amended for clarity and accuracy.</p>	The proposed changes to the definitions are included in Appendix A.

	<p>The definition of Buffer zone is amended to state that for the purposes of this consent the buffer zone boundary is the Port boundary and this is defined to landward and to seaward.</p> <p>The definition of the Monitored Safety Zone/Risk Area is amended to specify the point in the process when the MSZ/RA is no longer required which is the end of ventilation.</p>	
	<p>The definition of ventilation is amended to include phosphine because while ships' holds are not ventilated in port there may be other PH3 fumigation events such as the fumigation of grain in containers (including siloes) where there is a minor release or ventilation at the end of the treatment.</p>	

## **CONCLUSION**

303. In my opinion, with the imposition of the agreed JWS conditions, subject to the proposed changes in Appendix A of my evidence, the adverse environmental effects of the proposal will be adequately avoided, remedied or mitigated, so that they are acceptable and accord with the objectives and policies of the relevant national and regional planning documents.
304. The proposal has significant positive effects, namely the ability to maintain export partnerships and to protect New Zealand's indigenous habitats and ecosystems and rural resource from biosecurity incursions. Consideration of these benefits of the proposal should be given weight when assessing it against the national and regional planning documents, in particular Policy IR 9B of the RPS and Policy AQ P9 of the RNRP and related objectives and policies.
305. Accordingly, in my opinion, the resource consent sought in Genera's application is able to be granted.

**Keith Frentz**

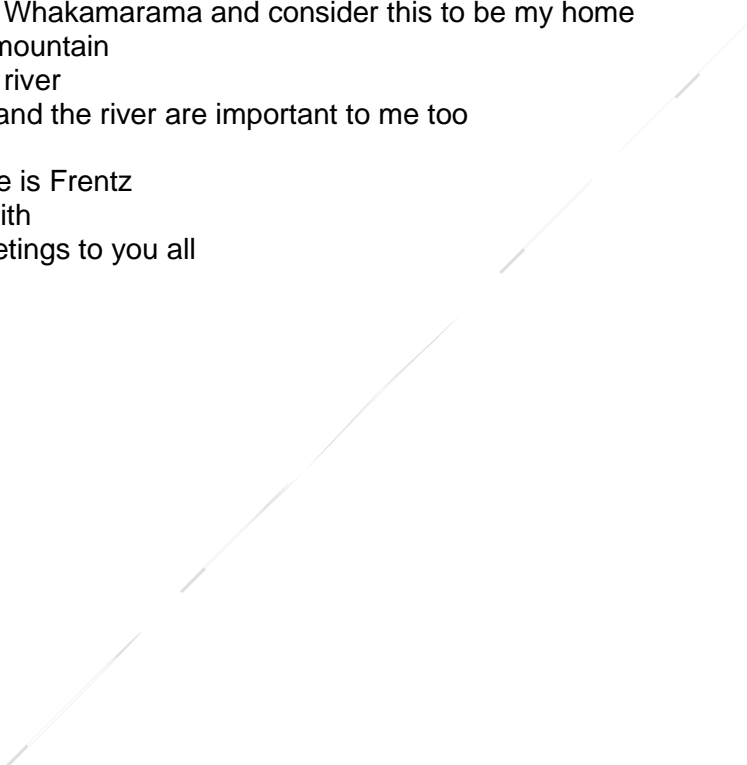
**1 May 2023**

APPENDIX A: PROPOSED CONDITIONS



## ATTACHMENT KF1: PEPEHA TRANSLATION

Greetings to you all  
I am acknowledging the Iwi of this area, Ngāti Ranginui and Ngāiterangi  
To you all, this is a grateful acknowledgement to you all  
I am not Māori  
However  
My ancestors are from Denmark  
I was raised at Whakamarama and consider this to be my home  
Minden is the mountain  
Te Puna is the river  
The mountain and the river are important to me too  
I am European  
My family name is Frentz  
My name is Keith  
Therefore, greetings to you all





**ATTACHMENT KF2: RELEVANT PLANNING OBJECTIVES AND POLICIES**

[Overleaf]



## **NZCPS**

### ***Policy 6(2)***

- (c) recognise that there are activities that have a functional need to be located in the coastal marine area, and provide for those activities in appropriate places;*

### ***Policy 9 Ports***

*Recognise that a sustainable national transport system requires an efficient national network of safe ports, servicing national and international shipping, with efficient connections with other transport modes, including by:*

- (a) ensuring that development in the coastal environment does not adversely affect the efficient and safe operation of these ports, or their connections with other transport modes; and*
- (b) considering where, how and when to provide in regional policy statements and in plans for the efficient and safe operation of these ports, the development of their capacity for shipping, and their connections with other transport modes.*

## **NESAQ**

### ***r20 Resource consents for discharge of carbon monoxide, oxides of nitrogen, and volatile organic compounds***

- (1) A consent authority must decline an application for a resource consent to discharge carbon monoxide into air if the discharge to be expressly allowed by the resource consent—*
  - (a) is likely, at any time, to cause the concentration of that gas in the airshed to breach its ambient air quality standard; and*
  - (b) is likely to be a principal source of that gas in the airshed.*
- (2) A consent authority must decline an application for a resource consent to discharge oxides of nitrogen or volatile organic compounds into air if the discharge to be expressly allowed by the resource consent—*
  - (a) is likely, at any time, to cause the concentration of nitrogen dioxide or ozone in the airshed to breach its ambient air quality standard; and*

- (b) *is likely to be a principal source of oxides of nitrogen or volatile organic compounds in the airshed.*
- (3) *In this regulation, volatile organic compound—*
  - (a) *means a hydrocarbon based compound with a vapour pressure greater than 2 millimetres of mercury (0.27 kilopascals) at a temperature of 25°C; but*
  - (b) *does not include methane.*

## **RPS**

### **Section 2.1 – Air Quality (Introduction)**

*A range of chemicals and combustion gases are released by industrial activities within the region. These emissions may result from activities such as pulp and paper processes or from the use of solvents. Sprays and chemical compounds, including herbicides, insecticides, fungicides and fumigants (such as Methyl Bromide) used for horticultural, agricultural and quarantine or preshipment purposes, are also of concern when used inappropriately. Conflict can arise when sprays affect other properties. The use of agrichemical sprays may result in significant benefits to community wellbeing e.g. through increased production and pest control and eradication, and limitation of biosecurity risk. However, the inappropriate use of agrichemicals has the potential to damage the health and wellbeing of communities.*

### **Section 2.8 – Urban and Rural Growth (Introduction)**

*Management of growth and development within rural areas is also important, particularly given the existing and future importance of primary industries (including agriculture, horticulture, forestry, quarrying and mining) to the region's economy. Rural production activities (including associated processing plants and research facilities) contribute to social and economic wellbeing and are dependent on access to and use of natural and physical resources and need to be protected from constraints introduced by incompatible or sensitive activities.*

#### **Objective 11**

*An integrated approach to resource management issues is adopted by resource users and decision makers*

#### **Objective 13**

*Kaitiakitanga is recognised and the principles of the Treaty of Waitangi (Te Tiriti o Waitangi) are systematically taken into account in the practice of resource management*

**Objective 20**

*The protection of significant indigenous habitats and ecosystems, having particular regard to their maintenance, restoration and intrinsic values.*

**Objective 26**

*The productive potential of the region's rural land resource is sustained and the growth and efficient operation of rural production activities are provided for.*

**Policy CE 14B**

*Recognise the national and regional significance of the Port of Tauranga and the need for it to be located within the coastal environment by:*

- (a) Safeguarding the capacity and efficiency of:
  - (i) Current port operations*
  - (ii) Activities that have a functional need to be located in and around the port;*
  - (iii) The strategic road, rail and sea routes to the port; and**
- (b) Providing, as appropriate, in the regional coastal plan, for future port operations and capacity; and*
- (c) Having regard to potential adverse effects on the environment, providing for the need to maintain shipping channels and to renew/replace structures as part of ongoing maintenance; and*
- (d) Avoiding activities in areas that may compromise port operations.*

**Explanation**

*The region's ports, in particular the Port of Tauranga, are an existing and essential component of the region's transportation network. Policy CE 14B gives effect to Policy 9 of the New Zealand Coastal Policy Statement 2010.*

**Policy IR 4B:**

*Using consultation in the identification and resolution of resource management issues*

**Policy IR 9B: Taking an integrated approach towards biosecurity**

*Adopt an integrated approach towards the management of biosecurity issues and implementation of plans to control biodiversity and biosecurity risks.*

**Explanation:**

*The risk of biosecurity incursions presents a threat to the rural production sector, the regional economy and the region's biodiversity. This policy enables the prevention of new pest incursions and responses to such pest incursions, should they arise.*

**RNRP (PC13)**

**AQ P9**

*Fumigation for quarantine application or pre-shipment application —Protect human health and the environment from adverse effects from use of fumigants for quarantine application or pre-shipment application by:*

- (a) enforcing the best practicable option for use of the fumigant, including via the use of effective recapture technology of fumigant gases, the use of safer fumigants, or alternative methods*
- (b) ensuring compliance with relevant exposure levels and management regime set by the New Zealand Environmental Protection Authority to protect human health*
- (c) having particular regard to protecting the health of persons in sensitive areas from fumigant exposure.*

**AQ R20**

*Fumigation for quarantine application or pre-shipment application – Discretionary or Non-complying — The discharge of contaminants into air from fumigation for quarantine application or pre-shipment application:*

- Using fumigants other than methyl bromide, is a discretionary activity.*
- Using methyl bromide with effective recapture, is a discretionary activity.*
- Using methyl bromide without effective recapture, is a non-complying activity*

**Definitions:**

*Effective recapture in relation to fumigation, means a process that captures any fumigant from fumigation enclosures (such as buildings, shipping containers or gas proof sheets covering target product) on activated carbon or other medium so that it is not released into the atmosphere when the*

*fumigation enclosure is ventilated such that the concentration of fumigant (not absorbed by the target product) within the fumigation enclosure at the beginning of the fumigation period is reduced by 80% prior to ventilation of the fumigation enclosure.*

*Pre-shipment application in relation to fumigation, means the non-quarantine treatment applied within 21 days prior to export, to meet the official requirements of the importing country or the existing official requirements of the exporting country. Official requirements are those which are performed or authorised by a national plant, animal, environmental, health, or stored product authority.*

*Quarantine application in relation to fumigation, means treatment to prevent the introduction, establishment and/or spread of quarantine pests (including diseases), or to ensure their official control, where: (a) official control is that performed by, or authorised by, a national plant, animal or environmental protection or health authority, and (b) quarantine pests are pests of potential importance to the areas endangered thereby and not yet present there, or present but not widely distributed and being officially controlled.*

## **Tauranga Moana Iwi Management Plan 2016-2026**

### **POLICY 12**

*Maintain and enhance relationship with Port of Tauranga*

#### **Action**

*12.1 Tauranga Moana Iwi and hapū to continue working closely with Port of Tauranga to manage the effects of port activities on the cultural health of the harbour, in particular:*

- a) Inner harbour activities, and expansion of these activities.*
- b) Changes to tidal flows, ebbs and flushes as a result of structures and/or reclamations.*
- c) Dredging and disposal of dredge spoil*
- d) Water quality and pollution concerns.*
- e) Biosecurity risks*
- f) Emergency Response Protocols (e.g. for oil or diesel spills), as outlined in Section 12.8 of this Plan.*
- g) Concerns about the use of methyl bromide:*

- i) *There is a preference for the use of methyl bromide to be prohibited for the health of the environment, the community and staff involved in fumigation processes.*
- ii) *A Safe Practice Plan as well as Emergency Procedures must be in place for the use of methyl bromide.*
- iii) *Stringent monitoring is carried out to prevent any occurrences of harmful chemical releases into Te Awanui.*

## **Ngāi Tūkairangi, Ngāti Tapu Hapu Management Plan 2014**

### **Section 6.1.3 – Horticulture**

#### *Policy Statements:*

- *That all horticultural regulations are followed to ensure environmental sustainability.*
- *That suitable buffer zones exist where any spraying or application of toxic material does exist - to protect the health of the neighbouring community.*
- *That appropriate signage is always displayed where spraying does occur.*

### **Section 6.2.1 – Kai Moana**

#### *Policy Statements:*

- *That local and regional council support hapu in the development of projects that assist in the sustainable management of kai moana.*
- *That hapu initiate projects that promote kaitiakitanga and build upon cultural and environmental knowledge of the moana.*
- *That the impact of toxic algal bloom is thoroughly investigated by local and regional councils.*
- *That all resource consent applications that potentially impact on kai moana are avoided, remedied or mitigated.*
- *That matauranga – traditional knowledge is utilised in the development of any research and monitoring projects.*

## **Regional Pest Management Strategy**

The Regional Council's Pest Management Strategy addresses biosecurity issues of plant and animal pests. The RPMS states in part:

*The Biosecurity Act 1993 requires regional councils to 'provide regional leadership in pest management'. Pest management encompasses activities that '...prevent, reduce, or eliminate adverse effects from harmful organisms that are present in New Zealand' (section 12(b) Biosecurity Act 1993).*

*The strategic direction presented below sets out Council's overall biosecurity objectives and aspirations and recognises the range of Council activities that contribute towards achieving these. Strategic direction Council will achieve this by...(Page 1)*

## **MAF Biosecurity New Zealand, PEST MANAGEMENT NATIONAL PLAN OF ACTION**

The PMNPA states:

*Pest management is a core activity in the New Zealand biosecurity system and is also integral to many public and private systems (see Figure 1 for a snapshot of these). The systems include protecting native plants, animals and ecosystems and sustaining New Zealand's most significant areas of economic activity in farming, forestry, horticulture, fishing and aquaculture. The systems extend right down to the management of individual farms, water bodies and gardens. From a tāngata whenua perspective, pest management is part of kaitiakitanga, the customary system of caring for the environment.*



ATTACHMENT KF3: HSR001635 EPA APPROVAL FOR METHYL BROMIDE

[Overleaf]



## APPROVAL

Reissued: 19 July 2019

Amended under section 67A: 19 November 2019

Amended under section 63A and 63C: 11 August 2021

### Summary

Substance	Methyl bromide
<b>Application code</b>	APP203660
<b>Application type</b>	To reissue an approval for a hazardous substance under clause 4 of Schedule 7 of the Hazardous Substances and New Organisms (HSNO) Act 1996 ("the Act")
<b>Purpose of the application</b>	To reissue the approval for methyl bromide
<b>Reissue Date</b>	19 July 2019
<b>Considered by</b>	The Chief Executive <sup>1</sup> of the Environmental Protection Authority ("the EPA")
<b>Decision</b>	Approved for reissue
<b>Approval code</b>	HSR001635
<b>Hazard classifications</b>	Flammable gas Category 2 Acute oral toxicity Category 3 Acute inhalation toxicity Category 3 Specific target organ toxicity – single exposure Category 3 respiratory tract irritation Skin corrosion Category 1C Serious eye damage Category 1 Germ cell mutagenicity Category 1 Reproductive toxicity Category 2 Specific target organ toxicity (repeated exposure) Category 1 Hazardous to the aquatic environment acute Category 1 Hazardous to the aquatic environment chronic Category 1 Hazardous to soil organisms Hazardous to terrestrial vertebrates Hazardous to terrestrial invertebrates

<sup>1</sup> The Chief Executive of the EPA has made the decision on this application under delegated authority in accordance with section 19 of the Act.

## Decision

1. Pursuant to clause 4 of Schedule 7 of the Act, I have considered this approval to reissue.
2. I have considered the matters raised in sections 4 to 8 of the Act but, given the nature of the reissue is administrative, there are not further considerations required in order to achieve the purpose of the Act.
3. I consider it appropriate to reissue HSR001635 with the controls set out in the Appendix in accordance with clause 4 of Schedule 7 of the Act. Therefore the new approval is now made under section 29 of the Act, in accordance with clause 4(5) of Schedule 7, and Schedule 7 no longer applies to the new approval.
4. The transitional provisions of the relevant EPA Notices apply to the reissued approval for the transitional period which begins on the date of reissue and ends on 30 November 2021.

Signed by:

Date: 19/07/2019

Dr Allan L Freeth

**Chief Executive, EPA**

## Amendments

### **Amendment under section 67A (per decision APP203953)**

To amend the approval for methyl bromide to correct a minor or technical error.

**Decision maker:** The Chief Executive of the Environmental Protection Authority

**Date:** 19 November 2019

### **Amendment under section 63A (per decision APP203660)**

To change the definition of recapture and the associated use controls.

**Decision maker:** A Decision-making Committee, Environmental Protection Authority

**Date:** 11 August 2021

### **Amendment under section 63C (per decision APP203660)**

To amend the approval for methyl bromide to change the hazard classifications to GHS.

**Decision maker:** A Decision-making Committee, Environmental Protection Authority

**Date:** 11 August 2021

## Appendix A: Controls applying to methyl bromide

### EPA controls

Control code	EPA Notice	Control description
<b>LAB</b>	EPA Labelling Notice 2017	Requirements for labelling of hazardous substances
<b>PKG</b>	EPA Packaging Notice 2017	Requirements for packaging of hazardous substances
<b>SDS</b>	EPA Safety Data Sheet Notice 2017	Requirements for safety data sheets for hazardous substances
<b>DIS</b>	EPA Disposal Notice 2017	Requirements for disposal of hazardous substances
<b>HPC-1</b>	EPA Hazardous Property Controls Notice 2017 Part 1	Hazardous Property Controls preliminary provisions
<b>HPC-2</b>	EPA Hazardous Property Controls Notice 2017 Part 2	Certain substances restricted to workplaces only
<b>HPC-3</b>	EPA Hazardous Property Controls Notice 2017 Part 3	Hazardous substances in a place other than a workplace
<b>HPC-4A</b>	EPA Hazardous Property Controls Notice 2017 Part 4A	Site and storage controls for class 9 substances
<b>HPC-4B</b>	EPA Hazardous Property Controls Notice 2017 Part 4B	Use of class 9 substances
<b>HPC-4C</b>	EPA Hazardous Property Controls Notice 2017 Part 4C	Qualifications required for application of class 9 pesticides

## HSNO additional controls and modifications to controls for all uses of methyl bromide

Control code	HSNO Act	Control
<b>TEL</b>	Section 77B	<p>The following tolerable exposure limits in air (TELair) values apply to methyl bromide.</p> <p>1-hour TELair – 1 ppm or 3.9 mg/m<sup>3</sup></p> <p>24-hour TELair – 0.333 ppm or 1.3 mg/m<sup>3</sup></p> <p>Chronic TELair (annual average) – 0.0013 ppm or 0.005 mg/m<sup>3</sup></p>

## HSNO additional controls and modifications to controls for soil fumigation of potato wart uses of methyl bromide

Control code	HSNO Act	Control
<b>Application rate</b>	Section 77 variation to HPC Notice clause 50	The maximum application rate of this substance is 380 grams of methyl bromide per square metre of soil.

## HSNO additional controls and modifications to controls for other quarantine and pre-shipment uses of methyl bromide

### Definitions

For the purpose of this approval—

**1-hour exposure level** means the average exposure level for each 60-minute time period from the start of ventilation until the end of the buffer zone period.

**24-hour exposure level** means the average exposure level for each 24-hour time period from the start of ventilation until the end of the buffer zone period.

**Annual exposure level** means the total of 24-hour exposure levels recorded over a calendar year and averaged over 365 days.

**Annual average recapture performance** means the average reduction of methyl bromide per fumigation event for which recapture technology is used, for a given site at which quarantine or pre-shipment fumigation occurs using methyl bromide (that is, not averaged nationally or regionally) for a calendar year.

**Buffer zone** means, in relation to an area being fumigated, an area extending outward in all directions from the perimeter of each enclosed space being fumigated to the relevant distance.

**Buffer zone period** means, in relation to the application of methyl bromide, the period starting when methyl bromide is first applied to an enclosed space and ending when the specified recording of data is no longer required in relation to that application.

**Container** means anything used to contain methyl bromide during fumigation, except a ship's hold or sheet.

**Discharge** means the unintentional release of methyl bromide into open air.

**Dosed to concentration** means applying sufficient methyl bromide into the enclosed space to achieve a specified headspace concentration.

**Enclosed space** means a container, a ship's hold, or the space under a sheet.

**Event recapture proportion** means the percentage of fumigation events for which appropriate recapture technology must be used, at each location of use, for a calendar year.

**Fumigation event** means the fumigation of one enclosed space.

**Fumigation under sheets** means fumigation carried out under sheets of plastic, tarpaulins, or other materials having a low mass transfer coefficient for the fumigant being used.

**Minimum recapture** means the minimum reduction of methyl bromide from the maximum amount of methyl bromide in the enclosed space that must be achieved for a fumigation event.

**PCBU** has the meaning defined in section 17 of the Health and Safety at Work Act 2015.

**Recapture technology** means a system that mitigates methyl bromide emissions from fumigation enclosures.

**Site** means in relation to the use of methyl bromide on land, an area of land within a workplace where methyl bromide is used and (regardless of whether the area is bisected by a road or right of way) that—

- (a) consists of—
  - (i) a single allotment or other legally defined parcel of land that is the smaller of—
    - (A) an allotment or parcel held in a single certificate of title:

- (B) an allotment or parcel for which a separate certificate of title could be issued without the further consent of the relevant local authority; or
- (ii) 2 or more adjoining legally defined parcels of land held together in 1 certificate of title in such a way that the lots cannot be dealt with separately without the further consent of the relevant local authority; or
- (iii) 2 or more adjoining certificates of title that are—
  - (A) subject to a condition imposed under section 37 of the Building Act 2004 or section 240 of the Resource Management Act 1991; or
  - (B) held together in such a way that they cannot be dealt with separately without the further consent of the relevant local authority; and
- (b) contains—
  - (i) for land subdivided under the cross lease or company lease systems (other than strata titles),—
    - (A) a building or buildings used for residential or business purposes with any accessory building, plus any land exclusively restricted to the users of that building; or
    - (B) a remaining share or shares in the fee simple creating a vacant part of the whole for future cross lease or company lease purposes; and
  - (ii) for land subdivided under the Unit Titles Act 2010 (other than strata titles), a principal unit or proposed unit on a unit plan together with its accessory units, and includes—
    - (A) for strata titles, an area of land comprised in underlying certificate of titles, immediately before subdivision; and
    - (B) an activity that occupies more than 1 adjoining allotment, whether held in single legal title or multiple titles, and for the purpose of compliance with any rules that specify a level of effect at the boundary or that specify capacities or discharge quantities, the total area of land occupied by that activity, the boundary of which is the boundary around that area of land.

**Ventilate** means the release of methyl bromide into the atmosphere, and ventilation has a corresponding meaning.

Control code	HSNO Act	Control
<b>Prohibition of ship's hold fumigation</b>	Section 77A	<p>(1) From 1 January 2023, no person may apply methyl bromide for the fumigation of ship's holds.</p> <p>(2) From 1 January 2023, the PCBU with management or control of quarantine or pre-shipment fumigation using methyl bromide must ensure that fumigation of ship's holds using methyl bromide does not occur.</p>
<b>Notification of fumigation</b>	Section 77A	<p>(1) From 1 January 2022, a PCBU with management or control of quarantine or pre-shipment fumigation using methyl bromide must notify the PCBU's intention to carry out a fumigation event to—</p> <p>(a) the relevant territorial authority; and</p> <p>(b) neighbouring marae and neighbouring community facilities.</p> <p>(2) The PCBU must ensure that the notifications referred to in subclause (1) are made not less than 24 hours before the start of the fumigation event.</p>
<b>Use of recapture technology</b>	Section 77A	<p>(1) From the relevant start date specified in Table A or Table B, a PCBU with management or control of quarantine or pre-shipment fumigation using methyl bromide must ensure that methyl bromide is not applied unless—</p> <p>Control code HSNO Act Control</p> <p>(a) recapture technology is used; and</p> <p>(b) the recapture technology used is—</p> <p>(i) capable of achieving the performance criteria for the relevant circumstance of use specified in Table A or Table B; and</p> <p>(ii) used in a manner that will achieve the specified performance criteria for the relevant circumstance of use.</p> <p>(2) From the relevant start date specified in Table A or Table B for a given circumstance of use, a PCBU with management or control of quarantine or pre-shipment fumigation using methyl bromide must ensure that—</p> <p>(a) the event recapture proportion is achieved or exceeded; and</p>



		<p>(b) the annual average recapture performance is achieved or exceeded.</p> <p>(3) For avoidance of doubt, the relevant minimum recapture values specified in Table A and Table B apply to each fumigation event for containers and fumigations under sheets respectively. The minimum recapture performance must not to be averaged between events, by location, by operator, or nationally; nor by time across any of these groupings.</p>
<b>Dosing to concentration</b>	Section 77A	<p>(1) For fumigation under sheets—</p> <p>(a) from 1 January 2024, the PCBU with management or control of quarantine or pre-shipment fumigation using methyl bromide must ensure that a minimum of 50% of fumigations events carried out in a calendar year are dosed to concentration; and</p> <p>(b) from 1 January 2027, the PCBU with management or control of quarantine or pre-shipment fumigation using methyl bromide must ensure that all fumigation events are dosed to concentration.</p> <p>(2) For fumigation of containers—</p> <p>(a) from 1 January 2024, the PCBU with management or control of quarantine or pre-shipment fumigation using methyl bromide must ensure that a minimum of 50% of fumigations events carried out in a calendar year are dosed to concentration; and</p> <p>(b) from 1 January 2027, the PCBU with management or control of quarantine or pre-shipment fumigation using methyl bromide must ensure that all fumigation events are dosed to concentration.</p>
<b>Ventilation</b>	Section 77A	<p>(1) A PCBU with management or control of quarantine or pre-shipment fumigation using methyl bromide must ensure that ventilation of any fumigation event only occurs when wind speed is at least 2 m/s.</p> <p>(2) Until 1 January 2023 when it becomes prohibited, when ventilating ship's holds after a fumigation event, the PCBU must ensure that there is a two hour time gap between the venting of individual ship's holds.</p>
<b>Requirement to keep records</b>	Section 77A	<p>(1) A PCBU with management or control of quarantine or pre-shipment fumigation using methyl bromide must ensure that accurate records are kept, for each application, of the data specified in this control.</p>

		<p>(2) If recapture technology is used, the data required is—</p> <p>(a) the date and time of each application, recapture, and ventilation; and</p> <p>(b) the amount of methyl bromide applied, recaptured, and ventilated; and</p> <p>(c) the location where methyl bromide was applied, recaptured, and ventilated; and</p> <p>(d) the type of enclosed space into which methyl bromide was applied; and</p> <p>(e) the capacity of the enclosed space; and</p> <p>(f) the name of each worker using methyl bromide and the physical address of the worker's workplace; and</p> <p>(g) the amount of methyl bromide in the enclosed space's head space at the end of the fumigation phase; and</p> <p>(h) the amount of methyl bromide in the enclosed space's head space at the end of the recapture phase; and</p> <p>(i) the wind speed and direction every 3 minutes at the location during active ventilation; and</p> <p>(j) the wind speed and direction every hour during periods where passive ventilation occurs; and</p> <p>(k) for each monitoring location, individual exposure level values, and 1-hour, 24-hour, and annual average exposure levels; and</p> <p>(l) for each monitoring location, the type, substances measured, limit of detection, and location of the monitoring equipment used to record the exposure levels.</p> <p>(3) If recapture technology is not used, the data required is—</p> <p>(a) the date and time of each application and ventilation; and</p> <p>(b) the amount of methyl bromide applied; and</p> <p>(c) the location where methyl bromide was applied and ventilated; and</p> <p>(d) the wind speed and direction every 3 minutes at the location during ventilation; and</p> <p>(e) the type of enclosed space into which methyl bromide was applied; and</p> <p>(f) the capacity of the enclosed space; and</p>
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		<p>(g) the name of each worker using methyl bromide and the physical address of the worker's workplace; and</p> <p>(h) the amount of methyl bromide in the enclosed space's head space at the end of the fumigation phase; and</p> <p>(i) the wind speed and direction every hour during periods when passive ventilation of methyl bromide desorbing from logs occurs; and</p> <p>(j) for each monitoring location, individual exposure level values, and 1-hour, 24-hour and annual average exposure levels; and</p> <p>(k) for each monitoring location, the substances measured by the monitoring equipment, and the equipment's limit of detection for each substance.</p> <p>(4) For each discharge of methyl bromide during fumigation, the data required is—</p> <p>(a) the date and time of each discharge; and</p> <p>(b) the approximate amount of methyl bromide discharged; and</p> <p>(c) the location where methyl bromide was discharged; and</p> <p>(d) the approximate wind speed and direction at the location when the discharge occurred; and</p> <p>(e) where the discharge occurred from; and</p> <p>(f) the reason why the discharge occurred; and</p> <p>(g) the capacity of the enclosed space; and</p> <p>(h) the name of each worker using methyl bromide and the physical address of the worker's workplace.</p> <p>(5) The PCBU must ensure that the data required to be recorded by this control is recorded every 3 minutes from the start of ventilation until the exposure level is below 0.05 ppm for at least—</p> <p>(a) 15 minutes, where 7 kg or more of methyl bromide is applied in a 1-hour period; or</p> <p>(b) 3 minutes, where less than 7 kg of methyl bromide is applied in a 1-hour period.</p> <p>(6) The PCBU must ensure that the records required by subclause (1) are—</p> <p>(a) kept for not less than 7 years after the date of the fumigation event to which they relate; and</p> <p>(b) made available for inspection during that period.</p>
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<b>Notification of TELair exceedance</b>	Section 77A	<p>A PCBU with management or control of quarantine or pre-shipment fumigation using methyl bromide must—</p> <p>(a) notify the relevant territorial authority as soon as practicable and within 24 hours if—</p> <p>(i) the 1-hour exposure level exceeds the 1-hour TELair value for methyl bromide; or</p> <p>(ii) the 24-hour exposure level exceeds the 24-hour TELair value for methyl bromide; and</p> <p>(b) include in the notification—</p> <p>(i) the source of that exceedance; and</p> <p>(ii) the exposure value(s) that exceed the appropriate TELair value: and</p> <p>Control code HSNO Act Control</p> <p>(iii) the individual monitoring values that were used to generate each relevant 1-hour or 24-hour exposure level.</p>
<b>Annual reporting</b>	Section 77A	<p>(1) A PCBU with management or control of quarantine or pre-shipment fumigation using methyl bromide in the preceding calendar year must provide an annual report to the Environmental Protection Authority by 30 June each year.</p> <p>(2) The annual report must contain the following information for each calendar year:</p> <p>(a) the number of quarantine or pre-shipment fumigations using methyl bromide carried out at the site; and</p> <p>(b) the total amount of methyl bromide applied at the site; and</p> <p>(c) the types of enclosed spaces to which methyl bromide has been applied; and</p> <p>(d) the types of equipment used to carry out the monitoring of methyl bromide, including details of the substances measured by the monitoring equipment, and the equipment's limit of detection for each substance; and</p> <p>(e) the annual exposure level at the site; and</p> <p>(f) the approximate total quantity of methyl bromide discharged; and</p> <p>(g) the number of notifications made as a consequence of the control titled "Notification of TELair exceedance", identified by each monitoring location; and</p>

		<p>(h) the number of times the exposure levels exceeded the TELair value; and</p> <p>(i) if a breach of a TELair value has occurred then the annual monitoring report must contain—</p> <p>(i) an outline of what risk mitigation measures have been or are being taken;</p> <p>(ii) the source of that breach; and</p> <p>(iii) the exposure value(s) that exceed the appropriate TELair value; and</p> <p>(iv) the individual monitoring values that were used to generate that averaging time exposure value for comparison with the TEL; and</p> <p>(j) any accidents or other issues related to non-compliance with these controls or with any of the applicable requirements in the Health and Safety at Work (Hazardous Substances) Regulations 2017; and</p> <p>(k) for each fumigation event—</p> <p>(i) the amount of methyl bromide in the enclosed space's head space at the end of the fumigation phase; and</p> <p>(ii) the amount of methyl bromide in the enclosed space's head space at the end of the recapture phase if recapture technology has been used; and</p> <p>(iii) the amount of methyl bromide recaptured if recapture technology has been used; and</p> <p>(l) the annual average recapture performance for the site; and</p> <p>(m) the event recapture proportion for the site.</p> <p>(3) The annual report must detail progress towards the reduction of methyl bromide emissions, including—</p> <p>(a) technology and process developments to ensure that future recapture targets are met; and</p> <p>(b) other actions taken to reduce methyl bromide emissions and use.</p>
<b>Buffer zones</b>	Section 77A	<p>(1) From 1 January 2022, for fumigation under sheets, a PCBU with management or control of quarantine or pre-shipment fumigation using methyl bromide must set a buffer zone for each fumigation that is equal to or more than the relevant distance in Table C for the relevant dose rate of methyl bromide.</p>

		<p>(2) For fumigation of containers of up to 77 m3 in volume the PCBU must set a buffer zone for each fumigation that is equal to or more than 10 m.</p> <p>(3) For fumigation of containers equal to or greater than 77 m3 in volume the PCBU must set a buffer zone for each fumigation that is equal to or more than 25 m.</p> <p>(4) From 1 January 2022 until it is prohibited on 1 January 2023, for fumigation of ship's holds, the PCBU must set a buffer zone for each fumigation that is equal to or more than 900 m.</p> <p>(5) The PCBU must ensure that—</p> <p>(a) no member of the public is in the buffer zone during the buffer zone period; and</p> <p>(b) the buffer zone is kept under observation; and</p> <p>(c) the buffer zone is sufficiently large to ensure that the TELair for methyl bromide is not exceeded beyond the boundary of the buffer zone.</p>
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Table A. Performance criteria of recapture technology for every methyl bromide fumigation event in containers

Start date	Minimum recapture (%)
1 January 2023	80%
1 January 2027	90%
1 January 2031	99%

Table B. Performance criteria of recapture technology for methyl bromide fumigations under sheets

Start date	Event recapture proportion (%)	Minimum recapture (%)	Annual average recapture performance (%)
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<b>1 January 2022</b>	50	30	55
<b>1 January 2023</b>	75	40	60
<b>1 January 2025</b>	100	50	65
<b>1 January 2027</b>	100	60	75
<b>1 January 2029</b>	100	70	85
<b>1 January 2031</b>	100	80	95
<b>1 January 2033</b>	100	90	99
<b>1 January 2035</b>	100	99	99

**Table C. Minimum buffer zones for methyl bromide fumigation under sheets**

Minimum recapture (%)	Minimum buffer zone: dose rate $\leq 40$ g/m <sup>3</sup> (m)	Minimum buffer zone: 40 g/m <sup>3</sup> < dose rate $\leq 72$ g/m <sup>3</sup> (m)	Minimum buffer zone: 72 g/m <sup>3</sup> < dose rate $\leq 120$ g/m <sup>3</sup> (m)
<b>No recapture</b>	210	515	700
<b>30</b>	155	380	520
<b>40</b>	135	335	455
<b>50</b>	120	290	395
<b>60</b>	100	245	335
<b>70</b>	80	200	270

80	65	155	210
90	50	110	150
99	50	70	95





## HSW requirements

Advisory Note: These requirements are not set for the substance but apply in their own right under the HSW (Hazardous Substances) Regulations 2017 according to the classification of the substance. They are listed here for information purposes only.

Control code	Regulation Part	Description
<b>HSW1</b>	Part 1	Application
<b>HSW2</b>	Part 2	Labelling, signage, safety data sheets, and packaging
<b>HSW3</b>	Part 3	General duties relating to risk management
<b>HSW4</b>	Part 4	Certified handlers and supervision and training of workers
<b>HSW5</b>	Part 5	Emergency management
<b>HSW8</b>	Part 8	Controls applying to all class 1 to 5 substances
<b>HSW10</b>	Part 10	Class 2, 3 and 4 substances
<b>HSW11</b>	Part 11	Controls relating to adverse effects of unintended ignition of class 2 and 3.1 substances
<b>HSW13</b>	Part 13	Class 6 and 8 substances
<b>HSW14</b>	Part 14	Fumigants
<b>HSW15</b>	Part 15	Gases under pressure
<b>HSW16</b>	Part 16	Tank wagons and transportable containers
<b>HSW17</b>	Part 17	Stationary container systems
<b>SWI14-1</b>		Health and Safety at Work (Hazardous Substances—Modified Requirements for Specified Fumigants) Safe Work Instrument 2017

## Appendix B: Regulatory history

This appendix is for information purposes only.

Application code	Application type	Date decided	Comment
<b>TRS05004</b>	Hazardous Substances (Fumigants) Transfer Notice 2004	29 October 2004	Transfer of substance into the Hazardous Substances and New Organisms Act
<b>HRC08002</b>	Reassessment under section 63 of the Act	28 October 2010	New approval issued pursuant to a full reassessment under s63 of the Act
<b>APP203660</b>	Reissue an approval for a hazardous substance under clause 4 of Schedule 7 of the Act	19 July 2019	Approval reissued to apply EPA Notice controls
<b>APP203953</b>	Minor or technical amendment to under section 67A of the Act	19 November 2019	Approval amended to correct a minor or technical error
<b>APP203660</b>	Modified reassessment under section 63A of the Act	11 August 2021	Approval amended to change recapture control and associated use controls
<b>APP203660</b>	Modified reassessment under section 63C of the Act	11 August 2021	Approval amended to change the hazard classifications to GHS

**ATTACHMENT KF4: HSR101529 EPA APPROVAL FOR EDN**

[Overleaf]





# APPROVAL

## Summary

Approval details	
Substance name	Ethanedinitrile (EDN)
Approval code	HSR101529
Hazard classification	Flammable gas Category 1A Liquified gas Acute inhalation toxicity Category 2 Hazardous to the aquatic environment acute Category 1 Hazardous to the aquatic environment chronic Category 1
Active ingredient	Ethanedinitrile at 1000 g/kg
Latest process details	
Application code	APP202804
Application type	To import or manufacture for release any hazardous substance under Section 28 of the Hazardous Substances and New Organisms Act 1996 (HSNO Act)
Purpose of the application	To import or manufacture EDN for release
Considered by	A Decision-making Committee of the Environmental Protection Authority (the Committee)
Decision	<b>Approve</b> with controls
Decision date	05 April 2022
Approval takes effect on	22 July 2022

## Decision

1. The Committee, in accordance with section 29 of the HSNO Act, and taking into account the relevant matters in Part 2 of the HSNO Act, considered the application to import or manufacture EDN for release.
2. For the reasons set out in the decision dated 05 April 2022, the Committee approved the application for this substance. The approval takes effect on 22 July 2022.
3. The GHS classification as listed in the summary table above, and the controls set out in Appendix A apply to this substance.



Environmental  
Protection Authority  
Te Māori Rauhi Taiao

Signed by: **Dr John Taylor**

Date: **29 June 2022**

<b>Chair, Decision-making Committee of the Environmental Protection Authority</b>	
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## Appendix A: Controls applying to HSR101529

### Hazardous substances and new organisms (HSNO) default controls

Control code	Regulation	Control description
LAB	EPA Labelling Notice 2017	<a href="#">Requirements for labelling of hazardous substances</a>
PKG	EPA Packaging Notice 2017	<a href="#">Requirements for packaging of hazardous substances</a>
SDS	EPA Safety Data Sheet Notice 2017	<a href="#">Requirements for safety data sheets for hazardous substances</a>
DIS	EPA Disposal Notice 2017	<a href="#">Requirements for disposal of hazardous substances</a>
HPC-1	EPA Hazardous Property Controls Notice 2017 Part 1	<a href="#">Hazardous Property Controls preliminary provisions</a>
HPC-2	EPA Hazardous Property Controls Notice 2017 Part 2	<a href="#">Certain substances restricted to workplaces only</a>
HPC-3	EPA Hazardous Property Controls Notice 2017 Part 3	<a href="#">Hazardous substances in a place other than a workplace</a>
HPC-4A	EPA Hazardous Property Controls Notice 2017 Part 4A	<a href="#">Site and storage controls for substances that are hazardous to the environment</a>
HPC-4B	EPA Hazardous Property Controls Notice 2017 Part 4B	<a href="#">Use of substances that are hazardous to the environment</a>
HPC-4C	EPA Hazardous Property Controls Notice 2017 Part 4C	<a href="#">Qualifications required for application of substances that are hazardous to the environment</a>

## HSNO additional controls and modifications to controls

### Definitions

For the purpose of this approval—

**Enclosed space** means:

- (a) the space under a sheet;
- (b) a shipping container.

**Exposure level** means the concentration of EDN in the air recorded at the monitoring location.

**PCBU** has the meaning defined in section 17 of the Health and Safety at Work Act 2015.

**Sheet** means a heavy-duty cover that—

- (a) has a low mass transfer coefficient for EDN; and
- (b) is waterproof and impenetrable.

**Ventilate** means the intentional release of EDN into the atmosphere following fumigation, and **ventilation** has a corresponding meaning

Code	HSNO Act	Control
Application rate	Section 77A	The maximum application rate of this substance is 120 g of substance/m <sup>3</sup> .
Use restriction	Section 77A	This substance must only be used as a fumigant for logs or timber for export under a sheet or in a shipping container.
Label	Section 77 Variation to Labelling Notice	The substance label must include the following statements, or words to the same effect: <ul style="list-style-type: none"> <li>• This substance must only be used as a fumigant for logs or timber for export under a sheet or in a shipping container.</li> </ul> The application rate must be included on the label.
Max impurity	Section 77A	The following limit is set for the toxicologically relevant impurity in the active ingredient, ethanedinitrile, used to manufacture this substance:  Hydrogen cyanide: 1% v/v maximum
Tolerable exposure limit (TEL)	Section 77B	The Tolerable Exposure Limit (TEL) set for ethanedinitrile is 0.034 ppm as a 24-hour average.
Wind speed	Section 77A	A PCBU with management or control of fumigation of logs or timber using EDN must ensure that ventilation of any fumigation only occurs when a minimum wind speed of 2 m/s is measured at the site of fumigation in the 10 minutes prior to ventilation.

Code	HSNO Act	Control
Notification of fumigation	Section 77A	<ol style="list-style-type: none"> <li>1. A PCBU with management or control of fumigation of logs or timber using EDN must notify the PCBU's intention to carry out a fumigation to the relevant local authority.</li> <li>2. The PCBU must ensure that the notification referred to in subclause (1) is made not less than 24 hours before the start of the fumigation event.</li> </ol>
Notification of TEL exceedance	Section 77A	<p>A PCBU with management or control of fumigation of logs or timber using EDN must—</p> <ol style="list-style-type: none"> <li>a. notify the relevant local authority as soon as practicable and within 24 hours if the exposure level exceeds the TEL value for EDN; and</li> <li>b. include in the notification— <ol style="list-style-type: none"> <li>i. the source of that exceedance; and</li> <li>ii. the exposure value(s) that exceed the TEL value: and</li> <li>iii. the individual monitoring values that were used to generate each relevant 24-hour exposure level.</li> </ol> </li> </ol>
Annual reporting	Section 77A	<p>A PCBU with management or control of fumigation of logs or timber using EDN in the preceding calendar year must provide a copy of the annual report provided to WorkSafe under the Requirements for Specified Fumigants Amendment SWI to the Environmental Protection Authority by 31 March each year.</p>



## Health and safety at work (HSW) requirements

Advisory Note: These requirements are not set for the substance but apply in their own right under the HSW (Hazardous Substances) Regulations 2017 according to the classification of the substance. They are listed here for information purposes only.

Control code	Regulation	Control description
HSW1	Part 1	<a href="#">Application</a>
HSW2	Part 2	<a href="#">Labelling, signage, safety data sheets, and packaging</a>
HSW3	Part 3	<a href="#">General duties relating to risk management</a>
HSW4	Part 4	<a href="#">Certified handlers and supervision and training of workers</a>
HSW5	Part 5	<a href="#">Emergency management</a>
HSW8	Part 8	<a href="#">Controls applying to all class 1 to 5 substances</a>
HSW10	Part 10	<a href="#">Class 2, 3, and 4 substances</a>
HSW11	Part 11	<a href="#">Controls relating to adverse effects of unintended ignition of class 2 and 3.1 substances</a>
HSW13	Part 13	<a href="#">Class 6 and 8 substances</a>
HSW14	Part 14	<a href="#">Fumigants</a>
HSW15	Part 15	<a href="#">Gases under pressure</a>
HSW16	Part 16	<a href="#">Tank wagons and transportable containers</a>
HSW17	Part 17	<a href="#">Stationary container systems</a>
HSW19	Part 19	<a href="#">Tracking hazardous substances</a>

Additional requirements for the substance are set through safe work instrument(s) (SWIs), a form of legislation that supports or complements health and safety regulations. SWIs specific to EDN are listed below.

- Health and Safety at Work (Hazardous Substances—Requirements for Specified Fumigants) Safe Work Instrument 2017 as amended by the Health and Safety at Work (Hazardous Substances—Requirements for Specified Fumigants) Amendment Safe Work Instrument (22 June 2022).
- Health and Safety at Work (General Risk and Workplace Management—Exposure and Health Monitoring Requirements for Ethanedinitrile) Safe Work Instrument (22 June 2022).

## Appendix B: Regulatory history

Application code	Application type	Date decided	Comment
APP202804	To import or manufacture for release any hazardous substance under Section 28 of the Hazardous Substances and New Organisms Act 1996	05 April 2022 (approval takes effect 22 July 2022)	This is the first approval process for this substance under the Act.

**ATTACHMENT KF5: HSR001632, HSR001636 AND HSR007629 EPA  
APPROVALS FOR PHOSPHINE, ALUMINIUM PHOSPHIDE AND  
VAPORPH3OS**

[Overleaf]



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## APPROVAL

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Reissued: 2 December 2021

Amended under section 67A: 1 July 2022

### Summary


Substance	Gas containing 20 g/kg phosphine
Application type	To reissue an approval for a hazardous substance under clause 4 of Schedule 7 of the Hazardous Substances and New Organisms Act 1996 ("the Act")
Considered by	The Chief Executive <sup>1</sup> of the Environmental Protection Authority ("the EPA")
Decision	Approved for reissue
Date of reissue	2 December 2021
Approval code	HSR001632
Hazard classification	Acute inhalation toxicity Category 3, Specific target organ toxicity (repeated exposure) Category 2, Hazardous to terrestrial vertebrates, Hazardous to terrestrial invertebrates

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<sup>1</sup> The Chief Executive of the EPA has made the decision on this application under delegated authority in accordance with section 19 of the Act

## Decision

- 1.1. Pursuant to clause 4 of Schedule 7 of the Act, I have considered this approval to reissue.
- 1.2. I have considered the matters raised in sections 4 to 8 of the Act but, given the nature of the reissue is administrative, there are no further considerations required in order to achieve the purpose of the Act.
- 1.3. I consider it appropriate to reissue approval HSR001632 with the controls set out in the Appendix in accordance with clause 4 of Schedule 7 of the Act. Therefore the reissued approval is now made under section 29 of the Act, in accordance with clause 4(5) of Schedule 7, and Schedule 7 no longer applies to the reissued approval. Given the hazard classification system came into effect on the 30 April 2021, this decision will have immediate effect.
- 1.4. The transitional provisions of the Labelling Notice, Safety Data Sheets Notice and Packaging Notice apply to this reissued approval for the transitional period which begins on the date of reissue and ends on 30 April 2025.



Signed by:

Date: 2 December 2021

Dr Allan L Freeth  
Chief Executive, EPA

## Amendments

Amendment under section 67A (per decision APP204421)

To include the hazard classification 'Hazardous to terrestrial invertebrates' in the Summary table.

Decision Maker: Christopher Hill, General Manager, Hazardous Substances and New Organisms

Date: 1 July 2022

## Appendix A: Controls applying to HSR001632

### Hazardous substances and new organisms (HSNO) default controls

Control code	EPA Notice	Notice / Part description
LAB	Labelling Notice 2017	<a href="#">Requirements for labelling of hazardous substances</a>
PKG	Packaging Notice 2017	<a href="#">Requirements for packaging of hazardous substances</a>
SDS	Safety Data Sheets Notice 2017	<a href="#">Requirements for safety data sheets for hazardous substances</a>
DIS	Disposal Notice 2017	<a href="#">Requirements for disposing hazardous substances</a>
HPC1	Hazardous Property Controls Notice 2017 Part 1	<a href="#">Preliminary provisions</a>
HPC2	Hazardous Property Controls Notice 2017 Part 2	<a href="#">Substances restricted to workplaces</a>
HPC3	Hazardous Property Controls Notice 2017 Part 3	<a href="#">Requirements for hazardous substances in a place other than a workplace</a>
HPC4A	Hazardous Property Controls Notice 2017 Part 4A	<a href="#">Substances that are hazardous to the environment: Site and storage controls</a>
HPC4B	Hazardous Property Controls Notice 2017 Part 4B	<a href="#">Use of substances that are hazardous to the environment</a>
HPC4C	Hazardous Property Controls Notice 2017 Part 4C	<a href="#">Qualifications required for application of substances that are hazardous to the environment</a>

### HSNO additional controls and modifications to controls

Control Description	Varied / Additional Control	Control
Other: Tolerable exposure limits (TEL)	Additional control	A TEL <sub>air</sub> has been set for phosphine. The TEL value is 0.0003 mg/m <sup>3</sup> (chronic exposure).

### Health and safety at work (HSW) requirements

Advisory Note: These requirements are not set for the substance under this approval but apply in their own right under the HSW (Hazardous Substances) Regulations 2017 according to the classification of the substance. They are listed here for information purposes only.

Control code	Regulation Part	Description
HSW1	Part 1	<a href="#">Application</a>
HSW2	Part 2	<a href="#">Labelling, signage, safety data sheets, and packaging</a>
HSW3	Part 3	<a href="#">General duties relating to risk management</a>
HSW4	Part 4	<a href="#">Certified handlers and supervision and training of workers</a>
HSW5	Part 5	<a href="#">Emergency management</a>
HSW7	Part 7	<a href="#">Controlled substance licences</a>
HSW13	Part 13	<a href="#">Class 6 and 8 substances</a>
HSW14	Part 14	<a href="#">Fumigants</a>
HSW16	Part 16	<a href="#">Tank wagons and transportable containers</a>
HSW17	Part 17	<a href="#">Stationary container systems</a>
HSW19	Part 19	<a href="#">Tracking hazardous substances</a>

## Appendix B: Regulatory history

This appendix is for information purposes only.

Application code	Application type	Date decided	Comment
TRS05004	Hazardous Substances (Fumigants) Transfer Notice 2004	29 October 2004	Transfer of substance into the HSNO Act
	To reissue an approval for a hazardous substance under clause 4 of Schedule 7 of the Act	2 December 2021	Reissued to apply GHS 7 classifications
APP204421	To undertake a minor or technical amendment to an approval under section 67A of the Act	30 June 2022	Hazard classification amended to include 'Hazardous to terrestrial invertebrates'



## APPROVAL

### Summary

Substance	Pellets containing 570 g/kg aluminium phosphide
Application type	To reissue an approval for a hazardous substance under clause 4 of Schedule 7 of the Hazardous Substances and New Organisms Act 1996 ("the Act")
Considered by	The Chief Executive <sup>1</sup> of the Environmental Protection Authority ("the EPA")
Decision	Approved for reissue
Date of reissue	2 December 2021
Approval code	<b>HSR001636</b>
Hazard classification	Substance or mixture which, in contact with water, emits flammable gases Category 1, Acute inhalation toxicity Category 1, Eye irritation Category 2, Specific target organ toxicity (repeated exposure) Category 1, Hazardous to terrestrial vertebrates, Hazardous to the aquatic environment acute Category 1, Hazardous to the aquatic environment chronic Category 1

<sup>1</sup> The Chief Executive of the EPA has made the decision on this application under delegated authority in accordance with section 19 of the Act

## Decision

- 1.1. Pursuant to clause 4 of Schedule 7 of the Act, I have considered this approval to reissue.
- 1.2. I have considered the matters raised in sections 4 to 8 of the Act but, given the nature of the reissue is administrative, there are no further considerations required in order to achieve the purpose of the Act.
- 1.3. I consider it appropriate to reissue approval HSR001636 with the controls set out in the Appendix in accordance with clause 4 of Schedule 7 of the Act. Therefore the reissued approval is now made under section 29 of the Act, in accordance with clause 4(5) of Schedule 7, and Schedule 7 no longer applies to the reissued approval. Given the hazard classification system came into effect on the 30 April 2021, this decision will have immediate effect.
- 1.4. The transitional provisions of the Labelling Notice, Safety Data Sheets Notice and Packaging Notice apply to this reissued approval for the transitional period which begins on the date of reissue and ends on 30 April 2025.



Signed by:

Date: 2 December 2021

Dr Allan L Freeth

Chief Executive, EPA

## Appendix: Controls applying to HSR001636

### Hazardous substances and new organisms (HSNO) default controls

Control code	EPA Notice	Notice / Part description
LAB	Labelling Notice 2017	<a href="#">Requirements for labelling of hazardous substances</a>
PKG	Packaging Notice 2017	<a href="#">Requirements for packaging of hazardous substances</a>
SDS	Safety Data Sheets Notice 2017	<a href="#">Requirements for safety data sheets for hazardous substances</a>
DIS	Disposal Notice 2017	<a href="#">Requirements for disposing hazardous substances</a>
HPC1	Hazardous Property Controls Notice 2017 Part 1	<a href="#">Preliminary provisions</a>
HPC2	Hazardous Property Controls Notice 2017 Part 2	<a href="#">Substances restricted to workplaces</a>
HPC3	Hazardous Property Controls Notice 2017 Part 3	<a href="#">Requirements for hazardous substances in a place other than a workplace</a>
HPC4A	Hazardous Property Controls Notice 2017 Part 4A	<a href="#">Substances that are hazardous to the environment: Site and storage controls</a>
HPC4B	Hazardous Property Controls Notice 2017 Part 4B	<a href="#">Use of substances that are hazardous to the environment</a>
HPC4C	Hazardous Property Controls Notice 2017 Part 4C	<a href="#">Qualifications required for application of substances that are hazardous to the environment</a>

### HSNO additional controls and modifications to controls

Control Description	Varied / Additional Control	Control
Other: Tolerable exposure limits (TEL)	Additional control	A TEL <sub>air</sub> has been set for phosphine. The TEL value is 0.0003 mg/m <sup>3</sup> (chronic exposure).

## Health and safety at work (HSW) requirements

Advisory Note: These requirements are not set for the substance under this approval but apply in their own right under the HSW (Hazardous Substances) Regulations 2017 according to the classification of the substance. They are listed here for information purposes only.

Control code	Regulation Part	Description
HSW1	Part 1	<a href="#">Application</a>
HSW2	Part 2	<a href="#">Labelling, signage, safety data sheets, and packaging</a>
HSW3	Part 3	<a href="#">General duties relating to risk management</a>
HSW4	Part 4	<a href="#">Certified handlers and supervision and training of workers</a>
HSW5	Part 5	<a href="#">Emergency management</a>
HSW7	Part 7	<a href="#">Controlled substance licences</a>
HSW8	Part 8	<a href="#">Controls applying to all class 1 to 5 substances</a>
HSW10	Part 10	<a href="#">Class 2, 3, and 4 substances</a>
HSW13	Part 13	<a href="#">Class 6 and 8 substances</a>
HSW14	Part 14	<a href="#">Fumigants</a>
HSW16	Part 16	<a href="#">Tank wagons and transportable containers</a>
HSW17	Part 17	<a href="#">Stationary container systems</a>
HSW19	Part 19	<a href="#">Tracking hazardous substances</a>

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## APPROVAL

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### Summary

Substance	CytecGas01
Application type	To reissue an approval for a hazardous substance under clause 4 of Schedule 7 of the Hazardous Substances and New Organisms Act 1996 ("the Act")
Considered by	The Chief Executive <sup>1</sup> of the Environmental Protection Authority ("the EPA")
Decision	Approved for reissue
Date of reissue	2 December 2021
Approval code	<b>HSR007629</b>
Hazard classification	Flammable gas Category 1A pyrophoric gas, Acute inhalation toxicity Category 1, Eye irritation Category 2, Specific target organ toxicity (repeated exposure) Category 1, Hazardous to terrestrial vertebrates, Hazardous to terrestrial invertebrates, Hazardous to the aquatic environment acute Category 1

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<sup>1</sup> The Chief Executive of the EPA has made the decision on this application under delegated authority in accordance with section 19 of the Act

Decision

- 1.1. Pursuant to clause 4 of Schedule 7 of the Act, I have considered this approval to reissue.
- 1.2. I have considered the matters raised in sections 4 to 8 of the Act but, given the nature of the reissue is administrative, there are no further considerations required in order to achieve the purpose of the Act.
- 1.3. I consider it appropriate to reissue approval HSR007629 with the controls set out in the Appendix in accordance with clause 4 of Schedule 7 of the Act. Therefore the reissued approval is now made under section 29 of the Act, in accordance with clause 4(5) of Schedule 7, and Schedule 7 no longer applies to the reissued approval. Given the hazard classification system came into effect on the 30 April 2021, this decision will have immediate effect.
- 1.4. The transitional provisions of the Labelling Notice, Safety Data Sheets Notice and Packaging Notice apply to this reissued approval for the transitional period which begins on the date of reissue and ends on 30 April 2025.



Signed by:

Date: 2 December 2021

Dr Allan L Freeth  
Chief Executive, EPA

## Appendix: Controls applying to HSR007629

### Hazardous substances and new organisms (HSNO) default controls

Control code	EPA Notice	Notice / Part description
LAB	Labelling Notice 2017	<a href="#">Requirements for labelling of hazardous substances</a>
SDS	Safety Data Sheets Notice 2017	<a href="#">Requirements for safety data sheets for hazardous substances</a>
DIS	Disposal Notice 2017	<a href="#">Requirements for disposing hazardous substances</a>
HPC1	Hazardous Property Controls Notice 2017 Part 1	<a href="#">Preliminary provisions</a>
HPC2	Hazardous Property Controls Notice 2017 Part 2	<a href="#">Substances restricted to workplaces</a>
HPC3	Hazardous Property Controls Notice 2017 Part 3	<a href="#">Requirements for hazardous substances in a place other than a workplace</a>
HPC4A	Hazardous Property Controls Notice 2017 Part 4A	<a href="#">Substances that are hazardous to the environment: Site and storage controls</a>
HPC4B	Hazardous Property Controls Notice 2017 Part 4B	<a href="#">Use of substances that are hazardous to the environment</a>
HPC4C	Hazardous Property Controls Notice 2017 Part 4C	<a href="#">Qualifications required for application of substances that are hazardous to the environment</a>

### HSNO additional controls and modifications to controls

Control Description	Varied / Additional Control	Control
Other: Tolerable exposure limits (TEL)	Additional control	<p>A TEL<sub>air</sub> has been set for phosphine. The TEL value is 0.0003 mg/m<sup>3</sup> (annual).</p> <p>A TEL<sub>air</sub> has been set for phosphine. The TEL value is 0.01 mg/m<sup>3</sup> (ceiling).</p>

### Health and safety at work (HSW) requirements

Advisory Note: These requirements are not set for the substance under this approval but apply in their own right under the HSW (Hazardous Substances) Regulations 2017 according to the classification of the substance. They are listed here for information purposes only.

Control code	Regulation Part	Description
HSW1	Part 1	<a href="#">Application</a>
HSW2	Part 2	<a href="#">Labelling, signage, safety data sheets, and packaging</a>
HSW3	Part 3	<a href="#">General duties relating to risk management</a>
HSW4	Part 4	<a href="#">Certified handlers and supervision and training of workers</a>
HSW5	Part 5	<a href="#">Emergency management</a>
HSW7	Part 7	<a href="#">Controlled substance licences</a>
HSW8	Part 8	<a href="#">Controls applying to all class 1 to 5 substances</a>
HSW10	Part 10	<a href="#">Class 2, 3, and 4 substances</a>
HSW11	Part 11	<a href="#">Controls relating to adverse effects of unintended ignition of class 2 and 3.1 substances</a>
HSW13	Part 13	<a href="#">Class 6 and 8 substances</a>
HSW14	Part 14	<a href="#">Fumigants</a>
HSW15	Part 15	<a href="#">Gases under pressure</a>
HSW16	Part 16	<a href="#">Tank wagons and transportable containers</a>
HSW17	Part 17	<a href="#">Stationary container systems</a>
HSW19	Part 19	<a href="#">Tracking hazardous substances</a>



**ATTACHMENT KF6: SAFE WORK INSTRUMENTS FOR EDN**

[Overleaf]





This safe work instrument is administered by WorkSafe New Zealand. For more information please see:  
Website: <http://www.worksafe.govt.nz>  
Contact phone: 0800 030 040  
Contact address: PO Box 165 Wellington 6140 New Zealand

## **Health and Safety at Work (General Risk and Workplace Management—Exposure and Health Monitoring Requirements for Ethanedinitrile) Safe Work Instrument 2022**

This safe work instrument is made under section 227 of the Health and Safety at Work Act 2015 by the Minister for Workplace Relations and Safety, being satisfied that appropriate consultation has been carried out under section 227(3) of that Act.

### **Contents**

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1 Title	1
2 Commencement	1
3 Interpretation	2
4 Workplace exposure standards prescribed for EDN	2
5 EDN a substance requiring health monitoring	2
6 Type of health monitoring to be provided	2

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### **Safe Work Instrument**

- 1 Title**  
This is the Health and Safety at Work (General Risk and Workplace Management—Exposure and Health Monitoring Requirements for Ethanedinitrile) Safe Work Instrument 2022.
- 2 Commencement**  
This safe work instrument comes into force on 22 July 2022.

**3 Interpretation**

- (1) In this safe work instrument, unless the context otherwise requires,—

**Act** means the Health and Safety at Work Act 2015

**EDN** means ethanedinitrile, HSNO approval number HSR101529

**enclosed space** means:

- (a) the space under a sheet:
- (b) a shipping container

**fumigation-related work** means all work associated with fumigation using EDN

**Regulations** means the Health and Safety at Work (General Risk and Workplace Management) Regulations 2016

- (2) A term or expression that is defined in the Act or the Regulations and used, but not defined, in this safe work instrument has the same meaning as in the Act or the Regulations.

**4 Workplace exposure standards prescribed for EDN**

To avoid doubt, the workplace exposure standard prescribed in clause 14 of the Schedule of the Health and Safety at Work (Hazardous Substances—Requirements for Specified Fumigants) Safe Work Instrument 2017 is a prescribed exposure standard for the purposes of paragraph (b) of the definition of that term in regulation 3(1) of the Regulations.

**5 EDN a substance requiring health monitoring**

For the purposes of regulation 31(1)(a) of the Regulations, EDN is a substance hazardous to health requiring health monitoring.

**6 Type of health monitoring to be provided**

For the purposes of regulation 34(1)(b) of the Regulations, a PCBU must ensure that the following health monitoring is provided at least once every 6 months to a worker who carries out fumigation-related work for the PCBU:

- (a) audiometric health monitoring:
- (b) respiratory health monitoring.

Made at Wellington on 22 June 2022.

Hon Michael Wood  
Minister for Workplace Relations and Safety

Date of notification in *Gazette*: 23 June 2022

This safe work instrument is administered by WorkSafe New Zealand.

# WORKSAFE

Mahi Haumaru Aotearoa

This safe work instrument is administered by WorkSafe New Zealand. For more information please see:

Website: <http://www.worksafe.govt.nz>

Contact phone: 0800 030 040

Contact address: PO Box 165 Wellington 6140 New Zealand

## Health and Safety at Work (Hazardous Substances— Requirements for Specified Fumigants) Amendment Safe Work Instrument 2022

This safe work instrument is made under section 227 of the Health and Safety at Work Act 2015 by the Minister for Workplace Relations and Safety, being satisfied that—

- (a) appropriate consultation has been carried out under section 227(3) of that Act; and
- (b) in accordance with regulation 13.46(2) of the Health and Safety at Work (Hazardous Substances) Regulations 2017, for the purposes of clauses 3, 6 to 10, 12, 13, 15(2), 16 and 17 of the Schedule inserted into the principal safe work instrument by this safe work instrument, compliance with provisions of the Regulations that apply to ethanedinitrile will not appropriately control risk associated with that substance.

### Contents

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3 Principal safe work instrument	2
4 Preamble amended	2
5 Overview amended	2
6 Interpretation amended	2
7 New clause 17 and cross-heading inserted	2
<i>Additional and modified requirements applying to EDN</i>	
8 New Schedule inserted	3

### Schedule

#### New Schedule inserted

## Safe Work Instrument

- 1 Title**  
This is the Health and Safety at Work (Hazardous Substances—Requirements for Specified Fumigants) Amendment Safe Work Instrument 2022.
- 2 Commencement**  
This safe work instrument comes into force on 22 July 2022.
- 3 Principal safe work instrument**  
This safe work instrument amends the Health and Safety at Work (Hazardous Substances—Requirements for Specified Fumigants) Safe Work Instrument 2017 (the principal safe work instrument).
- 4 Preamble amended**  
In the Preamble, replace "being satisfied that appropriate consultation has been carried out under section 227(3) of that Act" with:  
"being satisfied that—
  - (a) appropriate consultation has been carried out under section 227(3) of that Act; and
  - (b) in accordance with regulation 13.46(2) of the Health and Safety at Work (Hazardous Substances) Regulations 2017, for the purposes of clauses 3, 6 to 10, 12, 13, 15(2), 16 and 17 of the Schedule of this safe work instrument, compliance with provisions of the Regulations that apply to ethanedinitrile will not appropriately control risk associated with that substance".
- 5 Overview amended**  
In clause 3, after paragraph (l), insert:
  - (m) the Schedule contains additional and modified requirements applying to the use of EDN.
- 6 Interpretation amended**
  - (1) In clause 4(1), after the definition of **AFE-HFP**, insert:  
**EDN** means ethanedinitrile, HSNO approval number HSR101529
  - (2) In clause 4(1), replace the definition of **site** with:  
**site** has the meaning given in regulation 14.32 of the Regulations, except for the purposes of the Schedule of this safe work instrument
- 7 New clause 17 and cross-heading inserted**  
After clause 16, insert:  

*Additional and modified requirements applying to EDN*

**17 Additional and modified requirements applying to EDN**

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The Schedule specifies additional and modified requirements that apply to the use of EDN.

**8 New Schedule inserted**

After clause 17, insert the Schedule set out in the Schedule of this safe work instrument.

cl 8

## Schedule New Schedule inserted

cl 17

### Schedule Additional and modified requirements for EDN

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#### *Preliminary provisions*

#### 1 Overview

This schedule contains the following additional and modified requirements applying to the use of EDN:

- (a) clause 3 sets out additional requirements to be complied with under regulation 13.46(7) of the Regulations in relation to the purposes for which EDN may be used:

- (b) clause 4 modifies the notification requirements in regulation 14.7 of the Regulations for intended fumigations using EDN;
- (c) clause 5 modifies the signage requirements in regulation 14.10(1) of the Regulations for fumigation using EDN;
- (d) clauses 6 and 7 set out additional requirements to be complied with under regulation 13.46(7) of the Regulations in relation to setting buffer zones and restricting entry to them when carrying out fumigation using EDN;
- (e) clause 8 sets out additional requirements to be complied with under regulation 13.46(7) of the Regulations to—
  - (i) determine the affected area when carrying out fumigation using EDN; and
  - (ii) restrict entry to that area to workers carrying out fumigation-related work;
- (f) clause 9 sets out additional requirements to be complied with under regulation 13.46(7) of the Regulations when applying EDN;
- (g) clause 10 sets out additional requirements to be complied with under regulation 13.46(7) of the Regulations to measure wind speed and direction when carrying out fumigation using EDN;
- (h) clause 11 modifies the ventilation and safety requirements in regulation 14.16 of the Regulations for fumigation using EDN;
- (i) clause 12 modifies the tolerable exposure limit requirements in regulation 13.17 of the Regulations for fumigation using EDN;
- (j) clause 13 sets out additional requirements to be complied with under regulation 13.46(6)(a) of the Regulations when recorded exposure levels exceed the tolerable exposure limit for EDN;
- (k) clause 14 prescribes the workplace exposure standards for EDN under regulation 13.18(3) of the Regulations;
- (l) clause 15 modifies the record-keeping requirements in regulation 14.18(1) of the Regulations for fumigation using EDN;
- (m) clause 16 sets out an additional requirement to be complied with under regulation 13.46(7) of the Regulations to keep a record of every unintentional release of EDN;
- (n) clause 17 sets out an additional requirement to be complied with under regulation 13.46(7) of the Regulations to produce an annual report of fumigations using EDN.

## 2 Interpretation

In this schedule, unless the context otherwise requires,—

**affected area means—**

- (a) an area within which one or more workplace exposure standards for EDN is or may be exceeded during fumigation and ventilation; and
- (b) includes an enclosed space



**buffer zone** means an area extending outward in all directions from the perimeter of an enclosed space being fumigated to a distance of at least 50 metres

**buffer zone period** means the period that starts when EDN is first applied in an enclosed space and ends with the latest of the following:

- (a) at least 1 hour has lapsed since ventilation has been completed;
- (b) measurements taken in the open air adjacent to the export logs or timber being fumigated in the enclosed space have, for a period of 15 minutes, continuously shown an airborne concentration of EDN below that of each workplace exposure standard

**enclosed space** means:

- (a) the space under a sheet;
- (b) a shipping container

**exposure level** means the concentration of EDN in the air recorded at the monitoring location

**fumigation-related work** means all work associated with fumigation using EDN

**location**, in relation to fumigation using EDN at any site, means the place on the site—

- (a) where the fumigation is occurring; and
- (b) which is recorded using—
  - (i) New Zealand Mapping Series grid references; or
  - (ii) a map with a resolution of at least 1:10 000; or
  - (iii) New Zealand Transverse Mercator (NZTM) 2000 coordinates

**monitoring location**, in relation to a buffer zone, means the point on land at the edge of the buffer zone that is in the most downwind direction from the enclosed space being ventilated

**Regulations** means the Health and Safety at Work (Hazardous Substances) Regulations 2017

**sheet** means a heavy-duty cover that—

- (a) has a low mass transfer coefficient for EDN; and
- (b) is waterproof and impenetrable

**site**, in relation to the use of EDN on land, means an area of land within a workplace where EDN is used and (regardless of whether the area is bisected by a road or right of way) that—

- (a) consists of—
  - (i) a single allotment or other legally defined parcel of land that is the smaller of—
    - (A) an allotment or parcel held in a single certificate of title;
    - (B) an allotment or parcel for which a separate certificate of title could be issued without the further consent of the relevant local authority; or

- (ii) 2 or more adjoining legally defined parcels of land held together in 1 certificate of title in such a way that the lots cannot be dealt with separately without the further consent of the relevant local authority; or
- (iii) 2 or more adjoining certificates of title that are—
  - (A) subject to a condition imposed under [section 37](#) of the Building Act 2004 or [section 240](#) of the Resource Management Act 1991; or
  - (B) held together in such a way that they cannot be dealt with separately without the further consent of the relevant local authority; and
- (b) contains—
  - (i) for land subdivided under the cross lease or company lease systems (other than strata titles),—
    - (A) a building or buildings used for residential or business purposes with any accessory building, plus any land exclusively restricted to the users of that building; or
    - (B) a remaining share or shares in the fee simple creating a vacant part of the whole for future cross lease or company lease purposes; and
  - (ii) for land subdivided under the [Unit Titles Act 2010](#) (other than strata titles), a principal unit or proposed unit on a unit plan together with its accessory units, and includes—
    - (A) for strata titles, an area of land comprised in underlying certificate of titles, immediately before subdivision; and
    - (B) an activity that occupies more than 1 adjoining allotment, whether held in single legal title or multiple titles, and for the purpose of compliance with any rules that specify a level of effect at the boundary or that specify capacities or discharge quantities, the total area of land occupied by that activity, the boundary of which is the boundary around that area of land

**tolerable exposure limit** in relation to EDN, means the limit as set by the Environmental Protection Authority under section 77B of the Hazardous Substances and New Organisms Act 1996

**ventilate** means the intentional release of EDN into the atmosphere following fumigation, and **ventilation** has a corresponding meaning.

*Additional requirement restricting use of EDN*

**3 Purpose for which EDN may be used**

For the purposes of regulation 13.46(4)(a) of the Regulations, a PCBU with management or control of EDN must ensure that the substance is used—

- (a) only for the purpose of carrying out the fumigation of export logs or timber (or both)—
  - (i) either—
    - (A) under a sheet; or

- (B) in a shipping container; and
- (ii) in accordance with clause 9; and
- (b) for no other purpose.

*Additional and modified notification and signage requirements*

#### 4 Notification of intended fumigation

For the purposes of regulations 11 and 14.7(4) of the Regulations, regulation 14.7 applies as if the following subclauses were inserted after subclause (3):

“(3A) A PCBU who intends to carry out the fumigation of export logs or timber using EDN must notify the following persons of the PCBU’s intention to carry out the fumigation:

- (a) every PCBU whose workers carry out work in the buffer zone; and
- (b) if a marae is adjacent to the site, local Māori; and
- (c) if more than 100 kg of EDN is to be applied in a 24-hour period, the occupier of every other property (including moored boats) within 100 m of the site.

(3B) A PCBU who is required to notify local Māori under subclause (3A)(b) must develop appropriate notification arrangements in consultation with local Māori.

(3C) Subject to the notification arrangements developed under subclause (3B), a PCBU who is required to give a notification under subclause (3A) must ensure that it is given not less than 24 hours before the start of the fumigation.

(3D) The requirement under subclause (3A) to notify a person is treated as having been complied with if—

- (a) fumigation is carried out at the site every week; and
- (b) subject to the notification arrangements developed under subclause (3B), the PCBU with management or control of the fumigations—
  - (i) gives notice to the person of the intention to carry out fumigations at the site not less than 24 hours before the first of the fumigations begins and annually thereafter; and
  - (ii) includes in the notice the following information:
    - (A) where the fumigation will occur; and
    - (B) to the extent it can be specified, the time ventilation will normally occur; and
    - (C) the expected frequency of the fumigation; and
    - (D) any likely seasonal variations to the timing and scope of the fumigation.

(3E) To avoid doubt, the notification requirements in subclause (3A) apply in addition to any applicable notification requirements in subclause (1) or (2).”

#### 5 PCBU must erect signs

For the purposes of regulations 11 and 14.10(4) of the Regulations, regulation 14.10 applies as if subclause (1) were replaced with the following:

"(1) A PCBU with management or control of fumigation using EDN must, at each point of entry to the buffer zone on land, erect signs that—

- (a) can be readily seen by any person approaching the buffer zone; and
- (b) to the extent the buffer zone extends over water, are clearly visible and legible to any person approaching the buffer zone from a seaward direction at any time, including during the hours of darkness; and
- (c) state that fumigation is being carried out; and
- (d) identify that EDN is being used and state that it is toxic to humans; and
- (e) describe the general type of hazard associated with EDN; and
- (f) describe the precautions necessary to prevent the unintended ignition of EDN; and
- (g) state that access by members of the public is prohibited."

*Additional and modified operational requirements*

**6 PCBU to set buffer zone for fumigation using EDN**

For the purposes of regulation 13.46(4)(a) of the Regulations, a PCBU with management or control of EDN that the PCBU uses for fumigation must set a buffer zone around the perimeter of each enclosed space for each fumigation.

**7 Entry to buffer zone to be restricted**

- (1) For the purposes of regulation 13.46(4)(a) of the Regulations, a PCBU with management or control of EDN that the PCBU uses for fumigation must ensure that no member of the public is in the buffer zone during the buffer zone period.
- (2) Despite subclause (1), if a buffer zone extends over water, the PCBU must ensure so far as reasonably practicable that—
  - (a) the buffer zone is kept under observation; and
  - (b) if a member of the public enters the buffer zone, the member of the public moves out of the buffer zone as soon as is reasonably practicable.

**8 Entry to affected area to be restricted**

For the purposes of regulation 13.46(4)(a) of the Regulations, a PCBU with management or control of EDN that the PCBU uses for fumigation must—

- (a) for each fumigation, determine, review and, if necessary, adjust the affected area having regard to—
  - (i) the particular circumstances of the fumigation; and
  - (ii) information obtained from monitoring data; and
- (b) ensure that—



- (i) no person enters or remains in the affected area at any time, other than in the following circumstances:
  - (A) the certified handler referred to in regulation 14.16(2)(a)(i) of the Regulations (as modified by clause 11) is satisfied that the affected area is safe for the person to enter;
  - (B) the person is a worker carrying out fumigation-related work; and
- (ii) no worker carrying out fumigation-related work enters or remains in the affected area unless—
  - (A) the worker wears personal protective equipment in accordance with regulation 13.8 of the Regulations; and
  - (B) the personal protective equipment is suitable to ensure the worker is not exposed to levels of EDN above the workplace exposure standards.

## 9 Application of EDN

- (1) For the purposes of regulation 13.46(4)(a) of the Regulations, a PCBU with management or control of EDN that the PCBU uses for fumigation must ensure that—
  - (a) if fumigation using EDN is carried out under a sheet,—
    - (i) each sheet under which the EDN is applied is—
      - (A) in good repair and has no tears, rips, or visible holes; and
      - (B) made secure against likely weather conditions at the site; and
      - (C) sealed; and
    - (ii) the floor of the enclosed space is flat and impermeable to EDN; and
  - (b) each fumigation is continuously monitored by sampling tubes that—
    - (i) allow concentrations of EDN in the enclosed space to be measured; and
    - (ii) allow changes to be detected in the concentration of EDN that may indicate an unintentional release of EDN from the enclosed space; and
    - (iii) are placed—
      - (A) in accordance with subclauses (2) and (3); and
      - (B) as far from fumigant supply pipes as possible; and
    - (iv) are equipped with meters that allow readings to be taken from outside the affected area; and
  - (c) if an unintentional release of EDN into the open air occurs, steps are taken as soon as possible to—
    - (i) stop the unintentional release and prevent a recurrence; and
    - (ii) eliminate or minimise the risk to health and safety, so far as is reasonably practicable.
- (2) If the fumigation is carried out on a stack of export logs or timber in an enclosed space that is 30 m<sup>3</sup> or smaller, the PCBU must ensure that—

- (a) the fumigation is continuously monitored; and
  - (b) the monitoring is carried out within the enclosed space using one or more sampling tubes, one of which is placed on top of the stack of export logs or timber and positioned at the centre.
- (3) If the fumigation is carried out on a stack of export logs or timber in an enclosed space that is larger than 30 m<sup>3</sup>, the PCBU must ensure that—
- (a) the fumigation is continuously monitored; and
  - (b) the monitoring is carried out within the enclosed space using three or more sampling tubes; and
  - (c) the placement of the sampling tubes within the enclosed space meets the following requirements:
    - (i) in every case,—
      - (A) one sampling tube must be placed within the stack of export logs or timber as close to the centre as possible; and
      - (B) one sampling tube must be placed in front of the stack of export logs or timber and positioned at the base;
    - (ii) in the case of fumigation carried out under a sheet, one sampling tube must also be placed on top of the stack of export logs or timber and positioned at the centre;
    - (iii) in the case of fumigation carried out in a shipping container, each sampling tube must be placed as far from the doors of the shipping container as possible.

#### 10 PCBU to measure wind speed and direction

For the purposes of regulation 13.46(4)(a) of the Regulations, a PCBU with management or control of EDN that the PCBU uses for fumigation must ensure that the wind speed and direction is measured at the site every 3 minutes during the buffer zone period at the following times:

- (a) when EDN is being applied;
- (b) when the enclosed space is being ventilated until the end of the buffer zone period;
- (c) when an unintentional release of EDN occurs until—
  - (i) the unintentional release has been stopped; and
  - (ii) measurements taken in the open air adjacent to the export logs or timber being fumigated in the enclosed space have, for a period of 15 minutes, continuously shown an airborne concentration of EDN that is below each workplace exposure standard.

#### 11 Ventilation requirements

For the purposes of regulations 11 and 14.16(3) of the Regulations, regulation 14.16 applies as if subclause (2) were replaced with the following:

- "(2) A PCBU with management or control of fumigation using EDN must—
- (a) ensure, so far as is reasonably practicable, that the enclosed space is properly ventilated so that, at the completion of fumigation,—
    - (i) in the opinion of a certified handler, the EDN has dispersed from all parts of the enclosed space; and
    - (ii) the maximum concentration of EDN that is in the affected area is reduced to the lower of the following:
      - (A) the maximum level of exposure permitted in the prescribed exposure standards set in relation to EDN;
      - (B) the lowest level practicable; and
  - (b) ensure that—
    - (i) ventilation is carried out only during the hours between sunrise and sunset; and
    - (ii) ventilation does not begin until the concentration of EDN in the enclosed space is 700 ppm or less; and
    - (iii) the airborne concentration of EDN is measured during ventilation until the end of the buffer zone period—
      - (A) in the open air adjacent to the export logs or timber; and
      - (B) at the monitoring location; and
    - (iv) the fumigated export logs or timber are not moved until the end of the buffer zone period."

*Exposure standards and limits*

**12 Modified requirement for tolerable exposure limit**

For the purposes of regulation 13.46(4)(b) of the Regulations, regulation 13.17 applies as if subclause (1) were replaced with the following:

- "(1) A PCBU with management or control of work using a class 6 substance must ensure that it is not used in a manner that results in—
- (a) in the case of fumigation using EDN, a concentration of the substance in the air at any point on the boundary of the buffer zone that exceeds the tolerable exposure limit set for that medium; and
  - (b) in every other case, a concentration of the substance in an environmental medium that exceeds the tolerable exposure limit set for the medium."

**13 Additional requirement to notify recorded exposure level**

For the purposes of regulation 13.46(4)(a) of the Regulations, if the exposure level recorded for a ventilation exceeds the tolerable exposure limit for EDN, the PCBU must notify WorkSafe and the relevant medical officer of health as soon as practicable but within 5 working days of the exposure level being recorded.

**14 Workplace exposure standards prescribed for EDN**

For the purposes of regulations 11 and 13.18(3) of the Regulations, the workplace exposure standards for EDN are:

- (a) an average airborne concentration of 3 ppm (6.4 mg/m<sup>3</sup>) calculated over an 8 hour work period;
- (b) a maximum airborne concentration of 5 ppm (10.6 mg/m<sup>3</sup>) at any time during that work period.

*Additional and modified record-keeping and reporting requirements*

**15 Requirement to keep a record of application of EDN**

- (1) For the purposes of regulations 11 and 14.18(2) of the Regulations, regulation 14.18 applies as if subclause (1) were replaced with the following:

"(1) A PCBU with management or control of fumigation using EDN must ensure that an accurate written record of each application of EDN is kept in accordance with regulation 13.4 and subclause (1A).

(1A) In addition to the information specified in regulation 13.4(1), the PCBU must ensure that for each fumigation the following data is included in the written record:

- (a) a description of the affected area, including any adjustment to the affected area during fumigation; and
- (b) the volume of export logs or timber in the enclosed space;
- (c) the measurements of wind speed and direction taken in accordance with clause 10(a) and (b);
- (d) a description of the data collected from monitoring in the enclosed space, including end concentrations of EDN;
- (e) the date, time and location of each ventilation;
- (f) buffer zone information for the monitoring location;
- (g) the time the fumigated export logs or timber were removed from the location where the EDN was applied.

(1B) For the purposes of subclause (1A), **buffer zone information** means—

- (a) exposure levels for EDN, including the 24-hour exposure level for each ventilation;
- (b) the number of times exposure levels exceeded the tolerable exposure limit for EDN;
- (c) the risk mitigation measures taken each time the tolerable exposure limit for EDN was exceeded;
- (d) the type and location of monitoring equipment used to record exposure levels."

- (2) For the purposes of regulation 13.46(4)(b) of the Regulations, regulation 14.18 applies as if subclause (3) were replaced with the following:

"(3) The PCBU must ensure that the written record is—

- (a) kept for at least 7 years after the date of the fumigation to which it relates; and



- (b) available for inspection during that time."

**16 Requirement to keep a record of unintentional release**

- (1) For the purposes of regulation 13.46(4)(a) of the Regulations, a PCBU with management or control of EDN that the PCBU uses for fumigation must ensure that—
  - (a) an accurate written record of each unintentional release of EDN into the open air that occurs during fumigation is kept; and
  - (b) the written record contains the following information:
    - (i) the volume of export logs or timber in the fumigation area;
    - (ii) the date and time of the unintentional release;
    - (iii) the approximate amount of EDN unintentionally released;
    - (iv) the location where EDN was unintentionally released;
    - (v) the approximate wind speed and direction at the location when the unintentional release began;
    - (vi) the measurements of wind speed and direction taken in accordance with clause 10(c);
    - (vii) where the unintentional release occurred from;
    - (viii) the reason why the unintentional release occurred;
    - (ix) the name of each worker carrying out fumigation-related work at the time of the unintentional release and the physical address of the worker's workplace;
    - (x) all actions taken at the time to manage the risks associated with the unintentional release;
    - (xi) all actions taken to prevent future unintentional releases; and
  - (c) the written record is—
    - (i) kept for at least 7 years after the date of the fumigation to which it relates; and
    - (ii) available for inspection during that time.
- (2) For the purposes of subclause (1), a written record includes a record made by electronic means.

**17 Requirement to produce annual monitoring report**

- (1) For the purposes of regulation 13.46(4)(a) of the Regulations, a PCBU with management or control of EDN must—
  - (a) produce an annual monitoring report for each site at which the PCBU uses EDN for fumigation; and
  - (b) ensure the annual monitoring report contains the information set out in subclause (2); and

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- (c) provide the annual monitoring report to WorkSafe and the relevant medical officer of health by 31 March of the year following the calendar year to which the report relates.
- (2) The annual monitoring report must contain the following information for each calendar year:
  - (a) the number of fumigations using EDN carried out at the site:
  - (b) the total amount of EDN applied at the site:
  - (c) the types of equipment used to monitor the fumigations:
  - (d) the number of times an unintentional release of EDN into the open air occurred:
  - (e) the approximate total quantity of EDN unintentionally released:
  - (f) the number of notifications made in accordance with clause 13, identified by each monitoring location:
  - (g) how worker exposure is managed at the site:
  - (h) an anonymised summary of health monitoring results for workers carrying out fumigation-related work, including at least 2 results for every worker who has been carrying out fumigation-related work for a period of 12 months or more:
  - (i) any accidents or issues related to non-compliance with any of the applicable requirements in the Regulations or this schedule.

Made at Wellington on 22 June 2022.

Hon Michael Wood  
Minister for Workplace Relations and Safety

Date of notification in *Gazette*: 23 June 2022  
This safe work instrument is administered by WorkSafe New Zealand.

ATTACHMENT KF7: ANNUAL REPORT FOR METHYL BROMIDE USE

[Overleaf]





# Annual report for methyl bromide use

## Instructions for completing this report template

You must provide the EPA an annual report for methyl bromide use (for the preceding calendar year) by 30 June each year. It is in addition to any annual reporting requirements from WorkSafe and allows us to verify and ensure compliance with EPA controls.

This reporting requirement applies to all methyl bromide fumigations, **regardless of the amount of methyl bromide used or the level of recapture.**


## Submitting your report


If you need any help with the report template, you can call or email us:

- 0800 208 338
- +64 04 916 2426
- email: [methylbromideannualreports@epa.govt.nz](mailto:methylbromideannualreports@epa.govt.nz)

### Ways you can send your annual report to us

 by email – [methylbromideannualreports@epa.govt.nz](mailto:methylbromideannualreports@epa.govt.nz)

 by post – Private Bag 63002, Wellington 6140

 in person – Level 10, 215 Lambton Quay, Wellington.

Click or tap here to enter text.

## Section 1: Your details

**Date report submitted:** Click or tap to enter a date.

**Time period covered by the report:** Click or tap here to enter text.

### Report submitted by

**Organisation name:** Click or tap here to enter text.

**New Zealand Business Number:** Click or tap here to enter text.

**Postal address:** Click or tap here to enter text.

**Contact name:** Click or tap here to enter text.

**Phone:** Click or tap here to enter text.

**Email:** Click or tap here to enter text.

### Site details

**Organisation name:** Click or tap here to enter text.

**New Zealand Business Number:** Click or tap here to enter text.

**Site Address:** Click or tap here to enter text.

**Postal address:** Click or tap here to enter text.

**Contact name:** Click or tap here to enter text.

**Phone:** Click or tap here to enter text.

**Email:** Click or tap here to enter text.

### Fumigation company details (if different from above)

**Organisation name:** Click or tap here to enter text.

**New Zealand Business Number:** Click or tap here to enter text.

**Postal address:** Click or tap here to enter text.

**Contact name:** Click or tap here to enter text.

**Phone:** Click or tap here to enter text.

**Email:** Click or tap here to enter text.

## Section 2: Methyl bromide use

Table 1: How methyl bromide was used, and amounts

Type of space fumigated	Number of pre-shipment fumigations	Number of quarantine fumigations	Total amount of methyl bromide used (kg)
Container			
Breakbulk or container under sheet			
Sheet-covered log rows			
Ship holds (until 1 January 2023)			
Other (please specify)			
Total			

### Monitoring

What equipment was used to monitor methyl bromide?

Please answer here: [Click or tap here to enter text.](#)

What substances (or substance group) were measured by the monitoring equipment?

Please answer here: [Click or tap here to enter text.](#)

What is the equipment's detection limit for each substance?

Please answer here: [Click or tap here to enter text.](#)

### Exposure levels

What was the annual exposure level at the site?

Annual exposure level means the total of average exposure levels for each 24-hour time period from the start of ventilation until the end of monitoring, recorded over a calendar year and averaged over 365 days.

Please answer here: [Click or tap here to enter text.](#)

## Unintended discharge

**What was the approximate total quantity of methyl bromide discharged?**

Discharge means the unintended release of methyl bromide into open air.

Please answer here: [Click or tap here to enter text.](#)

## Breaches of the tolerable exposure levels

The allowed one-hour tolerable exposure level (TEL<sub>air</sub>) is one part per million. The allowed 24-hour TEL is 0.333 parts per million.

**Was the one-hour TEL<sub>air</sub> exceeded during this reporting period? If yes, how many times?**

Please answer here: [Click or tap here to enter text.](#)

**Was the 24-hour TEL<sub>air</sub> exceeded during this reporting period? If yes, how many times?**

Please answer here: [Click or tap here to enter text.](#)

**If your answer is “yes” to any of the above questions, then please answer the following**

- Was the exceedance notified? To whom? Please answer here: [Click or tap here to enter text.](#)
- What was the source of the breach? Please answer here: [Click or tap here to enter text.](#)
- What was the exposure value that exceeded the TEL<sub>air</sub>? Please answer here: [Click or tap here to enter text.](#)
- What are the individual monitoring values that were used to generate that averaging time exposure value for comparison with the TEL? Please answer here: [Click or tap here to enter text.](#)
- What risk mitigation measures have been or are being taken? Please answer here: [Click or tap here to enter text.](#)

## Accidents or non-compliance

**Were there any other accidents or non-compliance issues?**

This question relates to accidents or other non-compliance with the methyl bromide controls under the Hazardous Substances and New Organisms Act 1996 or any of the applicable requirements in the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Please answer here: [Click or tap here to enter text.](#)

## Progress towards the reduction of methyl bromide

What technology and process developments have been used to ensure that future recapture of methyl bromide targets are met?

Please detail any new equipment purchases, staff training, new processes developed, new research on recapture or any other relevant information.

Please answer here: [Click or tap here to enter text.](#)

What other actions were taken to reduce methyl bromide emissions and use?

Please detail the use of any alternatives to methyl bromide, including other fumigants or other phytosanitary treatments or processes, or any other relevant information.

Please answer here: [Click or tap here to enter text.](#)

## Recapture information

### Fumigations under sheets

Please provide the below information for each fumigation event under sheets:

**Table 2: Recapture information for all fumigations under sheets on site**

Fumigation (ID)	Recapture used?	Amount of methyl bromide in head space at end of fumigation (kg)	Amount of methyl bromide in head space at end of recapture (kg)	Amount of methyl bromide recaptured (kg)	Amount of methyl bromide recaptured (percent)

What is the event recapture proportion for fumigations under sheets on this site?



Event recapture proportion means the percentage of fumigation events for which recapture technology was used (this is the number of fumigations that used recapture divided by the total number of fumigations at the site times 100%).

Please answer here: [Click or tap here to enter text.](#)

**What is the annual average recapture performance for fumigations under sheets on this site?**

Annual average recapture performance means the average of the percent of methyl bromide recaptured for each event, averaged over the calendar year (this is the sum of all percent of methyl bromide recaptured [as per Column 6 in Table 2] divided by the number of fumigations where recapture was used on site). This calculation must not be averaged nationally or regionally.

Please answer here: [Click or tap here to enter text.](#)

**Fumigations in containers**

Please provide the below information for each fumigation event in a container:

**Table 3: Recapture information for all container fumigations on site**

Fumigation (ID)	Amount of methyl bromide in head space at end of fumigation (kg)	Amount of methyl bromide in head space at end of recapture (kg)	Amount of methyl bromide recaptured (kg)	Amount of methyl bromide recaptured (percent)

## Section 3: Attachments

List all documents submitted with this report.(If any)

Attachment number	Document name	Author	Document version

**ATTACHMENT KF8: KIWIFRUIT VINE HEALTH’S STATEMENT ON THE  
IMPORTANCE OF FUMIGATION FOR BIOSECURITY RISK MANAGEMENT**

[Overleaf]



28 April 2023



To whom it may concern,

**Re: Kiwifruit Vine Health's expert statement in relation to the proposed consenting of the discharge of contaminants into air from fumigation at the Port of Tauranga.**

Thank you for the opportunity to make an expert statement regarding the importance of fumigation for biosecurity risk mitigation. We do not wish to present at the hearing in June, but we welcome the opportunity to discuss any aspect of our statement with the Bay of Plenty Regional Council, and we look forward to your careful consideration of these matters.

Yours sincerely,

Leanne Stewart,  
Chief Executive,  
Kiwifruit Vine Health

#### Kiwifruit Vine Health:

1. Kiwifruit Vine Health (KVH) is a grower funded; pan-industry biosecurity organisation dedicated to protecting the New Zealand kiwifruit industry. We work with our growers and wider industry to provide awareness, education, readiness, and response activities to incursions of pests and diseases affecting kiwifruit.
2. Kiwifruit is one of New Zealand's leading horticultural crops and an important contributor to the New Zealand economy with annual exports worth over \$3.2B annually and steadily increasing.
3. Bay of Plenty is kiwifruit's largest growing region, making up around 80% of the total planted hectares. The remainder of kiwifruit is grown in smaller scales spanning from Northland down to the Tasman-Nelson region.
4. Stringent biosecurity practices and procedures are of the utmost importance to KVH as biosecurity threats are considered one of the most significant risks to our industry. It is important for our own biosecurity that the regulators and service providers have the right tools available to remain agile to risks found at our borders.

#### Importance of fumigation for biosecurity risk mitigation:

5. Having the ability to manage biosecurity risks at the border is a critical function for an effective biosecurity system. At the border, biosecurity measures involve a combination of actions such as inspection, cleaning and treatment of goods entering and leaving the country.
6. Biosecurity treatments, including fumigation, are a crucial component of New Zealand's biosecurity toolbox. An effective border biosecurity system requires the ability to quickly and effectively manage biosecurity risks to mitigate and prevent the spread of pests and diseases that can be harmful to our primary production, environment, and social values.
7. Managing risk at the point of first detection is always preferred as it reduces the movement of contaminated imports. Increasing movements off port to those facilities that can achieve regulations inherently increases the risk of possible release of biosecurity threats into our environment.
8. There are many import pathways where fumigation at the point of detection is key to mitigate any biosecurity risk.
  - Fresh produce imports which are found to harbour regulated pests are treated before they released for clearance and wider dissemination. The choice of treatment method largely depends on the commodity type and pest risk; however, fumigation is a key method that is regularly used to mitigate a large array of pests across a range of fresh produce imports.
  - Inanimate pathways, such as shipping containers or machinery/cars, can harbour damaging hitch hiker pests. Many of these pests are very difficult to detect via inspection, especially if they are dormant stage. Therefore, this pathway presents a significant risk as it allows pests to travel long distances, often between countries, undetected. Fumigation is a key method to managing these pathways where inspection is insufficient on its own.

#### Impact of possible incursion:

9. A biosecurity incursion could have a significant impact on our industry and the wider Bay of Plenty community; a fact that the kiwifruit industry knows all too well. In 2010, an invasive bacterial

organism, *Pseudomonas syringae* pv. *actinidiae* (Psa) was detected in New Zealand kiwifruit and the impacts stretched far beyond just the vines themselves. The economic impact from Psa has been estimated to cost over \$ 1 billion in both direct production loss and increased on-orchard management (Tanner, 2015). This number is thought to continue to grow as regular on-orchard management is still required to minimise Psa impacts.

10. Alternatively, an incursion of Brown Marmorated Stink Bug (BMSB) will be much wider reaching than just kiwifruit. BMSB has an incredibly high risk of entry into New Zealand. The Ministry for Primary Industries (MPI) have imposed strict measures, including mandating offshore treatment for certain commodities, to try and manage the risk of BMSB arriving in New Zealand. However, these measures need to be supported by stringent border measures should we get goods arriving where offshore measures have not been maintained. Fumigation of non-conforming consignments, or where BMSB has been detected is a vital tool for managing this pest.
11. A report on the likely economic impact of BMSB on the New Zealand economy (NZIER 2017) found that BMSB would significantly reduce horticultural yields and impose surveillance and treatment costs on orchard owners. BMSB establishment would not only result in additional pesticide costs, but also reduced labour productivity, lower export prices, new machinery requirements, and additional netting requirements. The study estimated horticulture export values would fall by between NZ\$1.4 and \$3.0 billion in 2028 and between NZ\$2.0 billion and \$4.2 billion in 2038 because of the presence and impact of BMSB.
12. BMSB damage reported from kiwifruit growers offshore suggest 5-10% damage can be expected at a minimum, with up to 30% damage on the most severely impacted blocks. For the kiwifruit industry, it is imperative to have the right mitigation tools available to give New Zealand the best chance of managing BMSB at our borders, as eradicating BMSB will be difficult and long-term management in kiwifruit would be very challenging.
13. For kiwifruit, currently our primary long term management tool is exclusion netting. This involves a significant cost to our growers and currently has limited use across the industry as the establishment of netting structures on pre-existing orchards is difficult.
14. BMSB is just one example of an impactful pest, albeit a high profile one, however KVH maintain a list of over 100 organisms that could have significant impacts to our industry and fumigation can play a key role in reducing the risk of many of these.

## References

New Zealand Institute for Economic Research (NZIER) (2017). Quantifying the economic impacts of a Brown Marmorated Stink Bug incursion in New Zealand <https://nzier.org.nz/publication/quantifying-the-economicimpacts-of-a-brown-marmorated-stink-bug-incursion-in-new-zealand>

Tanner, D.J. (2015). A biosecurity incursion: the impact of *Pseudomonas syringae* pv. *actinidiae* (Psa) on the New Zealand kiwifruit industry. Acta Hort. 1105, 379-384