

Statement of non-expert evidence by submitter Lucebni Zavody Draslovka a.s. Kolin (Draslovka)

This statement of non-expert evidence is made on the Genera Ltd resource consent application to the Bay of Plenty Regional Council (BoPRC) for re-consent of their current consent RC62719 to discharge contaminants to air at the Port of Tauranga.

1. Statement of Evidence of Helen Gear

My full name is Shelagh Helen Gear

I am Regional Commercialisation Manager for Draslovka in New Zealand

2. Background

EDN was registered in New Zealand by the Environmental Protection Authority (EPA) in June 2022. Draslovka's application was rigorously assessed by both the New Zealand EPA and WorkSafe New Zealand. The controls/ requirements imposed by the two regulators were developed in accordance with current risk frameworks. The majority of the research data that backed Draslovka's application had been produced between 2000 and 2016 by recognised laboratories following GLP¹. The dispersion modelling provided in 2022 to support the application was undertaken for the Port of Tauranga using an approach agreed by three internationally recognised modellers as the most appropriate for fumigant modelling near a built up area close to the ocean.

Both regulators take their mandates to protect human and environmental health seriously and are highly recognised internationally. To inform their assessments the EPA employs toxicologists, environmental toxicologists and where necessary engages experts (nationally and internationally).

EDN use in New Zealand is controlled by the controls and requirements imposed by the EPA registration approval (HSR101529) and in the Worksafe New Zealand document titled 'Health and Safety at Work [Hazardous Substances— Requirements for Specified Fumigants] Amendment Safe Work Instrument 2022' (SWI). These documents list requirements for the use of EDN, Workplace exposure standards, record keeping, notifications, reporting and require continuous monitoring of EDN levels under the stack, around the enclosure (including the public buffer) and of individuals working onsite.

Draslovka recognises that the BoPRC is entitled under the RMA to require a discharge consent for contaminants released into the air in its region.

¹ GLP Good Laboratory practice see <https://www.oecd.org/chemicalsafety/testing/good-laboratory-practiceglp.htm>

Draslovka has reviewed the documentation released in this consenting process. Since the submission of Genera's initial application in 2019 there have been numerous documents released in this process in response to changing information. We note that some of the information quoted in early documents, including the BoPRC's s42A Report and Technical review is inaccurate. For several topics, e.g. the TEL measures for EDN, the subject has been discussed extensively in successive documents. Rather than commenting on opinions stated at each stage in these evolving conversations this document focuses on recent iterations; in particular comment is restricted to the controls that are proposed to manage the risk of fumigations.

Draslovka recognises the effort Genera has made to ensure the intent of controls documented by the BoPRC proposed controls released on the 20th January 2023 [item 4 RM19-0663 Recommended Consent Conditions (pg. 38 to 53)] are recognised while at the same time proposing pragmatic changes which will allow fumigation to occur efficiently, cost effectively and safely.

In preparing this statement Draslovka has used the controls articulated in two documents as our reference points. These documents are:

- a) RM 19-0633 JWS Planning 20th to 25th March 2023. This document lists all of the controls proposed by the BoPRC in January 2023. The document records the outcomes of discussions between Genera and the BoPRC about each control and either:
 - Leaves the control unchanged,
 - Documents an agreed rewording, or,
 - Notes where the two parties were unable to agree.
- b) Appendix A of Keith Frentz's, Statement of evidence dated 1 May 2023. This document list all the controls as per a) above, leaves some untouched and proposes changes to wording of a number of controls. The controls that will influence the use of EDN and their wording listed in full below (in Italics) are taken from that document. The numbering of the controls listed below are as per this set of controls.

Controls included in the document that were unchanged after the planning documented in document a) (above) have not been listed in full below Draslovka accepts the inclusion of these controls. Specifically controls 2.1, 3.2, 3.6, 3.7, 3.9, 4.1, 4.2, 5.2, 7.3, 11.1,12.1, 13.1 and 14.1.

Draslovka has little interest in controls for methyl bromide and phosphine and so has no opinion on the proposed controls for these fumigants described in 8.1, 8.2, 8.3, 9.1 and 9.2

Draslovka notes Genera's work in relation to EDN in its application seeking consent. Draslovka supports Genera's comments on all controls other than those discussed in sections 3 and 4 of this document where we argue that five of the proposed controls discussed in section 3 should be removed

as they duplicate EPA or Worksafe requirements and are hence not needed. While in Section 4 we request changes in the wording.

3. Request for removal of proposed controls

Draslovka requests the following five EDN specific controls are removed from the Bay of Plenty Regional Council consent as the controls are required by the EPA under approval HSR101529 or in Worksafe's SWI for EDN. Reiterating these controls in a Regional Consent is undue duplication and, in the future, would prevent any additional uses approved by these organisations being used immediately. Imposing unnecessary additional costs in terms of resources and time for all parties involved to add them to Genera's consent when they will have just been subject to assessment by our national regulators.

3.1. Removal of control 3.7 This control duplicates the requirements of a control in approval HSR101529.

The Consent Holder must ensure that ventilation of any fumigation event does not occur when an average minimum wind speed of less than 2 m/s or less is measured at the site of fumigation during at any point in the 10 minutes period prior to ventilation.

3.2. Control 10.1 This control duplicates the requirements of the SWI in section 2 Interpretation which defines the buffer zone as 50 m.

The consent holder shall identify and maintain a minimum Buffer zone in accordance with the following table. The buffer zone distances all apply from when an enclosed area is being fumigated until ventilation is concluded.

Fumigation type	Minimum Buffer zone distance
Containers	50 m
Under sheets	50 m

3.3. Control 10.2 (originally control 3.13) This control duplicates the requirements of the SWI of section 11 , associated with the ventilation requirements for EDN.

Ventilation is carried out only during the hours between sunrise and sunset,

3.4. Control 10.3 This control duplicates the requirements of the SWI of section 9 and 11 , associated with the ventilation requirements for EDN.

No ventilation of the fumigation enclosure shall occur until the concentration of fumigant within the enclosure is at or below 700ppm, in accordance with the methodology outlined in sections 9

and 11 of the Worksafe New Zealand document titled 'Health and Safety at Work (Hazardous Substances— Requirements for Specified Fumigants) Amendment Safe Work Instrument 2022'.

3.5. Control 10.4 (originally control 10.10) This control duplicates an additional control in approval HSR101529

The consent holder must ensure that the concentration of EDN does not exceed the following limits at the port boundary:

Value
TEL-24 hour 0.034 ppm

4. Change to Genera proposed controls

4.1. Control 1

The first control proposed for the consent lists the activities that may be undertaken with each fumigant at the Port of Tauranga. As mentioned above those activities listed for EDN replicate the EPA controls for EDN. Draslovka will request a reassessment of EDN once it has data on emissions from Ship holds and practical buffer zones for containers. The wording for control 1, if it remains unchanged would then require a change to Genera's consent despite approval by the EPA and Worksafe. To avoid this (and the considerable costs in time and money) Draslovka requests the following change to control 1.0.

The purpose of the 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	EDN
Ship holds	N	Y	N	As listed in EPA approval HSR101529
Under Sheets	Y	Y	Y	
Containers	Y	Y	Y	

4.2. Changes to 3.3 Monitoring Data Recording (originally control 3.5)

Draslovka has no opinion on the specific requirements listed for methyl bromide and phosphine in this control but asks that the control for EDN is removed as follows on the basis the requirements for EDN are set out in both the EPA and Worksafe Decisions:

During ventilation of a fumigant the Consent Holder shall undertake and record monitoring data (including for wind-speed and direction). Additional specific requirements for MB, EDN and PH3 are as follows:

a. For methyl bromide:

Data is to be recorded every 3 minutes from the start of ventilation until the exposure level at the monitoring location is below 0.05 ppm for at least:

- i. 15 minutes, where 7 kg or more of methyl bromide is applied in a 1-hour period; or
- ii. 3 minutes, where less than 7 kg of methyl bromide is applied in a 1-hour period.

b. For phosphine:

Data is to be recorded every 3 minutes from the start of ventilation until the exposure level at the monitoring location is 0.00 ppm for at least:

- i. 15 minutes, where 7 kg or more of phosphine is applied in a 1-hour period; or
- ii. 3 minutes, where less than 7 kg of phosphine is applied in a 1-hour period.

~~c. For EDN:~~

~~Monitor until the end of the buffer zone period which ends with the latest of the following:~~

- ~~i. at least 1 hour has lapsed since ventilation has been completed;~~
- ~~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 below that of each workplace exposure standard.~~

5. Endorsement of Genera's proposed changes to the BoPRC proposed controls

Draslovka wishes to express support for the following controls proposed by Genera in response to the BoPRC proposed controls of 20 January 2023 [item 4 RM19-0663 Recommended Consent Conditions (pg. 38 to 53)]. For the sake of consistency Draslovka recognises where appropriate it is useful to have a common control articulated for all three fumigants even though some of the requirements articulated in these controls duplicate parts of the controls imposed on EDN in HSR101529 and the SWI.

Below Draslovka has reproduced the wording (in Italics) proposed by Genera and endorses each of the changed controls.

5.1. The removal of control 3.1

5.2. Control 3.4 *Wind Speed and Direction Data* (originally control 3.6)

For monitoring and recording wind speed and direction as required during ventilation, the following shall apply:

- 1. Wind speed and direction values are to be recorded in m/s and degrees respectively, against time.*
- 2. The location of the wind data must be recorded using GPS coordinates or identified on an aerial photo.*
- 3. The recording of wind speed and direction data must start at least 10min prior to ventilation commencing.*
- 4. 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.*
- 5. The location of wind speed measurements should be within 50 m of the fumigation events, unless otherwise agreed with BOPRC. Wind ribbons, or similar, shall be used to provide a visual indicator of the direction of gas travel during ventilation.*
- 6. The wind speed and direction data must be recorded at a height not less than 2 metres from ground level, up to the maximum height of the enclosed space.*

5.3. Control 3.8 (originally control 3.10)

For all fumigation events, the Consent Holder shall actively air quality monitor air quality at the MSZ/Risk Area boundary from when the fumigant is first applied into the enclosure, until the end of application when a final check is undertaken. Should monitoring 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, ensures a leak does not result in elevated fumigant levels at or beyond the buffer zone / port boundary.

5.4. Control 3.9 (originally control 3.12).

This control currently extends the public buffer boundary for all fumigations near cruise ships to 200m (reduced from 300m after discussions in March between Genera and the BoPRC) on the basis that it would be difficult to evacuate a cruise ship in the case of an incident.

In the EPA's August 2021 updated staff report for EDN it recommended a control which would extend this buffer to 120 m in areas where a sensitive site (hospital, playground, prison, school or early child education centre) was present adjacent to the fumigation area. This proposed buffer of 120m for EDN was not considered necessary by either Worksafe nor the EPA Decision making committee and was consequently set at 50m.

Draslovka disagrees with the BoPRC proposed extension of the buffer zone to 200m and cannot understand why this is considered necessary when the EPA has recently reviewed all of the science for EDN determining a buffer for public exclusion of 50m. However, noting that log fumigations are normally not undertaken in close proximity to the cruise vessel berths Draslovka will endorse a 200m buffer on the understanding that while a buffer of 200m is not warranted for EDN a consistent measure applied to the three fumigants will make the management of fumigations when cruise ships are in port easier for port authorities to accommodate.

Consequently Draslovka is prepared to endorse the control;

Fumigation activities shall not be undertaken within 200 metres from cruise ships docked at the Port.

5.5. Control 5.1

As a minimum, during ventilation for all fumigation events other than shipping containers, during on-shore wind conditions, the Consent Holder shall undertake monitoring of fumigant levels at the landward buffer zone / port boundary directly down wind of the fumigation activity and at two additional sites at 45 degrees either side of the directly downwind location, or as close as reasonably practicable to these locations.

As a minimum, during ventilation of shipping containers during on-shore wind conditions, the consent holder shall undertake monitoring at the landward buffer zone / port boundary directly downwind of the fumigation activity, or as close as reasonably practicable to this.

In the event that the wind direction is towards the harbour (off-shore) the monitoring locations shall be at the seaward boundary of the wharves, or as close as reasonably practicable to this, 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 and the potential for interference or cross sensitivities from other substances, for example VOCs (volatile organic compounds) when monitoring methyl bromide.

Where required, identified buffer zone / port boundary monitoring locations should be adjusted to capture areas where the greatest risk of public exposure is identified.

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.

Where an extrapolated result is required and there is disagreement between the 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.

5.6. Control 5.3 (originally control 5.6)

All data gathered as part of the implementation of this resource consent shall be retained for a minimum of two years and, unless required by other conditions, shall be provided to the Bay of Plenty Regional Council on request.

5.7. Control 5.4 (originally control 5.7)

Within two months of the commencement of this resource consent, the Consent Holder shall provide to the Bay of Plenty Regional Council for certification, a Fumigation Monitoring and Reporting Plan (FMRP). At a minimum, the FMRP shall include the following:

- a. The type of instrumentation to be employed for each fumigant.*
- b. The reasons for selecting the identified instrumentation and an assessment of other equipment available, to ensure the equipment being utilised represents the best practicable option for the circumstances of its use. This shall include:*
 - Information on the limits of detection of the selected instrumentation.*
 - Information on the sensitivity of the selected instrument to the target fumigant(s), and any potential interferences.*
 - If using passive (diffuse) instrumentation, information on the suitability of this equipment compared to active (pumped) instrumentation.*
- c. Procedures for calibration and maintenance of the selected instrumentation.*
- d. Where the monitoring devices do not directly monitor the fumigant being utilised; methods for benchmarking the performance of the selected instruments against reference methods, such as the use of canisters and/or Fourier transform infrared (FTIR) spectroscopy.*
- e. The methodology for monitoring including the identification of monitoring locations.*
- f. The methodology for undertaking the monitoring, specifically including:*
 - Monitoring at the edge of the buffer zone / port boundary downwind from the fumigation site.*
 - Sampling within the enclosed space prior to ventilation (EDN).*
 - The applicability of measuring the fumigant concentration within the enclosure generally in accordance with the methodology outlined in sections 9 and 11 of the Worksafe New Zealand document titled 'Health and Safety at Work (Hazardous*

Substances— Requirements for Specified Fumigants) Amendment Safe Work Instrument 2022 (for EDN only)

For the avoidance of doubt, monitoring of fumigation activities shall include:

- *Monitoring of fumigant concentrations within the enclosed space immediately prior to ventilation (EDN).*
- *Downwind monitoring at the Port boundary or as close as is reasonably practicable to this, or another location identified as the highest public exposure risk, to determine compliance with the relevant TEL at the buffer zone / port boundary.*

5.8. Changes to 5.5 (originally control 10.1)

The certified FMRP shall be updated as required and specifically to address any primary change to the operation or onsite conditions. The reviewed FMRP shall be provided to the Bay of Plenty Regional Council for recertification For the avoidance of doubt, until the certification or recertification process is complete the immediately preceding equivalent plan shall be deemed to remain in effect.

5.9. Changes to 5.6 (originally control 5.8)

If the parties cannot agree on the certification or recertification of the FMRP, the dispute shall be referred to arbitration undertaken by a suitably qualified and experienced dispute resolution professional agreed by both parties.

5.10. Changes to 5.7 (originally control 5.9)

All fumigation monitoring and reporting is to be undertaken in accordance with the certified FMRP.

5.11. Changes to 5.8 (originally control 5.10)

During years 4 and 9 following the commencement of this resource consent, the Consent Holder shall engage an independent suitably qualified and experienced expert agreed by the Bay of Plenty Regional Council, to provide a report that investigates whether the existing fumigation management and monitoring systems still represent the best practicable option. This report shall consider and make recommendations as to the following:

- *Verification of contaminant concentrations within enclosures prior to ventilation (EDN).*
- *Verification of fumigant concentrations measured at the buffer zone / port boundary.*
- *The appropriateness of the monitoring devices used.*
- *Calibration and operation of all monitoring devices and their accuracy.*

- *The effectiveness of the risk management methodology associated with the use of fumigants and the extent that best industry practice has been adopted.*
- *The application of recapture technology for MB.*

If it is concluded by that review that the best practicable option has been redefined, the Bay of Plenty Regional Council may review the conditions of the resource consent in accordance with section 128 of the RMA, or request that the consent holder seek a change to the conditions pursuant to section 127 RMA.

5.12. Addition of Control 5.9

If the parties cannot agree on an auditor or the recommendations of the audit, the dispute shall be referred to arbitration undertaken by a suitably qualified and experienced dispute resolution professional agreed by both parties.

5.13. Control 6.1

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.

5.14. Control 7.1

The Consent Holder shall keep records of all fumigation events undertaken, and as a minimum, shall include the following specific information•

- *Job number;*
- *Name of person applying the fumigant;*
- *Date/time of when a) the fumigant was applied, b) when recapture commenced (if applicable) and c) when ventilation commenced (if applicable);*
- *GPS reading of the most downwind corner of fumigation enclosure. GPS readings should also be provided for the location of the fumigant monitoring equipment. GPS data should be provided in NZTM - New Zealand Transverse Mercator format;*
- *Detailed type of enclosed space fumigated e.g. under sheet, 40 ft container; ship hold;*
- *The capacity of the enclosed space;*
- *Type of product being fumigated;*
- *The amount of fumigant introduced in the enclosed space at the beginning of fumigation and any top ups used;*
- *The amount of fumigant in the enclosed space's head space at the end of the fumigation phase (if applicable);*
- *The amount of fumigant in the enclosed space's head space at the end of the recapture phase (if applicable); and*

- *The recapture percentage for each event, as a percentage showing the calculations (if applicable).*

5.15. Control 7.2

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.

6. Notification of incorrect information submitted into the process

Most information / data provided about EDN in the application from Genera is correct. However, there are two areas other than the proposed controls discussed above that Draslovka is compelled to comment on since they could influence discussions at the hearing. These are:

6.1. Health Risk of EDN Exposure

In the discussion of the health risks associated with EDN exposure Mr Frenz stated in his statement of evidence submitted on 1 May 2023:

“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/m³ 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)”.

Draslovka wishes to inform the Commissioners that APVMA updated its approval for EDN use in Australia in February 2023 permitting:

- the use of EDN in Containers, under Sheets and in Ship holds,

- a maximum allowable concentration to 120 g/m³,
- increasing the loading factor to 60%,and,
- removing the liquid scrubbing system on the condition that fumigation ventilation phase when the free EDN concentration is consistently below 700 ppm.

Please note EDN is also registered for use as a soil fumigant in Australia.

6.2. *Undue emphasis of Bruce Graham's report on air dispersion modelling of EDN*

During the EDN registration process two air dispersion models for EDN fumigations at the Port of Tauranga, prepared by Sullivan Environmental Consulting, Inc (SEC) based in Virginia, USA, were submitted by Draslovka into the process. The first in 2018² modelled fumigation at 150 gm/m³ of EDN and the second report provided in March 2020³ modelled fumigation at 120 gm/m³. In addition, WorkSafe commissioned their own air dispersion modelling in 2019 for EDN at the Port of Tauranga from Todoroski Air services⁴, Sydney, Australia.

In 2018 the EPA commissioned a review of the 2018 modelling by Dr Bruce Graham⁵ (Graham Environmental Consulting Ltd, Auckland) in which he expressed a number of concerns about the validity of inputs into SEC's 2018 report. The two models prepared in 2020 considered Dr Graham's comments and where appropriate made changes to the modelling inputs. Draslovka provided information about the changes and links to the appropriate documents in the EPA registration process documenting how Dr Graham's concerns were addressed. This information was included in Draslovka's submission to the BoPRC on 16th November 2020⁶.

Three comments are made in the two Bay of Plenty Regional Council reports⁷ released in January 2023 quoting comments from Dr Graham's report. No comment is made about either of the modelling reports undertaken in 2020 or their acceptance by EPA and WorkSafe when making their decisions. Draslovka wishes to express concern at the apparent oversight of these critical reports and hence lack of balance in the BOPRC reports. We wish to draw to the Commissioners' attention to the fact the controls developed by WorkSafe and the EPA have taken the results of the later modelling addressing Dr Graham's concerns into account.

We ask that the Commissioner to take this into account when considering Genera's application.

² [EDN Modeling Report August- 2018.pdf\(PDF, 1.2 MB\)](#)

³ [APP2028804_EDN_modeling_25-3-2020.pdf\(PDF, 8.9 MB\)](#)

⁴ [APP202804_Todoroski_Air_Sciences_Air_dispersion_modelling_ethanedinitrile.pdf\(PDF, 15 MB\)](#)

⁵ [Graham report April 2018.pdf\(PDF, 181 KB\)](#)

⁶ [RM19-0633 Genera Limited - Hearing Agenda](#) page 613

⁷ [RM19-0633 Genera Limited - Hearing Agenda](#) pages 1 and 53

Helen Gear

29/5/2023